Hydrogeologic Investigation Report
Underground Injection Control Wells
HF Sinclair Navajo Refining LLC

Submitted to

New Mexico Energy, Minerals, and
Natural Resources Department
Oil Conservation District

Prepared by

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Executive Summary

On behalf of HF Sinclair Navajo Refining LLC (HFSNR), Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this report for a hydrogeologic investigation in Eddy County, New Mexico at four underground injection control (UIC) wells: WDW-1 (S-31-17S-28E), WDW-2 (E-12-18S-27E), WDW-3 (N-01-18S-27E), and WDW-4 (N-01-18S-27E).

The project was performed as part of the permitting requirements at the request of the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) Oil Conservation Division (OCD) to determine the presence or absence of underground sources of drinking water (USDWs) at four UIC wells. The investigation was conducted in two phases to determine whether groundwater was encountered in significant quantities. If groundwater was encountered during drilling, monitor wells would be completed and sampled.

The first phase, in 2024, advanced three borings to 150 feet below ground surface (bgs). The second phase, in 2025, advanced one boring to 500 feet bgs. The first phase focused on the possibility of shallow groundwater being present in a perched aquifer and the second phase investigated to 500 feet bgs for perched or regional groundwater.

At WDW-1, the second phase was originally delayed due to access issues with a third party; therefore, an investigation was not completed at this site during the initial hydrogeologic investigation. Before the field work for the second phase began, OCD and HFSNR agreed that the investigation would drill to 500 feet bgs.

For the first phase, boreholes were drilled at three UIC well locations: WDW-2-BH-1, WDW-3-BH-1, and WDW-4-BH-1. Cascade Environmental® (Cascade) used a sonic drill rig for collecting soil cores at 5-foot intervals to a total depth of 150 feet bgs for evaluation of lithology and water content by the on-site DBS&A geologist. At the request of OCD, boreholes WDW-2-BH-1 and WDW-3-BH-1 were deepened to 160 feet bgs.

Two borings (WDW-2 and WDW-3) were advanced into the Salado Formation and continued into the Tansill Formation. The boring at WDW-4 was advanced into the Tansill Formation. The lithology encountered was predominantly interbedded clay and anhydrite ($CaSO_4$), with minor amounts of siltstone and dolomite. The lithologies observed likely have limited permeability; therefore, movement of groundwater will be limited by the low permeability of the geologic units and the anisotropic nature of the interbedded units.

Groundwater in a perched or regional aquifer was not encountered in any of the borings, so no significant water-bearing zones were identified. Therefore, monitor wells were not installed and water quality samples were not collected.

One thin siltstone layer was observed with potential saturation in WDW-3-BH-1 at 80 feet bgs. The borehole was evaluated by allowing the borehole to remain open overnight (approximately 15 hours), and no water was detected in the shallow boreholes. This apparent saturation was not representative of a saturated water-bearing zone, and was determined to be an artifact from sonic drilling, which requires the addition of some water while advancing the core barrel and drill string.

In April 2025, second phase activities at UIC well WDW-1 were performed once permission to access the site for drilling and construction had been granted. The lithology was predominantly interbedded clay and anhydrite, with minor amounts of siltstone and dolomite. A water-bearing zone was encountered at approximately 308 feet bgs in a saturated gravelly sand unit. Drilling continued to a total depth of 500 feet bgs, at which point a monitor well, WDW-1-MW-1, was installed within the only significant water-bearing zone identified, with screen across the gravelly sand at 308 feet bgs. The groundwater elevation rose about 34 feet above the water-bearing unit, indicating artesian conditions in the aquifer.

Water quality samples were collected from the monitor well. Initial and first-quarter monitoring results indicate that the groundwater is brackish, with total dissolved solids (TDS) concentrations of 4,500 and 4,600 milligrams per liter (mg/L). The samples do not appear to be a mixture of effluent and local groundwater based on chloride and sulfate concentrations. WDW-1-MW-1 will continue to be monitored quarterly to support a more comprehensive understanding of long-term water quality dynamics.

At WDW-1-MW-1, analyses of hydrogeologic conditions, hydraulics, and water chemistry indicate that UIC well WDW-1 has not impacted the aquifer encountered in the Tansill Formation.

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this hydrogeologic investigation report on behalf of HF Sinclair Navajo Refining LLC (HFSNR) at the request of the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) Oil Conservation Division (OCD). OCD required HFSNR to install groundwater monitor wells at each of HFSNR's four permitted and operational UIC wells: WDW-1, WDW-2, WDW-3, and WDW-4.

Documentation and analysis are presented in this report for borings WDW-1-MW-1, WDW-2-BH-1, WDW-3-BH-1, and WDW-4-BH-1. The investigation was conducted in two phases to determine whether groundwater was encountered in significant quantities. The WDW-1 location was initially inaccessible due to pending land access permissions, and these permissions were obtained in April 2025, allowing the investigation to proceed. The four UIC well locations are presented in Figure 1. Groundwater investigation borehole locations are shown on Figures 2a through 2d.

The hydrogeologic investigation examined the geologic strata for any water-bearing unit downgradient of each UIC well (WDW-1, -2, -3 and -4) to determine the presence of saturated conditions. The hydrologic investigation occurred to depths of 500 feet bgs at WDW-1, 160 feet bgs at WDW-2 and WDW-3, and 150 feet bgs at WDW-4. Boreholes and the single monitor well were completed as described in the work plan approved by OCD on April 20, 2023 (Appendix A). This hydrogeologic investigation met requirements as stated in Condition 2B of the UIC discharge permits (UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4).

1.1 Regulatory Framework

HFSNR is permitted for operation of UIC Class I non-hazardous waste UIC wells WDW-1, WDW-2, WDW-3, and WDW-4 under discharge permits UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4, with approval by OCD under the rules governing underground injection (Section 20.6.2.5000 of the New Mexico Administrative Code [20.6.2.5000 NMAC]). OCD approved the current discharge permits pursuant to 20.6.2.3109A NMAC.

Information regarding the UIC WDW wells is provided in Appendix B. The wells are identified as follows:

- WDW-1 UICI-8-1 (API#: 30-015-27592) is located approximately 11 miles east-southeast of Artesia on Hwy 82 from Hwy 285, and about 1 mile south of Hilltop Road. UL: S, Section 31 Township 17 South, Range 28 East, 660 FSL 2310 FEL Lat. 32.78517, Long. –104.21376, NMPM, Eddy County, New Mexico.
- WDW-2 UICI-8-2 (API#: 30-015-20894) is located approximately 10.5 miles east-southeast of Artesia on Hwy 82 from Hwy 285, and about 3.3 miles south of Hilltop Road. UL: E, Section 12 Township 18 South, Range 27 East, 1980 FNL 660 FWL Lat. 32.76366, Long. –104.23848, NMPM, Eddy County, New Mexico.
- WDW-3 UICI-8-3 (API#: 30-015-26575) is located approximately 10.5 miles south-southeast of the intersection of I-285 and Hwy 82, or approximately 2.75 miles south of Hwy 82 and CR 225. UL: N, Section 1 Township 18 South, Range 27 East, 790 FSL 2250 FWL Lat. 32.77121, Long. –104.23328, NMPM, Eddy County, New Mexico.
- WDW-4 UICI-8-4 is located approximately 8.5 miles east-southeast of Artesia on Hwy 285 and Hwy 82, on the north side of Hwy-82. UL: N, Section 23 Township 17 South, Range 27 East, 1,215 FSL 2,445 FWL, Lat. 32.81581, Long. –104.25003, NMPM, Eddy County, New Mexico.

1.2 Existing UIC Wells

1.2.1 Facility Description

HSFNR is a petroleum refinery located at 501 East Main Street in Artesia, New Mexico. The UIC wells are used to inject treated, industrial, non-hazardous fluids produced from the Artesia Refinery in Artesia, New Mexico. Treated effluent from the process units, cooling towers, boilers, streams from water purification units, desalting units, and recovered and treated groundwater are transmitted via subsurface pipeline from the refinery approximately 10 miles east-southeast before injection into each WDW well. The effluent is a high total dissolved solids (TDS) concentrate, which is injected into each WDW well.

1.2.2 Discharge Permits WDW-1, WDW-2, WDW-3 and WDW-4

On December 11, 2017, OCD issued "Approval of Discharge Permit Renewals for WDW-1 (UICI-8-1), WDW-2 (UICI-8-2), and WDW-3 (UICI-8-3) for Class I (Non-hazardous) Waste Injection Wells HollyFrontier Navajo Refining, LLC, Eddy County, New Mexico" (OCD, 2017a). On December 14, 2017, OCD issued "Approval of Discharge Permit Renewals for WDW-4 (UICI-8-4)

for Class I (Non-hazardous) Waste Injection Wells HollyFrontier Navajo Refining, LLC, Eddy County, New Mexico" (OCD, 2017b).

1.3 Permit Conditions and Need for Project

1.3.1 Section 2.B

Groundwater monitor wells are required under Section 2B of each discharge permit (as named in Section 1.2.2). Section 2.B states the following:

> **Groundwater Monitoring Wells.** At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from [WDW-1, WDW-2, WDW-3, WDW-4]. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. The Permittee shall propose a monitoring frequency with analytic and monitoring parameters to detect potential groundwater contamination.

Per this permit requirement, drillers were mobilized for work to be completed as directed in the approved work plan (Appendix A). Any potential UIC well impacts to groundwater from a spill, leak, or accidental discharge would be expected near ground surface at a depth of 100 to 150 feet below ground surface (bgs) as stated in the approved discharge permits. Borings were drilled to at least 150 feet bgs; borings at WDW-2 and WDW-3 were drilled to 160 feet bgs, while the boring at WDW-1 was drilled to 500 feet bgs.

1.3.2 Scope of Work Development

This report includes a detailed description of the groundwater monitor well borehole investigation as part of OCD's request and UIC discharge permits (UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4). The work met requirements as stated in discharge permits Section 2.B, the work plan (Appendix A), and OCD e-mailed instructions (e-mail from Carl Chavez on September 13, 2022), as follows:

> At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-2. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. (Discharge permit Section 2B)
>
> Objective: Place a groundwater monitoring well within 50 ft hydrogeologically [later OCD approved extending to a 75-foot radius] downgradient from each WDW injection well location with a quarterly monitoring schedule consistent with related permit reporting. Monitor well

construction shall be as prescribed by the current permit or as approved by the OCD based on site-specific conditions. Provide well logs with water quality (i.e., General Chemistry, TPH and BTEX) data from completed and/or constructed MWs to complete the WQCC Public Notice process.

DBS&A completed the hydrogeologic investigation in two phases. The first phase included drilling at WDW-2, WDW-3, and WDW-4 (Figures 1 and 2a through 2c). The second phase of the investigation at the WDW-1 (Figures 1 and 2d) location was completed in 2025. For this project, OCD defined a significant water-bearing zone as a lithologic unit capable of producing a sufficient volume of water that could be sampled from a monitor well.

During the field program, all work conducted was approved and communicated with OCD.

2. Hydrogeologic Setting

The HFSNR UIC wells are located east of Artesia, New Mexico, which lies in the Pecos River valley. The Pecos River is a perennial stream with numerous ephemeral washes that drain the surrounding area. The region is semiarid, with a majority of rain occurring during the summer monsoon season.

The geology of this area is dominated by Paleozoic sedimentary rocks that dip east into the subsurface with outcrops forming mesas. Much of the outcropping bedrock is covered with aeolian sand, soil, and alluvium. The Pecos River has created a sediment-filled valley containing alluvial and fluvial deposits.

Water resources in the area include surface water of the Pecos River and groundwater in three regional aquifer systems that may contain USDW. The major aquifer systems include the following:

- Pecos Valley Alluvium Aquifer
- Roswell Artesian Basin (RAB) Aquifer
- Rustler Aquifer

In the area of southeastern New Mexico, the Capitan Limestone and the Santa Rosa Sandstone are important aquifers. However, these geologic units do not occur at or nearby the investigated UIC wells, so characteristics for these aquifers are not presented.

The following subsections provide descriptions of the physiography, geology, and hydrogeology of the region and UIC wells study area.

2.1 Physiography of Area

The landscape is dominated by the Pecos River near the town of Artesia, with the Sacramento Mountains to the west and mesas armored with a caliche caprock to the east. The Pecos River Valley is an area of extensive agricultural development (Welder, 1983) due to surface water supplies from the Pecos River and groundwater from the alluvial aquifer in the Pecos Valley and the RAB.

The eastern slope of the Sacramento Mountains is known as the Pecos Slope, and it grades into the Pecos Valley (Kelley, 1971). Along the Pecos Slope, geologic units including the Yeso Formation, San Andres Limestone, and Glorieta Sandstone outcrop and dip shallowly eastward beneath the river and the UIC wells study area. East of the Pecos Valley is the Llano Estacado or staked plains with the highest elevation of about 4,290 feet above mean sea level (feet msl) at the Caprock on mesas near Maljamar, New Mexico. East of the Pecos River, Paleozoic bedrock dips shallowly toward the east creating a series of mesas. Bedrock strikes or outcrops in north-south bands in the area (Figure 3).

The Pecos River flows southward creating a wide valley of alluvium; as it has moved eastward in recent geologic time due to the uplift of the Sacramento Mountains, it has caused a regional shift in the topography. The elevation of the Pecos River east of Artesia, New Mexico is approximately 3,330 feet msl; the highest peak of the Sacramento Mountains, Sierra Blanca, has an elevation of 11,973 feet msl. The ground surface elevation at the UIC well sites is about 3,600 feet msl.

Weather data are available from the National Weather Service (www.weather.gov) for Artesia, New Mexico. From 1905 to the present, annual precipitation amounts range from a minimum of about 4 inches to a maximum of 25 inches, with a mean value of about 11.6 inches; the majority of rainfall occurs during summer monsoon events. Mean temperatures range from a minimum mean value of 4°F to a maximum mean value of 106°F, with an overall annual mean value of 60°F. The resulting climate is considered semiarid, and is typically dry and warm.

2.2 Geology of Area

Surface geology of the area is dominated by Paleozoic bedrock units consisting of marine sedimentary rocks that have Holocene sediments deposited upon the older rocks (Figure 3).

Rock units of interest vary in geologic age from the oldest Ordovician Ellenburger Formation to the youngest Quaternary alluvium of the Pecos Valley (Comer, 1991) (Table 1 and Figure 3). Geologic names are discussed in this report using southeastern New Mexico stratigraphic nomenclature; equivalent units may have different names in the Sacramento Mountains and elsewhere in New Mexico.

There are very few geologic structures in the vicinity of Artesia, New Mexico. West of the site is the Vacuum-Artesia Arch, an anticlinal fold. There are no major faults near the UIC wells study area, and there is some fracturing of brittle units, usually due to the dissolution and collapse of older evaporite units.

2.2.1 Geologic History

The geologic history of the area is dominated by marine depositional environments. The majority of the rocks from the Ellenburger Formation to the Santa Rosa Sandstone are from marine and near-marine environments like the San Andres Limestone with lesser amounts of subaerial, often fluvial deposits like the Abo Formation.

The Delaware Basin is an important geologic feature of the area extending from southeastern New Mexico into western Texas, and it is a part of the larger Permian Basin. During the Paleozoic Era, the area was an extensive marine environment including several depositional environments: offshore reef, deep marine, and near shore salt flats (Powers et al., 2006). The Delaware Basin covers over 17,000 square miles and contains over 24,000 vertical feet of sedimentary rocks that host natural resources such as petroleum, gas and water (Land, 2003). The Northwest Shelf extends across southeastern New Mexico and contains a thinner sequence of sedimentary rocks (Land, 2003). The Capitan Reef, or Capitan Limestone, is a massive limestone deposit that is exposed in the Guadalupe Mountains and dips into the subsurface in southern Eddy County, New Mexico and west Texas. The limestone formation is a water source for Carlsbad, New Mexico. The Capitan Limestone is not present near Artesia, New Mexico at the UIC well sites investigated for this study.

Northwest of the marine environment where the limestone was deposited, a depositional environment ranging from a saline marine lagoon to salt pan-mudflats accumulated sediments on the Northwestern Shelf or shallow margin of the Delaware Basin (Powers et al., 2006). Rocks formed on the back reef and shelf away from the Capitan Reef include formations in the Artesia Group. Younger rocks in the Salado and Rustler Formations were deposited across the entire region.

The youngest bedrock in the area is the Triassic Santa Rosa Sandstone and it outcrops to the east of the UIC wells study area. Deposition and rock formation continued through the Cretaceous Period with the Mesa Verde Formation being present in southeastern New Mexico. These rocks have been removed by weathering and erosion along the Pecos Slope to the Llano Estacado. The Paleozoic rocks have been buried to depths over 1 mile allowing for weathering and diagenesis reactions to occur including cementation, evaporite dissolution, evaporite cementation, and carbonate formation.

2.2.2 Stratigraphy and Lithology of Rock Units

In the UIC wells study area, the stratigraphic sequence extends from the Devonian to the Quaternary (Table 1). The conceptual hydrogeologic cross section presented in Figure 4 was drawn based on the geology encountered during the drilling of WDW-4 and WDW-1, as well as the geologic data in Kelley (1971), and Mercer (1983). Due to the depth of the cross section and the need to display the units, the vertical exaggeration is 10 times the horizontal scale. This exaggeration also impacts how the geologic dip is displayed, and makes the dips appear steeper than observed in the field. The bedrock is dipping to the east at about 1.5° to 2° (Kelley, 1971), and is exaggerated to about 15° on the cross section. UIC wells WDW-1, WDW-2, WDW-3, and WDW-4 have been projected north onto the cross section, as indicated in Figure 4. By projecting wells WDW-1, WDW-2, and WDW-3 over 2 miles to the north, the geologic contact between the Salado and Tansill Formations is crossed, and the wells do not appear to intersect the Salado Formation on the cross section (Figure 4).

Stratigraphy and lithology are presented from the Rustler Formation to the Ellenburger Formation.

The Rustler Formation is a bedrock unit that consists of interbedded mudstone and gypsum. Halite may occur in subsurface, but may be dissolved near ground surface (Kelley, 1971). The clay and evaporites were deposited on salt mud flats (Powers et al., 2006). An influx of fresh water across the mudflat resulted in deposition of two dolomite units. These are the Magenta Dolomite and the Culebra Dolomite. The Culebra Dolomite is at the base of the formation and, due to permeability related to fracturing, is often considered an aquifer. The Rustler Formation is about 400 feet thick in the UIC wells study area.

The Salado Formation consists of interbedded mudstone and gypsum with minor amounts of dolomite (Kelley, 1971). Salt and potash minerals occur in the subsurface. The Salado Formation is about 100 feet thick in the UIC wells study area.

The Artesia Group includes several formations (in descending order): the Tansill, Yates, Seven Rivers, Queen, and Grayburg Formations. These formations were deposited on the Northwest Shelf and include clay beds and evaporite beds (Kelley, 1971). The Artesia Group is considered a confining unit for the Roswell Artesian Aquifer.

The Tansill Formation is mostly dolomite transitioning to evaporite beds of gypsum toward the north. In the UIC wells study area, the lithology is interbedded gypsum and clay, with minor thin dolomite beds with a thickness of about 250 feet.

The Yates Formation has several lithologic types, including interbedded sandstone, siltstone, dolomite, and gypsiferous siltstone. In the UIC wells study area, the formation is mostly interbedded gypsum with thin dolomite beds about 1 to 2 feet thick (Kelley, 1971). The Yates Formation is about 90 feet thick in the UIC wells study area.

The Seven Rivers Formation forms the bluffs on the east side of the Pecos River Valley, and consists of interbedded gypsum, mudstone, and thin beds of dolomite (Kelley, 1971). The formation is about 580 feet thick in the UIC wells study area.

The Grayburg and Queen Formations are not differentiated in the geologic data for WDW-4; however, they are distinguished in the WDW-1 well completion report and log (Appendix C), and have accordingly been delineated in the cross section. Both formations consist of interbedded sandstone and mudstone with lesser amounts of dolomite (Kelley, 1971). Some interbedded gypsum beds may be present in the UIC wells study area. The Queen Formation is about 285 feet thick and the Grayburg Formation is about 500 feet thick.

The San Andres Limestone and Glorieta Sandstone are often combined as an aquifer system. The San Andres outcrops along most of the Pecos Slope, and both formations dip eastward into the subsurface west of the Pecos Valley. The San Andres Limestone consists of three members in southeastern New Mexico (Kelley, 1971) including the following:

- The Fourmile Draw Member consists of thin-bedded dolomite, gypsum, mudstone, and sandstone.
- The Bonney Canyon Member consists of thin-bedded dolomite and limestone.
- The Rio Bonito Member consists of thick-bedded dolomite, limestone, and sandstone.

Depending on the area and nomenclature, the Glorieta Sandstone and Rio Bonito Member are equivalent units. Based on the geology of WDW-1 and the geology of WDW-4, the combined thickness of the San Andres Limestone and Glorieta Sandstone ranges from 2,000 to 4,400 feet.

The Yeso Formation consists of sandstone, siltstone, dolomite, and gypsum. When including the Tubb Formation, the combined thickness is about 750 feet.

The Abo Formation is one of the terrestrial units consisting of fluvial sandstone, siltstone, and mudstone. The Abo Formation is almost 1,200 feet thick in the UIC wells study area.

The Wolfcamp Formation is found in the subsurface throughout the Permian (Delaware) Basin. It consists of deep marine beds of calcareous shale interbedded with siliciclastic turbidite deposits (U.S. DOE, 2022). The Wolfcamp Formation is a major host for petroleum production in west Texas. The Wolfcamp Formation is about 1,220 feet thick in the UIC wells study area. WDW-1, WDW-2 and WDW-3 are used to inject into the Lower Wolfcamp Formation.

The Cisco Group consists of interbedded limestone and shale beds with lesser amounts of sandstone (Eargle, 1960). The Cisco Group is about 960 feet thick in the UIC wells study area.

The Canyon Group consists of interbedded limestone and shale beds (Eargle, 1960). The Canyon Group is about 230 feet thick in the UIC wells study area.

The Strawn Group consists of interbedded limestone and shale beds with lesser amounts of sandstone (Eargle, 1960). The Strawn Group is about 550 feet thick in the UIC wells study area.

The Chester Formation is a series of marine shales and limestones with minor sandstones. The Chester Formation is about 100 feet thick in the UIC wells study area.

The Mississippian Group and Woodford Shale act together as the confining unit for WDW-4. The Mississippian Group is an interbedded mix of limestone and shale with numerous chert beds (Lloyd, 1949). The Woodford Shale is described as a black shale interbedded with dolomite and chert (Lloyd, 1949). The combined thickness of these units is about 500 feet in the UIC wells study area.

The Devonian Section is the injection zone for WDW-4. The rocks are mostly limestones and dolomites (Lloyd, 1949). The Devonian Section is about 300 feet thick in the UIC wells study area.

The Simpson Group consists of interbedded limestone, dolomite, and shale with some sandstones. The Simpson Group is about 100 feet thick in the UIC wells study area.

The Ellenburger Formation is an Ordovician unit of interbedded limestone and dolomite units. The unit is reported to be 445 feet thick in Lea County, New Mexico (Lloyd, 1949).

2.3 Hydrology of Area

The UIC program is designed to protect groundwater in USDWs near injection wells. In the UIC wells study area, groundwater may occur in regional or perched aquifers. In New Mexico, 20.6.2.7.G NMAC defines groundwater as "interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply." An aquifer is defined as "a saturated permeable geologic unit that can transmit significant quantities of water under ordinary hydraulic gradients (Freeze and Cherry, 1979)." Regional aquifers may occur over a large area within one or more geologic units. A regional aquifer may be confined between lower-permeability units that limit connectivity to other aquifers, or they may be unconfined occurring under water table conditions. A perched aquifer is typically of limited extent compared to regional aquifers and under water table conditions. Regional and perched aquifers may be USDWs.

The U.S. EPA (2012) defines an USDW as an aquifer that meets the following criteria:

- Supplies any public water system
- Contains a quantity of groundwater sufficient to supply a public water system, and
  - Currently supplies drinking water for human consumption or
  - Contains a TDS concentration below 10,000 milligrams per liter (mg/L) and is not an exempted aquifer

2.3.1 Occurrence of Groundwater

In the vicinity of Artesia, New Mexico, groundwater occurs in several regional aquifer systems including the following:

- Pecos Valley Alluvium Aquifer
- RAB Aquifer
- Rustler Aquifer

Local or perched aquifers may occur near recharge areas where permeable geologic units outcrop. Near the UIC wells study area, the Tansill Formation of the Artesia Group may receive sufficient recharge within fractured dolomite or siltstone units to form a perched aquifer. These permeable units are of limited thickness and interbedded with gypsum, so the perched aquifer may provide a limited supply of water.

Near the UIC wells, the bedrock contains many evaporite minerals, like halite (NaCl) and anhydrite ($CaSO_4$). The halite units can account for tens to hundreds of feet of these formations, and the halite minerals are readily weathered and dissolved by infiltrating precipitation and groundwater, resulting in thinning of the total thickness of these geologic units. The dissolution may lead to collapse of the bedrock forming sinkholes. As these minerals dissolve, they create brackish groundwater. Locally, rocks may be brecciated due to localized collapse following halite dissolution, and the breccia fabric may be filled with a gypsum cement formed during diagenesis (Holt, 1997; Powers et al., 2006).

2.3.1.1 *Review of Available Hydrogeologic Data*

Hydrogeologic data were reviewed from available data collected while drilling the UIC wells, as well as UIC permits and available literature.

2.3.1.1.1 *UIC Wells*

UIC wells WDW-1, WDW-2 and WDW-3 are completed at a depth of 7,450 to 9,016 feet bgs in an injection zone within the lower Wolfcamp, Canyon, and Cisco Formations that is confined by the Upper Wolfcamp, Abo, and Yeso Formations from 4,000 to 7,450 feet bgs.

WDW-4 is completed in an injection zone of Devonian bedrock at a depth of 10,220 to 10,885 feet bgs that is confined by the Woodford Formation and Mississippian rocks.

The UIC wells do not penetrate rocks that host two of the three regional aquifers identified in Section 2. The wells are about 4 miles east of the Pecos Valley Alluvium Aquifer. The Rustler Aquifer outcrops east of the wells and dips away from the wells to the east. Thus, only the Roswell Artesian Aquifer would be located in the vicinity of the UIC wells.

The UIC wells—WDW-1, WDW-2, WDW-3, and WDW-4—penetrate the Grayburg and Queen Formations of the Artesia Group, which are part of the regional Roswell Artesian Aquifer (Figure 4). The data from WDW-4 drilling state that "usable" water was encountered in the Grayburg Formation, but no information about quantity or quality is available.

These wells also penetrate the Tansill Formation of the Artesia Group, which may host a perched aquifer in fractured, permeable portions of the aquifer.

2.3.1.1.2 *Local Wells*

Local wells that are permitted by the New Mexico Office of the State Engineer (OSE) were compiled by Petrotek (2022), and they are shown on the geologic map (Figure 3). Many of the

wells have limited information, so water level data are sparse. Water quality data are not available from the OSE records.

Several wells are located near the UIC wells and are discussed in this section. The wells are identified with a water rights number that begins with RA for Roswell-Artesia basin and a sequential number. Some of the well have additional identifiers including "POD" for point of diversion and a sequential number or "S" for a supplemental well.

One livestock well, RA-12456 POD1, near WDW-4 has a reported water level of 92 feet bgs and total depth of 220 feet bgs. Based on the well location, the well appears to be completed in the Tansill Formation of the Artesia Group.

Well RA-4554, near WDW-4, was drilled in 1962 and has a reported water level of 40 feet bgs and total depth of 220 feet bgs. Based on this well's location, it appears to be completed in the Tansill Formation of the Artesia Group. This well's OSE permit states that the well's purpose was for the "prospecting or development of a natural resource."

The Riverside Mutual Domestic Water Association has four OSE permits (RA-1716, RA-7844, RA-7844 EXPL, and RA-1716 S) for locations west of WDW-4 and east of the Pecos River (Petrotek, 2022). The permits indicate that the wells have total depths of 1,200 to 1,300 feet; therefore, they appear to be completed in the Roswell Artesian Aquifer, probably in the Grayburg Formation and/or San Andres Limestone.

2.3.1.2 Regional Aquifer Systems

The three regional aquifer systems near the site are described in this section.

The RAB Aquifer system is recharged by precipitation and snowmelt in the Sacramento Mountains to the Yeso Formation. As the groundwater travels through the Yeso Formation down the mountains and the Pecos Slope, the groundwater leaks upward in the Glorieta Sandstone and San Andres Limestone. Groundwater continues flowing toward the Pecos River Valley under confined conditions, with geologic units of the Artesia Group acting as confining units (Welder, 1983). When the groundwater was first developed, wells would flow artesian at the ground surface. Water does leak upward from the Roswell Artesian Aquifer into the Pecos Alluvium Aquifer (Welder, 1983). There is some inter-aquifer connectivity or leakage between the San Andres Limestone, the Grayburg/Queen Formations, and the alluvial aquifer. The leakage is likely facilitated by breccia formed by dissolution of evaporites and other connected fractures in the rocks (Welder, 1983). The artesian aquifer supplies water to hundreds of wells

for domestic and irrigation uses near Roswell and Artesia, New Mexico. East of the Pecos River Valley, groundwater quality becomes increasingly saline due to dissolution of evaporite minerals in the bedrock.

The Pecos Valley Alluvium Aquifer consists of gravels, sands, and silts deposited by the Pecos River. The aquifer extends from north of Roswell to south of Artesia, and is about 20 miles wide near Artesia (Welder, 1983). The river is currently located near the eastern boundary of the alluvium. The Pecos River is probably the main source of recharge to the aquifer, with a lesser amount of recharge from the leaky artesian aquifer. The main portion of the aquifer is about 250 to 300 feet thick (Welder, 1983). Water typically occurs under unconfined or water table conditions.

The Rustler Aquifer is found in permeable units such as the Culebra and Magenta Dolomite beds within the Rustler Formation. The dolomite units are no more than about 25 feet in thickness, and may include interbedded evaporite beds (Holt et al., 2006; Powers et al., 2006). Permeable zones in the Culebra (and Magenta) Dolomite are caused by dissolution of evaporite minerals in the Salado Formation due to collapse and fracturing (Mercer, 1983). Due to the interbedded units in the Rustler, hydraulic conductivity is greater in a horizontal direction parallel to bedding compared to vertical values resulting in anisotropy, so vertical groundwater movement is limited (Powers et al., 2006).

2.3.1.3 Local Perched Aquifer System

A local perched aquifer may be found in the Tansill Formation of the Artesia Group, and is likely limited in proximity to outcrop recharge areas. The Tansill Formation is an interbedded mixture of dolomite and evaporites. Groundwater would be found in fractured dolomite units that may be only 1 to 2 feet in thickness (Kelley, 1971). The perched aquifer would most likely have developed at the base of the formation, with limited downward movement of water into the Yates Formation due the low permeability of the gypsum beds.

2.3.2 Movement of Groundwater

The discussion concerning the movement of groundwater is based on literature review and general concepts of groundwater movement. Water level data were not collected as part of this investigation.

2.3.2.1 *Regional Aquifer System*

Groundwater in the Roswell Artesian Aquifer moves from high elevations in the Sacramento Mountains eastward through rocks of the Pecos Slope and discharges into the Pecos Alluvium Aquifer. Wells are also a significant source of discharge for this aquifer system. Flow direction is eastward, sub-parallel to the Pecos River. Groundwater found east of the Pecos River and in the Grayburg Formation would move westward toward the Pecos River.

Groundwater movement in the Pecos Alluvium Aquifer is typically toward the Pecos River, but may be disrupted due to pumping of wells. Flow is typically to the east and sub-parallel to the Pecos River.

Near the UIC wells study area, groundwater movement in the Culebra dolomite of the Rustler Formation is away from outcrop areas where recharge occurs. Due to the heterogeneity of the interbedded units near the UIC wells study area, groundwater flow is likely to the east in the direction of the regional geologic dip. Regionally, groundwater movement in the Rustler Formation is toward the Pecos River (Mercer, 1983).

2.3.2.2 *Local Perched Aquifer System*

When a perched aquifer develops in the Tansill Formation, groundwater movement will likely be lateral flow away from recharge areas along outcrops, controlled by the anisotropy of the interbedded geologic units.

2.3.3 Chemical Quality of Groundwater

In New Mexico, water quality standards are defined in 20.6.2 NMAC. Numerical standards are defined in 20.6.2.3103, as "standards for ground water of 10,000 milligram per liter (mg/l) total dissolved solids (TDS) concentration or less." The numerical standards include a domestic value for chloride of 250 mg/L and TDS of 1,000 mg/L.

Groundwater is most likely to be have the lowest concentrations of dissolved constituents near areas of recharge, lowest residence time in the aquifer, and in units with no or limited amounts of evaporite minerals.

Because water was not encountered during the first phase of the investigation, water quality samples were only collected during the second phase of drilling in 2025. Water quality results from WDW-1-MW-1 are discussed in Section 3.

2.3.3.1 *Regional Aquifer System*

The eastern boundary of the Roswell Artesian Aquifer lies west of the UIC wells and "does contain saline water along its eastern fringe, east of the river and beyond the zone in which water circulates rapidly from the recharge area to the river discharge area" (Barroll and Shomaker, 2003). This eastern fringe is most likely the portion of the artesian aquifer in the Grayburg Formation.

Historically, chloride concentrations have ranged from 15 to 7,000 mg/L in the Roswell Artesian Aquifer and from 20 to 3,700 mg/L in the Pecos Alluvium Aquifer (Welder, 1983). The highest chloride concentrations tend to be north of the UIC wells study area close to Roswell, and would have corresponding TDS concentrations exceeding 10,000 mg/L. Water quality data for either aquifer are sparse east of Artesia.

Limited data are available for water quality in the Rustler Formation. Data from studies at the Waste Isolation Pilot Plant (WIPP) site indicate that a brine exists in the Rustler Formation with TDS concentrations ranging from 79,800 to 480,000 mg/L. These high concentrations are related to the dissolution of evaporite minerals (Mercer, 1983). Near the UIC wells study area, groundwater close to recharge areas on the outcrop would be expected to have lower TDS concentrations.

2.3.3.2 *Local Perched Aquifer System*

No water quality data are available for the perched aquifer in the Tansill Formation. Local wells completed in the Tansill Formation are mostly used for livestock watering.

2.3.4 Potential Beneficial Uses of Groundwater

Based on permits and available well information, beneficial uses of groundwater near the UIC wells study area include domestic, oil field maintenance, livestock, monitor, non-livestock water, prospecting for development of a natural resource, exploration, commercial, irrigation, and multi-domestic house (Petrotek, 2022).

2.3.5 Conceptual Groundwater Model

The groundwater conceptual model is discussed in Sections 2.3.1 and 2.3.2.

3. Hydrogeologic Investigation

The intent of the initial hydrogeologic investigation was to determine if groundwater occurred near the UIC wells to depths of 150 to 160 feet bgs. No groundwater was encountered in the boreholes drilled corresponding to WDW-2, WDW-3, and WDW-4.

A second hydrogeologic investigation was conducted in April 2025 in the vicinity of UIC well WDW-1. The investigation reached a total depth of 500 feet bgs. Groundwater was encountered at a depth of 308 feet bgs. A monitor well was completed, MW-1, and two quarterly groundwater samples were collected in June and August 2025.

3.1 Procedures and Methods

The borehole at WDW-4-BH-1 was advanced to 150 feet bgs as described in detail in the approved work plan (Appendix A). At OCD's request during real-time lithologic review, boreholes WDW-2-BH-1 and WDW-3-BH-1 were extended an additional 10 feet, for a total depth of 160 feet bgs. Utility clearance, permits, and drilling and waste handling procedures are provided in the work plan.

The groundwater investigation boreholes were drilled within 75 feet of the existing UIC wells to evaluate significant water-bearing zones to a total depth of 150 feet bgs or, as requested, to total depth of 160 feet bgs.

Evaluation of saturated lithology was completed as described in the approved work plan (Appendix A). Boreholes were advanced at each location (one borehole at each of the three accessible UIC well locations) using a sonic drilling method. The on-site DBS&A geologist evaluated core samples from the core barrel prior to advancement of the sonic outer casing. If any core samples had been identified as saturated, a temporary polyvinyl chloride (PVC) casing would have been installed in the borehole, and groundwater would have been allowed to fill the borehole for a period of 2 hours.

No saturated lithology was identified by the on-site geologist at any of the initial boreholes. No significant water-bearing zones were identified. Significant water-bearing zones were defined by OCD as any lithologic layers with saturated material.

Borehole WDW-3-BH-1 had one thin layer that was potentially saturated, and when the drilling reached total depth, the outer sonic casing was lifted to 75 feet bgs and remained open

overnight to verify that no lithologic units would produce significant water. This zone did not appear to be saturated.

For the second phase and in accordance with the OCD requirements, borehole WDW-1-BH-1 was advanced to 500 feet bgs using sonic drilling methods. A thin zone of saturation was observed at approximately 308 feet bgs.

As outlined in the approved work plan (Appendix A), groundwater was allowed to fill the borehole over a period of two hours. Following this waiting period, bailing was attempted to remove any accumulated groundwater; however, the borehole was found to be dry, and drilling operations resumed.

Upon inspection the following day, the borehole was observed to contain water. Subsequent procedures were carried out in accordance with the approved work plan. This zone at 308 feet bgs in WDW-1-MW-1 was found to be a significant water-bearing zone.

3.2 Site Evaluation

3.2.1 Project Planning

DBS&A completed the groundwater investigation boreholes at each of the three accessible UIC wells at HFSNR (Figures 1 and 2a through 2d). Locations were pre-approved by OCD prior to field mobilization. In compliance with OCD, each of the four groundwater investigation borehole locations was installed southwest of (which was assumed to be hydrologically downgradient) and within 75 feet from each UIC well. Locations were placed as close as possible to the UIC wells to avoid existing infrastructure and existing UIC well access points. Groundwater investigation boreholes are labeled with UIC well ID in addition to the BH-1 designation; for example, the groundwater investigation borehole at WDW-4 was designated WDW-4-BH-1.

3.2.2 Permitting

HFSNR received permits from the U.S. Bureau of Land Management (BLM) and OSE prior to the initial groundwater borehole investigation. For the subsequent investigation, additional OSE permits were secured along with formal authorization from the relevant third-party.

3.2.2.1 *New Mexico Office of the State Engineer*

OSE form W-07 and Artesian Well Plan of Operations for potential monitor well installation were submitted, and permit approval was received prior to field mobilization.

3.2.2.2 *Bureau of Land Management*

The three wells investigated are on property owned by BLM. HFSNR is approved to operate and access the UIC well locations under right-of-way (ROW) permits obtained in 1999, 2003, and 2018, respectively, for UIC wells WDW-2, WDW-3, and WDW-4. The existing ROWs were amended to include a monitor well at each site. Land access was issued for OSE permitting by letter and BLM-approved ROW amendments based on SF-299 and 3160-3 (Appendix D).

3.2.3 Utility Clearance

Each of the four well locations was cleared for underground lines or utilities through proper channels: New Mexico One Call (NMOC) and refinery historical documents and maps. Each monitor well location was clearly marked with stakes and a white paint circle per NMOC direction.

In addition to the NMOC utility clearance, each monitor well location was evaluated with a hydrovac unit. Use of the hydrovac unit followed standard clearance procedure as directed by HFSNR, with the well location at the center of the 5-foot by 5-foot "L"-shaped excavation area and cleared to a depth of 10 feet. Hydrovac excavation results for each location were as follows:

- WDW-2-BH-1: Cleared with hydrovac and mechanical excavation to a depth of 10 feet.
- WDW-3-BH-1: Cleared with hydrovac to a depth of ~8 feet with refusal. No visible underground unknowns.
- WDW-4-BH-1: Cleared to a depth of 9 feet with refusal using mechanical excavation. No visible underground unknowns.
- WDW-1-MW-1: Cleared with hydrovac to a depth of 5.5 feet with refusal. No visible underground unknowns.

Approval by HFSNR and OCD was given for clearance at the above depths close to 10 feet with refusal. The excavated materials were visually inspected for evidence of environmental impacts. Impacts were not observed in any of the four hydrovac excavations. With the hydrovac excavation completed at these four locations, OCD issued approval to backfill with clean fill.

The excavated materials were contained and transported within the vac truck to the refinery for safe storage and security. Materials were properly labeled, characterized, and then appropriately managed with off-site disposal.

The NMOC and hydrovac clearance were completed prior to any excavation by the drilling contractor.

3.3 Data Presentation

3.3.1 Field Investigation at WDW-1, WDW-2, WDW-3, and WDW-4

Boreholes were advanced to 150 feet bgs per the approved work plan (Appendix A) or as field requested by OCD to 160 feet bgs. Prior to drilling of the borehole at the WDW-1 location, OCD requested that the borehole be drilled to a depth of 500 feet bgs. Borehole lithology is presented in Appendix E. Photographs taken during the investigation are provided in Appendix F. Field notes are provided in Appendix G. All four borehole locations demonstrate lithology of interbedded clay with anhydrite indicative of the Tansill and Salado Formations. No significant water-bearing zones were encountered in the first three completed boreholes. A water-bearing zone was encountered in the fourth borehole at the WDW-1 location. During drilling, DBS&A staff maintained close communication with OCD and HFSNR project managers. OCD approved drilling completion at each borehole depth: WDW-2-BH-1 at 160 feet, WDW-3-BH-1 at 160 feet, WDW-4-BH-1 at 150 feet, and WDW-1-MW-1 at 500 feet. Monitor wells were not installed at WDW-2, -3, and -4 due to the absence of a significant water-bearing zone. A monitor well was installed at WDW-1 due to the presence of a significant water-bearing zone. The dry boreholes were plugged according to OSE permit conditions (Appendix D).

3.3.2 Sonic Drilling

Drilling was conducted by Cascade Environmental® (Cascade). Sonic drilling advanced each borehole to a total depth of 150, 160 or 500 feet bgs. Cascade drilled the boreholes with a 600-T Sonic rig using 6-inch core barrels within an 8-inch-diameter borehole. Core samples were collected and evaluated by the DBS&A on-site geologist.

- WDW-2-BH-1: Advanced to 160 feet bgs with approval from OCD. Dry at 160 feet bgs. The borehole was abandoned with bentonite. WDW-2-BH-1 was drilled from October 7 to 10, 2023.

- WDW-3-BH-1: Advanced to 160 feet bgs with approval from NMOSE/BLM (not specified in field notes); borehole was dry. Left to sit overnight and did not make water. The borehole was abandoned with bentonite. There was 4 feet of slough in bottom of borehole. WDW-3-BH-1 was drilled from October 3 to 7, 2023.
- WDW-4-BH-1: Advanced to 160 feet bgs. Dry at 160 feet bgs. The borehole was abandoned with bentonite. WDW-4-BH-1 was drilled from October 11 to 12, 2023 and October 18 to 20, 2023.
- WDW-1-MW-1: Advanced to 500 feet bgs. A thin water-bearing zone was encountered at approximately 308 feet bgs. After sitting overnight, the well yielded a significant amount of groundwater. Drilling continued to a total depth of 500 feet bgs, and a monitor well was installed. The bottom of the borehole was cemented prior to well construction. WDW-1-MW-1 was drilled, installed, and developed from April 1 to 30, 2025.

3.3.3 Boring Depth and Drilling Conditions

Boreholes were advanced to 150 or 160 feet bgs as described in the OCD approved work plan. Upon reaching a depth of 150 feet, OCD requested an additional 10 feet of depth at WDW-2-BH-1 and WDW-3-BH-1. Drilling at WDW-2 and WDW-3 locations was similar, with nearly full sample recovery and smooth drilling. At WDW-4-BH-1, the lithology was harder, which led to a slower penetration rate. WDW-4-BH-1 reached total depth of 150 feet bgs. Each of the three borings was drilled without issue into dry formations.

No significant water-bearing zones were identified during the drilling; therefore, no monitor wells were installed. There was no visible indication of petroleum in cuttings and cores for any of the three borings.

The borehole at WDW-1 was advanced to 500 feet bgs as requested by the OCD prior to mobilization. Although the lithology was similar to that of the previous wells, increased hardness at greater depths resulted in a slower penetration rate. As a result, the drilling process extended over a period of 19 days.

A significant water-bearing zone was identified at approximately 308 feet bgs, with a static water level at 277 feet bgs. A monitor well was installed according to the work plan after cementing the borehole to a depth of 325 feet bgs. There was no visible indication of petroleum in cutting and core from this boring.

3.3.4 Geology and Lithology

Geology observed in the field at each site matches the geologic map (Figure 3), and consists of recent soil and alluvial sediments that cover bedrock formations of the Salado and Tansill Formations.

The lithology corresponds to the expected geology. The surficial material consists of silt, silty sand, and silty sands with some gravel. Depths of unconsolidated material range from 6 feet bgs at WDW-4-BH-1 to 30 feet bgs at WDW-3-BH-1. A fence diagram, or site-specific cross section across the three investigation boreholes, is provided as Figure 5.

Lithology of the Salado Formation was observed as interbedded clay and anhydrite, with minor amounts of siltstone that is consistent with descriptions by Kelley (1971).

Lithology of the Tansill Formation was interbedded clay and anhydrite with minor dolomite. Dolomite was observed as 2.5-foot layers at a depth of 150 feet bgs in WDW-3-BH-1 and at a depth of 145 feet bgs in WDW-4-BH-1. At WDW-1-MW-1, traces of dolomite were observed interbedded sporadically between 252 and 310 feet bgs, including a significant 4.25-foot layer at 300 feet bgs (Appendix E and Figure 5).

3.3.5 Observed Soil Moisture

Borehole lithology was primarily dry anhydrite with interbedded layers of clay (Appendix E). Clay layers were slightly moist to moist, with a few thin layers of clay observed to be very moist. The observed moisture in clay units was not classified as significant water-bearing zones. Movement of moisture into the boreholes occurred while drilling or when the boreholes were allowed to remain open while waiting on water.

Initially, only one location was identified as potentially saturated with groundwater—a 1-inch layer of silt (ML) in WDW-3-BH-1 at a depth of 80 feet bgs. This apparent saturation was determined to be an artifact from sonic drilling, and is not representative of a saturated lithologic unit. On October 6, 2023, OCD requested evaluation of this apparently saturated area. Per OCD request, two evaluations of potential significant water-bearing formations were conducted at WDW-3-BH-1. With a borehole depth of 150 feet bgs, the sonic outer casing was lifted to a depth of 147 feet bgs to evaluate any significant water from 147 to 150 feet bgs. Water was not detected after 1 hour. OCD requested additional drilling to a total depth of 160 feet bgs. The borehole remained open from 75 to 160 feet bgs overnight to verify that no lithologic units would produce significant water. To confirm whether water was present, the

DBS&A on-site geologist attempted to measure the water level and attempted to collect water with a bailer sampling device. No water was detected in the borehole.

At WDW-1-MW-1 on April 9, 2025, a thin 6-inch layer of wet to saturated gravelly sand was encountered, and procedures outlined in the work plan were followed to evaluate the significance of this saturated zone. The sonic casing was pulled up to 300 feet bgs to leave the saturated interval from 308.0 to 308.5 feet bgs open to the borehole. After a 2-hour waiting period, a bailer was used to check for groundwater accumulation. No water was detected, so drilling continued. The borehole was advanced to 332.5 feet bgs and no additional wet cuttings were identified the remainder of the day.

On April 10, 2025, after drilling to 335 feet bgs, the driller reported that water had filled the bottom of the borehole. During the bail down test, a 3-inch diameter bailer with a 5-gallon capacity was used to bail water from the borehole. Cascade bailed about 100 gallons of water in about an hour. After bailing, the water level was measured at 312 feet bgs and recovery monitoring was conducted. The water level stabilized at 278 feet bgs within 3 hours after bailing stopped.

Specific capacity, which is the flow rate (Q) in gallons per minute (gpm) divided by the drawdown (s) in feet, was calculated. Assuming that the water level at the start of bailing was 278 feet bgs, the drawdown, s, was 34 feet at a rate, Q, of 100 gallons per hour or 1.6 gpm, the specific capacity, Q/s, was 0.05 gpm/feet of drawdown. Based on the amount of groundwater purged, recovery rate, and specific capacity, the zone from 308 to 308.5 feet bgs was determined to be capable of producing sufficient water for sampling and thus a monitor well was installed.

3.3.6 Borehole Plugging and Abandonment

As approved in the work plan and by OCD through e-mail, no monitor wells were installed at the initial boreholes due to dry conditions. All three boreholes (WDW-2-BH-1, WDW-3-BH-1, and WDW-4-BH-1) were abandoned and plugged with bentonite grout according to OSE guidelines. Well record forms have been submitted to OSE (Appendix H).

3.3.7 Well Completion

The WDW-1 borehole was completed as a 4-inch-diameter monitor well. Installation was completed in accordance with the procedures specified in the approved work plan. An as-built

diagram is provided in Figure 6. General specifications followed during well installation are as follows:

- Prior to the monitor well installation, the borehole was cemented from the total depth of 500 feet bgs to 325 feet bgs.
- The monitor well was constructed using 4-inch-diameter Schedule 80 PVC flush-threaded well materials, including 15 feet of 0.020-inch-slot, machine-cut well screen and a 5-foot PVC end cap. Blank flush-threaded well casing extends form the top of the screened interval to the surface. Centralizers were placed at the base and top of the screen, and at 60-foot intervals thereafter.
- Per approval from OCD, the well screen was positioned approximately centered on the water table rather than the static water level due to the artesian nature of the groundwater.
- A filter pack consisting of 12/20 silica sand was placed in the well annular space from the top of the cement section to approximately 5 feet above the top the well screen.
- A minimum 5-foot-thick activated bentonite chip seal was installed on top of the filter pack. The remaining annular space was filled with a cement/bentonite grout, except for a 1-foot bentonite chip seal placed at 92 feet bgs.
- Surface completion included a locking, aboveground steel riser set within a concrete pad with a minimum thickness of 6 inches. Four protective bollards were installed around the pad.
- A QED bladder pump was installed to 307 feet bgs and suspended from the wellhead. The pump is a displacement-type operated using pressurized nitrogen and allows for low-flow sampling procedures. The wellhead configuration allows for measurement of water levels without removing the pump.

Following well construction, the specific capacity was calculated during development pumping. Pumping rates varied from 1 to 2 gpm. During development on April 30, 2025, the average pumping rate was 1.5 gpm for 15 minutes and drawdown was 24.9 feet. Specific capacity was calculated at 0.07 gpm/ft.

3.3.8 Waste Disposal

Drilling waste material was stored at HFSNR for characterization. Laboratory samples indicated that waste was non-hazardous. Material was disposed of as typical refinery waste and hauled by HFSNR's subcontracted waste hauler. Waste manifest records are provided in Appendix I.

3.3.9 Well Survey

Monitor wells were not installed during the initial investigation; therefore, no well survey was completed. WDW-MW-1 survey was completed in October 2025. Borehole location coordinates and elevations are provided in Table 2 and Appendix J.

3.4 Data Discussion

During the sonic drilling, data were collected in the field related to the lithology at each site. Regional groundwater was encountered during drilling activities at one location; water levels and groundwater quality samples were collected. Geologic observations can be used to infer possible hydrogeologic characteristics of the rocks.

3.4.1 Evaluation of Lithology and Geology

Borings at WDW-1, WDW-2, and WDW-3 were advanced into the Salado Formation and the boring at WDW-4 was advanced into the Tansill Formation of the Artesia Group (Figure 5). The Salado Formation was deposited after the Capitan Reef system, but in a similar depositional environment as the Tansill Formation. The formations were deposited on mud flats that were a shallow water depositional environment often inundated by fresh water or salt water. The lithology of the rocks reflects the cyclical nature of deposition and evaporation as demonstrated by the interbedded layers of clay, silt, anhydrite, and dolomite. All four borings encountered these interbedded lithologies.

In the Artesia area and north of the Capitan Reef, the Tansill Formation transitions from being dominated by dolomite to more evaporite beds with thin beds of dolomite (Kelley, 1971). These relationships were observed at WDW-4-BH-1 and at WDW-1-MW-1; anhydrite and clay were the dominant lithologies, with minor thin beds of dolomite. The Salado Formation has most likely experienced extensive dissolution of halite and other evaporite minerals and has variable thickness. According to Kelley (1971), a distinguishing characteristic of the Salado Formation is the color of the anhydrite, which is typically more of a red color compared to the gray color typical of the anhydrite in the Tansill Formation. Based on color changes in the borings at WDW-2-BH-1 and WDW-3-BH-1, the contact between the formations is about 60 feet bgs, or about 3,540 feet msl. At WDW-1-MW-1, the contact is at approximately 40 feet bgs, or about 3,560 feet msl.

3.4.2 Evaluation of Hydrogeology

The general hydrogeologic character of the rocks may be inferred based on the observed lithologies. The interbedded clay and anhydrite are likely to have quite low permeabilities. Movement of groundwater will be limited in the vertical direction due to the anisotropic nature of the units. Horizontal groundwater movement will be controlled by the low permeability of the lithologies. The siltstone and dolomite units are minor components of the observed conditions in the borings, and will have limited permeability unless they have been fractured. Fracture permeability typically is developed when dissolution of evaporites has caused the subsidence or collapse within the formations. The distribution pattern of this dissolution is not well established but is most likely heterogeneous, resulting in variable permeability within the geologic units. Groundwater movement in the fractured units will be limited in the vertical direction due to changes in lithology, and horizontal movement may be maintained until fracturing diminishes or the lithologic unit is truncated by a facies change.

At WDW-1-MW-1, a saturated, gravelly sand layer was encountered at 308 feet bgs. The gravelly sand unit was approximately 0.5 foot thick and, following well completion, the water level rose to 273.94 feet bgs. The monitor well is considered an artesian well and the aquifer is under artesian conditions because the water level in the well rose above the top of the saturated unit. The corresponding pressure head for the observed water level rise of 34 feet is 14.7 pounds per square inch (psi).

At WDW-1-MW-1, the artesian conditions are created by the subsurface stratigraphy and groundwater flow within the anisotropic aquifer system. The gravelly sand unit appears to be confined by lower-permeability units of interbedded siltstone, clay, and dolomite above and below the unit.

While drilling the nearby injection well, this gravelly sand unit would have been encountered and sealed off from the WDW-1 well using cement in the annular space. The observed hydraulic pressure in WDW-1-MW-1 probably indicates that the WDW-1 annular seal is competent and not allowing fluids to move into or out of the artesian aquifer unit.

3.4.3 Groundwater Quality at WDW-1-MW-1

Water samples were collected at WDW-1-MW-1 in June and August 2025. Laboratory reports are provided in Appendix K and results are summarized in Tables 3 and 4. Table 3 presents results for detected constituents, while Table 4 lists all of the constituents with non-detects. For comparison, the numeric criteria and work plan reporting limits are provided.

At WDW-1-MW-1, the groundwater is brackish with a TDS concentration of 4,600 mg/L. Constituents like calcium, sodium, chloride, and sulfate contribute to the TDS concentration. Considering that this groundwater is in the Tansill Formation, which is predominantly composed of interbedded clay and anhydrite units, the elevated calcium and sulfate concentrations are to be expected and are derived from dissolution of anhydrite.

During both sampling events, some organic compounds were detected at low concentrations, and many of these low detections have "J" qualifiers, which means that the detected analyte was found at a concentration between the reporting limit (RL) and the method detection limit (MDL), very close to the capability of the instrument or method. There were some "B" qualifiers because some compounds like phthalate isomers were detected in the method blank and sample.

Based on our initial review of the laboratory quality assurance (QA) information, the groundwater matrix was causing analytical issues for method 8270E, including recovery of spiked (QA) samples outside of control limits. For the August 2025 sampling event, additional sample was submitted for the laboratory control sample (LCS), but that did not solve the matrix interference issue. Because the majority of organic compounds were not detected, the control limit issue does not appear to be a problem for accepting the data.

Two organic detections occurred in both the June 2025 and August 2025 samples. The August 2025 sample results were lower than the results for June 2025:

- Toluene concentration decreased from 48 micrograms per liter (µg/L) in June 2025 to 11 µg/L in August 2025.
- Perchlorate concentration decreased from 0.69 µg/L in June 2025 to 0.54 µg/L in August 2025.

These constituents are not analyzed for in the effluent sent to WDW-1.

In WDW-1-MW-1, no organic constituents were detected at concentrations greater than the numeric criteria (Tables 3 and 4). Inorganic constituents detected at concentrations exceeding the numeric criteria include boron, chloride, sulfate, and TDS.

Groundwater data from WDW-1-MW-1 were compared with recent effluent chemistry from 2019 to 2025 (Appendix L). Summary statistics for the effluent and the RAB are presented in Table 5. RAB data and statistics are from Land (2016). Data for WDW-1-MW-1 are shown for comparison.

Mean TDS concentrations of 4,652 mg/L for effluent and 4,993 mg/L for RAB are comparable to and slightly greater than the measured TDS concentrations at WDW-1-MW-1 of 4,500 and 4,600 mg/L. The mean chloride concentration in the effluent data is 539 mg/L, which is significantly lower than the observed concentration at WDW-1-MW-1 of 1,100 mg/L. The mean sulfate concentration in the effluent is 2,193 mg/L, which is greater than the observed value of 1,900 mg/L for WDW-1-MW-1. These constituents are compared graphically using box plots in Figures 7, 8, and 9.

Water chemistry is often characterized by type based on the major ion composition. The groundwater samples and duplicate from WDW-1-MW-1 are calcium-chloride (Ca-Cl) type, and the effluent samples are sodium-sulfate ($Na\text{-}SO_4$) type. These water types have different proportions of major ions indicating their chemical differences.

3.4.4 Potential Impacts from WDW-1 Operations

To evaluate the potential for effluent impacts to the groundwater at WDW-1-MW-1, a binary mixing model was developed (Figure 10) using mean concentrations for sulfate and chloride in the effluent and RAB (Table 5). Chloride and sulfate are expected to be conservative anions in the groundwater and remain in solution during mixing because precipitation reactions are not expected from minerals like halite or anhydrite. The mixing line was created at different proportions of the end members, resulting in the straight line on Figure 10. If the groundwater represents a mixture of these two end members, the WDW-1-MW-1 concentrations should plot along the mixing line. WDW-1-MW-1 data do not plot along the mixing line. Based on the mean sulfate and chloride concentrations in the effluent and RAB, mixing cannot be the mechanism for the observed water quality at WDW-1-MW-1. The observed chemistry in the monitor well would require different proportions of the end members. For example, the observed sulfate concentration would require mixing about 65 percent effluent and 35 percent RAB. In contrast, the chloride would require mixing about 15 percent RAB and 85 percent effluent. This mixing example demonstrates that the observed groundwater chemistry is not a simple mixture of effluent and groundwater.

3.4.5 Limitations of Data

Available groundwater data are limited, with few existing wells in this area, which is likely a result of the poor quantity and quality of usable groundwater in the area. The geologic literature is presented in a regional context, with no studies related to the hydrogeology of the Tansill and

Salado Formations in the UIC wells study area. Hydrogeology data deeper than about 500 feet bgs are limited to regional studies and records related to the WDW wells.

Groundwater aquifers are limited in the study area, and regional or perched aquifers were not encountered in any of the initial borings drilled for this study. However, groundwater was observed in the borehole drilled during the second hydrogeological investigation; therefore, WDW-1-MW-1 provides a single site for data collection.

Groundwater chemistry data specific to the UIC wells study area is limited. Water quality analyses for local aquifer systems are based on datasets from the literature that represent wells throughout the area—probably completed in various geologic units and aquifer systems and collected at various time—and have little supporting geologic data. Due to the limitations of the available datasets, average or mean concentration values were used for the comparison analysis discussed in this report.

4. Conclusions

4.1 Geologic Conditions in the Tansill and Salado Formations

Based on the geologic maps, regional geologic studies, and the data collected during these hydrogeologic investigations, the borings were drilled in the Salado and Tansill Formations of the Artesia Group. These units consist of interbedded clay and anhydrite and, to a lesser extent, siltstone and dolomite; these dominant lithologies were observed in all four borings.

The Tansill and Salado Formations are not typically expected to host regional aquifer systems, but the Tansill Formation does have a thin unit that is part of the regional artesian aquifer system encountered at WDW-1-MW-1.

4.2 Local Perched Aquifer Conditions

Borehole lithology at WDW-2-BH-1, WDW-3-BH-1, and WDW-4-BH-1 shows interbedded clay and anhydrite with dry conditions. All three borings appear to be Salado and Tansill Formations. Lithology at WDW-1-MW-1, consisting of interbedded clay and anhydrite, was consistent with that observed in the initial boreholes. However, unlike earlier borings, saturated conditions were present within the Tansill Formation at this location and were encountered at greater depths than penetrated by the borings advanced during the first phase of the investigation.

Based on observations during the first phase, the UIC wells have not leaked between ground surface and 150 or 160 feet bgs. During the second phase, regional groundwater under artesian conditions was encountered, but no perched zones were encountered. Based on aquifer hydraulics and water chemistry, no impacts from the UIC wells were observed during the second phase.

4.3 Occurrence of Groundwater with Total Dissolved Solids less than 10,000 mg/L near the UIC wells

Based on discussions with OSE, the water encountered at WDW-1-MW-1 is part of the regional artesian system, but appears to be outside of the administrative boundaries for the RAB. The salinity of the RAB Aquifer typically increases east of the Pecos River, but water quality data are sparse. Historical data for the artesian aquifer east of Roswell indicate chloride concentrations ranging from 7,000 mg/L (Welder, 1983) to 115,000 mg/L (Land, 2016). Chloride concentrations of this magnitude or greater could be due to dissolution of evaporite minerals like halite found in geologic units like the Salado Formation. If chloride concentrations have historically been as high as 7,000 mg/L, the corresponding TDS concentrations would be expected to be greater than 10,000 mg/L to account for the corresponding cation concentrations necessary to charge balance this elevated chloride concentration. The dissolution of minerals in the Salado and Tansill Formations near the UIC wells is the likely source of dissolved constituents observed in groundwater.

The Rustler Formation and the Culebra Dolomite occur east of the UIC wells study area, and are not expected to be impacted by any releases. Due to the relatively low-permeability geologic units like the Salado Formation and within the Rustler Formation, there is expected to be limited hydraulic connection from the UIC wells to the Rustler Formation.

The Pecos Valley Alluvium Aquifer is about 4 miles west of the closest UIC well, WDW-4. Due to the distance and vertical anisotropy of the local geologic units, there is expected to be limited hydraulic connection from the UIC wells to the Pecos Valley Alluvium Aquifer.

4.4 Potential Groundwater Impacts

Based on the data and analyses for WDW-1-MW-1, injection well WDW-1 has not impacted groundwater encountered in the Tansill Formation.

The UIC wells are not likely to impact groundwater resources. Local hydrogeologic conditions will limit connectivity, and the potential for release will be limited by UIC well operation, maintenance, and required testing.

The regional artesian system was found in the Tansill Formation. No perched aquifers were observed during either drilling phase.

The design and operation of the UIC wells are intended to limit the potential for release of injectate into the surrounding environment. The wells have multiple casings with annular cement seals, tubing installed with a packer system to isolate the injection zones, and a vertical separation between the injection zone and shallow groundwater resources. With the limited groundwater resources in the UIC wells study area, potential releases are not likely to impact groundwater.

Routine testing including mechanical integrity testing (MIT) provides data on the competence of the annular cement seals, casings, and packer to demonstrate that the system delivers water to the deep injection zone.

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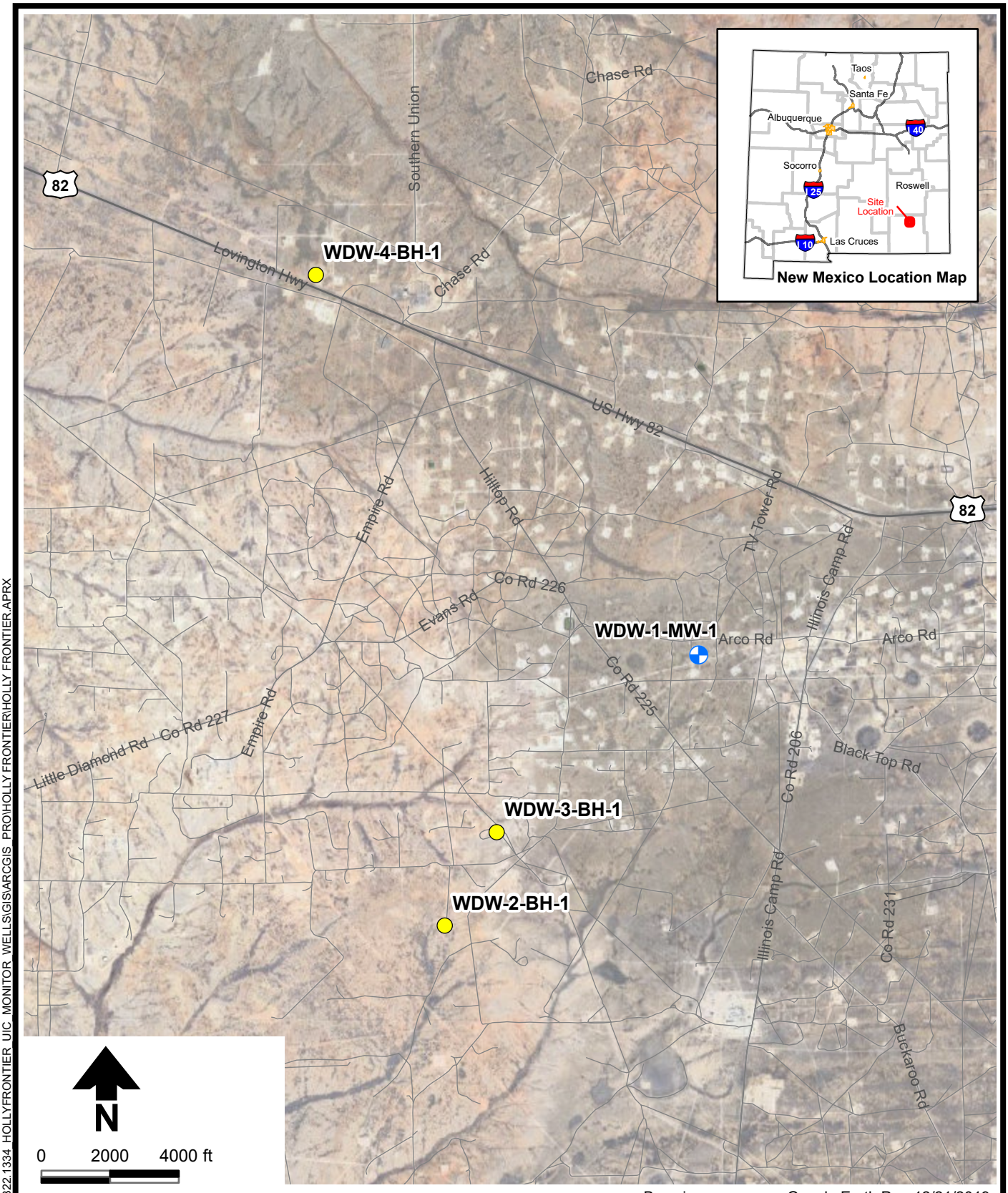
Figures



Base image source: Google Earth Pro, 12/21/2019

Explanation

- Monitor well
- Borehole

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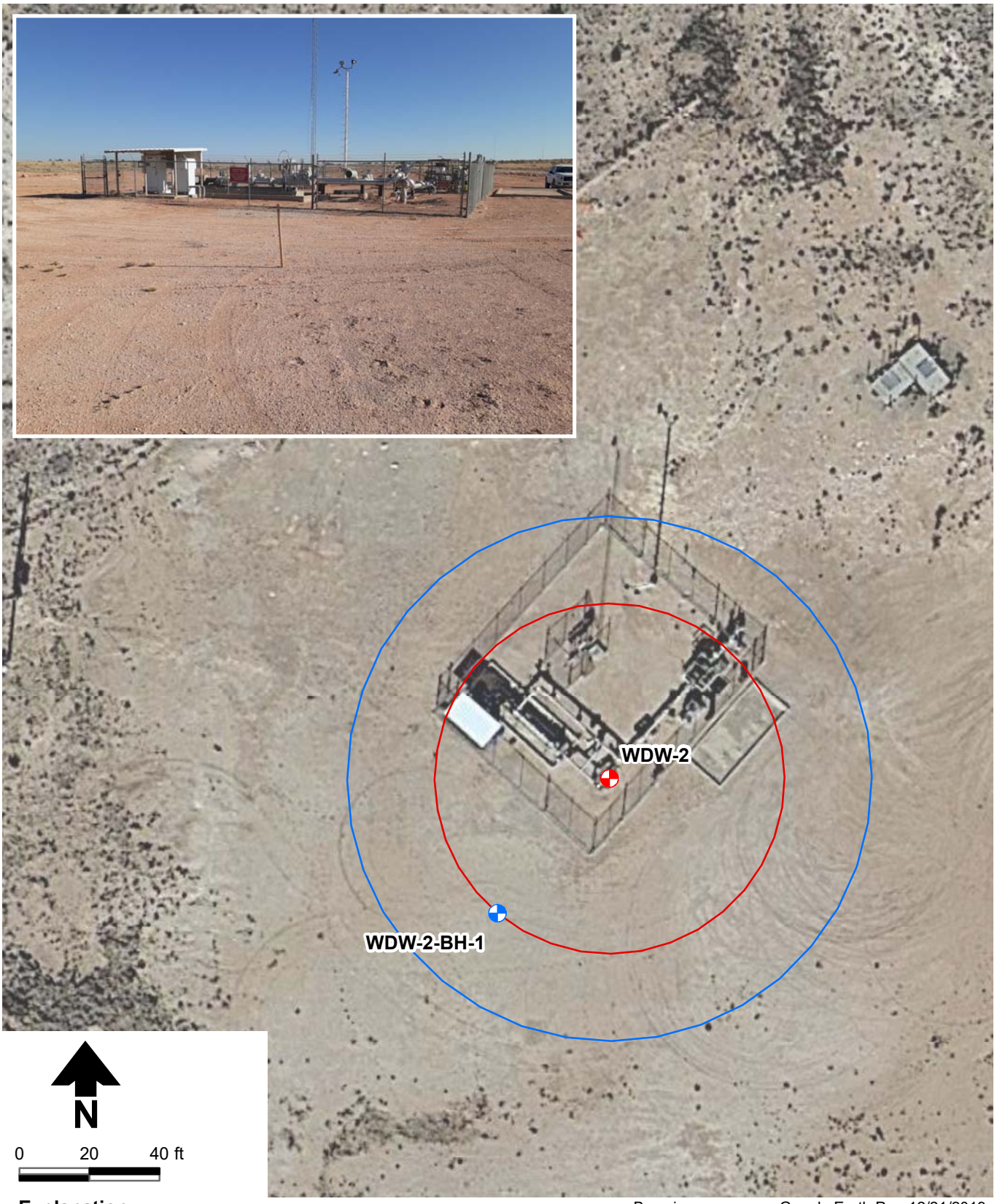
Area Map

Figure 1



Explanation

- Monitor well investigation borehole
- Underground Injection Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

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WDW-2
Monitor Well Investigation Borehole

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Figure 2a

Explanation

- Monitor well investigation borehole
- Underground Injection Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

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WDW-3

Monitor Well Investigation Borehole

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Figure 2b

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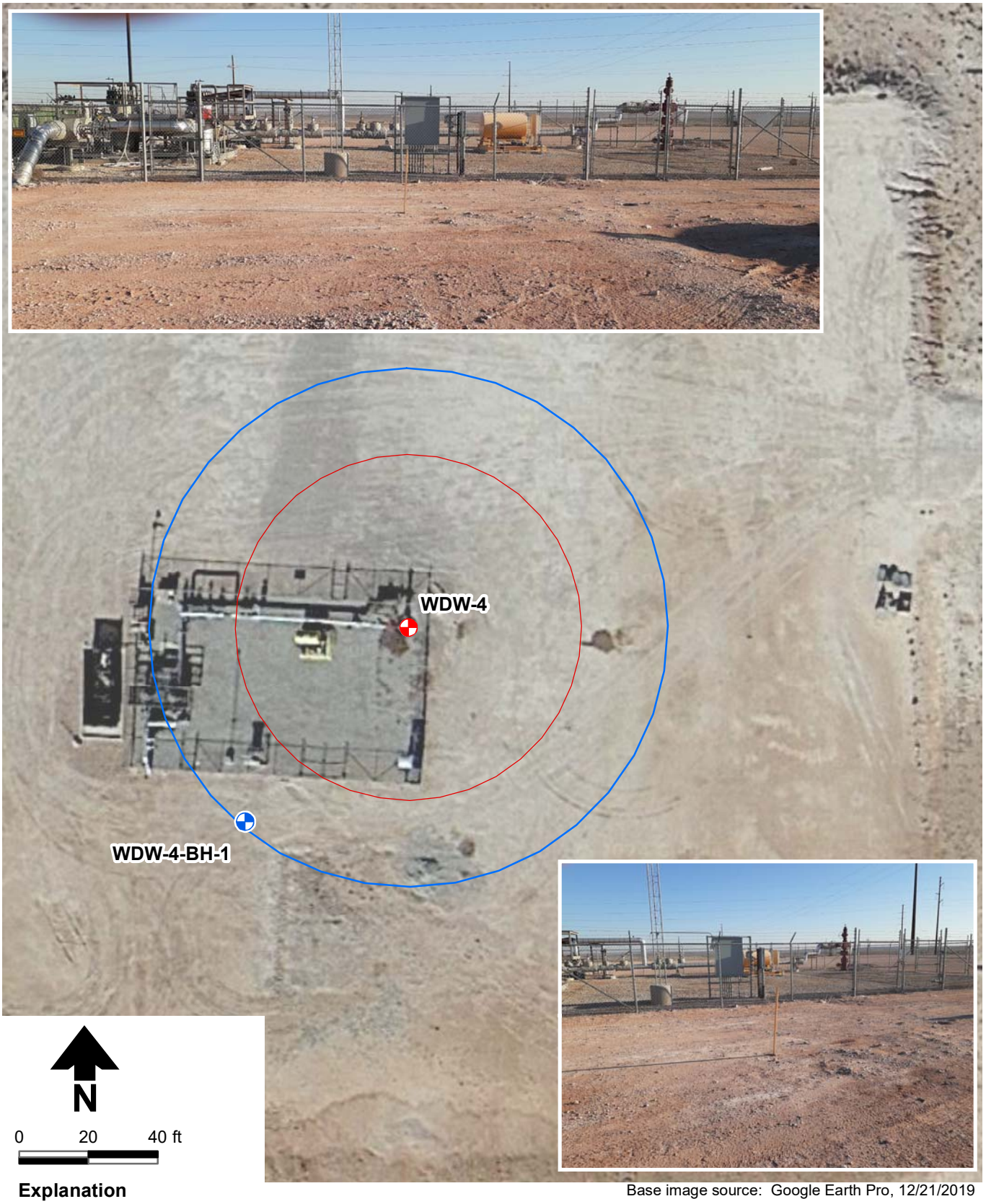

Explanation

- Monitor well investigation borehole
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

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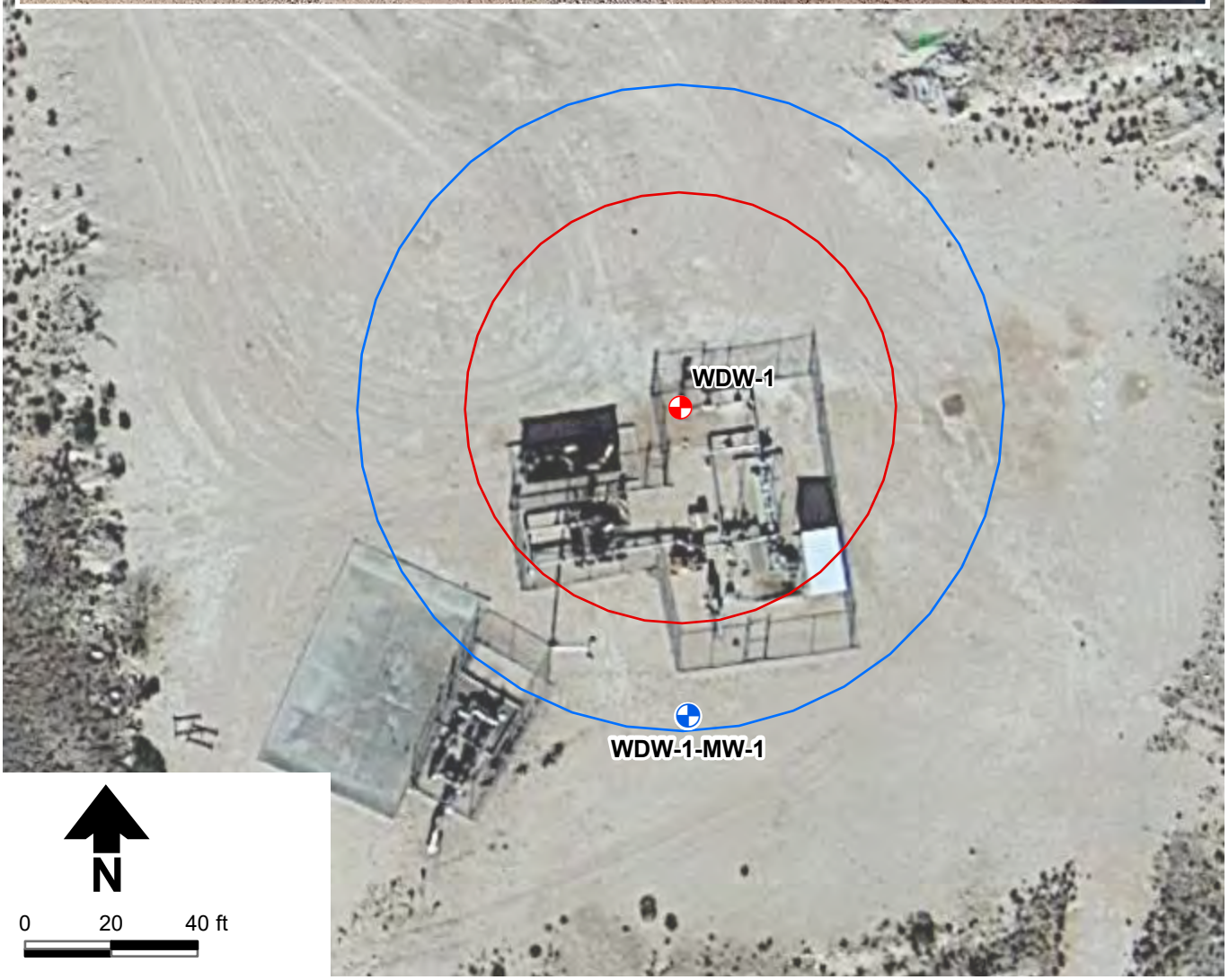
WDW-4

Monitor Well Investigation Borehole

Figure 2c



Base image source: Google Earth Pro, 12/21/2019

Explanation

- Monitor well
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

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WDW-1

Monitor Well Location

Figure 2d

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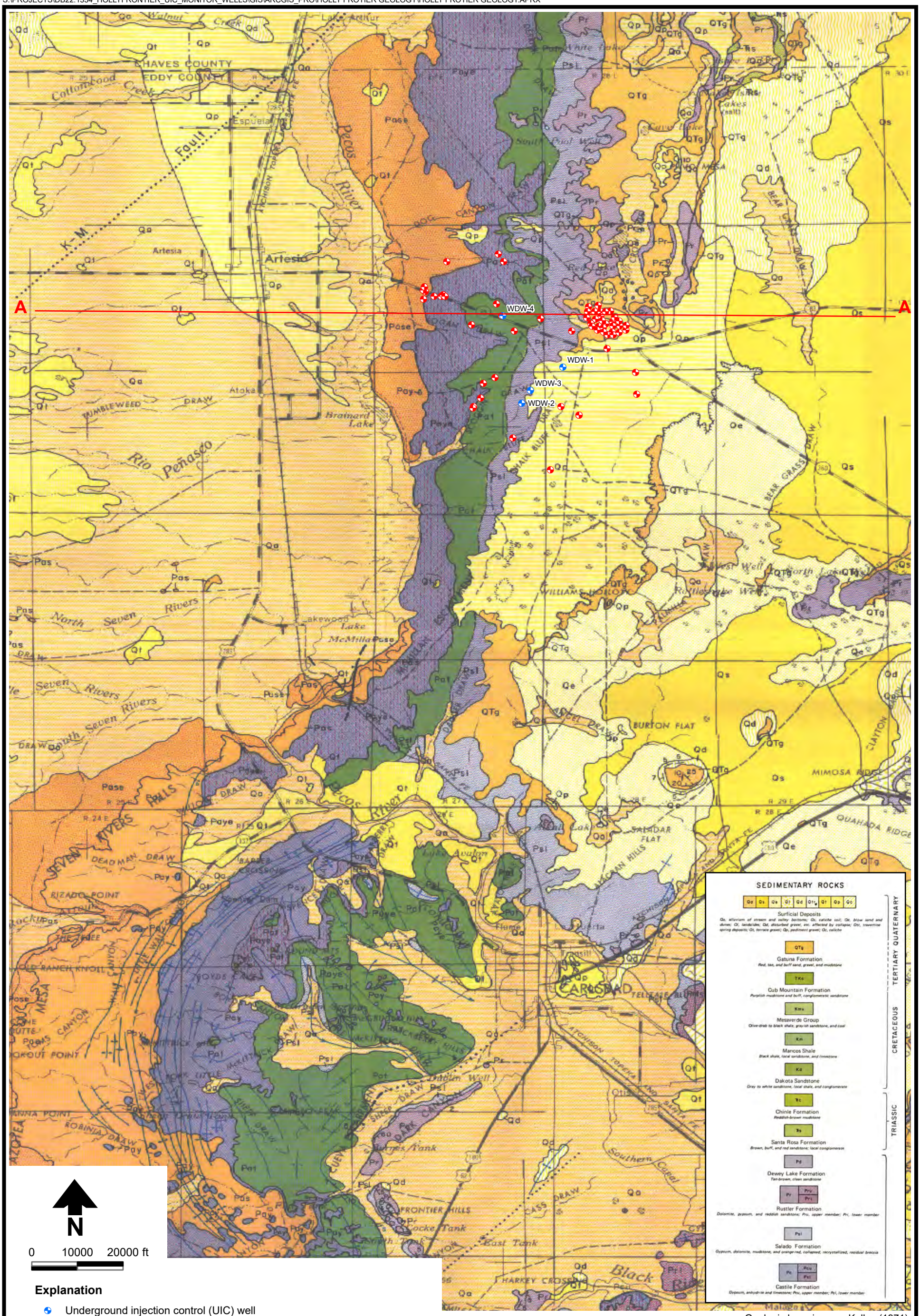

Explanation

- Underground injection control (UIC) well
- Water well within a 3-mile vicinity of UIC WDW-1 to WDW-4 injection wells (Petrotek, 2022)
- Cross section

Geologic base image: Kelley (1971)
Vicinity wells: Petrotek (2022)

Figure 3

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Geologic Map

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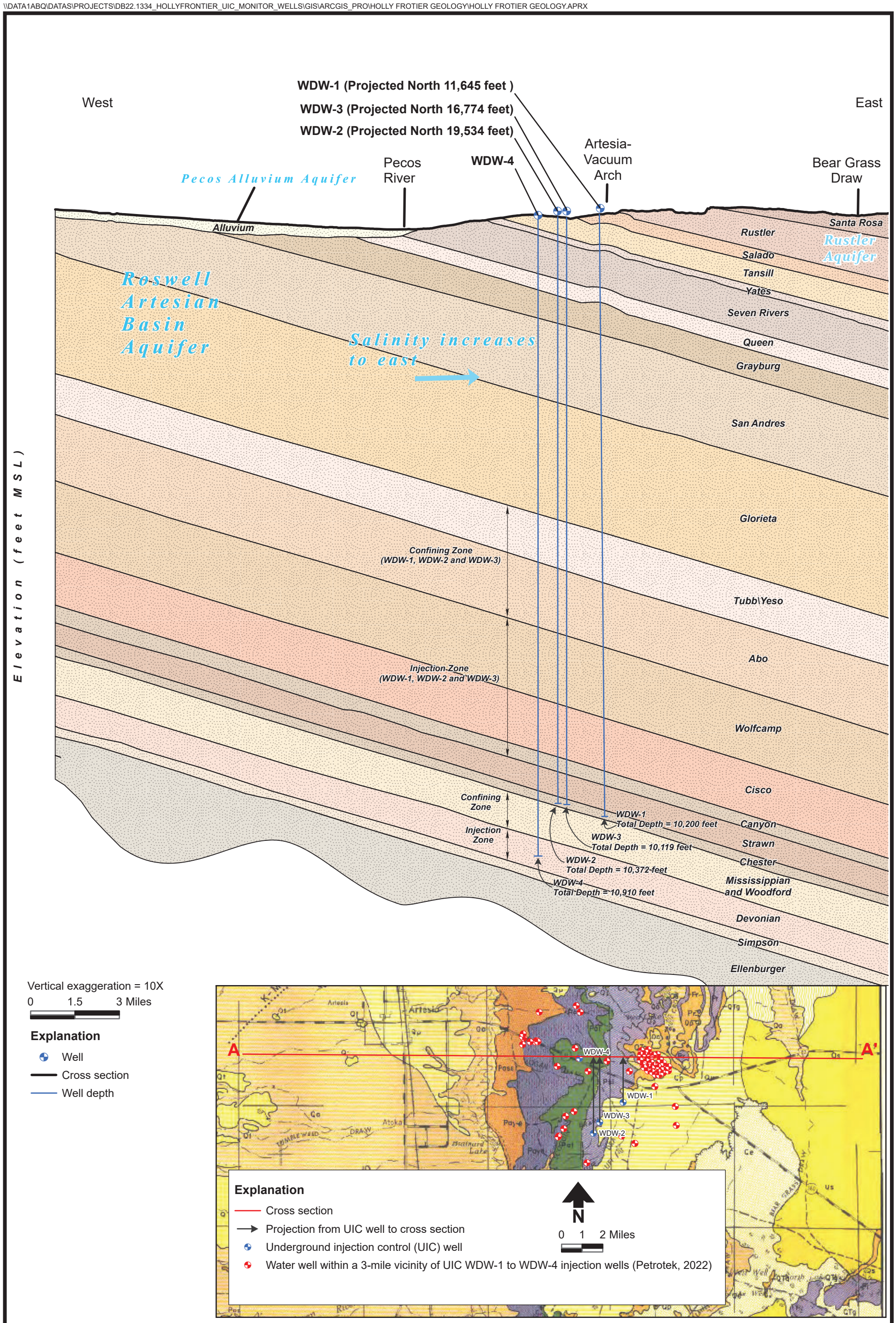

Vertical exaggeration = 10X

0 1.5 3 Miles

Explanation

- Well
- Cross section
- Well depth

Figure 4

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Conceptual Hydrogeologic Cross Section

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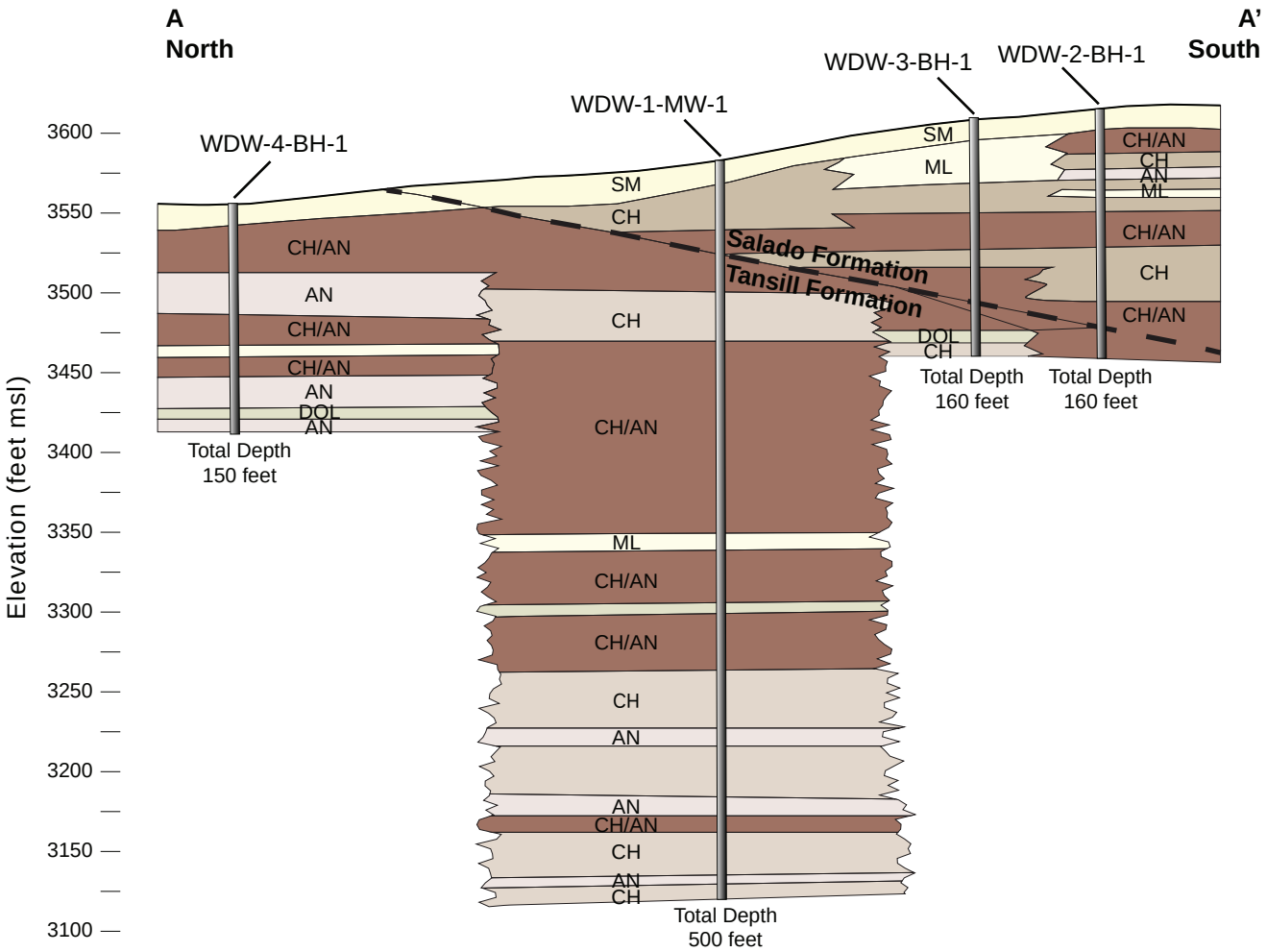

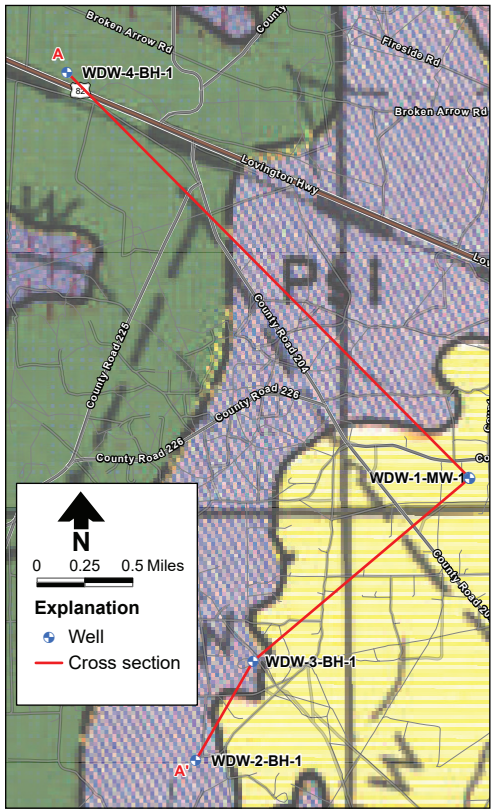

Scale
1 inch = 2,500 feet
Vertical exaggeration = 100x

Explanation

SM	Silty sand	AN	Anhydrite, minor clay
CH/AN	Interbedded clay and anhydrite, minor silt	DOL	Dolomite
CH	Clay	ML	Silt
		— —	Salado/Tansill Formation geologic contact

Figure 5

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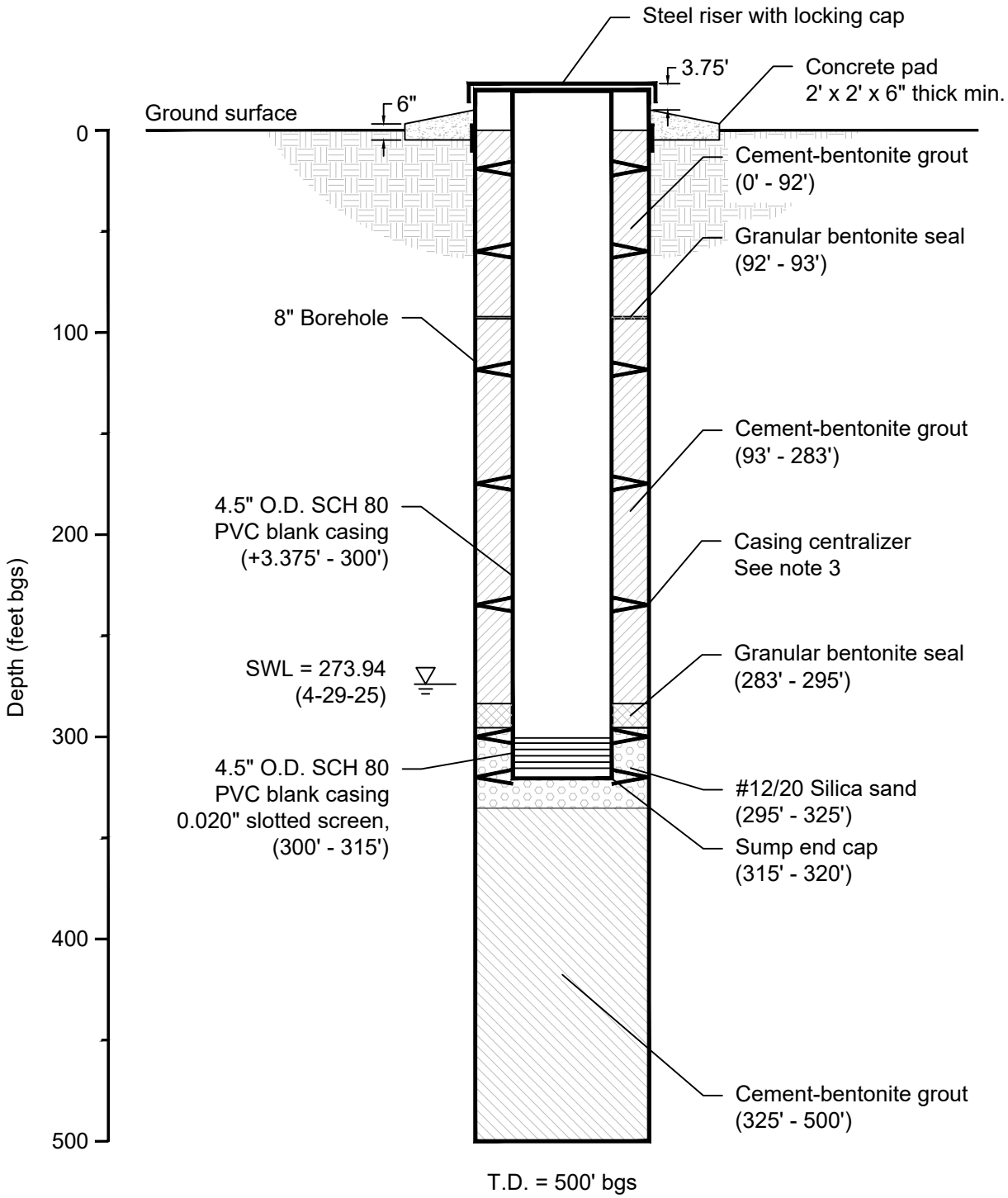
Fence Diagram from WDW-4-BH-1 to WDW-2-BH-1



Notes:

1. Drawing is not to scale
2. Dimensions are outside diameter
3. Casing centralizers to be located at 20', 60', 120', 180', 240', 300', and 320'.
4. bgs = Below ground surface
5. SWL = Static water level
6. O.D. = Outside diameter
7. T.D. = Total depth
8. PVC = Polyvinyl chloride
9. SCH = Schedule

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WDW-1-MW-1 Well Completion Diagram

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08/01/2025 DB22.1334

Figure 6

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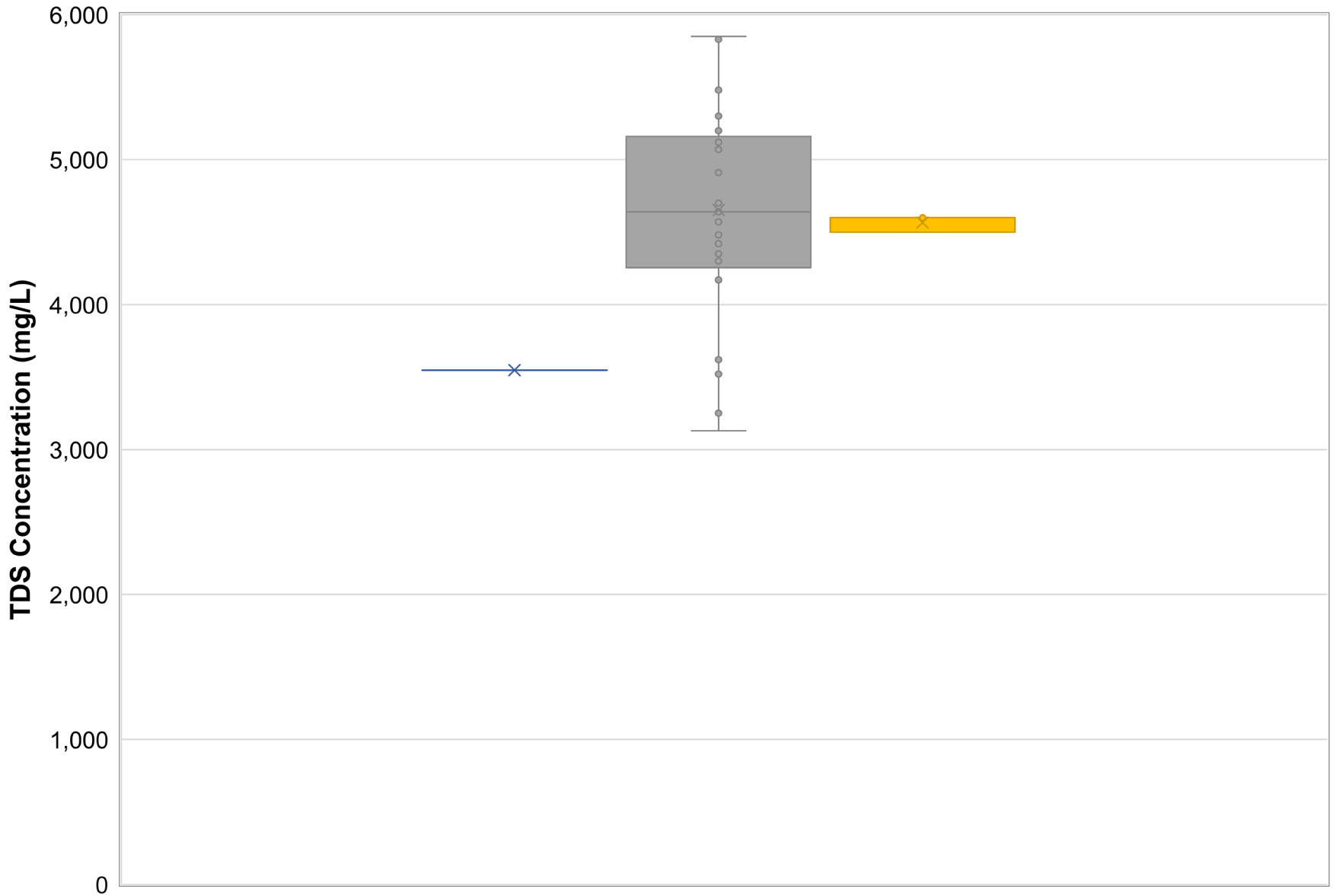

Figure 7

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TDS Water Quality Statistics

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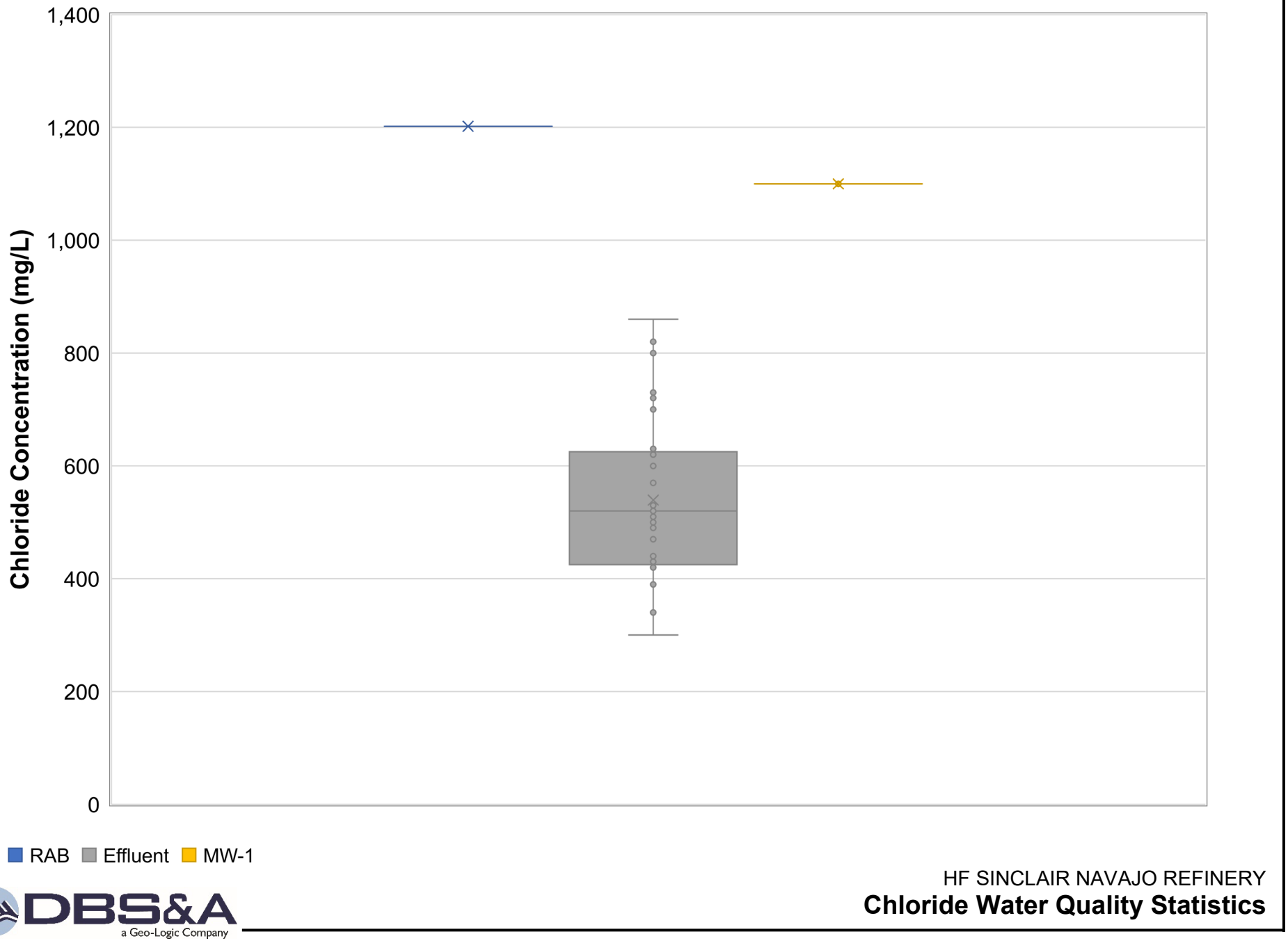

Figure 8

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Chloride Water Quality Statistics

10/22/2025 DB22.1334

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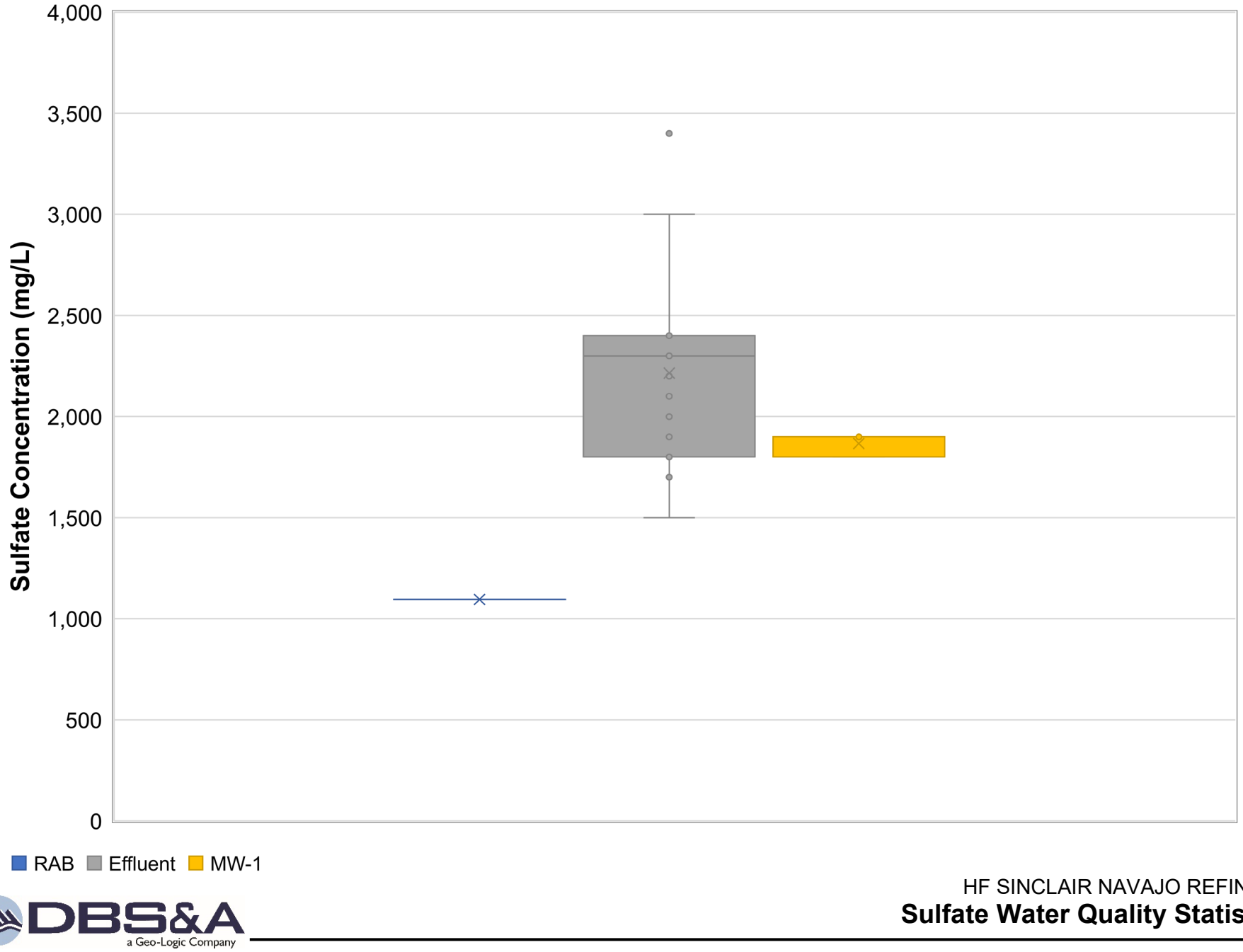

Figure 9

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Sulfate Water Quality Statistics

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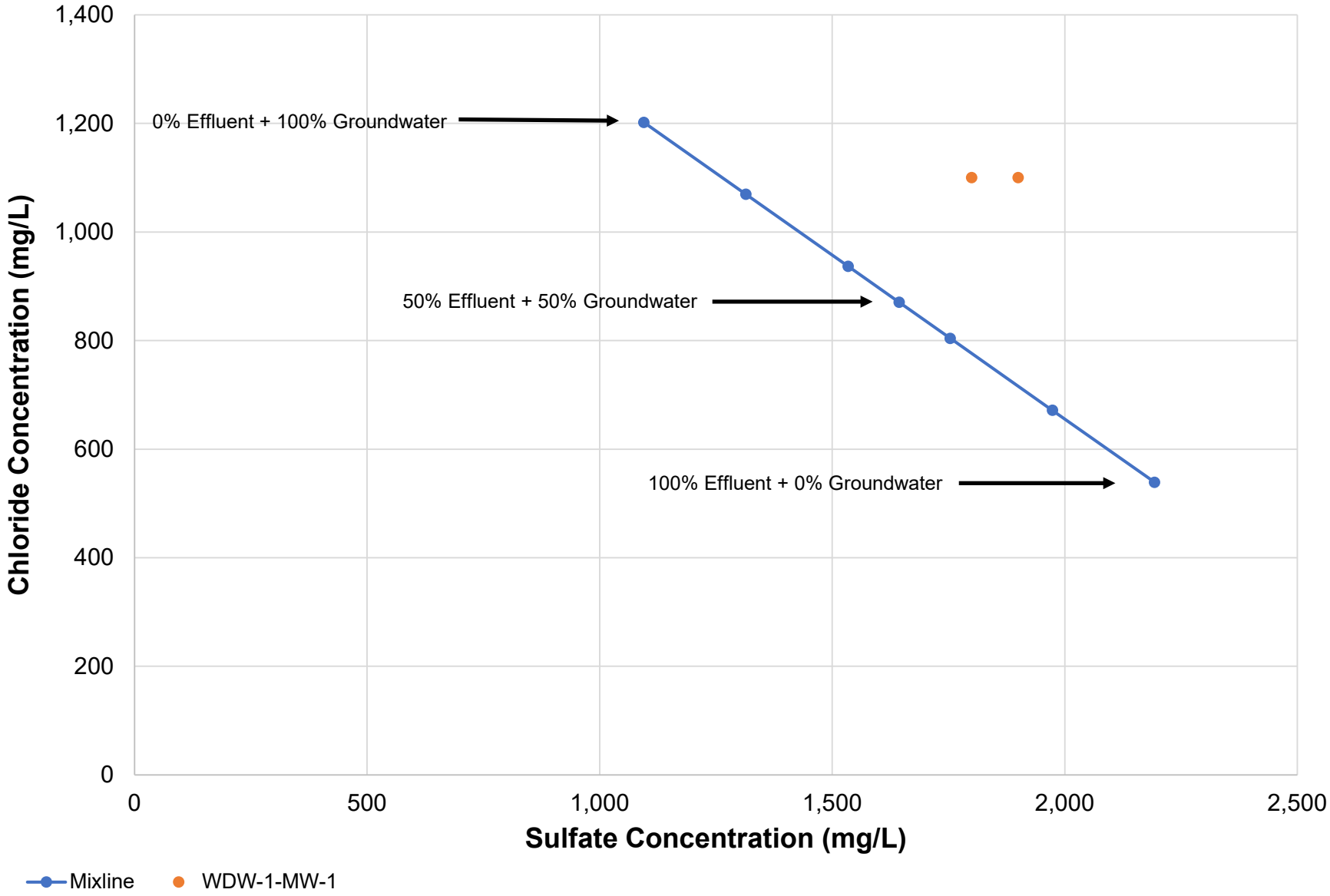

Figure 10

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Mixing Analysis, Sulfate and Chloride Concentrations
WDW-1-MW-1 and Effluent

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10/22/2025 DB22.1334

Tables

Table 1. Stratigraphy Near Artesia, New Mexico

Geologic Age	Geologic Formation	Comments
Quaternary	Alluvium of the Pecos River Valley	
Triassic	Santa Rosa Sandstone	
Permian	Rustler Formation	Units include the Magenta Dolomite and Culebra Dolomite
	Salado Formation	
	Artesia Group - Tansill Formation	
	Artesia Group - Yates Formation	
	Artesia Group - Seven Rivers Formation	
	Artesia Group - Queen Formation	Typically grouped with Grayburg Formation
	Artesia Group - Grayburg Formation	
	San Andres Limestone	
	Glorieta Sandstone	
	Tubb Formation	Typically grouped with Yeso Formation
	Yeso Formation	Confining zone for UIC wells WDW-1, WDW-2, and WDW-3
	Abo Formation	
	Wolfcamp	Injection zone for UIC wells WDW-1, WDW-2, and WDW-3
Pennsylvanian	Cisco Group	
	Canyon Group	
	Strawn Group	
	Chester	
Mississippian	Mississippian Series	Confining zone for UIC well WDW-4
	Woodford Shale	
Devonian	Devonian Series	Injection zone for UIC well WDW-4
	Montoya Dolomite	
	Simpson Group	
Ordovician	Ellenburger	

Sources: Comer, 1991; Kelley, 1971

Table 2. UIC Well and Borehole Coordinates

Name	Latitude	Longitude	Ground Surface Elevation (feet msl)	Depth (feet bgs)
WDW-1	32.78522	–104.21398	3,685	10,200
WDW-2	32.76366	–104.23848	3,613	10,372
WDW-3	32.77121	–104.23328	3,609	10,119
WDW-4	32.81581	–104.25003	4,525	10,910
WDW-1_MW-1	32.785007	–104.213931	3,604.1 [a]	500 [b]
WDW-2-BH-1	32.76360	–104.23860	3,613	160
WDW-3-BH-1	32.77114	–104.23344	3,609	160
WDW-4-BH-1	32.81586	–104.25011	4,525	150

Data are from surveys conducted for the installed monitor well at WDW-1 and for the WDW UIC wells. Borehole locations were collected based on field measurements not part of the formal site survey.
Datum is North American Datum (NAD)1983 and the geographic coordinate system is North American 1983.

[a] Top of casing elevation for WDW-1-MW-1 is 3607.3 feet above mean sea level (Appendix J).

[b] WDW-1-MW-1 borehole depth is 500 feet bgs; the total well depth is set at 320 feet bgs.

msl = Above mean sea level
bgs = Below ground surface

Table 3. WDW-1-MW-1 Analytical Results for Detected Constituents, June and August 2025
Page 1 of 2

Parameter	Units	NMAC Standard	Laboratory Reporting Limit	WDW-1-MW-1			Refinery Effluent	
				June 2025	August 2025	August 2025 (Duplicate)	April 2025	September 2025
2-Methylphenol	mg/L	NS	0.001	0.00033 J	0.000068 J	<0.000063	<0.019	0.015
2-Nitrophenol	mg/L	NS	0.001	0.00012 J	<0.000079	<0.000079	—	—
3&4 Methylphenol	mg/L	NS	0.001	0.00075 J	0.00044 J	0.00040 J	<0.020	<0.010
Barium	mg/L	2	0.003	0.087	0.058	0.062	0.058	0.085
Benzene	mg/L	0.005	0.001	0.00031 J	0.00019 J	0.00018 J	<0.00023	<0.2
Benzyl alcohol	mg/L	NS	0.001	0.00059 J	0.00018 J	0.00017 J	—	—
Boron	mg/L	0.75	0.4 [a]	**1.6**	**1.7**	**1.7**	—	—
Bromide	mg/L	NS	1.0 [a]	17	1.6	1.5	0.63	0.75 J
Calcium	mg/L	NS	10 [a]	820	730	720	440	570
Carbonate	mg/L	NS	2.0	27	16	17	<2.0	<5.0
Chloride	mg/L	250	50 [a]	**1,100**	**1,100**	**1,100**	**530**	**650**
Magnesium	mg/L	NS	10 [a]	51	110	100	170	190
Molybdenum	mg/L	1	0.008	0.080	0.053	0.049	—	—
Perchlorate	mg/L	NS	0.0002 [a]	0.00069	0.00054	0.00016 J	—	—
Perfluorohexanoic acid	mg/L	NS	0.0000018	0.0000017 J	0.00000088 J	0.00000052 J	—	—
Perfluorooctanoic acid	mg/L	NS	0.0000018	0.00000046 J	<0.00000047	<0.00000046	—	—
Perfluorooctanesulfonic acid	mg/L	NS	0.0000018	0.00000050 J	<0.00000047	<0.00000046	—	—
pH	s.u.	6–9	0.1	**9.5** HF	**9.2** HF	**9.2** HF	7.6 HF	7.6 HF
Phenol	mg/L	0.005	0.001	0.0022	<0.00028	<0.00028	—	—
Phenols, total	mg/L	0.005	0.005	**0.012**	<0.0020	<0.0020	—	—

Notes are provided at the end of the table.

Table 3. WDW-1-MW-1 Analytical Results for Detected Constituents, June and August 2025
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Parameter	Units	NMAC Standard	Laboratory Reporting Limit	WDW-1-MW-1			Refinery Effluent	
				June 2025	August 2025	August 2025 (Duplicate)	April 2025	September 2025
Potassium	mg/L	NS	1.0	28	31	29	47	71
Selenium	mg/L	0.05	0.005 [a]	0.0060	0.0023	0.0023	**0.074**	**0.12**
Silver	mg/L	0.05	0.005	0.011	0.0097	0.010	<0.025	<0.050
Sodium	mg/L	NS	10 [a]	520	430	420	1400	960
Specific Conductance	µmhos/cm	NS	10	5,800	5,800	5,700	8,600	7,200
Sulfate	mg/L	600	5.0 [a]	**1,800**	**1,900**	**1,900**	**1,800**	**3,200**
Toluene	mg/L	1	0.001	0.048	0.011	0.011	—	—
Total alkalinity	mg/L	NS	20	41	21	20	1,700	530
Total Dissolved Solids	mg/L	1000	50 [a]	**4,500 E**	**4,600 E**	**4,600 E**	**5,200**	**6,000**
Radium-226	pCi/L	5	1.0	0.965 ± 0.368	0.710 ± 0.303	1.03 ± 0.0340	—	—
Radium-228	pCi/L	5	1.0	1.70 ± 0.539	1.26 ± 0.640	0.753 ± 0.550	—	—

Bold indicates that value equals or exceeds standard.

[a] Reporting limit affected, detection higher than reporting limit

mg/L = Milligrams per liter
NS = No standard
s.u. = Standard units
µmhos/cm = Micromhos per centimeter
pCi/L = Picocuries per liter
— = Not analyzed
E = Result exceeded calibration range
HF = Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J = Result is less than the reporting limit but greater than or equal to the method detection limit; concentration is approximate

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Aluminum, dissolved	200.7	5	0.02	0.020	<0.020	0.020	<0.020	<0.020
Barium, dissolved	200.7	2	0.003	0.0030	0.087	0.030 [b]	0.058	0.062
Beryllium, dissolved	200.7	0.004	0.002	0.0020	<0.020	0.0020	<0.020	<0.020
Boron, dissolved	200.7	0.75	0.04	0.40 [b]	**1.6**	0.40 [b]	**1.7**	**1.7**
Calcium, dissolved	200.7	—	1	10 [b]	820	10 [b]	730	720
Cadmium, dissolved	200.7	0.005	0.002	0.0020	<0.0020	0.0020	<0.0020	<0.0020
Chromium, dissolved	200.7	0.05	0.006	0.0060	<0.0060	0.060 [b]	<0.060	<0.060
Cobalt, dissolved	200.7	0.05	0.006	0.0060	<0.0060	0.060 [b]	<0.060	<0.060
Iron, dissolved	200.7	1	0.02	0.020	<0.020	0.020	<0.020	<0.020
Magnesium, dissolved	200.7	—	1	10 [b]	51	10 [b]	110	100
Manganese, dissolved	200.7	0.2	0.002	0.0020	ND	0.020 [b]	0.065	0.063
Molybdenum, dissolved	200.7	1	0.008	0.0080	0.080	0.0080	0.053	0.049
Potassium, dissolved	200.7	—	1	1.0	28	1.0	31	29
Sodium, dissolved	200.7	—	1	10 [b]	520	10 [b]	430	420
Nickel, dissolved	200.7	0.2	0.01	0.010	<0.010	0.10 [b]	<0.10	<0.10
Zinc, dissolved	200.7	10	0.01	0.010	<0.010	0.10 [b]	<0.10	<0.10
Antimony, dissolved	200.8	0.006	0.001	0.0050 [b]	<0.0050	0.0010	0.00044 J	0.00055 J
Arsenic, dissolved	200.8	0.01	0.001	0.0025 [b]	<0.0025	0.00050	0.0013	0.0011
Copper, dissolved	200.8	1	0.001	0.0025 [b]	<0.00050	0.00050	<0.00050	0.00050

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Lead, dissolved	200.8	0.015	0.0005	0.0025 [b]	<0.0025	0.00050	<0.00050	<0.00050
Selenium, dissolved	200.8	0.05	0.001	0.0050 [b]	0.0060	0.0010	0.0023	0.0023
Silver, dissolved	200.7	0.05	0.005	0.0050	<0.0050	0.0050	0.0097	0.010
Thallium, dissolved	200.8	0.002	0.00025	0.0013 [b]	<0.0013	0.00025	<0.00025	0.00025
Uranium, dissolved	200.8	0.03	0.0005	0.0025 [b]	<0.0025	0.00050	<0.00050 ^+	<0.00050 ^+
Mercury, total	245.1	0.002	0.0002	0.00020	<0.00020	0.00020	<0.00020	<0.00020
Bromide	300	—	0.1	1.0 [b]	1.7	1.0 [b]	1.6	1.5
Chloride	300	250	0.5	50 [b]	**1,100**	50 [b]	**1,100**	**1,100**
Fluoride	300	1.6	0.1	1.0 [b]	ND	1.0 [b]	0.51 J	0.51 J
Nitrate	300	10	0.1	1.0 [b]	<1.0	1.0 [b]	<1.0	<1.0
Nitrite	300	1	0.1	10 [b]	<10	1.0 [b]	<1.0	<1.0
Sulfate	300	600	0.5	5.0 [b]	**1,800**	5.0 [b]	**1,900**	**1,900**
Perchlorate	331.0	—	0.00005	0.00020 [b]	0.00069	0.50 [b]	0.54	0.16 J
Cyanide	335.4 [c]	0.2	0.01	0.025 [b]	<0.025	0.025 [b]	<0.025	<0.025
1,2-Dibromoethane (EDB)	504.1 [c]	0.00005	0.00001	0.0000096	<0.0000096	0.001	< 0.001	< 0.001
Perfluorohexane sulfonic acid (PFHxS)	537	—	0.00001	0.0000018	<0.0000018	0.0000018	<0.0000018	<0.0000018
Perfluorooctane sulfonate (PFOS)	537	—	0.00001	0.0000018	0.00000050 J	0.0000018	<0.0000018	<0.0000018

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Perfluorooctanoic acid (PFOA)	537	—	0.00001	0.0000018	0.00000046 J	0.0000018	<0.0000018	<0.0000018
Perfluorohexanoic acid (PFHxA)	537	—		0.0000018	0.0000017 J	0.0000018	0.00000052 J	0.00000052 J
Aldrin	8081	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
DDT	8081	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Dieldrin	8081	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Polychlorinated biphenyls (PCBs)	8082	0.0005	0.00025	0.0004 [b]	<0.0004	0.00025	<0.00025	<0.00025
2,4,5-TP (Silvex)	8151	—	0.0001	0.00051 [b]	<0.00051	0.00054 [b]	<0.00054	<0.00054
2,4-D (2,4-Dichlorophenoxyacetic acid)	8151	—	0.0001	0.0051 [b]	<0.0051	0.0054 [b]	<0.0054	<0.0054
Monochlorobenzene	8260	—	0.0001	0.0001	<0.0001	0.001 [b]	<0.001	<0.001
Thiolane 1,1 dioxide (sulfolane)	8270	—	Narrative only	0.010	<0.010	0.010	<0.010	<0.010
2,4,6-Trinitrotoluene (TNT)	8330	—	0.00338	0.0011	<0.0011	0.0011	<0.0011	<0.0011
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	8330	—	0.00338	0.0011	<0.0011	0.0011	<0.0011	<0.0011
Octrahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	8330	—	0.00338	0.0011	<0.0011	0.0011	0.00022 J	0.00026 J

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Alkalinity, total	2320B	—	20	20	41	20	21	20
Bicarbonate	2320B	—	20	20	<20	20	<20	<20
Carbonate	2320B	—	2	2.0	27	20	16	17
Specific conductance (µmhos/cm), lab	2510B	—	10	10	5,800	10	5,800	5,700
Total dissolved solids	2540C	1,000	20	50 [b]	**4,500 E**	50 [b]	**4,600 E**	**4,600 E**
Chlordane	8081A [c]	—	0.001	0.0002	<0.0002	0.001	<0.001	<0.001
Endosulfan	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Endrin	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Heptachlor (and its epoxide)	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Hexachlorocyclohexane (HCH, lindane): alpha-HCH, beta-HCH, gamma-HCH, and technical-HCH	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Lindane	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Methoxychlor	8081A [c]	—	0.0001	0.000020	<0.000020	0.00010	<0.00010	<0.00010
Toxaphene	8081A [c]	—	0.001	0.0004	<0.0004	0.002 [b]	<0.002	<0.002
1,1,1-Trichloroethane (TCA)	8260B	0.2	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	8260B	0.01	0.001	0.002 [b]	<0.002	0.002 [b]	<0.002	<0.002
1,1,2-Trichloroethane	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
1,1-Dichloroethane	8260B	0.025	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,1-Dichloroethene (1,1-DCE)	8260B	0.007	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	8260B	0.07	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,2-Dichlorobenzene	8260B	0.6	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,2-Dichloroethane (EDC)	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,2-Dichloropropane	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001
1,4-Dichlorobenzene	8260B	0.075	0.001	0.001	<0.001	0.001	<0.001	<0.001
1-Methylnaphthalene	8260B	—	0.004	0.004	<0.004	0.004	<0.004	<0.004
2-Methylnaphthalene	8260B	—	0.004	0.004	<0.004	0.004	<0.004	<0.004
Acrolein	8260B	—	0.01	0.02*	<0.002	0.01	<0.001	<0.001
Acrylonitrile	8260B	—	0.01	0.01	<0.001	0.01	<0.001	<0.001
Benzene	8260B	0.005	0.001	0.001	0.00031 J	0.001	0.00019 J	0.00018 J
Bromodichloromethane	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Bromomethane	8260B	—	0.002	0.003 [b]	<0.003	0.003 [b]	<0.003	<0.003
Carbon tetrachloride	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001
Chlorobenzene	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Chloroform	8260B	0.1	0.001	0.001	<0.001	0.001	<0.001	<0.001
Chloromethane	8260B	—	0.001	0.003 [b]	<0.003	0.003 [b]	<0.003	<0.003

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Chloroethene (vinyl chloride)	8260B	—	0.001	0.002 [b]	<0.002	0.002 [b]	<0.002	<0.002
cis-1,2-dichloroethene	8260B	0.07	0.001	0.001	<0.001	0.001	<0.001	<0.001
Dichlorodifluoromethane (fluorocarbon-12)	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Ethylbenzene	8260B	0.7	0.001	0.001	<0.001	0.001	<0.001	<0.001
Methyl ethyl ketone	8260B	—	0.01	0.01	<0.01	0.01	<0.01	<0.01
Methyl tertiary-butyl ether (MTBE)	8260B	0.1	0.001	0.001	<0.001	0.001	<0.001	<0.001
Methylene chloride	8260B	0.005	0.001	0.0025	<0.0025	0.0025	<0.0025	<0.0025
Naphthalene (CAS 91-20-3)	8260B	—	0.002	0.002	<0.002	0.002	<0.002	<0.002
Styrene	8260B	0.1	0.001	0.001	<0.001	0.001	<0.001	<0.001
Tetrachloroethene (PCE)	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001
Tetrachloromethane (carbon tetrachloride)	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001
Toluene	8260B	1	0.001	0.001	0.048	0.001	0.011	0.011
trans-1,2-Dichloroethene	8260B	0.1	0.001	0.001	<0.001	0.001	<0.001	<0.001
Tribromomethane (bromoform)	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Trichloroethene (TCE)	8260B	0.005	0.001	0.001	<0.001	0.001	<0.001	<0.001

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
Trichlorofluoromethane (fluorocarbon-11)	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Trichloromethane (chloroform)	8260B	—	0.001	0.001	<0.001	0.001	<0.001	<0.001
Vinyl chloride	8260B	0.002	0.001	0.001	<0.001	0.001	<0.001	<0.001
Xylenes (total) including m-, o-, and p-xylenes	8260B	0.62	0.002	0.0015	<0.0015	0.0015	<0.0015	<0.0015
1,4-Dioxane	8270C [c]	—	0.001	0.00050	<0.00050	0.00050	<0.00050	<0.00050
2,4,5-Trichlorophenol	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
2,4,6-Trichlorophenol	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
2,4-Dichlorophenol	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
2,4-Dinitro-o-cresol	8270C	—	0.0005	0.002 [b]	<0.002	0.002 [b]	<0.002	<0.002
2,4-Dinitrotoluene	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
2,6-Dinitrotoluene (2,6-DNT)	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
3,4-Benzofluoranthene (	8270C	—	0.0005	0.00020	<0.00020	0.00020	<0.00020	<0.00020
Anthracene	8270C [c]	—	0.0003	0.00020	<0.00020	0.00020	<0.00020	<0.00020
Atrazine	8270C	0.003	0.0015	0.01 [b]	<0.01	0.00050	<0.00050	<0.00050
Benzidine	8270C	—	0.0005	0.025 [b]	<0.025	0.01 [b]	<0.01	<0.01
Benzo(k)fluoranthene	8270C [c]	—	0.0003	0.00020	0.00020	0.00020	<0.00020	0.00020
Benzo-a-pyrene	8270C [c]	0.0002	0.00014	0.000070	<0.000070	0.000070	<0.000070	<0.000070

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
bis (2-chloroethyl) ether	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
bis (2-chloroisopropyl) ether	8270C	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
Cresol (methylphenol sum)	8270C	—	0.0005	0.003	1.08 J	0.002	0.000508 J	0.00040 J
Di-2-ethylhexyl phthalate (DEHP)	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
Dibutyl phthalate	8270C [c]	—	0.0005	0.0015 [b]	ND	0.0015 [b]	ND	ND
3,3-Dichlorobenzidine	8270C [c]	—	0.0001	0.001	<0.001	0.001	<0.001	<0.001
Dichloropropenes	8270C [c]	—	0.0001	0.010 [b]	<0.010	0.010 [b]	<0.010	<0.010
Diethyl phthalate (DEP)	8270C [c]	—	0.0005	0.0015 [b]	<0.0015	0.0015 [b]	<0.0015	<0.0015
Dimethyl phthalate (DMP)	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
Dinitrophenols	8270C [c]	—	0.0001	0.003 [b]	<0.003	0.003 [b]	<0.003	<0.003
Diphenylhydrazine	8270C	—	0.0001	0.001 [b]	<0.001	—	—	—
Fluoranthene	8270C [c]	—	0.0003	0.0002	<0.0002	0.00020	<0.00020	<0.00020
Fluorene	8270C [c]	—	0.0003	0.0002	<0.0002	0.00020	<0.00020	<0.00020
Hexachlorobenzene	8270C [c]	—	0.0005	0.005 [b]	<0.005	0.005 [b]	<0.005	<0.005
Hexachlorobutadiene	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.005 [b]	<0.005	<0.005
Hexachlorocyclopentadiene	8270C [c]	—	0.0005	0.005 [b]	<0.005	0.005 [b]	<0.005	<0.005
Hexachloroethane	8270C [c]	—	0.0005	0.005 [b]	<0.005	0.005 [b]	<0.005	<0.005
Isophorone	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
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Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
m-Cresol and p-Cresol (3&4 methylphenol)	8270C	—	0.0005	0.0001	0.00075 J	0.001 [b]	0.00044 J	0.00040 J
Nitrobenzene	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
N-nitrosodibutylamine	8270C [c]	—	0.0005	0.001 [b]	<0.010	0.010 [b]	<0.010	<0.010
N-nitrosodiethylamine	8270C	—	0.0005	0.010 [b]	<0.010	0.010 [b]	<0.010	<0.010
N-nitrosodimethylamine	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
N-nitrosodiphenylamine	8270C [c]	—	0.0005	0.001 [b]	<0.001	0.001 [b]	<0.001	<0.001
N-nitrosopyrrolidine	8270C [c]	—	0.0005	0.010 [b]	<0.010	0.010 [b]	<0.010	<0.010
o-Cresol (2-methylphenol)	8270C [c]	—	0.0005	0.001	0.00033 J	0.001 [b]	0.000068 J	<0.001
PAHs (total napthalene plus monomethylnapthalenes)	8270C [c]	0.03	0.0003	0.01	<0.01	0.0006 [b]	<0.0006	<0.0006
Pentachlorobenzene	8270C [c]	—	0.0005	0.010	<0.010	0.010 [b]	<0.010	<0.010
Pentachlorophenol	8270C [c]	0.001	0.0003	0.00033	<0.00033	0.00033	<0.00033	<0.00033
Phenanthrene	8270C [c]	—	0.0003	0.00020	<0.00020	0.00020	<0.00020	<0.00020
Phenol	8270C [c]	0.005	0.0005	0.001 [b]	0.0022	0.010 [b]	<0.010	<0.010
Phenols, total	420.4	0.005	0.0005	0.005 [b]	**0.012**	0.0050	<0.0050	<0.0050
Prometon	8270C [c]	—	0.0005	0.0027 [b]	<0.0027	0.010 [b]	<0.010	<0.010
Pyrene	8270C [c]	—	0.0005	0.0002	<0.0002	0.00020	<0.00020	<0.00020
Pyridine	8270C [c]	—	0.0005	0.01 [b]	<0.01	0.010 [b]	<0.010 *+	<0.010 *+

Notes are provided at the end of the table.

Table 4. WDW-1-MW-1 Analytical Results
Page 10 of 11

Parameter	Laboratory Method	Concentration (mg/L [a])						
		NMAC Standard	Work Plan Reporting Limit	June 2025		August 2025		
				Laboratory Reporting Limit	WDW-1-MW-1	Laboratory Reporting Limit	WDW-1-MW-1	WDW-1-MW-1 (Duplicate)
1,2,4,5-Tetrachlorobenzene	8270E	—	0.0005	0.010 [b]	<0.010	0.010 [b]	<0.010	<0.010
2-Nitrophenol	8270E	—	—	0.001	0.00012 J	0.001	<0.001	<0.001
Benzyl alcohol	8270E	—	—	0.001	0.00059 J	0.001	0.00018 J	0.00017 J
Radium-226 and -228 combined (pCi/L)	903.0 and 904.0	5 pCi/L	<5	1.00	2.665 ± 0.907	1.00	1.97 ± 0.943	1.783 ± 0.89
pH (s.u.), lab	9040C [c]	6–9	~2–12	0.1	**9.5 HF**	0.1	**9.2 HF**	**9.2 HF**
pH (s.u.), field	Field	6–9	~2–12	—	**10.97**	—	**10.09**	**10.09**
Temperature (°C), field	Field	—	—	—	21.8	—	23.4	23.4
Dissolved oxygen, field	Field	—	—	—	2.9	—	0.75	0.75
Specific conductance (µmhos/cm), field	Field	—	—	—	5,874	—	5,090	5,090
Oxidation/reduction potential (mV), field	Field	—	—	—	–118.9	—	124.9	124.9
Turbidity (NTU), field	Field	—	—	—	7.12	—	0.02	0.02

Notes are provided on the next page.

Table 4. WDW-1-MW-1 Analytical Results
Page 11 of 11

Source: 20.6.2.3103 NMAC and 20.6.2.7 NMAC "Toxic Parameters"
Bold indicates that the value equals or exceeds standard.

[a] Unless otherwise noted.

[b] Reporting limit affected, detection is higher than reporting limit.

[c] Samples were tested under equivalent methods as follows: Method 335.4 was tested under SM 4500. Method 504.1 was tested under 8011. Method 8081A was tested under 8081B. Method 8270C was tested under 8270E. Total phenols were also tested under method 420.4. Method 9040C was tested under SM 4500.

mg/L = Milligrams per liter
— = Unspecified
µmhos/cm = Micromhos per centimeter
mV = Millivolts
NTU = Nephelometric turbidity unit(s)
pCi/L = Picocuries per liter
s.u. = Standard units
NA = Not applicable
E = Result exceeded calibration range
HF = Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request
J = Result is less than the reporting limit but greater than or equal to the MDL and the concentration is approximate
U = Result is less than the sample detection limit
^+ = Continuing calibration verification (CCV) is outside acceptance limits, high biased
*+ = LCS and/or LCSD is outside acceptance limits, high biased

Table 5. Water Quality Statistics, Effluent, Roswell Artesian Basin, and WDW-1-MW-1
Page 1 of 2

Analyte	Number of Samples	Concentration (mg/L [a])		
		Minimum	Maximum	Mean
HFSNR WWTP Effluent				
Bicarbonate	29	310	1,700	574
Conductivity (µS/cm)	29	4,100	8,600	6,376
Total dissolved solids	29	3,130	5,850	4,652
Chloride	29	300	860	539
Sulfate	29	1,500	3,400	2,193
Calcium	29	310	550	411
Magnesium	29	100	220	134
Sodium	29	360	1,400	774
Roswell Artesian Basin (RAB)				
Bicarbonate	632	126	876	282
Total dissolved solids	632	1.33	176,000	4,993
Chloride	632	3	115,000	1,202
Sulfate	632	59	9,600	1,095
Calcium	632	23	2,560	349.7
Magnesium	632	5.5	1,900	133
Sodium	632	1.6	9,000	677
WDW-1-MW-1				
Bicarbonate	2	<20	<20	<20
Conductivity (µS/cm)	2	5,800	5,800	5,800

Notes are provided at the end of the table.

Table 5. Water Quality Statistics, Effluent, Roswell Artesian Basin, and WDW-1-MW-1
Page 2 of 2

Analyte	Number of Samples	Concentration (mg/L [a])		
		Minimum	Maximum	Mean
WDW-1-MW-1 (cont.)				
Total dissolved solids	2	4,500	4,600	4,550
Chloride	2	1,100	1,100	1,100
Sulfate	2	1,800	1,900	1,850
Calcium	2	730	820	775
Magnesium	2	51	110	80.5
Sodium	2	430	520	475

Sources: Appendix L; Land, 2016
mg/L = Milligrams per liter
µS/cm = Microsiemens per centimeter

Appendix A

Work Plan

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Work Plan for Monitor Well Installation and Sampling
HF Sinclair Navajo Refinery
Artesia, New Mexico

1. Introduction

Daniel B. Stephens & Associates, Inc. (DBS&A) has prepared this work plan to install four monitor wells and complete water quality sampling at each of the four underground injection control (UIC) wells at the HF Sinclair Navajo Refinery (HFSNR) in Artesia, New Mexico. This work plan has been prepared on behalf of HFSNR at the request of the New Mexico Energy, Minerals, and Natural Resources Department (NMEMNRD) Oil Conservation Division (OCD). This work plan incorporates project details for the drilling of four monitor wells as stated in Condition 2B of the UIC discharge permits (UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4), which are up for renewal November 22, 2022. The described monitor wells are intended to evaluate the uppermost water-bearing unit downgradient of injection wells (WDW-1, -2, -3 and -4) for water level and water quality monitoring. All activities proposed in this work plan will be completed under the guidance of OCD's quality assurance project plan (QAPP) (OCD, 2014) and DBS&A standard operating procedures (SOPs).

2. Scope of Work

This work plan includes a detailed description of monitor well installation and groundwater quality monitoring as part of OCD's request and UIC discharge permits (UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4). Monitor well installation will meet requirements as stated in discharge permits Section 2B, as well as OCD e-mailed instructions, as follows:

> At least one groundwater monitoring well shall be installed in proximity of and hydrogeologically downgradient from WDW-2. The monitoring well(s) shall be screened into the uppermost water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table. (Discharge permit Section 2B)

Objective: Place a groundwater monitoring well within 50 ft hydrogeologically downgradient from each WDW injection well location with a quarterly monitoring schedule consistent with related permit reporting. Monitor well construction shall be as prescribed by the current permit or as approved by the OCD based on site-specific conditions. Provide well logs with water quality (i.e., General Chemistry, TPH and BTEX) data from completed and/or constructed MWs to complete the WQCC Public Notice process. (OCD requirements sent via e-mail by Carl Chavez)

2.1 Site Evaluation and Field Preparation

2.1.1 Project Planning

DBS&A will ensure that all necessary monitor well permits, UIC well access, and utility clearances are obtained. A site-specific health and safety plan (HASP) will be drafted to address health and safety issues associated with the proposed project activities. The HASP will be adhered to by all DBS&A personnel and subcontractors while working on the project.

The following is the projected milestone schedule for monitor well installation. The schedule is subject to change based on driller availability. The schedule with projected dates will be drafted upon OCD acceptance of the work plan and selection of the drilling contractor.

- New Mexico Office of the State Engineer (OSE) permits and drilling contractor quotes: 60 days from OCD work plan approval.
- Contract signed and work scheduled with drilling contractor: 90 days from OCD work plan approval.
- Drillers and DBS&A mobilize to the field: 120 days from contract date with drilling contractor [subject to change depending on driller availability].
- Drilling schedule will be communicated to OCD
  - Carl Chavez: 505.660.7923, carlj.chavez@emnrd.nm.gov
  - Phil Goetz: 505.660.8274, phillip.goetze@emnrd.nm.gov
- Monitor wells completed and developed: 60 days from field mobilization. Expecting each monitor well may require approximately 1.5 weeks for drilling, water-bearing zone evaluation, construction, and well development.
- Water quality sampling event: Within 60 days of completion and development of the monitor well.

- Monitor well survey: 90 days from date of completion of the monitor well [subject to change depending on contractor availability].
- Waste material characterization and disposal: 90 days from completion of the final monitor well [subject to change depending on contractor availability].
- Well completion report: 90 days after water quality results are received from the analytical laboratory.

2.1.2 Permitting and Well Locations

Bureau of Land Management (BLM) permit form SF-299 will be submitted upon OCD approval of this work plan. OSE W-07 form for monitor well installation will be submitted, with approval received prior to field mobilization. The current land owner for UIC well WDW-1 has been contacted for land access permissions. Written permission of access will be included in the OSE permit applications. Appropriate permits will be obtained with recognition that OCD has environmental jurisdiction. Every effort will be made to ensure permitting does not delay the schedule.

The proposed monitor well locations are provided on Figures 1 through 2d. Monitor well locations will be pre-approved by OCD prior to submission of permit applications. In compliance with OCD, each of the four monitor wells will be installed within 75 feet southwest (hydrologically downgradient) of each UIC well. Monitor wells have been located as close as possible to the requested OCD footage allowance of 50 feet and directionally to the southwest. Monitor wells locations were placed with OCD approval to avoid existing infrastructure and existing UIC well access points. Monitor wells are labeled with UIC well ID in addition to the MW-1 designation; for example, the monitor well at WDW-4 will receive a well name of WDW-4-MW-1 (Figures 1 and 2d).

2.1.3 Utility Clearance

Each of the four well locations will be cleared for underground lines or utilities through proper channels: New Mexico One Call (NMOC) and refinery historical documents and maps. The drilling contractor will be responsible for submitting the request to NMOC at least 10 days prior to project kickoff and drill rig mobilization. Each monitor well location will be clearly marked with stakes and a white paint circle per NMOC directions. In addition to the NMOC utility clearance, each monitor well location will be evaluated with a hydrovac unit. Prior to the hydrovac excavation, the hydrovac contractor will submit a NMOC within 48 hours of breaking

ground. Use of the hydrovac unit will follow standard clearance procedure as directed by HFSNR. The well location will be at the center of the 5-foot by 5-foot "L"-shaped excavation area, where the area will be cleared to a minimum depth of 10 feet. The excavated material will be visually inspected for any evidence of environmental contamination. Regardless of whether impacted or clean, the materials will be contained and transported within the vac truck to the refinery for safe storage and security. Materials will be labeled properly, characterized, and then appropriately managed with off-site disposal. The NMOC and the hydrovac clearance will be completed prior to any excavation by the drilling contractor.

2.1.4 Drilling Access

Existing dirt and gravel roads are expected to provide stable access for the drilling rig. No overhead obstacles exist.

2.2 Drilling and Well Installation

2.2.1 Drilling and Lithology

HF Sinclair will contract with a drilling contractor that has a current and valid New Mexico well driller license issued by the OSE per 19.27.4 NMAC. The driller will install one monitor well at each of the UIC well locations. Each monitor well will be installed within 75 feet southwest (hydrologically downgradient) of each existing UIC well. The proposed monitor well locations are provided on Figures 1 through 2d.

Because the depths of the significant water-bearing zones are unclear, a temporary well will be installed and used to evaluate observed water-bearing zones.

The drilling contractor will advance each borehole (one at each UIC well location) using a sonic drilling method. The borehole will be advanced to a depth of 70 feet, where water is expected based on other wells in the area. Starting at 70 feet, the sonic core barrel will be removed from the borehole prior to advancement of the sonic outer casing. Core samples from the core barrel will be evaluated by the on-site DBS&A geologist. If the core samples appear saturated, a temporary polyvinyl chloride (PVC) casing will be installed in the borehole, and groundwater will be allowed to fill the borehole for a period of 2 hours.

Borehole groundwater in this temporary setup will be purged with a bailer or pump for initial evaluation. Field parameters will be assessed and recorded from each water bearing zone

(i.e., temporary well). If parameters indicate a likely total dissolved solid (TDS) concentration above 10,000 mg/L, a laboratory water quality sample will be collected and analyzed for TDS.

If the borehole appears to yield significant water, an attempt will be made to determine the specific capacity of the well during bailing or pumping. Specific capacity is the flow rate divided by the change in drawdown. Evaluation of the specific capacity results, field observations, and best professional judgement will be used to determine if a significant water-bearing zone was found. In general, the objective is to locate the local or regional water table aquifer (if present), not a perched zone.

These processes will be repeated in an iterative fashion until the borehole reaches a total depth of 150 feet. The borehole will be advanced to 150 feet regardless of significant water-bearing zone evaluation results unless OCD directs otherwise during borehole installation.

If the formation collapses into the exposed borehole annular space and PVC cannot be lowered to the desired depth, a sonic hydropunch sampler will be advanced to the desired depth. The sonic water sampler is equipped with a solid retrievable point and 2-inch diameter stainless steel screen that is 2 feet in length. The water sampler screen will be exposed, and the borehole will be left for 2 hours to allow for groundwater evaluation.

Final well design will be determined using results from significant water-bearing zone evaluation and best professional judgement. We will attempt to contact OCD as needed during borehole installation and at the completion of borehole drilling for comment on the well design.

The monitor well(s) will be screened into the significant water-bearing unit using 15 feet of well screen with the top of the screened interval positioned 5 feet above the water table, as indicated in Section 2B of the UIC discharge permits (UICI-008-1, UICI-008-2, UICI-008-3, and UICI-008-4). If the well design yields a screen interval above the total borehole depth of 150 feet, a bentonite seal will be installed via tremie from borehole bottom to seal off the lower portion of the borehole. The bentonite seal will be allowed to hydrate per manufacturer guidelines, with a minimum hydration time of 1 hour.

If the borehole is advanced to 150 feet without identification of a significant water-bearing zone, no monitor well will be installed.

A photoionization detector (PID) will be available on-site and will be used to measure any core samples that appear to contain volatile organic compounds based on best professional judgement. If odor or visual staining indicates contamination in core samples, the core sample

section will be placed in zip-close bags in the sun for PID analysis (DBS&A SOP 3.8 included in Appendix A). Any cores with an indication of volatiles will be tested using the PID following the SOP in Appendix A. No soil samples will be submitted for laboratory analysis. DBS&A technical staff will maintain detailed logs of materials encountered during drilling and will supervise all field activities.

2.2.2 Construction Water

The drilling contractor will obtain access to potable water needed during construction. Sonic drilling requires 500 to 1,000 gallons of water per day to wet the geologic formation and release core materials from the override casing. Potable water is expected to be available at the refinery, and the drilling contractor is expected to coordinate with refinery staff. The drilling contractor will supply a water truck. U.S. Environmental Protection Agency (EPA) environmental site decontamination protocols will be followed at all times. Proper decontamination of the drill rig, tools, drill pipe, drill bits, and equipment cleaning will be completed with potable water on the well pad at each location. Any fluids generated or used in the process of decontamination will be contained and disposed of properly using containment pads or other appropriate materials.

2.2.3 Waste Disposal

All solid waste will be contained on location and removed by the refinery's on-site waste disposal contractor, S Brothers Waste Services, Inc. (S Brothers). All fluid waste will be contained in totes and transported to the refinery for disposal. All waste material will be visually inspected for any evidence of environmental contamination. The materials will be contained and transported to the refinery for storage and characterization. Materials (including hydrovac soils) will be hauled off-site for proper disposal.

2.2.4 Well Installation

As required by the OCD, monitor wells will be constructed in compliance with state requirements (OCD and Ground Water Quality Bureau Monitoring Well Construction and Abandonment Guidelines, Revision 1.1). Wells will be completed using single casing Schedule 40 (SCH 40) PVC materials. The wells will include 0.020-inch-slot, machine-cut, certa-lok well screen with blank casing to the surface. Well screen will be set to split the water table with the screened interval such that 5 feet of screen sits above the water table and 10 feet of screen sits below the water table. Due to a regional decline in groundwater levels, we may consider requesting a longer screen interval than the 15 feet required by OCD. A filter pack

consisting of 10/20 silica sand will be installed in the well annulus from the bottom of the soil boring to at least 2 feet above the top of the screen. A minimum 5-foot-thick, activated bentonite pellet seal will then be installed on top of the filter pack and hydrated. The remaining annulus will be filled with a cement/bentonite grout. Each well will be completed with an aluminum riser that is 2 to 3 feet above ground with a locking cap. If a well location is modified to an area with high truck traffic, a flush mount well construction will be considered. A 2-foot by 2-foot concrete pad that is 6 inches thick (minimum) will be poured around the well vault. Four bollards will be installed as a protection barrier for the well.

The drilling contractor will file all required documentation with the OSE (e.g., well records) within 30 days of monitor well installation.

2.2.5 Well Development

After completion, each newly installed monitor well will be developed by bailing and pumping methods. Pursuant to DBS&A SOPs (Appendix A), the well will be purged until temperature, pH, and conductivity have stabilized and turbidity has been reduced to the extent practicable. During pumping well development, water levels will be monitored, and an attempt will be made to calculate the specific capacity (which is the flow rate divided by the change in drawdown). All development water will be contained on-site and disposed of at the refinery or hauled off-site by S Brothers.

2.3 Water Quality Sampling

DBS&A field staff will measure fluid levels in each of the four newly installed monitor wells and will collect water quality samples for laboratory analysis. Water levels will be measured to the nearest hundredth of a foot (0.01 foot) using an electronic water level meter. The water level meter will be decontaminated between wells prior to gauging. The water level measurements will be used to develop a map showing the locations of all monitor wells and the direction and gradient of groundwater flow at the facility. Water quality sampling will be conducted within a few weeks (depending on pump availability) following well installation and development. Standard DBS&A procedures for low-flow well sampling will be followed (Appendix A).

Wells will be purged and sampled using permanent newly installed bladder pumps in each well. Water quality sample collection timing will be completed once QED or similar pumps are available. These bladder pumps will be installed to a depth such that the pump sits within the screened interval far enough off the bottom of the well to avoid any sediment entrainment into

the pump. Once the pumps have been installed, the QED controller will be set to a low flow rate (between 0.25 and 0.5 gallon per minute [gpm]). During purging, the DBS&A field technician will measure water quality parameters, including temperature, specific conductance, and pH, to ensure that these parameters stabilize to within 10 percent for specific conductance, 2°C for temperature, and ±0.2 pH units prior to sampling. Field parameters and volume purged will be recorded by DBS&A.

If a low-flow sampling technique cannot be sustained due to low formation water production, a standard three casing volume purge method will used. The water level measurement will be used to calculate purge volume, where a minimum of three casing volumes will be purged from each monitor well prior to sampling. Each monitor well will be purged to ensure that stagnant water is removed from the well and that a representative sample of groundwater is obtained. Field parameters will be collected at least every casing volume during purging.

If the well goes dry, DBS&A will collect a sample upon sufficient water recovery. Sample containers will be filled as directed by an appropriately accredited laboratory. Sample containers will be opened and filled directly; no container will be rinsed prior to sample collection. A minimum volume of 1 liter will be collected and properly field filtered, with acid preservation as directed by Hall Environmental Analysis Laboratory (HEAL).

Quality assurance samples will be collected as directed in the U.S. Environmental Protection Agency (EPA) and OCD's QAPP. For laboratory and field quality assurance, one duplicate, one field blank, one trip blank, and one equipment blank will be collected during each quarterly monitoring event. A blind duplicate will be collected and labeled such that the analytical laboratory cannot determine which location was duplicated. A sample ID such as DUP1-YYYYMMDD will be used. The field blank will consist of deionized water treated as a sample at the well location. The field blank will be labeled FB1-YYYYMMDD.

Samples will be analyzed at HEAL, an OCD approved and appropriately credited analytical laboratory, for the list of constituents in Table 1. These analyses will require approximately of 1 liter of sample. If sufficient sample is not available, analytical priority will be given to volatile organics and majors cations/anions. HEAL will apply the OCD laboratory services methods agreement to these samples.

Monitor wells will be sampled quarterly concurrent with UIC well sampling. The initial sample collection will be analyzed for the baseline list as indicated in Table 1. Results from the initial monitor well sample will be statistically compared to the associated UIC well and evaluated for

detections. HFSNR may petition OCD for a "one time" analyte list reduction for subsequent quarterly monitoring events based on evaluation of the baseline analytical results. Any reduction in analytical analysis must be approved by OCD prior to the quarterly monitoring event. If quarterly monitoring occurs before OCD has approved a reduction in analytes, the monitor wells will be sampled for the full baseline Table 1 analyte list.

2.4 Well Survey

The newly installed monitor wells will be surveyed by a New Mexico Licensed Professional Land Surveyor. Harcow Surveying has completed other surveying at the refinery; they will be contracted for this project. Survey points will be measured from ground level, top of casing inside the well riser, and the top of the cement well pad to the nearest 0.01 foot. Measurements will be collected based on feet above mean sea level from the nearest geodetic marker. Survey data will be collected based on New Mexico State Plane East Zone Coordinates and either collected or converted into latitude and longitude (to the nearest 5 decimal places) in North American Datum 1983 (NAD83).

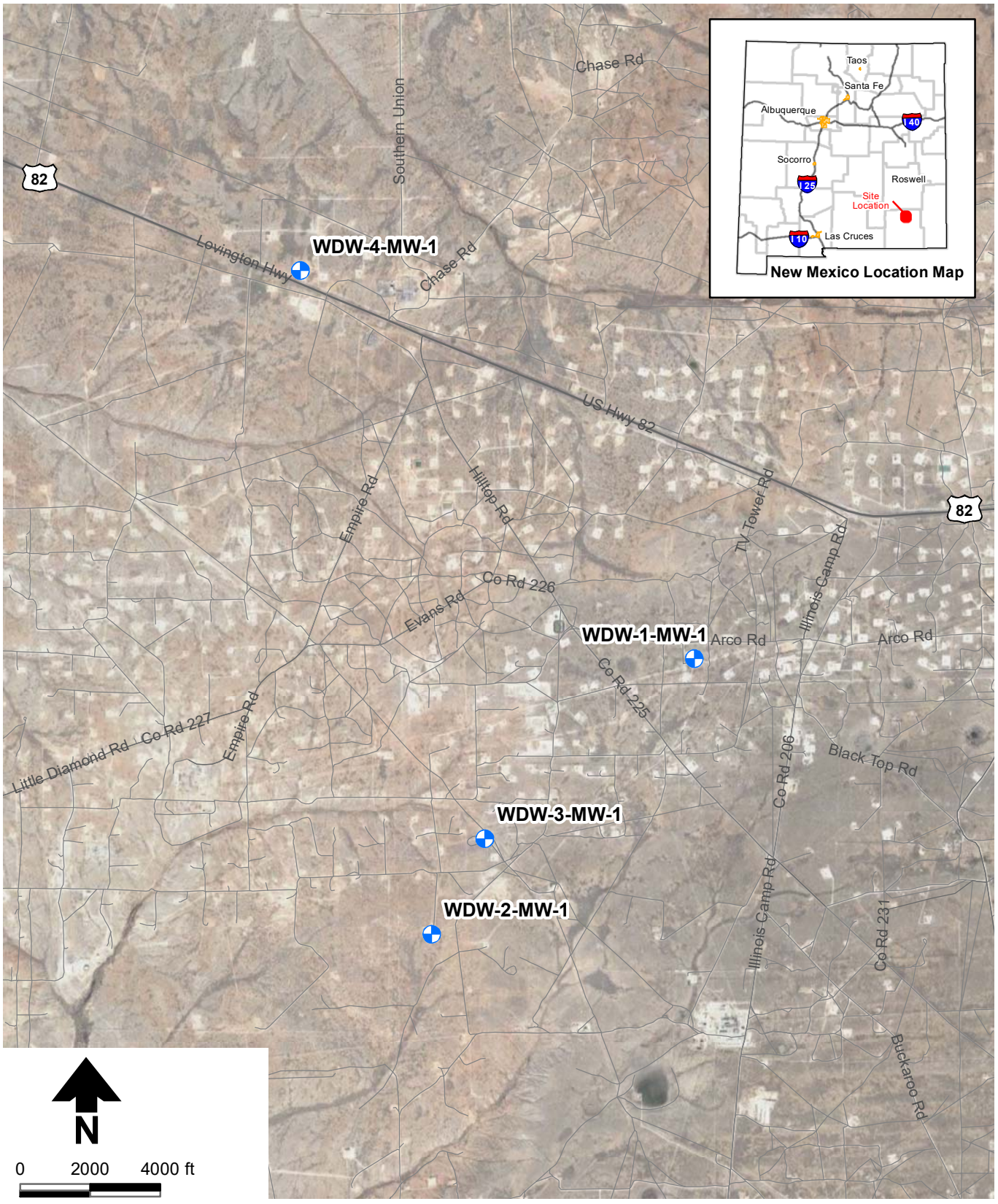
2.5 Reporting

DBS&A will prepare a well completion report summarizing project activities and well installation details. The report will contain all project-related information including survey-updated well location maps, copies of the OSE-approved permits, a description of drilling methods and materials, as-built monitor well diagrams, water quality results, and lithology. All obtained field data such also be included such as water quality parameters (pH, oxidation/ reduction potential [ORP], electrical conductivity [EC], temperature) and detailed field notes. Conclusion and recommendation sections will be part of the well completion report, as well an evaluation of water quality between the newly installed monitor wells and each associated UIC well.

Reference

New Mexico Energy, Minerals & Natural Resources Department Oil Conservation Division (OCD). 2014. *Quality assurance protection plan, Project management, measurement/data, acquisition, assessment, oversight, data validation and usability*. June 27, 2014.

Figures



Base image source: Google Earth Pro, 12/21/2019

Explanation

Proposed monitor well location

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\F01_AREA_MAP.MXD

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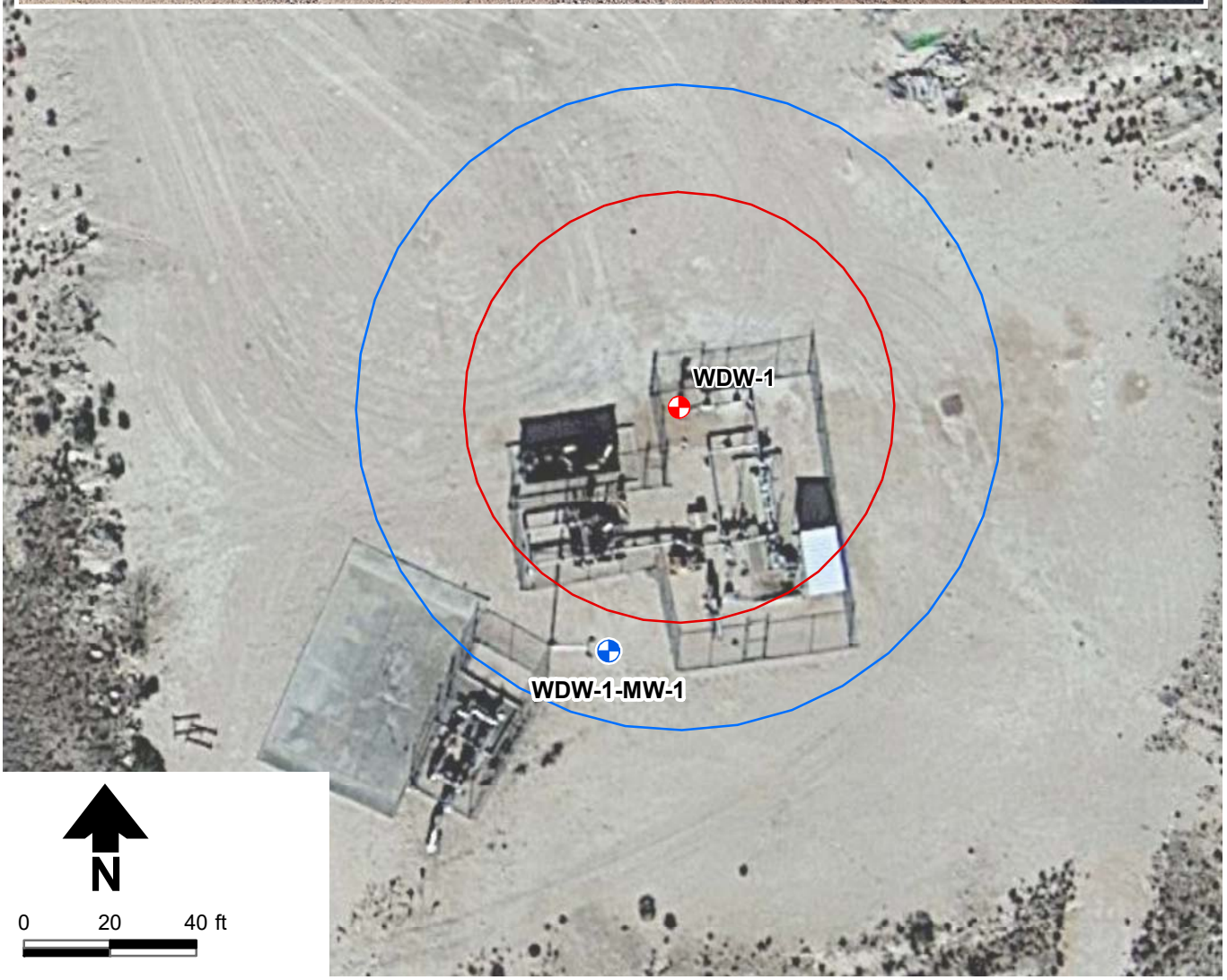
Area Map

Figure 1



Explanation

- Proposed monitor well
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\PROPOSED_MONITOR_WELLS\F02A_MONITOR_WELL-1.MXD

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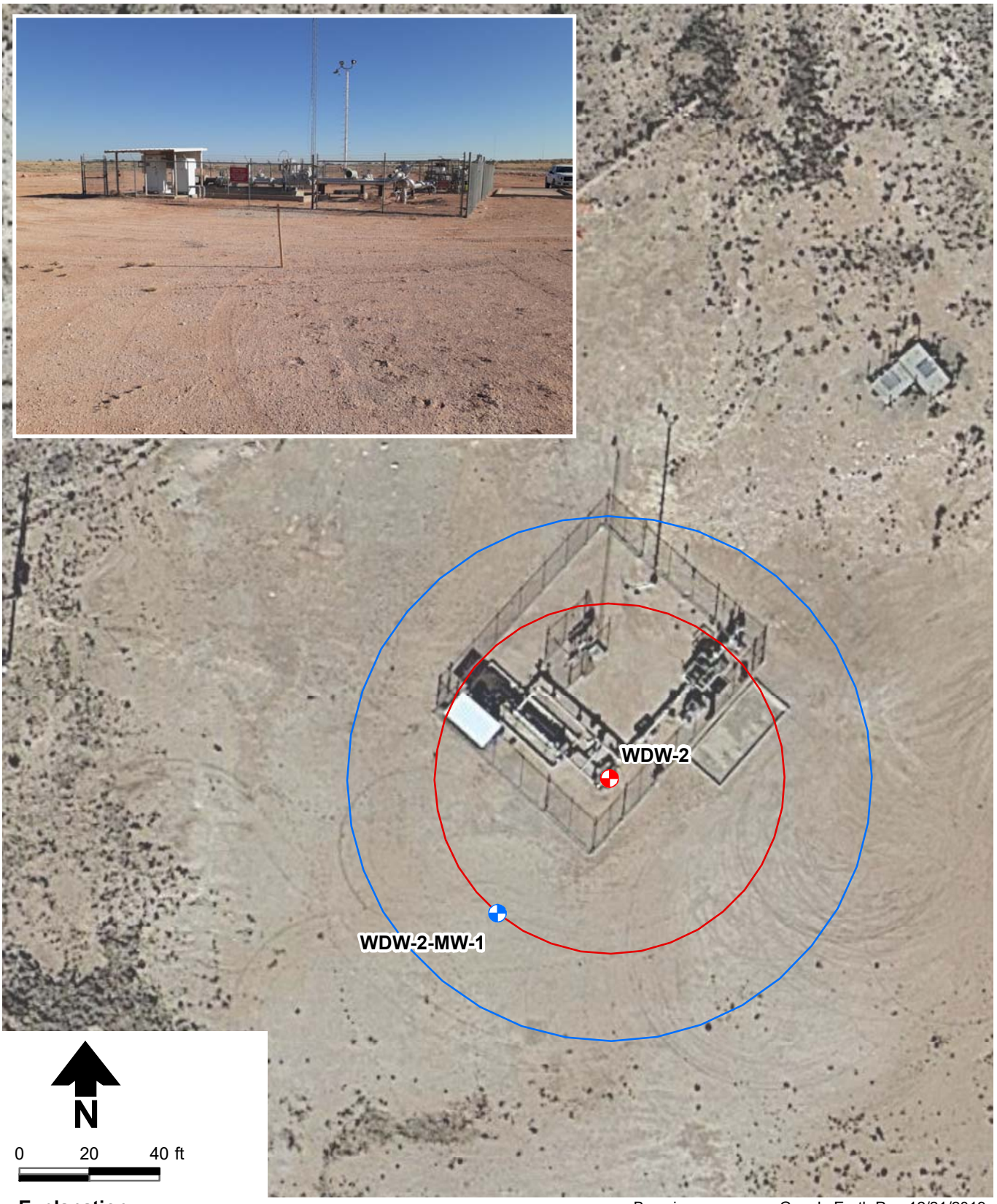
WDW-1

Proposed Monitor Well Location

Figure 2a



Explanation

- Proposed monitor well
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\PROPOSED_MONITOR_WELLS\F02B_MONITOR_WELL-2.MXD

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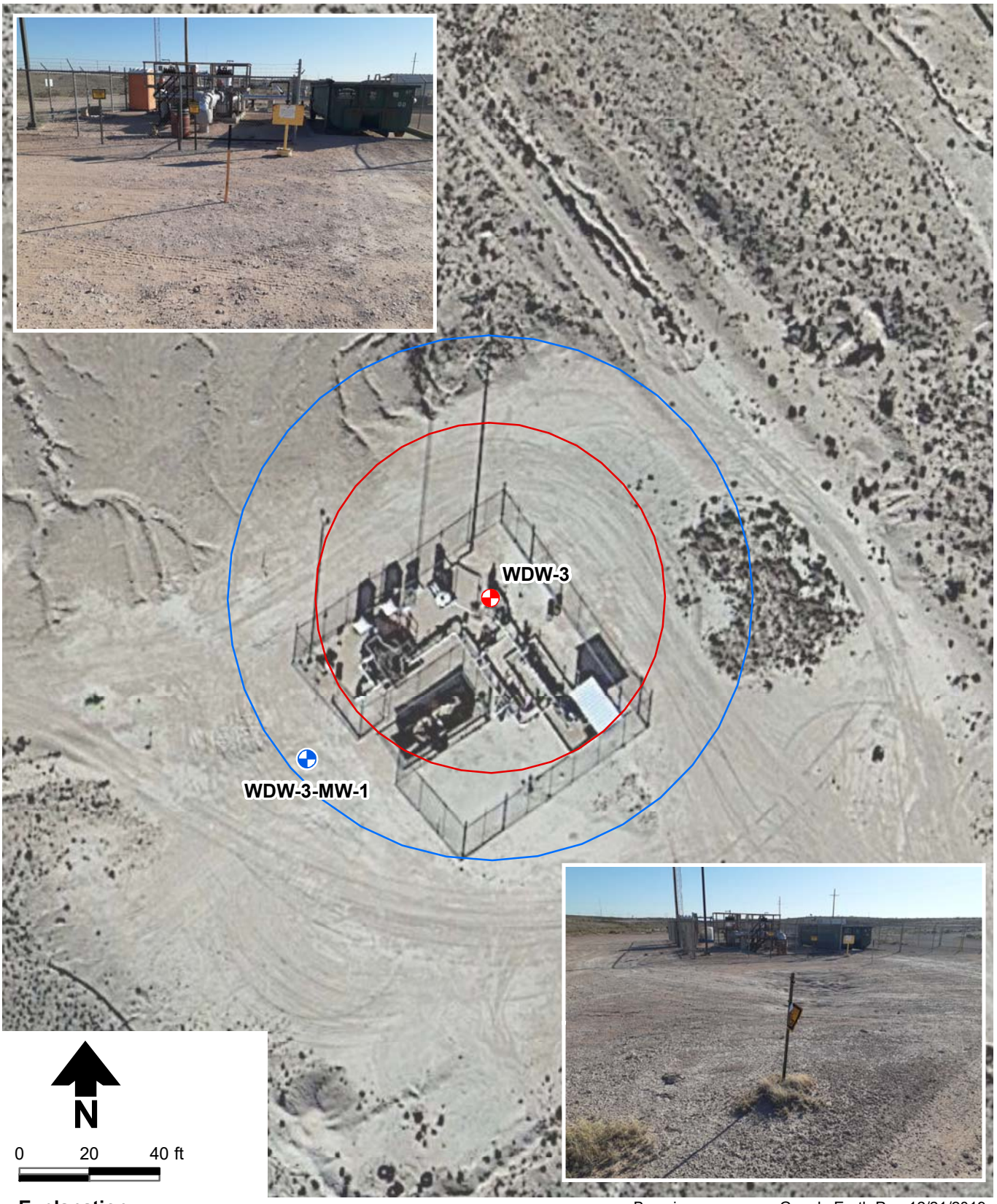
HF SINCLAIR NAVAJO REFINERY

WDW-2

Proposed Monitor Well Location

Figure 2b



Explanation

- Proposed monitor well
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

Base image source: Google Earth Pro, 12/21/2019

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\PROPOSED_MONITOR_WELLS\F02C_MONITOR_WELL-3.MXD

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3/15/2023 DB22.1134

HF SINCLAIR NAVAJO REFINERY

WDW-3

Proposed Monitor Well Location

Figure 2c

Base image source: Google Earth Pro, 12/21/2019

Explanation

- Proposed monitor well
- Underground Injection Control Well (UIC)
- 50 foot radius from UIC well
- 75 foot radius from UIC well

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\PROPOSED_MONITOR_WELLS\F02D_MONITOR_WELL-4.MXD

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3/15/2023 DB22.1134

HF SINCLAIR NAVAJO REFINERY

WDW-4

Proposed Monitor Well Location

Figure 2d

Table

Table 1. Analytical Parameters
Page 1 of 9

Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Aluminum, dissolved	200.7	5	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Barium, dissolved	200.7	2	0.003	1-125 mL HDPE (F+S)	HNO_3	128 days
Beryllium, dissolved	200.7	0.004	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Boron, dissolved	200.7	0.75	0.04	1-125 mL HDPE (F+S)	HNO_3	128 days
Calcium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Cadmium, dissolved	200.7	0.005	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Chromium, dissolved	200.7	0.05	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Cobalt, dissolved	200.7	0.5	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Iron, dissolved	200.7	1	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Magnesium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Manganese, dissolved	200.7	0.2	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Molybdenum, dissolved	200.7	1	0.008	1-125 mL HDPE (F+S)	HNO_3	128 days
Potassium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Sodium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Nickel, dissolved	200.7	0.2	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Zinc, dissolved	200.7	10	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Antimony, dissolved	200.8	0.006	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Arsenic, dissolved	200.8	0.01	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Copper, dissolved	200.8	1	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Lead, dissolved	200.8	0.015	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Selenium, dissolved	200.8	0.05	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Silver, dissolved	200.7	0.05	0.005	1-125 mL HDPE (F+S)	HNO_3	128 days
Thallium, dissolved	200.8	0.002	0.00025	1-125 mL HDPE (F+S)	HNO_3	128 days
Uranium, dissolved	200.8	0.03	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days
Mercury, total	245.1	0.002	0.0002	1-250 mL HDPE	HNO_3	28 days
Bromide	300	—	0.1	1-125 mL HDPE	Unpreserved	28 days
Chloride	300	250	0.5	1-125 mL HDPE	Unpreserved	28 days
Fluoride	300	1.6	0.1	1-250 mL HDPE	Unpreserved	28 days
Nitrate	300	10	0.1	1-125 mL HDPE	Unpreserved	48 hours
Nitrite	300	1	0.1	1-125 mL HDPE	Unpreserved	48 hours
Sulfate	300	600	0.5	1-125 mL HDPE	Unpreserved	28 days
Perchlorate (CAS 14797-73-0)	331.0	—	0.00005	1-125 mL plasstic	Unpreserved	28 days
Cyanide	335.4	0.2	0.01	1-500 mL plastic amber	NaOH	14 days
1,2-Dibromoethane (ethylene dibromide, EDB) (CAS 106-93-4)	504.1	0.00005	0.00001	2-40 mL VOAs	$Na_2S_2O_3$	14 days
Perfluorohexane sulfonic acid (PHHxS) (CAS 355-46-4)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctane sulfonate (PFOS) (CAS 1763-23-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctanoic acid (PFOA) (CAS 335-67-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Aldrin (CAS 309-00-2)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
DDT (CAS 50-29-3)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Dieldrin (CAS 60-57-1)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Polychlorinated biphenyls (PCBs) (CAS 1336-36-3)	8082	0.0005	0.00025	6-1 L glass amber	Unpreserved	40 days
2,4,5-TP (Silvex)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
2,4-D (2,4-Dichlorophenoxyacetic acid)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
Monochlorobenzene (CAS 108-90-7)	8260	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Thiolane 1,1 dioxide (sulfolane) (CAS 126-33-0)	8270	—	Narrative only	6-1 L glass amber	Unpreserved	7 days
2,4,6-Trinitrotoluene (TNT) (CAS 118-96-7)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (CAS 121-82-4)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Octrahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) (CAS 2691-41-0)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Alkalinity, total	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Bicarbonate	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Carbonate	2320B	—	2	1-250 mL HDPE	Unpreserved	14 days
Specific conductance (µmhos/cm)	2510B	—	10 µmhos/cm	1-125 mL HDPE	Unpreserved	28 days
Total dissolved solids	2540C	—	20	1-1 L HDPE	Unpreserved	7 days
Cadmium, dissolved	6010B	—	0.002	1-125 mL plastic (F&S)	HNO_3	180 days
Chlordane	8081A	—	0.001	2-40 mL VOAs	HCl	7 days
Endosulfan (CAS 115-29-7)	8081A	—	0.0001	2-40 mL VOAs	HCl	7 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Endrin	8081A	—	0.0001	4-40 mL VOAs	HCl	7 days
Heptachlor (and its epoxide)	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Hexachlorocyclohexane (HCH, lindane): alpha-HCH; beta-HCH; gamma-HCH; and, technical-HCH	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Lindane	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Methoxychlor	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Toxaphene	8081A	—	0.001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
1,1,1-Trichloroethane (TCA)	8260B	0.2	0.001	3-40 mL VOAs	HCl	14 days
1,1,2,2-Tetrachloroethane	8260B	0.01	0.001	3-40 mL VOAs	HCl	14 days
1,1,2-Trichloroethane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethane	8260B	0.025	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethene (1,1-DCE) (CAS 75-35-4)	8260B	0.007	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorobenzene (CAS 120-82-1)	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorophenol	8260B	—	Narrative only	3-40 mL VOAs	HCl	14 days
1,2-Dichlorobenzene	8260B	0.6	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloroethane (EDC)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloropropane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,4-Dichlorobenzene	8260B	0.075	0.001	3-40 mL VOAs	HCl	14 days
1-Methylnaphthalene (CAS 90-12-0)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days
2-Methylnaphthalene (CAS 91-57-6)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Acrolein (CAS 107-02-8)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Acrylonitrile (CAS 107-13-1)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Benzene	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Bromodichloromethane (CAS 75-27-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Bromomethane (CAS 74-83-9)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Carbon tetrachloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Chlorobenzene	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chloroform	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Chloromethane (CAS 74-87-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chlorothene (vinyl chloride) (CAS 75-01-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
cis-1,2-dichloroethene	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
Dichlorodifluoromethane (fluorocarbon-12) (CAS 75-71-8)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Ethylbenzene	8260B	0.7	0.001	3-40 mL VOAs	HCl	14 days
Methyl ethyl ketone	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Methyl tertiary-butyl ether (MTBE)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Methylene chloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Naphthalene (CAS 91-20-3)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Styrene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Tetrachloroethene (perchloroethylene, PCE) (CAS 127-18-4)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Tetrachloromethane (carbon tetrachloride) (CAS 56-23-5)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Toluene	8260B	1	0.001	3-40 mL VOAs	HCl	14 days
trans-1,2-Dichloroethene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Tribromomethane (bromoform) (CAS 75-25-2)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloroethylene (TCE)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Trichlorofluoromethane (fluorocarbon-11) (CAS 75-69-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloromethane (chloroform) (CAS 67-66-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Vinyl chloride	8260B	0.002	0.001	3-40 mL VOAs	HCl	14 days
Xylenes (total) including m-xylene, o-xylene and p-xylene	8260B	0.62	0.002	3-40 mL VOAs	HCl	14 days
1,4-Dioxane (CAS 123-91-1)	8270C	—	0.001	6-1 L glass amber	Unpreserved	14 days
2,4,5-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4,6-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dichlorophenol (CAS 120-83-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitro-o-cresol (CAS 534-52-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitrotoluene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,6-Dinitrotoluene (2,6-DNT) (CAS 606-20-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,4-Benzofluoranthene (CAS 205-99-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Anthracene (CAS 120-12-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Atrazine	8270C	0.003	0.0015	6-1 L glass amber	Unpreserved	14 days
Benzidine (CAS 92-87-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Benzo(k)fluoranthene (CAS 207-08-9)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Benzo-a-pyrene	8270C	0.0002	0.00014	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroethyl) ether (CAS 111-44-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroisopropyl) ether (CAS 108-60-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (chloromethyl) ether (CAS 542-88-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Di-2-ethylhexyl phthalate (DEHP) (CAS 117-81-7)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dibutyl phthalate (CAS 84-74-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,3-Dichlorobenzidine (CAS 91-94-1)	8270 C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Dichloropropenes (CAS 542-75-6)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diethyl phthalate (DEP) (CAS 84-66-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dimethyl phthalate (DMP) (CAS 131-11-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dinitrophenols (CAS 51-28-5)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diphenylhydrazine (CAS 122-66-7	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Fluoranthene (CAS 206-44-0)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Fluorene (CAS 86-73-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Hexachlorobenzene (CAS 118-74-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachlorobutadiene (CAS 87-68-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Hexachlorocyclopentadiene (CAS 77-47-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachloroethane	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Isophorone (CAS 78-59-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
m-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Nitrobenzene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodibutylamine (CAS 924-16-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodiethylamine (CAS 55-18-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodimethylamine (CAS 62-75-9)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodiphenylamine (CAS 86-30-6)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosopyrrolidine (CAS 930-55-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
o-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
PAHs (total napthalene plus monomethylnapthalenes)	8270C	0.03	0.0003	6-1 L glass amber	Unpreserved	14 days
p-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorobenzene (CAS 608-93-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorophenol	8270C	0.001	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenanthrene (CAS 85-01-8)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenol (CAS 108-95-2)	8270C	0.005	0.0005	2-1 L glass amber	H_2SO_4	7 days
Polynuclear aromatic hydrocarbons (PAHs)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Prometon (CAS 1610-18-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Parameter	Laboratory Method	Concentration (mg/L [a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Pyrene (CAS 129-00-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pyridine	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
1,2,4,5-Tetrachlorobenzene (CAS 95-94-3)	8270E	—	0.0005	6-1 L glass amber	Unpreserved	7 days
Radium-226 and -228 combined (pCi/L)	903.0 and 904.0	5 pCi/L	<5	2-1 L HDPE	HCl	180 days
pH (s.u.)	9040C	6–9	~2–12	1-1 L HDPE	Unpreserved	15 minutes
Cation/anion balance	Calculation	—	NA	—	—	—
Temperature (°C)	Provided with pH	—	—	—	—	—

Source: 20.6.2.3103 NMAC and 20.6.2.7 NMAC "Toxic Parameters"

[a] Unless otherwise noted

mg/L = Milligrams per liter
— = Unspecified
µmhos/cm = Micromhos per centimeter
pCi/L = Picocuries per liter
s.u. = Standard units
NA = Not applicable

Appendix A

DBS&A SOPs

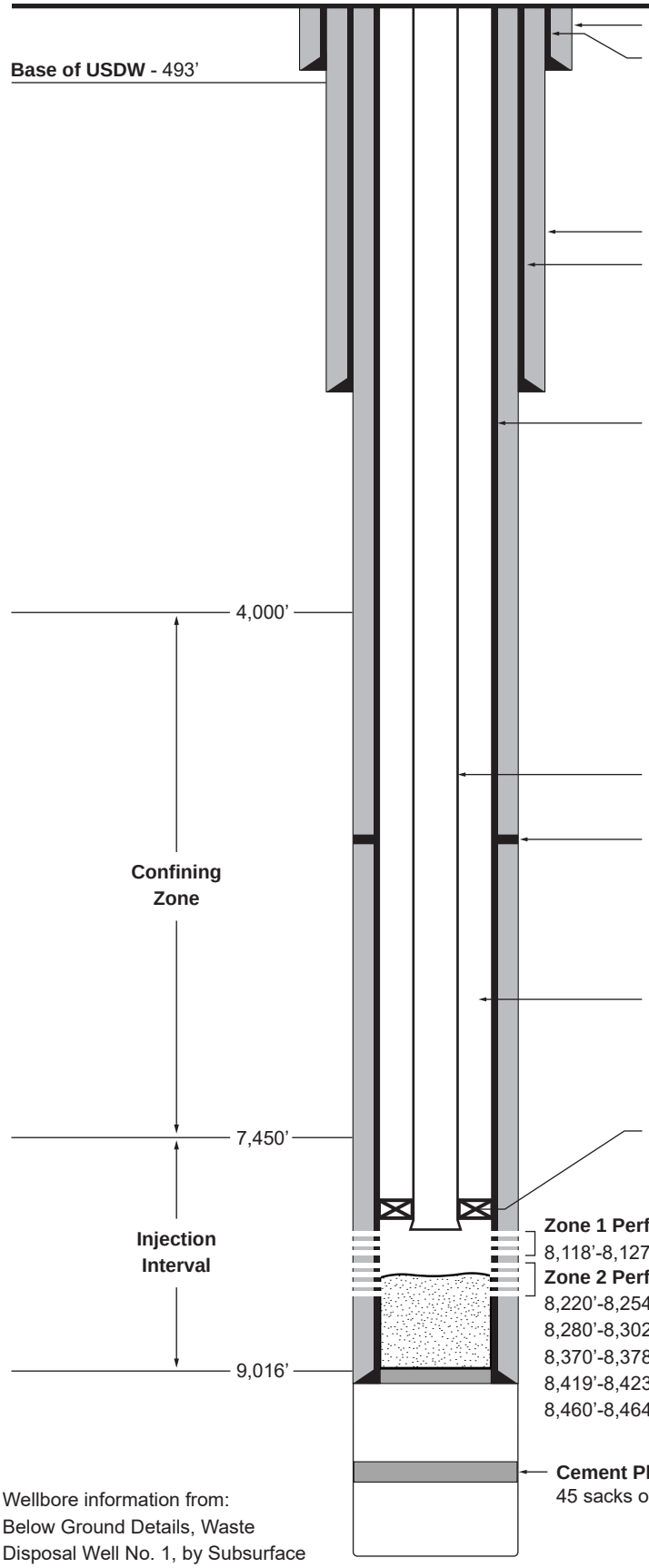
Appendix B

WDW UIC Well Diagrams

DBS&A
a Geo-Logic Company

OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Eddy County, New Mexico
Sec. 31, T17S-R28E
Lat. 32.78517° / Long. -104.21376° (NAD 83)

All depths referenced to Kelly Bushing (KB) elevation 2.5' above ground level.
Ground Level Elevation: +3,678' MSL



17-1/2" Hole

Surface Casing (0' - 390'): 13-3/8", 48 lb/ft, J-55, ST&C cemented to surface with 150 sacks of Class C with 3% calcium chloride, 375 sacks of Class C Litewate with 3% calcium chloride and 1/2 lb/sk flocele. Circulated 86 sacks to surface.

12-1/4" Hole

Intermediate Casing (0' - 2,555'): 9-5/8", 36 lb/ft, J-55, ST&C cemented with 800 sacks of Class C Lite with 1/2 lb/sk flocele and 2 lb/sk Gilsonite and 12% salt. Followed by 200 sacks of Class C with 2% calcium chloride. Circulated 133 sacks to surface.

Protection Casing (0' - 9,094'): 7", 26 lb/ft, P-110, LT&C (Surface - 5,845'). 7", 29 lb/ft, P-110, LT&C (5,845' - 7,031'). 7", 29 lb/ft, N-80, LT&C (7,031' - 9,094').

First Stage: 600 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 1 lb/sk salt mixed at 13.0 ppg. Opened DV tool at 5,498' and circulated 142 sacks to surface.

Second Stage: Lead Slurry: 220 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, 0.1% HR-7, and 1 lb/sk mixed at 13.0 ppg. Circulated 75 sacks to surface. Topped out with 20 sacks of premium plus 3% calcium chloride.

Injection Tubing (0' - 7,869'): 4-1/2", 11.6 lb/ft, L-80, LT&C

DV Tool (5,498')

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

Packer (7,869'): 7" x 2-7/8" Weatherford (Arrow), Model X-1 retrievable packer.

Zone 1 Perforations: 7,924'-7,942', 7,974'-8,030', 8,050'-8,056', 8,066-8,080', 8,118'-8,127', 8,132'-8,140', 8,160'-8,164', 8,170'-8,188'.

Zone 2 Perforations:
8,220'-8,254', 8,260'-8,270', 8,280'-8,302', 8,360'-8,366', 8,370'-8,378', 8,400'-8,410', 8,419'-8,423', 8,430'-8,446', 8,460'-8,464', 8,470'-8,476'.

Cement Plug (9,624' - 9,734'): 45 sacks of Class H

Top of Fill:
8,375' (Tagged 8/2021)

PBTD: 9,004'

TD: 10,200'

Wellbore information from: Below Ground Details, Waste Disposal Well No. 1, by Subsurface Technology, Figure 1, 2001 and 2018 Workover.

NOT TO SCALE

HF Sinclair

Figure X.8
Wellbore Schematic,
WDW-1

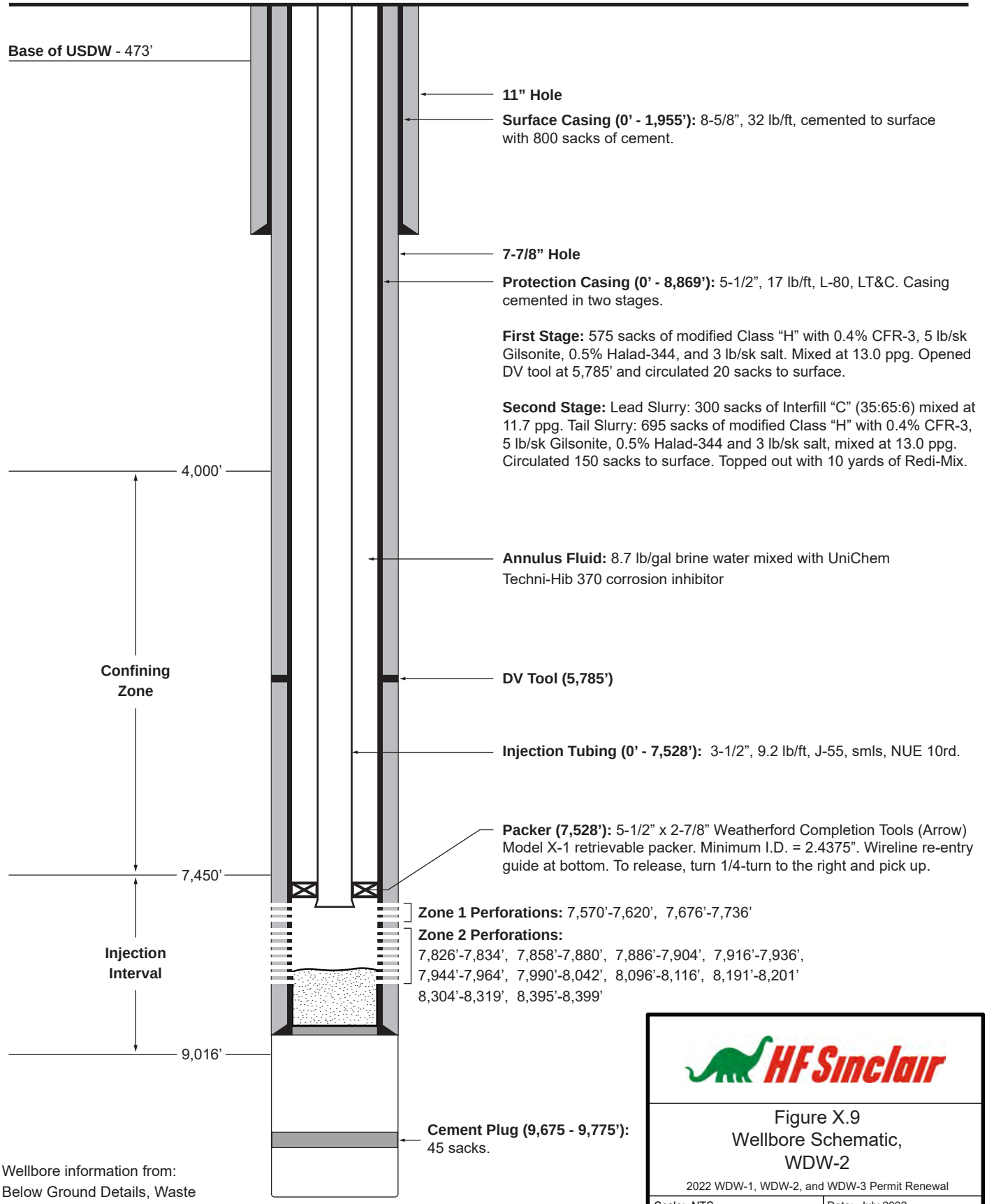
2022 WDW-1, WDW-2, and WDW-3 Permit Renewal

Scale: NTS	Date: July 2022	
Fig_X.08_HF_NM_2022_WDW123.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-2
Well API Number: 30-015-20894
Eddy County, New Mexico
Sec. 31, T17S-R27E
Lat. 32.763772° / Long. -104.238508° (NAD 83)

All depths referenced to Kelly Bushing (KB)
elevation 13' above ground level.
Ground Level Elevation: +3,610' MSL



Wellbore information from:
Below Ground Details, Waste Disposal Well No. 2, by Subsurface Technology, Figure 1, 2001.

NOT TO SCALE

HF Sinclair

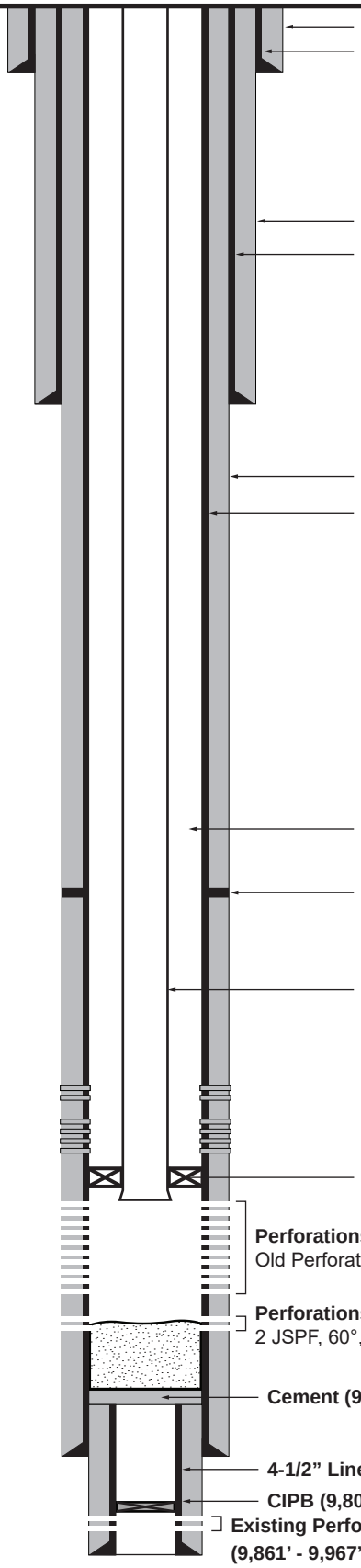
Figure X.9
Wellbore Schematic,
WDW-2

2022 WDW-1, WDW-2, and WDW-3 Permit Renewal

Scale: NTS	Date: July 2022	
Fig_X.08_HF_NM_2022_WDW123.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Eddy County, New Mexico
Sec. 31, T18S-R27E
Lat. 32.771186° / Long. -104.233306° (NAD 83)



17.5" Hole
Conductor Casing (0' - 400'): 13-3/8", 54.5 lb/ft, J-55 STC Steel, cemented to surface with 425 sacks of cement.

12.25" Hole
Surface Casing (0' - 2,604'): 9-5/8", 36 lb/ft, J-55 STC Steel, cemented to surface with 1,025 sacks of cement.

8-3/4" Hole
Protection Casing (0' - 9,450'): 7", 26 lb/ft & 29 lb/ft, N-80 & P110 Steel. Top of cement at 900', cement with 1,350 sacks of cement.

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

DV Tool (5,785')

Injection Tubing (0' - 7,568'): 4-1/2", 11.6 lb/ft, J-55 LTC Steel, no nipples, Injection Tubing - 10/24/06.

Packer (7,575'): 7" x 2-7/8" Arrow X-1 Packer, no nipples, 37K Tension.

Perforations (7,660' - 8,450'): 2 JSPF, 60°, 0.5"
Old Perforations Open: 7,676' - 7,698'

Perforations (8,540' - 8,620'):
2 JSPF, 60°, 0.5"

Cement (9,022')

4-1/2" Liner (9,051' - 10,119')

CIPB (9,800'): 35' of cement.

Existing Perforations (9,861' - 9,967')

Top of Fill:
8,604' (Tagged 8/2021)

PBTD: 9,022'
TD: 10,119'

Wellbore information from:
Gaines Well #3 Navajo
Refining schematic by
Subsurface Technology, 2009.

NOT TO SCALE

HF Sinclair

Figure X.10
Wellbore Schematic,
WDW-3

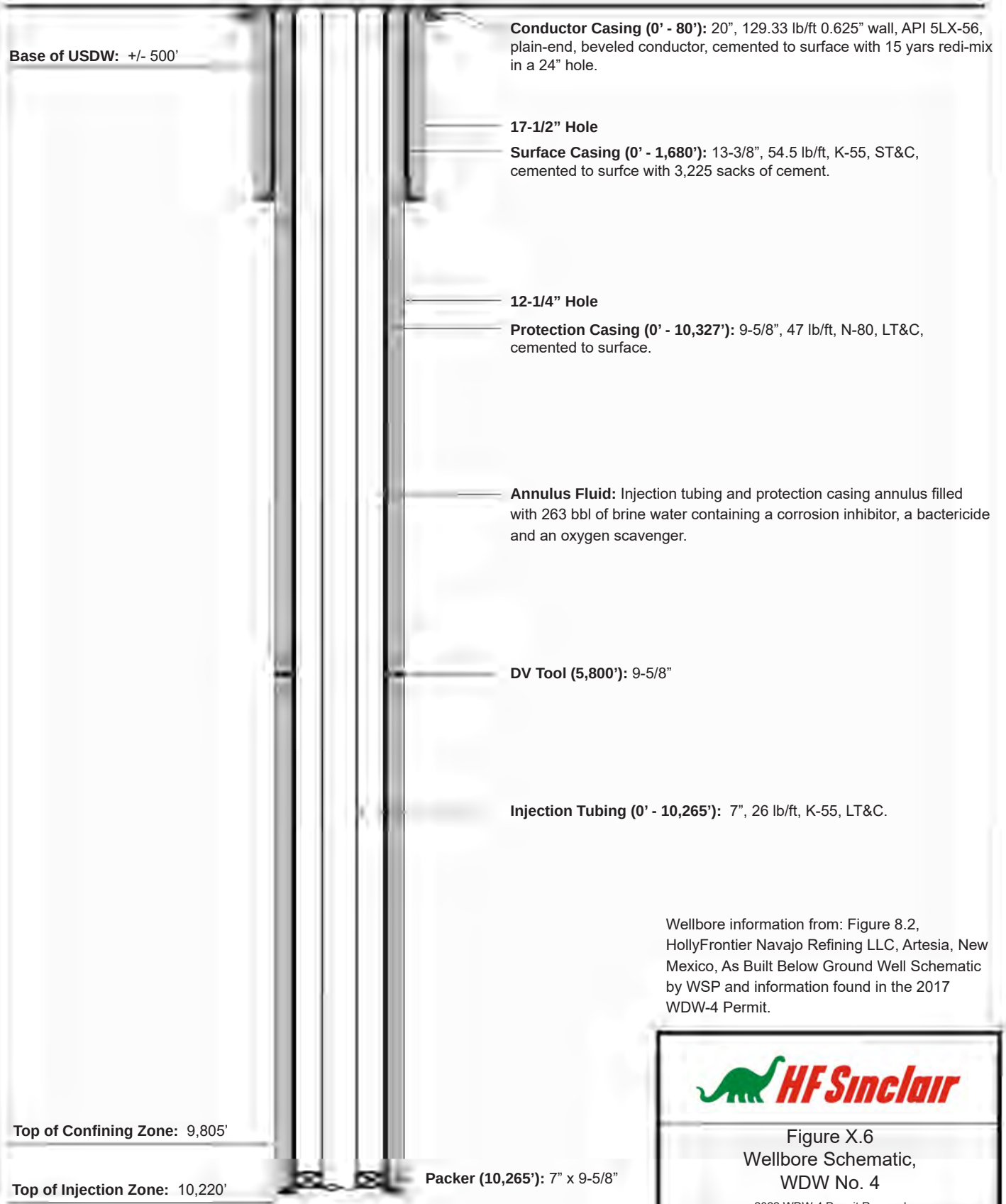
2022 WDW-1, WDW-2, and WDW-3 Permit Renewal

Scale: NTS	Date: July 2022	
Fig_X.10_HF_NM_2022_WDW123.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-4
Well API Number: 30-015-44677
Eddy County, New Mexico
Sec. 23, T17S-R27E
Lat. 32.815970° / Long. -104.250174° (NAD 83)

All depths referenced to Kelly Bushing (KB) elevation 20' above ground level.
Ground Level Elevation: +3,563'



Base of USDW: +/- 500'

Conductor Casing (0' - 80'): 20", 129.33 lb/ft 0.625" wall, API 5LX-56, plain-end, beveled conductor, cemented to surface with 15 yars redi-mix in a 24" hole.

17-1/2" Hole

Surface Casing (0' - 1,680'): 13-3/8", 54.5 lb/ft, K-55, ST&C, cemented to surfce with 3,225 sacks of cement.

12-1/4" Hole

Protection Casing (0' - 10,327'): 9-5/8", 47 lb/ft, N-80, LT&C, cemented to surface.

Annulus Fluid: Injection tubing and protection casing annulus filled with 263 bbl of brine water containing a corrosion inhibitor, a bactericide and an oxygen scavenger.

DV Tool (5,800'): 9-5/8"

Injection Tubing (0' - 10,265'): 7", 26 lb/ft, K-55, LT&C.

Top of Confining Zone: 9,805'

Top of Injection Zone: 10,220'

Base of Injection Zone: ~10,885'

Packer (10,265'): 7" x 9-5/8"

Open Hole: 8-1/2" to 10,700'.

TD: 10,700'

NOT TO SCALE

Wellbore information from: Figure 8.2, HollyFrontier Navajo Refining LLC, Artesia, New Mexico, As Built Below Ground Well Schematic by WSP and information found in the 2017 WDW-4 Permit.

HF Sinclair

Figure X.6
Wellbore Schematic,
WDW No. 4

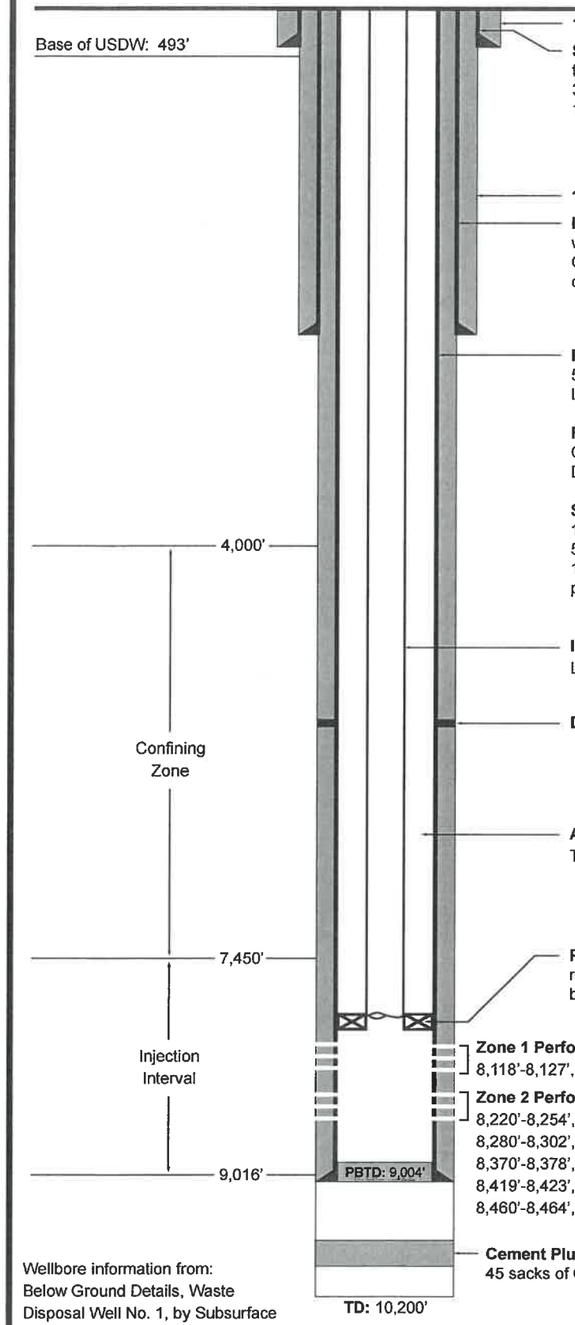
2022 WDW-4 Permit Renewal

Scale: NTS	Date: July 2022	
Fig_X.06_HF_NM_2022_WDW04.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Sec. 31, T17S, R28E - Eddy County, New Mexico
SHL: Lat. 32.78517°, Long. -104.21376°

All depths are referenced to the Kelly bushing elevation 12.5' above ground level. Ground level elevation is 3,678' above mean sea level.



17-1/2" Hole

Surface Casing (0' - 390'): 13-3/8", 48 lb/ft, J-55, ST&C cemented to surface with 150 sacks of Class C with 3% calcium chloride, 375 sacks of Class C Litewate with 3% calcium chloride and 1/2 lb/sk flocele. Circulated 86 sacks to surface.

12-1/4" Hole

Intermediate Casing (0' - 2,555'): 9-5/8", 36 lb/ft, J-55, ST&C cemented with 800 sacks of Class C Lite with 1/2 lb/sk flocele and 2 lb/sk Gilsonite and 12% salt. Followed by 200 sacks of Class C with 2% calcium chloride. Circulated 133 sacks to surface.

Protection Casing (0' - 9,094'): 7", 26 lb/ft, P-110, LT&C (Surface - 5,845'). 7", 29 lb/ft, P-110, LT&C (5,845' - 7,031'). 7", 29 lb/ft, N-80, LT&C (7,031' - 9,094').

First Stage: 600 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 1 lb/sk salt mixed at 13.0 ppg. Opened DV tool at 5,498' and circulated 142 sacks to surface.

Second Stage: Lead Slurry: 220 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, 0.1% HR-7, and 1 lb/sk mixed at 13.0 ppg. Circulated 75 sacks to surface. Topped out with 20 sacks of premium plus 3% calcium chloride.

Injection Tubing (0' - 7,879'): 4-1/2", 11.6 lb/ft, N-80, SMLS, R3, LT&C

DV Tool (5,498')

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

Packer (7,879'): 7" x 3-1/2" EVI Oil Tools (Arrow), Model X-1 retrievable packer. Minimum I.D. = 3.0". Wireline re-entry guide at bottom. To release, turn 1/4-turn to the right and pick up.

Zone 1 Perforations: 7,924'-7,942', 7,974'-8,030', 8,050'-8,056', 8,066-8,080', 8,118'-8,127', 8,132'-8,140', 8,160'-8,164', 8,170'-8,188'.

Zone 2 Perforations: 8,220'-8,254', 8,260'-8,270', 8,280'-8,302', 8,360'-8,366', 8,370'-8,378', 8,400'-8,410', 8,419'-8,423', 8,430'-8,446', 8,460'-8,464', 8,470'-8,476'.

Cement Plug (9,624' - 9,734'): 45 sacks of Class H

Wellbore information from: Below Ground Details, Waste Disposal Well No. 1, by Subsurface Technology, Figure 1, 2001.

NOT TO SCALE

HOLLYFRONTIER

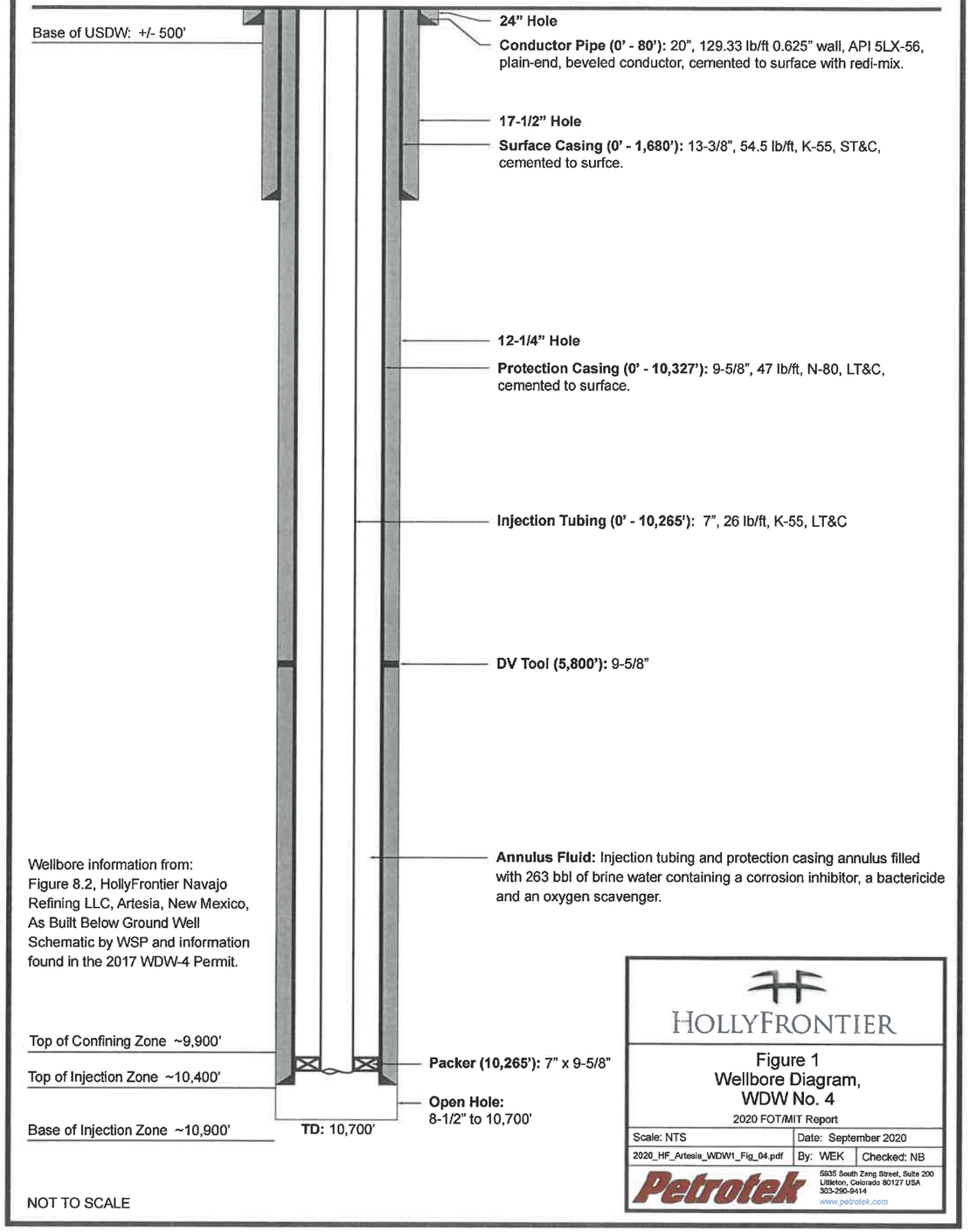
Figure 1
Wellbore Diagram,
WDW No. 1
2020 FOT/MIT Report

Scale: NTS	Date: August 2020	
2020_HF_Artesia_WDW1_Fig_01.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-4
Well API Number: 30-015-44677
Sec. 23, T17S, R27E - Eddy County, New Mexico
SHL: Lat. 32.81581°, Long. -104.25003°

All depths are referenced to the Kelly bushing elevation 20' above ground level. Ground level elevation is 3,563' above mean sea level.



Wellbore information from:
Figure 8.2, HollyFrontier Navajo Refining LLC, Artesia, New Mexico, As Built Below Ground Well Schematic by WSP and information found in the 2017 WDW-4 Permit.

NOT TO SCALE

HOLLYFRONTIER

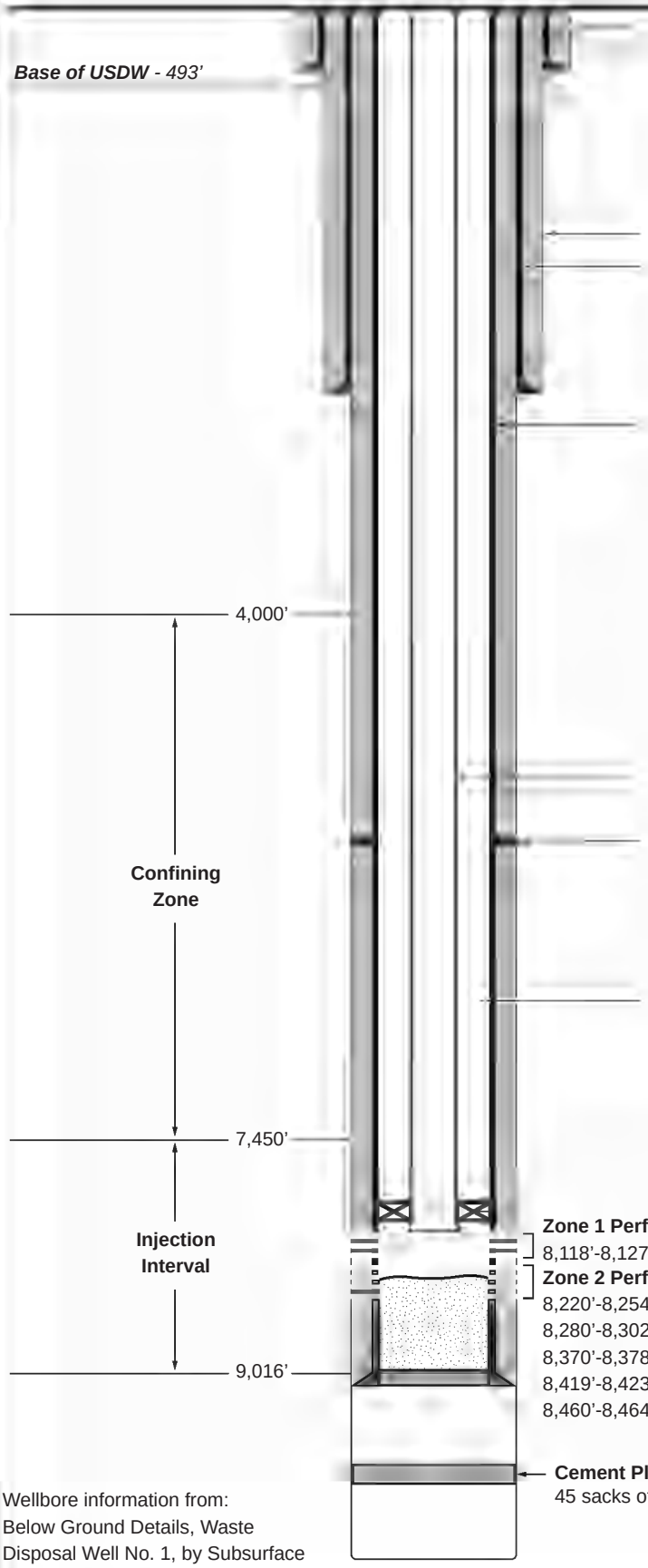
Figure 1
Wellbore Diagram,
WDW No. 4
2020 FOT/MIT Report

Scale: NTS	Date: September 2020	
2020_HF_Artesia_WDW1_Fig_04.pdf	By: WEK	Checked: NB

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-1
Well API Number: 30-015-27592
Eddy County, New Mexico
Sec. 31, T17S-R28E
Lat. 32.78517° / Long. -104.21376° (NAD 83)

Note: All depths referenced to Kelly Bushing (KB) elevation 2.5' above ground level.
Ground Level Elevation: +3,678' MSL



17-1/2" Hole

Surface Casing (0' - 390'): 13-3/8", 48 lb/ft, J-55, ST&C

Cement: to surface with 150 sacks of Class C with 3% calcium chloride, 375 sacks of Class C Litewate with 3% calcium chloride and 1/2 lb/sk flocele. Circulated 86 sacks to surface.

12-1/4" Hole

Intermediate Casing (0' - 2,555'): 9-5/8", 36 lb/ft, J-55, ST&C

Cement: 800 sacks of Class C Lite with 1/2 lb/sk flocele and 2 lb/sk Gilsonite and 12% salt. Followed by 200 sacks of Class C with 2% calcium chloride. Circulated 133 sacks to surface.

Protection Casing (0' - 9,094'): 7", 26 lb/ft, P-110, LT&C (Surface - 5,845'). 7", 29 lb/ft, P-110, LT&C (5,845' - 7,031'). 7", 29 lb/ft, N-80, LT&C (7,031' - 9,094').

First Stage: 600 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, and 1 lb/sk salt mixed at 13.0 ppg. Opened DV tool at 5,498' and circulated 142 sacks to surface.

Second Stage: Lead Slurry: 220 sacks of Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sacks of modified Class "H" with 0.4% CFR-3, 5 lb/sk Gilsonite, 0.5% Halad-344, 0.1% HR-7, and 1 lb/sk mixed at 13.0 ppg. Circulated 75 sacks to surface. Topped out with 20 sacks of premium plus 3% calcium chloride.

Injection Tubing (0' - 7,869'): 4-1/2", 11.6 lb/ft, L-80, LT&C

DV Tool (5,498')

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor

Packer (7,869'): 7" x 2-7/8" Weatherford (Arrow), Model X-1 retrievable packer.

Zone 1 Perforations: 7,924'-7,942', 7,974'-8,030', 8,050'-8,056', 8,066-8,080', 8,118'-8,127', 8,132'-8,140', 8,160'-8,164', 8,170'-8,188'.

Zone 2 Perforations:
8,220'-8,254', 8,260'-8,270', 8,280'-8,302', 8,360'-8,366', 8,370'-8,378', 8,400'-8,410', 8,419'-8,423', 8,430'-8,446', 8,460'-8,464', 8,470'-8,476'.

Cement Plug (9,624' - 9,734'): 45 sacks of Class H

Top of Fill:
8,400' (Tagged 8/2022)

PBTD: 9,004'

TD: 10,200'

Wellbore information from: Below Ground Details, Waste Disposal Well No. 1, by Subsurface Technology, Figure 1, 2001 and 2018 Workover.

NOT TO SCALE

HF Sinclair

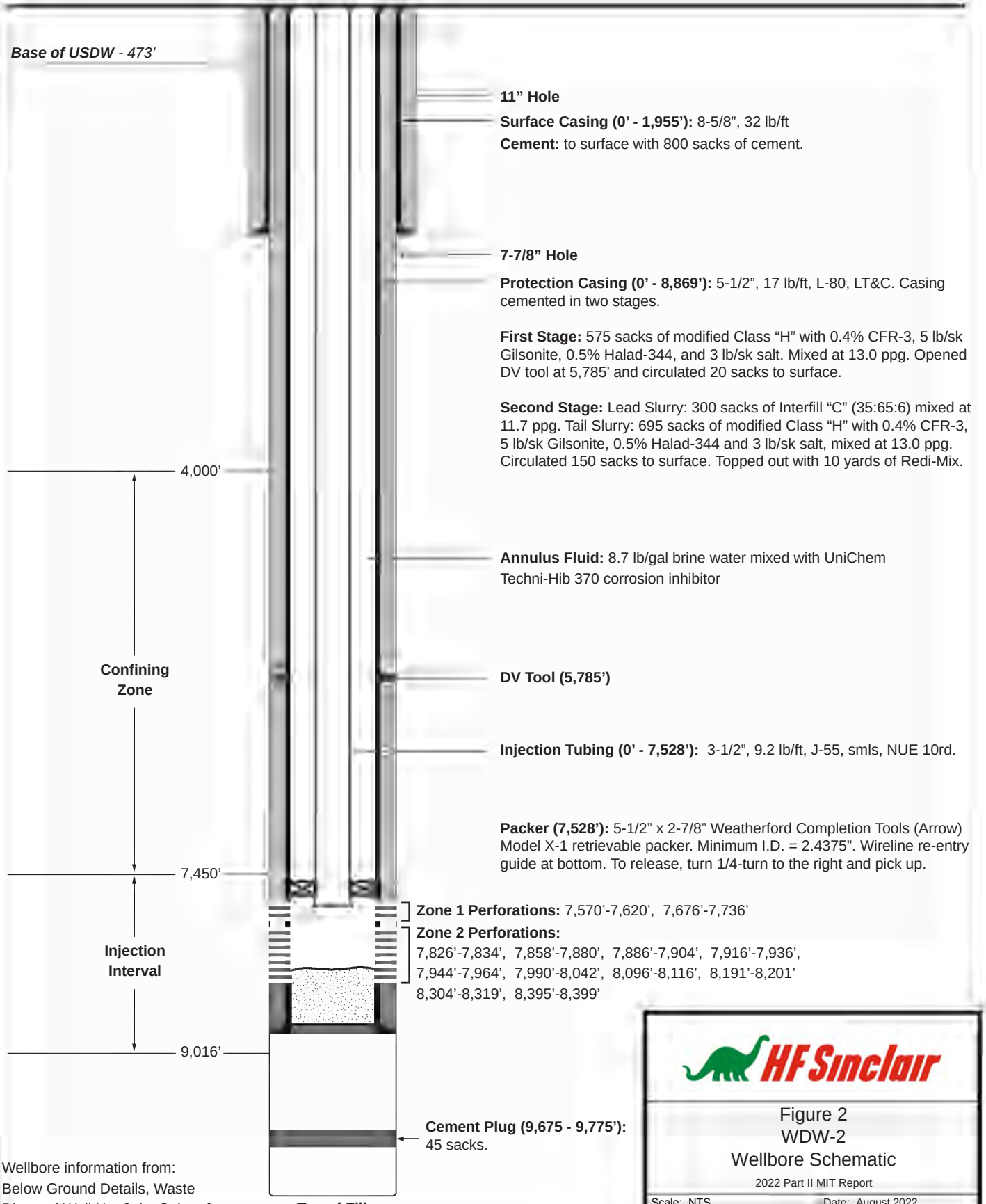
Figure 1
WDW-1,
Wellbore Schematic
2022 Part II MIT Report

Scale: NTS	Date: August 2022
Fig_01_HFNM_2022_Part_II_MIT.pdf	By: WEK Checked: DH

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-2
Well API Number: 30-015-20894
Eddy County, New Mexico
Sec. 31, T17S-R27E
Lat. 32.763772° / Long. -104.238508° (NAD 83)

Note: All depths referenced to Kelly Bushing (KB) elevation 13' above ground level.
Ground Level Elevation: +3,610' MSL



Wellbore information from:
Below Ground Details, Waste Disposal Well No. 2, by Subsurface Technology, Figure 1, 2001.

NOT TO SCALE

HF Sinclair

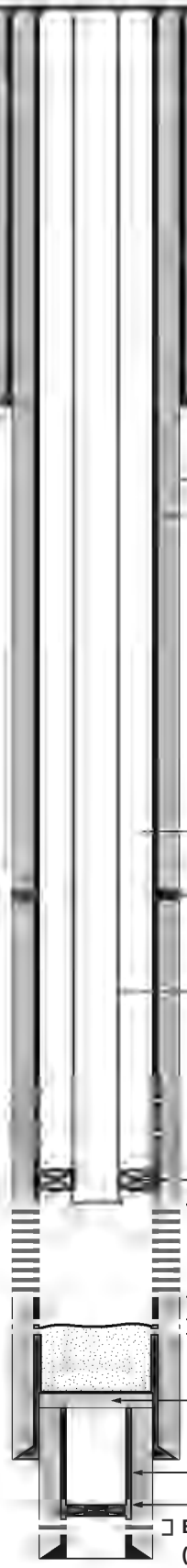
Figure 2
WDW-2
Wellbore Schematic

2022 Part II MIT Report

Scale: NTS	Date: August 2022	
Fig_02_HFNM_2022_Part_II_MIT.pdf	By: WEK	Checked: DH

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

OCD UIC Permit: UICI-008-3
Well API Number: 30-015-26575
Eddy County, New Mexico
Sec. 31, T18S-R27E
Lat. 32.771186° / Long. -104.233306° (NAD 83)



17.5" Hole
Conductor Casing (0' - 400'): 13-3/8", 54.5 lb/ft, J-55 STC Steel.
Cement: to surface with 425 sacks.

12.25" Hole
Surface Casing (0' - 2,604'): 9-5/8", 36 lb/ft, J-55 STC Steel.
Cement: to surface with 1,025 sacks.

8-3/4" Hole
Protection Casing (0' - 9,450'): 7", 26 lb/ft & 29 lb/ft, N-80 & P110 Steel.
Cement: 1,350 sacks, top of cement at 900'.

Annulus Fluid: 8.7 lb/gal brine water mixed with UniChem Techni-Hib 370 corrosion inhibitor.

DV Tool (5,785')

Injection Tubing (0' - 7,568'): 4-1/2", 11.6 lb/ft, J-55 LTC Steel, no nipples, Injection Tubing - 10/24/06.

Packer (7,575'): 7" x 2-7/8" Arrow X-1 Packer, no nipples, 37K Tension.

Perforations (7,660' - 8,450'): 2 JSPF, 60°, 0.5"
Old Perforations Open: 7,676' - 7,698'

Perforations (8,540' - 8,620'):
2 JSPF, 60°, 0.5"

Cement (9,022')

4-1/2" Liner (9,051' - 10,119')

CIPB (9,800'): 35' of cement.

Existing Perforations (9,861' - 9,967')

Top of Fill:
8,615' (Tagged 8/2022)

PBTD: 9,022'
TD: 10,119'

Wellbore information from:
Gaines Well #3 Navajo
Refining schematic by
Subsurface Technology, 2009.

NOT TO SCALE

HF Sinclair

Figure 3
WDW-3
Wellbore Schematic
2022 Part II MIT Report

Scale: NTS	Date: August 2022
Fig_03_HFNM_2022_Part_II_MIT.pdf	By: WEK Checked: DH

Petrotek
5935 South Zang Street, Suite 200
Littleton, Colorado 80127 USA
303-290-9414
www.petrotek.com

Appendix C

Well Completion Report and Log for WDW-1

DBS&A
a Geo-Logic Company

Submit to Appropriate
District Office
State Lease – 6 copies
Fee Lease – 5 copies
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-105
Revised 1-1-89

WELL API NO. 30-015-27592

5. Indicate Type of Lease STATE [X] FEE [ ]

6. State Oil & Gas Lease No. B-2071-28

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well: OIL WELL [ ] GAS WELL [ ] DRY [X] OTHER

b. Type of Completion: NEW WELL [ ] WORK OVER [ ] DEEPEN [ ] PLUG BACK [ ] DIFF RESVR [ ] OTHER

7. Lease Name or Unit Agreement Name: Chalk Bluff "31" State

2. Name of Operator: Newbourne Oil Company

8. Well No. 1

3. Address of Operator: P.O. Box 5270 Hobbs, New Mexico 88241

9. Pool name or Wildcat: Illinois Camp Morrow, North

4. Well Location
Unit Letter O : 2310 Feet From The East Line and 660 Feet From The South Line

Section 31 Township 17S Range 28E NMPM Eddy County

10. Date Spudded	11. Date T.D. Reached	12. Date Compl. (Ready to Prod.)	13. Elevations (DF& RKB, RT, GR, etc.)	14. Elev. Casinghead
08/04/93	09/09/93	----	3678' GR	---

15. Total Depth	16. Plug Back T.D.	17. If Multiple Compl. How Many Zones?	18. Intervals Drilled By	Rotary Tools	Cable Tools
10,200'	----	---		All	----

19. Producing Interval(s), of this completion - Top, Bottom, Name: ---------

20. Was Directional Survey Made: No

21. Type Electric and Other Logs Run: Dual Laterlog, Density Neutron, Sonic (Already Submitted)

22. Was Well Cored: No

23. **CASING RECORD** (Report all strings set in well)

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	48#	390'	17-1/2"	375 sks. "C" Lite +	None
				150 sks."C" Neet	
9-5/8"	36#	2555'	12-1/4"	800 sks. "C" Lite +	None
				200 sks. "C" Neet	

24. LINER RECORD

SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN

25. TUBING RECORD

SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number)

N/A

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

DEPTH INTERVAL	AMOUNT AND KIND MATERIAL USED

28. **PRODUCTION**

Date First Production	Production Method (Flowing, gas lift, pumping - Size and type pump)	Well Status (Prod. or Shut-in)

Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl.	Gas - MCF	Water - Bbl.	Gas - Oil Ratio

Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - (Corr.)

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

Test Witnessed By

30. List Attachments: Deviation Report

31. I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief

Signature Bill Pierce Printed Name Bill Pierce Title Drlg. Supt. Date 09/23/93

INSTRUCTIONS

This form is to be filed with the appropriate District Office of the Division not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 25 through 29 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico				Northwestern New Mexico			
T. Anhy		T. Canyon	8782'	T. Ojo Alamo		T. Penn. "B"	
T. Salt		T. Strawn	9016'	T. Kirtland-Fruitland		T. Penn. "C"	
B. Salt		T. Atoka	9573'	T. Pictured Cliffs		T. Penn. "D"	
T. Yates	506'	T. Miss		T. Cliff House		T. Leadville	
T. 7 Rivers	596'	T. Devonian		T. Menefee		T. Madison	
T. Queen	1176'	T. Silurian		T. Point Lookout		T. Elbert	
T. Grayburg	1462'	T. Montoya		T. Mancos		T. McCracken	
T. San Andres	1958'	T. Simpson		T. Gallup		T. Ignacio Otzte	
T. Glorieta	3386'	T. McKee		Base Greenhorn		T. Granite	
T. Paddock		T. Ellenburger		T. Dakota		T.	
T. Blinebry		T. Gr. Wash		T. Morrison		T.	
T. Tubb		T. Delaware Sand		T. Todilto		T.	
T. Drinkard		T. Bone Springs		T. Entrada		T.	
T. Abo	5398'	T. Morrow	10016'	T. Wingate		T.	
T. Wolfcamp	6593'	T.		T. Chinle		T.	
T. Penn		T.		T. Permain		T.	
T. Cisco (Bough C)	7816'	T.		T. Penn "A"		T.	

OIL OR GAS SANDS OR ZONES

No. 1, from.....to..... No. 3, from.....to.....

No. 2, from.....to..... No. 4, from.....to.....

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from.....to.....feet.....

No. 2, from.....to.....feet.....

No. 3, from.....to.....feet.....

LITHOLOGY RECORD (Attach additional sheet if necessary)

From	To	Thickness in Feet	Lithology	From	To	Thickness in Feet	Lithology
0'	400'	400'	Surface rock, Anhydrite				
400'	6900'	6500'	Dolomite, Chert, Sandstone, Shale				
6900'	7800'	900'	Limestone, Shale, Chert				
7800'	8500'	700'	Dolomite, Shale				
8500'	9600'	1100'	Limestone, Shale				
9600'	10200'	600'	Limestone, Sandstone, Chert, & Shale				

Appendix D

Approved Permits

BLM

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220-6292

In Reply Refer To:
3162.4 (NM-080)
NMNM-6852

May 4, 2023

NM Office of the State Engineer
1900 W. Second St.
Roswell, NM 88201

Re: WDW-2
Section 12, T18S-R27E
30-015-20894
Eddy County, New Mexico

To Whom It May Concern:

The above well location and the immediate area mentioned is required to install one monitor well by NMOCD for regional groundwater quality evaluation related to the underground injection control well mentioned above. Four bollards and a 3x3 well pad will also be installed to protect the monitor well. Monitor well shall be set between 70-150 ft below ground surface using sonic drilling rig and completed with 4" PVC pipe. Monitor well shall be installed close to the UIC well (no greater than 70ft away) Approximately 2-4 weeks for construction then ongoing access for quarterly monitor well sampling. Up to 150ft PVC well casing with silica sand, bentonite grout, Portland type 2 cement, a steel well riser, concrete and bollards will be installed. The Bureau of Land Management (landowner) authorizes the access of the area to accomplish installation of the monitor well.

If you have any questions contact Crisha Morgan, at 575-234-5987.

Sincerely,

CRISHA MORGAN Digitally signed by CRISHA MORGAN
Date: 2023.05.04 09:59:01 -06'00'

Crisha A. Morgan
Certified Environmental Protection Specialist

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220-6292

In Reply Refer To:
3162.4 (NM-080)
NMNM-0557371

May 4, 2023

NM Office of the State Engineer
1900 W. Second St.
Roswell, NM 88201

Re: WDW-3
Section 1, T18S-R27E
30-015-26575
Eddy County, New Mexico

To Whom It May Concern:

The above well location and the immediate area mentioned is required to install one monitor well by NMOCD for regional groundwater quality evaluation related to the underground injection control well mentioned above. Four bollards and a 3x3 well pad will also be installed to protect the monitor well. Monitor well shall be set between 70-150 ft below ground surface using sonic drilling rig and completed with 4" PVC pipe. Monitor well shall be installed close to the UIC well (no greater than 70ft away) Approximately 2-4 weeks for construction then ongoing access for quarterly monitor well sampling. Up to 150ft PVC well casing with silica sand, bentonite grout, Portland type 2 cement, a steel well riser, concrete and bollards will be installed. The Bureau of Land Management (landowner) authorizes the access of the area to accomplish installation of the monitor well.

If you have any questions contact Crisha Morgan, at 575-234-5987.

Sincerely,

CRISHA MORGAN Digitally signed by CRISHA MORGAN
Date: 2023.05.04 10:02:29 -06'00'

Crisha A. Morgan
Certified Environmental Protection Specialist

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carlsbad Field Office
620 E. Greene St.
Carlsbad, NM 88220-6292

In Reply Refer To:
3162.4 (NM-080)
NMNM-025527A

May 4, 2023

NM Office of the State Engineer
1900 W. Second St.
Roswell, NM 88201

Re: WDW-4
Section 23, T17S-R27E
30-015-44677
Eddy County, New Mexico

To Whom It May Concern:

The above well location and the immediate area mentioned is required to install one monitor well by NMOCD for regional groundwater quality evaluation related to the underground injection control well mentioned above. Four bollards and a 3x3 well pad will also be installed to protect the monitor well. Monitor well shall be set between 70-150 ft below ground surface using sonic drilling rig and completed with 4" PVC pipe. Monitor well shall be installed close to the UIC well (no greater than 70ft away) Approximately 2-4 weeks for construction then ongoing access for quarterly monitor well sampling. Up to 150ft PVC well casing with silica sand, bentonite grout, Portland type 2 cement, a steel well riser, concrete and bollards will be installed. The Bureau of Land Management (landowner) authorizes the access of the area to accomplish installation of the monitor well.

If you have any questions contact Crisha Morgan, at 575-234-5987.

Sincerely,

CRISHA MORGAN Digitally signed by CRISHA MORGAN
Date: 2023.05.04 10:05:37 -06'00'

Crisha A. Morgan
Certified Environmental Protection Specialist

Form 2800-14
(August 1985)

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Right-Of-Way Grant
Serial Number: NM-102335A
Project Name: WDW 2

Issuing Office
Carlsbad Field Office

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of Oct. 21, 1976 (90 Sta. 2776; 43 U.S.C. 1761).

APPROVED
NOV 2 7 2023
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

2. Nature of Interest:
a. By this instrument, the holder:

HF Sinclair Navajo Refining LLC
501 E Main
Artesia, NM 88210

receives a right to construct, operate, maintain, and terminate a monitor well on existing approved pad across public lands in Eddy County, New Mexico described as follows:

T. 18 S., R. 27 E., NMPM
sec. 12: SW¼NW¼.

b. The right-of-way or permit area granted herein is adding a monitoring well.

c. This instrument shall terminate on 12-31-2029 unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:
For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4.Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter, not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A and B (map), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workman like manner so as to ensure protection of the environment and the health and safety of the public.

g. In the event that the public land underlying the right-of-way (ROW) encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

IN WITNESS THEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

[signature]	[signature]
(Signature of Holder)	(Signature of Authorized Officer)
VP of Ops & Refinery Mgr	for Field Manager
(Title)	(Title)
11-16-23	NOV 27 2023
(Date)	(Effective Date of Grant)

WH Sallani 5/21/99

OFFICIAL FILE COPY

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Carlsbad Field Office
620 E. Greene St.
P. O. Box 1778
Carlsbad, New Mexico 88221-1778

Angie Lara 5/21/99

IN REPLY REFER TO:
2800 (080)
NM-102335

MAY 2 1 1999

Navajo Refining Company
Right-of-Way Department
P.O. Box 159
Artesia, NM 88211-0159

RE: Right-of-Way
NM-102335

On April 16, 1999, you filed a right-of-way application, for a 400' x 400' well pad for re-entry operations for the Chukka Fed. Well #2. Rental for the right-of-way is $300.00 annually. Rental for the period from May 21, 1999 to December 31, 1999 is $174.99.

Before the grant can be issued, your authorized officer must execute page two of both copies of the grant and return each, with enclosures, to this office for signature by the BLM authorized officer.

Please return the signed copies, including rental in the amount of $174.99 at your earliest convenience. Failure to do so could result in the denial of your right-of-way application. If you have any questions, please direct them to Hans Sallani at the above address or telephone (505) 234-5947.

Sincerely,

/s/ Angie Lara

Angie Lara
Acting Field Manager
Carlsbad Field Office

Enclosure

FORM 2800-14
(August 1985)

RECEIVED
1999 MAY 27 A 8:01
BUREAU OF LAND MGMT
CARLSBAD RESOURCE AREA

Issuing Office
Carlsbad Field Office

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIGHT-OF-WAY GRANT/TEMPORARY USE PERMIT
SERIAL NUMBER: NM NM-102335

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).

2. Nature of Interest:

a. By this instrument, the holder:

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

receives a right to construct, operate, maintain, and terminate a right-of-way for a 400' x 400' well pad and a new well head for re-entry operations, on Federal lands described as follows:

T. 18 S., R. 27 E., NMPM
Sec.12, SW¼NW¼.

The lands described above contain a total length of NA miles.

b. The right-of-way or permit area granted herein is NA feet wide, NA feet long and contains NA acres of land, more or less. If a site type facility, the facility contains 3.673 acres (400' x 400').

c. This instrument shall terminate on May 27, 2029, 30 years from the effective date of this grant unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part

2800.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibits A, B, and C, dated April 16, 1999, attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

x _____
(Signature of Holder)

x VP ENGR
(Title)

x 5-26-99
(Date)

_____
(Signature of Authorized Officer)

Acting Manager, Carlsbad Field Office
(Title)

MAY 27 1999
(Effective Date of Grant)

EXHIBIT A
(April 16, 1999)

BLM Serial Number: NM-102335
Company Reference: Chukka Fed. Well #2

STANDARD STIPULATIONS FOR OIL AND GAS RELATED SITES
IN THE CARLSBAD FIELD OFFICE AREA, BLM

The Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer, BLM.

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 *et. seq.*, from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 *et. seq.*, and from other applicable environmental statues.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the Holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, *et. seq.*) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et. seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et. seq.*) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way Holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the Holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site or related pipeline(s), any oil or other pollutant should be discharged from site facilities, the pipeline(s) or from containers or vehicles impacting Federal lands, the control and total removal, disposal, and cleanup of such oil of other pollutant, wherever found, shall be the responsibility of the Holder, regardless of fault. Upon failure of the Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting therefrom, the Authorized

Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the Holder. Such action by the Authorized Officer shall not relieve the Holder of any liability or responsibility.

5. Sites shall be maintained in a neat and orderly condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products, brines, chemicals, oil drums, ashes, and equipment.

6. The Holder shall ensure that the right-of-way, including any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

7. In those areas where erosion control structures are required to stabilize soil conditions, the Holder shall install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound management practices. Any earth work will require prior approval by the Authorized Officer.

8. All above-ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is Carlsbad Canyon (formerly sandstone brown), Munsell Soil Color Chart Number 2.5Y 6/2.

9. The Holder shall post a sign designating the BLM serial number, NM-102335, assigned to this right-of-way grant in a permanent, conspicuous location on the site where the sign will be visible from the entry to the site. This sign will be maintained in a legible condition for the term of the right-of-way.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the Holder, or any person working on the Holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

11. A sales contract for removal of mineral material (caliche, sand, gravel, fill dirt, etc.) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. Contact the BLM solid minerals staff for the various options to purchase mineral material.

Exhibit A
NM-102335

12. The Holder shall ensure that the entire facility right-of-way, including any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

13. Special Stipulations:

The applicant will be required to meet all stipulations outlined in the APD and the measures stipulated by the New Mexico Oil Conservation Division..

EXHIBIT B
(April 16, 1999)

BLM Serial No. : NM - 102335
Company Reference: Chukka Fed. Well #2
The requirements set forth in this Exhibit B shall be applicable only in the event that Navajo Refining Company abandons the Federal lands described in Serial No. # NM 102335

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State Law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State Law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	1lb./acre
Plains lovegrass *(Eragrostis intermedia)*	0.5
Sand dropseed *(Sporobolus cryptandrus)*	1.0
Sideoats grama *(Bouteloua curtipendula)*	5.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

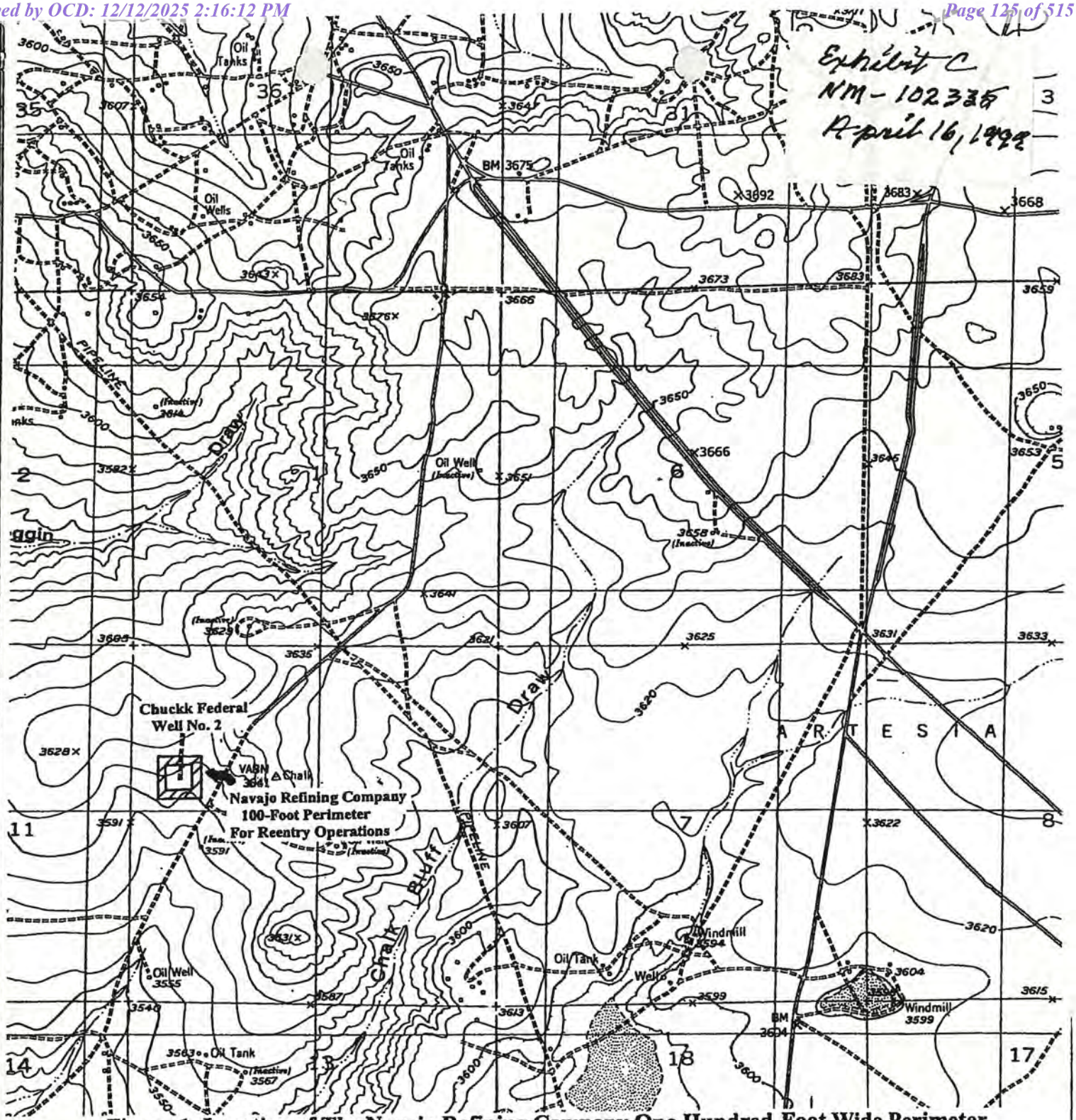


Figure 1. Location of The Navajo Refining Company One Hundred-Foot Wide Perimeter Proposed For Reentry Operations Around The Existing Chuckk Federal Well No. 2 in Section 12 (1980' FNL, 660' FWL) T18S, R27E, NMPM, Eddy County, NM. Map Reference: Red Lake NM, 1955 (32104-G2).

Form 2800-14
(August 1985)

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Right-Of-Way Grant
Serial Number: NM-110684A
Project Name: WDW 3

Issuing Office
Carlsbad Field Office

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of Oct. 21, 1976 (90 Sta. 2776; 43 U.S.C. 1761).

APPROVED
NOV 2 7 2023
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

2. Nature of Interest:
a. By this instrument, the holder:

HF Sinclair Navajo Refining LLC
501 E Main
Artesia, NM 88210

receives a right to construct, operate, maintain, and terminate a monitor well on existing well pad across public lands in Eddy County, New Mexico described as follows:

T. 18 S., R. 27 E., NMPM
sec. 01: SE¼SW¼.

b. The right-of-way or permit area granted herein is a monitoring well on existing well pad.

c. This instrument shall terminate on 12-31-2033 unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:
For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4.Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter, not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A and B (map), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workman like manner so as to ensure protection of the environment and the health and safety of the public.

g. In the event that the public land underlying the right-of-way (ROW) encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

IN WITNESS THEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

(Signature of Holder)	(Signature of Authorized Officer)
VP of Ops & Refinery Mgr	Act Field Manager
(Title)	(Title)
11-16-23	NOV 27 2023
(Date)	(Effective Date of Grant)

FORM 2800-14
(August 1985)

Issuing Office
Carlsbad Field Office

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIGHT-OF-WAY GRANT/TEMPORARY USE PERMIT
SERIAL NUMBER: NM-110684
Navajo Refining Company, L.P.

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761).

2. Nature of Interest:

a. By this instrument, the holder:

Navajo Refining Company, L.P.
P.O. Box 159
Artesia NM 88211-0159

receives a right to construct, operate, maintain, and terminate an Effluent Water Disposal Well Site (re-entry) at Chalk Bluff Fed. Com #1, located on Federal lands described as follows:

T. 18 S., R. 27 E., NMPM
Sec. 1: SE¼SW¼.

The lands described above contain a total length of 0.227 miles.

b. The right-of-way or permit area granted herein for a Effluent Water Disposal Site 400' X 400', which contains 3.673 acres, more or less.

c. This instrument shall terminate on October 24, 2033, 30 years from its effective date unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880

b. Upon grant termination by the authorized officer, all improvements shall be removed from the Federal lands within 90 days, or otherwise disposed of as provided in paragraph (4)(c) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibits A and B, dated August 6, 2003, attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

(Signature of Holder)	(Signature of Authorized Officer)
REFINERY MANAGER	Leslie A. Theiss, Field Manager
(Title)	(Title)
10/1/03	OCT 24 2003
(Date)	(Effective Date of Grant)

EXHIBIT A
August 6, 2003

BLM Serial Number: NM-110684
Company Reference: Chalk Bluff Fed. Com #1

STANDARD STIPULATIONS FOR FEDERAL LAND POLICY AND MANAGEMENT ACT SITES IN THE CARLSBAD FIELD OFFICE AREA, BLM

A copy of the grant and attachments, including stipulations and map, will be on location during construction. BLM personnel may request to view a copy of your permit during construction to ensure compliance with all stipulations.

The Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer, BLM.

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant and for all response costs, penalties, damages, claims, and other costs arising from the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Chap. 82, Section 6901 *et. seq.*, from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. Chap. 109, Section 9601 *et. seq.*, and from other applicable environmental statues.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the Holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, *et. seq.*) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, *etc.*) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et. seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et. seq.*) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way Holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the Holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the site any pollutant should be discharged from site facilities, or from containers, or vehicles impacting public lands, the control and total removal, disposal, and cleanup of such pollutant, wherever found, shall be the responsibility of the Holder, regardless of fault. Upon failure of the Holder to control, dispose of, or clean up such discharge on or affecting

public lands, or to repair all damages to public lands resulting therefrom, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the Holder. Such action by the Authorized Officer shall not relieve the Holder of any liability or responsibility.

5. The Holder shall ensure that the entire site right-of-way, including any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

6. Sites shall be maintained in a neat and orderly condition at all times. Waste materials, both liquid and solid, shall be disposed of promptly at an appropriate, authorized waste disposal facility in accordance with all applicable State and Federal laws. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, and equipment.

7. All above-ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" designated by the Rocky Mountain Five-State Interagency Committee. The color selected for this project is Carlsbad Canyon, Munsell Soil Color Chart Number 2.5Y 6/2.

8. The Holder shall post a sign designating the BLM serial number assigned to this right-of-way grant in a permanent, conspicuous location on the site where the sign will be visible from the entry to the site. This sign will be maintained in a legible condition for the term of the right-of-way.

9. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the Holder, or any person working on the Holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The Holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

10. Should the Holder require material from a federal mineral site to construct a base pad for the site, a sales contract for removal of such mineral material (caliche, sand, gravel, fill dirt, etc.) from an authorized pit, site, or on location must be obtained from the BLM prior to commencing construction. Contact the BLM solid minerals staff for the various options to purchase mineral material.

11. The Holder shall ensure that the entire right-of-way, including any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

Exhibit A
NM-110684

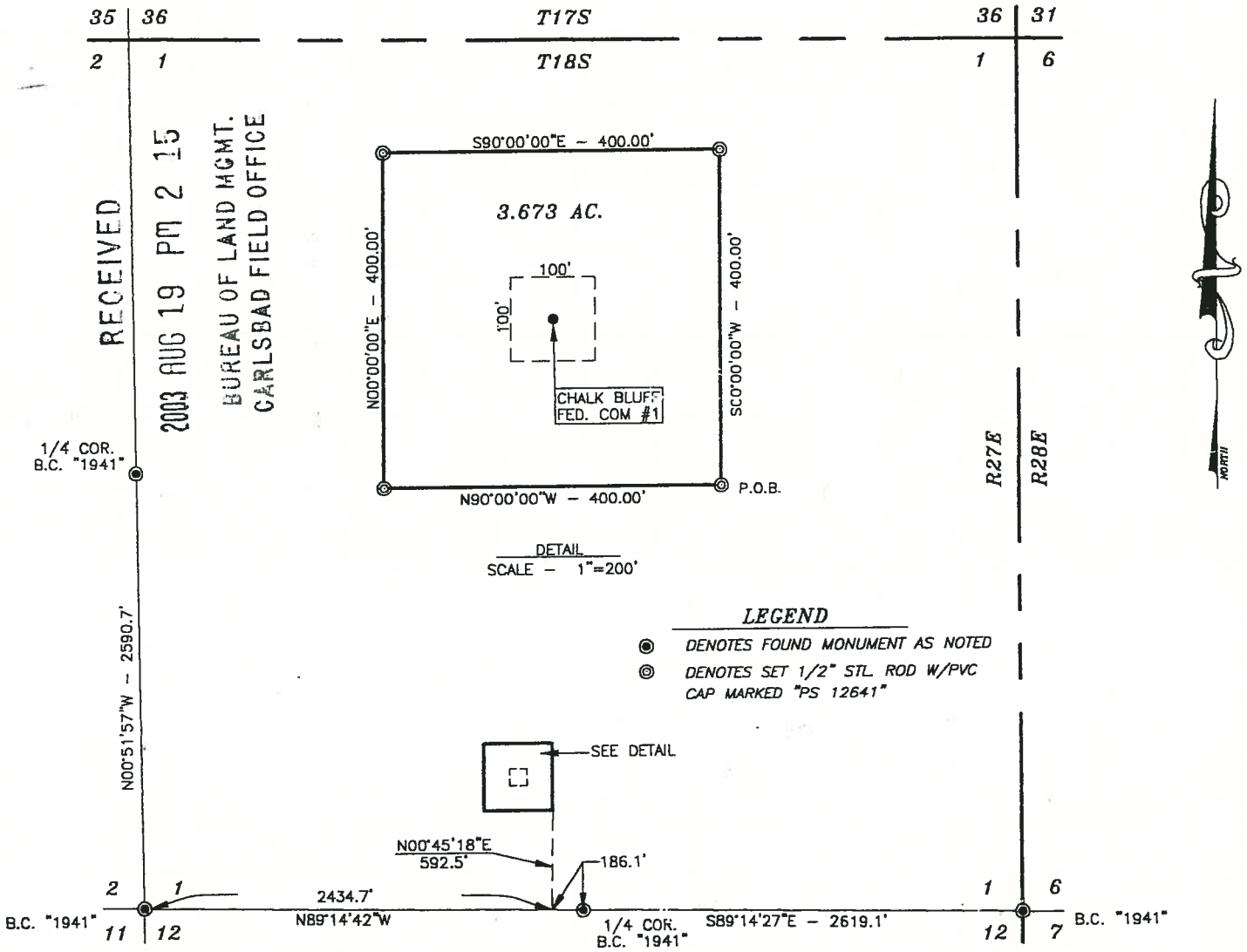
Special Stipulations:

Where practical sites will be located away from sinkholes and other cave or karst features. A compacted earthen fluid containment berm, at least two feet high at all points, will be constructed completely around well pads or facility sites.

EXHIBIT D
NM-110684

SECTION 1, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A TRACT OF LAND LOCATED IN THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 1, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 1, WHICH LIES N89°14'42"W ALONG THE SOUTH LINE OF SAID SECTION 186.3 FEET AND N00°45'18"E 592.5 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION, THEN N90°00'00"W 400.00 FEET; THEN N00°00'00"E 400.00 FEET; THEN S90°00'00"E 400.00 FEET; THEN S00°00'00"W 400.00 FEET TO THE POINT OF BEGINNING AND CONTAINING 3.673 ACRES MORE OR LESS.

1000 0 1000 2000
SCALE: 1"=1000'

NOTE: BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983, DISTANCES ARE SURFACE VALUES.

I HEREBY CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

GARY C. EIDSON NEW MEXICO 12641 REGISTERED PROFESSIONAL SURVEYOR

Gary C. Eidson 8/13/03

RONALD J. EIDSON, N.M. R.P.S. No. 3239
GARY C. EIDSON, N.M. R.P.S. No. 12641
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO – HOBBS, NEW MEXICO – 505-393-3117

NAVAJO REFINING COMPANY

SURVEY A TRACT OF LAND SITUATED IN SECTION 1, TOWNSHIP 18 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 8/6/03	Sheet 1 of 1 Sheets	
W.O. Number: 03.11.0831	Drawn By: L.A.	
Date: 8/7/03	DISK: CD#2	03110831

OFFICIAL FILE COPY

S.A. 9/25/03
R. Dawson 9/25/03

United States Department of the Interior

Bureau of Land Management
Carlsbad Field Office
620 E. Greene Street
Carlsbad, NM 88220
www.nm.blm.gov

Lara 9/25/03

IN REPLY REFER TO
NM-110684
2800(080)sva

Navajo Refining Company, L.P.
Attention: John Rapp
P.O. Box 159
Artesia NM 88211-0159

SEP 26 2003

RE: Right-of-Way
NM-110684
Chalk Bluff Fed. Com #1

Dear Mr. Rapp:

On August 6, 2003, you filed a right-of-way application for an Effluent Water Disposal well site on Federal lands.

Before the grant can be issued, your authorized officer must execute page two of both copies of the grant and return each, with enclosures, to this office for signature by the BLM authorized officer. Please notify the grazing allottee, Bogle Limited Company, c/o Louis Derrick at (505) 743-5442, one week prior to start of construction.

Rental charges have been computed on your right-of-way application. The rental and other charges shown below should be remitted with the signed copies of the grant at your earliest convenience. Failure to return the documents and payment in a timely manner could result in denial of your application.

Date of Grant to December 31, 2003	$ 75.00
Yearly Rental	$ 300.00
Monitoring Fee	$ 75.00
Total Amount Due	$ 450.00

The Bureau of Land Management reserves the right to update the rental charges whenever necessary to reflect changes in the Implicit Price Deflator GNP. The new rental date is January 1, 2005.

If you have any questions, please contact Salomon Arreola at (505) 234-5903.

Sincerely,

/s/ NOE GONZALEZ

for Leslie A. Theiss
Field Manager

Form 2800-14
(August 1985)

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Right-Of-Way Grant
Serial Number: NM-137892A
Project Name: WDW 4

Issuing Office
Carlsbad Field Office

1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of Oct. 21, 1976 (90 Sta. 2776; 43 U.S.C. 1761).

APPROVED
NOV 2 7 2023
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

2. Nature of Interest:
a. By this instrument, the holder:

HF Sinclair Navajo Refining LLC
501 East Main Street
Artesia, NM 88210

receives a right to construct, operate, maintain, and terminate a monitor well on existing well pad across public lands in Eddy County, New Mexico described as follows:

T. 17 S., R. 27 E., NMPM
sec. 23: SE¼SW¼.

b. The right-of-way or permit area granted herein is a monitoring well.

c. This instrument shall terminate on 12-31-2047 unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:
For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4.Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter, not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A and B (map), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workman like manner so as to ensure protection of the environment and the health and safety of the public.

g. In the event that the public land underlying the right-of-way (ROW) encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

IN WITNESS THEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

(Signature of Holder)	(Signature of Authorized Officer)
VP of Ops & Refinery Mgr.	Lv Field Manager
(Title)	(Title)
11-16-23	NOV 27 2023
(Date)	(Effective Date of Grant)

Form 2800-14
(August 1985)

United States Department of the Interior
Bureau of Land Management

Issuing Office
Carlsbad Field Office

RIGHT-OF-WAY GRANT

Serial Number:NM-137892

Project Name: WDW-4 Buried SWD Line

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1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of Oct. 21, 1976 (90 Sta. 2776; 43 U.S.C. 1761).

2. Nature of Interest:

a. By this instrument, the holder:

Holly Frontier Navajo Refining, LLC
501 E. Main
Artesia, NM 88210

receives a right to construct, operate, maintain, and terminate a waste disposal well, access road and a 8-inch buried salt water disposal pipeline across public land in Eddy County, New Mexico described as follows:

T. 17 S., R 27 E., NMPM
sec. 23: N½SW¼, S½SW¼;
sec. 26: NW¼NW¼;
sec. 27: NE¼NE¼, S½NE¼, S½NW¼, NW¼SW¼.

The lands described above contain a total length of 1.94 miles.

b. The right-of-way or permit area granted herein is 30.00 feet wide, 10,253.60 feet long and contains 7.10 acres, more or less.

c. This instrument shall terminate on 12-31-2047 unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Not withstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter, not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A, A-1 and B (plats), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workman like manner so as to ensure protection of the environment and the health and safety of the public.

g. In the event that the public land underlying the right-of-way (ROW) encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

IN WITNESS THEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

Robert K O'Brien
(Signature of Holder)

VP & Refinery Manager
(Title)

5/18/18
(Date)

(Signature of Authorized Officer)

for Field Manager, Carlsbad Field Office
(Title)

23 May 2018
(Effective Date of Grant)

Exhibit A

BLM LEASE NUMBER: NM-137892
COMPANY NAME: Navajo Refining Company
ASSOCIATED WELL NAME: WDW-4

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 30 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	(X) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cot of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

Special Stipulations:

Cave/Karst

To avoid or lessen the potential of subsidence or collapse of karst features, toxic or combustible gas buildup, or other possible impacts to cave and karst resources from buried pipelines or cables, alignments may be rerouted to avoid karst features. The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer. Special restoration stipulations or realignment may be required at such intersections, if any. Leak detection systems, back flow eliminators, and differential pressure shut-off valves may be required to minimize the impacts of leaking or ruptured pipelines. To eliminate these extreme possibilities, good record keeping is needed to quickly identify leaks for their immediate and proper treatment.

Fence Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at road-fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Seeding Stipulations have been attached

EXHIBIT A-1

BLM Serial No.: NM-137892
Company Reference: Holly Frontier Navajo Refining Company

Mixture 4, for Gypsum Sites

The holder shall seed all the disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Alkli Sacaton (*Sporobolus airoides*)	1.5
DWS~ Four-wing saltbush (*Atriplex canescens*)	8.0

~DWS: DeWinged Seed

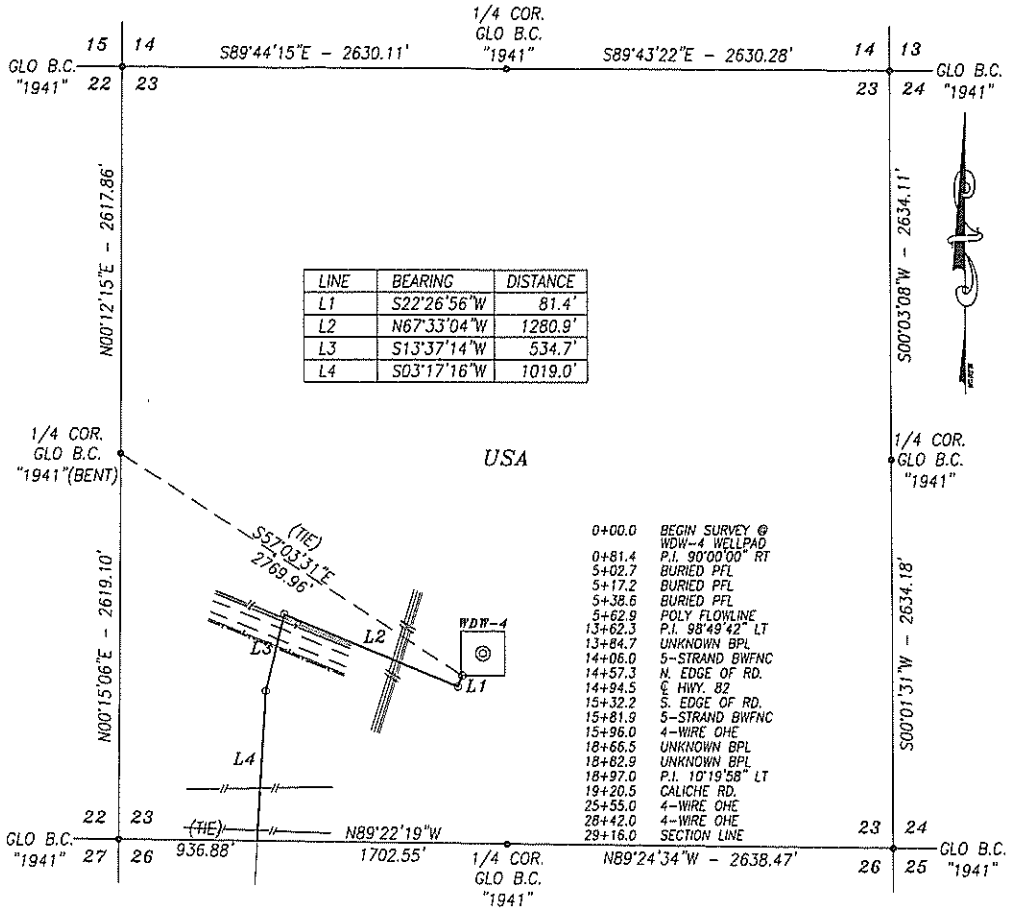
*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC

A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO AN EXISTING BURIED PIPELINE IN

SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LINE	BEARING	DISTANCE
L1	S22°26'56"W	81.4'
L2	N67°33'04"W	1280.9'
L3	S13°37'14"W	534.7'
L4	S03°17'16"W	1019.0'

0+00.0	BEGIN SURVEY @ WDW-4 WELLPAD
0+81.4	P.I. 90°00'00" RT
5+02.7	BURIED PFL
5+17.2	BURIED PFL
5+38.6	BURIED PFL
5+62.9	POLY FLOWLINE
13+62.3	P.I. 98°49'42" LT
13+84.7	UNKNOWN BPL
14+06.0	5-STRAND BWFNC
14+57.3	N. EDGE OF RD.
14+94.5	℄ HWY. 82
15+32.2	S. EDGE OF RD.
15+81.9	5-STRAND BWFNC
15+96.0	4-WIRE OHE
18+66.5	UNKNOWN BPL
18+82.9	UNKNOWN BPL
18+97.0	P.I. 10°19'58" LT
19+20.5	CALICHE RD.
25+55.0	4-WIRE OHE
28+42.0	4-WIRE OHE
29+16.0	SECTION LINE

DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 2916.0 FEET OR 176.73 RODS OR 0.552 MILES IN LENGTH CROSSING USA LAND IN SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 3/21/18
CHAD HARCROW N.M.P.S. NO. 17777 DATE

HARCROW SURVEYING, LLC
2314 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194089
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HOLLY FRONTIER NAVAJO REFINING, LLC

SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO

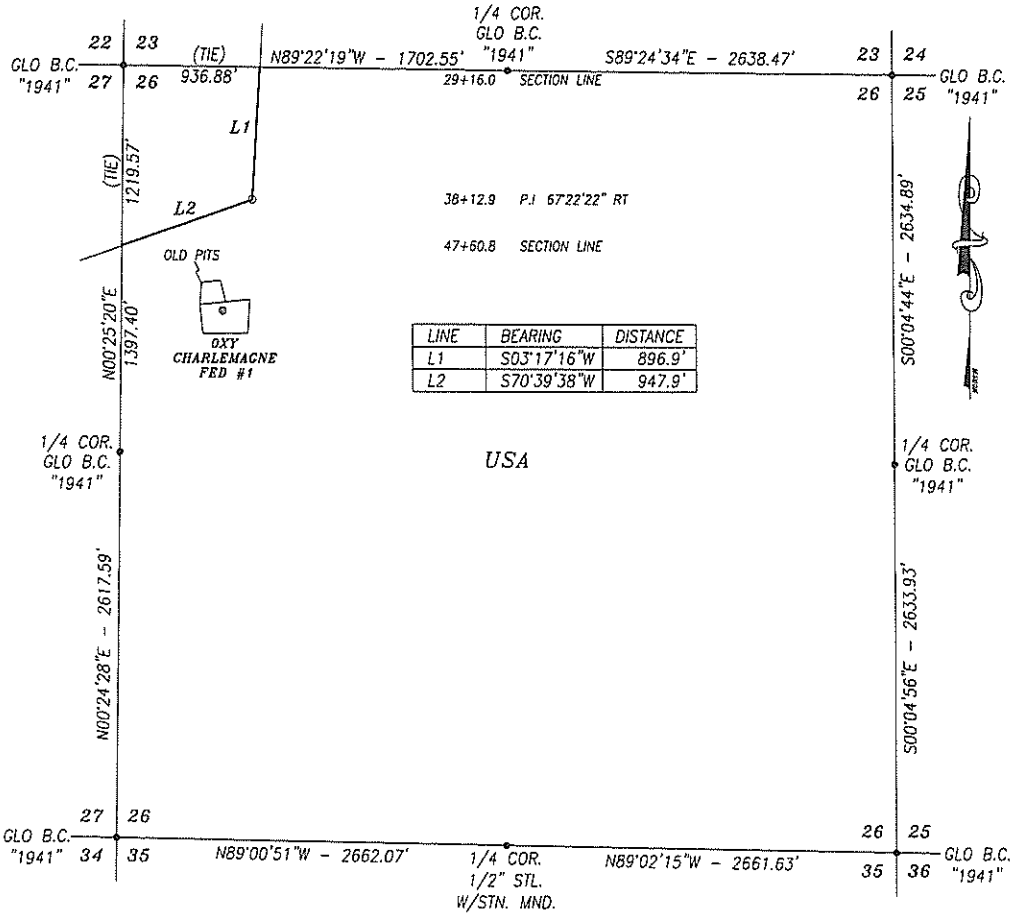
SURVEY DATE: MARCH 13, 2018	HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018	PAGE 1 OF 3
APPROVED BY: CH / DRAWN BY: JH	FILE: 18-220

EXHIBIT B
Page 2 of 4

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC

A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO AN EXISTING BURIED PIPELINE IN

SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 1844.8 FEET OR 111.81 RODS OR 0.349 MILES IN LENGTH CROSSING USA LAND IN SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

BASIS OF BEARING:
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1000 0 1000 2000 FEET
SCALE: 1"=1000'

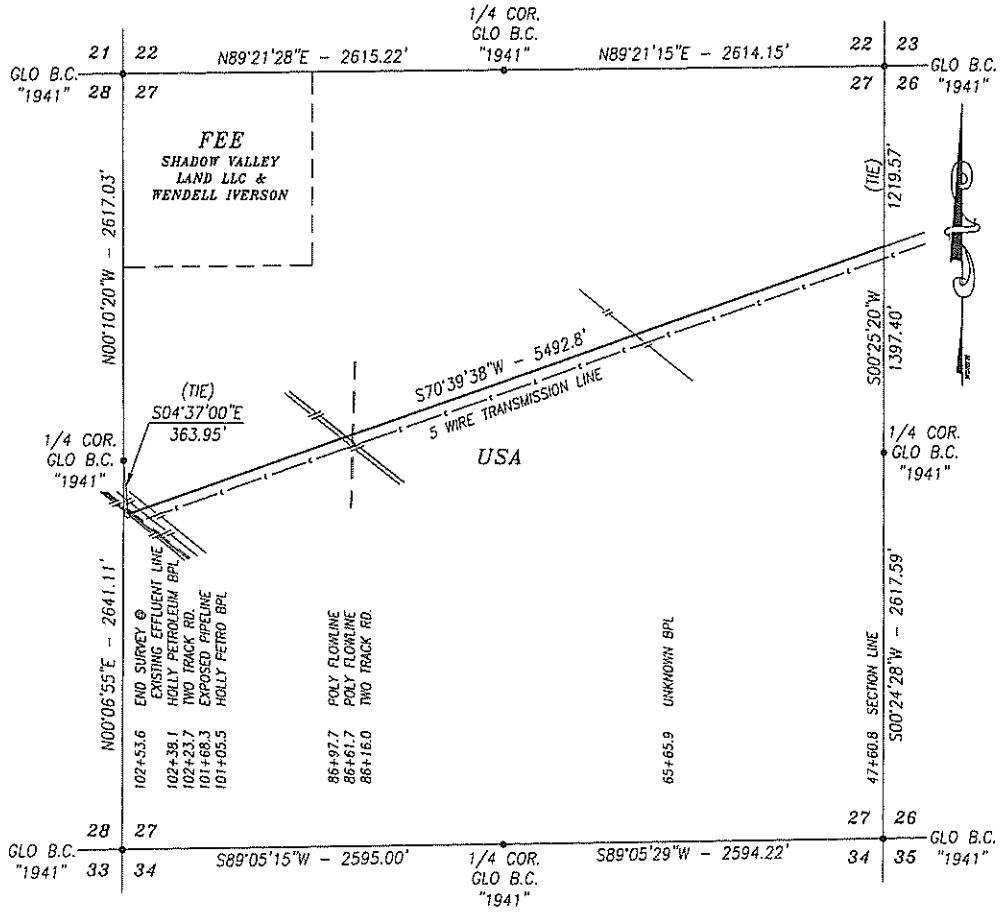
HOLLY FRONTIER NAVAJO REFINING, LLC

SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: MARCH 13, 2018	HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018	PAGE 2 OF 3
APPROVED BY: CH / DRAWN BY: JH	FILE: 18-220

EXHIBIT B
Page 3 of 4

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC
A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO
AN EXISTING BURIED PIPELINE IN
SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 5492.8 FEET OR 332.90 RODS OR 1.040 MILES IN LENGTH CROSSING USA LAND IN SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

BASIS OF BEARING:
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CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 3/21/18
CHAD HARCROW N.M.P.S. NO. 17777 DATE

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PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194089
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HOLLY FRONTIER NAVAJO REFINING, LLC	
SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO	
SURVEY DATE: MARCH 13, 2018	HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018	PAGE 3 OF 3
APPROVED BY: CH / DRAWN BY: JH	FILE: 18-220

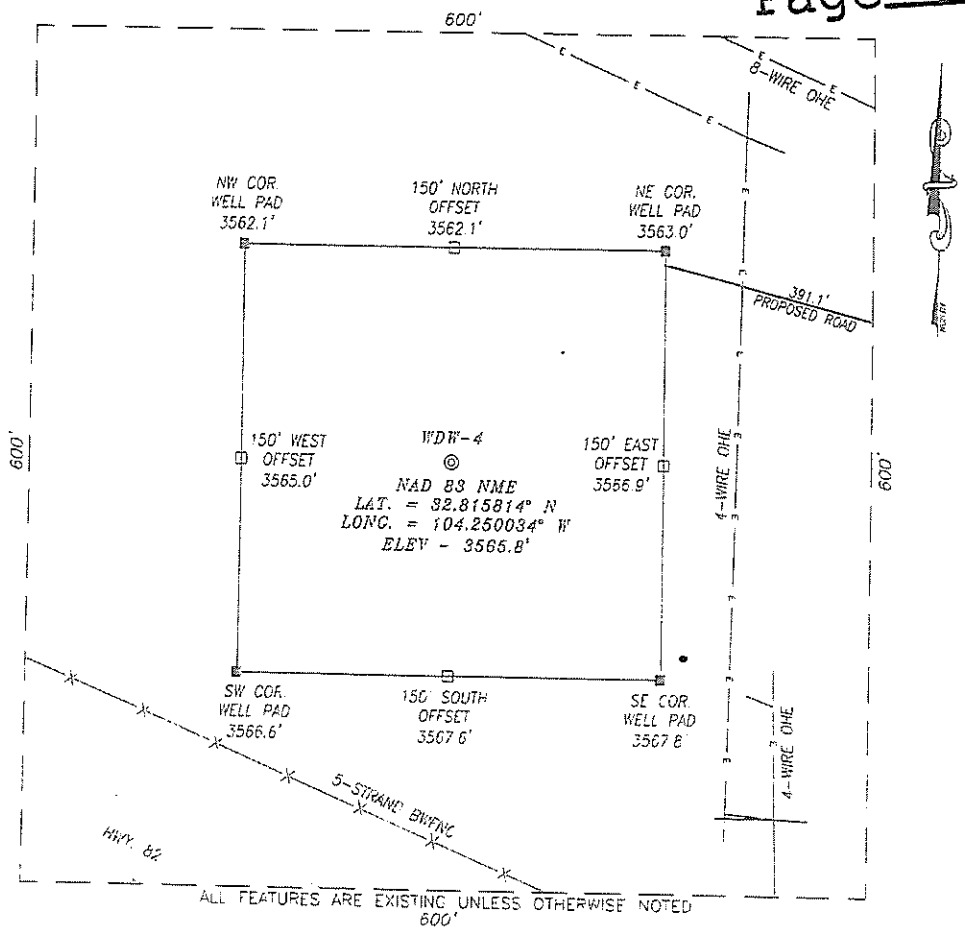
VNM-15892

EXHIBIT B

Page 4 of 4

SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M., NEW MEXICO

EDDY COUNTY



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY. 82, AND C.R. 202 GO NORTHELRY ON C.R. 202 APPROX. 0.6 MI., THEN TURN LEFT (NORTHWEST) AT Y; GO APPROX. 0.5 MI., THE TURN LEFT (SOUTH) AND GO APPROX. 0.3 MI. TO A PROPOSED ROAD; PROPOSED WELL LIES APPROX. 530 FEET TO THE RIGHT (WEST)

100 0 100 200 Feet

Scale 1"=100'

HARCROW SURVEYING, LLC
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PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194060
e-harcrow@harcrowsurveying.com

WSP USC, INC.

WDW-4
LOCATED 1217 FEET FROM THE SOUTH LINE
AND 2445 FEET FROM THE WEST LINE OF SECTION 23,
TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SURVEY DATE: JUNE 15, 2107	PAGE 1 OF 1	
DRAFTING DATE: JUNE 20, 2017		
APPROVED BY: CH	DRAWN BY: SA	FILE 17-750

Form 2800-14
(August 1985)

United States Department of the Interior
Bureau of Land Management

Issuing Office
Carlsbad Field Office

RIGHT-OF-WAY GRANT

Serial Number:NM-137892

Project Name: WDW-4 Buried SWD Line

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1. A right-of-way is hereby granted pursuant to Title V of the Federal Land Policy and Management Act of Oct. 21, 1976 (90 Sta. 2776; 43 U.S.C. 1761).

APPROVED
MAY 23 2018
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

2. Nature of Interest:

a. By this instrument, the holder:

Holly Frontier Navajo Refining, LLC
501 E. Main
Artesia, NM 88210

receives a right to construct, operate, maintain, and terminate a 8-inch buried salt water disposal pipeline across public land in Eddy County, New Mexico described as follows:

T. 17 S., R 27 E., NMPM
sec. 23: N½SW¼, S½SW¼;
sec. 26: NW¼NW¼;
sec. 27: NE¼NE¼, S½NE¼, S½NW¼, NW¼SW¼.

The lands described above contain a total length of 1.94 miles.

b. The right-of-way or permit area granted herein is 30.00 feet wide, 10,253.60 feet long and contains 7.10 acres, more or less.

c. This instrument shall terminate on 12-31-2047 unless prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d. This instrument may be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Not withstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations part 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter, not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A, A-1 and B (plats), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workman like manner so as to ensure protection of the environment and the health and safety of the public.

g. In the event that the public land underlying the right-of-way (ROW) encompassed in this grant, or a portion thereof, is conveyed out of Federal ownership and administration of the ROW or the land underlying the ROW is not being reserved to the United States in the patent/deed and/or the ROW is not within a ROW corridor being reserved to the United States in the patent/deed, the United States waives any right it has to administer the right-of-way, or portion thereof, within the conveyed land under Federal laws, statutes, and regulations, including the regulations at 43 CFR Part [2800][2880], including any rights to have the holder apply to BLM for amendments, modifications, or assignments and for BLM to approve or recognize such amendments, modifications, or assignments. At the time of conveyance, the patentee/grantee, and their successors and assigns, shall succeed to the interests of the United States in all matters relating to the right-of-way, or portion thereof, within the conveyed land and shall be subject to applicable State and local government laws, statutes, and ordinances. After conveyance, any disputes concerning compliance with the use and the terms and conditions of the ROW shall be considered a civil matter between the patentee/grantee and the ROW Holder.

IN WITNESS THEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit.

Robert K O'Brien
(Signature of Holder)

VP & REFINERY MANAGER
(Title)

5/18/18
(Date)

for
(Signature of Authorized Officer)

Field Manager, Carlsbad Field Office
(Title)

23 May 2018
(Effective Date of Grant)

Exhibit A

BLM LEASE NUMBER: NM-137892
COMPANY NAME: Navajo Refining Company
ASSOCIATED WELL NAME: WDW-4

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 30 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	(X) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cot of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

Special Stipulations:

Cave/Karst

To avoid or lessen the potential of subsidence or collapse of karst features, toxic or combustible gas buildup, or other possible impacts to cave and karst resources from buried pipelines or cables, alignments may be rerouted to avoid karst features. The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer. Special restoration stipulations or realignment may be required at such intersections, if any. Leak detection systems, back flow eliminators, and differential pressure shut-off valves may be required to minimize the impacts of leaking or ruptured pipelines. To eliminate these extreme possibilities, good record keeping is needed to quickly identify leaks for their immediate and proper treatment.

Fence Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at road-fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Seeding Stipulations have been attached

EXHIBIT A-1

BLM Serial No.: NM-137892
Company Reference: Holly Frontier Navajo Refining Company

Mixture 4, for Gypsum Sites

The holder shall seed all the disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Alkli Sacaton (*Sporobolus airoides*)	1.5
DWS~ Four-wing saltbush (*Atriplex canescens*)	8.0

~DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

NM1-137012

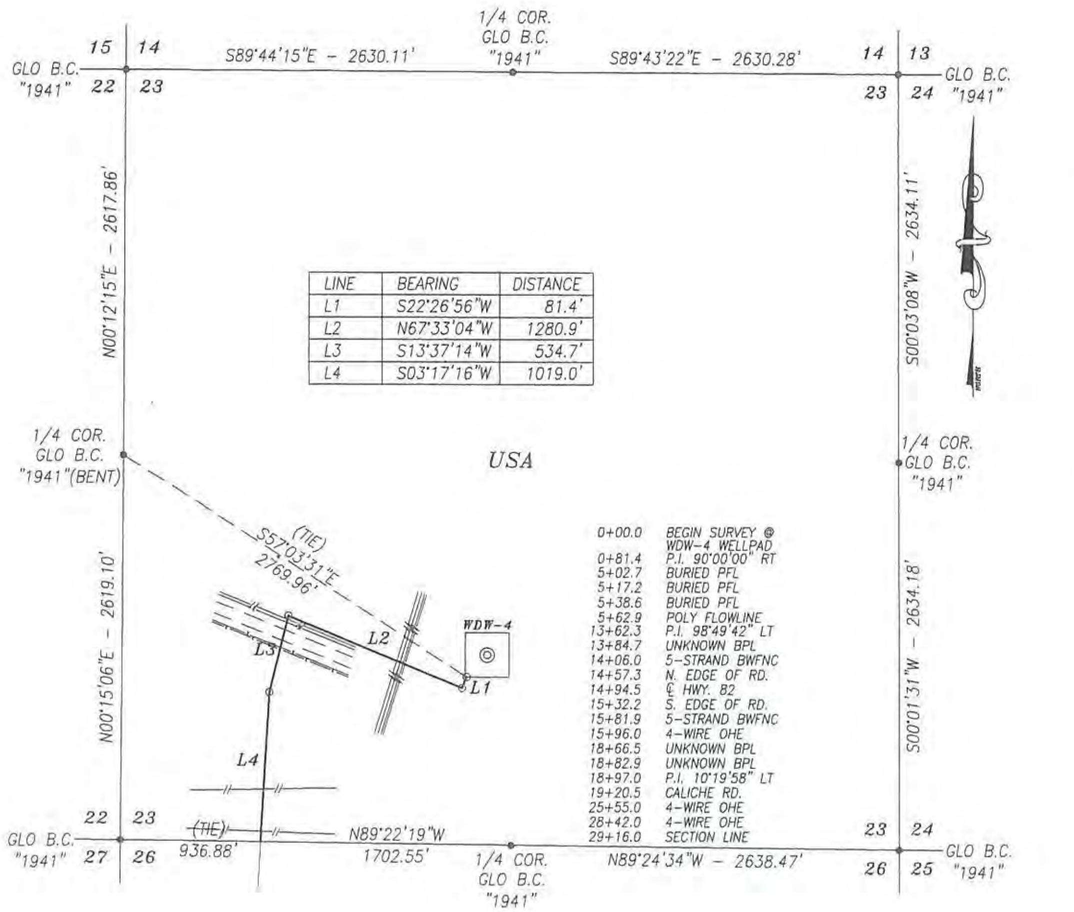
EXHIBIT B

Page 1 of 4

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC

A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO AN EXISTING BURIED PIPELINE IN

SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LINE	BEARING	DISTANCE
L1	S22°26'56"W	81.4'
L2	N67°33'04"W	1280.9'
L3	S13°37'14"W	534.7'
L4	S03°17'16"W	1019.0'

DESCRIPTION

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BASIS OF BEARING:
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CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 3/21/18

CHAD HARCROW N.M.P.S. NO. 17777 DATE

HARCROW SURVEYING, LLC
2314 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194089
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HOLLY FRONTIER NAVAJO REFINING, LLC

SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: MARCH 13, 2018		HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018		PAGE 1 OF 3
APPROVED BY: CH	DRAWN BY: JH	FILE: 18-220

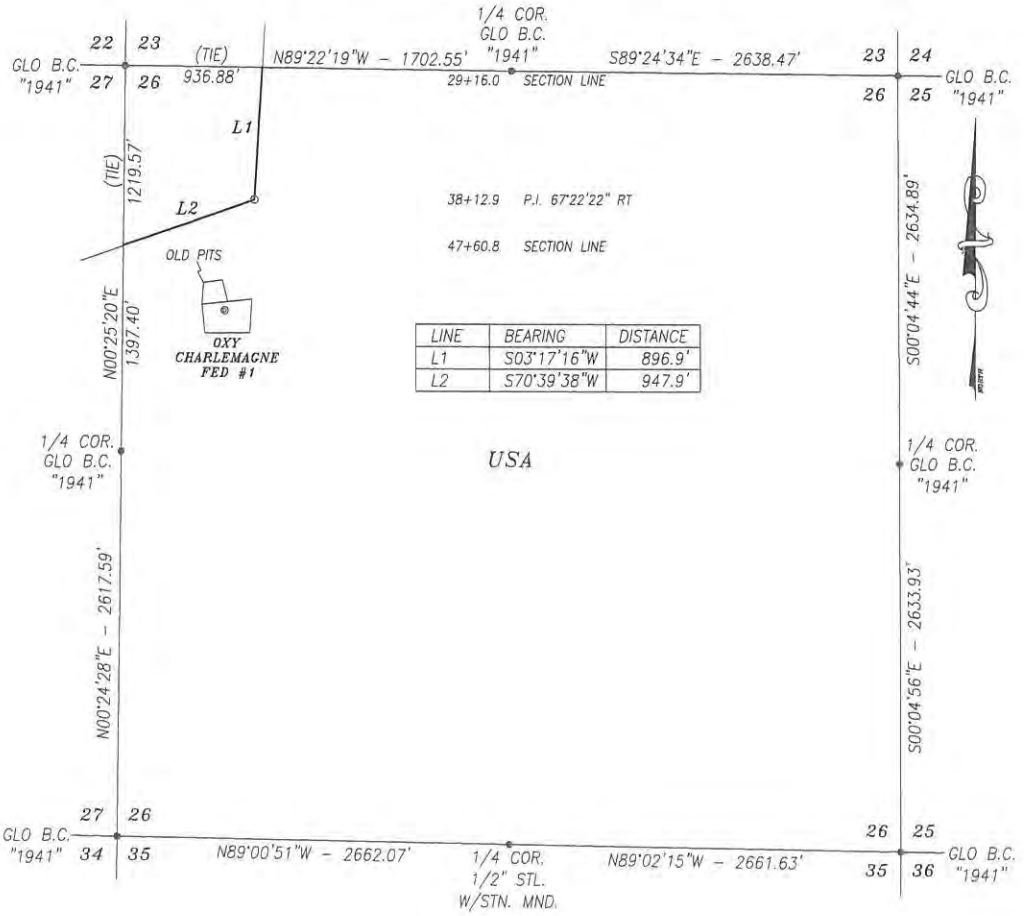
NM-137892

EXHIBIT B
Page 2 of 4

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC

A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO AN EXISTING BURIED PIPELINE IN

SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LINE	BEARING	DISTANCE
L1	S03°17'16"W	896.9'
L2	S70°39'38"W	947.9'

DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 1844.8 FEET OR 111.81 RODS OR 0.349 MILES IN LENGTH CROSSING USA LAND IN SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 3/21/18
CHAD HARCROW N.M.P.S. NO. 17777 DATE

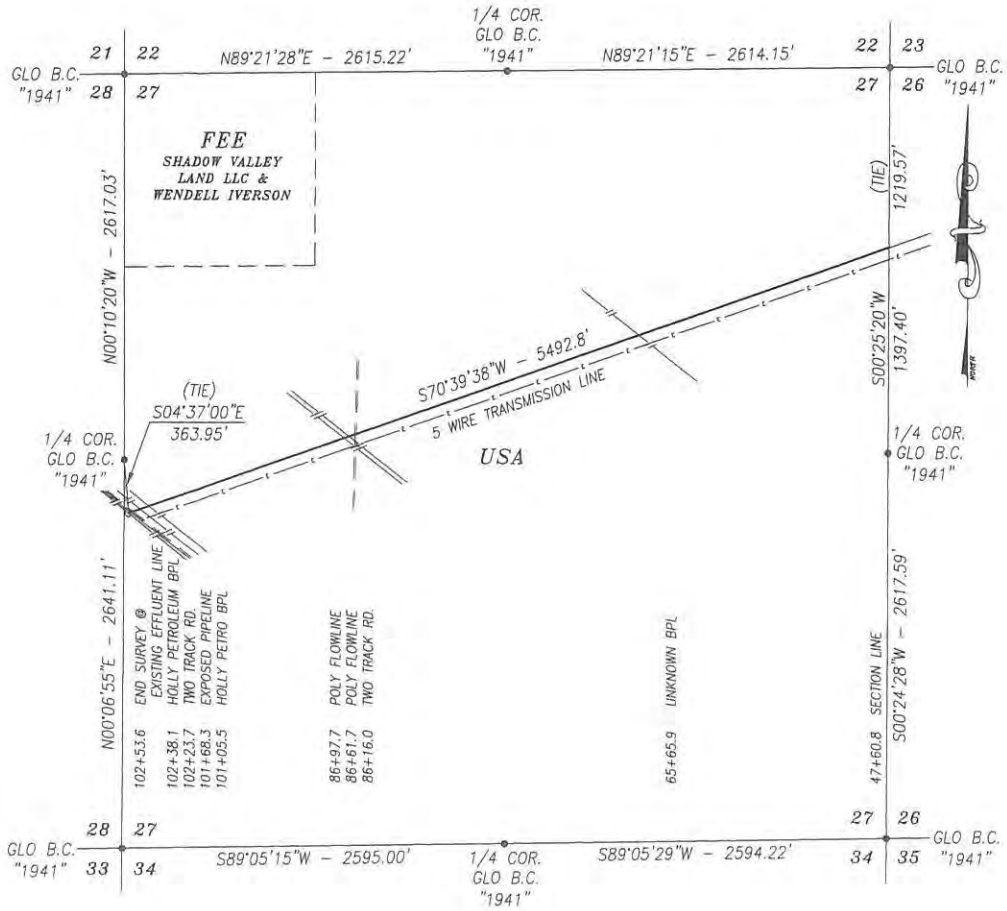
HARCROW SURVEYING, LLC
2314 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194089
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HOLLY FRONTIER NAVAJO REFINING, LLC	
SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 26, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO	
SURVEY DATE: MARCH 13, 2018	HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018	PAGE 2 OF 3
APPROVED BY: CH / DRAWN BY: JH	FILE: 18-220

EXHIBIT B
Page 3 of 4

PIPELINE PLAT: CW22696607
HOLLY FRONTIER NAVAJO REFINING, LLC
A PROPOSED PIPELINE FROM THE PROPOSED "WDW-4" WELL TO
AN EXISTING BURIED PIPELINE IN
SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



DESCRIPTION

A STRIP OF LAND 30.0 FEET WIDE AND 5492.8 FEET OR 332.90 RODS OR 1.040 MILES IN LENGTH CROSSING USA LAND IN SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, EDDY COUNTY, NEW MEXICO AND BEING 15.0 FEET LEFT AND 15.0 FEET RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 3/21/18
CHAD HARCROW N.M.P.S. NO. 17777 DATE

HARCROW SURVEYING, LLC
2314 W. MAIN ST. ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm No. 10194089
c.harcrow@harcrowsurveying.com

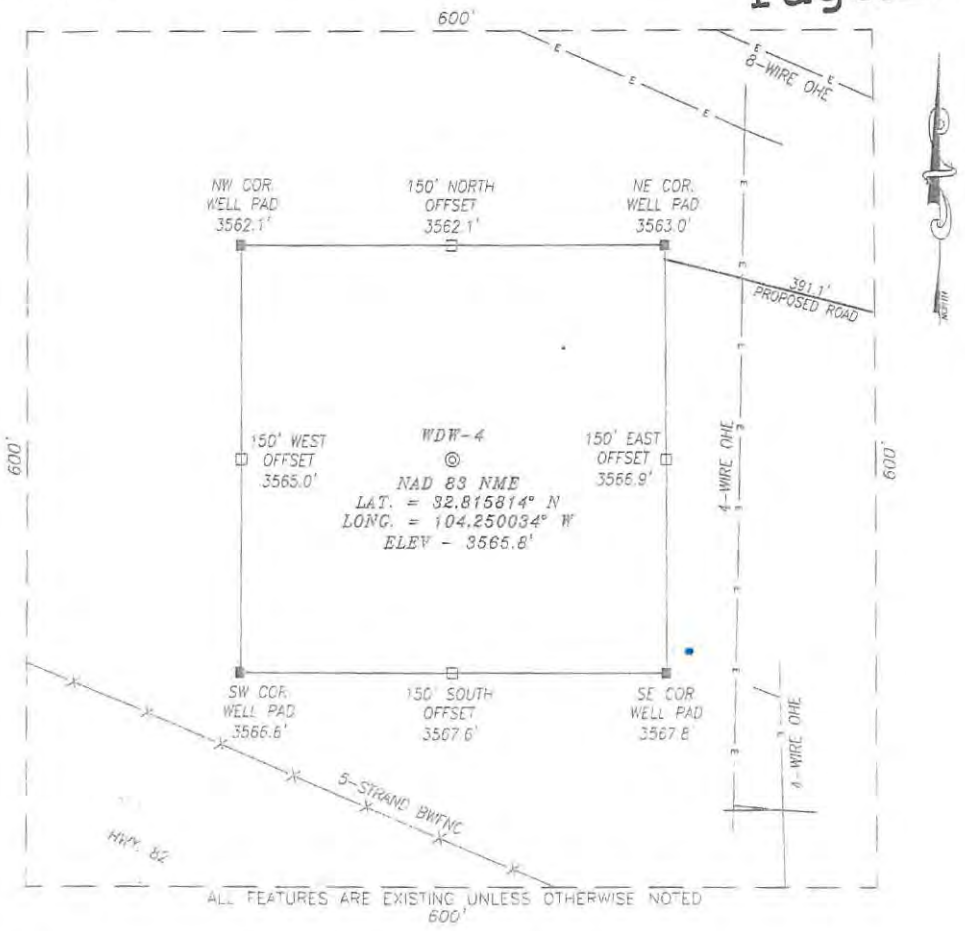
1000 0 1000 2000 FEET
SCALE: 1"=1000'

HOLLY FRONTIER NAVAJO REFINING, LLC		
SURVEY OF A PROPOSED PIPELINE LOCATED IN SECTION 27, TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM, EDDY COUNTY, NEW MEXICO		
SURVEY DATE: MARCH 13, 2018		HFC #CW22696607
DRAFTING DATE: MARCH 16, 2018		PAGE 3 OF 3
APPROVED BY: CH	DRAWN BY: JH	FILE: 18-220

NM-137892
EXHIBIT B
Page 4 of 4

SECTION 23, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M., NEW MEXICO

EDDY COUNTY



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY 82 AND C.R. 202 GO NORTHERLY ON C.R. 202 APPROX. 0.6 MI., THEN TURN LEFT (NORTHWEST) AT ½ GO APPROX. 0.5 MI. THE TURN LEFT (SOUTH) AND GO APPROX. 0.3 MI. TO A PROPOSED ROAD. PROPOSED WELL LIES APPROX. 530 FEET TO THE RIGHT (WEST)

100 0 100 200 Feet

Scale 1"=100'

HARCROW SURVEYING, LLC
2514 W. MAIN ST. ARTESIA, N.M. 88210
PH: (575) 746-2158 FAX: (575) 746-2158
Texas Firm Reg. 10194069
e.harcrow@harcrowsurveying.com

WSP USC, INC.

WDW-4
LOCATED 1217 FEET FROM THE SOUTH LINE
AND 2448 FEET FROM THE WEST LINE OF SECTION 23,
TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, NEW MEXICO

SURVEY DATE: JUNE 15, 2107	PAGE: 1 OF 1
DRAFTING DATE: JUNE 20, 2017	
APPROVED BY: CH	DRAWN BY: SA FILE: 17-750

OSE

Mike A. Hamman, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 747180
File Nbr: RA 13331

May. 31, 2023

KAWIKA TUPOU
HF SINCLAIR NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA, NM 88210

Greetings:

Your approved copy of the above numbered permit to drill a well for non-consumptive purposes is enclosed. You must obtain an additional permit if you intend to use the water. It is your responsibility to provide the contracted well driller with a copy of the permit that must be made available during well drilling activities.

Carefully review the attached conditions of approval for all specific permit requirements.

* If use of this well is temporary in nature and the well will be plugged at the end of the well usage, the OSE must initially approve of the plugging. If plugging approval is not conditioned in this permit, the applicant must submit a Plugging Plan of Operations for approval prior to the well being plugged. The Plugging Record must be properly completed and submitted to the OSE within 30 days of the well plugging.

* If the final intended purpose and condition requires a well ID tag and meter installation, the applicant must immediately send a completed meter report form to this office.

* The well record and log must be submitted within 30 days of the completion of the well or if the attempt was a dry hole.

* This permit expires and will be cancelled if no well is drilled and/or a well log is not received by the date set forth in the conditions of approval.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us.

Sincerely,

Azucena Ramirez
(575)622-6521

Enclosure

explore

File No. RA-13331 POD13

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐ Pollution Control And/Or Recovery	☐ Ground Source Heat Pump
☐ Exploratory Well*(Pump test)	☐ Construction Site/Public Works Dewatering	☐ Other(Describe):
☒ Monitoring Well	☐ Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

*New Mexico Environment Department-Drinking Water Bureau (NMED-DWB) will be notified if a proposed exploratory well is used for public water supply.

☐ Temporary Request - Requested Start Date: Requested End Date:

Plugging Plan of Operations Submitted? ☐ Yes ☒ No

1. APPLICANT(S)

Name: HF Sinclair Navajo Refining LLC	Name:
Contact or Agent: check here if Agent ☐ Kawika Tupou	Contact or Agent: check here if Agent ☐
Mailing Address: 501 East Main Street	Mailing Address:
City: Artesia	City:
State: Zip Code: NM 88210	State: Zip Code:
Phone: ☐ Home ☐ Cell Phone (Work): 575-746-5487	Phone: ☐ Home ☐ Cell Phone (Work):
E-mail (optional): Kawika.Tupou@HFSinclair.com	E-mail (optional):

OSE DII MAY 25 2023 PM 1:51

FOR OSE INTERNAL USE Application for Permit, Form WR-07, Rev 07/12/22

File No.: RA-13331	Trn. No.: 747180	Receipt No.: 2.45805
Trans Description (optional): MOU		
Sub-Basin: RA	PCW/LOG Due Date: 5/31/24	

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

■ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range*) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
RA-13331 POD1 WDW-2-MW-1	32.7636067436	-104.23861006	SW¼, SW¼, NW¼, Sec12, T18S, R27E
RA-13331 POD2 WDW-3-MW-1	32.771142984	-104.23345368	NE¼, SE¼, SW¼, Sec 1, T18S, R27E
RA-13331 POD3 WDW-4-MW-1	32.8158656898	-104.25011663	NE¼, SE¼, SW¼, Sec 23, T17S, R27E

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ■ **Yes** ☐ **No** **If yes, how many** 4

Other description relating well to common landmarks, streets, or other:

Well is on land owned by: BLM

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ■ **Yes** ☐ **No**
If yes, how many 4

Approximate depth of well (feet): 150	Outside diameter of well casing (inches): 4.5
Driller Name: TBD (Cascade, Talon or Yellow Jacket)	Driller License Number:

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

OSE DIT MAY 25 2023 PM1:58

4 UIC wells are authorized to inject under Oil Conservation Division (OCD) discharge permit. OCD is requiring the installation of one monitor well within 75 ft of each UIC well. The land is owned at locations WDW-2-MW-1, WDW-3-MW-1 and WDW-4-MW-1 by the BLM. BLM letters of approved access are attached.

Each of the 3 monitor wells shall be drilled to 150 ft and installed with the well depth dependent on the location of water bearing zones. The well will be completed with 15 ft of screen (10 ft below the water table and 5 ft above), 4 inch diameter PVC schedule 40 casing per OCD request. Wells will be drilled via sonic drilling method.

Monitoring wells are required indefinitely during the operation of the injection wells which under the OCD approved discharge permit. At final completion of project monitor wells will be properly abandoned and appropriate permits for plugging shall be obtained at that time.

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory:	**Pollution Control and/or Recovery:**	**Construction De-Watering:**	**Mine De-Watering:**
Is proposed well a future public water supply well? ☐ Yes ☐ NO If Yes, an application must be filed with NMED-DWB, concurrently. ☐ Include a description of the requested pump test if applicable.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge. ☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ■ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring ■ The reason and duration of the monitoring is required.		**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Kawika Tupou
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Kawika Tupou
Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

OSE DIT MAY 25 2023 PM 1:52

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 5 day of June 20 23, for the State Engineer,

Mike A. Hamman, State Engineer

By: Signature Juan Hernandez Print

Title: District II Manager Print

FOR OSE INTERNAL USE Application for Permit, Form WR-07 Version 07/12/22

File No.: RA-13331	Trn No.: 747180

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

LOG The Point of Diversion RA 13331 POD1 must be completed and the Well Log filed on or before 05/30/2024.

LOG The Point of Diversion RA 13331 POD2 must be completed and the Well Log filed on or before 05/30/2024.

LOG The Point of Diversion RA 13331 POD3 must be completed and the Well Log filed on or before 05/30/2024.

IT IS THE PERMITTEE'S RESPOSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Date Rcvd. Corrected:
Formal Application Rcvd: 05/25/2023 Pub. of Notice Ordered:
Date Returned - Correction: Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 5 day of June A.D., 2023

Mike A. Hamman, P.E., State Engineer

By: JUAN HERNANDEZ

Trn Desc: RA 13331 POD1-3 File Number: RA 13331
Trn Number: 747180

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

17-16 Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.

17-1A Depth of the well shall not exceed the thickness of the valley fill.

17-4 No water shall be appropriated and beneficially used under this permit.

17-6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging.

Trn Desc: RA 13331 POD1-3 File Number: RA 13331
Trn Number: 747180

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

17-7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.

17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record.
The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.

17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.

17-Q The State Engineer retains jurisdiction over this permit.

17-R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

Trn Desc: RA 13331 POD1-3 File Number: RA 13331
Trn Number: 747180

OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – ROSWELL OFFICE

OFFICIAL RECEIPT NUMBER: 2 - 45805 DATE: 5/25/23 FILE NO.: _____

TOTAL: 15.00 RECEIVED: Fifteen DOLLARS CHECK NO.: 106584 CASH: _____

PAYOR: Daniel B. Stephens + Associates Inc ADDRESS: 6020 Academy Rd. NE, Suite 100 CITY: Albuquerque STATE: NM

ZIP: 87109 RECEIVED BY: R.C.

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; and **yellow** copy for Water Rights. If a mistake is made, void the original and all copies and submit to Program Support/ASD as part of your daily deposit.

A. Ground Water Filing Fees

___	1. Change of Ownership of Water Right	$ 2.00
___	2. Application to Appropriate or Supplement Domestic 72-12-1 Well	$ 125.00
___	3. Application to Repair or Deepen 72-12-1 Well	$ 75.00
___	4. Application for Replacement 72-12-1 Well	$ 75.00
___	5. Application to Change Purpose of Use 72-12-1 Well	$ 75.00
___	6. Application for Stock Well/Temp. Use	$ 5.00
___	7. Application to Appropriate Irrigation, Municipal, or Commercial Use	$ 25.00
___	8. Declaration of Water Right	$ 1.00
___	9. Application for Additional Point of Diversion Non 72-12-1 Per Well	$ 25.00
___	10. Application to Change Place or Purpose of Use Non 72-12-1 Well	$ 25.00
___	11. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water	$ 50.00
___	12. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Ground Water	$ 50.00
___	13. Application to Change Point of Diversion of Non 72-12-1 Well	$ 25.00
___	14. Application to Repair or Deepen Non 72-12-1 Well	$ 5.00
3	15. Application for Test, Expl. Observ. Well	$ 5.00
___	16. Application for Extension of Time	$ 25.00
___	17. Proof of Application to Beneficial Use	$ 25.00
___	18. Notice of Intent to Appropriate	$ 25.00

B. Surface Water Filing Fees

___	1. Change of Ownership of a Water Right	$ 5.00
___	2. Declaration of Water Right	$ 10.00
___	3. Amended Declaration	$ 25.00
___	4. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Surface Water	$ 200.00
___	5. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water	$ 200.00
___	6. Application to Change Point of Diversion	$ 100.00
___	7. Application to Change Place and/or Purpose of Use	$ 100.00
___	8. Application to Appropriate	$ 25.00
___	9. Notice of Intent to Appropriate	$ 25.00
___	10. Application for Extension of Time	$ 50.00
___	11. Supplemental Well to a Surface Right	$ 100.00
___	12. Return Flow Credit	$ 100.00
___	13. Proof of Completion of Works	$ 25.00
___	14. Proof of Application of Water to Beneficial Use	$ 25.00
___	15. Water Development Plan	$ 100.00
___	16. Declaration of Livestock Water Impoundment	$ 10.00
___	17. Application for Livestock Water Impoundment	$ 10.00

All fees are non-refundable.

C. Well Driller Fees

___	1. Application for Well Driller's License	$ 50.00
___	2. Application for Renewal of Well Driller's License	$ 50.00
___	3. Application to Amend Well Driller's License	$ 50.00

D. Reproduction of Documents

___ @ 0.25¢ $_____

___ Map(s) @ $3.00 $_____

E. Certification $_____

F. Other $_____

G. Comments:

Mail

DANIEL B. STEPHENS & ASSOCIATES, INC. 106584

Check Date: 5/22/2023

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
Permit 05222023	5/22/2023	0227543	15.00			15.00
New Mexico Office of the State Engineer		TOTAL	15.00			15.00
BANK OF ALBUQUERQUE 1		140219				

STATE OF NEW MEXICO §
§
COUNTY OF EDDY §

Memorandum of Injection Well Access and Operation Agreement

NOTICE IS HEREBY PROVIDED that for good and valuable consideration, **COG Operation LLC and Concho Oil & Gas LLC** whose address is One Concho Center, 600 W. Illinois Avenue, Midland, Texas 79701 ("**Grantor**"), and HF Sinclair Navajo Refining LLC, whose address is 501 East Main, Artesia, New Mexico 88210 ("**Grantee**"), have entered into that certain unrecorded Injection Well Access and Operation Agreement (the "**Agreement**"), as of October 18, 2024, but effective as of October 1, 2010 (**"Effective Date"**), for the purpose of setting forth certain terms and conditions under which Grantee operates its WDW-1 ("**Well**") on the following described tract of land (the "**Lands**") owned by Grantor in Eddy County, New Mexico to-wit:

Exhibit A-1 hereto

The Agreement commences on the Effective Date and remains in effect for so long thereafter as Grantee uses the Well for the purposes set forth herein without a cessation of three hundred and sixty-five (365) consecutive days. The Agreement, with all of its terms, covenants, and other provisions, is referred to and incorporated into this Memorandum of Injection Well Access and Operation Agreement ("**Memorandum**") for all purposes. This Memorandum is placed of record for the purpose of giving notice of the Agreement, which by its express terms is a covenant running with the Lands and is binding upon the respective successors and assigns of Grantor and Grantee. An original of the Agreement is maintained in the offices of both Grantor and Grantee.

This Memorandum shall not be deemed to enlarge, diminish, restrict or change the rights of any of the parties to said Agreement but is for the purpose of giving record notice of the existence of the Agreement only.

This Memorandum is signed as of the date of each of the respective acknowledgments below, but is effective for all purposes as of the Effective Date of the Agreement, as stated above.

GRANTOR:

COG Operating LLC

By: _____
Christopher Boehler
Attorney-in-Fact B.R.S.

Concho Oil & Gas LLC

By: _____
Christopher Boehler
Attorney-in-Fact B.R.S.

(Cont'd)

Exhibit D to Injection Well Access and Operation Agreement

NOTARY ACKNOWLEDGEMENT

STATE OF Texas)
)
COUNTY OF Midland)

This instrument was executed and acknowledged before me on 11-14-2024 (date) by Christopher Boehler on behalf of COG Operating LLC and Concho Oil & Gas LLC.

(Seal) BROOKS SITKA
Notary Public, State of Texas
Comm. Expires 07-13-2026
Notary ID 129865350

Signature of Notary
My commission expires on: 7-13-2026

GRANTEE:

HF SINCLAIR NAVAJO REFINING LLC

By:
Name: Travis Gibb
Title: VP of Ops & Refinery Manager

NOTARY ACKNOWLEDGEMENT

STATE OF NEW MEXICO)
)
COUNTY OF Eddy)

This instrument was executed and acknowledged before me on 10-31-2024 (date) by TRAVIS GIBB on behalf of HF Sinclair Navajo Refining LLC.

(Seal) DORA JEAN FLOREZ
Notary Public
State of New Mexico
Comm. # 1098937
My Comm. Exp. Jun 11, 2028

Signature of Notary
My commission expires on: June 11, 2028

Project Name: WDW #1 (UICI-8-1) Disposal Well

EXHIBIT A-1
Wellpad Description

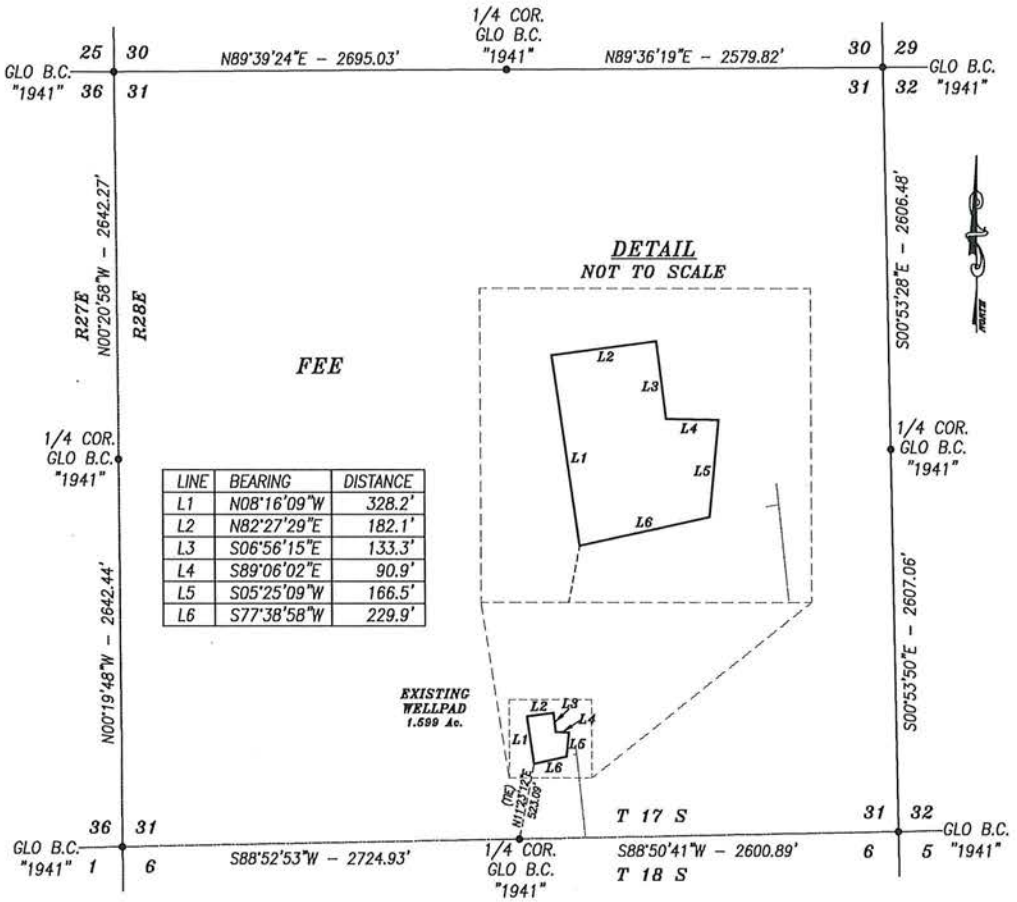
Injection Well Information

Current Well Name: HF Sinclair Navajo Refinery LLC WDW #1 (UICI-8-1)

Former Well Name: Mewbourne Oil Company Chalk Bluff 31 State #1

API#: 30-015-27592

BUSINESS LEASE PLAT
HF SINCLAIR
AN EXISTING WELLPAD IN
SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



LINE	BEARING	DISTANCE
L1	N08°16'09"W	328.2'
L2	N82°27'29"E	182.1'
L3	S06°56'15"E	133.3'
L4	S89°06'02"E	90.9'
L5	S05°25'09"W	166.5'
L6	S77°38'58"W	229.9'

DESCRIPTION

AN EXISTING PAD LOCATED WITHIN FEE LAND IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM, EDDY COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE EXISTING PAD, WHICH LIES N11°23'12"E 523.09 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION; THEN N08°16'09"W 328.2 FEET; THEN N82°27'29"E 182.1 FEET; THEN S06°56'15"E 133.3 FEET; THEN S89°06'02"E 90.9 FEET; THEN S05°25'09"W 166.5 FEET; THEN S77°38'58"W 229.9 FEET TO THE POINT OF BEGINNING.

SAID PAD CONTAINS 1.599 ACRES.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 8/13/24
CHAD HARCROW N.M.P.S. NO. 17777 DATE

HARCROW SURVEYING, LLC
2316 W. MAIN ST, ARTESIA, N.M. 88210
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HF SINCLAIR

SURVEY OF AN EXISTING WELLPAD LOCATED IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM, EDDY COUNTY, NEW MEXICO

SURVEY DATE: AUGUST 2, 2024	WELLPAD
DRAFTING DATE: AUGUST 6, 2024	PAGE 1 OF 1
APPROVED BY: CH / DRAWN BY: JH	FILE: 24-612

Elizabeth K. Anderson, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 774264
File Nbr: RA 13536

Feb. 27, 2025

CASE HINKINS
HF SINCLAIR NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA, NM 88210

Greetings:

Your approved copy of the above numbered permit to drill a well for non-consumptive purposes is enclosed. You must obtain an additional permit if you intend to use the water. It is your responsibility to provide the contracted well driller with a copy of the permit that must be made available during well drilling activities.

Carefully review the attached conditions of approval for all specific permit requirements.

* If use of this well is temporary in nature and the well will be plugged at the end of the well usage, the OSE must initially approve of the plugging. If plugging approval is not conditioned in this permit, the applicant must submit a Plugging Plan of Operations for approval prior to the well being plugged. The Plugging Record must be properly completed and submitted to the OSE within 30 days of the well plugging.

* If the final intended purpose and condition requires a well ID tag and meter installation, the applicant must immediately send a completed meter report form to this office.

* The well record and log must be submitted within 30 days of the completion of the well or if the attempt was a dry hole.

* You, the permittee, are required to email nm.driller@ose.nm.gov with the following information when the driller is enroute to the drilling site: OSE Permit number, POD number, physical address, driller company and license number, and date/time driller is to be on site.

* This permit expires and will be cancelled if no well is drilled and/or a well log is not received by the date set forth in the conditions of approval.

Appropriate forms can be downloaded from the OSE website www.ose.nm.gov.

Sincerely,

Rodolfo Chavez
(575)622-6521

Enclosure

File No. RA-13536 POD1

NEW MEXICO OFFICE OF THE STATE ENGINEER

WR-07 APPLICATION FOR PERMIT TO DRILL A WELL WITH NO WATER RIGHT

(check applicable boxes):

For fees, see State Engineer website: https://www.ose.nm.gov/

Purpose:	☐ Pollution Control And/Or Recovery	☐ Ground Source Heat Pump
☐ Exploratory Well*(Pump test)	☐ Construction Site/Public Works Dewatering	☐ Other(Describe):
☒ Monitoring Well	☐ Mine Dewatering	

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

*New Mexico Environment Department-Drinking Water Bureau (NMED-DWB) will be notified if a proposed exploratory well is used for public water supply.

☐ Yes ☐ No Angled/Directional borehole - include schematic and azimuth, inclination, measured depth and true vertical depth.

☐ Temporary Request - Requested Start Date: Requested End Date:

Plugging Plan of Operations Submitted? ☐ Yes ☒ No

Note: if there is known artesian conditions, contamination or high mineral content at the drilling location, include the borehole log or a well log from an existing well at that location. If this information is not submitted, check box and attach form WD-09 to this form. ☐

1. APPLICANT(S)

Name: HF Sinclair Navajo Refining LLC	Name:
Contact or Agent: Case Hinkins — check here if Agent ☐	Contact or Agent: — check here if Agent ☐
Mailing Address: 501 East Main Street	Mailing Address:
City: Artesia	City:
State: NM — Zip Code: 88210	State: — Zip Code:
Phone: Phone (Work): (575) 746-5487 — ☐ Home ☐ Cell	Phone: Phone (Work): — ☐ Home ☐ Cell
E-mail (optional): Case.Hinkins@HFSinclair.com	E-mail (optional):

OSE DII ROSWELL NM
16 DEC '24 AM8:52

FOR OSE INTERNAL USE — Application for Permit, Form WR-07, Rev 10/02/2024

File No.: RA-13536	Trn. No.: 774264	Receipt No.: 2-47560
Trans Description (optional):		
Sub-Basin: RA	PCW/LOG Due Date: 12/23/25	

2. **WELL(S)** Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell), District V (Aztec) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

■ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	-Public Land Survey System (PLSS) (QQQSection, Township, Range) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name	Well Depth in feet	Casing Diameter (OD)
WDW-1-MW-1 RA-13536 POD1	32.78507472	-104.214012	SW¼,SW¼,SE¼,Sec 31,T17S,R28E	500	4.5

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ **Yes** ■ **No** **If yes, how many**_____

Other description relating well to common landmarks, streets, or other:

Well is on land owned by: COG Operation LLC and Concho Oil & Gas LLC

Well Information: NOTE: If casings telescope or involve nested casing, please provide diagram. Attached? ☐ **Yes** ■ **No**

Approximate depth to water (feet): 500	Outside diameter of well casing (inches): 4.5
Driller Name: Cascade	Driller License Number: 1664

3. **ADDITIONAL STATEMENTS OR EXPLANATIONS**

OSE DII ROSWELL NM
16 DEC '24 AM8:51

4 UIC wells are authorized to inject under Oil Conservation Division (OCD) discharge permit. OCD is requiring the installation of one monitor well within 75 ft of each UIC well. The land for WDW-1-MW-1 is owned by COG Operation LLC and Concho Oil & Gas LLC, a land access agreement is attached. WDW-1-MW-1 shall be drilled to 500 ft and installed with the well depth dependent on the location of water bearing zones. The well will be completed with a 15 ft of screen (10 ft below the water table and 5 ft above), 4 inch schedule 40 diameter per OCD request. Wells will be drilled via sonic drilling method.

The monitor well is required to be sampled throughout operation of the injection well WDW-1 which is authorized by OCD. At time of site closure of the Underground Injection Control well, monitor wells shall be properly abandoned with appropriate permits for plugging.

If no well is installed due to lack of waterbearing units, the borehole will be abandoned with a bentonite grout from depth to 2ft from surface and the top 0-2 ft will be backfilled with native material.

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory*: Is proposed well a future public water supply well? ☐ Yes ☐ NO If Yes, an application must be filed with NMED-DWB, concurrently. ☐ Include a description of any proposed pump test, if applicable.	**Pollution Control and/or Recovery:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☐ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge. ☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ■ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Construction De-Watering:** ☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	**Mine De-Watering:** ☐ Include a plan for Mine De-Watering, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring*: ■ Include the reason for the monitoring well, and, ■ The duration of the planned monitoring.		**Ground Source Heat Pump:** ☐ Include a description of the geothermal heat exchange project, ☐ The number of boreholes for the completed project and required depths. ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

(* if exploration or monitoring drilling activity is required by NMED, then you must also submit the NMED Work Plan)

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Case Hinkins

Print Name(s)

affirm that the foregoing statements are true to the best of (my,our) knowledge and belief.

Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☑ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 27th day of February 20 25, for the State Engineer,

ELIZABETH K. ANDERSON, P.E., State Engineer

By: K. Parekh
Signature

KASHYAP PAREKH
Print

Title: WATER RESOURCE MANAGER I
Print

GREAT SEAL OF THE STATE OF NEW MEXICO 1912

FOR OSE INTERNAL USE

Application for Permit, Form WR-07 Version 10/02/2024

File No.: RA-13536 POD1

Trn No.: 774264

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

17-16 Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.

17-1A Depth of the well shall not exceed the thickness of the valley fill.

17-4 No water shall be appropriated and beneficially used under this permit.

17-6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging.

Trn Desc: RA 13536 POD1

File Number: RA 13536
Trn Number: 774264

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

17-7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.

17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record.
The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.

17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.

17-Q The State Engineer retains jurisdiction over this permit.

17-R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

LOG The Point of Diversion RA 13536 POD1 must be completed and the Well Log filed on or before 02/27/2026.

IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd: Date Rcvd. Corrected:
Formal Application Rcvd: 12/16/2024 Pub. of Notice Ordered:
Date Returned - Correction: Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 27 day of Feb A.D., 2025

Elizabeth K. Anderson, P.E., State Engineer

By: K. Parekh
KASHYAP PAREKH

Trn Desc: RA 13536 POD1

File Number: RA 13536
Trn Number: 774264

STATE OF NEW MEXICO §
§
COUNTY OF EDDY §

Memorandum of Injection Well Access and Operation Agreement

NOTICE IS HEREBY PROVIDED that for good and valuable consideration, **COG Operation LLC and Concho Oil & Gas LLC** whose address is One Concho Center, 600 W. Illinois Avenue, Midland, Texas 79701 (**"Grantor"**), and HF Sinclair Navajo Refining LLC, whose address is 501 East Main, Artesia, New Mexico 88210 (**"Grantee"**), have entered into that certain unrecorded Injection Well Access and Operation Agreement (the **"Agreement"**), as of October 18, 2024, but effective as of October 1, 2010 (**"Effective Date"**), for the purpose of setting forth certain terms and conditions under which Grantee operates its WDW-1 (**"Well"**) on the following described tract of land (the **"Lands"**) owned by Grantor in Eddy County, New Mexico to-wit:

Exhibit A-1 hereto

The Agreement commences on the Effective Date and remains in effect for so long thereafter as Grantee uses the Well for the purposes set forth herein without a cessation of three hundred and sixty-five (365) consecutive days. The Agreement, with all of its terms, covenants, and other provisions, is referred to and incorporated into this Memorandum of Injection Well Access and Operation Agreement (**"Memorandum"**) for all purposes. This Memorandum is placed of record for the purpose of giving notice of the Agreement, which by its express terms is a covenant running with the Lands and is binding upon the respective successors and assigns of Grantor and Grantee. An original of the Agreement is maintained in the offices of both Grantor and Grantee.

This Memorandum shall not be deemed to enlarge, diminish, restrict or change the rights of any of the parties to said Agreement but is for the purpose of giving record notice of the existence of the Agreement only.

This Memorandum is signed as of the date of each of the respective acknowledgments below, but is effective for all purposes as of the Effective Date of the Agreement, as stated above.

GRANTOR:

COG Operating LLC

By: _____
Christopher Boehler
Attorney-in-Fact B.R.S.

Concho Oil & Gas LLC

By: _____
Christopher Boehler
Attorney-in-Fact B.R.S.

(Cont'd)

Exhibit D to Injection Well Access and Operation Agreement

NOTARY ACKNOWLEDGEMENT

STATE OF Texas)
)
COUNTY OF Midland)

This instrument was executed and acknowledged before me on 11-14-2024 (date) by Christopher Boehler on behalf of COG Operating LLC and Concho Oil & Gas LLC.

(Seal)

BROOKS SITKA
Notary Public, State of Texas
Comm. Expires 07-13-2026
Notary ID 129865350

Signature of Notary
My commission expires on: 7-13-2026

GRANTEE:

HF SINCLAIR NAVAJO REFINING LLC

By: _____
Name: Travis Gibb
Title: VP of Ops & Refinery Manager

NOTARY ACKNOWLEDGEMENT

STATE OF NEW MEXICO)
)
COUNTY OF Eddy)

This instrument was executed and acknowledged before me on 10-31-2024 (date) by TRAVIS GIBB on behalf of HF Sinclair Navajo Refining LLC.

(Seal)

DORA JEAN FLOREZ
Notary Public
State of New Mexico
Comm. # 1098937
My Comm. Exp. Jun 11, 2028

Signature of Notary
My commission expires on: June 11, 2028

OSE DII ROSWELL NM
16 DEC '24 AM8:52

Project Name: WDW #1 (UICI-8-1) Disposal Well

EXHIBIT A-1
Wellpad Description

Injection Well Information

Current Well Name: HF Sinclair Navajo Refinery LLC WDW #1 (UICI-8-1)

Former Well Name: Mewbourne Oil Company Chalk Bluff 31 State #1

API#: 30-015-27592

BUSINESS LEASE PLAT
HF SINCLAIR
AN EXISTING WELLPAD IN
SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,
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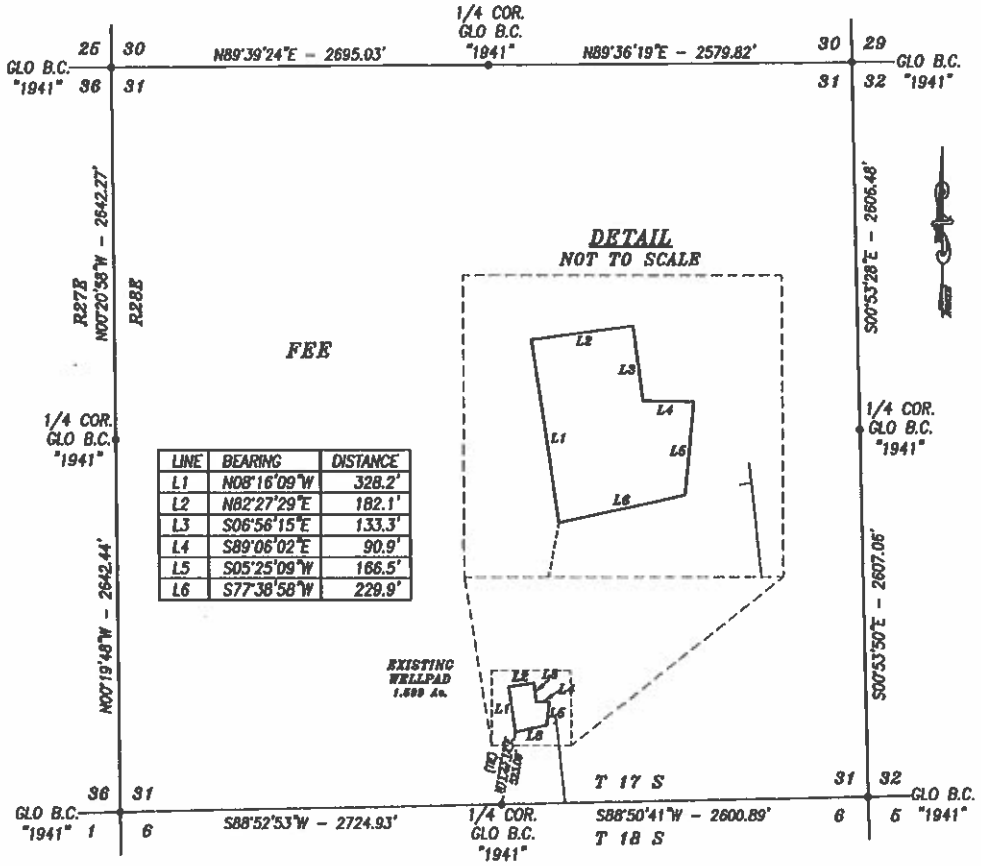

LINE	BEARING	DISTANCE
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BEGINNING AT THE SOUTHWEST CORNER OF THE EXISTING PAD, WHICH LIES N11°23'12"E 523.09 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION; THEN N08°16'09"W 328.2 FEET; THEN N82°27'29"E 182.1 FEET; THEN S06°56'15"E 133.3 FEET; THEN S89°06'02"E 90.9 FEET; THEN S05°25'09"W 166.5 FEET; THEN S77°38'58"W 229.9 FEET TO THE POINT OF BEGINNING.

SAID PAD CONTAINS 1.599 ACRES.

BASIS OF BEARING:
BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES.

CERTIFICATION
I, CHAD HARCROW, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 8/13/24
CHAD HARCROW N.M.P.S. NO. 17777 DATE

HARCROW SURVEYING, LLC
2316 W. MAIN ST. ARTESIA, N.M. 88210
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com

1000 0 1000 2000 FEET
SCALE: 1"=1000'

HF SINCLAIR	
SURVEY OF AN EXISTING WELLPAD LOCATED IN SECTION 31, TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM, EDDY COUNTY, NEW MEXICO	
SURVEY DATE: AUGUST 2, 2024	WELLPAD
DRAFTING DATE: AUGUST 6, 2024	PAGE 1 OF 1
APPROVED BY: CH / DRAWN BY: JH	FILE: 24-612

DBS&A
a Geo-Logic Company

December 12, 2024

New Mexico Office of the State Engineer
District II
1900 West Second St.
Roswell, NM 88201

Re: Permit Application to Drill Monitor Wells for HF Sinclair Navajo Refining LLC, Artesia, NM

Please find enclosed WR-07 Application for Permit to Drill Monitoring Wells for HF Sinclair Navajo Refining LLC, Artesia, NM. The enclosed packet includes the application to drill three monitoring wells. Daniel B. Stephens & Associates, Inc. (DBS&A) has been contracted by HF Sinclair Navajo Refining LLC to oversee the installation of these monitor wells. A location figure is provided with the application to drill. Locations for monitor wells has been approved by land owner (COG Operation LLC and Concho Oil & Gas LLC), see enclosed land access letter.

Enclosed: Land access approval letter from COG Operation LLC and Concho Oil & Gas LLC and the monitor well proposed location area map. This application is for 1 monitoring well - WDW-1-MW-1.

DBS&A is hoping to receive a timely response. Please call me at (505) 822-9400 or Case Hinkins if you have questions or if need additional information. Your time and effort are greatly appreciated.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Elizabeth Bastien

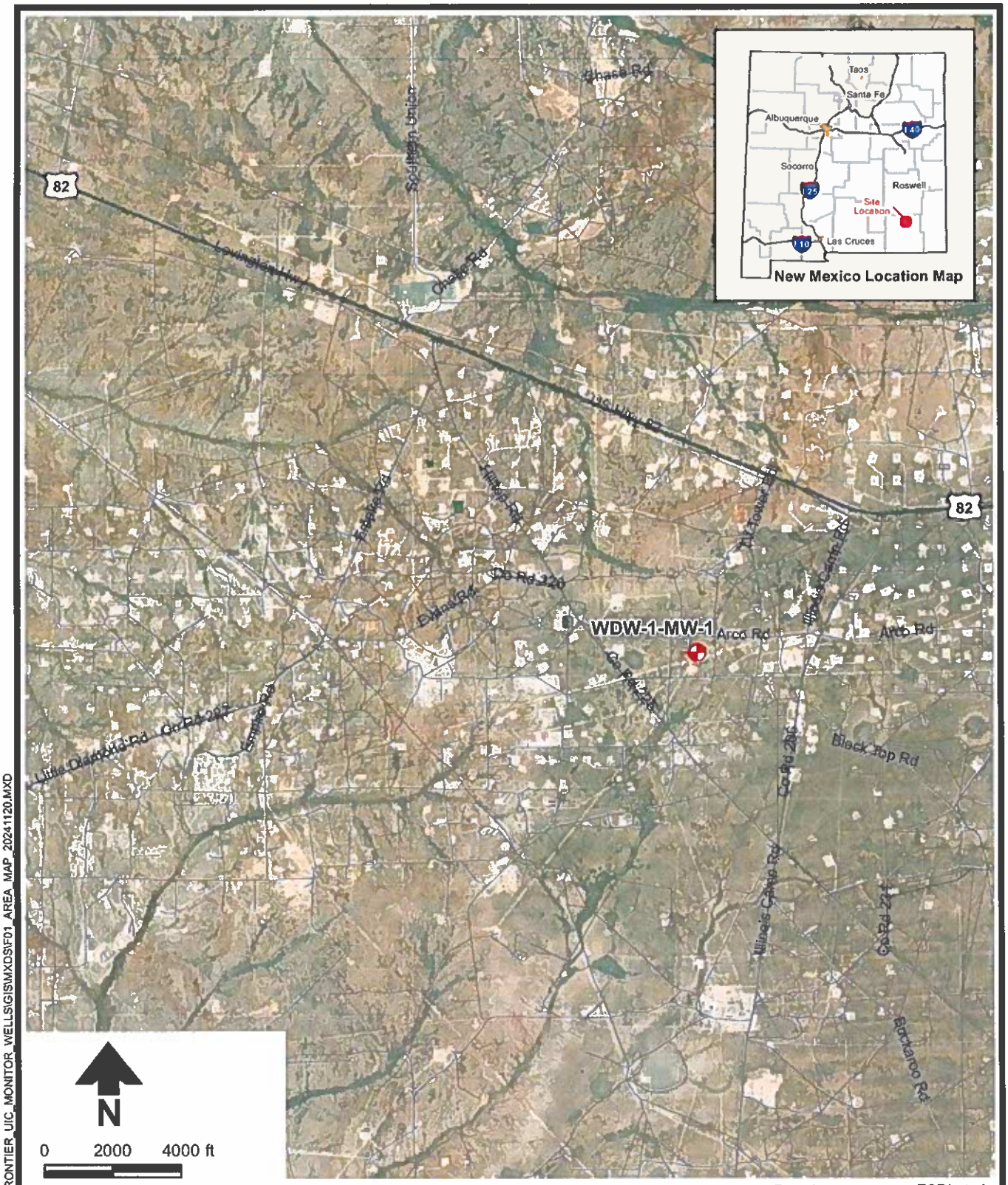
OSE DII ROSWELL NM
16 DEC '24 AM8:52

Elizabeth Bastien
Hydrologist/Project Manager

Enclosure
cc: Case Hikins (HF Sinclair Navajo Refining)

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

(505) 822-9400
www.dbstephens.com



Base image source: ESRI et al.

Explanation

Underground Injection Control Well (UIC)

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\GIS\MXDS\F01_AREA_MAP_20241120.MXD

DBS&A a Geo-Logic Company

11/21/2024 DB22.1134

HF SINCLAIR NAVAJO REFINERY

Area Map

Figure 1

OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – ROSWELL OFFICE

OFFICIAL RECEIPT NUMBER: 2 - 47560 DATE: 12-16-2024 FILE NO.: TBD

TOTAL: 5.00 RECEIVED: Five DOLLARS CHECK NO.: 106695 CASH: _____

PAYOR: Daniel Stephens & Assoc. ADDRESS: 6020 Academy Rd Ste. 100 CITY: Alb STATE: N.M.

ZIP: 87109 RECEIVED BY: MAT

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; and **yellow** copy for Water Rights. If a mistake is made, void the original and all copies and submit to Program Support/ASD as part of your daily deposit.

A. Ground Water Filing Fees

___	1. Change of Ownership of Water Right	$ 2.00
___	2. Application to Appropriate or Supplement Domestic 72-12-1 Well	$ 125.00
___	3. Application to Repair or Deepen 72-12-1 Well	$ 75.00
___	4. Application for Replacement 72-12-1 Well	$ 75.00
___	5. Application to Change Purpose of Use 72-12-1 Well	$ 75.00
___	6. Application for Stock Well/Temp. Use	$ 5.00
___	7. Application to Appropriate Irrigation, Municipal, or Commercial Use	$ 25.00
___	8. Declaration of Water Right	$ 1.00
___	9. Application for Additional Point of Diversion Non 72-12-1 Per Well	$ 25.00
___	10. Application to Change Place or Purpose of Use Non 72-12-1 Well	$ 25.00
___	11. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water	$ 50.00
___	12. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Ground Water	$ 50.00
___	13. Application to Change Point of Diversion of Non 72-12-1 Well	$ 25.00
___	14. Application to Repair or Deepen Non 72-12-1 Well	$ 5.00
1	15. Application for Test, Expl. Observ. Well	$ 5.00
___	16. Application for Extension of Time	$ 25.00
___	17. Proof of Application to Beneficial Use	$ 25.00
___	18. Notice of Intent to Appropriate	$ 25.00

B. Surface Water Filing Fees

___	1. Change of Ownership of a Water Right	$ 5.00
___	2. Declaration of Water Right	$ 10.00
___	3. Amended Declaration	$ 25.00
___	4. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Surface Water	$ 200.00
___	5. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water	$ 200.00
___	6. Application to Change Point of Diversion	$ 100.00
___	7. Application to Change Place and/or Purpose of Use	$ 100.00
___	8. Application to Appropriate	$ 25.00
___	9. Notice of Intent to Appropriate	$ 25.00
___	10. Application for Extension of Time	$ 50.00
___	11. Supplemental Well to a Surface Right	$ 100.00
___	12. Return Flow Credit	$ 100.00
___	13. Proof of Completion of Works	$ 25.00
___	14. Proof of Application of Water to Beneficial Use	$ 25.00
___	15. Water Development Plan	$ 100.00
___	16. Declaration of Livestock Water Impoundment	$ 10.00
___	17. Application for Livestock Water Impoundment	$ 10.00

C. Well Driller Fees

___	1. Application for Well Driller's License	$ 50.00
___	2. Application for Renewal of Well Driller's License	$ 50.00
___	3. Application to Amend Well Driller's License	$ 50.00

D. Reproduction of Documents

___ @ 0.25¢ $_____

___ Map(s) @ $3.00 $_____

E. Certification $_____

F. Other $_____

G. Comments:

All fees are non-refundable.

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
DISTRICT II
TELEPHONE: (575) 622-6521 FAX: (575) 623-8559

ELIZABETH K. ANDERSON, P.E.
STATE ENGINEER

1900 West Second Street
Roswell, New Mexico 88201

February 27, 2025

HF Sinclair Navajo Refining LLC
c/o Daniel B. Stephens & Associates Inc
6020 Academy Road NE, Suite 100
Albuquerque, NM 87109

RE: *Artesian Well Plan of Operations* for well No. RA-13536-POD1

Greetings:

Attached is your copy of the Artesian Plan of Operations for the above described project.

The proposed method of operations for the subject well is found to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted June 30, 2017 by the State Engineer subject to the following Conditions of Approval:

- Schedule 80 PVC casing is approved by the Office of the State Engineer.
- The Schedule 80 PVC casing shall be centralized at a minimum of every 60 feet.
- Cement-Bentonite slurry is approved to seal the annular space.
- The cement-bentonite slurry (bentonite powder) shall be mixed using a maximum of 5.2 gallons of water per 94-lb sack of Type I/II Portland cement **PLUS** 0.65 gallons per 1% increase in bentonite up to a maximum 6% bentonite by dry weight ratio. The bentonite shall be hydrated separately with its required increments of water prior to being mixed into the cement slurry.

- Annular grout shall be placed in the annular space to the ground surface in a manner that prevents inter-aquifer exchange of water and to prevent loss of hydraulic head between geologic zones.
- Any deviation from this plan must obtain an approved variance from the District II office prior to implementation.

If you have any further questions, please contact the Office of the State Engineer on 575-622-6521.

Sincerely,

K Parekh

Kashyap Parekh
Water Resources Manager I

ARTESIAN WELL PLAN OF OPERATIONS and CONTAMINATION PRESENT

(for new well construction and repairs)

An Artesian Well Plan of Operations shall be filed and approved by the Office of the State Engineer prior to commencing the drilling of an artesian well or when low-quality or contaminated water is present in accordance with Chapter 72, Article 13 NMSA 1978 and 19.27.4.30.A(4) NMAC.

Artesian Well Plan of Operations ☒ Contamination Present ☐

1. Applicant(s)

OSE POD Number:	Well Tag ID No.:
Name: HF Sinclair Navajo Refining LLC	Name:
Contact Or Agent ☐Check if Agent Case Hinkins	Contact Or Agent ☐Check if Agent
Mailing Address: 501 East Main Street	Mailing Address:
City: Artesia State: NM Zip: 88210	City: State: Zip:
Phone: ☐Cell ☐Home	Phone: ☐Cell ☐Home
Phone Work:(575) 746-5487	Phone Work:
E-Mail: CaseHinkinsHFSinclair.com	E-Mail:

2. Background Information

Do artesian wells exist near the proposed well?	☐Yes ☒No	
If yes, provide the OSE POD Number(s):		
If yes, what is the completed depth to water in nearby wells?		Feet
If yes, what the top depth of the artesian Aquifer?		Feet
Are there flowing artesian wells in the area?	☐Yes ☒No	
If flowing artesian wells exist, provide the OSE POD Number(s) in the space below:		
Does low quality (contaminated) water exist in the area*?	☐Yes ☒No	
If yes, what is the estimated bottom depth of the Low Quality water?		Feet
If yes, attach groundwater quality analyses?	☐Yes ☒No	
What type of drilling method are you employing? Sonic Drilling		
Specialty equipment you may be using:		

3. Well Information

☒ Detailed Wellbore diagram attached including but not limited to estimated formation tops. Diagram needs to match all information presented in the Artesian Well Plan of Operations.

GPS Well Location (NAD 83)							
Latitude:	32	Deg.	47	Min.	6.27	Sec.
Longitude:	-104	Deg.	12	Min.	50.44	Sec.
County:	Eddy County					

4. Well Construction Information

Will the flowlines be connected below ground surface? ☐Yes ☒No
Pitless adapter is required when flow line breaches the casing
Will there be pitless installed? ☐Yes ☒No

Item	Surface Casing	Artesian/ Contamination Casing	Production/ Open hole
Borehole Diameter (inches)			8.5
Proposed Bottom Depth (Feet)			500
Casing Type and Grade			PVC Sch 80
Casing Weight (lbs/ft)			2.75
Casing ID (inches)			3.79
Casing Wall Thickness (inches)			0.34
Casing OD (Inches)			~~4.5~~ 4.47
Casing Coupler Type			Flush treaded
Coupler OD (Inches)			NA
Centralizer type (Bow, rigid, Steel Spring, etc.)			Spring bow latch-on
Centralizer Make & Model			TBD
Centralizer Spacing (Feet)			60
Centralizer OD (Inches)			NA
Number of Bands (Steel Spring)			NA
Maximum Offset from Casing (Steel Spring) (Inches)			NA
Shoe Make			NA
Shoe Model			NA
Permanent Filter Pack Feed OD (inches)			NA
Permanent Filter Pack Feed Coupler OD (Inches)			NA

Annular Sealant			
	Surface Casing	**Artesian/ Contamination Casing**	**Production/ Open hole**
Top of Annular Sealant (Feet)			20
Base of Annular Sealant (Feet)			480
Proposed Volume of Annular Sealant (units)[1]			4.8 cubic yards
Proposed Sealant Overage			None
Cement Type			Cement-bentonite slurry w/ Type 1 cement
Method of Sealant Placement			Termmie pipe
Cement Additives:	**Surface Casing**	**Artesian/ Contamination Casing**	**Production/ Open hole**
% Bentonite			5%
Parts Sand /94 lb sk			NA
%CaCl			NA
Other additives			NA
Water Demand (gal/94 lb-sk cement)			6.5

5. Additional Information including variance requests (in accordance with 19.27.4.37 NMAC).

1) Cement-Bentonite Slurry from 480 to 20 feet below ground surface (bgs): per 94-pound sack of Type I cement add 5% pre-hydrated bentonite and 8.45 gallons water (5.2 gallons water + 0.65 gallons per each 1% of bentonite)
2) Neat cement from 20 feet bgs to 2 feet bgs (6 gallons water per 94 pound sack of Type I cement)
3) Native backfill: 2 feet bgs to ground surface

(0.005454*(8.5^(2)-4.5^(2))*460)/27=4.8 cubic feet of annular space for cement-bentonite slurry
0.3 cubic feet for neat cement

At the request of New Mexico Oil Conservation Division (OCD), HF Sinclair Navajo Refining llc is investigating the potential presence of groundwater near their underground injection control (UIC) wells. The field investigation includes watching for perched and regional groundwater and if present constructing a monitoring well for collection of water level and chemical data.

Artesian conditions and groundwater contamination is not expected.
Casing and screen will be the production casing.

No proposed sealant overage is expected.
Cement and annular seal will be topped off to ground surface.

[1] Calculate the proposed volume of sealant as accurately as possible. The following link to GeoPro Water Well Grout Volume Calculator may be used - https://geoproinc.com/resources/water_well.html

6. Well Driller Information

New Mexico Licensed Well Driller: Cascade	
New Mexico Well Driller License No. 1664	Expiration Date: 1/31/2027

7. Signature

I, Elizabeth Bastien, say that I carefully read the foregoing Artesian Well Plan of Operations and Contamination Present form and any attachments, which are a part hereof, that I am familiar with the rules and regulations of the State Engineer pertaining to the construction of wells and will comply with them, and that each and all of the statements in the Artesian Well Plan and Contamination Present form and attachments are true to the best of my knowledge and belief.

Elizabeth Bastien — 2/25/25

Signature — Date

8. Action of the State Engineer

This Artesian Well Plan of Operations and Contamination Present form is:

X Approved subject to the attached conditions.

_____ Not approved for the reasons provided in the attached letter.

Witness my hand and official seal this 27th day of February, 25

Elizabeth K. Anderson P.E.

_____, State Engineer

By: K Parekh

Kashyap Parekh

Water Resources Manager I

OSE DII ROSWELL NM
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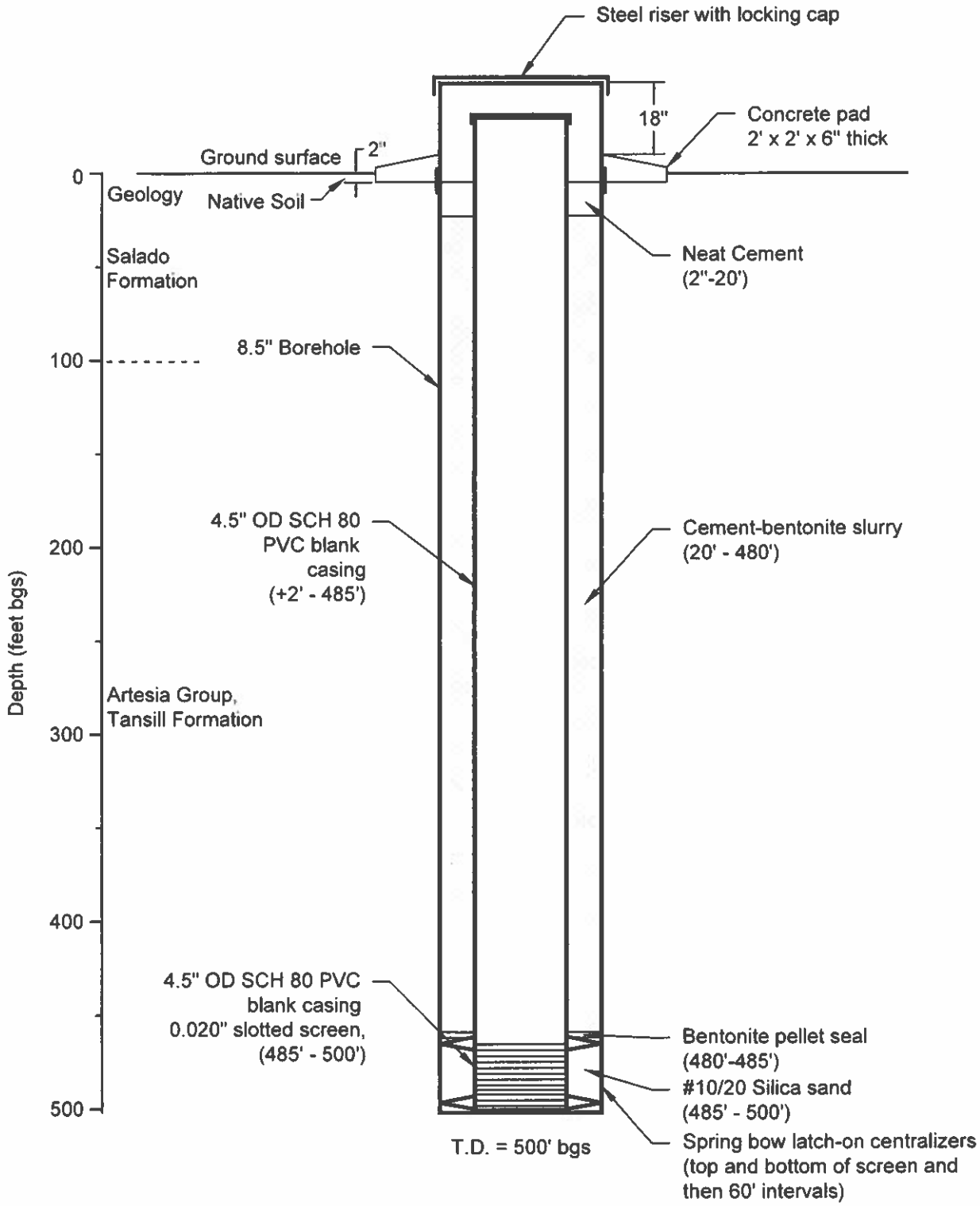
OSE Official Use Only	Artesian Plan of Operations	Version August 2, 2023	Page 4 of 4
OSE File # RA-13536	OSE POD # 1	Transaction #	



Notes:
1. Values are preliminary estimates
2. Construction will be based on field observations
3. Drawing is not to scale
4. Dimensions are outside diameter
5. bgs = Below ground surface
6. O.D. = Outside diameter
7. T.D. = Total depth
8. PVC = Polyvinyl chloride
9. SDR = Standard Dimension Ratio
10. SCH = Schedule
11. ' = Feet
12. " = Inches

HF Sinclair Navajo Refining UIC

S:\PROJECTS\DB22.1334_HOLLYFRONTIER_UIC_MONITOR_WELLS\CAD\PRODUCTION\MONITOR WELL COMPLETION.DWG

DBS&A a Geo-Logic Company

2/12/2025 Project # DB22.1334

WDW-1-MW-1 Monitor Well Design

Figure 1

Appendix E

Borehole and Well Logs

DBS&A
a Geo-Logic Company

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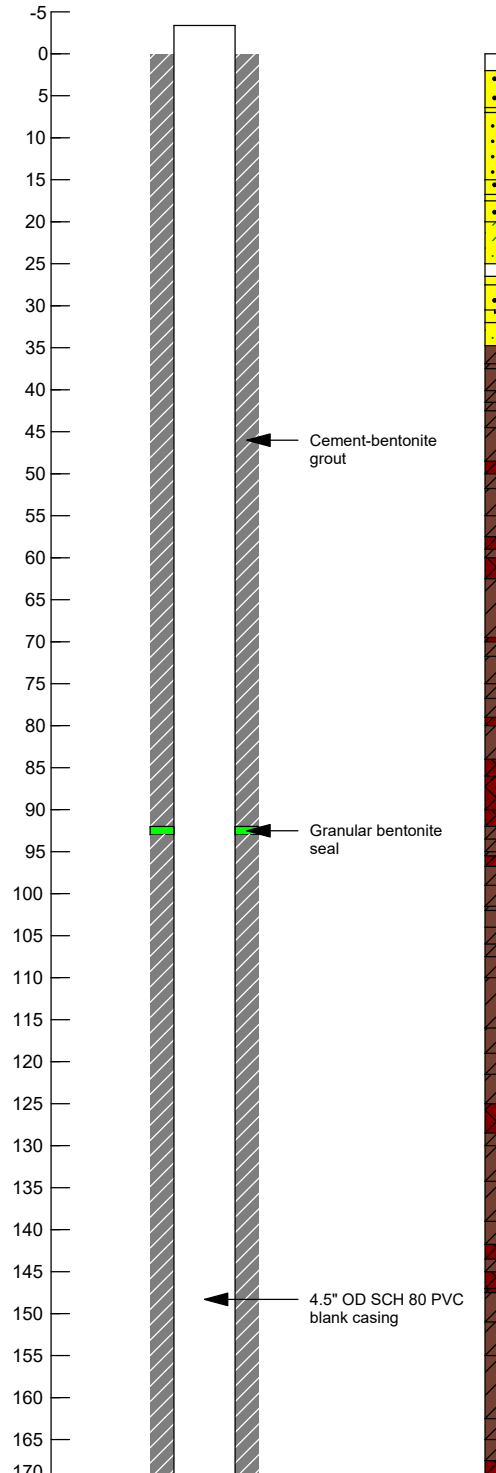
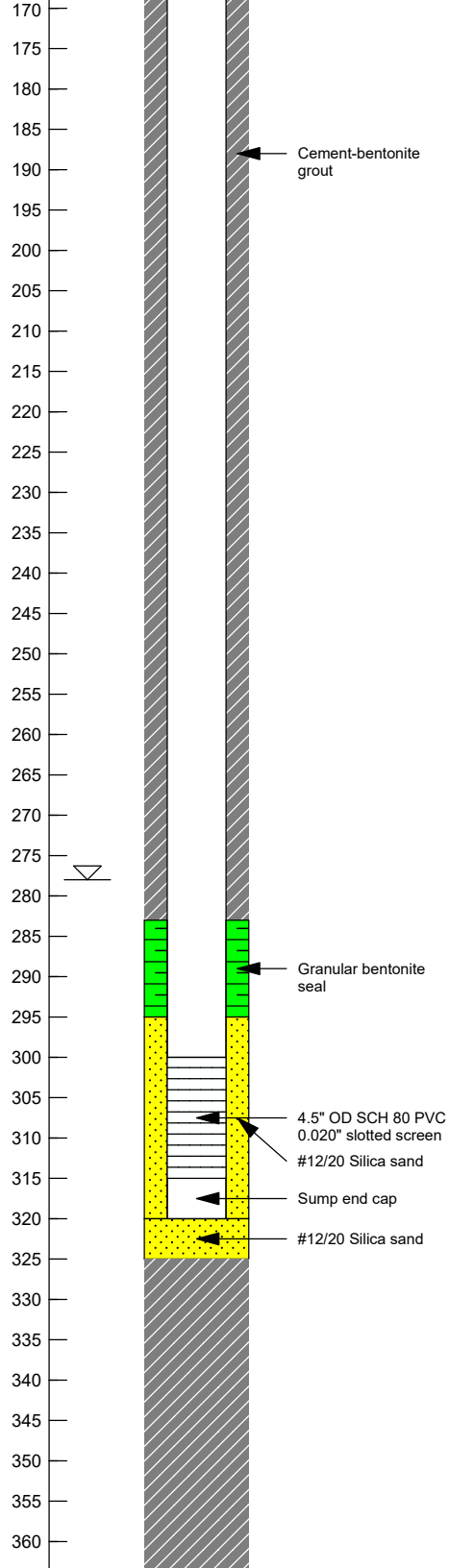
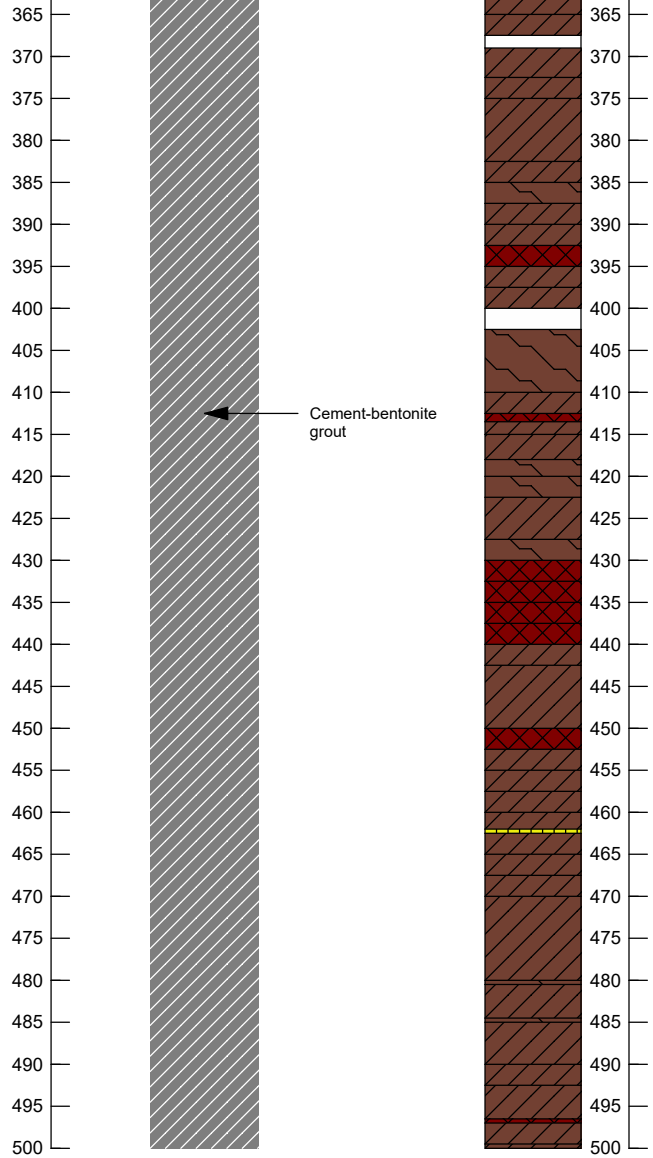


Graphic Log	USCS	Lithology Interval	Comments and Lithology
	SP	2-6.4	Hydrovac fill, pink (7.5 yr 7/3), sand with limestone (1.5 cm), sand is rounded to well rounded, fine to medium grained, dry, well sorted, loose
	GP	6.4-7	Caliche, pinkish white (7.5 yr 8/2), very fine to fine grained (pulverized), subrounded, well sorted, very hard, dry
	SW	7-15	Sandy silt with caliche, pinkish white (7.5 yr 8/2), sand with pulverized fines, rounded to well rounded; Caliche (1.5 in), poorly sorted; Silty sand is non-cohesive, loose, dry; Caliche is cohesive, hard, dry, very high dry strength
	SP	15-16.75	Silty sand, light brown (7.5 yr 6/4), with little caliche (1 in), trace limestone (2 cm); Silty sand is loose, moderately sorted, very fine to fine grained (pulverized), well rounded, dry
	SP	16.75-17.5	Sandy silt, white (7.5 yr 6/4), with caliche (2 in), rounded, very fine to fine grained (pulvarized), well sorted, hard, dry
	SP	17.5-20	Silty sand, pinkish white (7.5 yr 8/2), with little caliche, very fine to fine grained (pulverized), rounded to well rounded, loose, dry; Caliche (1 in), very fine grained (pulverized), cohesive, hard, dry
	GC	20-25	Silty, clayey sand, white (7.5 yr 8/1) and very dark gray (7.5 yr 3/1), with trace limestone (up to 2 in), some clay, sand is subrounded to rounded, very fine to fine grained (pulverized), loose, low-med plasticity, weak ribbon, dry, slightly sticky when wet; Limestone is rounded, smooth, hard
	GP	26.5-27.5	Caliche gravel (2 in), very pale brown (10 yr 8/3), with little sand, fine grained, rounded, well sorted, loose, dry; Caliche, fine, rounded, consolidated grains, well sorted, strong HCL reaction, hard, dry
	SP	27.5-30.5	Silty sand, very pale brown (10 yr 8/4), with little caliche; Sand is very fine to fine grained (pulverized), well sorted, rounded to well rounded, loose
	GP	30.5-32	Caliche gravel, reddish yellow (7.5 yr 6/6), with some clayey sand, fine grained, sub rounded to rounded, well sorted, non to low plasticity, slightly sticky when wet with weak ribbon; Caliche, (3 in), dry
	GC	32-34.75	Clayey, silty sand, very pale brown (10 yr 8/4), less clay than above and few caliche (1 in), fine grained (pulverized), rounded, well sorted, non to very low plasticity, weak ribbon, loose, dry
	CL	34.75-36.9	Claystone grading into sandy clay, pink (7.5 yr 7/3), loose, dry, when wet - non to low plasticity, slightly sticky, weak ribbon, very fine to fine grained (pulverized), rounded, well sorted; Claystone is strong brown (7.5 yr 4/6), cohesive, firm, medium dry strength
	CL	36.9-37.5	Claystone, red (2.5 yr 4/6), with some sandy clay, low to med plasticity, weak ribbon; Sandy clay is fine grained, rounded, well sorted, little evaporates in claystone, consolidated, soft to firm, low dry strength, dry to slightly damp
	CL	37.5-40.1	Claystone, red (2.5 yr 4/6), with few sand, consolidated soft, ribbons without water, low to med plasticity, weak ribbon, slightly sticky when wet, low dry strength, dry to slightly damp, few evaporates; Sand is fine grained, well sorted, and rounded
	CL	40.1-41.5	Sandy claystone, red (2.5 yr 4/6), with large streaks of evaporate; possibly anhydrite, white (wp N/9.5), very soft, no reaction to HCL, very fine grained (pulverized), rounded, well sorted and platey; Sand is pink (7.5 yr 7/4), loose, well sorted with some anhydrite
	CL	41.5-42.5	Sandy claystone, red (2.5 yr 4/6), with large streaks of anhydrite (<above), white (wp N/9.5), very soft, no reaction to HCL, very fine grained (pulverized), rounded, well sorted, and platey
	CL	42.5-44.5	Claystone, reddish brown (2.5 yr 4/4), with little sand, little interbedded evaporates ranging in color from white to gray; Claystone is cohesive, soft, with low dry strength, dry to slightly damp, low plasticity, weak ribbon; Sand is well sorted, rounded and fine grained (pulverized)
	CL	44.5-48.5	Sandy silty clay, white (7.5 yr 9/1), loose, dry, very fine to fine grained (pulverized), well rounded, well sorted, when wet - med plasticity, weak ribbon, contains few anhydrite, (2 in), dry
	ANH	48.5-50	Anhydrite (pulverized into sandy silt), white (wp 9.5/N), very fine to 2 in, well rounded, well sorted, very loose, dry, no HCL reaction
	CL	50-51.75	Claystone, red (2.5 yr 4/6), with some evaporates, dry, cohesive, soft, low dry strength, when wet forms ribbon, low to med plasticity, weak ribbon; Evaporate is white, no visible to very fine grain (pulverized), no HCL reaction
	CL	51.75-55	Claystone, dark red (2.5 yr 3/6), cohesive, firm to stiff, med dry strength, dry to slightly damp, little evaporates, low plasticity, weak ribbon
	CL	55-57.5	Silty claystone, red (2.5 yr 4/6), interbedded with evaporates and little anhydrite, cohesive, soft, low dry strength, dry, low plasticity, weak ribbon; Evaporate is white, low dry strength, cohesive, very soft, very fine grained (pulverized), well sorted and rounded
	ANH	57.5-59	Anhydrite (pulverized into sandy silt), white (wp 9.5/1) to pinkish white (wp 8/2), very fine grained up to 2 in, well rounded, well sorted, dry, loose
	CL	59-60	Claystone interbedded with evaporate (up to 2 cm), cohesive, firm, low dry strength, dry to slightly damp; Evaporate is white to gray, very fine grained (pulverized), rounded, well sorted; Sandy silt, loose, when wet - slightly sticky
	ANH	60-62.5	Anhydrite (pulverized into sandy silt), white (wp 9/1), loose, dry, very fine grained up to 1.5 in, well rounded, well sorted
	CL	62.5-69.5	Claystone interbedded with evaporate (2 cm), cohesive, firm, low dry strength, dry to slightly damp; Evaporate is white to gray, very fine grained (pulverized), rounded, well sorted, soft, loose, sandy silt
	ANH	69.5-70	Anhydrite with interbedded claystone and little clayey silt
	CL	70-71.75	Claystone, red (2.5 yr 4/6), medium dry strength, cohesive, soft to firm, dry, with some evaporates; Evaporate is white (wp 9.5/N), firm to stiff, non-visible to very fine grained (pulverized), rounded, well sorted
	CL	71.75-75	Claystone, red (2.5 yr 4/6), few evaporates, cohesive, soft, low plasticity, weak to flexible ribbon, dry to slightly damp
	CL	75-76.75	Claystone, red (2.5 yr 4/6), with some evaporates, low to med plasticity, flexible ribbon, cohesive, soft, dry; Evaporate is white (wp 9.5/N), firm to stiff, non-visible to very fine grained, rounded, well sorted
	CL	76.75-79	Claystone, red (2.5 yr 4/6), with few specks of pale green (gley1 6/1) ~1 cm, dry, cohesive, soft to firm, low-med plasticity, weak ribbon
	ANH	79-80	Anhydrite, light red (10 yr 6/6), in clayey silt, pink (2.5 yr 8/3), dry, loose, very fine grained, well sorted, rounded, anhydrite has no visible grains
	CL	80-84	Claystone, Reddish brown (2.5 yr 4/4), with trace specks of pale green (gley1 6/1), low dry strength, low-med plasticity, med ribbon strength
	ANH	84-86	Anhydrite, light red (10 yr 7/6), cohesive, firm, low dry strength, very fine grained, rounded, moderate to well sorted, in sandy silt (pulverized)
	ANH	86-90	Anhydrite, in mostly pulverized sandy silt, pinkish white (10 yr 8/2) to light red (10 yr 7/6), no visible grains but slightly platey, cohesive, hard, very high dry strength, dry; Sandy silt is very fine to fine grained (pulverized), well sorted, rounded to well rounded, when wet - slightly sticky
	ANH	90-92	Anhydrite, mostly light reddish gray with light red streaks (2.5 yr 7/1 & 6/6), in pulverized sandy silt; Anhydrite is cohesive, very hard, high dry strength; Silt is white (wp 9/1), loose, dry, very fine grained (pulverized), subrounded, well sorted
	CL	92-93.5	Claystone, red (2.5 yr 4/6), cohesive, firm, med dry strength, few evaporates, translucent, very fine grains, subrounded, and platey anhydrite
	CL	93.5-95	Claystone, red (2.5 yr 4/6), cohesive, soft, low dry strength, low to med plasticity, weak to med strength ribbon, trace platey anhydrite in clay, few evaporates, little greenish gray (gley2 6/10) spots (1 cm), little clayey silt, pink (2.5 yr 8/4), fine grained, rounded, well sorted
	CL	95-95.5	Claystone, red (2.5 yr 4/6), less evaporates than above, claystone is cohesive, firm, med dry strength
	ANH	95.5-96.75	Anhydrite, white (5 y 8/1), in pulverized sandy silt with few clay; Anhydrite is cohesive, hard, has few light red streaks (10 yr 6/6); Silt is loose, white (7.5 yr 9.5/1), well sorted, rounded, very fine, slightly sticky when wet
	CL	96.75-99	Claystone, red (10 yr 9/6), with greenish gray spots (1 cm); Clay is soft, cohesive, med dry strength, low to med plasticity, weak to flexible ribbon
	CL	99-101.5	Claystone, red (10 yr 9/6), with greenish gray spots (<above), interbedded platey anhydrite (1 in), white (5 y 8/1), cohesive, hard
	CL	101.5-102	Claystone with grayish olive (10 yr 5/2) clay, white (wp 9.5/N) evaporates, cohesive, soft to firm, low dry strength, low plasticity, weak ribbon
	CH	102-104	Claystone, red (2.5 yr 4/8), trace evaporates, med to high plasticity, flexible to strong ribbon, slightly damp to damp
	CL	104-106	Claystone, reddish brown (2.5 yr 4/4), with interbedded anhydrite, platey, trace grayish olive spots, cohesive, soft, low plasticity, weak ribbon
	CL	106-107.5	Claystone with evaporates (2 cm), white (wp 9.5/N), no visible grains to very fine grained, few platey anhydrite (3 in) interbedded in claystone
	CL	107.5-110	Claystone with evaporates (<above), white (wp 9.5/N), no visible grains to very fine grained, few platey anhydrite (2 in) interbedded in claystone;
	CL	110-116	Clay is firm with med dry strenth, cohesive, low plasticity, weak ribbon, dry
	CL	116-119	Claystone, red (2.5 yr 4/6), few greenish gray (g1ey1 6/1) spots (2mm), progressively more evaporates as we reach the base of layer; Clay is cohesive, soft, low plasticity, weak ribbon, slightly damp at top; Evaporates, fine grained (pulverized), rounded, well sorted, white (wp 9.5/N)
	CL	119-121.5	Claystone, red (2.5 yr 4/6), little interbedded anhydrite (1cm), little spots of greenish gray (gley1 6/1) (1mm); clay is cohesive, soft, med dry strength, low-med plasticity, weak ribbon, dry to slightly damp
	CL	121.5-125	Claystone, dark red (2.5 yr 3/6), cohesive, soft to firm, med dry strength, low plasticity, weak ribbon, dry, little greenish gray spots
	ANH	125-128.5	Anhydrite, red (7.5 yr 4/6) with white streaks (wp 9.5/N), in pulverized sandy silt, no visible grains but platey; silt is light pink (7.5 yr 8/2) and pale red (7.5 yr 7/4) at 124.75', loose, very fine, rounded, well sorted
	CL	128.5-130	Claystone, dark red (2.5 yr 3/4), with interbedded anhydrite and evaporates; Claystone, slightly damp to damp, med plasticity, weak to med strength ribbons, cohesive, soft; Anhydrite is cohesive, hard, slightly translucent to light red (2.5 yr 6/6), up to 1 in, platey
	CL	130-134.25	Claystone, reddish brown (2.5 yr 4/3), dry to slightly damp, cohesive, soft, low to med plasticity, low to med strength ribbon, slightly flexible
	CL	134.25-139	Claystone, reddish brown (2.5 yr 4/3), with interbedded evaporates (2 cm), dry to slightly damp, cohesive, soft, low plasticity, low strength ribbon
	CL	139-141.75	Claystone, dark red (2.5 yr 3/6), with anhydrite; Claystone is dry to very slightly damp, low to med plasticity, weak ribbon, soft; Anhydrite (1 in),



		white (wp 9.5/N) to light red (2.5 yr 7/6), platey, hard, no HCL reaction; Selenite crystals, translucent, flaky, platey
ANH	141.75-143.5	Anhydrite, red (10 yr 4/8), in pulverized sandy silt, pink (10 r 8.4); Andhydrite (up to 7 in), platey
CL	143.5-145	Claystone, dark red (2.5 yr 3/6), with anhydrite layer; Claystone, dry, low to med plasticity, weak ribbon, soft, some translucent plates of anhydrite; Anhydrite (6 in), light red (2.5 yr 7/6) and white (wp 9.5/N), middle anhydrite layer is platey, translucent to light gray (10 r 7/1), hard
ANH	145-147	Anhydrite, white (wp 9.5/N), pulverized into silt with white (wp 9.5/N) to translucent & light gray (10 yr 7/1), hard, very high dry strength, platey
ANH	147-147.5	Anhydrite, translucent to light red (10 r 6/6), in pulverized silt, pinkish white (10 r 8/2), hard, very high dry strength, platey
CL	147.5-151	Claystone, dark red (10 yr 3/4), low plasticity, cohesive, soft, med dry strength, weak ribbon, dry to slightly damp, interbedded with evaporates; Evaporates are white (wp 9.5/N), very fine grained (pulverized), rounded, well sorted, low dry strength
CL	151-155	Claystone, red (2.5 yr 5/6), low plasticity, weak to med ribbon, dry to slightly damp, little yellowish brown spots (10 yr 5/8), trace anhydrite (1 cm)
CL	155-162.5	Claystone, red (2.5 yr 4/6), dry to slightly damp, soft to firm, cohesive, med dry strength, low plasticity, weak ribbon, few pale green (Gley 1 6/2) spots (1 cm) and little interbedded anhydrite (2 in); anhydrite is white (wp 9.5/N) to pale red (10 r 6/4), platey
CL	162.5-165	Claystone, red (2.5 yr 4/6), dry to slightly damp, soft to firm, cohesive, med dry strength, low plasticity, weak ribbon
CL	165-167.5	Claystone, dark red (2.5 yr 3/4), with interbedded anhydrite and some pinkish white pulverized silt, rounded, well sorted, very fine grained, dry, low plasticity, weak ribbon, cohesive, soft, low to med dry strength; Anhydrite is mostly light reddish gray (2.5 yr 7/1), platey, hard
ANH	167.5-169.25	Anhydrite, pinkish gray (7.5 yr 7/1), in pulverized silt, white (wp 9.5/N), cohesive, (7 in), hard, platey
CL	169.25-171.25	Claystone, dusky red (10 yr 3/4), interbedded platey translucent anhydrite; Claystone, low plasticity, weak ribbons, cohesive, soft, med dry strength, dry to slightly damp; Anhydrite (up to 7 in), is translucent to pinkish gray (7.5 yr 7/1), cohesive, hard, platy, selenite crystals
ANH	171.25-172.5	Anhydrite, white (wp 9.5/N) to light gray (10 yr 7/1), in pulverized silt, white (wp 9.5/N); Anhydrite is cohesive, hard, platey
CL	172.5-175	Claystone, weak red (10 r 5/4), with some anhydrite, (1 in), platey, translucent to light gray (10 r 7/1); Claystone, low plasticity, weak ribbon, soft
CL	175-177.25	Claystone, red (2.5 yr 4/6), cohesive, soft, low dry strength, non to low plasticity, weak ribbon, dry to slightly damp, few evaporates; Evaporates, white (wp 8.5/N), very fine grained (pulverized), well sorted, slightly platey, subrounded, trace selenite crystals (1 mm), translucent, subangular
CL	177.25-180	Claystone, red (2.5 yr 4/6), interbedded in white (wp 9.5/N) to pinkish white (5 yr 8/2) anhydrite, clay layer (4 in); Claystone is cohesive, soft, low dry strength, non to low plasticity, weak ribbon, dry to slightly damp; Anhydrite, cohesive, soft to firm, low to med dry strength
CL	180-181	Claystone, reddish brown (5 yr 4/4), dry to slightly damp, cohesive, firm to stiff, med dry strength, little evaporates
ANH	181-185	Anhydrite, translucent to white (wp 9.5/N) to light reddish brown (5yr 6/3), interbedded with evaporates and claystone layer (.75 in thick), reddish brown (5 yr 5/4), platey with a silty luster, cohesive, very hard
GM	185-188	Sandy gravely claystone, yellowish brown (10 yr 5/4), slightly damp to damp, cohesive, low dry strength, fine to coarse grained, mod to well sorted
ANH	188-190	Anhydrite, translucent to white (wp 9.5/N) to light reddish brown (5 yr 6/3), clay, yellowish red (5 yr 5/5) spots; Claystone, dry to slightly damp, cohesive, firm to stiff, med dry strength; Anhydrite (3 in), platey with a silty luster, cohesive, very hard
CL	190-194	Claystone, dark reddish brown (5 yr 3/4), dry to slightly damp, cohesive, soft, low plasticity, weak ribbon, trace evaporates with trace selenite
ANH	194-195	Anhydrite with interbedded claystone, dark reddish brown (5 yr 3/4); Claystone is dry to slightly damp, cohesive, soft, low plasticity, weak ribbon; Anhydrite, low dry strength and some selenite crystals, translucent to white (wp 9.5/N)
ANH	195-200	Anhydrite, translucent to light reddish brown (5 yr 6/3), platey, cohesive, very hard but breaks easily, low to med dry strength
CL	200-205	Claystone, dark reddish brown (5 yr 3/4), dry to slightly damp, cohesive, stiff, med dry strength, few interbedded evaporateds, white (wp 9.5/N), between 203.5-204.5', very fine grained (pulverized), well sorted, rounded
CL	205-208.75	Claystone, dark reddish brown (5 yr 3/4), dry to slightly damp, cohesive, stiff, med dry strength
ANH	208.75-211.75	Anhydrite (6 in), translucent to reddish gray (5 yr 5/2), platey, silky luster with little white (wp 9.5/N) evaporates, hard, no HLC reaction
CL	211.75-212.5	Claystone, reddish brown (5 yr 5/4), slightly damp, low to med plasticity, slightly flexible ribbon, soft, low dry strength, trace evaporates
ANH	212.5-215	Anhydrite, reddish gray (2.5 yr 5/1), thicker plates (.5 cm) with trace selenite layers (3 mm), cohesive, hard; Last 6 inches has yellowish red (5 yr 5/6) interbedded clayey sandstone, very fine grained, subrounded, well sorted, hard, med dry strength, slightly sticky when wet, dry
ANH	212.5-215	Anhydrite, dark gray (7.5 yr 4/1), hard, platey, few selenite crystals, pulverized pinkish gray (7.5 yr 7/2) sandy silt
ANH	215-216	Anhydrite, white (wp 9.5/N), hard, no HCL reaction, in white (wp 9.5/N) sandy silt (pulverized), very fine to coarse grained, moderately sorted, subrounded to rounded; Sandy silt, pale yellowish pink (7.5 yr 9/2); Anhydrite, red (10 r 4/6) with light gray (10 r 7/1) interbedded layers
CL	216-219.5	Claystone, dark reddish brown (5 yr 3/4), little evaporates and little selenite crystals, dry, cohesive, firm, med dry strength, non to low plasticity, weak ribbon; Anhydrite (2 in), reddish gray (2.5 yr 5/1), massive, and evaporates, white (wp 9.5/N)
ANH	222.5-225	Anhydrite, white (10 r 8/1) to reddish gray (10 r 6/1), with selenite crystals, cohesive, hard, very fine grained crystals, well sorted, sub rounded
CL	225-226	Claystone, dark reddish brown (5 yr 3/2), with interbedded (2 mm) translucent anhydrite; Claystone is cohesive, very stiff, med to high strength
ANH	226-229.5	Anhydrite, yellowish red (5 yr 5/6) and dark gray (5 yr 4/1), in white (wp 9.5/N) pulverized silt, platey, cohesive, very hard, shiny, silty luster
CL	229.5-230	Claystone, reddish brown (5 yr 5/4), dry, interbedded with little sandy, gravel-sized anhydrite, low to med dry strength
ANH	230-235	Anhydrite, grey (gley1 6/N), platey, low to med dry strength, slightly rough, crumbly
ANH	235-240	Anhydrite, white to light gray (gley1 8/N & 7/N) (possibly gypsiferous siltstone), cohesive, very hard, slightly platey, very fine grains, slightly rough, subangular, well sorted
ANH	240-245	Anhydrite (possibly gypsiferous siltstone), white to light gray (gley1 8/N & 7/N), cohesive, crumbly, low dry strength, mod to well sorting, subangular, fine grained, interbedded layers of light gray (gley1 8/N)
ANH	245-252.5	Anhydrite, light gray (5 y 7/1), interbedded siltstone, very fine, subrounded, well sorted; Anhydrite, massive, gray (5 yr 6/1), cohesive, very hard; mostly pulverised into white (wp 9.5/N) sandy silt at 249.5 - 250.25'; Crumbly white (wp 8.5/1) evaporates, very small HCL reaction
ML	252.5-257.5	Siltstone, brownish yellow (10 yr 6/6), with interbedded anhydrite; Anhydrite, massive, gray (5 yr 6/1), cohesive, very hard; Siltstone is very fine, very fine, subrounded, well sorted; Dolomite (pulverized) light gray (2.5 yr 7/2), HCL reaction, silty with sand, rough
ML	257.5-260	Siltstone, light gray (10 r 7/1), cohesive, low to med dry strength, interbedded dolomite; Dolomite, reaction to HCL, very fine grained, slightly platey; Layers of other light gray (10 yr 7/2) siltstone, interbedded evaporates, white (wp 9.5/N), very fine (pulverized); Siltstone is slightly porus
CL	260-260.75	Claystone, reddish brown (2.5 yr 4/3), in pulverized anhydrite, dry, low dry strength, interbedded with dark gray (5 yr 4/1), crumbly siltstone
ANH	260.75-264.25	Anhydrite, translucent to reddish gray (5yr 5/2), cohesive, very hard, platey, no visible grains, no HCL reaction
CL	264.25-267.5	Claystone, brown (7.5 yr 4/4), dry to very slightly damp, cohesive, firm, low to med dry strength, crumbly, few evaporates; Evaporates are white (wp 9.5/N); Anhydrite, white (wp 9.5/N), low dry strength, mostly massive but some plateyness, no HCL reaction
ANH	267.5-269.75	Anhydrite, gray (5 yr 5/1), massive plates, very hard, few fine grains, rounded, well sorted; Plates are pinkish white (5 yr 5/2) to mostly pinkish gray (5 yr 5/2), cohesive, soft, low, dry strength, crumbly, neither has HCL reaction
ML	269.75-270.75	Siltstone, light gray (5 yr 7/1), cohesive, hard, slightly rough, few sand - very fine (pulverized), moderately sorted, sub rounded, selenite crystals
ML	270.75-279	Siltstone, light gray (5 yr 7/1), cohesive, hard, slightly rough, few sand, interbedded with translucent to very pale brown (10 yr 7/4) anhydrite
ML	279-281	Siltstone, white (wp 9.5/N) to light gray, cohesive, very hard, dolomite veins, grades into white (10 yr 8/1) dolomite; Dolomite is crumbly, HCL reaction, very fine grained, slightly porous, well sorted, rough, subrounded, low dry strength
CL	281-282.25	Claystone, dark greenish gray (gley1 4/1), dry to very slightly damp, few light olive (10y 5/4) spots, cohesive, soft, low dry strength, low plasticity, weak ribbon; Interbedded with pulverized evaporates, white (wp 9.5/N), platey and fine grained, moderately sorted, subrounded, crumbly
ANH	282.25-287.5	Anhydrite, gray (7.5 yr 6/1), interbedded evaporates; Anhydrite, slightly platey, cohesive, very hard; Evaporates, white (wp 9.5/N), very fine grained (pulverized), well sorted, subrounded with selenite crystals - coarse grained size, translucent
CL	287.5-284.5	Claystone, strong brown (7.5 yr 5/6), mostly interbedded evaporates (crumbly) and some anhydrite; Clay is low to med plasticity, med flex ribbon, cohesive, very soft, dry to slightly damp; Anhydrite is slightly platey, cohesive, very hard
ANH	284.5-289.5	Anhydrite, light gray (10 yr 7/1), interbedded white (wp 9.5/N) evaporates, platey, cohesive, crumbly, fine grained (pulverized), well sorted
ML	289.5-290	Gypsiferous siltstone, cohesive, very hard but will break at weak points, interbedded with thinly plated selenite crystals (1 in)
ML	290-299	Silstone, gray (2.5 y 6/1), interbedded anhydrite, cohesive, very hard, massive, trace dolomite veins; Grades into siltstone with interbedded anhydrite, translucent to pink (7.5 yr 7/3), platy, shiny to silky luster
ML	299-300.75	Siltstone, light reddish gray to reddish gray (2.5 yr 7/1 & 6/1), massive, hard, very fine to fine grains, well sorted, subrounded, selenite crystals
DOL	300.75-302.25	Dolomite, light gray (5 yr 7/1), cohesive, firm, low dry strength grades to siltstone; Dolomite is porous, rough, well sorted, subangular, fine grained, dry strength; Siltstone is light reddish gray to reddish gray (2.5 yr 7/1 & 6/1), rough, massive, hard, fine grained, well sorted, subrounded
ANH	302.25-305	Anhydrite, translucent to pale brown to gray (2.5 yr 7/3 & 5/1), mostly pulverized, massive, cohesive, very hard
ML	305-306.5	Clayey siltstone, light gray to light yellowish brown (2.5 y 7/1 & 6/4), interbedded dolomite veins, HCL reaction, cohesive, firm, crumbly
ANH	306.5-308.5	Anhydrite, translucent to light gray (gley1 7/1), massive but pulverized, cohesive, very hard, scratches with fingernail, some plateyness
GM	308.5-309	Gravel, sand and pulverized silt, brownish yellow (10 yr 6/6) with few clay, wet, gravel (1.5 in) siltstone with interbedded dolomite; Dolomite, HCL reaction, cohesive, firm, low dry strength, crumbly; Sand, fine to coarse, subrounded to rounded, moderately sorted, loose to medium consistency
ML	309-310	Siltstone, light gray (2.5 y 7/2), with mostly interbedded dolomite, HCL reaction, porous, cohesive, firm but crumbly, low dry strength, few selenite crystals, cubic/platey, very fine with little medium grains, subrounded, well to moderately sorted, dry to slightly damp
ML	310-315	Clayey siltstone, blueish gray (gley2 5/5 PB), interbedded anhydrite and evaporates; Siltstone is rough, massive and platey, slightly porous, very fine grained, well sorted; Anhydrite is translucent to white (wp 9.5/N), platey
ANH	315-320	Anhydrite, white (wp 8/N), massive but pulverized, cohesive, very hard, some plateyness
CL	320-321.25	Claystone, dark reddish brown (5 yr 3/4), interbedded anhydrite, cohesive, firm, dry, medium dry strength, crumbly, non to very low plasticity, very weak ribbon; Anhydrite is platey, translucent, silty luster, ranges from med grained size to 1.5 in



ML	321.25-324	Sandy siltstone, reddish brown (5yr 5/3 to 4/4), interbedded with little evaporates and anhydrite, well sorted, very fine to fine (pulverized), rounded to subrounded; Grades into gray (5yr 5/1) anhydrite in last .25 ft, massive
CL	324-325	Claystone, dark reddish brown (5 yr 3/4), dry to very slightly damp, cohesive, firm, medium dry strength, crumbles when broken, non to very low plasticity, very weak ribbon; Little anhydrite, (2 mm), angular crystals, platey
CL	325-329.75	Claystone, strong brown (7.5 yr 4/6), slightly damp, mostly cohesive, soft, low dry strength, non to very low plasticity, weak ribbon, crumbly
ANH	329.75-335	Anhydrite, translucent to pinkish gray (7.5 yr 6/2) interbedded evaporates, mostly massive, some platyness
ANH	335-337.5	Anhydrite, translucent to dark grayish brown (10 yr 4/2), platey, massive, very hard, trace interbedded dolomite, dry
CL	337.5-340	Claystone, brown (7.5 yr 5/4), interbedded anhydrite, wet, low to medium plasticity, weak to med strength ribbon, mostly cohesive, very soft; Anhydrite, translucent to dark grayish brown (10 yr 4/2), platey, with fingernail, massive, very hard, no reaction to HCL, dry
CH	340-344.25	Sandy clay, reddish brown (5 yr 4/4), little selenite crystals (1 cm), med to high plasticity, med flex, cohesive, very soft, wet, drying out to damp
CL	344.25-346	Claystone, strong brown (7.5 yr 4/6), interbedded anhydrite, little selenite crystals, cohesive, firm, med dry strength; Anhydrite, translucent
CH	346-347.25	Sandy clay, strong brown (7.5 yr, 4/6), fine to coarse sand, interbedded selenite, moist, high plasticity, inside was damp
ANH	347.25-350	Anhydrite, white (wp 9.5/N) to dark red (2.5 yr 3/6), interbedded with claystone and quartz siltstone, light green grayish (gley1 7/5)
CL	350-352.25	Silty claystone, dark red (2.5 yr 3/6) silty claystone, loose, very fine, slightly damp to dry, some anhydrite nodules, no reaction to HCL
CL	35-357.50	Claystone, red (2.5 yr 4/8), interbedded anhydrite, some nodules, dry, well cemented, no reaction to HCL, some selenite interbedding, fiberous
ANH	357.50-358	Anhydrite, light gray (2.5 yr 4/8), chalky, interbedded claystone, dry, some plateyness, very fine selinte crystals
CL	358-360.5	Clay, yellowish red (5 yr 7/1), mostly dry to some moisture, interbedded anhydrite and gypsum, stiff, very fine, gypsum is platy, anhydrite is white
CH	360.5-361	Clay, dark red (2.5 yr 3/6), sand and some gravels, some moisture, mod plasticity, gravels are fine to coarse ground, subangular to subrounded
ANH	361-362.5	Anhydrite, white (10 yr 5/1), chalky, dry, very fine, angular coarse grains, loose, some very hard and coarse grains
CL	362.5-365	Claystone, yellowish red (5 yr 5/6), mostly dry with slight dampness, interbedded selenite and anhydrite, stiff
CL	365-367.5	Claystone, dark red (2.5 yr 5/6), center is stiff, interbedded anhydrite, outer is saturated creating a gooey mess, some gravel
CL	369-372.5	Claystone, red (2.5 yr 4/6) claystone, mottled with anhydrite (frosted), selenite and gypsum, very fine sand to silt, brittle, trace moisture
CL	372.5-375	Claystone, dark red (2.5 yr 3/6), increase moisture, mottled with anhydrite, gypsum (platey), very fine to caorse, crystals, trace plasticity, crumbly
CL	377-382.5	Clayey silt, red (2.5 yr 4/6), very fine (pulverized), some trace sand very fine, damp, loose to trace plasticity, no evaporates present, crumbly
CL	382.5-385	Claystone, red (2.5 yr 5/6), dry, brittle, mottled with evaporate minerals, anhydrite, gypsum, interbedded layers
CH	385-387.5	Clayey silt, red (2.5 yr 4/6), damp to moist, very fine grained, some plasticity, mostly crumbly, trace very fine silt (pulverized)
CL	387.5-390	Claystone, red (2.5 yr 5/6), dry brittle to hard, interbedded anhydrite; anhydrite is white, frosted, platey
CL	390-392.5	Claystone, dark red (2.5 yr 3/6), damp to dry, interbedded anhydrite and gypsum, hard, little to no plasticity, very fine grained
ANH	392.5-395	Anhydrite, white (2.5 y 8/1), pulverized, hard, mostly cobble sized fragments
CL	395-397.5	Mostly thick clay mixed with formation water
CL	397.5-400	Claystone, red (10 yr 4/6), interbedded with white anhydrite, dry hard, brittle, well cemented
CH	402.5-410	Clay, red (2.5 yr 4/6), interbedded with anhydrite, clay is moist, very plastic, due to miture with upper 308 water
CL	410-412.5	Clay, red (2.5 yr 4/6), interbedded with anhydrite, clay is less moist than above
ANH	412.5-413.5	Anhydrte, white, interbedded with quartz siltstone, very hard quartz siltstone, anhydrite is soft to brittle
CL	414-415	Claystone, red (2.5 yr 4/6), interbedded anhydrite, dry with some dampness, mostly hard, very fine sand (pulverized)
CL	415-418	Claystone, dark red (10 yr 3/6), interbedded with anhydrite, clay is somewhat dry, trace plasticity
CH	418-420	Clay, red (10 yr 4/6), moist, contact with upper 308' water, very plastic
CH	420-422.5	Clay, red (10 r 5/6), with some gray shale, interbedded; shale is light bluish gray (gley2 8/10B); Clay is damp, moderate plasticity
CL	422.5-427.5	Clay, dark red (2.5 yr 3/6), interbedded with anhydrite, some moisture, damp, mostly hard, low plasticity
CH	427.5-430	Clay with anhydrite (2.5 yr 8/1), moist mix with 308' water, dense to stiff, moist clay, high plasticity
ANH	430-432.5	Anhydrite, white (2.5 yr 8/1), interbedded clay, moist due to mixing with 308' water, clay is high plasticity, anhydrite can be dense hard to crumbly
ANH	432.5-435	Anhydrite, gray (gley 6/N), solid, laminated, interbedded clay, red (2.5 yr 5/6), moist, high plasticity, anhydrite is dense and very hard
ANH	435-437.5	Anhydrite, reddish brown (2.5 yr 4/4) and white (10 r 8/1), with claystone, slightly damp, clay has low plasticity, interbedded with anhydrite
ANH	437.5-440	Anhydrite, gray (gley 6/N), is massive, dense, very hard, laminated
CL	440-442.5	Claystone, dark red (10 r 3/6), interbedded anhydrite, white (10 r 8/1), dry brittle; Anhydrite, hard, pulverized, granular nodules, platey fragments
CL	442.5-450	Claystone, dark reddish brown (2.5 yr 3/4), massive, dense, hard, dry; Anhydrite, white (10 r 8/1), massive, dense, large cobble size fragments
ANH	450-452.5	Anhydrite, reddish brown (2.5 yr 4/4) and white (10 r 8/1), with claystone, slightly damp, clay has low plasticity, interbedded anhydrite
CL	452.5-455	Claystone, dark red (2.5 yr 3/6), interbedded white anhydrite, mositure due to mixing with 308' water
CL	455-457.5	Claystone, dark red (2.5 yr 3/6), dry to slight humid, moderately hard to brittle, crumbly, anhydrite nodules, some very fine (pulverized) sand
CL	457.5-460	Claystone grading into light bluish gray (gley 2 7/1) anhydrite, both claystone and anhydrite are massive, dense, very hard, cobble fragments
CL	460-462	Claystone, red (2.5 yr 4/6), trace interbedded evaporates, dry to slightly damp, med dry strength
ML	462-462.5	Siltstone, massive with few white (wp 8/N) quartz crystals (3 mm), hard
CL	462.5-465	Claystone, red (2.5 yr 4/6), trace interbedded evaporates, dry, med dry strength
CL	465-467.5	Clay, reddish brown (2.5 yr 4/4), soft, dry to damp, low to med plastic, weak ribbon, trace evaporates
CL	467.5-470	Claystone, red (2.5 yr 4/6), trace interbedded evaporates, dry, med dry strength; Few anhydrite layers, grades into massive, hard claystone
CL	470-480	Interbedded layers of dry to damp clays, dry clays, hard claystone red (2.5 yr 4/6) claystone, trace evaporates, dry, med dry strength
CH	480-480.5	Clay, reddish brown (5 yr 5/4), very soft to soft, med to high plasticity, flexible ribbon, medium strength, dry to damp, trace anhydrite (2 in)
CL	480.5-484.5	Claystone, yellowish red (5 yr 5/6), mostly interbedded anhydrite, dry, medium dry strength; Anhydrite, white (wp 9/N) to gray (gley1 6/N)
CH	484.5-485	Clay, reddish brown (5 yr 5/4), very soft to soft, med to high plasticity, flexible ribbon, medium strength, dry to damp, trace anhydrite (2 in)
CL	485-490	Claystone, reddish brown (2.5 yr 4/4), dry with few anhydrite interbedded, medium to hard dry strength
CL	490-492.5	Claystone, red (2.5 yr 5/6), interbedded veins of anhydrite, dry, very hard, few scattered quartz minerals
CL	492.5-496.5	Claystone, red (2.5 yr 4/4), interbedded evaporates, soft, dry to slightly damp, no to low plasticity, weak ribbon
ANH	496.5-497	Anhydrite, light gray (gley1 7/N), massive
CL	497-499.5	Claystone, red (2.5 yr 4/4), interbedded evaporates, soft, dry to slightly damp, slightly more plastic than above, weak ribbon
CL	499.5-500	Claystone, red (2.5 yr 4/4), interbedded evaporates, soft, dry to slightly damp, no to low plasticity, weak ribbon

Geologist: S.R./I.T.
Driller: Cascade Drilling
Date completed: 4/28/2025
Drilling method: Sonic
Bit diameter: 8" O.D.
Sampling method: Core Barrel

USCS Key:
ANH - Anhydrite
DOL - Dolomite
CL - Clays of low plasticity
CH - Clays of high plasticity
ML - Silts of low plasticity
SP - Sands, poorly graded
SW - Sands, well graded
GC - Gravels, sands, clays
GM - Gravels, sands, silts
GP - Gravels & sands, poorly graded

DTW= 278 feet bgs (4/11/2025)
No Recovery at 0'-2', 25'-26.5, 367.5'-369', & 400'-402.5
Northing: 3627727.29
Easting: 573608.04

HF SINCLAIR NAVAJO REFINERY
Well Log: WDW-1-MW-1

DBS&A a Geo-Logic Company

9/4/2025 DB22.1334

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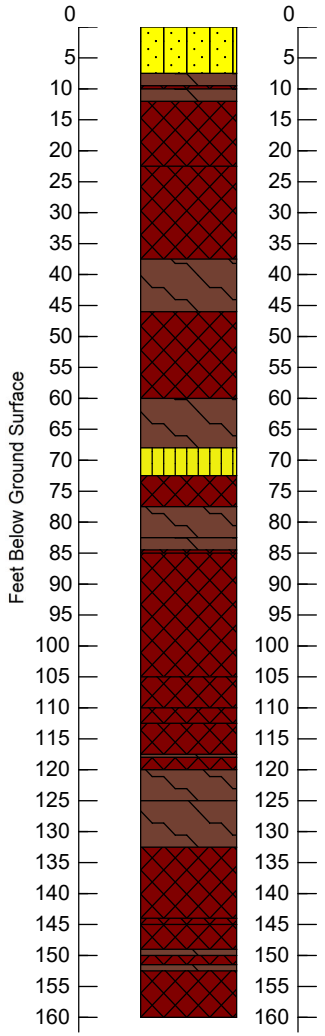


USCS Symbol	Lithology Interval	Comments and Lithology
SM	0-7.5	Silty sand, light reddish brown (2.5YR 6/3), ~70% very fine to medium grained sand, 30% silt, trace coarse grained sand to fine grained gravel
CH	7.5-9.5	Clay, dark red (7.5YR 5/6), medium stiffness, high plasticity, moist
ANH	9.5-10	Anhydrite, dry
CH	10-12	Clay, dark red (7.5YR 5/6), medium stiffness, high plasticity, moist
ANH/CH	12-22.5	Anhydrite, light reddish brown (2.5YR 4/3), well consolidated, dry; with alternating 6-18-inch layers of clay, dark red (7.5YR 5/6), soft to medium stiffness, high plasticity, moist
ANH	22.5-37.5	Anhydrite, reddish brown (2.5YR 4/3), dry; with alternating 6-inch layers of silt, reddish brown (7.5YR 4/3), dry; and clayey silt to silty clay, red (2.5YR 4/6), medium stiffness, low plasticity, moist
CH	37.5-46	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist; trace silt, sand, gravel, and anhydrite
ANH	46-60	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry; trace seams of clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plastic, moist
CH/ANH	60-68	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist; then ~6-inch seams of anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry
ML	68-72.5	Silt seams, reddish brown (2.5YR 5/4), slightly moist to moist
ANH	72.5-77.5	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry
CH	77.5-82.5	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist; trace silt, sand, gravel, and anhydrite
CH	82.5-84.5	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, very moist; trace silt, sand, gravel, and anhydrite
ANH/ML	84.5-85	Anhydrite and silt
ANH/CH	85-105	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry; ~3-6-inch seams of clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plastic, moist
ANH	105-110	Anhydrite, predominately gray (light gray), dry
ANH	110-112.5	Anhydrite, gray with light olive (2.5Y 5/6), calcareous with brown mottles, porous, dry; fine to medium grained sand with trace clayey silt, gray (2.5Y 5/1), moist
ANH/CH	112.5-117.5	Anhydrite, gray with light olive (2.5Y 5/6), with brown mottles, porous, dry; 6-12-inch seams of an olive brown (2.5Y 4/4) clay, medium to hard stiffness, high plasticity, moist; and a gray (2.5Y 5/1) clay, soft to medium stiffness, high plasticity, very moist
CH	117.5-118	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, very moist
ANH	118-120	Anhydrite, moist
CH	120-125	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, very moist; with 3-inch layer of siltstone, very moist
CH	125-132.5	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, very moist; with 6-inch layers of siltstone
ANH/CH	132.5-144	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry; with a 2-inch layer of clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist to very moist; clayey silt, very moist
ANH	144-145	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry, with 10% clay
ANH	145-149	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry
CH	149-150	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist
ANH	150-151.5	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry
CH	151.5-152.5	Clay, dark red (2.5YR 3/10), medium to hard stiffness, medium to high plasticity, moist
ANH	152.5-160	Anhydrite, light reddish brown (2.5YR 7/3) to reddish brown (2.5YR 4/3), dry

Geologist: M.D/D.M
Driller: Cascade Drilling
Date completed: 10-10-23
Drilling method: Sonic
Bit diameter: 8" O.D.
Sampling method: Core Barrel

USCS key:
ANH - Anhydrite
SM - Sands with fines
ML - Silts of low plasticity
CL - Clays of low plasticity
CH - Clays of high plasticity

Coordinates:
Northing: 3625336.67
Easting: 571316.67

DBS&A a Geo-Logic Company

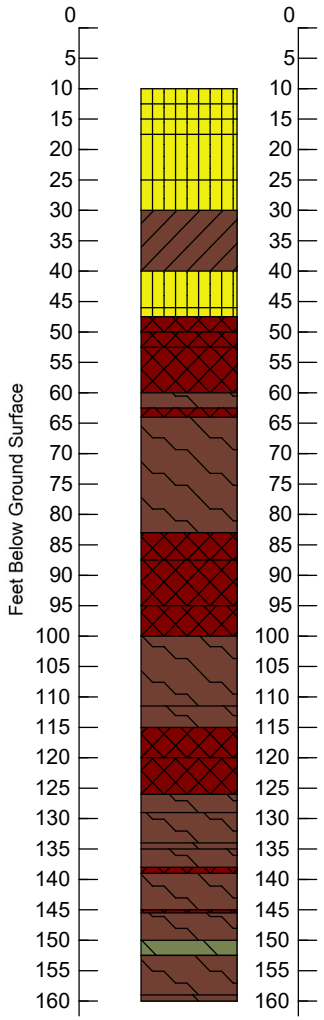
3/22/2024 DB22.1334

HF SINCLAIR NAVAJO REFINERY

Soil Boring Log: WDW-2-BH-1

Figure 5a

S:\Projects\DB22.1334_HollyFrontier_UIC_Monitor_Wells



USCS Symbol	Lithology Interval	Comments and Lithology
-	0-10	No Recovery
ML	10-12.5	Sandy silt, reddish brown (2.5YR 5/3), 40% very fine to coarse grained sand, slightly moist
ML	12.5-15	Silt, red (2.5YR 5/3), trace very fine to coarse grained sand and fine grained gravel, slightly moist
ML	15-17.5	Sandy silt, red (2.5YR 5/6), ~20-30% very fine to coarse grained sand with trace fine gravel, trace nodules of clayey silt, slightly moist
ML	17.5-25	Sandy silt, red (2.5YR 5/6), ~20-30% very fine to coarse grained sand with trace fine gravel, slightly moist
ML	25-30	Silt, red (2.5YR 4/6), trace fine to medium grained gravel, moist
CL	30-40	Silty clay, dark red (2.5YR 3/6), medium stiffness, low plasticity, moist
ML	40-46	Silt, red (2.5YR 4/6), moist to very moist
ML	46-47.5	Silt, red (2.5YR 4/6), trace clay, moist to very moist
ANH	47.5-50	Anhydrite, gray (2.5YR 6/1), dry
ANH	50-52.5	Anhydrite, reddish brown (2.5YR 4/3), dry
ANH	52.5-60	Anhydrite, gray (2.5YR 6/1), dry
CH	60-62.5	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
ANH	62.5-64	Anhydrite, gray (2.5YR 6/1), dry
CH	64-83	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist; at 80 feet 1-inch seam of saturated ML, dry below 80.1 feet
ANH	83-87.5	Anhydrite, gray (2.5YR 6/1), dry
ANH/CH	87.5-95	Anhydrite, gray (2.5YR 6/1), dry; alternating 6-12-inch layers of claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
ANH	95-100	Anhydrite, gray (2.5YR 6/1), dry
CH	100-111.5	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist, with >1-inch layers of anhydrite, gray
CH	112.5-115	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
ANH/CH	115-120	Anhydrite, gray (2.5YR 6/1), dry; alternating 6-12-inch layers of claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, dry; at 115 feet claystone is moist
ANH	120-126	Anhydrite, gray (2.5YR 6/1), dry
CH	126-129	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
CH	129-134	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, very moist
CH	134-135	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist to very moist
CH	135-138	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
ANH	138-139	Anhydrite, dry
CH	139-145	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
ANH	145-145.5	Anhydrite, dry
CH	145.5-150	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist
DOL	150-152.5	Dolomite, olive brown (2.5Y 4/3), dry, reaction with HCL
CH	152.5-159	Claystone, olive (5Y 4/4), medium stiffness, high plasticity, moist
CH	159-160	Claystone, dark red (2.5YR 3/6), medium stiffness, high plasticity, moist to very moist

Geologist: M.D/D.M
Driller: Cascade Drilling
Date completed: 10-7-23
Drilling method: Sonic
Bit diameter: 8" O.D.
Sampling method: Core Barrel

USCS key:
ANH - Anhydrite
DOL - Dolomite
ML - Silts of low plasticity
CL - Clays of low plasticity
CH - Clays of high plasticity

Coordinates:
Northing: 3626175.71
Easting: 571793.66

HF SINCLAIR NAVAJO REFINERY

Soil Boring Log: WDW-3-BH-1

DBS&A a Geo-Logic Company

3/22/2024 DB22.1334

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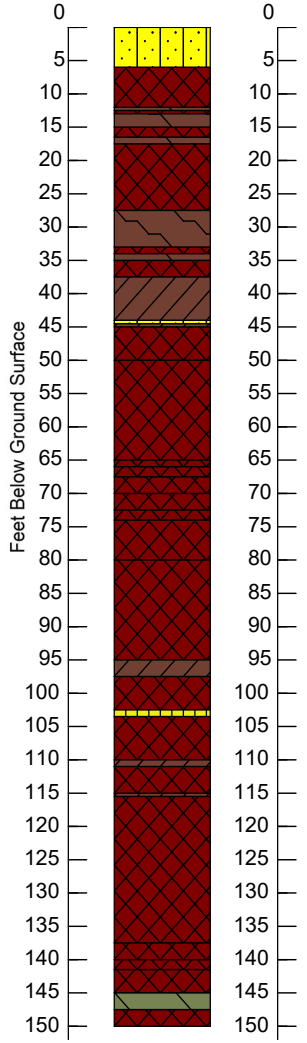

USCS Symbol	Lithology Interval	Comments and Lithology
SM	0-6	Sandy to gravely silt, reddish brown (2.5YR 5/4), slightly moist; ~60% silt, 30% very fine to very coarse grained sand, 10% gravel (up to 1.5-inch in diameter)
ANH/CH	6-12	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix; and clay, dark red (2.5YR 3/6)
CH	12-12.5	Clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist
ANH	12.5-13	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix
CH	13-15	Clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist
ANH	15-16.5	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix
CH	16.5-17.5	Clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist
ANH	17.5-27.5	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix
CH	27.5-33	Clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist
ANH	33-34	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix; and clay, dark red (2.5YR 3/6)
CH	34-35	Clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist
ANH	35-37.5	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix; and clay, dark red (2.5YR 3/6)
CL	37.5-44	Clay, dark red (2.5YR 3/6), very moist
SM	44-44.5	Sandy Silt
CL	44.5-45	Clay, dark red (2.5YR 3/6), very moist
ANH/CH	45-50	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry to slightly moist; with alternating 6-12-inch layers of clay, dark red (2.5YR 3/6), medium to hard stiffness, high plasticity, moist to very moist; sandy silts, moist to dry
ANH	50-65	Anhydrite, mostly light gray (2.5Y 7/1) occasionally dark gray (2.5Y 4/1), dry; dark gray zones contain large gypsum crystals (up to 0.75-inch in diameter), surrounded by microcrystalline martix; with trace 1-inch layers of clay at 55'-57.5' and 60'-61.5', dark red (2.5YR 3/6), moist
ANH	65-66	Anhydrite, gray (2.5Y 5/1), with gypsum crystals, dense, no clay
ANH/CL	66-67.5	Anhydrite with interbedded clays, clay is dark red (2.5 YR 3/6), slightly plastic, non-silty
ANH	67.5-70	Anhydrite, hard stiffness, microcrystalline, dense, no clay
ANH	70-72.5	Anhydrite, dark gray (2.5Y 4/1), no clay
ANH	72.5-74	Anhydrite, light gray (10YR 7/2), hard stiffness, microcrystalline, dense, no clay
ANH/CL	74-80	Anhydrite and clay, dark gray (2.5Y 4/1), slightly plastic, slightly moist, non-silty
ANH	80-95	Anhydrite, light gray (10YR 7/2); with silty streaks, olive gray, chalky, non-plastic, slightly moist
CL	95-97.5	Clay, strong brown (2.5YR 5/6), non-plastic, gypsum streaks, slightly silty
ANH	97.5-102.5	Anhydrite, light gray (10YR 7/2); with silty streaks, olive gray, chalky, non-plastic, slightly moist
ML	102-103.5	Silt, olive gray, chalky, non-plastic, slightly moist
ANH	103.5-110	Anhydrite, light gray (10YR 7/2); with silty streaks, olive gray, chalky, non-plastic, slightly moist
CL	110-111	Clay, light gray (10YR 7/1), slightly plastic, slightly silty
ANH	111-115	Anhydrite, light gray (10YR 7/2); with silty streaks, olive gray, chalky, non-plastic, slightly moist
CL	115-115.5	Clay, white (10YR 8/2), medium plasticity, slightly silty
ANH	115.5-137.5	Anhydrite, light brownish gray (2.5Y 6/2), hard stiffness, dense, very fine-microcrystalline; with trace clay, light gray (10YR 7/1), slightly plastic, non-silty
ANH	137.5-140	Anhydrite, slightly darker light gray (10YR 7/1), very hard stiffness, dense, microcrystalline
ANH	140-141.5	Anhydrite with clay streaks, pinkish gray (7.5YR 6/2), non-plastic, very silty
ANH	141.5-145	Anhydrite, pinkish gray (7.5YR 6/2), non-plastic, very silty, no clay
DOL	145-147.5	Dolomite, light brownish gray (10YR 6/2), hard stiffness, very dense, microcrystalline, weak HCL reaction
ANH	147.5-150	Anhydrite, pinkish gray (7.5YR 6/2), non-plastic, very silty, no clay

Geologist: M.D/D.M
Driller: Cascade Drilling
Date completed: 10-20-23
Drilling method: Sonic
Bit diameter: 8" O.D.
Sampling method: Core Barrel

USCS key:
ANH - Anhydrite
DOL - Dolomite
SM - Sands with fines
ML - Silts of low plasticity
CL - Clays of low plasticity
CH - Clays of high plasticity

Coordinates:
Northing: 3630789.85
Easting: 570200.23

DBS&A a Geo-Logic Company

3/22/2024 DB22.1334

HF SINCLAIR NAVAJO REFINERY

Soil Boring Log: WDW-4-BH-1

Daniel B. Stephens & Associates, Inc.

Boring Log

Page 1 of 23

Site WDW-1-MW-1 HFSNR		Location Map
Logged by S. Ramirez and Israel Torres	Client/Project #	
Boring Number	Drilling Co. Cascade	
Drilling Method Sonic	Drill Rig Gus Pech 400	
Date Started 4/1/25	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							0-2	No recovery
						SP	2-6.4	Hydrovac fill- Pink (7.5YR 7/3) sand w/ limestone up to 1.5cm in diameter, sand is rounded to well rounded, fine to med grained, non plastic, dry, well sorted, loose
						CP	6.4-7	Caliche pinkish white (7.5YR 8/2), very fine to fine grained, subrounded, well sorted, very hard, not sticky, dry
						SP/CP	7-15	Sandy silt w/ 35-40 percent caliche, pinkish white (7.5YR 8/2), fines w/ ~~sand~~ very fine sand, rounded to well rounded, ~~anhydrite~~ ranges from 1cm to 1.5 inches, poorly sorted, silty sand is non-cohesive, loose, non sticky, dry, anhydrite is cohesive, hard, dry, very high dry strenght (caliche)
						SM/CP	15-16.75	silty sand, light brown (7.5YR 6/4), w/ little (10-25%) caliche ranging from 1cm-1inch, and trace (<5%) limestone, up to 2cm. Silty sand is non-cohesive, loose, moderately sorted, very fine to fine grain, well rounded, non-plastic, dry
						SP/CP	16.75-17.5	Sandy silt, w/ caliche ~~anhydrite~~ from .5cm-2inches, silt is white (7.5YR 8.5/1), rounded, very fine to fine grain, well sorted w/ little (10-25%) ~~and anhydrite~~ caliche grains not visible in ~~anhydrite~~ caliche, hard, dry, silt is non-cohesive & loose, non plastic, dry (caliche)
						SM/CP	17.5-20	Silty sand, w/ little (10-25%) caliche, pinkish white (7.5YR 8/2), very fine to fine grain, rounded to well rounded, non-cohesive, loose, dry, non-plastic, caliche is .5cm-1inch, very fine grained, cohesive, hard, dry
						SC/ML	20-25	clayey silty sand w/ trace (<5%) limestone up to 2inches, and some (25-45%) clay, subrounded to rounded, very fine to fine grained, non cohesive, loose, low-med plasticity, weak ribbon, dry, slightly sticky when wet, limestone is rounded, smooth, hard, white (7.5YR 8/1), and very dark gray (7.5YR, 3/1)

DBS&A Form No. 080 8/02

Using Munsell Soil Color Chart 2009

ASPER PRINTING CO. INC. 505-880-0002

Daniel B. Stephens & Associates, Inc.

Boring Log

Site WDW-1-MW-1		Location Map
Logged by S. Ramirez and I. Torres	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method Sonic	Drill Rig	
Date Started	Date Completed	

PID FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
							25-26.5	No Retuen
								caliche
						GP	26.5-27.5	~~Anhydrite~~ gravel, up to 2 inches w/ little sand (10-25%), sand is very pale brown (10YR 8/3), fine grain, Rounded, caliche is well sorted, loose, dry. ~~Anhydrite is~~ made up of tiny, rounded, consolidated grains, well sorted, strong HCl reaction hard, dry
								little (10-25%) caliche
						SP	27.45-30.5	silty sand w/ ~~anhydrite~~ up to 2.5 inches, sand is very fine to fine, well sorted, Rounded to well Rounded, loose & dry, very pale brown (10YR 8/4)
							~~30.5-32~~	caliche
						GW/SC	30.5-32	~~Anhydrite~~ gravel w/ some (25-45%) clayey sand, reddish yellow (7.5YR 6/6), fine grained, sub rounded to Rounded, well sorted, non to low plasticity, slightly sticky when wet, w/ weak ribbon. ~~Anhydrite~~ caliche is same description as above, up to 3 inches in diameter, dry
						SM/GW	32-34.75	clayey silty sand, w/ less clay than above, and few (5-10%) ~~anhydrite~~ caliche up to 1 inch. Sand is very pale brown (10YR 8/4), fine, Rounded well sorted, non to very low plasticity, weak ribbon, loose, dry
						ML	34.75-36.9	Claystone grading into sandy clay, loose, dry, when wet = no to low plasticity, slightly sticky, weak ribbon, very fine to fine grained, Rounded sorted, pink (7.5YR 7/3). Claystone is strong brown (7.5YR 4/6), cohesive, firm, medium dry strenght
						ML	36.9-37.5	Claystone w/ some (25-45%) sandy clay. red (2.5YR 4/6), low to med plasticity, not sticky, weak ribon, sandy clay is fine grained, Rounded, well sorted, little (10-25%) efflorescence in claystone. consolidated, soft to firm, low dry strength, dry to slightly damp
						ML	37.5-40.1	Claystone w/ few (5-10%) sand, consolidated soft, ribbons w/o water, low plasticity to med plasticity, weak ribbon, slightly sticky when wet, low dry strength, red (2.5YR 4/6), dry to slightly damp, few (5-10%) efflorescenles, sand is fine, well sorted, and Rounded

DBS&A Form No. 080 8/02

ASPEN PRINTING CO. INC. 505-880-0002

Daniel B. Stephens & Associates, Inc.

Boring Log

Page 3 of 23

Site	WDW-1-MW-1	Location Map
Logged by	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
						ML	40.1-41.5	Sandy claystone, claystone is red (2.5YR 4/6) w/ large streaks of efflorescence, possibly anhydrite, its very soft, no reaction to HCl, very fine, rounded, well sorted grains, white (white page w/9.5) and platy. Sand is pink (7.5YR 7/4), loose, well sorted w/ some (25-45%) gypsum. Claystone is cohesive, soft, low dry strength, dry to damp, low plasticity, weak ribbon (slightly)
						ML	41.5-42.5	As above, less efflorescence, slightly more sand, sand is loose but forms ribbons when wet, low plasticity, weak ribbon, grades into below
						ML	42.5-44.5	claystone w/ little (10-25%) sand, reddish brown (2.5YR 4/4), w/ little (10-25%) interbedded efflorescence, ranging in color from white to gray, claystone is cohesive, soft w/ low dry strength, dry to damp, low plasticity, weak ribbon. Sand is well sorted, rounded and fine grained
						ML	44.5-48.5	Sandy silty clay, white (white page 7.5YR 9/1) loose, dry, very fine to fine, well rounded, well sorted, when wet - med plasticity, weak ribbon, contains few (5-10%) gypsum, anhydrite, 1 inch to 2 inch diameter, no HCl rxn, scratches w/ finger nail, dry, clay not sticky
						SM	48.5-50	Sandy silt, white (white page 9.5YN), very fine to fine grain, well rounded, well sorted, very loose, dry, a little (10-25%) anhydrite gypsum, up to 2 inches diameter, no HCl rxn
						ML	50-51.75	claystone w/ efflorescence (some 25-45%), claystone is red, (2.5YR 4/6), dry, cohesive, soft, low dry strength, when wet forms ribbon, low to med plasticity, weak ribbon, efflorescence is white, no visibile to very fine grain, no HCl rxn
						ML	51.75-55	claystone, dark red (2.5YR 3/6), cohesive, firm to stiff, med dry strength, dry to damp, little (10-25%) efflorescence, when wet, not sticky, low plasticity, weak ribbon. Some efflorescence is platy
							55-57.5	silty claystone interbedded w/ anhydrite efflorescence and little gypsum, claystone is red (2.5YR 4/6), cohesive, soft,

ASPEN PRINTING CO. INC. 505-880-0002

Daniel B. Stephens & Associates, Inc.

Boring Log

Site WDW-1-MW-1		Location Map
Logged by	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
								low dry strength, dry, low plasticity, weak ribbon. efflorescence is white, low dry strength, cohesive, very soft, very fine grained, well sorted & rounded
						ML/SM	52.5-59	Sandy silt w/ ~~gypsum~~ anhydrite up to 2 inches, silt is white (white page 9.5/1), very fine, well rounded, well sorted, dry, very loose. Gypsum is pinkish white (wp 8/2) no HCl rxn, scratches w/ finger nail
						ML	59-60	Claystone interbedded w/ efflorescence (up to 2cm thick), cohesive, firm, low dry strength, low plasticity, weak ribbon, dry to damp, efflorescence is white to gray, very fine grained, rounded, well sorted. Loose sandy silt, when wet slightly sticky, non-plastic
						SM	60-62.5	Sandy silt w/ ~~gypsum~~ anhydrite up to 1.5 inches, white (wp 9/1), loose, dry, very fine grained, well rounded, well sorted
						ML	62.5-69.5	same as claystone above w/ interbedded efflorescence, but soft, loose sandy silt is few (5-10%)
						SM	69.5-70	Anhydrite w/ interbedded claystone and little clayey silt, claystone is red (2.5YR 4/6); cohesive, soft to firm, low plastic, non-sticky, dry, w some (25-45%) efflorescence - firm to stiff, non-visible to very fine grained white (wp 9.5/N), rounded, well sorted, anhydrite ranges from white (wp 9.5/N) to pink 5YR 8/4) to light red (10R 6/8), non-visible to very fine grained, mod- to well sorted, rounded up to 3 inches in diameter. clayey silt is pale yellowish pink (wp 9/2), very fine to fine grained, well sorted rounded
						ML	70-71.75	claystone as above w/ med dry strength, non ~~tough~~ plasticky when wet, not sticky w/ efflorescence as above (5-10%)
						CL	71.75-75	claystone, red (2.5YR 4/6), few efflorescence cohesive, soft, low plasticity, weak to flexible ribbon, dry to slightly damp, not sticky, trace (<5%).
						CL	75-76.75	claystone w/ ~~mostly (>45%)~~ same (25-45%) efflorescence, red (2.5YR 4/6), low plasticity, non-sticky, ~~weak~~ flexible ribbon, cohesive, soft, dry, efflorescence as described above
							76.75-79	clay stone w/ few (5-10%) specks of pale green (Gley 1 6/1) about 1cm, clay is red (2.5YR 4/6), dry to slightly damp,

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								cohesive, soft to firm, low-med plasticity, weak ribbon, non sticky
							79-80	Anhydrite, light red (10R 6/6) Anhydrite, light red, in clayey silt pink (5YR 8/3), dry loose, when wet non sticky, not plastic, very fine grained, well sorted, Rounded, anhydrite has no visible grains.
						CL	80-84	Claystone, w/ trace specks (5%) (specks as above) reddish brown (2.5YR 4/4), interbedded anhydrite @ 82', claystone is cohesive soft, low dry strength, ribbons w/out water low-med plasticity, med ribbon strength, dry
							84-86	Anhydrite, light red (10R 7/6), cohesive, firm, low dry strength, no visible to very fine grains, Rounded, mod-to well sorted, in Sandy silt, dry, very fine to fine grained, well sorted, Rounded to well rounded when wet slightly sticky, pink (10R 8/3)
							86-87.5	Anhydrite, pinkish white to light red 10R 8/2 & 7/6), no visible grains, but slightly platy, cohesive, hard, very high dry strength, in mostly (>45%) sandy silt, as above, ~~pink~~ pinkish white (10R 8/2)
							87.5-90	As above, sandy silt is pale yellowish pink (wp 9/2), Anhydrite has visible grains, very fine, subangular to Rounded, some platiness, scratches w/ fingernail, very high dry strength, color Ranges from pink to light red (10YR 8/3 & 6/8)
							90-92	Anhydrite in sandy silt, anhydrite is cohesive, very hard, high dry strength (2.5YR 7/1 & 6/6) mostly light reddish gray w/ light red streaks. silt is white (wp 9/1), loose, dry, very fine grained, subrounded, well sorted,
						CL	92-93.5	Claystone, red (2.5YR 4/6), cohesive, firm, med dry strength, dry, efforescence (few 5-10%), platey, translucent, w/ some (25-45%) very fine grained, subrounded platey efforescence could be anhydrite
						CL	93.5-95	Claystone, Red (2.5YR 4/6), cohesive, soft, low dry strength, low to med plasticity, weak to med strength ribbon, trace (5%) platy anhydrite in clay, few (5-10%) efforescene, little (10-25%) greenish gray (Gley 2 6/10) spots up to 1cm diameter, little clayey silt, pink (2.5YR 8/4), fine grained, Rounded, well sorted

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							95-95.5	Claystone, red (2.5YR 4/6), less effervescene than above, claystone is cohesive, firm, med. dry strength, silt
							95.5-96.75	Anhydrite, white (5Y 8/1), in sandy silt, w/ few (5-10%) clay, anhydrite is cohesive, no very hard, but does scratch w/ fingernail, has few light red streaks (10R 6/6), silt is loose, white (7.5YR 9.5/1), well sorted, rounded, very fine, ~~the~~ slightly sticky when wet
						CL	96.75-99	Claystone, w/ greenish gray spots (like as above) up to 1 inch in diameter, clay is soft, cohesive, med dry strength, low to med plasticity, weak to flexible ribbon, red (10R 4/6)
						CL	99-101.5	Claystone, as above, smaller greenish gray spots (up to 1cm), interbedded platy anhydrite as described above, up to 1 inch in diameter
						CL	101.5-102	Claystone, w/ interbedded, ~~greenish gray~~ grayish olive (10Y 5/2) clay & white (up 9.5/N) effervescence, cohesive, soft to firm, low dry strength, low ~~to med~~ plasticity, weak ribbon
						CH	102-104	Claystone, trace (<5%) effervescence, med to high plasticity, flexible to strong ribbon, not sticky, slightly damp to damp, red (2.5YR 4/8)
						CL	104-106	Claystone w interbedded anhydrite, platy, Reddish brown (2.5YR 4/4), trace (<5%) ~~green~~ grayish olive ~~spots~~ spots (as above), cohesive, soft, low plasticity, weak ribbon
						CL	106-107.5	Claystone w/ effloresence up to 2cm white (up 9.5/N), no visible grains to very fine grained, few (5-10%) platy anhydrite & interbedded large up to 3 inches anhydrite in claystone Anhydrite is translucent to white (up 9.5/N) to red (2.5YR 5/6), visible ~~pate~~ plateyness, fine grains, med sorted, & subrounded, scratches w/ finger nail no HCl rxn, claystone is cohesive, soft to firm, low plasticity, weak ribbon, dry, low to med dry strength
							107.5-110	Claystone as above, less effloresceace, anhydrite is up to 2 inches in diameter clay is firm, w/ med dry strength

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						CL	110-116	Claystone, red (2.5YR 4/6), few (5-10%) greenish gray (6leyl 6/1) spots, 2mm diameter, progressively more effolescens as we reach the base of layer, clay is cohesive, soft, low plasticity, weak ribbon, med dry strength, slightly damp at top. Efforescene are mostly (>45%) fine grained, rounded, well sorted, white (wp 9.5/N), others are platy anhydrite, translucent
						CL	116-119	Claystone w/ interbedded anhydrite up to 1inch in diameted, descriptions as above
						CL	119-120	Claystone, red (2.5YR 4/6), little (10-25%) interbedded anhydrite up to 1cm in diameter, little (10-25%) spots of greenish gray (6leyl 6/1) up to 1mm in diameter. Clay is cohesive, soft, med dry strength, low-med plasticity, weak ribbon, dry to slightly damp
						CL	120-121.5	Claystone as above w/ interbedded anhydrite up to 2cm in diameter
						CL	121.5-125	Claystone, dark red (2.5YR 3/6), cohesive, soft to firm, med dry strength, low plasticity, weak ribbon, not sticky, dry. Little (10-25%) greenish gray spots, some interbedded platy anhydrite, translucent, up to 1cm in diameter
							125-128.5	Anhydrite in sandy silt, anhydrite is mostly (>45%) is red (2.5R 4/6) w/ white (wp 9.5/N) streaks, no visible grains but platey, silt is loose, very fine, rounded, well sorted, light pink (2.5R 8/2), @ 124.75 silt becomes, pale red (2.5R 7/4)
						CL	128.5-130	Claystone w/ interbedded anhydrite & efforescence. Claystone is dark red (2.5YR 3/4), slightly damp to damp, med plasticity, med strength to weak ribbons, cohesive soft, efforescenes are white (wp 9.5/N) up to 1.5 cm thick, very fine to fine grained, well sorted, well rounded, low dry strength, anhydrite is cohesive, hard, slightly translucent to light red (2.5YR 6/6), up to 1 inch diameter, platy

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						CL	130–134.25	Claystone, reddish brown (2.5YR 4/3) slt dry to slightly damp, cohesive, soft, low to med plasticity, med strength ribbon, (flexible slightly) low-to
						CL	134.25–139	As above w/ interbedded efflorescence up to 2cm in diameter, white (2.5YR 8/2), very fine grained pinkish well sorted, rounded
						CL	139–~~140~~ 141.75	Claystone, dark red (2.5YR 3/6), w/ interbedded anhydrite. claystone is dry to very slightly damp, low to med plasticity, weak ribbon, soft, has some translocent plates of anhydrite. Anhydrite is up to 1inch in diameter, white (wp 9.5/N) to light red (2.5YR 7/6), platy, hard, can be scratched w/ fingernail, no HCL Rxn
							141.75–~~146.5~~ 143.5	Anhydrite in sandy silt, anhydrite up to 1inches in diameter, red (10R 4/8), platey, silt is slightly sticky when wet, pink (10R 8/4), loose, rounded, very fine to fine grain, well sort.
						CL	~~148.5~~ ~~150~~ 145	Claystone, as described in last claystone layer dry w/ 6inch anhydrite layer blw @ 149, top half has light red (10R 7/6) anhydrite, bottom has white (wp 9.5/N), middle anhydrite layer is platy, translucent to light gray (10R 7/1), hard, up to 6inches in diameter
							145–147	Anhydrite in silt, silt is white (wp 9.5/N) very fine, well sorted sub Rounded, some cohesive pieces up to 1inch in diameter, w/ interbedded plates of anhydrite, ~~Anhydrite is~~ firm, w/ low dry strength. Anhydrite is white (wp 9.5/N) to translucent & light gray (10R 7/1) hard, very high dry stregth, platy. Trace claystone up to 1.5 inch diameter as described above
							147–147.5	Anhydrite in silt as ~~able~~ above, silt is pinkish white (10R 8/2), anhydrite has thinner plates you can peal, translucent to light red (10R 6/6) grading into claystone w/ interbedded

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Note: Translucent, flaky, platy crystals starting @ 135 may be selenite

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								layers of efflorescence (~45%)
						CL	147.5-151	Claystone, dark red (10R 3/4), low plasticity, cohesive, soft, med dry strength, weak Ribbon, dry to slightly damp. Interbedded w/ efflorescence, white (wp 9.5/N), very fine grained, rounded, well sorted, low dry strength, & anhydrite up to 2 inches in diameter, white (wp 9.5/N) to reddish gray (10R 6/1), platy, hard, very high dry strength
						CL	151-155	Claystone, red (2.5YR 5/6), low plasticity, weak to med flex Ribbon, dry to slightly damp, little (10-25%) yellowish brown spots (10YR 5/8), trace (<5%) anhydrite, 1cm in diameter
						CL	155-162.5	Claystone, red (2.5YR 4/6), dry to slightly damp, soft to firm, cohesive, med dry strength, low plasticity, weak Ribbon, w/ few (5-10%) pale green (Gley1 6/2) spots up to 1 cm and little, interbedded anhydrite, up to 2in (10-25%) in diameter, white (wp 9.5/N) to pale red (10R 6/4), platy, few (5-10%) white (wp 9.5/N) efflorescence, very fine grained, rounded, well sorted
						CL	162.5-165	As above, w/ some efflorescence and no large anhydrite, little (10-25%) ~~pat~~ sheets (~1cm) of anhydrite throughout & no green spots
						CL	165-167.5	Claystone w/ interbedded anhydrite & some (25-45%) pinkish white silt, rounded, well sorted very fine grain, Claystone is dry, dark red (2.5YR 3/4), low plasticity, not sticky, weak ~~to flexib~~ Ribbon, cohesive, soft, low to med dry strength, anhydrite is platy, mostly light Reddish gray (2.5YR 7/1), hard, little (10-25%) efflorescence white (wp 9.5/N)
							167.5-169.25	Anhydrite, in silt, cohesive up to 7 inches in diameter, hard, Flat pinkish gray (2.5YR 7/1.5) scratched w/ fingernail, silt is white (wp 9.5/N) fine grain, sub rounded to rounded, well sorted

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						CL	169.25 – 171.25	Claystone, w/ interbedded platy translucent anhydrite, claystone is low plasticity, weak ribbons, cohesive, soft, med dry strength, dry to slightly damp dusky red (10R 3/4), w/ 3 inch anhydrite bed in center of layer, described as above, translucent to pinkish gray
							171.25 – 172.5	Anhydrite, with silt like last anhydrite layer), anhydrite is also thin same but white (wp 9.5/N) to light gray (wpe 7/1)
							172.5 – 175	claystone w/ some (10-45 %) chunckes (up to 1inch) of ~~platelo~~ platy, translucent to light gray (10R 7/1) anhydrite. Clay stone is weak red (10R 5/4), low plasticity, weak ribbon, soft, dry
						ML	175 – 177.25	claystone, red (2.5YR 4/6), cohesive, soft, low dry strength non-low plasticity, weak ribbon, dry to slightly damp few (5-10%) efforescence, white (wp 9.5/N) very fine grained, well sorted, slightly platy, subrounded, trace (<5%) selenite crystals, translucent, subangular, up to 1mm in diameter
						ML	177.25 – 180	Claystone, interbedded in anhydrite w/ 4in pure clay layer in the middle. claystone described as above. anhydrite is white (wp 9.5/N) to pinkish withe (5YR 8/2), cohesive, soft to firm, low-med dry strength, could be mostly (>45%) efforescence, little (10-25%) selenite, translucent to white (wp 9.5/N), platy sheets no more than .5mm thick
							180 – 181	Claystone, reddish brown (5YR 4/4), dry to slightly damp, non-plastic, cohesive, firm to stiff, med dry strength, little (10-25%) efforescence layers up to 1cm thick, pink (5YR 8/3), very fine grained, well sorted subrounded, few (5-10%) selenite crystals
							181 – 185	Anhydrite interbedded w/ efforescence & claystone layer up to 3/4 in thick, Claystone is described as above but reddish brown (5YR 5/4), efforescence are as above but white (9.5/N wp). Anhydrite is platy w/ a silky lustre, slightly translucent, to white (wp 9.5/N) to light reddish brown (5YR 6/3), cohesive, very hard, up to 3inchrs in diameter, no HCl reaction, scratches w/ fingernail, efforescese has small HCl reaction

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0.0							187-188	Sandy, gravely claystone, yellowish brown, (10YR 5/4), slightly damp to damp, cohesive, soft, low dry strength, non-plastic, not sticky, fine to coarse grained, moderate to well sorted, slight odor(?) — Noted odor coming from injection well maintenance
							188-190	Anhydrite in efflorescence as described above, w/ 6inch thick layer of clay as described above, yellowish brown (5/8 10YR), slightly damp, w/ yellowish red (5YR 5/5) spots
						CL	190-194	Claystone, dark reddish brown (5YR 3/4), dry to slightly damp, cohesive, soft, low plasticity, weak ribbon, not sticky, trace (≤5%) ~~efflorescent~~ efflorescence w/ trace (≤5%) selenite flakes
							194-195	Anhydrite w/ interbedded claystone (1cm) in efflorescence, claystone as above. Anhydrite has low dry strength & some (20-45%) selenite crystals, translucent to white (wp 9.5/N)
						CL	195-199.5	Claystone, dark red, (2.5YR 3/4), cohesive, firm, med dry strength, nonplastic to very low plasticity, trace efflorescence grading into some (20-45%) interbedding up to 1cm thk w/ trace selenite, white (wp 9.5/N) to light reddish brown, very fine grained, well sorted, subrounded, no HCl rxn, scratches w/ nail, claystone dry to slightly damp
							199.5-200	Anhydrite, platy, translucent to light reddish brown (5YR 6/3), cohesive, very hard, but breaks easily, low to med dry strength, 4inches in diameter, maybe its selenite
						CL	200-205	Claystone, dark reddish brown (5YR 3/4) dry to slightly damp, cohesive, stiff, med dry strength, not plastic, not sticky, few interbedded efflorescence b/w 203.5-204.5, white (9.5/N wp), very fine grained, well sorted, rounded
						CL	205-~~207.5~~ 208.75	claystone, as described above w/ some (20-45%) interbedded efflorescence b/w 206.5-207.25, as described above
							208.75-211.75	Anhydrite, up to 6inches in diameter, translucent to reddish gray (5YR 5/2), platy, silky luster, w/ little 20(10-25%) white (wp 9.5/N) efflorescence, hard, but scratches w/ fine nail, no HCl rxn, no rxn to HCl - efflorescence
						CL	211.75-212.5	Claystone, slightly damp, reddish brown (5YR 5/4), low-med plasticity, weak to slightly flexible ribbon, soft, low dry strength, trace <5% efflorescence

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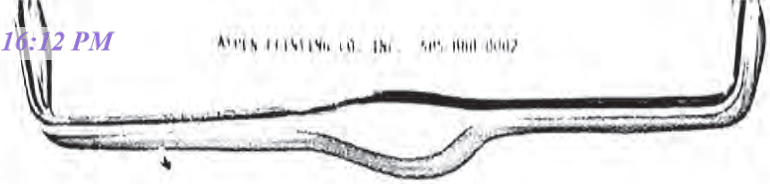
							212.5-215	Anhydrite, thicker plates up to ~~1/2~~ 2cm, w/ trace (<5%) selenite layers up to 3mm thick. Anhydrite is reddish gray (2.5Y 5/1), cohesive, hard, scratches w/ fingernail. last 6 inches has interbedded clayey sandstone, yellowish red (5YR 5/6), very fine grained, subrounded, well sorted, hard w/ med dry strength, not plastic, very slightly sticky when wet, dry
							215-216	Anhydrite, broken up, dark gray (7.5YR 4/1), platy, hard, scratches w/ fingernail, no HCl rxn, few (5-10%) selenite crystals, broken up sandy silt, pinkish gray (7.5YR 7/2), very fine to coarse grained, moderately sorted, subrounded to rounded
							216-219.5	Anhydrite as above, not platey, lighter in color white (wp 9.5/N) to white (10YR 8/1) in sandy silt as above but white (wp 9.5/N) grades into pale yellowish pink (7.5YR 8/2), anhydrite grades into red (10R 4/6) w/ light gray (10R 7/1) interbedded layers (10-25%)
						CL	219.5-222.5	Claystone w/ little efflorescence - white (wp 9.5/N) & little selenite crystals - dark reddish brown (5YR 3/4), dry, cohesive, firm, med dry strength no to low plasticity, weak ribbon, 2-inch layer of anhydrite, reddish gray (7.5YR 5/1), massive rather than platy
							222.5-225	Anhydrite w/ selenite crystals, white (10R 8/1) to reddish gray (10R 6/1) ~~to~~ w/ some red (10R 5/8) streaks, cohesive, hard, very fine grained crystals, well sorted, subrounded
						CL	225-226	Claystone, dark reddish brown (5YR 3/2), interbedded (2mm thick) anhydrite - translucent, claystone is cohesive, very stiff, med to high strength, non-plastic,
							226-229.5	Anhydrite, platy (1mm plates), cohesive, very ~~hard~~ hard, scratches w/ fingernail, shiny, silky luster, yellowish red (5YR 5/6) & dark gray (5YR 4/1) in broken up silt - white (9.5/N)
						ML CL	229.5-230	Claystone, dry, reddish brown (5YR 5/4), little (10-25%) sandy, gravel ~~size~~ sized anhydrite interbedded, non-plastic, low to med dry strength



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							230-235	Anhydrite, made up of platy crystals, but not sheets, gray (5Y 6/1), low to med dry strength, slightly rough, no HCL rxn, crumbles when scratched w/ fingernail, @234-234.25 layer of fine to very fine grained anhydrite(?), gray (5Y 6/1), slightly porus, feels smoother, almost like limestone, but no HCL rxn, scratches w/ fingernail, but not as easily (siltstone)
				(Yates?)	MC CH		235-240	Gypsiferous siltston / Anhydrit(?), cohesive, very hard, need tools to break open, still scratches w/ fingernail, white to light gray (5Y 8/1 & 7/1), slightly platy, very fine grained, slightly rough, sub angular, well sorted, 6inch layer of clay - @ 238.5-239, damp, med to high plasticity ~~not~~ sticky, med to strong flexibility, brown (7.5YR 5/4) (slightly)
							240-245	Gypsiferous siltston, white to light gray (5Y 8/1 & 7/1) cohesive, but crumbles easily, low dry strength, moderate to well sorting, subangular, fine grained, interbedded layers of anhydrite, ~6inches thick, sheeted ~1mm thick, shiny to silky luster, platy, easily scratches w/ nail, light gray (5Y 8/1), neither reacts to HCL
							245-252.5	Anhydrite w/ interbedd siltstone - very fine, subrounded, well sorted, light gray (5Y 7/1), barely scratches w/ fingernail, anhydrite is massive rather than platy, gray (5YR 6/1), cohesive, very hard, does scratch easily w/ fingernail, neither reacts to HCL, mostly (>45%) pulverised into sandy silt - white (wp 9.5/N), @ 249.5-250.25, crumbly efforescence, white (wp / 8.5/1), no to very small HCL rxn, maybe dolomite(?)
							252.5-257.5	Siltstone w/ interbedded anhydrite anhydrite is described as above, siltstone as contains (1mm) ~~sandstone~~ layers of dolomite, above small HCL rxn, brownish yellow (10YR 6/6) very fine grained, overall some layers of dolomite, powdered, rxn to HCL, light gray (2.5YR 7/2), silty w/ sandy, rough
							257.5-260	Siltstone, light gray (10R 7/1), cohesive low to med dry strength, tiny interbedded dolomite layers - dolomite rxn to HCL, not the siltstone, very fine grained, slightly platy. Layers of other light gray (10YR 7/2) siltstone w/ interbedded efforescence - white (wp 9.5/N), very fine (both eff & silt) siltstone is slightly porus, neither rxn HCL. Also, 3inch layer of dolomite, crumbly, cohesive, low dry strength, HCL rxn, very fine grained, rough, well sorted, light gray (5Y 7/1)

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PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							260-260.75	Claystone in broken up anhydrite, reddish brown (2.5YR 4/3), dry, nonplastic, low dry strength, interbedded w/ dark gray (5YR 4/1), crumbly ~~dolomite~~ siltstone, no HCL Rxn
							260.75-264.25	Anhydrite, cohesive, very hard, scratches w/ fingernail, translucent to reddish gray (5YR 5/2), platy, no visible grains, no HCL Rxn
							264.25-267.5	Claystone, dry to very slightly damp, ~~stony~~ brown (7.5YR 4/4), cohesive, firm, low to med dry strength, crumbly, few (5-10%) efforescence - white (wp 9.5/N), non plastic, not sticky, 2 interbedded .25 ft layers of low dry strength anhydrite, (>45%) mostly massive, but some plateness, white (wp 7.5/N), no HCl Rxn
							267.5-269.75	Anhydrite in layers of massive & platy, massive - gray (5YR 5/1), very hard, slightly scratches w/ fingernail, few (5-10%) fine grains, rounded, well sorted, platy - pinkish white (5YR 5/2) tom mostly (>45%) pinkish gray (5YR 6/2), cohesive, soft, low dry strength, crumbly, neither has HCl Rxn
							269.75-270.75	Siltstone, light gray (5YR 7/1), cohesive, hard, breaks w/ tools, slightly rough, few (5-10%) sandy - very fine, med sorted, subrounded, grades into same w/ few selenite crystals
							270.75-~~275~~ 279	Siltstone w/ interbedded anhydrite, (mostly pulverized), siltstone described as above, anhydrite is translucent to very pale brown (10YR 7/4), no HCL Rxn, hard, barely scratches w/ finger nail
							279-281	Siltstone, white (wp 9.5/N) to light gray, cohesive, very hard, does not scratch w/ fingernail, tiny dolomite veins, grades into dolomite, white (10YR 8/1), crumbly, ~~at~~ react to HCL, very fine grained, slightly porous, well sorted, rough, subrounded, low dry strength
						CL	281-282.25	Silty claystone, dry to very slightly damp, dark greenish gray (gley1 4/1), few (5-10%) light olive (10Y 5/4) spots, cohesive, soft, low dry strength, low plasticity, weak ribbon, little (10-25%) interbedded efflorescence - white (wp 9.5/N), platy, fine grained, moderately sorted, subrounded, crumbly

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Boring Log

Site WDW-1-MW-1		Location Map
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Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
							282.25 -287.5	Anhydrite w/ interbedded efflorescence, anhydrite is slightly platy, gray (7.5YR 6/1) cohesive, very hard, scratches w/ finger nail, efflorescence is white (wp 9.5N), vf very fine grained, well sorted, sub-Rounded w/ selenite crystals, coarse grained ~~sorted~~, translucent
							287.5- 294.5	Claystone w/ mostly (>45%) interbedded crumbly efflorescence and some (20-45%) anhydrite, clay is strong brown (7.5YR 5/6) low to med plasticity, med flex ribbon, cohesive, very soft, dry to slightly damp, efflorescence & anhydrite described as above, 2 inch layer of clay-light brown (7.5YR 6/4), as above but slight damp to damp, w/ little (10-25%) anhydrite - upto 3cm in diameter, not sticky
							@ 294.5 -289.5	Anhydrite w/ interbedded efflorescence, light gray (10YR ~~7~~ 7/1), platy, cohesive, firm, but crumbly due to efflorescence - white (9.5N wp), very fine grained, well sorted rounded
							289.5- 290	Gypsiferous siltstone, cohesive, very hard, but will break @ weak points, interbedded w/ thinly plated selenite crystals up to 1inch in diameter
							290- 299	Siltstone w/ interbedded anhydrite, siltstone is gray (2.5Y 6/1), cohesive, very hard, massive, trace (>5%) dolomite veins, grades into siltstone w/ interbedded anhydrite, platy, shiny to silky luster, translucent to pink (7.5YR 7/3), scratches w/ finger nail.
							299- 300.75	Siltstone, rough, massive, hard, will scratch w/ fingernail, very fine to fine grains, well sorted, subrounded, few (5-10%) selenite crystals, light reddish gray to reddish gray (2.5YR 7/1 & 6/1)
							300.75- 302.25	Dolomite, light gray (5YR 7/1), cohesive, firm, low dry strength grades to siltstone, Dolomite is powdery, Rough, well sorted, subangular, fine grained, ~~dots~~ dry strength increases as it grades siltstone is described as above. Dolomite/stone rxn to HCl
							302.25 -305	Anhydrite (>45%) mostly powdered, translucent to pale brown to gray (2.5YR 7/3 & 5/1), massive, cohesive, very hard, scratches w/ finger nail

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Site	WDW-1-MW-1	Location Map
Logged by	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							304.5-308.5	Anhydrite, massive, but pulverized, cohesive, very hard, scratches w/ ~~knife~~ fingernail, translucent to light gray (GLEY 1 7/1), some (20-45%) platyness
							305-306.5	Clayey, siltstone w/ interbedded dolomite veins, slight HCl rxn, cohesive, firm, low to med dry strength, ligth gray to light yellowish brown (2.5Y 7/1 & 6/4) crumbly
						6M	305.5-309	silty, gravely, sand w/ few (5-10%) clay wet, gravel - up to 1.5 inch siltstone (w/ interbedded dolomite - as above). Sand is fine to coarse grained, brownish yellow (10YR 6/6), subrounded to rounded, moderately sorted, loose to med consistancy, base of layer is thin (2 ~~cm~~) anhydrite (45%)
							309-310	Siltstone w/ mostly interbedded dolomite, HCl rxn, porous, cohesive, firm ~~but~~ but crumbly, low dry strength, few (5-10%) selenite crystals, cubic/platy, translucent - siltstone is ligth gray (2.5Y 7/2), very fine w/ little (10-25%) med grains, subrounded, well - mod sorted, dry to slightly damp
							310-315	clayey siltstones w/ interbedded anhydrite & efforescence. siltstone is bluish gray (GLEY 5/5PB), rough, no HCl rxn, massive and platy in some areas, slightly porous, very fine grained, well sorted, Anhydrite is translucent to white (w/ 9.5/N), platy, scratches w/ fingernail, efforescence are cohesive, soft - firm, fine grained, rounded, well sorted. When wet - siltstone slightly to not sticky, no to low plasticity, weak ribbon
							315-320	Anhydrite, as described on 306.5, massive, white (8/N wp)
							320-321.25	~~Mudst~~ Claystone w/ interbedded anhydrite, Claystone is dark ~~r~~reddish brown (5YR 3/4), cohesive, firm, dry, med dry strength, crumbles when broken, no to very low ~~dry~~ plasticity, very weak ribbon, Anhydrite is platy, translucent, silky luster, ranges from med grained size to 1.5 inches in diameter
							321.75-324	Sandy siltstone, interbedded w/ little (0-25%) efforescence and anhydrite grading into (last .25 ft) anhydrite, reddish brown (5YR 5/3 to 4/4), well sorted, very fine to fine, rounded to subrounded, Anhydrite is massive, gray (5YR 5/1), scratches w/ fingernail

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Site WDW-1 – MW-1		Location Map
Logged by	Client/Project # SF Smelter	
Boring Number	Drilling Co. Cascade	
Drilling Method	Drill Rig Gus Pech 400	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							324-325	Claystone, as described above, dry to very slightly damp, little (10-25%) efflorescence & anhydrite – up to (2 mm) diameter, angular crystals, platy
							325-329.75	Claystone, slightly damp to damp, strong brown (7.5YR 4/6), mostly cohesive (>45%), soft – very soft, none to low dry strength, none to very low plasticity, weak ribbon, mostly just crumbles
							329.75-335	Anhydrite w/ interbedded ~~later~~ efflorescence mostly (>45%) massive, some platyness, translucent to pinkish gray (7.5YR 6/2), efflorescence is white (9.5/N up), slightly porous, very fine grained, subangular, well sorted, both scratch w/ fingernail, neither rxn to HCl
							335-337.5	Anhydrite, platey, scratches w/ finger nail, massive, very hard, no HCl rxn, trace (<5%) interbedded dolomite, translucent to dark grayish brown (10YR 4/2), dry
							337.5-340	Claystone w/ interbedded anhydrite – up to 2 inches in diameter, as described above Clay is wet, low to med plasticity, weak to mid strength ribbon, mostly (>45%) cohesive, very soft, brown (7.5YR 6/4)
							340-344.25	Claystone w/ interbedded anhydrite – slightly platy, translucent to white (9.5/N up) claystone is strong brown (7.5YR 4/6), little (10-25%) selenite crystals, cohesive, firm, med dry strength
							344.25-346	~~Clay w/~~ Sandy clay w/ selenite crystals up to 1cm in diameter, med to high plasticity, flexible (mid), reddish brown (5YR 4/4), cohesive, very soft, wet, drying out to damp towards base
							346-347.25	Sandy clay, 7.5YR (4/6) strong Brown fine to coarse sand, interbedded selenite Moist, high plasticity, outside, inside was Damp.
							347.25-350	Interbedded anhydrite w/ quartz siltstone anhydrite (N/9.5) White, quartz siltstone (GLEY 1 7/5GY) light green grayish. Claystone interbedded w/ anhydrite 2.5YR (3/6) dark Red.

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Site WDW-1-MW-1		Location Map
Logged by ISMAEL T	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (salty soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							350 – 352.25	claystone 2.5YR (3/6) dark Red loose to slight cementing, very fine. slightly Damp to Dry, some anhydrite nodules, no reaction to HCL
						35	352.25 – 357.50	Claystone 2.5YR (4/8) red, interbedded anhydrite, some Anhydryte nodules Dry, well cemented, no reaction to HCL Some selenite interbedding, Fiberous
							357.50 – 358.00	Anhydrite - 2.5YR (7/1) light gray chalky, interbeded claystone, Dry some platyness very fine selenite xtals
							358 – 360.5	Clay - 5YR (4/6) yellowish red, mostly Dry to some moisture, interbeded Anhydrite and gypsum, stiff, very fine, gypsum is platy Anhydrite is white.
							360.5 – 361.0	Clay w/ Sand & some gravels, 2.5YR (3/6) dark red, some moisture, moderate plasticity, gravels are fine to coarse grained. Sub angular to sub round, some gravels 0.5 inches. Interbeded Anhydrite.
							361.0 – 362.5	Anhydrite 10YR (8/1) white, chalky Dry, very fine, angular coarse grains, loose. Some very Hard, Coarse grains.
							362.5 – 365.0	Clay stone 5YR (5/6) yellowish Red, mostly Dry with slight dampness interbedded Selenite, and anhydrite, stiff, no plasticity
							365.0 – 367.5	Claystone 2.5YR (3/6) dark Red, Center is stiff, interbedded Anhydrite, outer is Saturated creating a gooyee mud, Some gravel

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367.5 – 369 lost to mud / water MIX

DB24.1290 phase 1

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Site	WDW-1-MW-1	Location Map
Logged by	Client/Project #	
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PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
3691 - 370							370.0	Anhydrite, Claystone 2.5yR(4/6) red. mostly dry
							372.5	mottled w/ Anhydrite (Frosted) and selenite & Gypsum, some very fine sand to silt
								Brittle, trace of moisture not saturated does not react to HCL
							372.5	Claystone (2.5yr (3/6) dark red increase
							375.0	in moisture, mottled w/ Anhydrite, Gypsum
								(platy) very fine to course xtals + trace
								Plasticity. Crumbly,
							377	Clayey silt 2.5yr(4/6) Red, very fine
					SC		382.5	Some trace sand very fine, Damp, loose
								to Trace plasticity, no evaporites present
								Crumbly,
							382.5	Claystone 2.5yr (5/6) red, Dry, Brittle
							385	mottled with evaporite minerals, anhydrite
								Gypsum, interbedded layers,
							385	Clayey silt 2.5yr 4/6 (red) Damp to moist,
							387.5	very fine grained, no visible Evaporite
								minerals. some plasticity mostly
								crumbly, trace very fine sand (f.
							387.5	
							390	Clay Stone 2.5yr (5/6) red, Dry Brittle
								to hard, interbedded Anhydrite, (white)
								Frosted, Platy
							390	
							392.5	Clay Stone 2.5yr (3/6) dark Red. Damp
								to dry, interbeded Anhydrite, & Gypsum,
								Hard, little to no Plasticity, very fine
								grained.
							392.5	
							395	Anhydrite 2.5y (8/1) white, cobble
								sized, Hard, crushed to a powder, mostly
								cobble sized fragments.
							395	mostly thick clay has mixed with
							397.5	formation water.
							397.5	interbedded Claystone w/ anhydrite.
							400	10yR(4/6) red with white anhydrite
								Dry Hard, Brittle, well cemented

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Site WDW-1-MW-1		Location Map
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Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
							400 – 402.5	Sample lost due to washout
							402.5 – 410	Interbedded clay & Anhydrite, Clay is 2.5yr (4/6) red moist, very plastic due to mixture with upper 388' water
							410 – 412.5	Same as above less moisture, Almost Dry.
							412.5 – 413.5	interbeded Anhydrite w/ Quartz siltstone. White very hard Quartz siltsone, Anhydrite soft to brittle.
							414.0 – 415.0	Claystone w/ anhydrite interbedded, 9(?) 2.5yr (4/6) Red, Dry some dampness mostly hard, vry fine sand
							– 418	Interbedded claystone w/ anhydrite 10R (3/6) dark Red, clay is somewhat dry, trace plasticity.
							418 – 420	Clay 10yR (4/6) red, Moist, contact with upper 388' water, very plastic,
							420 – 422.5	Clay w/ some gray Shale, interbedded 10R (5/6) red Shale Gley 2 (8/10B) light Bluish gray) Clay is damp, moderate plasticity
							– 425	inter Bedded Clay w/ anhydrite 2.5yr (3/6) dark red, Some moisture Damp mostly hard low plasticity,
							427.5	

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Site	WDW-1-MW-1	Location Map
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Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
							400	Sample lost to upper 308' water
							402.5	interbedded clay with anhydrite
							402.5 ~~405.0~~	anhydrite is white fine to very fine grained. clay is damp, water from
							410.	308' may have effected clay - 2.5YR(4/6) red, mixed w/ coarse gravels, high plasticity

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Site	WDW-1-MW-1	Location Map
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Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
							427.5	Clay w/ anhydrite, 2.5yR(8/1) moist
							430	Mix with 308' water, Dense, to soft moist clay has high plasticity.
							430	Anhydrite interbedded clay, moist due to mixing with 308' water.
							432.5	Clay is high plasticity, Anhydrite is 2.5yR(8/1) White, Can be clean hard to crumbly.
							482.3	Solid Anhydrite, laminated, GLEY (6/N)
							485	gray. Interbedded Clay, 2.5yR(5/4) red moist, high plasticity, Anhydrite is Dense very Hard.
							435	Anhydrite w/ clay Stone, 2.5yR(4/4) reddish
							437.5	Brown, 10R(8/1) white, slight dampness to cuttings, clay has low plasticity interbedded with anhydrite, outter core wet from 308' water,
							440	Anhydrite is massive, dense, very hard laminated, GLEY (6/N) gray
							440	interbedded claystone w/ Anhydrite,
							442.5	10R(3/4) dark Red, Anhydrite 10R(8/1) white Claystone is Dry Brittle, no plasticity Anhydrite is hard, Powdery, some granular nodules to hard Platy Fragments.
							442.5	Clay Stone 2.5yR(3/4) dark reddish Brown
							450	massive, dense, Hard, Dry. Anhydrite 10R(8/1) White, Some massive Dense large Cobble Size fragments

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Site	WDW-1-MW-1	Location Map
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Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
							450	Clays, siltstone 2.5yR (5/6) Red,
							452.5	Claystone - 2-5yR (3/6) dark red
								Silt stone is moderate hard to Brittle w/ very fine sand,
								Claystone is hard, breaks in shards has Anhydrite nodules
							482	Claystone 2.5yR (3/6) dark red,
							485	interbedded anhydrite, white, good moisture due to mixing with 305'
								water
							488	Claystone 2.5yR (3/6) dark Red
							489.5	Dry to slight humid, Moderated Hard to Brittle, Crumbly, Anhydrite nodules some very fine Sand
							492.5	Claystone into Anhydrite, no
							496	Anhydrite - Gley 2 (7/1) light blue-gray. Both claystone and anhydrite are Massive dense, very Hard, Cobble Fragments.
							460 - 462	Claystone, red (2.5YR 4/6), trace (<5%) interbedded evaporates, dry to slightly damp, med dry strength
							462 - 462.5	~~Mass. Silt~~ Siltstone, massive w/ few (5-10%) quartz crystals (up to 3mm), white (up 8/N), hard
							462.5 - 465	claystone as described above, dry
							465 - 467.5	Clay, reddish brown (2.5YR 4/4), soft, dry to damp, low to med plastic, weak Ribbon, trace (<5%) evaporates
							467.5 - 468.5	Claystone, as described above, dry, firm, few (5-10%) anhydrite layers
							470	interbedded, grades into massive hard claystone
							470 - 480	Interbedded layers of dry to damp clays, dry clays & hard claystone as above

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Site	WDW-1-MW-1	Location Map
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Boring Number	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
						CL	480-480.5	clay, reddish brown (5YR 5/4), very soft to soft, med to high plasticity, flex ribbon, med strength, dry to damp, traces (5%) anhydrite ~~clays~~ crystals ~~up to 1cm~~ 1mm in diameter to 2inches
							480.5-484.5	Claystone w/ mostly (≥45%) interbedded anhydrite & evaporates, yellowish red (5YR 5/6), dry, ~~no~~ med dry strength, evaporates & anhydrite are white (wp N/9) to translucent to gray (Gley1 6/N)
							484.5-485	as above 480-480.5, dry, reddish brown (2.5YR 4/4)
							485-490	Claystone, dry w/ few (5-10%) anhydrite interbedded, med dry strength (≈60%) & hard (≈40%), reddish brown (2.5YR 4/4)
							490-492.5	Claystone, interbedded veins of anhydrite, red (2.5YR 5/6), dry, very hard, few (5-10%) scattered quartz minerals
							492.5-496.5	Claystone, interbedded evaporates, red (2.5YR 4/4), soft, dry to slightly damp, no to low plasticity, weak ribbon
							496.5-497	Anhydrite, ligth gray (Gley1 4/N), massive, scratches w/ fingernail.
							497-499.5	~~As~~ Claystone as described above @ 497.5-496.5, slightly more plastic
							499.5-500	Claystone as described in 492.5-496.5

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Site WDW-4-BH-1 WDW-4 NW-1	Location Map
Logged by M. DUNBAR/D. MANUCIAN	Client/Project # HF SINCLAIR
Boring Number	Drilling Co. CASCADE
Drilling Method SONIC	Drill Rig 11-04928
Date Started 10-16-23	Date Completed 10-20-23

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
								0-6 SANDY + GRAVELLY SILT (ML) REDDISH BROWN (2.5YR 5/5) SLIGHTLY MOIST; ~60% SILT, 30% VF-VC SAND, 10% GRAVEL (1.5")
								6-27.5 ALABASTER; MOSTLY LIGHT GRAY (2.5Y 7.1) OCCASIONALLY DARK GRAY (2.5Y 6.1); DRY TO SLIGHTLY MOIST, DARK GRAY ZONES CONTAIN LARGE (~0.75") GYPSUM CRYSTALS SURROUNDED BY MICROCRYSTALLINE MATRIX; DARK RED CH (DESCRIBED BELOW) FROM 12-12.5, 13-15, 16.5-17.5, ALL MOIST
							10	
							20	27.5-37.5 CLAY (CH) DARK RED (2.5YR 3/6) MOIST - V. MOIST MED, STIFF-HARD; HIGH PLAST. FROM 32-34' ALABASTER 35-37.5 ALABASTER AS 6-27.5 AS 6-27.5
							30	37.5-45' CLAY (CH) DARK RED (2.5YR 3/6) - V MOIST, 6" LAYER OF SANDY SILT (ML) FROM 44-44.5
								45-50 ALTERNATING 6"-12" LAYERS OF CH (27.5-37.5), ALABASTER (6'-27.5) AND SANDY SILT, MOIST-DRY
							40	
							50	50 ALABASTER AS 6-27.5; DRY, TRACE 1" LAYERS OF CH AS 27.5-37.5 FROM 55-57.5 AND 60-61.5 ALL MOIST
							60	65-66 ALABASTER, GRAY (2.5YR 5/0) DENSE, W/ GYP CRYSTALS SOFT, NO CLAY
								66-67.5 INTERBEDDED CLAY IN ALABASTER, CLAY IS DARK RED (2.5YR 3/6) SLIGHTLY PLASTIC, NON SILTY
							70	67.5-70 ALABASTER, HARD, DENSE, MICROCRYSTALLINE, NO CLAY 70-72.5' ALABASTER, DARK GRAY (2.5Y 4/0) NO CLAY 72.5-74 ALABASTER, LIGHT GRAY (10YR 7/2) AS ABOVE
							80	72.5-80 ALABASTER, CLAY, DARK GRAY (2.5Y 4/0) SLIGHTLY PLASTIC, NON SILTY, SLIGHTLY MOIST
								80-90 ALABASTER, LIGHT GRAY (10YR 7/2) WITH SILTY STREAKS, OLIVE GRAY, CHALKY, NON PLASTIC, SLIGHTLY MOIST
							90	90-95 ALABASTER, AS ABOVE
								95-97.5 CLAY, STRONG BROWN (2.5YR 5/6) SLIGHTLY SILTY, NON PLASTIC, GYPSUM STREAKS
							100	97.5-100 ALABASTER, AS ABOVE

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Site		Location Map
Logged by M. DUNBAR	Client/Project # HF SINCLAIR	
Boring Number WDW-4-BH1 WDW-4 MW-1	Drilling Co. CASCADE	
Drilling Method SONIC	Drill Rig 11-04928	
Date Started 10-11-23	Date Completed 10-20-23	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
								100-102.5 ALABASTER, AS ABOVE
								102-103.5 SILT (ML) SAME AS 92.5-95
								103.5-110 ALABASTER, AS ABOVE
							110	110-111 CLAY (CL) LIGHT GRAY (10 YR 7/1) SLIGHTLY SILTY, SLIGHTLY PLASTIC
								111-115 ALABASTER AS ABOVE
								115-115.5 CLAY (CL) WHITE (10YR 8/2) MODERATELY PLASTIC SLIGHTLY SILTY
							120	115.5-118 ALABASTER, LIGHT BROWNISH GRAY (2.5Y 6/2) NO CHANGE, VERY FINE-MICRO CRYSTALLINE, DENSE, HARD, TRACE CLAY (CL) LIGHT GRAY (10YR 6/1) NON SILTY, SLIGHTLY PLASTIC
								118-137.5 - ALABASTER, AS ABOVE
							130	
								137.5-140 ALABASTER, SLIGHTLY DARKER, LIGHT GRAY (10YR 7/1) MICRO CRYSTALLINE, DENSE VERY HARD
							140	140-141.5 ALABASTER WITH CLAY STREAKS, PINKISH GRAY (7.5YR 6/2) VERY SILTY, NONPLASTIC
								141.5-145 ALABASTER, AS ABOVE, NO CLAY
							150	145-147.5 DOLOMITE, LIGHT BROWNISH GRAY (10YR 6/2) MICROCRYSTALLINE, WEAK HCL REACTION, VERY DENSE, HARD
								147.5-150 ALABASTER, AS ABOVE

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Daniel B. Stephens & Associates, Inc.

Boring Log

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Site			Location Map
Logged by	WDW-2-BH-1	Client/Project #	
Boring Number	WDW-2-MW-1	Drilling Co.	
Drilling Method	SONIC	Drill Rig	
Date Started	10/7	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
			N/A	N/A	N/A			0-7.5 SELTY SAND (SM); LIGHT REDDISH BROWN (2.5YR 6/3) ≈ 70% VF-M SAND, 30% SELT; TRACE C SAND - F GRAVEL
			CONTINUOUS					7.5-12 CLAY (CH); DARK RED (2.5 YR 3/6); MOIST; MED. STIFF; HIGH PLAST. 6" LAYER OF ALABASTER ~~12-10.5~~ 9.5-10 DRY
							10	12-22.5 ALTERNATING 6-18" LAYERS OF CH AS 7.5-12 AND DRY ALABASTER; LIGHT REDDISH BROWN (2.5YR 7/3); WELL CONSOLIDATED; CH IS SOFT-MED. STIFF
							20	22.5-37.5 ALTERNATING LAYERS OF 6" ALABASTER; REDDISH BRN (2.5 YR 4/3) DRY SELT (ML); REDDISH BROWN (2.5 YR 4/3); DRY CLAYEY SELT TO SELTY CLAY (ML/CL); RED (2.5 YR 4/6); MOIST; MED. STIFF; LOW PLAST.
							30	37.5-46 CLAY (CH); DARK RED (2.5YR 3/6); MOIST; HARD TO MED STIFF; MOD TO HIGH PLAST, TRACE SELT, SAND, LAYER OF ALABASTER
							40	46-60 ALABASTER; LIGHT REDDISH BRN TO REDDISH BRN (2.5YR 7/3 TO 2.5YR 4/4) DRY; TRACE SEAMS OF CH AS 37.5-46; THEN (≈6") ~~LAYERS OF SELT (ML); REDDISH BRN (2.5YR 5/4); MOIST TO SLIGHTLY MOIST~~ HALL MOIST
							50	
							60	60-72.5 CLAY (CH) AS 37.5-46; THEN SEAMS (≈6") OF ALABASTER AS 46-60 THROUGHOUT; THEN SEAMS (≈6") OF SELT (ML); REDDISH BRN (2.5YR 5/4); MOIST TO SLIGHT MOIST; APPEAR AT 68'
							70	72.5-77.5 ALABASTER AS 46-60 DRY
								77.5-85 CH AS 37.5-46; V. MOIST FROM 82.5-85 REST IS MOIST; THEN SEAMS (≈6") SELT + ALABASTER
					85-105		80	85- ALABASTER AS 45-60 - DRY W/ THEN SEAMS OF (≈3-6") CH AS 37.5-46; @ 97' ALABASTER OCCASIONALLY APPEARS AS LIGHT GRAY COLOR (NO MUNSELL MATCH)
								CH ALL MOIST
							90	
							100	

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Boring Log

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Site		Location Map
Logged by WDW-2-BH-1	Client/Project #	
Boring Number WDW-2-MW-1	Drilling Co.	
Drilling Method	Drill Rig	
Date Started	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks (Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content)
								85-105 SEE PG 1
								105-110 ALABASTER AS 45-60. DRY; COLOR IS PREDOMINANTLY GRAY (LIGHT GRAY)
							110	110-112.5 CALCAREOUS ALABASTER; GRAY WITH LIGHT OLIVE (2.5Y5/6) C-BROWN MOTTLES; DRY; POROUS; SANDY W/ F-M SAND TRACE CLAYEY SILT (ML); GRAY (7.5Y 5/1); MOIST
							120	112.5-117.5 ALABASTER AS 110-112.5 - DRY - NOT CALCAREOUS 6"-12" SEAMS OF CH; OLIVE BROWN (2.5Y 4/4); MOIST; AND CH; GRAY (2.5Y 5/1); VERY MOIST; SOFT-MED STIFF HARD - MED. STIFF; HIGH PLAST HIGH PLAST
								117.5-132.5 CH AS 37.5-46; V. MOIST; 2' LAYER OF ALABASTER 118-120; 3" LAYER OF SILT STONE AS (ML); V. MOIST AT 121.5'; 6" LAYERS OF SILT STONE FROM 125-132.5
							130	
								132.5-160 ALABASTER AS 45-60, DRY; 2' LAYER OF CH AS 37.5-46 CH IS MOIST - V. MOIST; CLAYEY SILT (ML); WET, VERY MOIST; ≈10% CLAY 144-145
							140	1' LAYER OF CH AS 37.5-46 149-150, MOIST.
								1' LAYER OF CH AS 37.5-46 FROM 151.5-152.5 MOIST
							150	TD 150' @1655
								TD 160' @ 0945 10/10

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WDW-3-BH-1

TD @ 1240 (150')

TD @

Daniel B. Stephens & Associates, Inc.

Boring Log

Page___of___

Site WDW 3MW-1 WDW-3-BH-1		Location Map
Logged by D. MANDUKEAN	Client/Project #	
Boring Number	Drilling Co.	
Drilling Method SONIC	Drill Rig	
Date Started 10/4/23	Date Completed	

PID/FID Reading	Blow Counts	Sampling Device	Sample Recovery	Sample Interval	Sample Number	USCS Symbol	Depth (feet)	Soil Description/Remarks Soil type, color, texture, grain size, sorting, roundness, plasticity, consistency, moisture content
			⊗	0-10	N/A			
							10	10-12.5 SANDY SILT (ML); REDDISH BRN (7.5YR 5/3); SLIGHT MOIST; 40% VF-C SAND 12.5-15 SILT (ML); RED (2.5YR 5/6) SLIGHT MOIST; TRACE VF-C SAND + F GRAVEL
				CONTINUOUS			20	15-25 SANDY SILT (ML); RED (2.5YR 5/6); SLIGHT MOIST, ≈ 20-30% VF-C SAND; TRACE F GRAVEL; FROM 15-17.5: TRACE NODULES OF CLAYEY SILT
							30	25-30 SILT (ML); RED (2.5YR 4/6); MOIST; TRACE F-M GRAVEL
							40	30-40 SILTY CLAY (CL) DARK RED (2.5YR 3/6) MOIST; V. LOW PLAST; MED STIFF 40-47.5 SILT (ML) RED (2.5YR 4/6); MOIST - V. MOIST; TRACE CLAY 42-47.5
				ALABASTER ←			50	47.5-60 BEDROCK; ~~SILTSTONE~~ GYPSUM AS (ML); DRY; GRAY (7.5YR 8/1); FRAGMENTS OF 2"-4" ~~QUARTZITE~~ ALABASTER THROUGHOUT; REDDISH BRN (7.5YR 5/3) 50-52.5
							60	60-62.5 CLAYSTONE AS (CH); DARK RED (2.5YR 3/6); MOIST; MED STIFF; HIGH PLAST 62.5-64 SAME A.A 47.5-60
							70	64-83 SAME A.A. 60-62.5, 2" SEAM OF SANDPACKED ML @ 80', DRY BELOW
							80	83-87.5 ~~SILTSTONE~~ ALABASTER AS 47.5-60 87.5-95 ALTERNATING LAYERS OF ~~SILTSTONE~~ ALABASTER + SAND CLAYSTONE AS 47.5-60 AND 60-62.5; ≤ 6" - 12" LAYERS
				ALABASTER ←			90	95-100.0 ~~SILTSTONE~~ AS 47.5-60
							100	100-107.5 CLAYSTONE AS 60-62.5 107.5-112.5 ~~SILTSTONE~~ AS ML; RED (2.5YR 5/6); DRY; HARD NODULES; THIN ≤1' LAYERS OF GRAY ~~SILTSTONE~~ ALABASTER PRESENT
				ALABASTER ←			110	112.5-115 CLAYSTONE AS 60-62.5
							120	115-120 SAME AS 87.5-95, CLAYSTONE MOIST @ 115, DRY @ 116 120-126 ALABASTER AS 47.5-60 DRY
							130	126-150 CLAYSTONE AS 60-62.5; V. MOIST 129-134; ~~MOIST~~ MOIST - V. MOIST 134-135 MOIST 135-136; 1 FOOT LAYER OF ALABASTER 138-139 (DRY) ~~[illegible]~~ 6" ALABASTER 145-145.5 (DRY); MOIST 145.5-150
							140	
							150	150-152.5 DOLOMITE; OLIVE BROWN (2.5Y 4/3); RXN W/ HCL; DRY 152.5-159 CLAYSTONE AS CH; OLIVE (5Y 4/4); MOIST; MED STIFF; HIGH PLAST 159-160 CLAYSTONE AS 60-62.5; MOIST - V. MOIST

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Appendix F

Field Investigation Photographs

WDW-1-MW-1

DBS&A
a Geo-Logic Company

1. 3/31/2025: Hydrovac, 5.5 feet

2. 4/8/2025: Cascade tripping in drill string

3. 4/6/2025: Clay at 202 feet bgs

4. 4/7/2025: Anhydrite at 242 feet bgs

5. 4/9/2025: Saturated zone at 308 feet bgs

6. 4/9/2025: Saturated zone at 308 feet bgs (close-up)

7. 4/10/2025: Bailing groundwater

8. 4/26/2025: Cementing from total depth of 500 feet bgs to 325 feet bgs

9. 4/7/2025: Pipe tally

10. 4/24/2025: Cascade setting centralizers on well casing

11. 4/28/2025: Well casing and bollards cemented

12. 4/29/2025: Development

13. 6/10/2025: QED pump installment

14. 6/10/2025: QED pump installment

WDW-2-BH-1

DBS&A
a Geo-Logic Company

P:_DB22-1334\Well Report.3-24\Appx E_Photos\WDW-2-BH-1\p01.doc

1. Hydrovac, facing north

2. Hydrovac, facing north

3. Drilling rig

4. Water level in dry borehole measured after borehole open for one hour

5. Core samples from 10 to 20 feet bgs

6. Core samples from 82.5 to 105 feet bgs

7. Core samples from 115 to 132.5 feet bgs

8. Core samples from 132.5 to 145 feet bgs

9. Core samples from 145 to 150 feet bgs

10. Core samples from 150 to 160 feet bgs

11. Abandonment

WDW-3-BH-1

DBS&A
a Geo-Logic Company

1. Hydrovac excavation at WDW-3-BH-1

2. Sonic drilling at WDW-3-BH-1, October 5, 2023

3. Bailer test for significant water after borehole open for 15 hours (overnight)

4. Rig decontamination

P:_DB22-1334\Well Report.3-24\Appx E_Photos\WDW-3-BH-1\p03.doc

5. Core samples from 2.5 to 12.5 feet bgs

6. Core samples from 37.5 to 115 feet bgs

DBS&A
a Geo-Logic Company

3/28/2024 DB22.1334

HF SINCLAIR NAVAJO REFINERY
WDW-3-BH-1 Photographs

7. Core sample at 80 feet bgs

8. Closeup of core sample at 80 feet bgs

P:_DB22-1334\Well Report.3-24\Appx E_Photos\WDW-3-BH-1\p05.doc

9. Core sample from 82.5 to 85 feet bgs

10. Closeup of core sample at 82.5 feet bgs

11. Core samples from 105 to 115 feet bgs

12. Anhydrite closeup at 115 feet bgs

13. Core samples from 127.5 to 145 feet bgs

14. Clay at 130 feet bgs

WDW-4-BH-1

DBS&A
a Geo-Logic Company

1. Sonic drilling, WDW-4 BH-1, October 12, 2023

2. Core samples from 5 to 22.5 feet bgs

3. Core samples from 17.5 to 32.5 feet bgs

4. Core samples from 28.5 to 48 feet bgs

5. Core samples from 52.5 to 65 feet bgs

6. Core samples from 62.5 to 95 feet bgs

7. Core samples from 97.5 to 112.5 feet bgs

Appendix G

Field Notes

Projects (continued). . . . . .

SR 3/31/25

0705	SR, Cascade, & Shane (HF) @ Guard ~~Shake~~ SR Shack waiting on badges. Weather is clear, 43°F H: 83 L: 59 Cascade Crew Brett Miguel - Driller Steve Dakota Hydrovac update from Shane, they will be back filling this morning w/ clean soil. For water, we will see what the guys doing the hydrovac are using. Shane also mentioned that he will be handing us over to Matt from Giles, he takes care of all things soil.

3/31/25 SR

0807 Arrived onsite.
Miguel, Brett, me do not have passes yet. HF has not recieved our drug screening.

0816 Water will be delivered, 1,000 gal. Hydrovac - 5.5 ft.

0827 Everyone offsite.
Cascade will be delivering the Rig. in about 1-1.5 hrs.
I will be back for photos

0940 S.R. & Cascade onsite.
Rig & equipment onsite
Waiting on water to be delivered.
Hydrovac filled

1015 Water delivered

1020 Center of hydrovac coordinates
32°.47.100[illegible]8395'N
104° 12.83699802'W

1023 Edge ~~delivery~~ SR safety delivered the water 1,000 gal/ 24 barrels
HF paid for it

SR Drilling SR 3/31/25

1040 Edge safety offsite
Waiting on fork lift to move roll-off bin from drill site.

1250 Herc GTH-5519 onsite

1255 Equipment secured
SR & Cascade offsite

1320 I was able to get my badge

1400 Correspondance w/ Shane (HF), he wants us to set up today if Cascade can get their badges

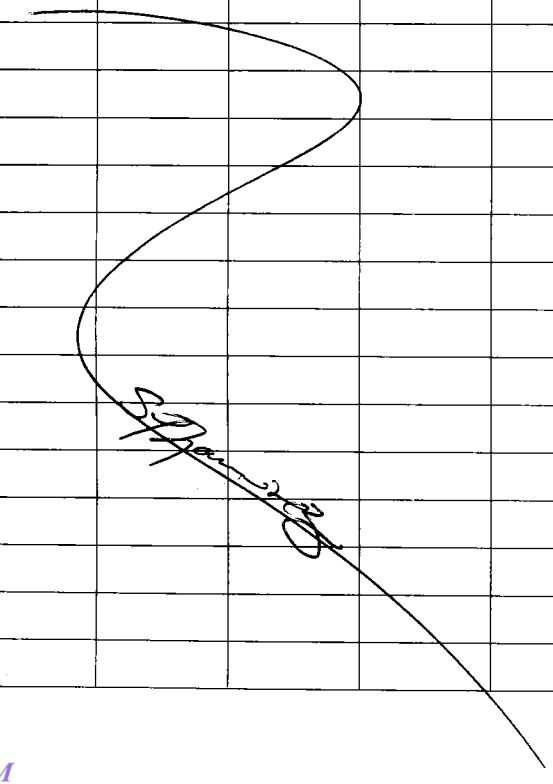
1500 Brett was able to get his badge. Miguel (driller) is still waiting on his.

1500 Correspondance w/ Shane, he said he will contact who he needs for the badge. Correspondance w/ Matt, he will be showing me where to get the work permits in the morning. Also,

3/31/25 SR

he said S-Brothers will be removing one roll off bin from the site & replacing it w/ a new one, we should have two bins to work with.

1532 All personel from security working on badging are off site. SR & Cascade off site.



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SR Drilling 4/1/25

0624	SR & Cascade @ Security office. Sunrise, partly cloudy 64°F H: 83°F L: 45°F High wind warning
0715	Matt onsite to escort me to FCC control to get permits.
0737	Do not need hot work permit b/c we are working outside the fence. Permits will last 4 days.
0741	Back @ security office
0906	@ Security office still wait on the badge for the driller. Also, begining to get windy.
0933	Brett made the decision to set up the rig w/o Miguel.
0953	Cascade, minus Miguel, & SR onsite.
1003	Miguel onsite, w/ badge.
1005	Begin rigging up
1147	Begin drilling
1217	Drilled to 25', wind is

4/1/25 SR

picking up.
1230 Cascade began rigging down for the day
1255 Cascade & SR offsite
Soil descriptions will be done @ Hotel.

SR Drilling 4/2/25

0622	SR @ FCC control for start work permits
0706	SR & Cascade onsite @ WDW-1, Cascade is warming up rig, prepping for the day. Mostly sunny, 46°F H: 68 L: 49°F, expecting winds in the afternoon
0735	JSAs / Tailgates done
0756	Resume drilling
0818	@ 35"
0830	Minor maintenance on rig
0914	Resume drilling
0933	Resume maintenance
1030	Electrical issue, rig keep going into high torque when it should be @ low torque. Brett going to town to find parts & Miguel waiting for call back from Mechanic
1211	Brett onsite w/ parts
1246	Testing rig
1254	Resume drilling

6

4/2/25	Drilling	SR
1302	@ 45 ft	
1336 SR 56	@ 50 ft	
1409	@ 55 ft	
1424	@ 62.5 ft	
1444	@ 70 ft	
1523	@ 72.5 ft	
1542	@ 80 ft	
1555	Shane onsite	
1615	Shane offsite	
1619	@ 85 ft	
1709	@ 90 ft	
~~1717~~	~~Rigging down~~ SR	
1744	@ 95 ft	
1750	Rigging down	
1755	SR & Cascade offsite	

SR Ramos

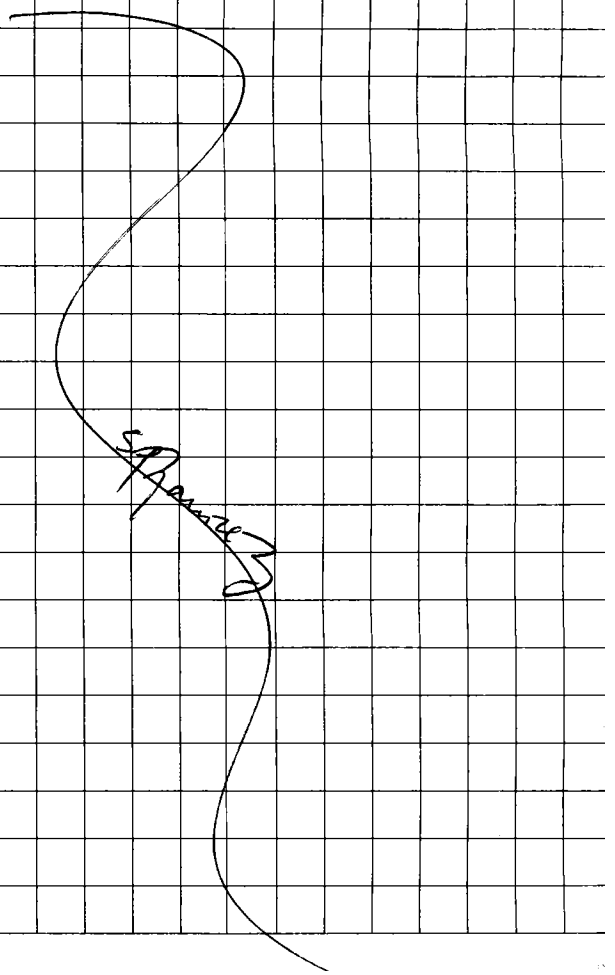
SR	Drilling	4/3/25
0653	SR & Cascade onsite.	
	Cloudy, Raining, 56°F H: 64°F	
	L: 46°F. Rain should stop	
	around 9am.	
	Cascade warming up the	
	Rig, prepping for the day.	
0735	Resume drilling	
0820	Drilling has slowed down	
0839	@ 102.5	
0905	E. Bastien onsite	
0919	Shane #1 onsite	
0925	Shane & Holt offsite	
0935	@ 105	
0958	@ 115	
1130	@ 120	
1151	@ 125	
1209	Lunch Break	
1230	Rig maintenance	
1243	Resume drilling, slowed down	
1305	Rig down	
1330	Resumed drilling	
1400	E Bastien offsite	
1405	Rig down, cascade	
	trouble shooting	
~~1425~~	~~Resumed drilling slowly~~ SR	

4/3/25 SR

1425 Trip out
1542 Done tripping out, update from Brett, they got stuck, needed to pour ~20 gal of water to get unstuck. They are currently welding a thicker shoe to try & prevent issue, going forward they may need to use more water, not a lot. We should be able to tell when we have natural water.
- when we need to bail, do we use the same Roll-off, or do we get a second one for the water?
1610 Begin trip in.
1626 Correspondance w/ Matt, Hot work Rules outside the fence, have extinguisher & stay for 30 min after. S-Brothers will deliver totes for fluid waste in the morning. He will be my weekend contact, if needed.

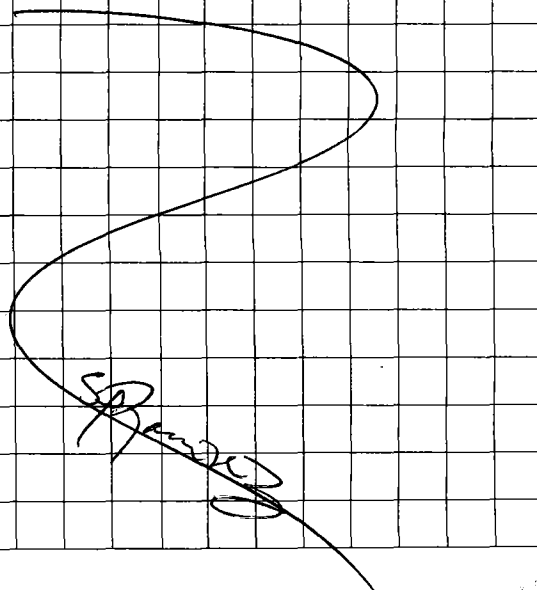
SR 4/3/25

1730 Cleaning out the borehole
1740 ~~Resume drilling~~ still clearing it out
1800 Rigging down
1812 SR & Cascade offsite



4/4/25	Drilling	SR
0653	SR & Cascade onsite Cloudy, breezy, wet, will Rain on/off throughout the day 45°F H: 62°F L: 45°F Warming up the Rig, setting up	
0727	Update from Miguel, they have ~30 ft more of clean up, then they can resume drilling. We have a chance of thunderstorms today, we'll need to be vigilant.	
0738	Begin cleaning out the borehole	
0814	Shane & Nat onsite Nat is getting soil samples	
0835	Shane & Nat offsite	
0910	Giles onsite w/ tote for fluid waste	
0918	Giles offsite	
0955	Resume drilling	
1008	@ 130	
1042	@135	
1102	Tote delivered from Giles has old asphalt & trash in it.	
1108	@ 140	
1155	@ 145	

SR	Drilling	4/4/25
1234	Break for lunch	
1255	Resume drilling, rain has stopped for now	
1315	@ 147	
1345	@ 155	
1427	Raining again	
1448	@ Clearing out slough	
1515	@ 165	
1620	@ 167.5	
1705	@ 175	
1801	@ 180	
1808	Rigging down	
1825	SR & Cascade offsite	



4/5/25 SR

0656 SR & Cascade onsite
Raining, dark clouds, breezy, 43°F H: 44°F L: 30°, snow perdicted ~noon.
Warming up Rig, prepping for the day
0817 Resume drilling
0825 Pause work do to wind causing unsafe conditions for conections.
0902 Update from Miguel, still waiting to see if wind calms down. But windy conditions are expected to last all day.
0905 Cascade tripping out the rods they were able to get, & calling a stop work
0930 No progress made for the day SR & Cascade offsite

SR

SR Drilling 4/6/25

0635 @ FEC complex for permit Renewal
0722 SR & Cascade onsite, Rig is warming up
Sunny, some clouds, 35°F H: 56°F L: 34°F, slightly hum
0747 Resume drilling
0806 Drilling is slow
0840 @ 185'
0850 Area smelling of refinery due to work on WDW-1, inside the fence.
0936 @190
1007 @195
1022 Correspondance w/ Chris & Elizabeth, +1ft layer of gravely, yellow brown clay has slight odor. (But it also just smells due to injection well work). Check PID Reading & it was 3.2, outside air was 4.4 Will ~~sen~~save and check it by EOD again
Drilling still slow

4/6/25	Drilling	SR
1032	Injection well work done, Workers offsite	
1122	@200	
1208	@207.5	
1215	Break for lunch	
1239	Resume drilling	
1350	@215	
1446	@Clearing slough	
1553	@225	
1728	@230	
1735	Rigging down	
1745	Cascade & SR offsite	

SR

Drilling

4/7/25

0653	SR & Cascade onsite
	Clear, sunny, 37°F H: 70°
	L: 41°F, breezy
	Rig is warming up
0741	Resume drilling
0856	@235
1009	@240
1056	We must be in something hard, drilling slower than normal
1117	@245
1234	Break for lunch
1249	Resume drilling, siltstone has slowed it down
1346	@252.5
1501	Breeze is picking up, drilling still going slow
1539	@260
1653	@267.5
1829	@270
1836	Cascade Rigging down
1849	SR & Cascade offsite

4/8/25	Drilling	SR
0655	SR & Cascade onsite - warming up the Rig	
	43°F Sunny, Clear, will get windy, H: 80°F L: 48°F	
0730	Resume drilling	
0800	As of now only the following clay layers have been slightly damp to @ most damp-	
	37-~~38~~ 37.5, 37.5-40, 40-41.5,	
	42.5-44.5, 51.25-55, 59-60,	
	72-75, 77-79, 102-104,	
	119-120, 128-130, 130-134,	
	139-~~144~~ 143, 151-155, 155-162,	
	169-171, 175-178, 178-181, 187-188,	
	190-194, 200-205, 211-212,	
	238.5-239, 264-267.5	
0831	@ 275	
0918	Rig down / maintenance - hose busted, needs repair	
0933	Resume drilling	
1000	More rig maintenance	
1053	Resume drilling	
1109	@ 282.5	
1115	More maintenance	

SR	Drilling	4/8/25
1140	Resume drilling	
1240	Break for lunch	
1310	Resume drilling	
1331	@ Cleaning slough	
1432	@ 290	
1500	Visit from Mike Holder +6	
1517	Mike Holder +6 offsite	
1530	Rig maintenance	
1540	Resume drilling	
1556	@ 295	
1731	@ 305	
1805	Rigging down for the day	
1812	SR & Cascade offsite	

4/9/25 Drilling SR

0704 SR & Cascade onsite, warming Rig, topping fluids
Clear Sunny, 55°F H: 88°F L: 50°F
Breezes expected
0731 Resume drilling
0805 Casey w/ ~~HSF~~ HFSNR onsite
0814 Casey offsite
0905 @ 310
0926 ~308 - 6in wet gravely clay, unconsolidated. Correspondence w/ Elizabeth, she suggested waiting @ least an hour for water
0927 Cascade tagging bottom @ 313 btoc, 308 bgs
0932 WL @ - unconclusive due to mud, reading 277 btoc
Going to try again in 15 min
1019 Had correspondance w/ Chris, he said to draft email of findings to Carl & suggested we run a bailer to see if there is any water.
Cascade currently doing Rig maitenance.

SR Drilling 4/9/25

Spoke to Miguel about bailing and he said we will have some water due to the water they have been using to keep from getting stuck.
1040 Email sent to Carl & all regarding finding & photos
1130 Running a bailer
Bailer dry, w/ mud on it
1152 Resume drilling, correspondence w/ Chris & Elizabeth about it.
1245 @ 315
1309 Rig maitenance
1328 Resume drilling
1436 @ 320
1542 @ 325
1742 @ 332.5
1745 Cascade rigging down for the day
1802 SR & Cascade offsite

4/10/25	Drilling	SR
0721	SR & Cascade onsite., SR renewed start work permit @ FCC complex. Rig warming up, supply delivery Clear, breezy, Sunny, 51°F Hi: 86°F L: 53°F	
0759	Resume drilling	
0930	@335 - dry anhydrite, Brett said they have water in the borehole	
1004	Correspondance w/ Elizabeth, we will bail then wait for water accumulation. Outlet casing is already 15 ft above area, they've already pulled ~30 gal this morning, they usually use ~5 gal / 10 ft.	
1008	Cascade working on maintenance, will start bailing after	
1043	Begin bailing - asked Brett, he said the bailer holds ~~67~~ gal 5	

SR

1047	YSI Calibration		
	12A100566		
	pH	Actual	Temp (°C)
	4.00	4.01	~~19.6~~ 19.6
	7.00	6.98	20.4
	10.00	10.01	19.6
	Spc		
	1413	1412	19.9
	ORP		
	223	227.9	21.0
1101	4/10/25 @ 1055		
	26.9 °C		
	673.0 mmHg		
	1.2 DO %		
	0.09 DO mg/L		
	5379 SPC µS/cm		
	5561 C µS/cm		
	7.64 PH		
	-608.1 ORP		
1145	100gal bailed, water is producing as fast as they can bail. Going to try to get a WL		
1200	312 bgs		
1211	310 bgs		

4/10/25 SR

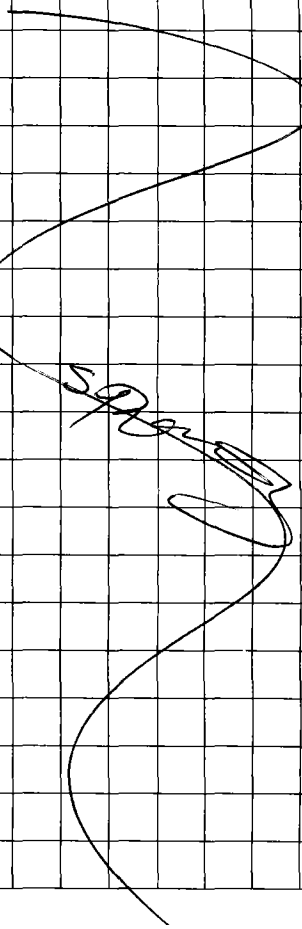
1240	WL meeter is being finicky, 306 bgs
	The plan is to continue getting levels up until 1300
	Raise outter core to 300, WL until OCD chimes in
1302	305 bgs
1307	Lifting to 300 now
1317	Lifting now
1328	Lifting complete
1333	287 bgs
1330	Meeting w Mike & Carl
1342	284 bgs
1348	282 bgs
1352	Casey onsite
1404	279 bgs
1418	Casey offsite
1420	Roll off bin (2nd for fluids) onsite
1442	278 bgs
1524	278 bgs
1609	278 bgs
1631	278 bgs
	Had correspondance w/ Chis & Elizabeth, notified OSE

SR 4/10/25

about the unexpected artesian well we found, waiting to hear back on if we can proceed drilling

1758 278 bgs

1712 SR & Cascade offsite

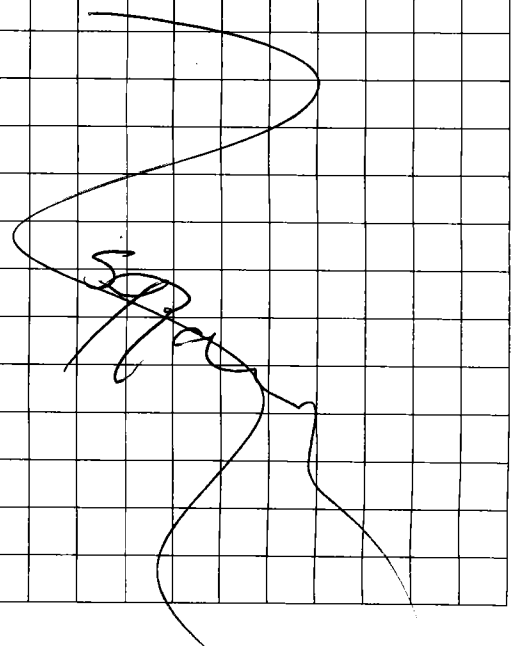


4/11/25 Drilling SR/IT

0815 SR & IT & Cascade onsite, Israel is here to observe, badge still pending.
WL - 278 bgs
2 cubitainers of samples collected
0850 Resume drilling
0857 Casey onsite
0914 Casey offsite
0917 Casey onsite - 14 days need to take a fatigue day
0930 @ 340 - wet
0942 YSI info
20.8 °C
673.9 mmHg
23.3 DO %
1.95 DO mg/L
6896 SPC uS/cm
6391 C uS/cm
6.63 PH
248.1 ORP
1038 Water continues to spill out of drill rods while tripping out
1042 @ ~~435~~ SR @ 346

SR/IT 4/11/25

1200 Drilling slowly, but steadily
1303 Break for lunch
1326 Resume Drilling
1347 @ 350
1444 @ 355
1538 Rig maintenance
1626 @ 358
Cascade beginning to pull casing to 300 for days off
1654 Cascade offsite
1700 SR & IT offsite



4/16/25 Drilling IT

0630 Met with crew outside hotel, met new crew member. He has not taken any classes and any drug testing. Drove to orientation center to ask for Badge. Badge employee not on site until 7 am.

0710 Crew member had met credentials and got his badge. Crew is on its way to site to warm up machinery and take a water level. I am staying behind to wait for Mat Giles so he can show me where ineed to go for work permit. Current work permit expires today at ~~6~~ 0800.

0800 Got new Permit expires Thursday a 1800.

825 Called Chris Walk and ask how long we need to bail out well. He stated an hour plus a YSI reading and water level every 15 minutes. Last reading will continue to take water levels to calculate Recovery.

839 Explained Plan to drillers setting up for Bailing.

0845 Calibrating YSI

	pH	Actual	Temp °C
	4.00	4.00	15.9
	7.00	7.04	16.3
	10.00	10.12	16.5
	SpC		
	~~4344~~		
	1413	1413	16.2
	ORP		
	227	226.8	15.8
	DO		
	674.3 mm Hg	9.25 mg/L	
	112.9 %	88.4 %	13.1

4/18/25 Drilling IT

0884	Mutual water level 277.50 BGS				
904	Start Bailing				
0916	WL ~278.50 BGS				
	pH	SPC	Temp°C	ORP	DO mg/L
	7.21	6804	22.0	16.3	2.26
945	7.59	6392	21.5	-22.5	14.75
1015	7.46	6432	22.0	-38.9	6.37
1056	7.33	6715	24.3	38.1	10.68
0945	@ 278.8 BGS				
1015	@ 278.6 BGS				
1033	279.00				
1035	278.00				
1036	278.50				
1038	278.05				
1039	278.00				
1042	277.95				
1045	277.80				
1049	277.50				
1058	80 gallons have been purged Next Step, driller will push casing up to 350'				
1112	Crew begins installing casing.				

IT Drilling 4/18/25

1131	Taking a total depth reading to find the amount of stuff in the whole. Depth is 350 There is 8' of stuff in whole. Mud need to clean out before drilling ahead.
1751	Crew topping out of the hole.
1546	Shane on site. Conversation about drilling timing. let him know what the driller had talked about
1806	Crew left off at 346' Sample was wet with ~~for~~ upper formation water IT/crew off site

VT

4/18/25

4/16/25 Drilling LT

0730 LT onsite. Weather is 51°F clear skies Crew is warming up equipment.
0742 Crew begins tripping into hole.
0839 Crew is now drilling.
0921 Crew tripped out to take Sample
0929 Tripping Back in
1009 Drilling ahead.
1022 tripping out.
1053 tripping Back in
1200 Broke For Lunch
1300 Back From lunch.
1556 Crew measuring TD
1621 last Sample Out 397.5 Fell out of Casing. Crew is tripping back in and Redoing Sample Run.
1817 We Reached 400' Bgs. Crew is prepping to leave site
1830 LT / Crew off site

4/16/25 LT

LT Drilling 4/17/25

0720 LT onsite, weather is Clear skies 57°F. Crew is performing some site clean up before they start drilling.
0800 Driller ADDS Casing to hole. Casing at 340'
830 Crew trips in and begins drill.
1012 Crew has not been able to pull up Cuttings. They keep getting washed out.
1200 Crew was able to get 405-410 Sample, was very moist due to mixing with 30' Formation Water.
1538 Drilling has Stopped due to high winds.
1615 LT & crew off site

LT

4/17/25

4/22/25 Drilling

0748 LT on site, Crew on site, Weather 54° F Breezy Clear Skies
0753 281.00
817 Crew Tripped in 3 Casings.
858 After some repairs Crew begins tripping into hole.
925 Crew begins drilling. Very hard material
1017 Driller is having difficulty drilling ahead. Crew has paused drilling. Bit got too Hot pausing to let Bit and drill pipe to cool
1127 Bit is Stuck. Crew will add water to wash out Bit. Called Matt and asked For more Clean water.
1146 Crew Has Stopped due to no water For drill pipe Removal. Waiting For MATT to Respond on Water truck

LT Drilling 4/22/

1319 Pressure Service on site with water delivery. 900 gallons
1327 Crew restarts Drill pipe removal, installing Casing 1st.
1428 Crew was able to dislodge Drill pipe and began to trip out.
1500 Reached 415 ft casings
1625 Crew reached 418' casings
1818 Crew stopped at 482.5 all pipes tripped out plus 3 Casings.

LT
4/22/25

4/23/25 Drilling IT

0730 IT on site. Crew setting up and warming equipment Weather is Breezy to windy 55° F.

0748 taking water level WL = 236.00 water level increased after added water from drill B.F Removal yesterday

0753 Crew begins to install 3 casings.

836 Crew Begins drilling

1401 crew is installing casing Drilling has been difficult Currently at 437.5.

1810 Drilling Stopped at 452.5

1830 IT / Crew off site

IT

4/23/25

IT Drilling 4/24/2

0730 IT onSite, crew on Site warming up Equipment. Weather is 61° F Breezy Fog.

0748 WL - 275.50 1 crew member has been sick for the past 2 days will be replaced this weekend.

0810 Crew begins tripping in casing. Progress is slow Due to hard formation

0836 Crew tripping in Drill Pipe.

1049 Currently drilling at 457.5 ft.

1609 Samantha Ramirez on Site Crew has been tripping as cuttings have washed out Crew had to trip back in and trip out to collect Sample.

1613 SPOke w/ Brett they will be on onsite, then pour casing tomorrow

1629 @ 465. Israel, Torres off Site

4/24/25	Drilling	SR
1825	Cascade calling it for the day.	
1830	SR & Cascade off site	

SR Drilling 4/25/25

0659	SR & Cascade onsite. Permit Renewed Warming up the rig Partly Cloudy, breezy. 64°F H: 89°F
0727	Starting up for the day w/ some rig maintenance
~~0742~~	~~Resume drilling~~ SR
0802	Resume Drilling
0930	@470, emptying hopper
0940	Resume drilling
1104	Rig maintenance, bits stuck
1128	Called Matt to order more water to get unstuck
1132	Begin pouring water down hole
1152	Begin attemps to dislodge
1212	Break for lunch, waiting on water
1232	Pressure Services water onsite.
1249	Pressure Services offsite Resuming attemps to

4/25/25 Drilling SR

dislodge
1317 Pressure services back onsite w/ second tank of water - each 900 gal
1327 Unstuck, tripping out now
1339 Pressure services offsite
1403 @480
1536 More supplies onsite
1403 @485
1736 @490
1757 SR & Cascade offsite

the tremie pipe

Running

SR Drilling 4/26/25

0715 SR, Cascade onsite.
Permit Renewed.
Warming up the rig.
Cloudy, slightly foggy, slightly humid, breezy, 65°F H.I of 88°F
0728 Begin trip in
0813 Resume drilling
0848 Begin trip out
Spoke to Miguel, he said they use ~35 gal of water per 5-6 bags of cement & quick gel to help solidify & stabilize the cement
0911 Spoke to Brett, he said they usually use ~3.5 gal of water per cement bag.
0926 @4975
0932 Begin trip in
1000 Resume drilling
1012 Begin trip out & breaking down drill rods
1058 @500

4/26/25 SR

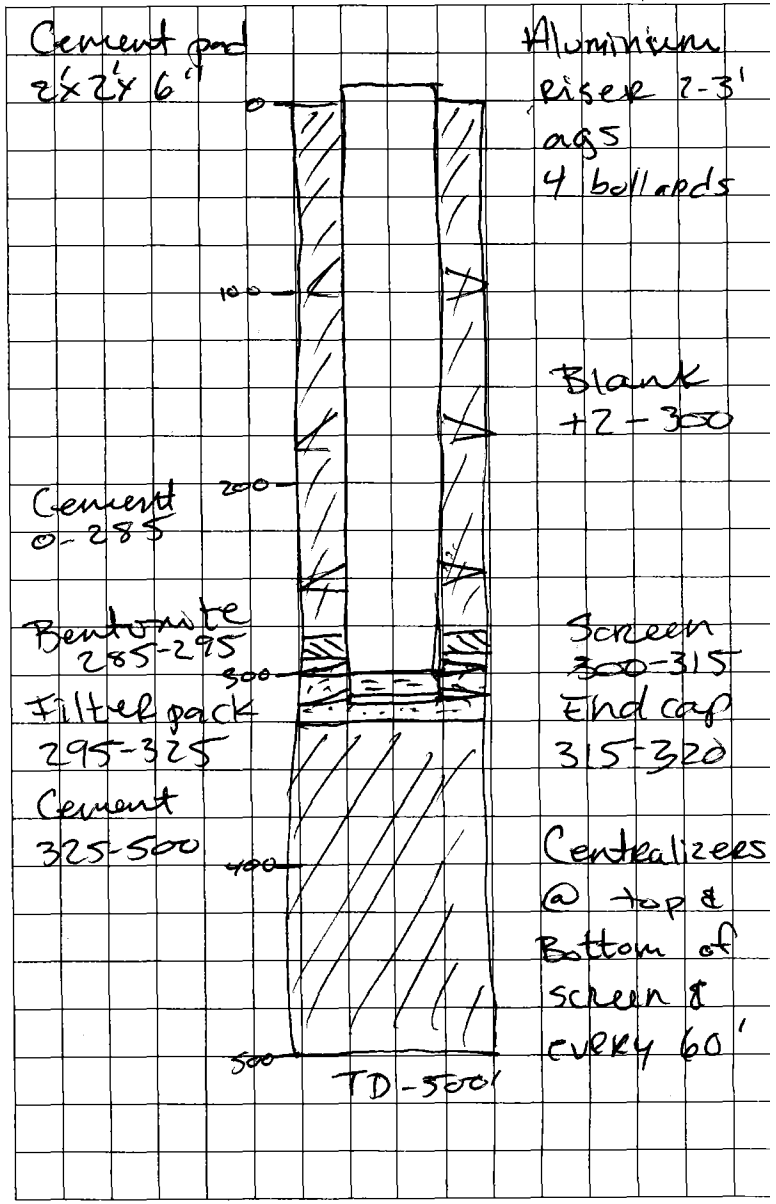
WDW-1-MW-1 Well Design

Well casing	Top Depth	Bottom	Total
Blank casing 4in sch 80 PVC	+2	300	302
Screen 0.020 slot, 4in sch80 PVC	300	315	15
Sump w/ end cap	315	320	5

Annular Material	Top	Bottom	Total
Cement/Bentonite surface seal	0	285	285
Bentonite	285	295	10
Filter Pack #12/20 & 8/16 Silica Sand	295	325	30
Cement/Bottom Seal	325	500	175

Cement
$ft^3 = 0.005454 \times 8^2 \times 175$
$ft^3 = 61.08$

SR Well Design 4/26/25

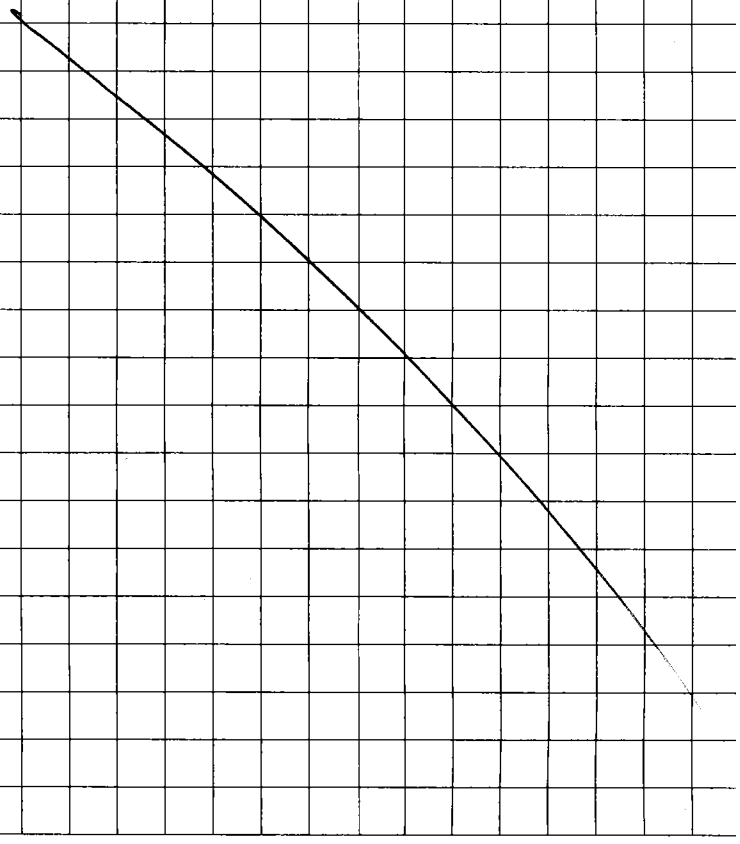


For Cement - Base
460 gal water, 92 bags
for 11.5 batches
Each batch is 26 gal water,
8 bags, 20 lbs gel

Silica Sand
$ft^3 = 0.0054541 (8^2 - 4^2) 30$
$ft^3 = 7.85 = 58.72$ gal
Silica weighs between
12.9 to 16.3 per gal, so
757.48 ~~gal~~ lbs to 947.15 lbs
each bag is 50 lbs
15 to 18 bags
~~~2 bags~~ ft per bag, closer
to 15 bags ~~needed~~

Bentonite
$ft^3 = 2.62$
$1 ft^3 = \sim 65 \rightarrow \sim 73$ lbs
170.3 lbs – 191.26 lbs
each bag 50 lbs
3.4 – 3.8 bags 3 or 4 bags

Cement
$ft^3 = 74.61$ $1 ft^3 = 94$ lbs
7,013.41 lbs (~~850~~ / 74.61) =
each bag is 50 lbs
~~140~~ 94 bags cement 94
minus amount of gel
needed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4/25/25 Cementing SR

1109	Begin mixing quick gel ~1/5 Bags → HH HH I
1115	Begin setting up tremmie pipe
1209	Lunch Break
1231	Resume cementing prep - Removing casing
1250	Start placing tremie down the hole
1323	Extra materials received onsite - Hole plug - Silica - 4 Bollards
1344	Begin mixing cement

Bags	water (buckets)
HH HH HH	HH HH HH HH
HH HH HH	HH HH HH HH
HH HH HH	HH HH HH HH
HH HH HH	HH HH HH HH II
HH HH HH	
HH II	

*Estimate, they started using the hose

SR Cementing 4/26/25

1352	Begin pumping batch 1 - mixing cement, pump, ea
1404	Lifting out tremie - 11 (2) 10' pipes
1409	Cement, pump
1427	Lifting tremie - 2 pipes
1426	Cement, pump
1441	Lifting tremie - 2 pipes
1445	Cement mix, pump
1501	Lifting tremie - 2 pipes
1509	Cement mixing, pumping
1540	Lifting tremie ~~- 2 SR pipes tripping out~~
1617	Trip out casing
1635	Cleaning tremie pipe, & equipment, putting away drilling pipe
1748	SR & Cascade offsite

4/27/25 Building the well SR

0710 SR & Cascade onsite. Warming the Rig. Foggy, cloudy, 65°F. H: 94°F, winds will be picking up in the afternoon. Permit renewed.

0727 Spoke to Miguel, told him we need a pipe tally.

0729 Start pipe tally

0802 Tagging bottom ~~-35'~~

0837 Setting up to start building the well

0923 Begin adding the ~~casing~~ sump & screen w/ centralizers top & bottom

0935 Begin adding blank casing w/ centralizers every 60'

1055 Rig maintenance

1134 Begin gravel packing sand
Bags -> ~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ ~~HH~~ III

1330 Break for lunch

1400 Begin Bentonite
Bags -> IIII

1443 Hydrating bentonite
-2 buckets of water 10 gal

1450 Trip out casing

1500 Sand tagged @ 295
Bentonite tagged @ 283

SR Pipe Tally 4/27/25

Sump	5'	✓
1	10 1/8'	✓
2	10 3/16'	✓
3	10 1/8'	✓
4	10 3/16'	✓
5	10 3/16'	✓
6	10 3/16'	✓
7	10 1/8'	✓
8	10 1/8'	✓
9	10 1/8'	✓
10	10 3/16'	✓
11	10 1/8'	✓
12	10 3/16'	✓
13	10'	✓
14	10'	✓
15	10'	✓
16	9 15/16'	✓
17	10 1/8'	✓
18	10 1/8'	✓
19	10 1/8'	✓
20	10 1/8'	✓
21	10 1/8'	✓
22	10 1/8'	✓
23	10'	✓
24	10'	✓

3/16 = Ø.1875
1/8 = Ø.125
10th
3/16 = Ø.19
1/8 = Ø.13
15/16 = Ø.94
1/16 = Ø.06

Redo on back

1/8 -> 18 = 2.34
3/16 -> 7 = 1.33
15/16 -> 1 = 0.94
1/16 -> 1 = 0.06
4.67

31 x 10 = 310
+ 9
+ 5
324
+ 4.67
328.67
cut off 8.67
- 2'
6.67

4/27/25 Pipe Tally SR

25	10 1/8'	✓ (2)	1/8 × 18 = 2.34
26	10' 8'	✓	1/16 × 1 = 1 33
27	10' 8'	✓	3/16 × 1 = 0.94
28	10' 8'	✓	15/16 × 7 = 6.06
29	10' 8'	✓	4.67
30	10' 8	✓	
31	10'	✓ screen	
32	~~10' 4'~~	~~screen remove~~	
33	5'	✓ screen	
	~~5~~ SR	> sump	

10 × 30 = 300 + 5 + 5 + 9 = 319

319 + 4.67 = 323.67

stick up 2'

323.67

~~2~~

~~321.67~~

Total ~~332~~ SR ~~322~~ 321'

323.67

-322

1.67 to cut off

centralizers @ ~~315~~ 320

300

240

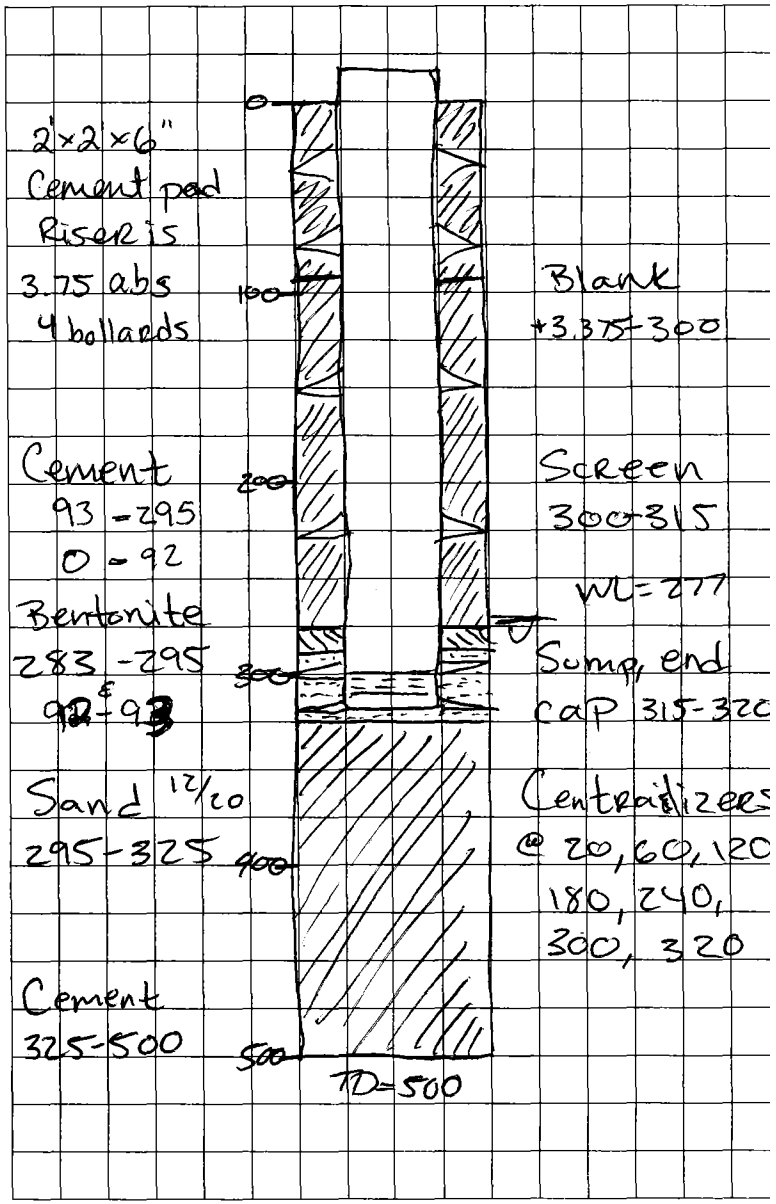
180

120

60

20

As Built



4/27/25 Building the Well SR

1507	Mixing cement Bags → ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ||||	1/5 bag quick gel ~~||||~~ ||
4/28/25	~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ ||||	~~||||~~ |
1520	Mixing cement & pumping it down. They are using a hose so I can't tell how many gallons of water. Brett Requested to have more water delivered tomorrow morning.	
1540 ~~1340~~ SR	Spoke w/ Matt, he will get us more water ~~tomorrow~~	
~~1616~~ SR 1622	Cleaning up for the day.	
1631	Tripping out casing	
1725	Added 1 bag bentonite to be able to tag	
1740	2nd bag of bentonite added	
1750	Clearing area	
1805	SR & Cascade offsite	

SR Building the Well. 4/28/25

0718	SR & Cascade onsite, permit Renewed, Rig is warming. Clear to partly cloudy, 61°F, H: 88°F, will get windy. Cascade is also mob prepping
0757	Tagging bottom @ 92' bgs
0845	Finished cleaning up cuttings, waiting on water to continue cementing.
0941	Pressure Services onsite. ~900 gal water delivered
1001	Begin setting up for cementing.
1012	Begin cementing
1025	Pulling casing
1053	Cementing
1145	Cement setting, Cascade cleaning up.
1210	310' bgs for pump target Static 278-280' bgs low flow sampling
1230	Adding more cement
1250	Cleaning up
1330	Break for lunch
1353	Start setting up to finilize

4/28/25 Well Completion SR

the well

1415 Prepping the pad

1516 Setting the riser

1522 Cementing the pad

1549 Cleaning up area

1630 Brett offsite to get more cement for bollards

1654 Brett onsite w/ cement

1710 Begin cementing bollards

1748 Phone GPS units
Lat 32° 47' 06" N
Long 104° 12' 50" W

1845 SR & Cascade offsite

SR Development 4/29/25

0713	SR & New Cascade crew onsite, Clear sunny 54°F H:85. Permit Renewed.
0723	New crew is Jerry. Jerry is setting up
0727	Spoke to Matt, he will be sending out a Roll-off bin for development
0737	WL-277.69 3.75'-Riser top of Riser 3.35-casing
0742	YSI calibration

pH	Actual	Temp °C
4.00	4.01	18.2
7.00	7.04	17.9
10.00	10.07	18.0
SpC		
1413	1414	17.9
ORP		~~17~~ SR
223	220.9	17.3
DO		
~~100 %~~ SR 99%		9.0 mg/L
664.4 mmHg		

0800 Start Bailing
3inch bailer
Plan is to bail, surge, bail, then Pump

SR Development 4/29/25

0833	WL - 273.94 bgs
	30.07 - 1 CV (gal)
	90.21 - 3 cv (gal)
0835	Miguel onsite to finish mob preparation
0901	9 bails per 1 CV (~30 gal) each bail is ~3.33 gal
0906	Update from Jerry, he said he's going to surge now, the grit isn't bad. After surging, he will bail again, if the grit still isn't bad, he'll start pumping.
0914	WL - being weird b/c of mud, calling it @ 305.09 toc, 301.36 bgs
0936	Begin surging Surge for 15 min
1001	Done surging
1004	WL - 300.18 toc, 296.43 bg
1010	Resume bailing
1047	2VC purged (~60 gal), setting up to pump
1102	WL - 310.11 toc, 306.36 bgs

Temp °C	DO mg/L	SpC µS/cm	pH	ORP	Turb	Time
22.2	3.6	6905	11.75	-30.9	58.5	0820
21.8	3.7	5824	11.64	+ 61.2	>1100	0847 _surge
22.9	3.6	7481	11.67	-128.4	74.5	1014
26.6	4.6	7110	11.64	-162.7	393	1027
22.7	4.7	7290	11.72	-104.5	9.72	1038
22.4	4.0	7426	11.69	-125.0	155	1045 _pump
26.9	3.1	6147	10.96	-185.5	748	1538
25.2	2.7	6266	10.27	193.8	377	1718

4/29/25	Development	SR
1105	Tripping in pipe	
1226	Pump is set @ 319.5 bgs	
	Break to pick up turbiditimeter & lunch.	
1356	Back onsite	
1414	Totalizer start @ 4206	
1419	Struggling getting the wl meter downhole	
1453	Had to lift pump & set up to get wl meter down. & it doesn't work. Trying w/ Jerrys meter now	
1457	281.09 toc wl 277.72 bgs	
1500	Begin pumping at 4gpm	
1507	Pump difficulties	
	Troubleshooting	
	Turbidity meter calibration	
1528	Not attemp @ pumping	
1531	Got it to work	
1533	wl -> 287.90 toc, 284.15 bgs	
	RPMs on controller need to be higher, so do gpms	
1535	Start pump	
1539	wl -> 318 toc, dry	

SR	Development	4/29/2
~~1612~~	400-500 NTU or lower- aim	
1607	wl @ 297 toc	
1620	Spoke to Elizabeth, running the higher gpm caused the well to go dry. The new plan is to do a bucket test to confirm the gpms on the totalizer Surge w/ the pump by running it for 5 min, shutting it off, repeat. Tomorrow, after full recovery they flow test again, using tips provided by Jerrys boss	
1634	292.74 toc	
1657	289.23 toc	
1705	288.21 toc	
1714	Bucket test	
1717	5 gal / 50 sec	
	Well went dry again.	
1738	SR & Jerry off site	

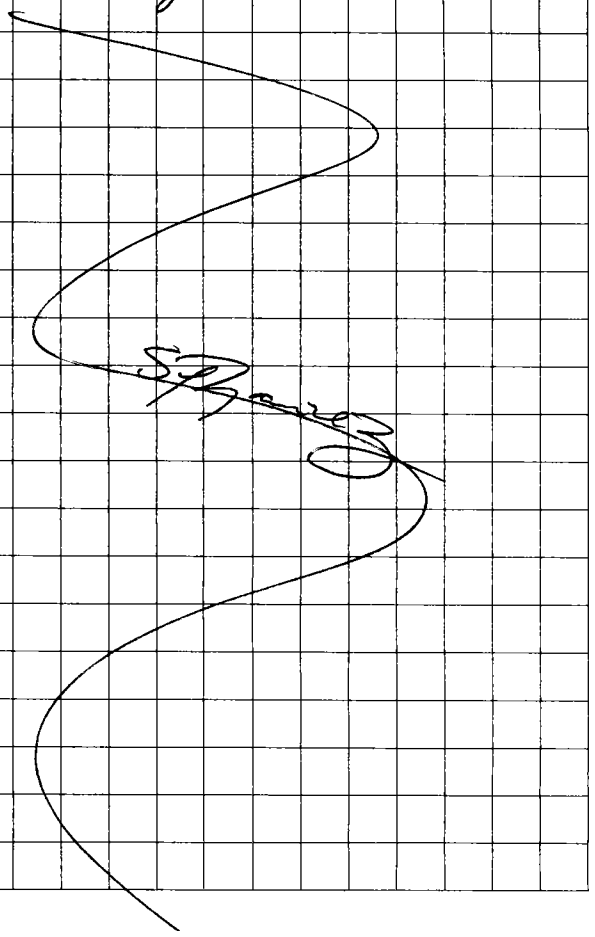
4/30/25	Development		SR
0727	SR & Jerry onsite, permit renewed, Clear, sunny 53°F Hi 80°F, breezy.		
0729	Begin setting up for the day		
0732	WL - 279.50 toc, 275.75 bgs		
0735	YSI Calibration		
	pH	Actual	Temp
	4.00	3.98	14.4
	7.00	7.05	14.4
	10.00	10.02	14.5
	SpC		
	1413	1402	13.1
	ORP		
	223	225.2	13.6
	DO		
	97%	9.4 mg/L	14.9
	664.4 mmHg		
0750	Start pump		
0755	1.25 gal / 1 min		
0756	2 gal / 1 min - keeping it here		
0806	DRY -> 305.61 toc		
0822	302.81 toc		
0831	300.52 toc		
0840	298.45 toc		

Time	Temp	DO	SPC	PH	ORP	Turb	
0752	19.5	5.4	5415	10.34	57.2	151	
0758	22.0	3.3	5854	10.29	17.4	30.6	
0803	23.3	3.8	5785	10.88	-118.2	126	Rec
1203	26.6	4.0	5715	10.73	-72.4	118	
1205	24.5	3.4	6271	9.76	-106.5	526	Rec
1247	26.8	4.7	6277	9.62	65.8	87.7	
1249	26.1	3.8	6029	9.84	129.0	101.0	
1251	25.1	3.6	6049	9.38	129.2	550	Re
1327	26.2	3.6	6001	9.71	-100.2	401	
1328	24.9	3.1	6062	9.90	-110.4	288	
1332	24.9	3.1	5883	10.01	-130.2	149	Re
1434	27.4	3.1	6055	9.80	-40.3	999	
1436	26.5	2.6	6151	9.88	-50.4	920	
1438	25.8	2.7	6207	9.95	-100.6	179	
1440	25.4	3.2	6088	10.09	-117.9	99	
1444	26.0	2.6	6069	16.14	-122.7	75.2	

4/30/25	Development		SR
0906	293.45 toc		
0934	289.24 toc		
0945	287.81 toc		
1044	283.16 toc		
1103	282.24 toc		
1130	281.35 toc		
1154	280.71 toc		
1202	Start pump 2-1 gpm		
1207	Pump off	287.24 toc	
1229	284.28 toc		
1245	283.25 toc		
1246	Pump on 1gpm		
1251	Pump off	287.10 toc	
1314	284.80 toc		
1323	284.12 toc		
1324	Pump on 1gpm		
1332	Pump off	302.40 toc	
1403	288.53 toc		
1423 SR 1432	285.6 toc		
1432	Pump on 1gpm		
1444	Raised to 6gpm		
1445	Dry - total gal pumped is 75.00 gal		
1448	319.7 SR 72		

SR 4/30/25

1500	Begin clearing well
1556	Clearing up area
1615	SR & Cascade offsite. I will be dropping off the final permit @ the refinery.



10/3/23 ARTESEA DM

0900 DEPART AUSTIN OFFICE, PICK UP RENTAL TRUCK

1000 DEPART AUSTIN OFFICE

1830 DM ARRIVED AT HOTEL

10/4/23

0600 DEPART HOTEL, STOP FOR WATER ON WAY TO THE SITE

0630 ARRIVE AT REFINERY PARKING LOT, CALL JOSE (MESENCIALES), WHO CONFIRMED ME I DO NOT NEED TO ATTEND MEETING. STANDBY

0745 MEET UP WITH CASCADE (GREG) AND HEAD TO THE FIRST LOCATION

0825 ARRIVE AT WDW-MW-1, CASCADE BEGINS TO PREP FOR DRILLING, HEALTH AND SAFETY MEETING

1100 CASCADE CONTINUES TO SET UP. JUAN ONSITE, DISCUSS PROGRESS. HAND AUGERED TO 5' BGS IN WDW-MW-1 PRIOR TO RIG PLACEMENT

1145 BEGIN DRILLING WDW-MW-1 W/ SONIC, 6" CORE BARREL W/ 8" BOREHOLE DIAMETER

1245 AFTER REACHING 25' BGS, CASCADE SHUT DOWN DRILLING TO PERFORM REPAIRS ON A BROKEN ROD BREAKER JAW. CASCADE CONTACTED JOSE WHO INFORMED THEM A HOT WORK PERMIT IS REQUIRED AS WELDING IS INVOLVED. CASCADE BEGAN ACQUIRING PERMIT

10/4/23 ARTESEA DM

1430 CASCADE COMPLETED REQUIRED PERMITS, BEGAN REPAIRS

1515 COMPLETE REPAIRS, BEGAN SETTING BACK UP FOR DRILLING

1830, STOPPED DRILLING FOR TODAY AT 475' BGS

1845 DM OFFSITE, WENT TO WALMART TO PICK UP PDE REQUESTED BY JUAN

1915 ARRIVE AT HOTEL

10/5/23

0600 DEPART HOTEL, STOP FOR GAS ON WAY TO SITE

0645 ARRIVE AT WDW-MW-1

0715 CASCADE ONSITE, CONTINUE DRILLING

1230 ELIZABETH + JOSE ONSITE

1830 END OF DRILLING FOR TODAY, REACHED 115' BGS

NO SIGNS OF WATER OTHER THAN 1" SEAM OF SATURATED SILT @ 80' BGS, DM OFFSITE

1980 ARRIVE AT HOTEL

10/6

0620 DEPART HOTEL

0700 ARRIVE AT WDW-MW-1

0715 CASCADE ONSITE, CONTINUE DRILLING

1240 REACH TD 150', NO ODORS OR STAINING IN CUTTINGS

1255 DTW = DRY @ 150'

OTHER CASING (4") OPEN HOLE 147-150

10/6/23 ARTESIA DM

1310 DTW IN WDW-3-MW-1 = DRY

1325 DTW = DRY

1500 ELIZABETH ENFORMED DM THAT BOREHOLE SHOULD BE ADVANCED TO 155' BGS AFTER DESCUSSING WITH REGULATORS, CASCADE CONTINUES DRILLING

1535 REACHED TD OF 155

1545 ELIZABETH INFORMED DM THAT TD IS NOW 160' BGS CASCADE CONTINUES DRILLING

1650 REACH TD OF 160, ELIZABETH INFORMED DM THAT NEW PLAN IS TO PULL OUTER CASING UP TO 75' BGS AND LEAVE HOLE OPEN FROM 75-160' BGS

1730 CASCADE PULLED OUTER CASING UP TO 75' BGS, 4' OF SLUFF FELL INTO HOLE, TD NOW 156' BGS ELIZABETH OFFSITE

1745 DTW = DRY, ALL PERSONNEL OFFSITE

10/7/23

0630 DEPART HOTEL

0700 ARRIVE AT THE SITE

0750 USED BAILER TO CONFIRM HOLE IS DRY AT 156' UNABLE TO USE PROBE. DRY

0810 ELIZABETH ENFORMED DM WE HAVE APPROVAL TO ABANDON WDW-3-MW-1 WITH BENTONITE BACKFILL, CASCADE PREPARES TO ABANDON

10/7/23 ARTESIA DM

0830 BLM ~~[illegible]~~ SHOWED UP AT THE SITE AND ASKED US TO HALT OPERATION.

0910 AFTER COMMUNICATION WITH BLM, ELIZABETH ENFORMED DM THAT WE ARE GOOD TO CONTINUE ABANDONMENT EFFORTS ON WDW-3-MW-1, BLM OFFSITE, CASCADE CONTINUES ABANDONMENT

0950 FILLED BOREHOLE WITH BENTONITE UP TO 3' BGS, 58 BAGS. 0-3' BGS FILLED WITH GROUT.

1000 CASCADE DECONNED RIG AND DRILL RODS AND MOVED TO WDW-2-MW-1

1345 DM HAD 2 FLAT TIRES AND DRIVE INTO TOWN FOR REPAIRS WHILE CASCADE SET UP FOR DRILLING

1600 DM BACK ONSITE, CASCADE REACHED 27.5' BGS

1830 COMPLETE DRILLING FOR TODAY, END AT 45' BGS ALL PERSONNEL OFFSITE

10/8/23

0630 DEPART HOTEL

0700 ARRIVE AT WDW-2-MW-1, CONTINUE DRILLING, TAG BOTTOM OF BOREHOLE AND WAS DRY

1845 CONTINUED DRILLING ALL DAY, NO ISSUES. REACHED BGS AND CALLED IT A DAY. ALL PERSONNEL OFFSITE

10/9/23 ARTESIA DM

0630 DEPART HOTEL

0700 DM ONSETTE

0715 CASCADE ONSETTE. PREPARE TO CONTINUE DRILLING WDW-2-MW-1

~~1000~~ 0930 JOSE ONSETTE, DESCUSS PROGRESS AND STATUS

1030 JOSE OFFSETTE.

1655 REACHED TD OF 150', CALLED ELIZABETH AND ENFORMED HER THAT NO SATURATED ZONES ENCOUNTERED.

1725 ELIZABETH ENFORMED ME TO CONTINUE TO 160' AFTER DESCUSSION WITH OCD. CONTINUE DRILLING

1835 STOP DRILLING FOR THE DAY, ALL PERSONNEL OFFSETTE

10/10

0630 DEPART HOTEL, STOP FOR GAS ON WAY TO SITE

0715 DM + CASCADE ONSETTE

0735 TAGGED BOTTOM OF HOLE AT 150', DRY CASCADE CONTINUES DRILLING TO 160 BGS

~~0735~~ 0950 REACH TD OF 160'

1025 ELIZABETH GAVE THE GO AHEAD TO ABANDON WDW-2-MW-1 W/ BENT-GROUT MIXTURE

1300 COMPLETED BACKFILL OF WDW-2-MW-1, TOTAL OF 12 BAGS OF 20% BENTONITE / GROUT MIX AND 7 BAGS OF PORTLAND CEMENT (FOR UPPER 5') USED

10/10/23 ARTESIA DM

1500 BEGIN MOBILIZING TO #1 WDW-4-MW-1

1845 RIG SET UP ON LOCATION, COMPLETE WORK FOR TODAY, ALL PERSONNEL OFFSETTE

10/11/23

0630 DEPART HOTEL

0700 ARRIVE AT THE SITE

0710 CASCADE ONSITE, PREPARE FOR DRILLING

0800 BEGIN DRILLING

1845 COMPLETED DRILLING FOR THE DAY, ENDED AT 60' BGS, NO SIGN OF SATURATION, ALL PERSONNEL OFFSETTE

10/12

0630 DEPART HOTEL

0700 DM + CASCADE ONSITE, BEGIN DRILLING

0830 RIG IS DOWN FOR REPAIRS, ADAPTER FLANGE IS CRACKED AND NEEDS TO BE REPLACED BEFORE DRILLING CONTINUES, STANDBY WHILE CASCADE FINDS REPLACEMENT

1100 ELIZABETH ENFORMED DM THAT WORK ON WDW-4-MW-1 WILL NOT CONTINUE UNTIL 10/15, DM PREPARES TO MOBILIZE BACK TO AUSTIN

1145 DM OFFSETTE

10-18-23 ARTESIA MD

0900 DEPART HOTEL (CASCADE DIDN'T GET INTO ARTESIA UNTIL LATE YESTERDAY EVENING)

0930 ON SITE. CASCADE CREW MAKING REPAIRS (REPLACED FLANGE ADAPTER)

1100 REPAIR DONE. START DRILLING AGAIN ON WDW-4 MW-1 @ 65'. SONIC DRILLING, 6" CORE BARREL AND 8" BOREHOLE DIAMETER, RUN CORE BBL AND PIPE BACK TO BOTTOM

1145 DRILLING NEW HOLE.

1330 @ 70' GREG HAD TO ADD ± 5 GALS WATER. HE COULDN'T GET CORE BARREL TO ADVANCE. GOT OK ON WATER FROM CHRIS WOLFE

1830 FINISH FOR TODAY. T.D = 85' OFF SITE

10-19-23 MD

0630 DEPART MOTEL

0700 ON SITE. RESUME DRILLING WDW 4 MW-1 @ 85.

- SMALL AMOUNT of WATER ADDED TO HOLE WHEN CORE BARREL WAS HANGING UP. ± 10 GALS TOTAL.

1830 off SITE. T.D = 132'

10-20-23 ARTESIA MD

0630 DEPART MOTEL

0700 ON SITE. RESUME DRILLING @ 132.5'.

1000 CHANGE FROM MOSTLY BLK ALGACTEK TO BROWNISH GRAY MICKLN ROCK W/ WEAK ACID REACT. I THOUGHT I SMELLED HYDROCARBON ODOR. COLLECTED BAGGIES AND DID PID ON THEM. NOTHING DETECTED.

- FINISH DRILLING TO 150'. CASCADE DOESN'T HAVE ANOTHER ROD THAT IS NOT DAMAGED. GREG (DRILLER) SAYS IT WOULD TAKE A DAY TO GET ONE ON SITE. GOT OK FROM E. BASTIEN / C. WOLFE TO STOP @ 150'

- LAY DOWN CASING, RODS, CORE BARREL AND RIG UP TO PLUG HOLE W/ GROUT. USE 1" PVC AND HOSE FOR TREMIE PIPE.

1320 START PUMPING BENTONITE / ~~PORTLAND CEMENT~~ GROUT GROUT

1420 FINISH GROUTING & RIG DOWN. ALL CUTTINGS PLACED IN ROLL-OFF.

- 12 BAGS BENTONITE GROUT W/ 24 GAL PER BAG
- 1 BAG CEMENT.
- GROUT UP TO 1' B.G.S. CEMENTON LAST 1'

1530 FOLLOW SUPPORT TRUCK & FRONT END LOADER TO WDW-MW-1 TO PERON.

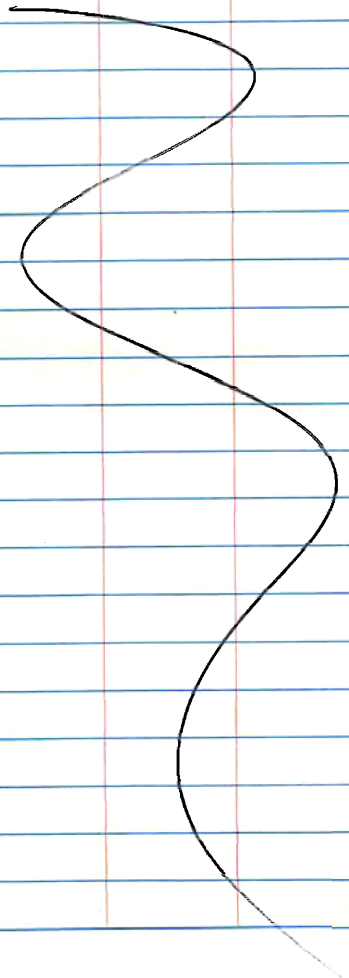
1615 ON SITE. DRILLER & CREW WENT TO

10-20-23 ANTEA MM

GOT PRESSURE WASHER. I WAS GOING TO BE AT LEAST 2 HOURS UNTIL THEY GOT BACK. I LEFT SITE AND RETURNED TO LUBBOCK. DRILLER SENT ME A PICTURE OF THEM DECONING PIPE ON SUPPORT TRUCK

6/9/25 SR/BC

1451 SR & BC onsite for measurements
TD- 322.13 btoc
WL- 278.85 btoc
~~1600~~ 1500 offsite



SR/BC/JT 6/10/25

0737	SR @ permitting office for start work permit
0759	DBSA onsite @ MW-1-MW-1 for pump installation
0803	Tailgate meeting Breezy, partly cloudy, Rain expected later
0818	Setting up pump system WL -> 278.88 toc
0835	Began lowering pump
0900	Pump installed
0901	YSI Calibration 21B00053

pH	Actual	Temp °C
4.00	4.00	23.9
7.01	7.04	24.2
10.01	10.02	24.2
SPC 1413	1416	24.4
ORP 223.4	223.5	24.7
DO 87.7 %	9.0 mg/L	12.7
666.4 mmHg		

0935	Setting up controller
0946	WL - 278.39
0949	Start pump
1009	WL- 279.47
1029	Switching controllers to test

Time	Vol litter	Temp °C	DO mg/L	SPC µS/cm	PH	ORP	Turb
1009	initial	21.9	2.9	5866	10.66	113.2	17.0
1015	.5 litter	21.6	0.9	5881	10.99	7.2	13.1
1021	~~1.0~~ 2.0	21.8	0.5	5854	11.02	-26.4	9.06
1028	3.0	21.7	0.5	5904	10.97	-51.8	11.4
1033	4.0	22.2	1.5	5906	10.99	-66.5	8.96
1040	4.5	22.0	0.5	5881	11.00	-78.4	7.71
1045	6	21.7	0.6	5889	11.00	-80.9	
1050	6.75	21.7	1.2	5900	11.04	-89.5	12.6
1057	8.0	21.7	0.5	5890	10.99	-95.5	8.86
1102	9.0	21.8	0.6	5887	10.97	-97.4	13.9
1108	10.0	21.8	0.4	5885	10.99	-100.2	11.9
1114	11.0	21.7	0.2	5882	10.99	-105.2	17.7
1121	12.0	21.8	1.1	5895	10.96	-110.8	15.8
1126	13.0	21.8	0.4	5899	10.99	-112.5	9.83
1129	13.5	21.8	2.9	5894	10.97	-118.9	7.12

SE/BC/IT

DBSA controller. The rental needed constant psi adjustments

1054 Controll settings on manuel

60.0 refil 30 discarge

max psi 170

1113 wl- 285.01 toc

1132 Total purge 16 L

sample @ ~~1332~~

WDW-1-MW-1 20250610

1257 All samples on ice

DBSA offsite

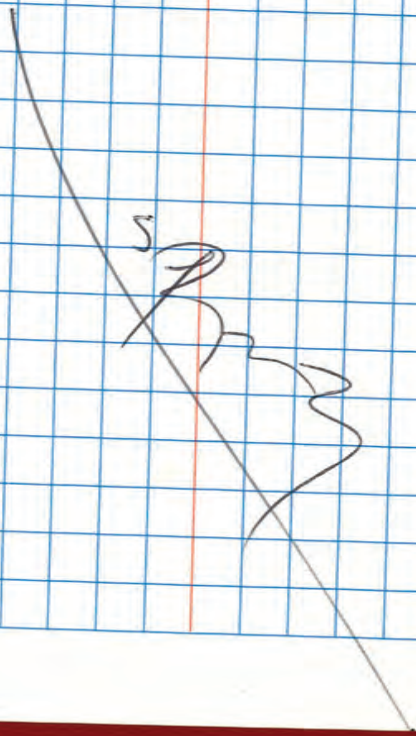
8/28/25 Q3 Sampling SR/IT

0830 SR & IT onsite
Sunny, sparse clouds 74°F
H: 97°F
Tailgate H5
Began set up
0900 Minor delay, headed to Roswell to Resolve
1130 Resume set up
1040 WL- 278.30 TOC
YSI Calibratio

PH	Actual	Temp °C
4.0	4.0	28.0
7.00	7.0	27.8
10.00	10.00	27.7
SPC	"	"
1413	1413	28.7
ORP	"	"
220.0	219.9	28.9
DO	"	"
667.7 mm Hg		26.7
	6.97 mg/L	
	87.2%	

SR/IT 8/28/25

1200 Turned on pump
MW Refill 60
Discharge 30
1248 283.19 wl toc
1445 291.75 wl toc
Volume purged, just under 5 gal
Samples collected
WOW-1-MW-1-20250828@1400
Dup-20250828@1300
1522 Permit closed



Time	Vol (gal)	Temp (°C)	DO (mg/L)	SpC (µS/cm)	pH	ORP	Turb
1204	initial	23.8	6.68	5252	10.07	188.8	29.0
1209	½	23.2	5.50	5194	10.39	172.3	
1213	1 gal	23.5	2.415	5 239	10.50	150.5	11.7
1218	1 ¼ gal	23.6	1.06	5123	10.08	132.4	
1223	1 ½ gal	23.4	0.83	5142	10.07	128.1	1.84
1229	2 gal	23.6	2.45	5095	10.19	132.0	0.02
1232	2 ¼ gal	23.3	1.08	5104	10.12	128.1	
1234	2 ½ gal	23.3	0.90	5116	10.12	127.7	0.02
1238	2 ¾ gal	23.2	0.82	5100	10.12	126.9	
1242	3 ¼ gal	23.2	0.77	5090	10.10	125.4	0.02
1245	3 ½ gal	23.3	0.77	5084	10.11	124.9	
1250	3 ¾ gal	23.4	0.75	5090	10.09	124.9	0.02

Appendix H

OSE Well Records

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1	WDW-1-MW-1	PA-13536 POD 1

WELL OWNER NAME(S)	PHONE (OPTIONAL)
HF Sinclair Navajo Refining LLC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
501 East Main Street	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	47	6.27	N
	LONGITUDE	-104	12	50.44	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SW 1/4, SW 1/4, SE 1/4 Sec 31 T 17S R 28E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1664	Shawn Cain	Cascade Drilling LP

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
4/1/25	4/28/25	320	500	310

COMPLETED WELL IS: [x] ARTESIAN *add Centralizer info below [ ] DRY HOLE [ ] SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 277.7

DATE STATIC MEASURED: 4/30/25

DRILLING FLUID: [ ] AIR [ ] MUD ADDITIVES – SPECIFY:

DRILLING METHOD: [ ] ROTARY [ ] HAMMER [ ] CABLE TOOL [x] OTHER – SPECIFY: Roto Sonic

CHECK HERE IF PITLESS ADAPTER IS INSTALLED [ ]

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	300	8.5	4" Sch 80 Blank	Flush	3.826	.337	
300	315	8.5	4" Sch 80 Factory slot screen	Flush	3.826	.337	.020
315	320	8.5	4" Sch 80 Blank	Flush	3.826	.337	

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	2	8.5	Concrete with vault	1.5	Pour
2	285	8.5	Cemnet grout with 5% bentonite per weight	81	Tremie Pumped
285	295	8.5	3/8" Bentonite chips	2.64	Puor
295	320	8.5	12/20 sand	8.5	Pour
320	322	8.5	3/8" Bentonite chips	.7	Pour
322	500	8.5	Cement grout with 5% bentonite per weight	51	Tremie Pumped

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	120	120	Silty sands	Y N	
120	308	188	Gypsum with interbedded clay	Y N	
308	311	3	Moist sand	✔ Y N	1.00
311	500	189	Gypsum with interbedded clay	Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☑ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): .5

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Well pumped dry multiple times during development

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Brett Gresham

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Shawn Cain — 5/27/2025

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

OBS HF Sinclair 113-23-1126 WDW-2-MW-1

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: WDW-2-MW-1 WDW-2-BH-1

Well owner: HF Sinclair Navajo Refining LLC Phone No.: 575-746-5487

Mailing address: 501 East Main Street

City: Artesia State: New Mexico Zip code: 88210

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Cascade Drilling L.P

2) New Mexico Well Driller License No.: 1664 Expiration Date: _____

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): _____

4) Date well plugging began: 10/10/2023 Date well plugging concluded: 10/10/2023

5) GPS Well Location: Latitude: 32° deg, 45 min, 48.9843 sec
Longitude: 104° deg, 14 min, 18.9962 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 160' ft below ground level (bgl), by the following manner: Tremie from bottom up with Neat Cement

7) Static water level measured at initiation of plugging: 0 ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 6/5/2023

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Drill to 160' and the hole was dry. Plugged the bore back from 160' to 0 using Neat Cement and Tremied from the bottom up.

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	Neat Cement	356 gallons	341 gallons	Tremie	Dry bore hole grouted from bottom up with Neat cement using Tremie pipe

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Shawn Cain, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Signature of Well Driller

10-31-23
Date

DBS HF Sinclair 113-23-1126 WDW-2 MW-1

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (WDW-2MW-1		RA-13331

WELL OWNER NAME(S)	PHONE (OPTIONAL)
HF Sinclair Navajo Refining LLC	575-746-5487

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
501 East Main Street	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	45	48.9843	N
	LONGITUDE	104°	14	18.9962	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SW1/4,SW1/4, NW1/4, Sec 12, T18S, R27E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1664	Shawn Cain	Cascade Drilling L.P

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
10/8/2023	10/10/2023	No Well	160'	No Water

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED:

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Sonic

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	160	7.232	N/A				

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	160	7.232	Neat Cement Grout	47.5903	Tremie

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	5	5	Red top soil	Y ✔ N	
5	15	10	White Gyp	Y ✔ N	
15	35	20	Red Clay with white Gyp	Y ✔ N	
35	60	25	Red sandy clay	Y ✔ N	
60	75	15	White gyp	Y ✔ N	
75	105	30	Red sandy Clay	Y ✔ N	
105	160	55	White red and gray gyp	Y ✔ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☑ OTHER – SPECIFY: Dry

TOTAL ESTIMATED WELL YIELD (gpm): N/A

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Hole didn't make water and abandoned from160' to 0'

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Brett Gresham

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Shawn C. Shawn Cain — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

10-31-23 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 2 OF 2

OBS HF Sinclair 113-23-1126 WDW-3-MW-1

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: WDW-3-MW-1 WDW-3-BH-1

Well owner: HF Sinclair Navajo Refining LLC Phone No.: 575-746-5487

Mailing address: 501 East Main Street

City: Artesia State: New Mexico Zip code: 88210

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Cascade Drilling L.P

2) New Mexico Well Driller License No.: 1664 Expiration Date: _____

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): _____

4) Date well plugging began: 10/7/2023 Date well plugging concluded: 10/7/2023

5) GPS Well Location: Latitude: 32° deg, 46 min, 16.1147 sec
Longitude: 104° deg, 14 min, 00.4332 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 160' ft below ground level (bgl), by the following manner: Tremie from bottom up with Neat Cement

7) Static water level measured at initiation of plugging: 0 ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 6/5/2023

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Drill to 160' and the hole was dry. Plugged the bore back from 160' to 0 using Neat Cement and Tremied from the bottom up.

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	Neat Cement	356 gallons	341 gallons	Tremie	Dry bore hole grouted from bottom up with Neat cement using Tremie pipe

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Shawn Cain , say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Signature of Well Driller

10-31-23
Date

OBS HF Sinclair 113-23-1126 WDW-3 MW-1

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (WDW-3MW-1		RA-13331

WELL OWNER NAME(S)	PHONE (OPTIONAL)
HF Sinclair Navajo Refining LLC	575-746-5487

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
501 East Main Street	Artesia	NM	88210

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32°	46	16.1147	N
LONGITUDE	104°	14	00.4332	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NE1/4,SE1/4, SW1/4, Sec 1, T18S, R27E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1664	Shawn Cain	Cascade Drilling L.P

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
10/4/2023	10/7/2023	No Well	160'	No Water

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED:

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Sonic

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	160	7.232	N/A				

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	160	7.232	Neat Cement Grout	47.5903	Tremie

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	5	5	Red top soil	Y ✔ N	
5	15	10	White Gyp	Y ✔ N	
15	35	20	Red Clay with white Gyp	Y ✔ N	
35	60	25	Red sandy clay	Y ✔ N	
60	75	15	White gyp	Y ✔ N	
75	105	30	Red sandy Clay	Y ✔ N	
105	160	55	White red and gray gyp	Y ✔ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☑ OTHER – SPECIFY: Dry

TOTAL ESTIMATED WELL YIELD (gpm): N/A

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Hole didn't make water and abandoned from160' to 0'

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Brett Gresham

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Shawn C. Shawn Cain — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

10-31-23 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 2 OF 2

OBS HF Sinclair 113-23-1124 WDW-4-MW-1

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: WDW-4-MW-1

Well owner: HF Sinclair Navajo Refining LLC Phone No.: 575-746-5487

Mailing address: 501 East Main Street

City: Artesia State: New Mexico Zip code: 88210

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Cascade Drilling L.P

2) New Mexico Well Driller License No.: 1664 Expiration Date: _____

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): _____

4) Date well plugging began: 10/20/2023 Date well plugging concluded: 10/20/2023

5) GPS Well Location: Latitude: 32° deg, 48 min, 57.1165 sec
Longitude: 104° deg, 14 min, 00.4199 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 150' ft below ground level (bgl), by the following manner: Tremie from bottom up with Neat Cement

7) Static water level measured at initiation of plugging: 0 ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 6/5/2023

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Drill to ~~160~~ 150' and the hole was dry. Plugged the bore back from 150' to 0 using Neat Cement and Tremied from the bottom up.

150'

WDW-4-BH-1

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	Neat Cement	328 gallons	319 gallons	Tremie	Dry bore hole grouted from bottom up with Neat cement using Tremie pipe

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Shawn Cain, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Signature of Well Driller — Date: 10-31-23

Version: September 8, 2009
Page 2 of 2

DBS HF Sinclair 113-23-1126 WDW-4-MW-1

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO	OSE FILE NO(S)
POD 1 (WDW-4MW-1		RA-13331

WELL OWNER NAME(S)	PHONE (OPTIONAL)
HF Sinclair Navajo Refining LLC	575-746-5487

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
501 East Main Street	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	48	57.1165	N
	LONGITUDE	104°	14	00.4199	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NE1/4,SE1/4, SW1/4, Sec 23, T17S, R27E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1664	Shawn Cain	Cascade Drilling L.P.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
10/11/2023	10/20/2023	No Well	150'	No Water

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED:

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Sonic

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	150	7.232	N/A				

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	150	7.232	Neat Cement Grout	46.4903	Tremie

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	5	5	Red top soil	Y ✔ N	
5	15	10	White Gyp	Y ✔ N	
15	35	20	Red Clay with white Gyp	Y ✔ N	
35	60	25	Red sandy clay	Y ✔ N	
60	75	15	White gyp	Y ✔ N	
75	105	30	Red sandy Clay	Y ✔ N	
105	150	45	White red and gray gyp	Y ✔ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☑ OTHER – SPECIFY: Dry

TOTAL ESTIMATED WELL YIELD (gpm): N/A

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Hole didn't make water and abandoned from 160' to 0'

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Brett Gresham

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Shawn C. Shawn Cain — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

10-31-23 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

Appendix I

Waste Manifest and TCLP Analytical Results

GM Inc.

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST / DISPOSAL TICKET

03233

DISPOSAL FACILITY COPY

GENERATOR

Operator No.: 331119
Operator's Name: HF Sinclair Navajo Refining, LLC
Address: 501 E. Main St.
City, State, Zip: Artesia, New Mexico 88210

Environmental Contact Name: Jason Roberts
Environmental Contact Phone No.: 575-703-6164
Board Phone No.:
Shift Foreman Phone No.: 575-365-6060

TRANSPORTER

Transporter's Name: 5 Brothers Waste Services, Inc.
Address: 512 W. Texas Ave.
City, State, Zip: Artesia, New Mexico 88210
Phone No.: 575-746-0011

Driver's Name: Arthur Bustamante
Truck No.: 25
Bin No.: 82
Unit # (Unit waste was generated in):

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

03-06-25 SHIPMENT DATE — [signature] DRIVER'S SIGNATURE
03-06-25 DELIVERY DATE — [signature] DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: OUT:

DISPOSAL FACILITY

RECEIVING AREA
Name/No.: Landfill

Site Name / Permit No.: Commercial Landfarm (NM-01-0019)
Address: P.O. Box 1658 Roswell, NM 88202
Phone No.: 575-347-0434

NORM Readings Taken? (Circle One) YES NO
Pass the Paint Filter Test? (Circle One) YES NO
If YES, was reading > 50 micro roentgens? (Circle One) YES NO

Non-Exempt E&P Waste/Service Identification and Amount

All non-exempt E&P waste must be analyzed and be below the threshold limits for toxicity (TCLP), ignitability, corrosiveness, and reactivity.

LIST:
- ☐ BAT SOLIDS
- ☐ KF SOLIDS
- ☐ INJECTION WELL FILTERS
- ☐ TRASH AND DEBRIS
- ☐ NON-EXEMPT CONTAMINATED SOIL
- ☐ NON-EXEMPT OTHER

Non-Exempt Other: W/O 4011490 Unit 80 WDW-1 Hydro vac soil

QUANTITY: ______ B - Barrels ______ G - Gallons 17 Y - Yards ______ E - Each

TRUCK WEIGH IN: 37 700
TRUCK WEIGH OUT: 71460
(Truck Out – Truck In – Bin Tare Weight = Net Waste Weight)

C-138

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. (Gandy Marley, Inc. accepts certifications on a per month only basis.)

☒ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided.)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☒ Other (Provide Description Below)

☐ EMERGENCY NON-OILFIELD: Emergency non-hazardous, non-oilfield waste that has been ordered by the Department of Public Safety. (The order, documentation of non-hazardous waste determination and a description of the waste must accompany this form.)

(PRINT) AUTHORIZED AGENT'S SIGNATURE — DATE — SIGNATURE

GMI

NAME (PRINT) — DATE — TITLE — SIGNATURE

GM inc.

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST / DISPOSAL TICKET

DISPOSAL FACILITY COPY

03557

GENERATOR

Operator No. 331119
Operators Name HF Sinclair Navajo Refining, LLC
Address 501 E. Main St.
City, State, Zip Artesia, New Mexico 88210

Environmental Contact Name Jason Roberts
Environmental Contact Phone No. 575-703-6164
Board Phone No.
Shift Foreman Phone No. 575-365-8360

TRANSPORTER

Transporter's Name S Brothers Waste Services, Inc.
Address 512 W. Texas Ave.
City, State, Zip Artesia, New Mexico 88210
Phone No. 575-746-0011

Driver's Name Rafael Valverde
Truck No. # 16
Bin No. # 9912
Unit # (Unit waste was generated in) # 80

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

5-1-25 SHIPMENT DATE — RV DRIVER'S SIGNATURE

5-1-25 DELIVERY DATE — RV DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP
IN: _____ OUT: _____

RECEIVING AREA
Name/No. Landfill

Site Name / Permit No. Commercial Landfarm (NM-01-0019)
Address P.O. Box 1658 Roswell, NM 88202
Phone No. 575-347-0434

NORM Readings Taken? (Circle One) YES NO
Pass the Paint Filter Test? (Circle One) YES NO
If YES, was reading > 50 micro roentgens? (Circle One) YES NO

Non-Exempt E&P Waste/Service Identification and Amount

(All non-exempt E&P waste must be analyzed and be below the threshold limits for toxicity (TCLP), ignition, corrosiveness, and reactivity.)

LIST:
- ☐ DAF SOLIDS
- ☐ KF SOLIDS
- ☐ INJECTION WELL FILTERS
- ☐ TRASH AND DEBRIS
- ☐ NON-EXEMPT CONTAMINATED SOIL
- ☐ NON-EXEMPT OTHER

Non-Exempt Other: WO # 40111490 40-A-W #1 Hydro vac Soil

QUANTITY: _____ B - Barrels _____ G - Gallons 17 Y - Yards _____ E - Each

TRUCK WEIGH IN: _____ TRUCK WEIGH OUT: _____
(Truck Out – Truck In – Bin Tare Weight = Net Waste Weight)

C-138

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. (Gandy Marley, Inc. accepts certifications on a per month only basis.)

☑ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided.)

☑ MSDS Information ☑ RCRA Hazardous Waste Analysis ☑ Other (Provide Description Below)

☐ EMERGENCY NON-OILFIELD: Emergency non-hazardous, non-oilfield waste that has been ordered by the Department of Public Safety. (The order, documentation of non-hazardous waste determination and a description of the waste must accompany this form.)

(PRINT) AUTHORIZED AGENTS SIGNATURE — DATE — SIGNATURE

NAME (PRINT) — DATE — GMI TITLE — SIGNATURE

SUPERIOR PRINTING SERVICE, INC.

DISPOSAL FACILITY COPY

GM inc. 06652

GENERATOR

Operator No. 331119
Operators Name HF Sinclair Navajo Refining, LLC
Address 501 E. Main St.
City, State, Zip Artesia, New Mexico 88210

Environmental Contact Name ~~Jace Ragland~~ ERIC FLORES
Environmental Contact Phone No. ~~662-357-6904~~ 575.909.1010
Board Phone No.
Shift Foreman Phone No. 575-365-8360

TRANSPORTER

Transporter's Name S Brothers Waste Services, Inc.
Address 512 W. Texas Ave.
City, State, Zip Artesia, New Mexico 88210
Phone No. 575-746-0011

Driver's Name F. ORQUIZ
Truck No. 22
Bin No. 332
Unit # (Unit waste was generated in) 80

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

8.1.25 SHIPMENT DATE — DRIVER'S SIGNATURE

8.1.25 DELIVERY DATE — DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: _____ OUT: _____

DISPOSAL FACILITY

RECEIVING AREA
Name/No. Landfill

Site Name / Permit No. Commercial Landfarm (NM-01-0019)
Address P.O. Box 1658 Roswell, NM 88202
Phone No. 575-347-0434

NORM Readings Taken? (Circle One) YES NO
Pass the Paint Filter Test? (Circle One) YES NO
If YES, was reading > 50 micro roentgens? (Circle One) YES NO

Non-Exempt E&P Waste/Service Identification and Amount
(All non-exempt E&P waste must be analyzed and be below the threshold limits for toxicity (TCLP), ignition, corrosiveness, and reactivity.)

LIST:
- ☐ DAF SOLIDS
- ☐ KF SOLIDS
- ☐ INJECTION WELL FILTERS
- ☐ TRASH AND DEBRIS
- ☐ NON-EXEMPT CONTAMINATED SOIL
- ☑ NON-EXEMPT OTHER

Non-Exempt Other: WDWI NEWBOURNE INJECTION WELL SOIL

QUANTITY: _____ B - Barrels _____ G - Gallons 17 Y - Yards _____ E - Each

TRUCK WEIGH IN: 35,960 N. 15,780 B. 6,760

TRUCK WEIGH OUT: 58,500
(Truck Out – Truck In – Bin Tare Weight = Net Waste Weight)

C-138

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. (Gandy Marley, Inc. accepts certifications on a per month only basis.)

☑ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided.)

☑ MSDS Information ☑ RCRA Hazardous Waste Analysis ☑ Other (Provide Description Below) GENERATOR KNOWLEDGE

☐ EMERGENCY NON-OILFIELD: Emergency non-hazardous, non-oilfield waste that has been ordered by the Department of Public Safety. (The order, documentation of non-hazardous waste determination and a description of the waste must accompany this form.)

(PRINT) AUTHORIZED AGENTS SIGNATURE — 8.1.25 DATE — SIGNATURE

NAME (PRINT) — 8.1.25 DATE — GMI TITLE — SIGNATURE

SUPERIOR PRINTING SERVICE, INC.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jace Ragland
HF Sinclair Asphalt Navajo Refining LLC
PO BOX 159
Artesia, New Mexico 88211

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JOB DESCRIPTION

TCLP

JOB NUMBER

885-22690-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

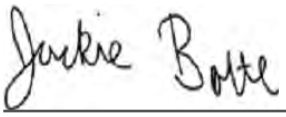
See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization



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Authorized for release by
Jackie Bolte, Project Manager
jackie.bolte@et.eurofinsus.com
(505)345-3975

Table of Contents

Definitions/Glossary

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project: TCLP

Job ID: 885-22690-1 Eurofins Albuquerque

Job Narrative
885-22690-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The sample was received on 4/5/2025 8:20 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.3°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_QQQ - TCLP: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: Mewborne (885-22690-1). These results have been reported and qualified.

Method 8270E_QQQ - TCLP: The continuing calibration verification (CCV) associated with batch 860-228131 recovered above the upper control limit for Nitrobenzene-d5. The associated sample is:(CCVIS 860-228131/2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Client Sample ID: Mewborne
Date Collected: 04/04/25 08:20
Date Received: 04/05/25 08:20

Lab Sample ID: 885-22690-1
Matrix: Solid

Method: SW846 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.050	0.023	mg/L			04/19/25 19:51	50
Carbon tetrachloride	ND		0.25	0.045	mg/L			04/19/25 19:51	50
Chlorobenzene	ND		0.050	0.023	mg/L			04/19/25 19:51	50
Chloroform	ND		0.050	0.023	mg/L			04/19/25 19:51	50
1,2-Dichloroethane	ND		0.050	0.019	mg/L			04/19/25 19:51	50
1,1-Dichloroethene	ND		0.050	0.037	mg/L			04/19/25 19:51	50
2-Butanone	ND		2.5	0.41	mg/L			04/19/25 19:51	50
Tetrachloroethene	ND		0.050	0.033	mg/L			04/19/25 19:51	50
Trichloroethene	ND		0.25	0.075	mg/L			04/19/25 19:51	50
Vinyl chloride	ND		0.10	0.021	mg/L			04/19/25 19:51	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*63 - 144*		*04/19/25 19:51*	*50*
4-Bromofluorobenzene (Surr)	*96*		*74 - 124*		*04/19/25 19:51*	*50*
Dibromofluoromethane (Surr)	*96*		*75 - 131*		*04/19/25 19:51*	*50*
Toluene-d8 (Surr)	*98*		*80 - 120*		*04/19/25 19:51*	*50*

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		11	1.5	ug/L		04/10/25 08:10	04/10/25 22:14	20
2,4,5-Trichlorophenol	ND		11	2.8	ug/L		04/10/25 08:10	04/10/25 22:14	20
2,4,6-Trichlorophenol	ND		11	4.6	ug/L		04/10/25 08:10	04/10/25 22:14	20
2,4-Dinitrotoluene	ND		11	4.0	ug/L		04/10/25 08:10	04/10/25 22:14	20
2-Methylphenol	ND		11	2.1	ug/L		04/10/25 08:10	04/10/25 22:14	20
3 & 4 Methylphenol	ND		11	2.7	ug/L		04/10/25 08:10	04/10/25 22:14	20
Hexachlorobenzene	ND		11	1.9	ug/L		04/10/25 08:10	04/10/25 22:14	20
Hexachlorobutadiene	ND		11	2.0	ug/L		04/10/25 08:10	04/10/25 22:14	20
Hexachloroethane	ND		11	2.0	ug/L		04/10/25 08:10	04/10/25 22:14	20
Nitrobenzene	ND		11	1.5	ug/L		04/10/25 08:10	04/10/25 22:14	20
Pentachlorophenol	ND		11	3.9	ug/L		04/10/25 08:10	04/10/25 22:14	20
Pyridine	ND		56	28	ug/L		04/10/25 08:10	04/10/25 22:14	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*140*	*S1+*	*35 - 130*	*04/10/25 08:10*	*04/10/25 22:14*	*20*
2-Fluorophenol (Surr)	*64*		*19 - 120*	*04/10/25 08:10*	*04/10/25 22:14*	*20*
2-Fluorobiphenyl	*84*		*43 - 130*	*04/10/25 08:10*	*04/10/25 22:14*	*20*
Nitrobenzene-d5 (Surr)	*160*	*S1+*	*37 - 133*	*04/10/25 08:10*	*04/10/25 22:14*	*20*
Phenol-d5 (Surr)	*50*		*8 - 124*	*04/10/25 08:10*	*04/10/25 22:14*	*20*
p-Terphenyl-d14 (Surr)	*60*		*47 - 130*	*04/10/25 08:10*	*04/10/25 22:14*	*20*

Method: SW846 6020B - Metals (ICP/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0061**	**J**	0.020	0.0035	mg/L		04/10/25 09:00	04/10/25 16:49	1
Barium	**0.56**		0.020	0.0067	mg/L		04/10/25 09:00	04/10/25 16:49	1
Cadmium	ND		0.010	0.0012	mg/L		04/10/25 09:00	04/10/25 16:49	1
Chromium	ND		0.020	0.0028	mg/L		04/10/25 09:00	04/10/25 16:49	1
Lead	ND		0.010	0.0018	mg/L		04/10/25 09:00	04/10/25 16:49	1
Selenium	**0.0033**	**J**	0.010	0.0030	mg/L		04/10/25 09:00	04/10/25 16:49	1
Silver	ND		0.010	0.0020	mg/L		04/10/25 09:00	04/10/25 16:49	1

Client Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Client Sample ID: Mewborne
Date Collected: 04/04/25 08:20
Date Received: 04/05/25 08:20

Lab Sample ID: 885-22690-1
Matrix: Solid

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000071	mg/L		04/11/25 05:47	04/11/25 11:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint (SW846 1010B)	**>180**		1.0	1.0	Degrees F			04/21/25 17:28	1
Cyanide, Reactive (SW846 9012)	ND		0.025	0.013	mg/Kg		04/14/25 11:52	04/14/25 20:54	1
Sulfide, Reactive (SW846 9034)	ND		6.3	1.3	mg/Kg		04/14/25 11:49	04/15/25 09:52	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045C)	**8.1**	**HF**			SU			04/17/25 13:33	1
Temperature (SW846 9045C)	**20.5**	**HF**			Deg. C			04/17/25 13:33	1
Corrosivity (SW846 9045C)	**8.1**	**HF**			SU			04/17/25 13:33	1

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 860-230303/9
Matrix: Solid
Analysis Batch: 230303

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	0.00046	mg/L			04/19/25 16:26	1
Carbon tetrachloride	ND		0.0050	0.00090	mg/L			04/19/25 16:26	1
Chlorobenzene	ND		0.0010	0.00046	mg/L			04/19/25 16:26	1
Chloroform	ND		0.0010	0.00046	mg/L			04/19/25 16:26	1
1,2-Dichloroethane	ND		0.0010	0.00037	mg/L			04/19/25 16:26	1
1,1-Dichloroethene	ND		0.0010	0.00074	mg/L			04/19/25 16:26	1
2-Butanone	ND		0.050	0.0083	mg/L			04/19/25 16:26	1
Tetrachloroethene	ND		0.0010	0.00066	mg/L			04/19/25 16:26	1
Trichloroethene	ND		0.0050	0.0015	mg/L			04/19/25 16:26	1
Vinyl chloride	ND		0.0020	0.00043	mg/L			04/19/25 16:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*63 - 144*		*04/19/25 16:26*	*1*
4-Bromofluorobenzene (Surr)	*94*		*74 - 124*		*04/19/25 16:26*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 131*		*04/19/25 16:26*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/19/25 16:26*	*1*

Lab Sample ID: LCS 860-230303/3
Matrix: Solid
Analysis Batch: 230303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.0500	0.0509		mg/L		102	75 - 125		
Carbon tetrachloride			0.0500	0.0532		mg/L		106	70 - 125		
Chlorobenzene			0.0500	0.0525		mg/L		105	82 - 135		
Chloroform			0.0500	0.0495		mg/L		99	70 - 121		
1,2-Dichloroethane			0.0500	0.0466		mg/L		93	72 - 130		
1,1-Dichloroethene			0.0500	0.0560		mg/L		112	50 - 150		
2-Butanone			0.250	0.226		mg/L		90	60 - 140		
Tetrachloroethene			0.0500	0.0580		mg/L		116	71 - 125		
Trichloroethene			0.0500	0.0544		mg/L		109	75 - 135		
Vinyl chloride			0.0500	0.0465		mg/L		93	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*63 - 144*
4-Bromofluorobenzene (Surr)	*97*		*74 - 124*
Dibromofluoromethane (Surr)	*96*		*75 - 131*
Toluene-d8 (Surr)	*96*		*80 - 120*

Lab Sample ID: LCSD 860-230303/4
Matrix: Solid
Analysis Batch: 230303

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.0500	0.0505		mg/L		101	75 - 125	1	25
Carbon tetrachloride			0.0500	0.0504		mg/L		101	70 - 125	5	25
Chlorobenzene			0.0500	0.0540		mg/L		108	82 - 135	3	25
Chloroform			0.0500	0.0468		mg/L		94	70 - 121	6	25

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 860-230303/4
Matrix: Solid
Analysis Batch: 230303

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2-Dichloroethane			0.0500	0.0452		mg/L		90	72 - 130	3	25
1,1-Dichloroethene			0.0500	0.0520		mg/L		104	50 - 150	7	25
2-Butanone			0.250	0.226		mg/L		90	60 - 140	0	25
Tetrachloroethene			0.0500	0.0582		mg/L		116	71 - 125	0	25
Trichloroethene			0.0500	0.0550		mg/L		110	75 - 135	1	25
Vinyl chloride			0.0500	0.0449		mg/L		90	60 - 140	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*63 - 144*
4-Bromofluorobenzene (Surr)	*98*		*74 - 124*
Dibromofluoromethane (Surr)	*92*		*75 - 131*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Lab Sample ID: MB 860-228092/1-A
Matrix: Solid
Analysis Batch: 228128

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.57	0.078	ug/L		04/10/25 08:10	04/10/25 13:49	1
2,4,5-Trichlorophenol	ND		0.57	0.14	ug/L		04/10/25 08:10	04/10/25 13:49	1
2,4,6-Trichlorophenol	ND		0.57	0.23	ug/L		04/10/25 08:10	04/10/25 13:49	1
2,4-Dinitrotoluene	ND		0.57	0.20	ug/L		04/10/25 08:10	04/10/25 13:49	1
2-Methylphenol	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 13:49	1
3 & 4 Methylphenol	ND		0.57	0.14	ug/L		04/10/25 08:10	04/10/25 13:49	1
Hexachlorobenzene	ND		0.57	0.097	ug/L		04/10/25 08:10	04/10/25 13:49	1
Hexachlorobutadiene	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 13:49	1
Hexachloroethane	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 13:49	1
Nitrobenzene	ND		0.57	0.074	ug/L		04/10/25 08:10	04/10/25 13:49	1
Pentachlorophenol	ND		0.57	0.20	ug/L		04/10/25 08:10	04/10/25 13:49	1
Pyridine	ND		2.9	1.4	ug/L		04/10/25 08:10	04/10/25 13:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*35 - 130*	*04/10/25 08:10*	*04/10/25 13:49*	*1*
2-Fluorophenol (Surr)	*106*		*19 - 120*	*04/10/25 08:10*	*04/10/25 13:49*	*1*
2-Fluorobiphenyl	*100*		*43 - 130*	*04/10/25 08:10*	*04/10/25 13:49*	*1*
Nitrobenzene-d5 (Surr)	*97*		*37 - 133*	*04/10/25 08:10*	*04/10/25 13:49*	*1*
Phenol-d5 (Surr)	*96*		*8 - 124*	*04/10/25 08:10*	*04/10/25 13:49*	*1*
p-Terphenyl-d14 (Surr)	*101*		*47 - 130*	*04/10/25 08:10*	*04/10/25 13:49*	*1*

Lab Sample ID: LCS 860-228092/2-A
Matrix: Solid
Analysis Batch: 228128

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228092

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene			5.71	5.99		ug/L		105	28 - 130
2,4,5-Trichlorophenol			5.71	6.36		ug/L		111	35 - 130

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LCS 860-228092/2-A
Matrix: Solid
Analysis Batch: 228128

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228092

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,6-Trichlorophenol			5.71	6.27		ug/L		110	52 - 129		
2,4-Dinitrotoluene			5.71	6.13		ug/L		107	48 - 127		
2-Methylphenol			5.71	6.15		ug/L		108	14 - 176		
3 & 4 Methylphenol			5.71	5.84		ug/L		102	22 - 130		
Hexachlorobenzene			5.71	6.16		ug/L		108	8 - 142		
Hexachlorobutadiene			5.71	6.10		ug/L		107	10 - 130		
Hexachloroethane			5.71	6.08		ug/L		106	10 - 130		
Nitrobenzene			5.71	5.80		ug/L		102	54 - 130		
Pentachlorophenol			5.71	5.85		ug/L		102	38 - 152		
Pyridine			5.71	ND		ug/L		12	1 - 126		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*96*		*35 - 130*
2-Fluorophenol (Surr)	*93*		*19 - 120*
2-Fluorobiphenyl	*90*		*43 - 130*
Nitrobenzene-d5 (Surr)	*106*		*37 - 133*
Phenol-d5 (Surr)	*87*		*8 - 124*
p-Terphenyl-d14 (Surr)	*91*		*47 - 130*

Lab Sample ID: LCSD 860-228092/3-A
Matrix: Solid
Analysis Batch: 228128

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 228092

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene			5.71	6.29		ug/L		110	28 - 130	5	30
2,4,5-Trichlorophenol			5.71	6.69		ug/L		117	35 - 130	5	30
2,4,6-Trichlorophenol			5.71	6.62		ug/L		116	52 - 129	5	30
2,4-Dinitrotoluene			5.71	6.79		ug/L		119	48 - 127	10	30
2-Methylphenol			5.71	6.75		ug/L		118	14 - 176	9	30
3 & 4 Methylphenol			5.71	5.83		ug/L		102	22 - 130	0	30
Hexachlorobenzene			5.71	6.69		ug/L		117	8 - 142	8	30
Hexachlorobutadiene			5.71	6.46		ug/L		113	10 - 130	6	30
Hexachloroethane			5.71	6.21		ug/L		109	10 - 130	2	30
Nitrobenzene			5.71	6.07		ug/L		106	54 - 130	4	30
Pentachlorophenol			5.71	6.20		ug/L		108	38 - 152	6	30
Pyridine			5.71	ND		ug/L		12	1 - 126	5	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*106*		*35 - 130*
2-Fluorophenol (Surr)	*99*		*19 - 120*
2-Fluorobiphenyl	*95*		*43 - 130*
Nitrobenzene-d5 (Surr)	*100*		*37 - 133*
Phenol-d5 (Surr)	*91*		*8 - 124*
p-Terphenyl-d14 (Surr)	*97*		*47 - 130*

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LB 860-227833/1-B
Matrix: Solid
Analysis Batch: 228128

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 228092

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.57	0.078	ug/L		04/10/25 08:10	04/10/25 16:16	1
2,4,5-Trichlorophenol	ND		0.57	0.14	ug/L		04/10/25 08:10	04/10/25 16:16	1
2,4,6-Trichlorophenol	ND		0.57	0.23	ug/L		04/10/25 08:10	04/10/25 16:16	1
2,4-Dinitrotoluene	ND		0.57	0.20	ug/L		04/10/25 08:10	04/10/25 16:16	1
2-Methylphenol	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 16:16	1
3 & 4 Methylphenol	ND		0.57	0.14	ug/L		04/10/25 08:10	04/10/25 16:16	1
Hexachlorobenzene	ND		0.57	0.097	ug/L		04/10/25 08:10	04/10/25 16:16	1
Hexachlorobutadiene	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 16:16	1
Hexachloroethane	ND		0.57	0.10	ug/L		04/10/25 08:10	04/10/25 16:16	1
Nitrobenzene	ND		0.57	0.074	ug/L		04/10/25 08:10	04/10/25 16:16	1
Pentachlorophenol	ND		0.57	0.20	ug/L		04/10/25 08:10	04/10/25 16:16	1
Pyridine	ND		2.9	1.4	ug/L		04/10/25 08:10	04/10/25 16:16	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*35 - 130*	*04/10/25 08:10*	*04/10/25 16:16*	*1*
2-Fluorophenol (Surr)	*103*		*19 - 120*	*04/10/25 08:10*	*04/10/25 16:16*	*1*
2-Fluorobiphenyl	*99*		*43 - 130*	*04/10/25 08:10*	*04/10/25 16:16*	*1*
Nitrobenzene-d5 (Surr)	*89*		*37 - 133*	*04/10/25 08:10*	*04/10/25 16:16*	*1*
Phenol-d5 (Surr)	*90*		*8 - 124*	*04/10/25 08:10*	*04/10/25 16:16*	*1*
p-Terphenyl-d14 (Surr)	*95*		*47 - 130*	*04/10/25 08:10*	*04/10/25 16:16*	*1*

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 860-228135/1-A
Matrix: Solid
Analysis Batch: 228324

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228135

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0040	0.00069	mg/L		04/10/25 09:00	04/10/25 16:13	1
Barium	ND		0.0040	0.0013	mg/L		04/10/25 09:00	04/10/25 16:13	1
Cadmium	ND		0.0020	0.00024	mg/L		04/10/25 09:00	04/10/25 16:13	1
Chromium	ND		0.0040	0.00056	mg/L		04/10/25 09:00	04/10/25 16:13	1
Lead	ND		0.0020	0.00037	mg/L		04/10/25 09:00	04/10/25 16:13	1
Selenium	ND		0.0020	0.00059	mg/L		04/10/25 09:00	04/10/25 16:13	1
Silver	ND		0.0020	0.00039	mg/L		04/10/25 09:00	04/10/25 16:13	1

Lab Sample ID: LCS 860-228135/2-A
Matrix: Solid
Analysis Batch: 228324

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228135

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.100	0.0964		mg/L		96	80 - 120
Barium	0.100	0.0960		mg/L		96	80 - 120
Cadmium	0.100	0.0980		mg/L		98	80 - 120
Chromium	0.100	0.0991		mg/L		99	80 - 120
Lead	0.100	0.0983		mg/L		98	80 - 120
Selenium	0.100	0.0929		mg/L		93	80 - 120
Silver	0.0500	0.0500		mg/L		100	80 - 120

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 860-228135/3-A
Matrix: Solid
Analysis Batch: 228324

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 228135

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic			0.100	0.0974		mg/L		97	80 - 120	1	20
Barium			0.100	0.0951		mg/L		95	80 - 120	1	20
Cadmium			0.100	0.0987		mg/L		99	80 - 120	1	20
Chromium			0.100	0.100		mg/L		100	80 - 120	1	20
Lead			0.100	0.0985		mg/L		99	80 - 120	0	20
Selenium			0.100	0.0961		mg/L		96	80 - 120	3	20
Silver			0.0500	0.0497		mg/L		99	80 - 120	1	20

Lab Sample ID: LB 860-227829/1-A
Matrix: Solid
Analysis Batch: 228324

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0040	0.00069	mg/L			04/10/25 16:20	1
Barium	ND		0.0040	0.0013	mg/L			04/10/25 16:20	1
Cadmium	ND		0.0020	0.00024	mg/L			04/10/25 16:20	1
Chromium	ND		0.0040	0.00056	mg/L			04/10/25 16:20	1
Lead	ND		0.0020	0.00037	mg/L			04/10/25 16:20	1
Selenium	ND		0.0020	0.00059	mg/L			04/10/25 16:20	1
Silver	ND		0.0020	0.00039	mg/L			04/10/25 16:20	1

Lab Sample ID: LB 860-227833/1-A
Matrix: Solid
Analysis Batch: 228324

Client Sample ID: Method Blank
Prep Type: TCLP

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0040	0.00069	mg/L			04/10/25 16:43	1
Barium	ND		0.0040	0.0013	mg/L			04/10/25 16:43	1
Cadmium	ND		0.0020	0.00024	mg/L			04/10/25 16:43	1
Chromium	ND		0.0040	0.00056	mg/L			04/10/25 16:43	1
Lead	ND		0.0020	0.00037	mg/L			04/10/25 16:43	1
Selenium	ND		0.0020	0.00059	mg/L			04/10/25 16:43	1
Silver	ND		0.0020	0.00039	mg/L			04/10/25 16:43	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 860-228375/1-A
Matrix: Solid
Analysis Batch: 228532

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000071	mg/L		04/11/25 05:46	04/11/25 11:15	1

Lab Sample ID: LCS 860-228375/2-A
Matrix: Solid
Analysis Batch: 228532

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228375

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury			0.00200	0.00184		mg/L		92	80 - 120

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCSD 860-228375/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 228532 — **Prep Batch: 228375**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.00200	0.00194		mg/L		97	80 - 120	5	20

Lab Sample ID: LB 860-227833/1-F — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 228532 — **Prep Batch: 228375**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000071	mg/L		04/11/25 05:47	04/11/25 11:19	1

Method: 1010B - Ignitability, Pensky-Martens Closed-Cup Method

Lab Sample ID: LCS 860-230612/1 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 230612

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Flashpoint			126	134		Degrees F		106	90 - 110		

Lab Sample ID: 885-22690-1 DU — **Client Sample ID: Mewborne**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 230612

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Flashpoint	>180			>180		Degrees F				NC	25

Method: 9012 - Cyanide, Reactive

Lab Sample ID: MB 860-228949/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 229097 — **Prep Batch: 228949**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Reactive	ND		0.025	0.013	mg/Kg		04/14/25 11:52	04/14/25 20:39	1

Lab Sample ID: LCS 860-228949/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 229097 — **Prep Batch: 228949**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Cyanide, Reactive			20.0	2.81		mg/Kg		14	5 - 40		

Lab Sample ID: LCSD 860-228949/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 229097 — **Prep Batch: 228949**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Reactive			20.0	2.83		mg/Kg		14	5 - 40	1	20

QC Sample Results

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Method: 9034 - Sulfide, Reactive

Lab Sample ID: MB 860-228948/1-A
Matrix: Solid
Analysis Batch: 229205

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 228948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide, Reactive	ND		6.3	1.3	mg/Kg		04/14/25 11:48	04/15/25 09:52	1

Lab Sample ID: LCS 860-228948/2-A
Matrix: Solid
Analysis Batch: 229205

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 228948

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfide, Reactive			50.0	24.0		mg/Kg		48	30 - 120		

Lab Sample ID: LCSD 860-228948/3-A
Matrix: Solid
Analysis Batch: 229205

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 228948

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide, Reactive			50.0	24.0		mg/Kg		48	30 - 120	0	20

QC Association Summary

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

GC/MS VOA

Leach Batch: 229987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	1311	

Analysis Batch: 230303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	8260C	229987
MB 860-230303/9	Method Blank	Total/NA	Solid	8260C	
LCS 860-230303/3	Lab Control Sample	Total/NA	Solid	8260C	
LCSD 860-230303/4	Lab Control Sample Dup	Total/NA	Solid	8260C	

GC/MS Semi VOA

Leach Batch: 227833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	1311	
LB 860-227833/1-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 228092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	3511	227833
LB 860-227833/1-B	Method Blank	TCLP	Solid	3511	227833
MB 860-228092/1-A	Method Blank	Total/NA	Solid	3511	
LCS 860-228092/2-A	Lab Control Sample	Total/NA	Solid	3511	
LCSD 860-228092/3-A	Lab Control Sample Dup	Total/NA	Solid	3511	

Analysis Batch: 228128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 860-227833/1-B	Method Blank	TCLP	Solid	8270E	228092
MB 860-228092/1-A	Method Blank	Total/NA	Solid	8270E	228092
LCS 860-228092/2-A	Lab Control Sample	Total/NA	Solid	8270E	228092
LCSD 860-228092/3-A	Lab Control Sample Dup	Total/NA	Solid	8270E	228092

Analysis Batch: 228131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	8270E	228092

Metals

Leach Batch: 227829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 860-227829/1-A	Method Blank	TCLP	Solid	1311	

Leach Batch: 227833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	1311	
LB 860-227833/1-A	Method Blank	TCLP	Solid	1311	
LB 860-227833/1-F	Method Blank	TCLP	Solid	1311	

Prep Batch: 228135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	3010A	227833
MB 860-228135/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 860-228135/2-A	Lab Control Sample	Total/NA	Solid	3010A	

QC Association Summary

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

Metals (Continued)

Prep Batch: 228135 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 860-228135/3-A	Lab Control Sample Dup	Total/NA	Solid	3010A	

Analysis Batch: 228324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	6020B	228135
LB 860-227829/1-A	Method Blank	TCLP	Solid	6020B	227829
LB 860-227833/1-A	Method Blank	TCLP	Solid	6020B	227833
MB 860-228135/1-A	Method Blank	Total/NA	Solid	6020B	228135
LCS 860-228135/2-A	Lab Control Sample	Total/NA	Solid	6020B	228135
LCSD 860-228135/3-A	Lab Control Sample Dup	Total/NA	Solid	6020B	228135

Prep Batch: 228375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	7470A	227833
LB 860-227833/1-F	Method Blank	TCLP	Solid	7470A	227833
MB 860-228375/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 860-228375/2-A	Lab Control Sample	Total/NA	Solid	7470A	
LCSD 860-228375/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	

Analysis Batch: 228532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	TCLP	Solid	7470A	228375
LB 860-227833/1-F	Method Blank	TCLP	Solid	7470A	228375
MB 860-228375/1-A	Method Blank	Total/NA	Solid	7470A	228375
LCS 860-228375/2-A	Lab Control Sample	Total/NA	Solid	7470A	228375
LCSD 860-228375/3-A	Lab Control Sample Dup	Total/NA	Solid	7470A	228375

General Chemistry

Prep Batch: 228948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Total/NA	Solid	7.3.4	
MB 860-228948/1-A	Method Blank	Total/NA	Solid	7.3.4	
LCS 860-228948/2-A	Lab Control Sample	Total/NA	Solid	7.3.4	
LCSD 860-228948/3-A	Lab Control Sample Dup	Total/NA	Solid	7.3.4	

Prep Batch: 228949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Total/NA	Solid	7.3.3	
MB 860-228949/1-A	Method Blank	Total/NA	Solid	7.3.3	
LCS 860-228949/2-A	Lab Control Sample	Total/NA	Solid	7.3.3	
LCSD 860-228949/3-A	Lab Control Sample Dup	Total/NA	Solid	7.3.3	

Leach Batch: 229027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Soluble	Solid	DI Leach	

Analysis Batch: 229097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Total/NA	Solid	9012	228949
MB 860-228949/1-A	Method Blank	Total/NA	Solid	9012	228949

QC Association Summary

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

General Chemistry (Continued)

Analysis Batch: 229097 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 860-228949/2-A	Lab Control Sample	Total/NA	Solid	9012	228949
LCSD 860-228949/3-A	Lab Control Sample Dup	Total/NA	Solid	9012	228949

Analysis Batch: 229205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Total/NA	Solid	9034	228948
MB 860-228948/1-A	Method Blank	Total/NA	Solid	9034	228948
LCS 860-228948/2-A	Lab Control Sample	Total/NA	Solid	9034	228948
LCSD 860-228948/3-A	Lab Control Sample Dup	Total/NA	Solid	9034	228948

Analysis Batch: 229900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Soluble	Solid	9045C	229027

Analysis Batch: 230612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-22690-1	Mewborne	Total/NA	Solid	1010B	
LCS 860-230612/1	Lab Control Sample	Total/NA	Solid	1010B	
885-22690-1 DU	Mewborne	Total/NA	Solid	1010B	

Lab Chronicle

Client: HF Sinclair Asphalt Navajo Refining LLC
Project/Site: TCLP

Job ID: 885-22690-1

Client Sample ID: Mewborne

Date Collected: 04/04/25 08:20
Date Received: 04/05/25 08:20

Lab Sample ID: 885-22690-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			229987	JCM	EET HOU	04/17/25 17:00 - 04/18/25 09:00 [1]
TCLP	Analysis	8260C		50	230303	KLV	EET HOU	04/19/25 19:51
TCLP	Leach	1311			227833	EMC	EET HOU	04/09/25 12:00 - 04/10/25 04:00 [1]
TCLP	Prep	3511			228092	DR	EET HOU	04/10/25 08:10
TCLP	Analysis	8270E		20	228131	T1S	EET HOU	04/10/25 22:14
TCLP	Leach	1311			227833	EMC	EET HOU	04/09/25 12:00 - 04/10/25 04:00 [1]
TCLP	Prep	3010A			228135	MD	EET HOU	04/10/25 09:00
TCLP	Analysis	6020B		1	228324	SHZ	EET HOU	04/10/25 16:49
TCLP	Leach	1311			227833	EMC	EET HOU	04/09/25 12:00 - 04/10/25 04:00 [1]
TCLP	Prep	7470A			228375	AGR	EET HOU	04/11/25 05:47
TCLP	Analysis	7470A		1	228532	JDM	EET HOU	04/11/25 11:37
Total/NA	Analysis	1010B		1	230612	CT	EET HOU	04/21/25 17:28
Total/NA	Prep	7.3.3			228949	MK	EET HOU	04/14/25 11:52
Total/NA	Analysis	9012		1	229097	ALL	EET HOU	04/14/25 20:54
Total/NA	Prep	7.3.4			228948	MK	EET HOU	04/14/25 11:49
Total/NA	Analysis	9034		1	229205	SCI	EET HOU	04/15/25 09:52
Soluble	Leach	DI Leach			229027	JC	EET HOU	04/14/25 16:01
Soluble	Analysis	9045C		1	229900	CT	EET HOU	04/17/25 13:33

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:

EET HOU = Eurofins Houston, 4145 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: HF Sinclair Asphalt Navajo Refining LLC Job ID: 885-22690-1
Project/Site: TCLP

Laboratory: Eurofins Houston

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-00759	08-04-25
Florida	NELAP	E871002	06-30-25
Louisiana (All)	NELAP	03054	12-20-25
Oklahoma	NELAP	1306	08-31-25
Texas	NELAP	T104704215	07-01-26
Texas	TCEQ Water Supply	T104704215	12-28-25
USDA	US Federal Programs	525-23-79-79507	03-20-26

Chain-of-Custody Record

Client: HF Sinclair Navajo Refining LLC

Mailing Address: P.O. Box 159
Artesia, NM, 88211

Phone #: 802-557-8904

email or Fax#: Jace.Ragland@hfsinclair.com

QA/QC Package:
■ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
■ Standard ☐ Rush

Project Name:
TCLP

Project #:
PO# 4512501704

Project Manager:
Jace Ragland, Eric Flores, Nat Paengongsavanh

Sampler: Eric Flores, Jace Ragland

On Ice: ☒ Yes ☐ No

# of Coolers: 1 MOJO

Cooler Temp(Including CF): 3.1+0.2=3.3°C

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-22690 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
4/4/2025	0820	Solid	Mewborne	2 x glass	N/A	

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Full TCLP (No Herb. Pest.+)	RCI
										■	■

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
4/4/25	945				4/4/25	945
4/4/25	1900		SCM	COURIER	4/5/25	0830

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-4461 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing South Centr		Accreditations Required (See note): NELAP Oregon; State New Mexico		Job #: 885-22690-1
Address: 4145 Greenbriar Dr	Due Date Requested: 4/21/2025			Preservation Codes:
City: Stafford	TAT Requested (days): N/A			
State, Zip: TX, 77477				
Phone: 281-240-4200(Tel)	PO #: N/A			
Emai N/A	WO #: N/A			
Project Name: TCLP	Project #: 88501441			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020B/1311T_M RCRA 8 (excl. Hg)	7470A/1311T_Hg Mercury	1010B_Calc	9012_ReactiveCN/7.3.3 Reactive Cyanide	9045C/DI_LEACH_NP	9034_Reactive/7.3.4	8260C/1311_Z TCLP VOCs	8270E_QQQ/1311_T TCLP SVOCs	Total Number of containers	Special Instructions/Note:
			Preservation Code:													
Mewborne (885-22690-1)	4/4/25	08:20 Mountain	G	Solid			X	X	X	X	X	X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months
Deliverable Requested: I, II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 4/7/25 1455	Company	Received by:	Date/Time: RECEIVED APR - 8 2025	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: HOUSE 2-5

Ver 10/10/2024

Login Sample Receipt Checklist

Client: HF Sinclair Asphalt Navajo Refining LLC Job Number: 885-22690-1

Login Number: 22690 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Login Sample Receipt Checklist

Client: HF Sinclair Asphalt Navajo Refining LLC Job Number: 885-22690-1

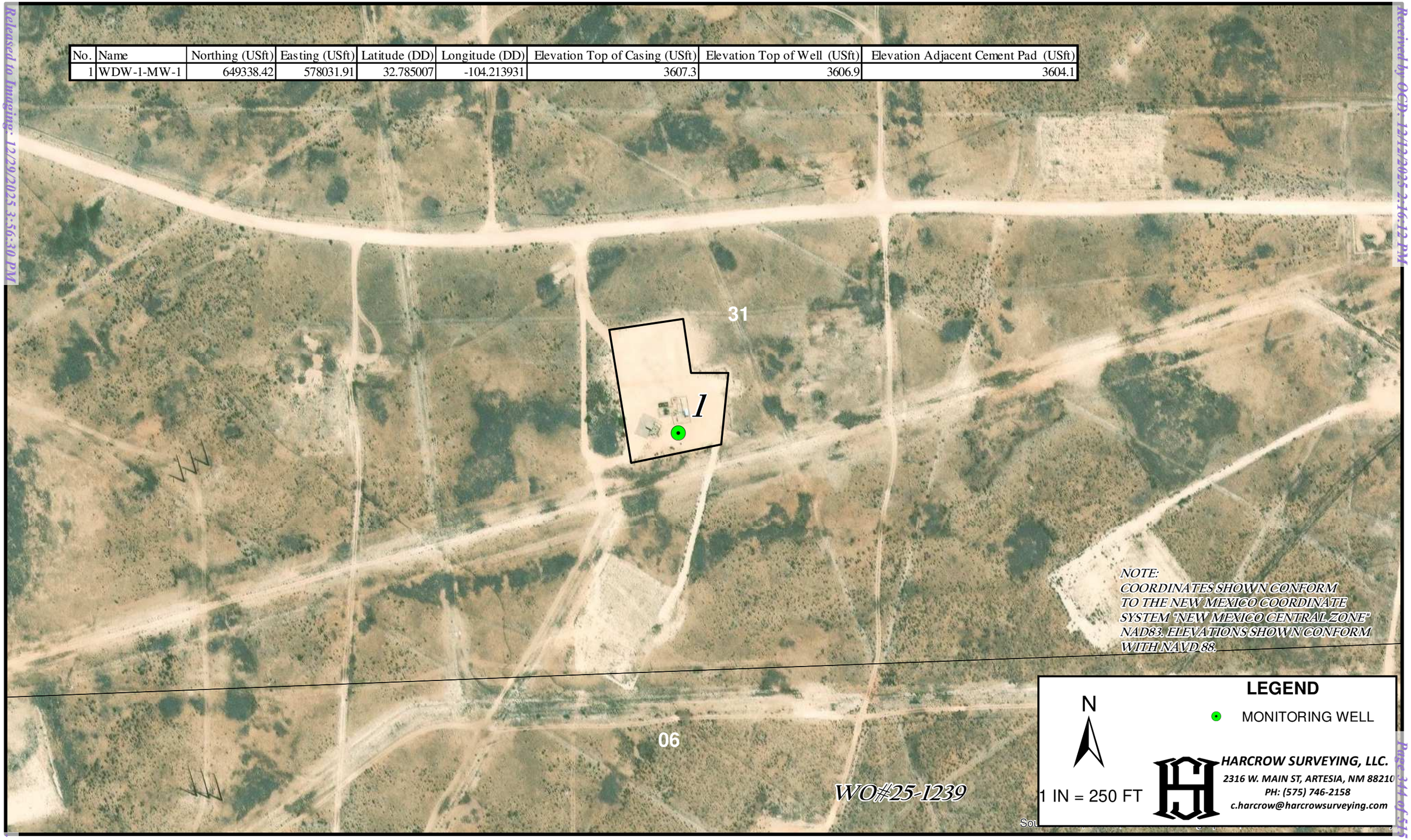
Login Number: 22690 **List Source: Eurofins Houston**
List Number: 2 **List Creation: 04/08/25 12:15 PM**
Creator: Torrez, Lisandra

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Appendix J

Well Surveys

No.	Name	Northing (USft)	Easting (USft)	Latitude (DD)	Longitude (DD)	Elevation Top of Casing (USft)	Elevation Top of Well (USft)	Elevation Adjacent Cement Pad (USft)
1	WDW-1-MW-1	649338.42	578031.91	32.785007	-104.213931	3607.3	3606.9	3604.1



NOTE:
COORDINATES SHOWN CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO CENTRAL ZONE" NAD83. ELEVATIONS SHOWN CONFORM WITH NAVD 88.

LEGEND

MONITORING WELL

N

1 IN = 250 FT

WO#25-1239

HARCROW SURVEYING, LLC.
2316 W. MAIN ST, ARTESIA, NM 8821(
PH: (575) 746-2158
c.harcrow@harcrowsurveying.com

HARCROW SURVEYING LLC.

2316 W. MAIN STREET *575-746-2158 Office*
ARTESIA, NEW MEXICO *575-746-2158 Fax*
www.harcrowsurveying.com *c.harcrow@harcrowsurving.com*

September 26, 2024

HF Sinclair.
Attn: Mike Holder.
RE: WDW well coordinates.

Well Coordinates

Dear Mike Holder,

Below is a table of the coordinates for the four WDW wells in Section 6, 31, Township 18,17 South, Range 28 East. This data is provided in State Plane New Mexico East 3001 NAD83 coordinates with NAVD88 elevations.

WDW #1	
NAD 83 COORDINATES	N: 649416.54 (N)
	E: 578025.93 (E)
	EL: 3603.28'
LAT AND LONG COORDINATES	LAT: 32.785222° N
	LONG: 104.213950° W
WDW #2	
NAD 83 COORDINATES	N: 641580.81 (N)
	E: 570492.05 (E)
	EL: 3533.03'
LAT AND LONG COORDINATES	LAT: 32.763705° N
	LONG: 104.238488° W
WDW #3	
NAD 83 COORDINATES	N: 644329.77 (N)
	E: 572093.60 (E)
	EL: 3531.43'
LAT AND LONG COORDINATES	LAT: 32.771257° N
	LONG: 104.233270° W
WDW #4	
NAD 83 COORDINATES	N: 660607.71 (N)
	E: 566954.51 (E)
	EL: 3488.39'
LAT AND LONG COORDINATES	LAT: 32.816011° N
	LONG: 104.249948° W

Chad Harcrow

Chad Harcrow, P.L.S. No. 17777

CHAD L. HARCROW NEW MEXICO 17777 LICENSED PROFESSIONAL SURVEYOR

9/26/24
Date

Appendix K

WDW-1-MW-1 Analytical Results

DBS&A
a Geo-Logic Company

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Elizabeth Bastien
Daniel B. Stephens & Associates Inc.
6501 Americas Pkwy NE
Suite 200
Albuquerque, New Mexico 87110

Generated 7/22/2025 2:44:41 PM Revision 1

JOB DESCRIPTION

HFSNR

JOB NUMBER

885-26493-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

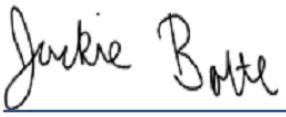
See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization



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7/22/2025 2:44:41 PM
Revision 1

Authorized for release by
Jackie Bolte, Project Manager
jackie.bolte@et.eurofinsus.com
(505)345-3975

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Laboratory Job ID: 885-26493-1

Table of Contents

Definitions/Glossary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit

Definitions/Glossary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project: HFSNR

Job ID: 885-26493-1 Eurofins Albuquerque

Job Narrative
885-26493-1

REVISION

The report being provided is a revision of the original report sent on 7/10/2025. The report (revision 1) is being revised due to Adding extra 8260/8270 analytes..

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/11/2025 8:32 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.3°C and 1.0°C.

GC/MS VOA
Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-588153. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8260B: The following sample was collected in improper unpreserved vials for analysis of volatile organic compounds (VOCs). The pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: WDW-1-MW-1 20250610 (885-26493-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 400-713031 and analytical batch 400-713401 recovered outside control limits for the following analytes: N-Nitrosodi-n-butylamine.

Method 8270E: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 400-713031 and analytical batch 400-713401 recovered outside control limits for the following analytes: N-Nitrosodi-n-butylamine and Sulfolane. The associated sample(s) was re-prepared and/or re-analyzed outside holding time. Both sets of data have been reported.

Method 8270E_QQQ: The method blank for preparation batch 885-28181 and analytical batch 885-28246 contained Butyl benzyl phthalate above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270E_QQQ: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-28181 and analytical batch 885-28246 recovered outside control limits for the following analytes: Aniline. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E_QQQ: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-28181 and analytical batch 885-28246 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8270E_QQQ: The continuing calibration verification (CCV) associated with batch 885-28246 recovered above the upper

Case Narrative

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project: HFSNR

control limit for Benzoic acid and Bis(2-ethylhexyl) phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is:WDW-1-MW-1 20250610 (885-26493-1).

Method 8270E_QQQ: The laboratory control sample (LCS) for preparation batch 885-28181 and analytical batch 885-28246 recovered outside control limits for the following analytes: 1,2,4-Trichlorobenzene, 1-Methylnaphthalene, 2-Chloronaphthalene, 2-Methylnaphthalene, 4-Bromophenyl phenyl ether, 4-Chlorophenyl phenyl ether, Acenaphthene, Acenaphthylene, Dibenzofuran, Fluorene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane and Naphthalene.

Method 8270E_QQQ: The laboratory control sample (LCS) for preparation batch 885-28181 and analytical batch 885-28246 recovered outside control limits for the following analytes: 1-Methylnaphthalene, 2-Methylnaphthalene, Acenaphthene, Fluorene and Naphthalene. The associated sample(s) was re-prepared and/or re-analyzed outside holding time. Reporting original confirmed results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8011: The laboratory control sample (LCS) for preparation batch 885-28244 and analytical batch 885-28260 recovered outside control limits for the following analytes: 1,2-Dibromo-3-Chloropropane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
Method 8151A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-583827.
8151A_AP

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs
Method 8082: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-584606 and analytical batch 570-585270 recovered outside control limits for the following analytes: PCB-1260. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8082: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-584606 and analytical batch 570-585270 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8082: Surrogate recovery for the following sample was outside control limits: WDW-1-MW-1 20250610 (885-26493-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides
Method 8081B: Surrogate recovery for the following sample was outside the upper control limit: WDW-1-MW-1 20250610 (885-26493-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8081B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 570-584606 and analytical batch 570-588912 recovered outside control limits for the following analytes: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aldrin, alpha-BHC, beta-BHC, delta-BHC, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin aldehyde, gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide and Methoxychlor. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8081B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-584606 and analytical batch 570-588912 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8081B: Surrogate recovery for the following samples were outside control limits: (885-26493-Y-1-A MS) and (885-26493-

Case Narrative

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
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Y-1-B MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8081B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-584606 and analytical batch 570-595047 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 8081B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-584606 and analytical batch 570-595047 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Explosives
Method 8330: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-584032.Method:8330

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_OF_28D_PREC: The following sample was diluted due to the nature of the sample matrix: WDW-1-MW-1 20250610 (885-26493-1). Elevated reporting limits (RLs) are provided.

Method 300_OF_48H_PREC: The following sample was diluted due to the nature of the sample matrix: WDW-1-MW-1 20250610 (885-26493-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 200.7 - Dissolved: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 885-28344 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_SingleDry: The analysis volume selected for the following samples produced a base result greater than 200mg before calculation of the final result: WDW-1-MW-1 20250610 (885-26493-1), (885-26647-L-1) and (885-26647-L-1 DU). Reanalysis could not be performed due to, holding time exceedance. Visual inspection by analyst shows no signs of trapped moisture, report as is. The reference method specifies that no more than 200mg of weight be recovered for a chosen sample analysis volume in order to produce the best data precision. As such, these data have been qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gas Flow Proportional Counter
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			06/20/25 21:22	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			06/20/25 21:22	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			06/20/25 21:22	1
1,3-Dichloropropene, Total	ND		1.0	0.31	ug/L			06/24/25 02:36	1
Acrolein	ND		20	11	ug/L			06/24/25 02:36	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Acrylonitrile	ND		10	2.7	ug/L			06/24/25 02:36	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
cis-1,3-Dichloropropene	ND		0.50	0.26	ug/L			06/24/25 02:36	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			06/20/25 21:22	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			06/20/25 21:22	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			06/20/25 21:22	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			06/20/25 21:22	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 21:22	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			06/20/25 21:22	1
2-Butanone	ND		10	2.0	ug/L			06/20/25 21:22	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
2-Hexanone	ND		10	2.0	ug/L			06/20/25 21:22	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 21:22	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			06/20/25 21:22	1
Acetone	ND		10	2.5	ug/L			06/20/25 21:22	1
Benzene	**0.31**	**J**	1.0	0.15	ug/L			06/20/25 21:22	1
Bromobenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Bromodichloromethane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Dibromochloromethane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Bromoform	ND		1.0	0.40	ug/L			06/20/25 21:22	1
Bromomethane	ND		3.0	2.0	ug/L			06/20/25 21:22	1
Carbon disulfide	ND		10	0.40	ug/L			06/20/25 21:22	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Chlorobenzene	ND		1.0	0.50	ug/L			06/20/25 21:22	1
Chloroethane	ND		2.0	0.40	ug/L			06/20/25 21:22	1
Chloroform	ND		1.0	0.25	ug/L			06/20/25 21:22	1
Chloromethane	ND		3.0	1.0	ug/L			06/20/25 21:22	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			06/20/25 21:22	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Dibromomethane	ND		1.0	0.40	ug/L			06/20/25 21:22	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			06/20/25 21:22	1
Ethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			06/20/25 21:22	1
Isopropylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			06/20/25 21:22	1
Methylene Chloride	ND		2.5	1.0	ug/L			06/20/25 21:22	1
n-Butylbenzene	ND		3.0	0.20	ug/L			06/20/25 21:22	1
N-Propylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Naphthalene	ND		2.0	0.50	ug/L			06/20/25 21:22	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Styrene	ND		1.0	0.25	ug/L			06/20/25 21:22	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			06/20/25 21:22	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Toluene	**48**		1.0	0.20	ug/L			06/20/25 21:22	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			06/20/25 21:22	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			06/20/25 21:22	1
Vinyl chloride	ND		1.0	0.30	ug/L			06/20/25 21:22	1
Xylenes, Total	ND		1.5	0.20	ug/L			06/20/25 21:22	1
trans-1,3-Dichloropropene	ND		0.50	0.31	ug/L			06/24/25 02:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*		*06/24/25 02:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*80 - 120*		*06/24/25 02:36*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/24/25 02:36*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/24/25 02:36*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/24/25 02:36*	*1*
Dibromofluoromethane (Surr)	*105*		*80 - 120*		*06/24/25 02:36*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/24/25 02:36*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*06/24/25 02:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*06/20/25 21:22*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/20/25 21:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*06/20/25 21:22*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*06/20/25 21:22*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Prometon	ND		2.7	1.2	ug/L		06/16/25 07:00	06/23/25 19:05	1
Benzidine	ND	*1	25	10	ug/L		06/17/25 07:00	06/19/25 17:43	1
N-Nitrosodi-n-butylamine	ND	*- *1	10	8.7	ug/L		06/17/25 07:00	06/19/25 17:43	1
Sulfolane	ND	*-	10	1.4	ug/L		06/17/25 07:00	06/19/25 17:43	1
Pentachlorobenzene	ND	*- *1	10	2.8	ug/L		06/17/25 07:00	06/19/25 17:43	1
1,2,4,5-Tetrachlorobenzene	ND	*1	10	3.3	ug/L		06/17/25 07:00	06/19/25 17:43	1
Atrazine	ND	*-	10	5.0	ug/L		06/17/25 07:00	06/19/25 17:43	1
N-Nitrosodiethylamine	ND	*1	10	3.4	ug/L		06/17/25 07:00	06/19/25 17:43	1
N-Nitrosopyrrolidine	ND	*- *1	10	3.4	ug/L		06/17/25 07:00	06/19/25 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*28*		*10 - 129*	*06/17/25 07:00*	*06/19/25 17:43*	*1*

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	28		10 - 129	06/17/25 07:00	06/19/25 17:43	1
Terphenyl-d14 (Surr)	92		13 - 150	06/17/25 07:00	06/19/25 17:43	1
Terphenyl-d14 (Surr)	92		13 - 150	06/17/25 07:00	06/19/25 17:43	1
Triphenylphosphate	102		16 - 164	06/16/25 07:00	06/23/25 19:05	1
2,4,6-Tribromophenol (Surr)	76		10 - 150	06/17/25 07:00	06/19/25 17:43	1
2,4,6-Tribromophenol (Surr)	76		10 - 150	06/17/25 07:00	06/19/25 17:43	1
2-Fluorobiphenyl	69		21 - 114	06/17/25 07:00	06/19/25 17:43	1
2-Fluorobiphenyl	69		21 - 114	06/17/25 07:00	06/19/25 17:43	1
2-Fluorophenol (Surr)	41		10 - 105	06/17/25 07:00	06/19/25 17:43	1
2-Fluorophenol (Surr)	41		10 - 105	06/17/25 07:00	06/19/25 17:43	1
Nitrobenzene-d5 (Surr)	67		16 - 127	06/17/25 07:00	06/19/25 17:43	1
Nitrobenzene-d5 (Surr)	67		16 - 127	06/17/25 07:00	06/19/25 17:43	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND	*-	1.0	0.078	ug/L		06/13/25 07:00	06/13/25 17:10	1
1,2-Dichlorobenzene	ND		1.0	0.087	ug/L		06/13/25 07:00	06/13/25 17:10	1
1,3-Dichlorobenzene	ND		1.0	0.090	ug/L		06/13/25 07:00	06/13/25 17:10	1
1,4-Dichlorobenzene	ND		2.0	0.082	ug/L		06/13/25 07:00	06/13/25 17:10	1
1,4-Dioxane	ND		0.50	0.23	ug/L		06/13/25 07:00	06/13/25 17:10	1
1-Methylnaphthalene	ND	*-	0.20	0.097	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4,5-Trichlorophenol	ND		1.0	0.075	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4,6-Trichlorophenol	ND		1.0	0.082	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4-Dichlorophenol	ND		1.0	0.072	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4-Dimethylphenol	ND		1.0	0.099	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4-Dinitrophenol	ND		3.0	1.4	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,4-Dinitrotoluene	ND		1.0	0.078	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,6-Dinitrotoluene	ND		1.0	0.51	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Chloronaphthalene	ND	*-	1.0	0.062	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Chlorophenol	ND		1.0	0.31	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Methylnaphthalene	ND	*-	0.20	0.087	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Methylphenol	**0.33**	**J**	1.0	0.063	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Nitroaniline	ND		1.0	0.38	ug/L		06/13/25 07:00	06/13/25 17:10	1
2-Nitrophenol	**0.12**	**J**	1.0	0.079	ug/L		06/13/25 07:00	06/13/25 17:10	1
3 & 4 Methylphenol	**0.75**	**J**	1.0	0.066	ug/L		06/13/25 07:00	06/13/25 17:10	1
3,3'-Dichlorobenzidine	ND		1.0	0.63	ug/L		06/13/25 07:00	06/13/25 17:10	1
3-Nitroaniline	ND		1.0	0.36	ug/L		06/13/25 07:00	06/13/25 17:10	1
4,6-Dinitro-2-methylphenol	ND		2.0	1.2	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Bromophenyl phenyl ether	ND	*-	1.0	0.077	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Chloro-3-methylphenol	ND		1.0	0.12	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Chloroaniline	ND		1.0	0.33	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Chlorophenyl phenyl ether	ND	*-	1.0	0.062	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Nitroaniline	ND		1.0	0.50	ug/L		06/13/25 07:00	06/13/25 17:10	1
4-Nitrophenol	ND		1.0	0.64	ug/L		06/13/25 07:00	06/13/25 17:10	1
Acenaphthene	ND	*-	0.20	0.085	ug/L		06/13/25 07:00	06/13/25 17:10	1
Acenaphthylene	ND	*-	0.20	0.064	ug/L		06/13/25 07:00	06/13/25 17:10	1
Aniline	ND	*+	10	1.7	ug/L		06/13/25 07:00	06/13/25 17:10	1
Anthracene	ND		0.20	0.056	ug/L		06/13/25 07:00	06/13/25 17:10	1
Azobenzene	ND		1.0	0.49	ug/L		06/13/25 07:00	06/13/25 17:10	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]anthracene	ND		0.20	0.047	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzo[a]pyrene	ND		0.070	0.057	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzo[b]fluoranthene	ND		0.20	0.066	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzo[g,h,i]perylene	ND		0.20	0.056	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzo[k]fluoranthene	ND		0.20	0.048	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzoic acid	ND		15	7.1	ug/L		06/13/25 07:00	06/13/25 17:10	1
Benzyl alcohol	**0.59**	**J**	1.0	0.14	ug/L		06/13/25 07:00	06/13/25 17:10	1
Bis(2-chloroethoxy)methane	ND		1.0	0.060	ug/L		06/13/25 07:00	06/13/25 17:10	1
Bis(2-chloroethyl)ether	ND		1.0	0.090	ug/L		06/13/25 07:00	06/13/25 17:10	1
2,2'-oxybis[1-chloropropane]	ND		1.0	0.092	ug/L		06/13/25 07:00	06/13/25 17:10	1
Bis(2-ethylhexyl) phthalate	ND		1.0	0.95	ug/L		06/13/25 07:00	06/13/25 17:10	1
Butyl benzyl phthalate	ND		1.0	0.44	ug/L		06/13/25 07:00	06/13/25 17:10	1
Carbazole	ND		1.0	0.083	ug/L		06/13/25 07:00	06/13/25 17:10	1
Chrysene	ND		0.20	0.062	ug/L		06/13/25 07:00	06/13/25 17:10	1
Di-n-butyl phthalate	ND		1.5	1.1	ug/L		06/13/25 07:00	06/13/25 17:10	1
Di-n-octyl phthalate	ND		1.0	0.061	ug/L		06/13/25 07:00	06/13/25 17:10	1
Dibenz(a,h)anthracene	ND		0.20	0.045	ug/L		06/13/25 07:00	06/13/25 17:10	1
Dibenzofuran	ND	*-	1.0	0.075	ug/L		06/13/25 07:00	06/13/25 17:10	1
Diethyl phthalate	ND		1.5	1.5	ug/L		06/13/25 07:00	06/13/25 17:10	1
Dimethyl phthalate	ND		1.0	0.099	ug/L		06/13/25 07:00	06/13/25 17:10	1
Fluoranthene	ND		0.20	0.068	ug/L		06/13/25 07:00	06/13/25 17:10	1
Fluorene	ND	*-	0.20	0.081	ug/L		06/13/25 07:00	06/13/25 17:10	1
Hexachlorobenzene	ND		5.0	0.49	ug/L		06/13/25 07:00	06/13/25 17:10	1
Hexachlorobutadiene	ND	*-	5.0	3.5	ug/L		06/13/25 07:00	06/13/25 17:10	1
Hexachlorocyclopentadiene	ND	*-	5.0	3.5	ug/L		06/13/25 07:00	06/13/25 17:10	1
Hexachloroethane	ND	*-	5.0	3.3	ug/L		06/13/25 07:00	06/13/25 17:10	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.058	ug/L		06/13/25 07:00	06/13/25 17:10	1
Isophorone	ND		1.0	0.22	ug/L		06/13/25 07:00	06/13/25 17:10	1
N-Nitrosodi-n-propylamine	ND		1.0	0.65	ug/L		06/13/25 07:00	06/13/25 17:10	1
N-Nitrosodimethylamine	ND		1.0	0.29	ug/L		06/13/25 07:00	06/13/25 17:10	1
N-Nitrosodiphenylamine	ND		1.0	0.32	ug/L		06/13/25 07:00	06/13/25 17:10	1
Naphthalene	ND	*-	0.20	0.077	ug/L		06/13/25 07:00	06/13/25 17:10	1
Nitrobenzene	ND		1.0	0.66	ug/L		06/13/25 07:00	06/13/25 17:10	1
Pentachlorophenol	ND		0.33	0.33	ug/L		06/13/25 07:00	06/13/25 17:10	1
Phenanthrene	ND		0.20	0.061	ug/L		06/13/25 07:00	06/13/25 17:10	1
Phenol	**2.2**		1.0	0.28	ug/L		06/13/25 07:00	06/13/25 17:10	1
Pyrene	ND		0.20	0.067	ug/L		06/13/25 07:00	06/13/25 17:10	1
Pyridine	ND		10	2.6	ug/L		06/13/25 07:00	06/13/25 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*39*		*15 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*
2,4,6-Tribromophenol (Surr)	*54*		*15 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*
Nitrobenzene-d5 (Surr)	*107*		*29 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*
2-Fluorobiphenyl	*56*		*20 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*
p-Terphenyl-d14 (Surr)	*86*		*41 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*
2-Fluorophenol (Surr)	*38*		*15 - 130*	*06/13/25 07:00*	*06/13/25 17:10*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0096	0.0077	ug/L		06/13/25 09:38	06/13/25 18:43	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	ND		0.019	0.0082	ug/L		06/13/25 09:38	06/13/25 18:43	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0044	ug/L		06/16/25 10:14	06/25/25 00:28	1
4,4'-DDE	ND		0.020	0.0056	ug/L		06/16/25 10:14	06/25/25 00:28	1
4,4'-DDT	ND		0.020	0.0078	ug/L		06/16/25 10:14	06/25/25 00:28	1
Aldrin	ND		0.020	0.0053	ug/L		06/16/25 10:14	06/25/25 00:28	1
alpha-BHC	ND		0.020	0.0019	ug/L		06/16/25 10:14	06/25/25 00:28	1
beta-BHC	ND		0.020	0.013	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane (technical) Peak 1	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane (technical) Peak 2	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane (technical) Peak 3	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane (technical) Peak 4	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
Chlordane (technical) Peak 5	ND		0.20	0.058	ug/L		06/16/25 10:14	06/25/25 00:28	1
delta-BHC	ND		0.020	0.0015	ug/L		06/16/25 10:14	06/25/25 00:28	1
Dieldrin	ND		0.020	0.0032	ug/L		06/16/25 10:14	06/25/25 00:28	1
Endosulfan I	ND		0.020	0.0069	ug/L		06/16/25 10:14	06/25/25 00:28	1
Endosulfan II	ND		0.020	0.0037	ug/L		06/16/25 10:14	06/25/25 00:28	1
Endosulfan sulfate	ND		0.020	0.0063	ug/L		06/16/25 10:14	06/25/25 00:28	1
Endrin	ND		0.020	0.0035	ug/L		06/16/25 10:14	06/25/25 00:28	1
Endrin aldehyde	ND		0.020	0.0072	ug/L		06/16/25 10:14	06/25/25 00:28	1
gamma-BHC (Lindane)	ND		0.020	0.0020	ug/L		06/16/25 10:14	06/25/25 00:28	1
Heptachlor	ND		0.020	0.0034	ug/L		06/16/25 10:14	06/25/25 00:28	1
Heptachlor epoxide	ND		0.020	0.0029	ug/L		06/16/25 10:14	06/25/25 00:28	1
Methoxychlor	ND		0.020	0.0091	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene Peak 1	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene Peak 2	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene Peak 3	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene Peak 4	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1
Toxaphene Peak 5	ND		0.40	0.11	ug/L		06/16/25 10:14	06/25/25 00:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*161*	*S1+*	*20 - 120*	*06/16/25 10:14*	*06/25/25 00:28*	*1*
Tetrachloro-m-xylene	*104*		*32 - 127*	*06/16/25 10:14*	*06/25/25 00:28*	*1*

Method: SW846 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1221	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1232	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1242	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1248	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1254	ND		0.40	0.16	ug/L		06/16/25 10:14	06/17/25 13:50	1
PCB-1260	ND	F1 *+	0.40	0.16	ug/L		06/16/25 10:14	06/17/25 13:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*86*		*33 - 137*	*06/16/25 10:14*	*06/17/25 13:50*	*1*

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: SW846 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*134*	*S1+*	*20 - 120*	*06/16/25 10:14*	*06/17/25 13:50*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.51	0.22	ug/L		06/13/25 13:20	06/16/25 18:32	1
2,4,5-TP (Silvex)	ND		0.51	0.14	ug/L		06/13/25 13:20	06/16/25 18:32	1
2,4-D	ND		5.1	2.0	ug/L		06/13/25 13:20	06/16/25 18:32	1
2,4-DB	ND		5.1	3.6	ug/L		06/13/25 13:20	06/16/25 18:32	1
Dalapon	ND		13	4.8	ug/L		06/13/25 13:20	06/16/25 18:32	1
Dicamba	ND		0.51	0.29	ug/L		06/13/25 13:20	06/16/25 18:32	1
Dichlorprop	ND		5.1	2.0	ug/L		06/13/25 13:20	06/16/25 18:32	1
Dinoseb	ND		2.6	2.2	ug/L		06/13/25 13:20	06/16/25 18:32	1
MCPA	ND		510	360	ug/L		06/13/25 13:20	06/16/25 18:32	1
MCPP	ND		510	310	ug/L		06/13/25 13:20	06/16/25 18:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr)	*42*		*20 - 161*	*06/13/25 13:20*	*06/16/25 18:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**1.7**		1.0	0.50	mg/L			06/11/25 17:53	10
Nitrate	ND		1.0	0.20	mg/L			06/11/25 17:53	10
Chloride	**1100**		50	25	mg/L			06/11/25 18:04	100
Nitrite	ND		10	1.2	mg/L			06/11/25 18:04	100
Fluoride	ND		1.0	0.46	mg/L			06/11/25 17:53	10
Sulfate	**1800**		5.0	3.9	mg/L			06/11/25 17:53	10

Method: SW846 8330 - Nitroaromatics and Nitramines (HPLC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	ND		1.1	0.59	ug/L		06/13/25 21:12	06/16/25 18:57	1
1,3-Dinitrobenzene	ND		1.1	0.48	ug/L		06/13/25 21:12	06/16/25 18:57	1
2,4,6-Trinitrotoluene	ND		1.1	0.84	ug/L		06/13/25 21:12	06/16/25 18:57	1
2,4-Dinitrotoluene	ND		1.1	0.50	ug/L		06/13/25 21:12	06/16/25 18:57	1
2,6-Dinitrotoluene	ND		1.1	0.43	ug/L		06/13/25 21:12	06/16/25 18:57	1
2-Amino-4,6-DNT	ND		1.1	0.44	ug/L		06/13/25 21:12	06/16/25 18:57	1
2-Nitrotoluene	ND		1.1	0.38	ug/L		06/13/25 21:12	06/16/25 18:57	1
3-Nitrotoluene	ND		1.1	0.43	ug/L		06/13/25 21:12	06/16/25 18:57	1
4-Amino-2,6-DNT	ND		1.1	0.42	ug/L		06/13/25 21:12	06/16/25 18:57	1
4-Nitrotoluene	ND		1.1	0.44	ug/L		06/13/25 21:12	06/16/25 18:57	1
HMX	ND		1.1	0.60	ug/L		06/13/25 21:12	06/16/25 18:57	1
Nitrobenzene	ND		1.1	0.42	ug/L		06/13/25 21:12	06/16/25 18:57	1
RDX	ND		1.1	0.47	ug/L		06/13/25 21:12	06/16/25 18:57	1
Tetryl	ND		1.1	0.99	ug/L		06/13/25 21:12	06/16/25 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*106*		*60 - 150*	*06/13/25 21:12*	*06/16/25 18:57*	*1*

Method: EPA 331.0 - Perchlorate (LC/MS/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	**0.69**		0.20	0.040	ug/L			06/16/25 13:24	2

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.0017**	**J**	0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluoroheptanoic acid (PFHpA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorooctanoic acid (PFOA)	**0.00046**	**J**	0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorononanoic acid (PFNA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorodecanoic acid (PFDA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorotetradecanoic acid (PFTA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Perfluorooctanesulfonic acid (PFOS)	**0.00050**	**J**	0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
Hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0018	0.00045	ug/L		06/20/25 04:29	06/21/25 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*06/20/25 04:29*	*06/21/25 04:08*	*1*
13C2 PFDA	*103*		*70 - 130*	*06/20/25 04:29*	*06/21/25 04:08*	*1*
d5-NEtFOSAA	*112*		*70 - 130*	*06/20/25 04:29*	*06/21/25 04:08*	*1*
13C3 HFPO-DA	*82*		*70 - 130*	*06/20/25 04:29*	*06/21/25 04:08*	*1*

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND	F1	0.020	0.017	mg/L			06/14/25 12:26	1
Barium	**0.087**		0.0030	0.0018	mg/L			06/14/25 12:26	1
Beryllium	ND		0.0020	0.0011	mg/L			06/14/25 12:26	1
Boron	**1.6**		0.40	0.053	mg/L			06/14/25 12:33	10
Cadmium	ND		0.0020	0.0017	mg/L			06/14/25 12:26	1
Calcium	**820**		10	4.2	mg/L			06/14/25 12:33	10
Chromium	ND		0.0060	0.0030	mg/L			06/14/25 12:26	1
Cobalt	ND		0.0060	0.0033	mg/L			06/14/25 12:26	1
Iron	ND		0.020	0.0093	mg/L			06/14/25 12:26	1
Magnesium	**51**		10	0.64	mg/L			06/14/25 12:33	10
Manganese	ND		0.0020	0.0012	mg/L			06/14/25 12:26	1
Molybdenum	**0.080**		0.0080	0.0063	mg/L			06/14/25 12:26	1
Nickel	ND		0.010	0.0040	mg/L			06/14/25 12:26	1
Potassium	**28**		1.0	0.45	mg/L			06/14/25 12:26	1
Sodium	**520**		10	2.5	mg/L			06/14/25 12:33	10
Zinc	ND		0.010	0.0075	mg/L			06/14/25 12:26	1
Silver	**0.011**		0.0050	0.0015	mg/L			06/14/25 12:26	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0050	0.0014	mg/L			06/24/25 15:34	5
Arsenic	ND		0.0025	0.0020	mg/L			06/24/25 15:34	5
Copper	ND		0.0025	0.0015	mg/L			06/24/25 15:34	5
Lead	ND		0.0025	0.0017	mg/L			06/24/25 15:34	5
Selenium	**0.0060**		0.0050	0.0046	mg/L			06/24/25 15:34	5
Cadmium	ND		0.0025	0.00088	mg/L			06/24/25 15:34	5
Thallium	ND		0.0013	0.00018	mg/L			06/24/25 15:34	5
Uranium	ND		0.0025	0.00097	mg/L			06/24/25 15:34	5

Method: EPA 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000080	mg/L		06/12/25 08:59	06/12/25 12:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4500**	**E**	50	25	mg/L			06/17/25 11:26	1
Phenols, Total (EPA 420.4)	**0.012**		0.0050	0.0020	mg/L			07/03/25 12:39	1
Total Alkalinity as CaCO3 (SM 2320B)	**41**		20	20	mg/L			06/12/25 20:11	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		20	20	mg/L			06/12/25 20:11	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	**27**		2.0	2.0	mg/L			06/12/25 20:11	1
Specific Conductance (SM 2510B)	**5800**		10	10	umhos/cm			06/12/25 20:11	1
Cyanide, Total (SM 4500 CN E)	ND		0.025	0.0040	mg/L		06/13/25 16:24	06/13/25 17:52	1
pH (SM 4500 H+ B)	**9.5**	**HF**	0.1	0.1	SU			06/12/25 20:11	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.965**		0.357	0.368	1.00	0.394	pCi/L	06/16/25 08:21	07/09/25 16:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*30 - 110*	*06/16/25 08:21*	*07/09/25 16:41*	*1*

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.70**		0.516	0.539	1.00	0.587	pCi/L	06/16/25 08:26	07/09/25 12:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.3*		*30 - 110*	*06/16/25 08:26*	*07/09/25 12:10*	*1*
Y Carrier	*82.2*		*30 - 110*	*06/16/25 08:26*	*07/09/25 12:10*	*1*

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: Trip Blank
Date Collected: 06/10/25 00:00
Date Received: 06/11/25 08:32

Lab Sample ID: 885-26493-2
Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			06/20/25 21:50	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			06/20/25 21:50	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			06/20/25 21:50	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			06/20/25 21:50	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			06/20/25 21:50	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			06/20/25 21:50	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			06/20/25 21:50	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 21:50	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			06/20/25 21:50	1
2-Butanone	ND		10	2.0	ug/L			06/20/25 21:50	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
2-Hexanone	ND		10	2.0	ug/L			06/20/25 21:50	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 21:50	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			06/20/25 21:50	1
Acetone	ND		10	2.5	ug/L			06/20/25 21:50	1
Benzene	ND		1.0	0.15	ug/L			06/20/25 21:50	1
Bromobenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Bromodichloromethane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Dibromochloromethane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Bromoform	ND		1.0	0.40	ug/L			06/20/25 21:50	1
Bromomethane	ND		3.0	2.0	ug/L			06/20/25 21:50	1
Carbon disulfide	ND		10	0.40	ug/L			06/20/25 21:50	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Chlorobenzene	ND		1.0	0.50	ug/L			06/20/25 21:50	1
Chloroethane	ND		2.0	0.40	ug/L			06/20/25 21:50	1
Chloroform	ND		1.0	0.25	ug/L			06/20/25 21:50	1
Chloromethane	ND		3.0	1.0	ug/L			06/20/25 21:50	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			06/20/25 21:50	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Dibromomethane	ND		1.0	0.40	ug/L			06/20/25 21:50	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			06/20/25 21:50	1
Ethylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			06/20/25 21:50	1
Isopropylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: Trip Blank
Lab Sample ID: 885-26493-2
Date Collected: 06/10/25 00:00
Matrix: Water
Date Received: 06/11/25 08:32

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			06/20/25 21:50	1
Methylene Chloride	ND		2.5	1.0	ug/L			06/20/25 21:50	1
n-Butylbenzene	ND		3.0	0.20	ug/L			06/20/25 21:50	1
N-Propylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Naphthalene	ND		2.0	0.50	ug/L			06/20/25 21:50	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Styrene	ND		1.0	0.25	ug/L			06/20/25 21:50	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			06/20/25 21:50	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Toluene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			06/20/25 21:50	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			06/20/25 21:50	1
Vinyl chloride	ND		1.0	0.30	ug/L			06/20/25 21:50	1
Xylenes, Total	ND		1.5	0.20	ug/L			06/20/25 21:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*06/20/25 21:50*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*06/20/25 21:50*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*06/20/25 21:50*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*06/20/25 21:50*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0098	0.0078	ug/L		06/13/25 09:38	06/13/25 18:58	1
1,2-Dibromo-3-Chloropropane	ND		0.020	0.0083	ug/L		06/13/25 09:38	06/13/25 18:58	1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CATION/ANION BALANCE SHEET FOR WATER ANALYSES

HEAL LAB NUMBER	WDW-1-MW-1 20250610 885-26493											
CATIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sodium	520	22.62										
Potassium	28	0.72										
Calcium	820	40.92										
Magnesium	51	4.20										
Total Cations		68.45										
ANIONS	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Sulfate	1800	37.48										
Chloride	1100	31.03										
Bicarbonate (CaCO3)	41	0.82	-									
Carbonate (CaCO3)												
Phosphate (P)												
Nitrite (N)												
Nitrate (N)					-							
Fluoride												
Bromide	1.7	0.02										
Total Anions		69.35										
Elect. Cond. (µMhos/cm)	5800											
CATION/ANION RATIO		0.99										
% Difference		1										
TOTAL DISSOLVED SOLIDS RATIOS												
TDS (measured)	4500											
TDS (calculated)	4345											
Ratio meas TDS:calc TDS		1.0										
Ratio Meas. TDS:EC		0.78										
Ratio Calc. TDS:EC		0.75										
Ratio of anion sum:EC		1.2										
Ratio of cation sum:EC		1.2										

* Analyte not detected (below method detection limit).

** Values below 0.55 can be obtained in waters containing appreciable concentrations of free acid or alkalinity, or not within pH 6 to 9. Values much higher than 0.7 are possible in highly saline waters.

GENERALLY ACCEPTED RANGES

Cation/Anion balance: 0-3 meq/L- 0.2 meq/L, 3-10 meq/L- 2%, >10 meq/L - 5%

Ratio measured TDS:calculated TDS -- 1.0-1.2. Ratio Calculated TDS:EC -- 0.55-0.7. Ratio Measured TDS:EC--0.55-0.7. Ratio of anion sum:EC -- 0.9-1.1.

Ratio of cation sum:EC -- 0.9-1.1

Tracer/Carrier Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(30-110)							
885-26493-1	WDW-1-MW-1 20250610	85.3							
LCS 160-722503/2-A	Lab Control Sample	83.8							
MB 160-722503/1-A	Method Blank	88.6							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba	Y						
Lab Sample ID	Client Sample ID	(30-110)	(30-110)						
885-26493-1	WDW-1-MW-1 20250610	85.3	82.2						
LCS 160-722504/2-A	Lab Control Sample	83.8	81.9						
MB 160-722504/1-A	Method Blank	88.6	84.1						

Tracer/Carrier Legend

Ba = Ba Carrier
Y = Y Carrier

QC Sample Results

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Job ID: 885-26493-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-28780/5
Matrix: Water
Analysis Batch: 28780

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			06/20/25 18:09	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			06/20/25 18:09	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			06/20/25 18:09	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			06/20/25 18:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			06/20/25 18:09	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			06/20/25 18:09	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			06/20/25 18:09	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 18:09	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			06/20/25 18:09	1
2-Butanone	ND		10	2.0	ug/L			06/20/25 18:09	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
2-Hexanone	ND		10	2.0	ug/L			06/20/25 18:09	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			06/20/25 18:09	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			06/20/25 18:09	1
Acetone	ND		10	2.5	ug/L			06/20/25 18:09	1
Benzene	ND		1.0	0.15	ug/L			06/20/25 18:09	1
Bromobenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Bromodichloromethane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Dibromochloromethane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Bromoform	ND		1.0	0.40	ug/L			06/20/25 18:09	1
Bromomethane	ND		3.0	2.0	ug/L			06/20/25 18:09	1
Carbon disulfide	ND		10	0.40	ug/L			06/20/25 18:09	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Chlorobenzene	ND		1.0	0.50	ug/L			06/20/25 18:09	1
Chloroethane	ND		2.0	0.40	ug/L			06/20/25 18:09	1
Chloroform	ND		1.0	0.25	ug/L			06/20/25 18:09	1
Chloromethane	ND		3.0	1.0	ug/L			06/20/25 18:09	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			06/20/25 18:09	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Dibromomethane	ND		1.0	0.40	ug/L			06/20/25 18:09	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			06/20/25 18:09	1
Ethylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			06/20/25 18:09	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 885-28780/5 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28780

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			06/20/25 18:09	1
Methylene Chloride	ND		2.5	1.0	ug/L			06/20/25 18:09	1
n-Butylbenzene	ND		3.0	0.20	ug/L			06/20/25 18:09	1
N-Propylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Naphthalene	ND		2.0	0.50	ug/L			06/20/25 18:09	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Styrene	ND		1.0	0.25	ug/L			06/20/25 18:09	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			06/20/25 18:09	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Toluene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			06/20/25 18:09	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			06/20/25 18:09	1
Vinyl chloride	ND		1.0	0.30	ug/L			06/20/25 18:09	1
Xylenes, Total	ND		1.5	0.20	ug/L			06/20/25 18:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*06/20/25 18:09*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*06/20/25 18:09*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*06/20/25 18:09*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*06/20/25 18:09*	*1*

Lab Sample ID: LCS 885-28780/4 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28780

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	20.0	18.1		ug/L		90	70 - 130
Benzene	20.0	22.8		ug/L		114	70 - 130
Chlorobenzene	20.0	21.1		ug/L		106	70 - 130
Toluene	20.0	20.7		ug/L		104	70 - 130
Trichloroethene (TCE)	20.0	18.8		ug/L		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
Dibromofluoromethane (Surr)	*96*		*70 - 130*

Lab Sample ID: MB 570-588153/5 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 588153

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropene, Total	ND		1.0	0.31	ug/L			06/23/25 19:41	1
Acrolein	ND		20	11	ug/L			06/23/25 19:41	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-588153/5 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 588153

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrylonitrile	ND		10	2.7	ug/L			06/23/25 19:41	1
cis-1,3-Dichloropropene	ND		0.50	0.26	ug/L			06/23/25 19:41	1
trans-1,3-Dichloropropene	ND		0.50	0.31	ug/L			06/23/25 19:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*80 - 120*		*06/23/25 19:41*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/23/25 19:41*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*06/23/25 19:41*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*06/23/25 19:41*	*1*

Lab Sample ID: LCS 570-588153/1002 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 588153

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acrolein	40.0	34.2		ug/L		85	24 - 169
Acrylonitrile	20.0	19.7		ug/L		99	63 - 140
cis-1,3-Dichloropropene	20.0	20.8		ug/L		104	76 - 125
trans-1,3-Dichloropropene	20.0	21.4		ug/L		107	73 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*80 - 120*
4-Bromofluorobenzene (Surr)	*94*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*80 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: LCSD 570-588153/3 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 588153

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acrolein	40.0	34.9		ug/L		87	24 - 169	2	30
Acrylonitrile	20.0	18.3		ug/L		91	63 - 140	8	20
cis-1,3-Dichloropropene	20.0	20.1		ug/L		100	76 - 125	4	20
trans-1,3-Dichloropropene	20.0	19.8		ug/L		99	73 - 127	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 400-712940/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 713722 — **Prep Batch: 712940**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Prometon	ND		4.0	1.8	ug/L		06/16/25 07:00	06/23/25 13:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Triphenylphosphate	*83*		*16 - 164*	*06/16/25 07:00*	*06/23/25 13:46*	*1*

Lab Sample ID: LCS 400-712940/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 713722 — **Prep Batch: 712940**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Prometon			20.0	18.9		ug/L		94	55 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Triphenylphosphate	*99*		*16 - 164*

Lab Sample ID: LCSD 400-712940/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 713722 — **Prep Batch: 712940**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Prometon			20.0	18.5		ug/L		92	55 - 130	2	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Triphenylphosphate	*95*		*16 - 164*

Lab Sample ID: MB 400-713031/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 713401 — **Prep Batch: 713031**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzidine	ND		25	10	ug/L		06/17/25 07:00	06/19/25 15:46	1
N-Nitrosodi-n-butylamine	ND		10	8.7	ug/L		06/17/25 07:00	06/19/25 15:46	1
Sulfolane	ND		10	1.4	ug/L		06/17/25 07:00	06/19/25 15:46	1
Pentachlorobenzene	ND		10	2.8	ug/L		06/17/25 07:00	06/19/25 15:46	1
1,2,4,5-Tetrachlorobenzene	ND		10	3.3	ug/L		06/17/25 07:00	06/19/25 15:46	1
Atrazine	ND		10	5.0	ug/L		06/17/25 07:00	06/19/25 15:46	1
N-Nitrosodiethylamine	ND		10	3.4	ug/L		06/17/25 07:00	06/19/25 15:46	1
N-Nitrosopyrrolidine	ND		10	3.4	ug/L		06/17/25 07:00	06/19/25 15:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*25*		*10 - 129*	*06/17/25 07:00*	*06/19/25 15:46*	*1*
Terphenyl-d14 (Surr)	*99*		*13 - 150*	*06/17/25 07:00*	*06/19/25 15:46*	*1*
2,4,6-Tribromophenol (Surr)	*71*		*10 - 150*	*06/17/25 07:00*	*06/19/25 15:46*	*1*
2-Fluorobiphenyl	*63*		*21 - 114*	*06/17/25 07:00*	*06/19/25 15:46*	*1*
2-Fluorophenol (Surr)	*38*		*10 - 105*	*06/17/25 07:00*	*06/19/25 15:46*	*1*
Nitrobenzene-d5 (Surr)	*66*		*16 - 127*	*06/17/25 07:00*	*06/19/25 15:46*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 400-713031/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 713401 **Prep Batch: 713031**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzidine			630	147		ug/L		23	10 - 73		
N-Nitrosodi-n-butylamine			120	35.5	*-	ug/L		30	40 - 140		
Sulfolane			243	ND	*-	ug/L		0	10 - 133		
Pentachlorobenzene			120	32.3	*-	ug/L		27	29 - 143		
1,2,4,5-Tetrachlorobenzene			120	53.1		ug/L		44	15 - 149		
Atrazine			120	ND	*-	ug/L		0	10 - 150		
N-Nitrosodiethylamine			120	31.6		ug/L		26	10 - 115		
N-Nitrosopyrrolidine			120	27.4	*-	ug/L		23	25 - 113		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d5 (Surr)	*21*		*10 - 129*
Terphenyl-d14 (Surr)	*60*		*13 - 150*
2,4,6-Tribromophenol (Surr)	*56*		*10 - 150*
2-Fluorobiphenyl	*47*		*21 - 114*
2-Fluorophenol (Surr)	*28*		*10 - 105*
Nitrobenzene-d5 (Surr)	*46*		*16 - 127*

Lab Sample ID: LCSD 400-713031/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 713401 **Prep Batch: 713031**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzidine			630	300	*1	ug/L		48	10 - 73	68	40
N-Nitrosodi-n-butylamine			120	60.7	*1	ug/L		51	40 - 140	52	40
Sulfolane			243	ND	*-	ug/L		0	10 - 133	NC	40
Pentachlorobenzene			120	55.8	*1	ug/L		47	29 - 143	53	40
1,2,4,5-Tetrachlorobenzene			120	105	*1	ug/L		87	15 - 149	65	40
Atrazine			120	ND	*-	ug/L		0	10 - 150	NC	40
N-Nitrosodiethylamine			120	51.8	*1	ug/L		43	10 - 115	48	40
N-Nitrosopyrrolidine			120	43.1	*1	ug/L		36	25 - 113	44	40

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Phenol-d5 (Surr)	*35*		*10 - 129*
Terphenyl-d14 (Surr)	*90*		*13 - 150*
2,4,6-Tribromophenol (Surr)	*92*		*10 - 150*
2-Fluorobiphenyl	*77*		*21 - 114*
2-Fluorophenol (Surr)	*48*		*10 - 105*
Nitrobenzene-d5 (Surr)	*73*		*16 - 127*

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Lab Sample ID: MB 885-28181/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.078	ug/L		06/13/25 07:00	06/13/25 13:21	1
1,2-Dichlorobenzene	ND		1.0	0.087	ug/L		06/13/25 07:00	06/13/25 13:21	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: MB 885-28181/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		1.0	0.090	ug/L		06/13/25 07:00	06/13/25 13:21	1
1,4-Dichlorobenzene	ND		2.0	0.082	ug/L		06/13/25 07:00	06/13/25 13:21	1
1,4-Dioxane	ND		0.50	0.23	ug/L		06/13/25 07:00	06/13/25 13:21	1
1-Methylnaphthalene	ND		0.20	0.097	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4,5-Trichlorophenol	ND		1.0	0.075	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4,6-Trichlorophenol	ND		1.0	0.082	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4-Dichlorophenol	ND		1.0	0.072	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4-Dimethylphenol	ND		1.0	0.099	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4-Dinitrophenol	ND		3.0	1.4	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,4-Dinitrotoluene	ND		1.0	0.078	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,6-Dinitrotoluene	ND		1.0	0.51	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Chloronaphthalene	ND		1.0	0.062	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Chlorophenol	ND		1.0	0.31	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Methylnaphthalene	ND		0.20	0.087	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Methylphenol	ND		1.0	0.063	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Nitroaniline	ND		1.0	0.38	ug/L		06/13/25 07:00	06/13/25 13:21	1
2-Nitrophenol	ND		1.0	0.079	ug/L		06/13/25 07:00	06/13/25 13:21	1
3 & 4 Methylphenol	ND		1.0	0.066	ug/L		06/13/25 07:00	06/13/25 13:21	1
3,3'-Dichlorobenzidine	ND		1.0	0.63	ug/L		06/13/25 07:00	06/13/25 13:21	1
3-Nitroaniline	ND		1.0	0.36	ug/L		06/13/25 07:00	06/13/25 13:21	1
4,6-Dinitro-2-methylphenol	ND		2.0	1.2	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Bromophenyl phenyl ether	ND		1.0	0.077	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Chloro-3-methylphenol	ND		1.0	0.12	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Chloroaniline	ND		1.0	0.33	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Chlorophenyl phenyl ether	ND		1.0	0.062	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Nitroaniline	ND		1.0	0.50	ug/L		06/13/25 07:00	06/13/25 13:21	1
4-Nitrophenol	ND		1.0	0.64	ug/L		06/13/25 07:00	06/13/25 13:21	1
Acenaphthene	ND		0.20	0.085	ug/L		06/13/25 07:00	06/13/25 13:21	1
Acenaphthylene	ND		0.20	0.064	ug/L		06/13/25 07:00	06/13/25 13:21	1
Aniline	ND		10	1.7	ug/L		06/13/25 07:00	06/13/25 13:21	1
Anthracene	ND		0.20	0.056	ug/L		06/13/25 07:00	06/13/25 13:21	1
Azobenzene	ND		1.0	0.49	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzo[a]anthracene	ND		0.20	0.047	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzo[a]pyrene	ND		0.070	0.057	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzo[b]fluoranthene	ND		0.20	0.066	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzo[g,h,i]perylene	ND		0.20	0.056	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzo[k]fluoranthene	ND		0.20	0.048	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzoic acid	ND		15	7.1	ug/L		06/13/25 07:00	06/13/25 13:21	1
Benzyl alcohol	ND		1.0	0.14	ug/L		06/13/25 07:00	06/13/25 13:21	1
Bis(2-chloroethoxy)methane	ND		1.0	0.060	ug/L		06/13/25 07:00	06/13/25 13:21	1
Bis(2-chloroethyl)ether	ND		1.0	0.090	ug/L		06/13/25 07:00	06/13/25 13:21	1
2,2'-oxybis[1-chloropropane]	ND		1.0	0.092	ug/L		06/13/25 07:00	06/13/25 13:21	1
Bis(2-ethylhexyl) phthalate	ND		1.0	0.95	ug/L		06/13/25 07:00	06/13/25 13:21	1
Butyl benzyl phthalate	0.658	J	1.0	0.44	ug/L		06/13/25 07:00	06/13/25 13:21	1
Carbazole	ND		1.0	0.083	ug/L		06/13/25 07:00	06/13/25 13:21	1
Chrysene	ND		0.20	0.062	ug/L		06/13/25 07:00	06/13/25 13:21	1
Di-n-butyl phthalate	ND		1.5	1.1	ug/L		06/13/25 07:00	06/13/25 13:21	1
Di-n-octyl phthalate	ND		1.0	0.061	ug/L		06/13/25 07:00	06/13/25 13:21	1
Dibenz(a,h)anthracene	ND		0.20	0.045	ug/L		06/13/25 07:00	06/13/25 13:21	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: MB 885-28181/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		1.0	0.075	ug/L		06/13/25 07:00	06/13/25 13:21	1
Diethyl phthalate	ND		1.5	1.5	ug/L		06/13/25 07:00	06/13/25 13:21	1
Dimethyl phthalate	ND		1.0	0.099	ug/L		06/13/25 07:00	06/13/25 13:21	1
Fluoranthene	ND		0.20	0.068	ug/L		06/13/25 07:00	06/13/25 13:21	1
Fluorene	ND		0.20	0.081	ug/L		06/13/25 07:00	06/13/25 13:21	1
Hexachlorobenzene	ND		5.0	0.49	ug/L		06/13/25 07:00	06/13/25 13:21	1
Hexachlorobutadiene	ND		5.0	3.5	ug/L		06/13/25 07:00	06/13/25 13:21	1
Hexachlorocyclopentadiene	ND		5.0	3.5	ug/L		06/13/25 07:00	06/13/25 13:21	1
Hexachloroethane	ND		5.0	3.3	ug/L		06/13/25 07:00	06/13/25 13:21	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.058	ug/L		06/13/25 07:00	06/13/25 13:21	1
Isophorone	ND		1.0	0.22	ug/L		06/13/25 07:00	06/13/25 13:21	1
N-Nitrosodi-n-propylamine	ND		1.0	0.65	ug/L		06/13/25 07:00	06/13/25 13:21	1
N-Nitrosodimethylamine	ND		1.0	0.29	ug/L		06/13/25 07:00	06/13/25 13:21	1
N-Nitrosodiphenylamine	ND		1.0	0.32	ug/L		06/13/25 07:00	06/13/25 13:21	1
Naphthalene	ND		0.20	0.077	ug/L		06/13/25 07:00	06/13/25 13:21	1
Nitrobenzene	ND		1.0	0.66	ug/L		06/13/25 07:00	06/13/25 13:21	1
Pentachlorophenol	ND		0.33	0.33	ug/L		06/13/25 07:00	06/13/25 13:21	1
Phenanthrene	ND		0.20	0.061	ug/L		06/13/25 07:00	06/13/25 13:21	1
Phenol	ND		1.0	0.28	ug/L		06/13/25 07:00	06/13/25 13:21	1
Pyrene	ND		0.20	0.067	ug/L		06/13/25 07:00	06/13/25 13:21	1
Pyridine	ND		10	2.6	ug/L		06/13/25 07:00	06/13/25 13:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*67*		*15 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*15 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*
Nitrobenzene-d5 (Surr)	*119*		*29 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*
2-Fluorobiphenyl	*67*		*20 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*
p-Terphenyl-d14 (Surr)	*104*		*41 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*
2-Fluorophenol (Surr)	*65*		*15 - 130*	*06/13/25 07:00*	*06/13/25 13:21*	*1*

Lab Sample ID: LCS 885-28181/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	5.71	1.09	*-	ug/L		19	34 - 94
1,2-Dichlorobenzene	5.71	1.83		ug/L		32	32 - 107
1,3-Dichlorobenzene	5.71	1.42		ug/L		25	22 - 108
1,4-Dichlorobenzene	5.71	1.62	J	ug/L		28	26 - 107
1,4-Dioxane	5.71	2.50		ug/L		44	30 - 48
1-Methylnaphthalene	5.71	2.25	*-	ug/L		39	54 - 108
2,4,5-Trichlorophenol	5.71	5.62		ug/L		98	57 - 120
2,4,6-Trichlorophenol	5.71	4.74		ug/L		83	42 - 107
2,4-Dichlorophenol	5.71	5.41		ug/L		95	64 - 119
2,4-Dimethylphenol	5.71	5.63		ug/L		99	70 - 130
2,4-Dinitrophenol	5.71	3.61		ug/L		63	33 - 74
2,4-Dinitrotoluene	5.71	6.11		ug/L		107	69 - 134
2,6-Dinitrotoluene	5.71	6.00		ug/L		105	70 - 130

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LCS 885-28181/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Chloronaphthalene	5.71	2.61	*-	ug/L		46	61 - 105
2-Chlorophenol	5.71	5.87		ug/L		103	65 - 117
2-Methylnaphthalene	5.71	1.97	*-	ug/L		35	51 - 104
2-Methylphenol	5.71	5.76		ug/L		101	70 - 130
2-Nitroaniline	5.71	6.35		ug/L		111	69 - 133
2-Nitrophenol	5.71	5.26		ug/L		92	52 - 127
3 & 4 Methylphenol	5.71	5.80		ug/L		102	64 - 114
3,3'-Dichlorobenzidine	5.71	3.46		ug/L		61	38 - 120
3-Nitroaniline	5.71	3.66		ug/L		64	37 - 85
4,6-Dinitro-2-methylphenol	5.71	3.43		ug/L		60	30 - 80
4-Bromophenyl phenyl ether	5.71	3.40	*-	ug/L		59	70 - 130
4-Chloro-3-methylphenol	5.71	5.93		ug/L		104	70 - 130
4-Chloroaniline	5.71	3.12		ug/L		55	37 - 60
4-Chlorophenyl phenyl ether	5.71	2.46	*-	ug/L		43	67 - 112
4-Nitroaniline	5.71	4.61		ug/L		81	47 - 114
4-Nitrophenol	5.71	1.97		ug/L		34	16 - 43
Acenaphthene	5.71	3.28	*-	ug/L		57	70 - 130
Acenaphthylene	5.71	3.62	*-	ug/L		63	70 - 130
Aniline	17.1	11.6	*+	ug/L		68	19 - 57
Anthracene	5.71	5.16		ug/L		90	70 - 130
Azobenzene	5.71	4.09		ug/L		71	43 - 115
Benzo[a]anthracene	5.71	6.47		ug/L		113	60 - 136
Benzo[a]pyrene	5.71	5.82		ug/L		102	46 - 150
Benzo[b]fluoranthene	5.71	6.31		ug/L		110	60 - 137
Benzo[g,h,i]perylene	5.71	5.24		ug/L		92	39 - 150
Benzo[k]fluoranthene	5.71	6.58		ug/L		115	59 - 138
Benzoic acid	42.9	18.6		ug/L		43	15 - 60
Benzyl alcohol	5.71	4.93		ug/L		86	51 - 100
Bis(2-chloroethoxy)methane	5.71	5.65		ug/L		99	70 - 130
Bis(2-chloroethyl)ether	5.71	5.84		ug/L		102	70 - 130
2,2'-oxybis[1-chloropropane]	5.71	4.87		ug/L		85	70 - 130
Bis(2-ethylhexyl) phthalate	5.71	7.02		ug/L		123	39 - 139
Butyl benzyl phthalate	5.71	7.31		ug/L		128	60 - 135
Carbazole	5.71	6.20		ug/L		108	69 - 130
Chrysene	5.71	6.21		ug/L		109	64 - 141
Di-n-butyl phthalate	5.71	6.90		ug/L		121	64 - 138
Di-n-octyl phthalate	5.71	6.61		ug/L		116	46 - 121
Dibenz(a,h)anthracene	5.71	5.44		ug/L		95	39 - 150
Dibenzofuran	5.71	3.37	*-	ug/L		59	70 - 130
Diethyl phthalate	5.71	6.14		ug/L		107	64 - 133
Dimethyl phthalate	5.71	6.03		ug/L		106	70 - 130
Fluoranthene	5.71	5.69		ug/L		100	70 - 130
Fluorene	5.71	3.41	*-	ug/L		60	70 - 130
Hexachlorobenzene	5.71	4.40	J	ug/L		77	62 - 126
Hexachlorobutadiene	5.71	ND	*-	ug/L		6	15 - 100
Hexachlorocyclopentadiene	5.71	ND	*-	ug/L		8	15 - 80
Hexachloroethane	5.71	ND	*-	ug/L		12	15 - 101
Indeno[1,2,3-cd]pyrene	5.71	5.36		ug/L		94	44 - 150
Isophorone	5.71	5.60		ug/L		98	70 - 130

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LCS 885-28181/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28246 **Prep Batch: 28181**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-Nitrosodi-n-propylamine	5.71	7.01		ug/L		123	70 - 130
N-Nitrosodimethylamine	5.71	2.14		ug/L		37	22 - 44
N-Nitrosodiphenylamine	5.71	5.54		ug/L		97	70 - 130
Naphthalene	5.71	2.12	*-	ug/L		37	56 - 105
Nitrobenzene	5.71	5.91		ug/L		103	70 - 130
Pentachlorophenol	5.71	4.62		ug/L		81	41 - 99
Phenanthrene	5.71	5.29		ug/L		93	70 - 130
Phenol	5.71	4.05		ug/L		71	39 - 82
Pyrene	5.71	5.76		ug/L		101	56 - 138
Pyridine	17.1	6.51	J	ug/L		38	15 - 47

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d5 (Surr)	*68*		*15 - 130*
2,4,6-Tribromophenol (Surr)	*95*		*15 - 130*
Nitrobenzene-d5 (Surr)	*119*		*29 - 130*
2-Fluorobiphenyl	*63*		*20 - 130*
p-Terphenyl-d14 (Surr)	*111*		*41 - 130*
2-Fluorophenol (Surr)	*66*		*15 - 130*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 885-28244/3-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28260 **Prep Batch: 28244**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.010	0.0080	ug/L		06/13/25 09:38	06/13/25 17:29	1
1,2-Dibromo-3-Chloropropane	ND		0.020	0.0085	ug/L		06/13/25 09:38	06/13/25 17:29	1

Lab Sample ID: LCS 885-28244/4-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28260 **Prep Batch: 28244**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylene Dibromide	0.100	0.110		ug/L		110	70 - 130
1,2-Dibromo-3-Chloropropane	0.100	0.0970		ug/L		97	70 - 130

Lab Sample ID: LCSD 885-28244/5-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28260 **Prep Batch: 28244**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethylene Dibromide	0.100	0.111		ug/L		111	70 - 130	1	20
1,2-Dibromo-3-Chloropropane	0.100	0.104		ug/L		104	70 - 130	7	20

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Lab Sample ID: MRL 885-28244/1-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28260 **Prep Batch: 28244**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Ethylene Dibromide	0.0100	ND		ug/L		61	60 - 140
1,2-Dibromo-3-Chloropropane	0.0100	ND		ug/L		69	60 - 140

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 570-584606/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 588912 **Prep Batch: 584606**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.020	0.0044	ug/L		06/16/25 10:14	06/24/25 22:50	1
4,4'-DDE	ND		0.020	0.0057	ug/L		06/16/25 10:14	06/24/25 22:50	1
4,4'-DDT	ND		0.020	0.0078	ug/L		06/16/25 10:14	06/24/25 22:50	1
Aldrin	ND		0.020	0.0054	ug/L		06/16/25 10:14	06/24/25 22:50	1
alpha-BHC	ND		0.020	0.0019	ug/L		06/16/25 10:14	06/24/25 22:50	1
beta-BHC	ND		0.020	0.013	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane (technical) Peak 1	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane (technical) Peak 2	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane (technical) Peak 3	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane (technical) Peak 4	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
Chlordane (technical) Peak 5	ND		0.20	0.058	ug/L		06/16/25 10:14	06/24/25 22:50	1
delta-BHC	ND		0.020	0.0015	ug/L		06/16/25 10:14	06/24/25 22:50	1
Dieldrin	ND		0.020	0.0032	ug/L		06/16/25 10:14	06/24/25 22:50	1
Endosulfan I	ND		0.020	0.0069	ug/L		06/16/25 10:14	06/24/25 22:50	1
Endosulfan II	ND		0.020	0.0037	ug/L		06/16/25 10:14	06/24/25 22:50	1
Endosulfan sulfate	ND		0.020	0.0063	ug/L		06/16/25 10:14	06/24/25 22:50	1
Endrin	ND		0.020	0.0035	ug/L		06/16/25 10:14	06/24/25 22:50	1
Endrin aldehyde	ND		0.020	0.0072	ug/L		06/16/25 10:14	06/24/25 22:50	1
gamma-BHC (Lindane)	ND		0.020	0.0020	ug/L		06/16/25 10:14	06/24/25 22:50	1
Heptachlor	ND		0.020	0.0034	ug/L		06/16/25 10:14	06/24/25 22:50	1
Heptachlor epoxide	ND		0.020	0.0029	ug/L		06/16/25 10:14	06/24/25 22:50	1
Methoxychlor	ND		0.020	0.0091	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene Peak 1	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene Peak 2	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene Peak 3	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene Peak 4	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1
Toxaphene Peak 5	ND		0.40	0.11	ug/L		06/16/25 10:14	06/24/25 22:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*98*		*20 - 120*	*06/16/25 10:14*	*06/24/25 22:50*	*1*
Tetrachloro-m-xylene	*82*		*32 - 127*	*06/16/25 10:14*	*06/24/25 22:50*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 570-584606/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 595047 **Prep Batch: 584606**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
4,4'-DDD			2.02	2.18		ug/L		108	60 - 120		
4,4'-DDE			2.02	2.04		ug/L		101	44 - 120		
4,4'-DDT			2.02	2.29		ug/L		113	41 - 120		
Aldrin			2.02	1.93		ug/L		95	45 - 120		
alpha-BHC			2.02	1.93		ug/L		96	70 - 120		
beta-BHC			2.02	1.96		ug/L		97	69 - 120		
delta-BHC			2.02	1.90		ug/L		94	55 - 120		
Dieldrin			2.02	2.16		ug/L		107	67 - 120		
Endosulfan I			2.02	2.01		ug/L		99	62 - 120		
Endosulfan II			2.02	2.08		ug/L		103	63 - 120		
Endosulfan sulfate			2.02	2.14		ug/L		106	45 - 121		
Endrin			2.02	2.22		ug/L		110	62 - 120		
Endrin aldehyde			2.02	2.12		ug/L		105	66 - 120		
gamma-BHC (Lindane)			2.02	2.07		ug/L		102	69 - 120		
Heptachlor			2.02	1.87		ug/L		92	50 - 120		
Heptachlor epoxide			2.02	2.05		ug/L		101	66 - 120		
Methoxychlor			2.02	2.03		ug/L		100	46 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*93*		*20 - 120*
Tetrachloro-m-xylene	*92*		*32 - 127*

Lab Sample ID: LCSD 570-584606/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 595047 **Prep Batch: 584606**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			2.03	2.27		ug/L		112	60 - 120	4	30
4,4'-DDE			2.03	2.10		ug/L		103	44 - 120	3	30
4,4'-DDT			2.03	2.39		ug/L		118	41 - 120	4	30
Aldrin			2.03	1.99		ug/L		98	45 - 120	3	30
alpha-BHC			2.03	2.00		ug/L		98	70 - 120	3	30
beta-BHC			2.03	2.02		ug/L		100	69 - 120	3	30
delta-BHC			2.03	1.86		ug/L		91	55 - 120	2	30
Dieldrin			2.03	2.24		ug/L		110	67 - 120	3	30
Endosulfan I			2.03	2.08		ug/L		103	62 - 120	4	30
Endosulfan II			2.03	2.18		ug/L		107	63 - 120	5	30
Endosulfan sulfate			2.03	1.79		ug/L		88	45 - 121	18	30
Endrin			2.03	2.27		ug/L		112	62 - 120	2	30
Endrin aldehyde			2.03	2.24		ug/L		110	66 - 120	6	30
gamma-BHC (Lindane)			2.03	2.14		ug/L		105	69 - 120	3	30
Heptachlor			2.03	1.94		ug/L		95	50 - 120	4	30
Heptachlor epoxide			2.03	2.11		ug/L		104	66 - 120	3	30
Methoxychlor			2.03	2.01		ug/L		99	46 - 120	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*93*		*20 - 120*
Tetrachloro-m-xylene	*94*		*32 - 127*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: 885-26493-1 MS **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 595047 **Prep Batch: 584606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	ND		2.00	2.93	F1	ug/L		146	70 - 130
4,4'-DDE	ND		2.00	2.70	F1	ug/L		135	70 - 130
4,4'-DDT	ND		2.00	2.86	F1	ug/L		143	70 - 130
Aldrin	ND		2.00	2.56		ug/L		128	70 - 130
alpha-BHC	ND		2.00	2.47		ug/L		124	70 - 130
beta-BHC	ND		2.00	2.50		ug/L		125	70 - 130
delta-BHC	ND		2.00	2.37		ug/L		118	70 - 130
Dieldrin	ND		2.00	2.86	F1	ug/L		143	70 - 130
Endosulfan I	ND		2.00	2.57		ug/L		129	70 - 130
Endosulfan II	ND		2.00	2.50		ug/L		125	70 - 130
Endosulfan sulfate	ND		2.00	2.28		ug/L		114	70 - 130
Endrin	ND		2.00	2.94	F1	ug/L		147	70 - 130
Endrin aldehyde	ND		2.00	2.27		ug/L		114	70 - 130
gamma-BHC (Lindane)	ND		2.00	2.64	F1	ug/L		132	70 - 130
Heptachlor	ND		2.00	2.41		ug/L		121	70 - 130
Heptachlor epoxide	ND		2.00	2.69	F1	ug/L		135	70 - 130
Methoxychlor	ND		2.00	2.55		ug/L		127	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*150*	*S1+*	*20 - 120*
Tetrachloro-m-xylene	*121*		*32 - 127*

Lab Sample ID: 885-26493-1 MSD **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 595047 **Prep Batch: 584606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD	ND		2.00	2.81		ug/L				4	30
4,4'-DDE	ND		2.00	2.63		ug/L				3	30
4,4'-DDT	ND		2.00	2.77		ug/L				3	30
Aldrin	ND		2.00	2.55		ug/L				0	30
alpha-BHC	ND		2.00	2.45		ug/L				1	30
beta-BHC	ND		2.00	2.49		ug/L				1	30
delta-BHC	ND		2.00	2.42		ug/L				2	30
Dieldrin	ND		2.00	2.78		ug/L				3	30
Endosulfan I	ND		2.00	2.52		ug/L				2	30
Endosulfan II	ND		2.00	2.46		ug/L				2	30
Endosulfan sulfate	ND		2.00	2.25		ug/L				1	30
Endrin	ND		2.00	2.85		ug/L				3	30
Endrin aldehyde	ND		2.00	2.25		ug/L				1	30
gamma-BHC (Lindane)	ND		2.00	2.61		ug/L				1	30
Heptachlor	ND		2.00	2.44		ug/L				1	30
Heptachlor epoxide	ND		2.00	2.62		ug/L				3	30
Methoxychlor	ND		2.00	2.54		ug/L				0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*140*	*S1+*	*20 - 120*
Tetrachloro-m-xylene	*119*		*32 - 127*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 570-584606/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1221	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1232	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1242	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1248	ND		0.40	0.18	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1254	ND		0.40	0.16	ug/L		06/16/25 10:14	06/17/25 12:41	1
PCB-1260	ND		0.40	0.16	ug/L		06/16/25 10:14	06/17/25 12:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*72*		*33 - 137*	*06/16/25 10:14*	*06/17/25 12:41*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*20 - 120*	*06/16/25 10:14*	*06/17/25 12:41*	*1*

Lab Sample ID: 885-26493-1 MS **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	ND		8.05	10.0		ug/L		125	70 - 130
PCB-1260	ND	F1 *+	8.05	10.3		ug/L		128	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*91*		*33 - 137*
DCB Decachlorobiphenyl (Surr)	*114*		*20 - 120*

Lab Sample ID: 885-26493-1 MSD **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016	ND		7.92	9.52		ug/L		120	70 - 130	5	30
PCB-1260	ND	F1 *+	7.92	10.4	F1	ug/L		131	70 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*80*		*33 - 137*
DCB Decachlorobiphenyl (Surr)	*120*		*20 - 120*

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - RA

Lab Sample ID: LCS 570-584606/6-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016 - RA	8.11	9.09		ug/L		112	50 - 140
PCB-1260 - RA	8.11	9.38		ug/L		116	39 - 120

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8082 - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - RA (Continued)

Lab Sample ID: LCS 570-584606/6-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene - RA	*77*		*33 - 137*
DCB Decachlorobiphenyl (Surr) - RA	*97*		*20 - 120*

Lab Sample ID: LCSD 570-584606/7-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 585270 **Prep Batch: 584606**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016 - RA			8.02	9.62		ug/L		120	50 - 140	6	30
PCB-1260 - RA			8.02	10.1	*+	ug/L		125	39 - 120	7	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene - RA	*83*		*33 - 137*
DCB Decachlorobiphenyl (Surr) - RA	*108*		*20 - 120*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 570-583827/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584465 **Prep Batch: 583827**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50	0.21	ug/L		06/13/25 13:20	06/16/25 15:30	1
2,4,5-TP (Silvex)	ND		0.50	0.14	ug/L		06/13/25 13:20	06/16/25 15:30	1
2,4-D	ND		5.0	2.0	ug/L		06/13/25 13:20	06/16/25 15:30	1
2,4-DB	ND		5.0	3.5	ug/L		06/13/25 13:20	06/16/25 15:30	1
Dalapon	ND		13	4.7	ug/L		06/13/25 13:20	06/16/25 15:30	1
Dicamba	ND		0.50	0.29	ug/L		06/13/25 13:20	06/16/25 15:30	1
Dichlorprop	ND		5.0	2.0	ug/L		06/13/25 13:20	06/16/25 15:30	1
Dinoseb	ND		2.5	2.2	ug/L		06/13/25 13:20	06/16/25 15:30	1
MCPA	ND		500	350	ug/L		06/13/25 13:20	06/16/25 15:30	1
MCPP	ND		500	310	ug/L		06/13/25 13:20	06/16/25 15:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid (Surr)	*98*		*20 - 161*	*06/13/25 13:20*	*06/16/25 15:30*	*1*

Lab Sample ID: LCS 570-583827/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584465 **Prep Batch: 583827**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			1.00	1.04		ug/L		104	28 - 180		
2,4-D			10.0	10.7		ug/L		107	10 - 180		
2,4-DB			10.0	10.7		ug/L		107	10 - 180		

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 570-583827/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584465 **Prep Batch: 583827**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid (Surr)	98		20 - 161

Lab Sample ID: LCSD 570-583827/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584465 **Prep Batch: 583827**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,5-T			1.00	1.05		ug/L		105	28 - 180	1	20
2,4-D			10.0	10.3		ug/L		103	10 - 180	4	20
2,4-DB			10.0	10.3		ug/L		103	10 - 180	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid (Surr)	95		20 - 161

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-28068/4 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28068

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.10	0.050	mg/L			06/11/25 13:23	1
Chloride	ND		0.50	0.25	mg/L			06/11/25 13:23	1
Fluoride	ND		0.10	0.046	mg/L			06/11/25 13:23	1
Sulfate	ND		0.50	0.39	mg/L			06/11/25 13:23	1

Lab Sample ID: LCS 885-28068/5 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28068

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromide			2.50	2.43		mg/L		97	90 - 110
Chloride			5.00	5.00		mg/L		100	90 - 110
Fluoride			0.500	0.475		mg/L		95	90 - 110
Sulfate			10.0	9.59		mg/L		96	90 - 110

Lab Sample ID: MRL 885-28068/3 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28068

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Bromide			0.100	0.116		mg/L		116	50 - 150
Chloride			0.500	0.548		mg/L		110	50 - 150
Fluoride			0.100	0.0934	J	mg/L		93	50 - 150
Sulfate			0.500	0.524		mg/L		105	50 - 150

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 885-28069/4 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28069

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate	ND		0.10	0.020	mg/L			06/11/25 13:23	1
Nitrite	ND		0.10	0.012	mg/L			06/11/25 13:23	1

Lab Sample ID: LCS 885-28069/5 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28069

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate	2.50	2.64		mg/L		105	90 - 110
Nitrite	1.00	0.975		mg/L		98	90 - 110

Lab Sample ID: MRL 885-28069/3 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28069

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate	0.100	0.0946	J	mg/L		95	50 - 150
Nitrite	0.100	0.0990	J	mg/L		99	50 - 150

Method: 8330 - Nitroaromatics and Nitramines (HPLC)

Lab Sample ID: MB 570-584032/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584846 **Prep Batch: 584032**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	ND		1.1	0.57	ug/L		06/13/25 21:12	06/16/25 16:37	1
1,3-Dinitrobenzene	ND		1.1	0.46	ug/L		06/13/25 21:12	06/16/25 16:37	1
2,4,6-Trinitrotoluene	ND		1.1	0.81	ug/L		06/13/25 21:12	06/16/25 16:37	1
2,4-Dinitrotoluene	ND		1.1	0.48	ug/L		06/13/25 21:12	06/16/25 16:37	1
2,6-Dinitrotoluene	ND		1.1	0.42	ug/L		06/13/25 21:12	06/16/25 16:37	1
2-Amino-4,6-DNT	ND		1.1	0.42	ug/L		06/13/25 21:12	06/16/25 16:37	1
2-Nitrotoluene	ND		1.1	0.37	ug/L		06/13/25 21:12	06/16/25 16:37	1
3-Nitrotoluene	ND		1.1	0.41	ug/L		06/13/25 21:12	06/16/25 16:37	1
4-Amino-2,6-DNT	ND		1.1	0.41	ug/L		06/13/25 21:12	06/16/25 16:37	1
4-Nitrotoluene	ND		1.1	0.42	ug/L		06/13/25 21:12	06/16/25 16:37	1
HMX	ND		1.1	0.58	ug/L		06/13/25 21:12	06/16/25 16:37	1
Nitrobenzene	ND		1.1	0.41	ug/L		06/13/25 21:12	06/16/25 16:37	1
RDX	ND		1.1	0.45	ug/L		06/13/25 21:12	06/16/25 16:37	1
Tetryl	ND		1.1	0.95	ug/L		06/13/25 21:12	06/16/25 16:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*108*		*60 - 150*	*06/13/25 21:12*	*06/16/25 16:37*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 8330 - Nitroaromatics and Nitramines (HPLC) (Continued)

Lab Sample ID: LCS 570-584032/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584846 **Prep Batch: 584032**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,3,5-Trinitrobenzene			26.0	26.6		ug/L		103	44 - 152		
1,3-Dinitrobenzene			26.0	25.7		ug/L		99	48 - 162		
2,4,6-Trinitrotoluene			26.0	24.9		ug/L		96	48 - 162		
2,4-Dinitrotoluene			26.0	26.4		ug/L		102	47 - 155		
2,6-Dinitrotoluene			26.0	27.4		ug/L		106	49 - 145		
2-Amino-4,6-DNT			26.0	28.0		ug/L		108	49 - 145		
2-Nitrotoluene			26.0	26.5		ug/L		102	44 - 146		
3-Nitrotoluene			26.0	26.5		ug/L		102	43 - 157		
4-Amino-2,6-DNT			26.0	29.7		ug/L		114	47 - 149		
4-Nitrotoluene			26.0	26.8		ug/L		103	44 - 146		
HMX			26.0	27.1		ug/L		104	43 - 133		
Nitrobenzene			26.0	24.9		ug/L		96	36 - 150		
RDX			26.0	25.3		ug/L		97	42 - 150		
Tetryl			26.0	28.0		ug/L		108	40 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dinitrobenzene (Surr)	*102*		*60 - 150*

Lab Sample ID: LCSD 570-584032/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 584846 **Prep Batch: 584032**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			26.0	26.7		ug/L		103	44 - 152	0	13
1,3-Dinitrobenzene			26.0	25.9		ug/L		100	48 - 162	1	12
2,4,6-Trinitrotoluene			26.0	24.6		ug/L		95	48 - 162	1	12
2,4-Dinitrotoluene			26.0	26.3		ug/L		101	47 - 155	0	13
2,6-Dinitrotoluene			26.0	27.7		ug/L		107	49 - 145	1	12
2-Amino-4,6-DNT			26.0	28.1		ug/L		108	49 - 145	0	14
2-Nitrotoluene			26.0	26.6		ug/L		102	44 - 146	0	16
3-Nitrotoluene			26.0	26.6		ug/L		103	43 - 157	0	15
4-Amino-2,6-DNT			26.0	30.2		ug/L		116	47 - 149	2	19
4-Nitrotoluene			26.0	26.8		ug/L		103	44 - 146	0	15
HMX			26.0	27.1		ug/L		104	43 - 133	0	13
Nitrobenzene			26.0	25.2		ug/L		97	36 - 150	1	15
RDX			26.0	25.3		ug/L		98	42 - 150	0	15
Tetryl			26.0	27.8		ug/L		107	40 - 130	0	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dinitrobenzene (Surr)	*102*		*60 - 150*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 331.0 - Perchlorate (LC/MS/MS)

Lab Sample ID: MB 570-584622/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 584622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10	0.020	ug/L			06/16/25 12:00	1

Lab Sample ID: LCS 570-584622/9 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 584622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	10.0	10.5		ug/L		105	80 - 120

Lab Sample ID: LCSD 570-584622/10 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 584622

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	10.0	9.99		ug/L		100	80 - 120	5	20

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-858853/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 859053 — **Prep Batch: 858853**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluoroheptanoic acid (PFHpA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorooctanoic acid (PFOA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorononanoic acid (PFNA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorodecanoic acid (PFDA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluoroundecanoic acid (PFUnA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorododecanoic acid (PFDoA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorotetradecanoic acid (PFTA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
Hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0020	0.00050	ug/L		06/20/25 04:29	06/21/25 00:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*06/20/25 04:29*	*06/21/25 00:26*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MB 320-858853/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 859053 **Prep Batch: 858853**

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	94		70 - 130	06/20/25 04:29	06/21/25 00:26	1
d5-NEtFOSAA	94		70 - 130	06/20/25 04:29	06/21/25 00:26	1
13C3 HFPO-DA	91		70 - 130	06/20/25 04:29	06/21/25 00:26	1

Lab Sample ID: LCS 320-858853/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 859053 **Prep Batch: 858853**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	0.160	0.130		ug/L		81	70 - 130
Perfluoroheptanoic acid (PFHpA)	0.160	0.150		ug/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	0.160	0.146		ug/L		91	70 - 130
Perfluorononanoic acid (PFNA)	0.160	0.153		ug/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	0.160	0.154		ug/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	0.160	0.158		ug/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	0.160	0.154		ug/L		96	70 - 130
Perfluorotridecanoic acid (PFTrDA)	0.160	0.160		ug/L		100	70 - 130
Perfluorotetradecanoic acid (PFTA)	0.160	0.159		ug/L		99	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.142	0.125		ug/L		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	0.146	0.138		ug/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	0.149	0.132		ug/L		88	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.160	0.142		ug/L		89	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.160	0.139		ug/L		87	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.149	0.140		ug/L		94	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.151	0.144		ug/L		95	70 - 130
Hexafluoropropylene oxide dimer acid (HFPO DA)	0.160	0.145		ug/L		91	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.151	0.139		ug/L		92	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	98		70 - 130
13C2 PFDA	97		70 - 130
d5-NEtFOSAA	96		70 - 130
13C3 HFPO-DA	94		70 - 130

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCSD 320-858853/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 859053 **Prep Batch: 858853**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)			0.160	0.145		ug/L		90	70 - 130	10	30
Perfluoroheptanoic acid (PFHpA)			0.160	0.160		ug/L		100	70 - 130	7	30
Perfluorooctanoic acid (PFOA)			0.160	0.157		ug/L		98	70 - 130	7	30
Perfluorononanoic acid (PFNA)			0.160	0.158		ug/L		98	70 - 130	3	30
Perfluorodecanoic acid (PFDA)			0.160	0.163		ug/L		102	70 - 130	6	30
Perfluoroundecanoic acid (PFUnA)			0.160	0.164		ug/L		103	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)			0.160	0.162		ug/L		101	70 - 130	5	30
Perfluorotridecanoic acid (PFTrDA)			0.160	0.158		ug/L		99	70 - 130	1	30
Perfluorotetradecanoic acid (PFTA)			0.160	0.163		ug/L		102	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)			0.142	0.124		ug/L		87	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)			0.146	0.150		ug/L		103	70 - 130	8	30
Perfluorooctanesulfonic acid (PFOS)			0.149	0.143		ug/L		96	70 - 130	8	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			0.160	0.156		ug/L		98	70 - 130	10	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			0.160	0.138		ug/L		86	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)			0.149	0.147		ug/L		98	70 - 130	5	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			0.151	0.152		ug/L		101	70 - 130	5	30
Hexafluoropropylene oxide dimer acid (HFPO DA)			0.160	0.158		ug/L		99	70 - 130	9	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			0.151	0.138		ug/L		91	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*107*		*70 - 130*
13C2 PFDA	*102*		*70 - 130*
d5-NEtFOSAA	*96*		*70 - 130*
13C3 HFPO-DA	*104*		*70 - 130*

Lab Sample ID: LLCS 320-858853/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 859053 **Prep Batch: 858853**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorohexanoic acid (PFHxA)			0.00400	0.00380		ug/L		95	50 - 150		
Perfluoroheptanoic acid (PFHpA)			0.00400	0.00403		ug/L		101	50 - 150		
Perfluorooctanoic acid (PFOA)			0.00400	0.00404		ug/L		101	50 - 150		
Perfluorononanoic acid (PFNA)			0.00400	0.00404		ug/L		101	50 - 150		
Perfluorodecanoic acid (PFDA)			0.00400	0.00407		ug/L		102	50 - 150		
Perfluoroundecanoic acid (PFUnA)			0.00400	0.00412		ug/L		103	50 - 150		

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 320-858853/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 859053 **Prep Batch: 858853**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	0.00400	0.00420		ug/L		105	50 - 150
Perfluorotridecanoic acid (PFTrDA)	0.00400	0.00401		ug/L		100	50 - 150
Perfluorotetradecanoic acid (PFTA)	0.00400	0.00425		ug/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.00355	0.00340		ug/L		96	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	0.00365	0.00376		ug/L		103	50 - 150
Perfluorooctanesulfonic acid (PFOS)	0.00372	0.00389		ug/L		105	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.00400	0.00385		ug/L		96	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.00400	0.00376		ug/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.00374	0.00367		ug/L		98	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.00378	0.00378		ug/L		100	50 - 150
Hexafluoropropylene oxide dimer acid (HFPO DA)	0.00400	0.00382		ug/L		95	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.00378	0.00365		ug/L		96	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*100*		*70 - 130*
13C2 PFDA	*100*		*70 - 130*
d5-NEtFOSAA	*104*		*70 - 130*
13C3 HFPO-DA	*97*		*70 - 130*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 885-28344/56 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.020	0.017	mg/L			06/14/25 11:54	1
Barium	ND		0.0030	0.0018	mg/L			06/14/25 11:54	1
Beryllium	ND		0.0020	0.0011	mg/L			06/14/25 11:54	1
Boron	ND		0.040	0.0053	mg/L			06/14/25 11:54	1
Cadmium	ND		0.0020	0.0017	mg/L			06/14/25 11:54	1
Calcium	ND		1.0	0.42	mg/L			06/14/25 11:54	1
Chromium	ND		0.0060	0.0030	mg/L			06/14/25 11:54	1
Cobalt	ND		0.0060	0.0033	mg/L			06/14/25 11:54	1
Iron	ND		0.020	0.0093	mg/L			06/14/25 11:54	1
Magnesium	ND		1.0	0.064	mg/L			06/14/25 11:54	1
Manganese	ND		0.0020	0.0012	mg/L			06/14/25 11:54	1
Molybdenum	ND		0.0080	0.0063	mg/L			06/14/25 11:54	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MB 885-28344/56 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.010	0.0040	mg/L			06/14/25 11:54	1
Potassium	ND		1.0	0.45	mg/L			06/14/25 11:54	1
Sodium	ND		1.0	0.25	mg/L			06/14/25 11:54	1
Zinc	ND		0.010	0.0075	mg/L			06/14/25 11:54	1
Silver	ND		0.0050	0.0015	mg/L			06/14/25 11:54	1

Lab Sample ID: LCS 885-28344/57 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.500	0.550		mg/L		110	85 - 115
Barium	0.500	0.483		mg/L		97	85 - 115
Beryllium	0.500	0.500		mg/L		100	85 - 115
Boron	0.500	0.504		mg/L		101	85 - 115
Cadmium	0.500	0.493		mg/L		99	85 - 115
Calcium	50.0	48.4		mg/L		97	85 - 115
Chromium	0.500	0.489		mg/L		98	85 - 115
Cobalt	0.500	0.490		mg/L		98	85 - 115
Iron	0.500	0.499		mg/L		100	85 - 115
Magnesium	50.0	48.5		mg/L		97	85 - 115
Manganese	0.500	0.484		mg/L		97	85 - 115
Molybdenum	0.500	0.507		mg/L		101	85 - 115
Nickel	0.500	0.483		mg/L		97	85 - 115
Potassium	50.0	47.9		mg/L		96	85 - 115
Sodium	50.0	48.3		mg/L		97	85 - 115
Zinc	0.500	0.490		mg/L		98	85 - 115
Silver	0.100	0.0938		mg/L		94	85 - 115

Lab Sample ID: MRL 885-28344/13 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28344

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.0100	ND		mg/L		101	50 - 150
Barium	0.00200	0.00196	J	mg/L		98	50 - 150
Beryllium	0.00200	0.00172	J	mg/L		86	50 - 150
Boron	0.0400	0.0386	J	mg/L		96	50 - 150
Cadmium	0.00200	0.00205		mg/L		103	50 - 150
Calcium	0.500	0.483	J	mg/L		97	50 - 150
Chromium	0.00600	0.00597	J	mg/L		99	50 - 150
Cobalt	0.00600	0.00666		mg/L		111	50 - 150
Iron	0.0200	0.0179	J	mg/L		90	50 - 150
Magnesium	0.500	0.500	J	mg/L		100	50 - 150
Manganese	0.00200	0.00209		mg/L		104	50 - 150
Molybdenum	0.00800	0.00768	J	mg/L		96	50 - 150
Nickel	0.00500	0.00509	J	mg/L		102	50 - 150
Potassium	0.500	0.502	J	mg/L		100	50 - 150
Sodium	0.500	0.516	J	mg/L		103	50 - 150

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MRL 885-28344/13 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28344

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	0.0100	0.00958	J	mg/L		96	50 - 150
Silver	0.00500	0.00504		mg/L		101	50 - 150

Lab Sample ID: 885-26493-1 MS **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 28344

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.087		0.500	0.556		mg/L		94	70 - 130
Beryllium	ND		0.500	0.484		mg/L		97	70 - 130
Cadmium	ND		0.500	0.530		mg/L		106	70 - 130
Chromium	ND		0.500	0.463		mg/L		93	70 - 130
Cobalt	ND		0.500	0.461		mg/L		92	70 - 130
Iron	ND		0.500	0.522		mg/L		104	70 - 130
Manganese	ND		0.500	0.465		mg/L		93	70 - 130
Molybdenum	0.080		0.500	0.543		mg/L		93	70 - 130
Nickel	ND		0.500	0.452		mg/L		90	70 - 130
Potassium	28		50.0	81.0		mg/L		105	70 - 130
Zinc	ND		0.500	0.470		mg/L		94	70 - 130
Silver	0.011		0.100	0.0969		mg/L		86	70 - 130

Lab Sample ID: 885-26493-1 MSD **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Dissolved**
Analysis Batch: 28344

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Barium	0.087		0.500	0.571		mg/L		97	70 - 130	3	20
Beryllium	ND		0.500	0.504		mg/L		101	70 - 130	4	20
Cadmium	ND		0.500	0.548		mg/L		110	70 - 130	3	20
Chromium	ND		0.500	0.484		mg/L		97	70 - 130	4	20
Cobalt	ND		0.500	0.476		mg/L		95	70 - 130	3	20
Iron	ND		0.500	0.527		mg/L		105	70 - 130	1	20
Manganese	ND		0.500	0.478		mg/L		96	70 - 130	3	20
Molybdenum	0.080		0.500	0.556		mg/L		95	70 - 130	2	20
Nickel	ND		0.500	0.461		mg/L		92	70 - 130	2	20
Potassium	28		50.0	80.9		mg/L		105	70 - 130	0	20
Zinc	ND		0.500	0.486		mg/L		97	70 - 130	3	20
Silver	0.011		0.100	0.0993		mg/L		88	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 885-28899/15 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28899

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0010	0.00028	mg/L			06/23/25 12:38	1
Arsenic	ND		0.00050	0.00041	mg/L			06/23/25 12:38	1
Copper	ND		0.00050	0.00030	mg/L			06/23/25 12:38	1
Lead	ND		0.00050	0.00034	mg/L			06/23/25 12:38	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 885-28899/15 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28899

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0010	0.00092	mg/L			06/23/25 12:38	1
Cadmium	ND		0.00050	0.00018	mg/L			06/23/25 12:38	1
Thallium	ND		0.00025	0.000036	mg/L			06/23/25 12:38	1
Uranium	ND		0.00050	0.00019	mg/L			06/23/25 12:38	1

Lab Sample ID: LCS 885-28899/16 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28899

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0250	0.0233		mg/L		93	85 - 115
Arsenic	0.0250	0.0240		mg/L		96	85 - 115
Copper	0.0250	0.0233		mg/L		93	85 - 115
Lead	0.0125	0.0117		mg/L		94	85 - 115
Selenium	0.0250	0.0237		mg/L		95	85 - 115
Cadmium	0.0125	0.0116		mg/L		93	85 - 115
Thallium	0.0125	0.0118		mg/L		95	85 - 115
Uranium	0.0125	0.0119		mg/L		95	85 - 115

Lab Sample ID: MRL 885-28899/13 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28899

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.00100	0.00109		mg/L		109	50 - 150
Lead	0.000500	0.000481	J	mg/L		96	50 - 150
Selenium	0.00100	0.00113		mg/L		113	50 - 150
Cadmium	0.000500	0.000408	J	mg/L		82	50 - 150
Uranium	0.000500	0.000485	J	mg/L		97	50 - 150

Lab Sample ID: MRL 885-28899/14 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28899

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.000500	0.000393	J	mg/L		79	50 - 150
Copper	0.000500	0.000345	J	mg/L		69	50 - 150
Thallium	0.000250	0.000239	J	mg/L		96	50 - 150

Lab Sample ID: MRL 885-28945/19 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28945

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.00100	0.00120		mg/L		120	50 - 150
Lead	0.000500	0.000484	J	mg/L		97	50 - 150
Selenium	0.00100	0.00113		mg/L		113	50 - 150
Cadmium	0.000500	0.000515		mg/L		103	50 - 150
Uranium	0.000500	0.000502		mg/L		100	50 - 150

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MRL 885-28945/20 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28945

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic			0.000500	0.000548		mg/L		110	50 - 150		
Copper			0.000500	0.000546		mg/L		109	50 - 150		
Thallium			0.000250	0.000248	J	mg/L		99	50 - 150		

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 885-28129/12-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000080	mg/L		06/12/25 08:59	06/12/25 12:12	1

Lab Sample ID: LCS 885-28129/14-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00496		mg/L		99	85 - 115		

Lab Sample ID: LLCS 885-28129/13-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.000150	0.0000889	J	mg/L		59	50 - 150		

Lab Sample ID: MRL 885-28129/9-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.000150	0.000141	J	mg/L		94	50 - 150		

Lab Sample ID: 885-26493-1 MS — **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	ND		0.00500	0.00498		mg/L		100	75 - 125		

Lab Sample ID: 885-26493-1 MSD — **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28184 — **Prep Batch: 28129**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.00500	0.00498		mg/L		100	75 - 125	0	20

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-28458/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50	25	mg/L			06/17/25 11:26	1

Lab Sample ID: LCS 885-28458/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28458

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	984		mg/L		98	80 - 120

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 400-715111/24 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 715111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	ND		0.0050	0.0020	mg/L			07/03/25 12:16	1

Lab Sample ID: LCS 400-715111/25 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 715111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: MRL 400-715111/19 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 715111

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.00500	0.00436	J	mg/L		87	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 885-28234/25 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28234

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3	ND		20	20	mg/L			06/12/25 18:55	1
Bicarbonate Alkalinity as CaCO3	ND		20	20	mg/L			06/12/25 18:55	1
Carbonate Alkalinity as CaCO3	ND		2.0	2.0	mg/L			06/12/25 18:55	1

Lab Sample ID: LCS 885-28234/26 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28234

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	84.8	80.0		mg/L		94	90 - 110

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MRL 885-28234/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28234

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	21.2	23.7		mg/L		112	50 - 150

Lab Sample ID: 885-26493-1 DU — **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28234

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3	41		40.0		mg/L		2	20
Bicarbonate Alkalinity as CaCO3	ND		ND		mg/L		NC	
Carbonate Alkalinity as CaCO3	27		39.5		mg/L		39	

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: LCS 885-28235/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28235

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	99.7	103		umhos/cm		103	85 - 115

Lab Sample ID: MRL 885-28235/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28235

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	9.52	9.40	J	umhos/cm		99	50 - 150

Lab Sample ID: 885-26493-1 DU — **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 28235

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance	5800		5750		umhos/cm		0.8	20

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 570-583821/2-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 583967 — **Prep Batch: 583821**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.025	0.0040	mg/L		06/13/25 13:12	06/13/25 15:28	1

Lab Sample ID: LCS 570-583821/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 583967 — **Prep Batch: 583821**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.100	0.0987		mg/L		99	80 - 120

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: SM 4500 CN E - Cyanide, Total (Continued)

Lab Sample ID: LCSD 570-583821/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 583967 **Prep Batch: 583821**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total			0.100	0.100		mg/L		100	80 - 120	2	20

Lab Sample ID: MRL 570-583821/1-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 583967 **Prep Batch: 583821**

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Cyanide, Total			0.0250	0.0221	J	mg/L		88	50 - 150		

Method: SM 4500 H+ B - pH

Lab Sample ID: 885-26493-1 DU **Client Sample ID: WDW-1-MW-1 20250610**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 28236

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH	9.5	HF		9.8		SU				4	20

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-722503/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 726360 **Prep Batch: 722503**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02295	U	0.128	0.128	1.00	0.293	pCi/L	06/16/25 08:21	07/09/25 16:37	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*30 - 110*	*06/16/25 08:21*	*07/09/25 16:37*	*1*

Lab Sample ID: LCS 160-722503/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 726360 **Prep Batch: 722503**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			9.58	8.720		1.22	1.00	0.322	pCi/L	91	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*30 - 110*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-722504/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 726364 **Prep Batch: 722504**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.05646	U	0.277	0.277	1.00	0.539	pCi/L	06/16/25 08:26	07/09/25 12:08	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.6*		*30 - 110*	*06/16/25 08:26*	*07/09/25 12:08*	*1*
Y Carrier	*84.1*		*30 - 110*	*06/16/25 08:26*	*07/09/25 12:08*	*1*

Lab Sample ID: LCS 160-722504/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 726364 **Prep Batch: 722504**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			9.27	10.78		1.46	1.00	0.512	pCi/L	116	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*30 - 110*
Y Carrier	*81.9*		*30 - 110*

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

GC/MS VOA

Analysis Batch: 28780

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8260B	
885-26493-2	Trip Blank	Total/NA	Water	8260B	
MB 885-28780/5	Method Blank	Total/NA	Water	8260B	
LCS 885-28780/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 588153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8260B	
MB 570-588153/5	Method Blank	Total/NA	Water	8260B	
LCS 570-588153/1002	Lab Control Sample	Total/NA	Water	8260B	
LCSD 570-588153/3	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 28181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	3511	
MB 885-28181/1-A	Method Blank	Total/NA	Water	3511	
LCS 885-28181/2-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 28246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8270E	28181
MB 885-28181/1-A	Method Blank	Total/NA	Water	8270E	28181
LCS 885-28181/2-A	Lab Control Sample	Total/NA	Water	8270E	28181

Prep Batch: 712940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	3510C	
MB 400-712940/1-A	Method Blank	Total/NA	Water	3510C	
LCS 400-712940/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 400-712940/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 713031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	3510C	
MB 400-713031/1-A	Method Blank	Total/NA	Water	3510C	
LCS 400-713031/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 400-713031/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 713401

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8270E	713031
MB 400-713031/1-A	Method Blank	Total/NA	Water	8270E	713031
LCS 400-713031/2-A	Lab Control Sample	Total/NA	Water	8270E	713031
LCSD 400-713031/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	713031

Prep Batch: 713551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	3510C	
MB 400-713551/1-A - RERA	Method Blank	Total/NA	Water	3510C	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

GC/MS Semi VOA (Continued)

Prep Batch: 713551 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-713551/2-A - RERA	Lab Control Sample	Total/NA	Water	3510C	
LCSD 400-713551/3-A - REF	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 713722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8270E	712940
MB 400-712940/1-A	Method Blank	Total/NA	Water	8270E	712940
LCS 400-712940/2-A	Lab Control Sample	Total/NA	Water	8270E	712940
LCSD 400-712940/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	712940

Analysis Batch: 713758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8270E	713551
MB 400-713551/1-A - RERA	Method Blank	Total/NA	Water	8270E	713551
LCS 400-713551/2-A - RERA	Lab Control Sample	Total/NA	Water	8270E	713551
LCSD 400-713551/3-A - REF	Lab Control Sample Dup	Total/NA	Water	8270E	713551

GC Semi VOA

Prep Batch: 28244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8011	
885-26493-2	Trip Blank	Total/NA	Water	8011	
MB 885-28244/3-A	Method Blank	Total/NA	Water	8011	
LCS 885-28244/4-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 885-28244/5-A	Lab Control Sample Dup	Total/NA	Water	8011	
MRL 885-28244/1-A	Lab Control Sample	Total/NA	Water	8011	

Analysis Batch: 28260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8011	28244
885-26493-2	Trip Blank	Total/NA	Water	8011	28244
MB 885-28244/3-A	Method Blank	Total/NA	Water	8011	28244
LCS 885-28244/4-A	Lab Control Sample	Total/NA	Water	8011	28244
LCSD 885-28244/5-A	Lab Control Sample Dup	Total/NA	Water	8011	28244
MRL 885-28244/1-A	Lab Control Sample	Total/NA	Water	8011	28244

Prep Batch: 583827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8151A	
MB 570-583827/1-A	Method Blank	Total/NA	Water	8151A	
LCS 570-583827/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 570-583827/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 584465

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8151A	583827
MB 570-583827/1-A	Method Blank	Total/NA	Water	8151A	583827
LCS 570-583827/2-A	Lab Control Sample	Total/NA	Water	8151A	583827
LCSD 570-583827/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	583827

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

GC Semi VOA

Prep Batch: 584606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	3511	
MB 570-584606/1-A	Method Blank	Total/NA	Water	3511	
LCS 570-584606/2-A	Lab Control Sample	Total/NA	Water	3511	
LCS 570-584606/6-A - RA	Lab Control Sample	Total/NA	Water	3511	
LCSD 570-584606/3-A	Lab Control Sample Dup	Total/NA	Water	3511	
LCSD 570-584606/7-A - RA	Lab Control Sample Dup	Total/NA	Water	3511	
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	3511	
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	3511	
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	3511	
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	3511	

Analysis Batch: 585270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8082	584606
MB 570-584606/1-A	Method Blank	Total/NA	Water	8082	584606
LCS 570-584606/6-A - RA	Lab Control Sample	Total/NA	Water	8082	584606
LCSD 570-584606/7-A - RA	Lab Control Sample Dup	Total/NA	Water	8082	584606
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	8082	584606
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	8082	584606

Analysis Batch: 588912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8081B	584606
MB 570-584606/1-A	Method Blank	Total/NA	Water	8081B	584606

Analysis Batch: 595047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-584606/2-A	Lab Control Sample	Total/NA	Water	8081B	584606
LCSD 570-584606/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	584606
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	8081B	584606
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	8081B	584606

HPLC/IC

Analysis Batch: 28068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	300.0	
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	300.0	
MB 885-28068/4	Method Blank	Total/NA	Water	300.0	
LCS 885-28068/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-28068/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 28069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	300.0	
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	300.0	
MB 885-28069/4	Method Blank	Total/NA	Water	300.0	
LCS 885-28069/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-28069/3	Lab Control Sample	Total/NA	Water	300.0	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

HPLC/IC

Prep Batch: 584032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8330	
MB 570-584032/1-A	Method Blank	Total/NA	Water	8330	
LCS 570-584032/2-A	Lab Control Sample	Total/NA	Water	8330	
LCSD 570-584032/3-A	Lab Control Sample Dup	Total/NA	Water	8330	

Analysis Batch: 584846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	8330	584032
MB 570-584032/1-A	Method Blank	Total/NA	Water	8330	584032
LCS 570-584032/2-A	Lab Control Sample	Total/NA	Water	8330	584032
LCSD 570-584032/3-A	Lab Control Sample Dup	Total/NA	Water	8330	584032

LCMS

Analysis Batch: 584622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1 - DL	WDW-1-MW-1 20250610	Total/NA	Water	331.0	
MB 570-584622/8	Method Blank	Total/NA	Water	331.0	
LCS 570-584622/9	Lab Control Sample	Total/NA	Water	331.0	
LCSD 570-584622/10	Lab Control Sample Dup	Total/NA	Water	331.0	

Prep Batch: 858853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	537.1	
MB 320-858853/1-A	Method Blank	Total/NA	Water	537.1	
LCS 320-858853/3-A	Lab Control Sample	Total/NA	Water	537.1	
LCSD 320-858853/4-A	Lab Control Sample Dup	Total/NA	Water	537.1	
LLCS 320-858853/2-A	Lab Control Sample	Total/NA	Water	537.1	

Analysis Batch: 859053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-858853/1-A	Method Blank	Total/NA	Water	537.1	858853
LCS 320-858853/3-A	Lab Control Sample	Total/NA	Water	537.1	858853
LCSD 320-858853/4-A	Lab Control Sample Dup	Total/NA	Water	537.1	858853
LLCS 320-858853/2-A	Lab Control Sample	Total/NA	Water	537.1	858853

Analysis Batch: 859057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	537.1	858853

Metals

Prep Batch: 28129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	245.1	
MB 885-28129/12-A	Method Blank	Total/NA	Water	245.1	
LCS 885-28129/14-A	Lab Control Sample	Total/NA	Water	245.1	
LLCS 885-28129/13-A	Lab Control Sample	Total/NA	Water	245.1	
MRL 885-28129/9-A	Lab Control Sample	Total/NA	Water	245.1	
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	245.1	
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	245.1	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Metals

Analysis Batch: 28184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	245.1	28129
MB 885-28129/12-A	Method Blank	Total/NA	Water	245.1	28129
LCS 885-28129/14-A	Lab Control Sample	Total/NA	Water	245.1	28129
LLCS 885-28129/13-A	Lab Control Sample	Total/NA	Water	245.1	28129
MRL 885-28129/9-A	Lab Control Sample	Total/NA	Water	245.1	28129
885-26493-1 MS	WDW-1-MW-1 20250610	Total/NA	Water	245.1	28129
885-26493-1 MSD	WDW-1-MW-1 20250610	Total/NA	Water	245.1	28129

Analysis Batch: 28344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Dissolved	Water	200.7 Rev 4.4	
885-26493-1	WDW-1-MW-1 20250610	Dissolved	Water	200.7 Rev 4.4	
MB 885-28344/56	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 885-28344/57	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
MRL 885-28344/13	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
885-26493-1 MS	WDW-1-MW-1 20250610	Dissolved	Water	200.7 Rev 4.4	
885-26493-1 MSD	WDW-1-MW-1 20250610	Dissolved	Water	200.7 Rev 4.4	

Analysis Batch: 28899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-28899/15	Method Blank	Total/NA	Water	200.8	
LCS 885-28899/16	Lab Control Sample	Total/NA	Water	200.8	
MRL 885-28899/13	Lab Control Sample	Total/NA	Water	200.8	
MRL 885-28899/14	Lab Control Sample	Total/NA	Water	200.8	

Analysis Batch: 28945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Dissolved	Water	200.8	
MRL 885-28945/19	Lab Control Sample	Total/NA	Water	200.8	
MRL 885-28945/20	Lab Control Sample	Total/NA	Water	200.8	

General Chemistry

Analysis Batch: 28234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	SM 2320B	
MB 885-28234/25	Method Blank	Total/NA	Water	SM 2320B	
LCS 885-28234/26	Lab Control Sample	Total/NA	Water	SM 2320B	
MRL 885-28234/1	Lab Control Sample	Total/NA	Water	SM 2320B	
885-26493-1 DU	WDW-1-MW-1 20250610	Total/NA	Water	SM 2320B	

Analysis Batch: 28235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	SM 2510B	
LCS 885-28235/4	Lab Control Sample	Total/NA	Water	SM 2510B	
MRL 885-28235/3	Lab Control Sample	Total/NA	Water	SM 2510B	
885-26493-1 DU	WDW-1-MW-1 20250610	Total/NA	Water	SM 2510B	

Analysis Batch: 28236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	SM 4500 H+ B	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

General Chemistry (Continued)

Analysis Batch: 28236 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1 DU	WDW-1-MW-1 20250610	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 28458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	2540C	
MB 885-28458/1	Method Blank	Total/NA	Water	2540C	
LCS 885-28458/2	Lab Control Sample	Total/NA	Water	2540C	

Prep Batch: 583821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	SM 4500 CN C	
MB 570-583821/2-A	Method Blank	Total/NA	Water	SM 4500 CN C	
LCS 570-583821/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCSD 570-583821/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN C	
MRL 570-583821/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 583967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	SM 4500 CN E	583821
MB 570-583821/2-A	Method Blank	Total/NA	Water	SM 4500 CN E	583821
LCS 570-583821/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	583821
LCSD 570-583821/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	583821
MRL 570-583821/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	583821

Analysis Batch: 715111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	420.4	
MB 400-715111/24	Method Blank	Total/NA	Water	420.4	
LCS 400-715111/25	Lab Control Sample	Total/NA	Water	420.4	
MRL 400-715111/19	Lab Control Sample	Total/NA	Water	420.4	

Rad

Prep Batch: 722503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	PrecSep-21	
MB 160-722503/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-722503/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 722504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-26493-1	WDW-1-MW-1 20250610	Total/NA	Water	PrecSep_0	
MB 160-722504/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-722504/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	588153	GC3Z	EET CAL 4	06/24/25 02:36
Total/NA	Analysis	8260B		1	28780	JP	EET ALB	06/20/25 21:22
Total/NA	Prep	3511			28181	JM	EET ALB	06/13/25 07:00
Total/NA	Analysis	8270E		1	28246	JC	EET ALB	06/13/25 17:10
Total/NA	Prep	3510C			712940	JPH	EET PEN	06/16/25 07:00
Total/NA	Analysis	8270E		1	713722	VC1	EET PEN	06/23/25 19:05
Total/NA	Prep	3510C			713031	BKL	EET PEN	06/17/25 07:00
Total/NA	Analysis	8270E		1	713401	S1B	EET PEN	06/19/25 17:43
Total/NA	Prep	3510C			713551	BKL	EET PEN	06/20/25 07:00
Total/NA	Analysis	8270E		1	713758	S1B	EET PEN	06/23/25 16:33
Total/NA	Prep	8011			28244	KR	EET ALB	06/13/25 09:38
Total/NA	Analysis	8011		1	28260	KR	EET ALB	06/13/25 18:43
Total/NA	Prep	3511			584606	UGM4	EET CAL 4	06/16/25 10:14
Total/NA	Analysis	8081B		1	588912	N5Y3	EET CAL 4	06/25/25 00:28
Total/NA	Prep	3511			584606	UGM4	EET CAL 4	06/16/25 10:14
Total/NA	Analysis	8082		1	585270	P2HW	EET CAL 4	06/17/25 13:50
Total/NA	Prep	8151A			583827	DVE6	EET CAL 4	06/13/25 13:20
Total/NA	Analysis	8151A		1	584465	ZE2W	EET CAL 4	06/16/25 18:32
Total/NA	Analysis	300.0		10	28068	JT	EET ALB	06/11/25 17:53
Total/NA	Analysis	300.0		10	28069	JT	EET ALB	06/11/25 17:53
Total/NA	Analysis	300.0		100	28068	JT	EET ALB	06/11/25 18:04
Total/NA	Analysis	300.0		100	28069	JT	EET ALB	06/11/25 18:04
Total/NA	Prep	8330			584032	UM1W	EET CAL 4	06/13/25 21:12
Total/NA	Analysis	8330		1	584846	U9XB	EET CAL 4	06/16/25 18:57
Total/NA	Analysis	331.0	DL	2	584622	M5Z3	EET CAL 4	06/16/25 13:24
Total/NA	Prep	537.1			858853	GAT	EET SAC	06/20/25 04:29
Total/NA	Analysis	537.1		1	859057	SS	EET SAC	06/21/25 04:08
Dissolved	Analysis	200.7 Rev 4.4		1	28344	VP	EET ALB	06/14/25 12:26
Dissolved	Analysis	200.7 Rev 4.4		10	28344	VP	EET ALB	06/14/25 12:33
Dissolved	Analysis	200.8		5	28945	BV	EET ALB	06/24/25 15:34
Total/NA	Prep	245.1			28129	JR	EET ALB	06/12/25 08:59
Total/NA	Analysis	245.1		1	28184	JR	EET ALB	06/12/25 12:26
Total/NA	Analysis	2540C		1	28458	HR	EET ALB	06/17/25 11:26
Total/NA	Analysis	420.4		1	715111	CAC	EET PEN	07/03/25 12:39
Total/NA	Analysis	SM 2320B		1	28234	DL	EET ALB	06/12/25 20:11
Total/NA	Analysis	SM 2510B		1	28235	DL	EET ALB	06/12/25 20:11
Total/NA	Prep	SM 4500 CN C			583821	ZVB7	EET CAL 4	06/13/25 16:24
Total/NA	Analysis	SM 4500 CN E		1	583967	ZVB7	EET CAL 4	06/13/25 17:52
Total/NA	Analysis	SM 4500 H+ B		1	28236	DL	EET ALB	06/12/25 20:11
Total/NA	Prep	PrecSep-21			722503	JTR	EET SL	06/16/25 08:21
Total/NA	Analysis	903.0		1	726365	FLC	EET SL	07/09/25 16:41

Lab Chronicle

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Client Sample ID: WDW-1-MW-1 20250610 Lab Sample ID: 885-26493-1

Date Collected: 06/10/25 11:32 **Matrix: Water**
Date Received: 06/11/25 08:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	PrecSep_0			722504	JTR	EET SL	06/16/25 08:26
Total/NA	Analysis	904.0		1	726364	FLC	EET SL	07/09/25 12:10

Client Sample ID: Trip Blank Lab Sample ID: 885-26493-2

Date Collected: 06/10/25 00:00 **Matrix: Water**
Date Received: 06/11/25 08:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	28780	JP	EET ALB	06/20/25 21:50
Total/NA	Prep	8011			28244	KR	EET ALB	06/13/25 09:38
Total/NA	Analysis	8011		1	28260	KR	EET ALB	06/13/25 18:58

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	NM100001	02-26-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8011	8011	Water	1,2-Dibromo-3-Chloropropane
8011	8011	Water	Ethylene Dibromide
8270E	3511	Water	1,2,4-Trichlorobenzene
8270E	3511	Water	1,2-Dichlorobenzene
8270E	3511	Water	1,3-Dichlorobenzene
8270E	3511	Water	1,4-Dichlorobenzene
8270E	3511	Water	1,4-Dioxane
8270E	3511	Water	1-Methylnaphthalene
8270E	3511	Water	2,2'-oxybis[1-chloropropane]
8270E	3511	Water	2,4,5-Trichlorophenol
8270E	3511	Water	2,4,6-Trichlorophenol
8270E	3511	Water	2,4-Dichlorophenol
8270E	3511	Water	2,4-Dimethylphenol
8270E	3511	Water	2,4-Dinitrophenol
8270E	3511	Water	2,4-Dinitrotoluene
8270E	3511	Water	2,6-Dinitrotoluene
8270E	3511	Water	2-Chloronaphthalene
8270E	3511	Water	2-Chlorophenol
8270E	3511	Water	2-Methylnaphthalene
8270E	3511	Water	2-Methylphenol
8270E	3511	Water	2-Nitroaniline
8270E	3511	Water	2-Nitrophenol
8270E	3511	Water	3 & 4 Methylphenol
8270E	3511	Water	3,3'-Dichlorobenzidine
8270E	3511	Water	3-Nitroaniline
8270E	3511	Water	4,6-Dinitro-2-methylphenol
8270E	3511	Water	4-Bromophenyl phenyl ether
8270E	3511	Water	4-Chloro-3-methylphenol
8270E	3511	Water	4-Chloroaniline
8270E	3511	Water	4-Chlorophenyl phenyl ether
8270E	3511	Water	4-Nitroaniline
8270E	3511	Water	4-Nitrophenol
8270E	3511	Water	Acenaphthene
8270E	3511	Water	Acenaphthylene
8270E	3511	Water	Aniline
8270E	3511	Water	Anthracene
8270E	3511	Water	Azobenzene
8270E	3511	Water	Benzo[a]anthracene
8270E	3511	Water	Benzo[a]pyrene
8270E	3511	Water	Benzo[b]fluoranthene
8270E	3511	Water	Benzo[g,h,i]perylene
8270E	3511	Water	Benzo[k]fluoranthene
8270E	3511	Water	Benzoic acid
8270E	3511	Water	Benzyl alcohol
8270E	3511	Water	Bis(2-chloroethoxy)methane

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Laboratory: Eurofins Albuquerque (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270E	3511	Water	Bis(2-chloroethyl)ether
8270E	3511	Water	Bis(2-ethylhexyl) phthalate
8270E	3511	Water	Butyl benzyl phthalate
8270E	3511	Water	Carbazole
8270E	3511	Water	Chrysene
8270E	3511	Water	Dibenz(a,h)anthracene
8270E	3511	Water	Dibenzofuran
8270E	3511	Water	Diethyl phthalate
8270E	3511	Water	Dimethyl phthalate
8270E	3511	Water	Di-n-butyl phthalate
8270E	3511	Water	Di-n-octyl phthalate
8270E	3511	Water	Fluoranthene
8270E	3511	Water	Fluorene
8270E	3511	Water	Hexachlorobenzene
8270E	3511	Water	Hexachlorobutadiene
8270E	3511	Water	Hexachlorocyclopentadiene
8270E	3511	Water	Hexachloroethane
8270E	3511	Water	Indeno[1,2,3-cd]pyrene
8270E	3511	Water	Isophorone
8270E	3511	Water	Naphthalene
8270E	3511	Water	Nitrobenzene
8270E	3511	Water	N-Nitrosodimethylamine
8270E	3511	Water	N-Nitrosodi-n-propylamine
8270E	3511	Water	N-Nitrosodiphenylamine
8270E	3511	Water	Pentachlorophenol
8270E	3511	Water	Phenanthrene
8270E	3511	Water	Phenol
8270E	3511	Water	Pyrene
8270E	3511	Water	Pyridine
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	7296.01	11-30-26
A2LA	ISO/IEC 17025	7296.01	11-30-26
Alaska (UST)	State	25-005	03-02-26
Arizona	State	AZ0830	11-16-25
California	Los Angeles County Sanitation Districts	9257304	07-31-26
California	SCAQMD LAP	17LA0919	11-30-25
California	State	3082	07-31-26
Kansas	NELAP	E-10420	07-31-25
Nevada	State	CA00111	07-31-25
Oregon	NELAP	4175	02-02-26

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Laboratory: Eurofins Calscience (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USDA	US Federal Programs	525-23-159-97150	06-08-26
Utah	NELAP	CA00111	02-28-26
Washington	State	C916	10-11-25

Laboratory: Eurofins Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	06-30-26
ANAB	ISO/IEC 17025	L2471	02-22-26
Arkansas DEQ	State	88-00689	08-01-25
Florida	NELAP	E81010	06-30-26
Georgia	State	E81010(FL)	06-30-26
Illinois	NELAP	200041	10-09-25
Kansas	NELAP	E-10253	10-31-25
Kentucky (UST)	State	53	06-30-26
Louisiana (All)	NELAP	30976	06-30-26
Louisiana (DW)	State	LA017	12-31-25
North Carolina (WW/SW)	State	314	12-31-25
Oklahoma	NELAP	9810	08-31-25
Pennsylvania	NELAP	68-00467	01-31-26
South Carolina	State	96026	06-30-26
Tennessee	State	TN02907	06-30-26
Texas	NELAP	T104704286	09-30-25
US Fish & Wildlife	US Federal Programs	A22340	06-30-26
USDA	US Federal Programs	FLGNV23001	01-08-26
USDA	US Federal Programs	525-23-9-22801	01-09-26
Virginia	NELAP	460166	06-14-26
West Virginia DEP	State	136	03-31-26

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468.03	01-20-27
Arizona	State	AZ0708	08-11-25
Arkansas DEQ	State	88-0691	05-18-26
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-25
Florida	NELAP	E87570	06-30-25
Georgia	State	4040	01-29-26
Illinois	NELAP	200060	03-31-26
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-25
Louisiana (All)	NELAP	01944	06-30-25
Maine	State	CA00004	04-14-26
Massachusetts	State	M-CA044	06-30-26
Michigan	State	9947	01-29-26

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Laboratory: Eurofins Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Minnesota	NELAP	2749448	12-31-25
Nevada	State	CA00044	07-31-25
New Jersey	NELAP	CA005	06-30-25
New York	NELAP	11666	04-01-26
Ohio	State	41252	01-29-26
Oregon	NELAP	4040	07-06-25
Texas	NELAP	T104704399-23-17	06-25-25
US Fish & Wildlife	US Federal Programs	A22139	04-30-26
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-26
Virginia	NELAP	460278	03-14-26
Washington	State	C581	05-05-26
West Virginia (DW)	State	9930C	02-01-26
West Virginia DEP	State	422	03-28-26
Wisconsin	State	998204680	08-31-25
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	06-30-25 *
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-26
HI - RadChem Recognition	State	n/a	06-30-25 *
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-26
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	09-30-25
Massachusetts	State	M-MO054	06-30-26
MI - RadChem Recognition	State	9005	06-30-25 *
Missouri	State	780	06-30-25 *
Nevada	State	MO00054	07-31-25
New Jersey	NELAP	MO002	06-30-26
New Mexico	State	MO00054	06-30-25 *
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	08-02-25
North Dakota	State	R-207	06-30-25 *
Oklahoma	NELAP	9997	08-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-26493-1
Project/Site: HFSNR

Laboratory: Eurofins St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	4157	09-01-25
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-25 *
Texas	NELAP	T104704193	07-31-25
US Fish & Wildlife	US Federal Programs	058448	07-31-25
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-25
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-30-25
West Virginia DEP	State	381	10-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain-of-Custody Record

Client: Holly-Frontier Sinclair Navajo Refinery
Mailing Address: 1602 W Main St, Artesia, NM 88210
Phone #: 505-822-9400 ext 166
email or Fax#: EBastien@geo-logic.com
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other
☒ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: HFSNR
Project #: PO 4512504442
Project Manager: E. Bastien
Sampler: JT/SR
On Ice: ~~☐~~ Yes ☐ No
# of Coolers: 2 MO/10
Cooler Temp(including CF): 0.8+0.2=1.0 (°C) 0.1+0.2=0.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY
885-26493 COC
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	See attached
6/10/25	1132	AQ	WDW-1-MW-1 20250610	multiple	multiple												X

Analysis Request

Date	Time	Relinquished by	Received by	Via	Date	Time
6/11/25	0852	S. Ramirez		UPS	6/11/25	8:32
Date	Time	Relinquished by	Received by	Via	Date	Time

Remarks: Please bill to Holly-Frontier & send results to EBastien@geo-logic.com
NOTE: J & MDL info must be presented Reporting limits must meet NMAC 3103

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

Table 1. Analytical Parameters
Page 1 of 9

Parameter	Laboratory Method	Concentration (mg/L[a])		Bottle	Preservative	Holding Time
		NMAC Standard	Reporting Limit			
Aluminum, dissolved	200.7	5	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Barium, dissolved	200.7	2	0.003	1-125 mL HDPE (F+S)	HNO_3	128 days
Beryllium, dissolved	200.7	0.004	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Boron, dissolved	200.7	0.75	0.04	1-125 mL HDPE (F+S)	HNO_3	128 days
Calcium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Cadmium, dissolved	200.7	0.005	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Chromium, dissolved	200.7	0.05	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Cobalt, dissolved	200.7	0.5	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Iron, dissolved	200.7	1	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Magnesium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Manganese, dissolved	200.7	0.2	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Molybdenum, dissolved	200.7	1	0.008	1-125 mL HDPE (F+S)	HNO_3	128 days
Potassium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Sodium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Nickel, dissolved	200.7	0.2	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Zinc, dissolved	200.7	10	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Antimony, dissolved	200.8	0.006	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Arsenic, dissolved	200.8	0.01	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Copper, dissolved	200.8	1	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Lead, dissolved	200.8	0.015	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days
Selenium, dissolved	200.8	0.05	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Silver, dissolved	200.7	0.05	0.005	1-125 mL HDPE (F+S)	HNO_3	128 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 2 of 9

Thallium, dissolved	200.8	0.002	0.00025	1-125 mL HDPE (F+S)	HNO_3	128 days
Uranium, dissolved	200.8	0.03	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days
Mercury, total	245.1	0.002	0.0002	1-250 mL HDPE	HNO_3	28 days
Bromide	300	—	0.1	1-125 mL HDPE	Unpreserved	28 days
Chloride	300	250	0.5	1-125 mL HDPE	Unpreserved	28 days
Fluoride	300	1.6	0.1	1-250 mL HDPE	Unpreserved	28 days
Nitrate	300	10	0.1	1-125 mL HDPE	Unpreserved	48 hours
Nitrite	300	1	0.1	1-125 mL HDPE	Unpreserved	48 hours
Sulfate	300	600	0.5	1-125 mL HDPE	Unpreserved	28 days
Perchlorate (CAS 14797-73-0)	331.0	—	0.00005	1-125 mL plasstic	Unpreserved	28 days
Cyanide	335.4	0.2	0.01	1-500 mL plastic amber	NaOH	14 days
1,2-Dibromoethane (ethylene dibromide, EDB) (CAS 106-93-4)	504.1	0.00005	0.00001	2-40 mL VOAs	$Na_2S_2O_3$	14 days
Perfluorohexane sulfonic acid (PHHxS) (CAS 355-46-4)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctane sulfonate (PFOS) (CAS 1763-23-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctanoic acid (PFOA) (CAS 335-67-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Aldrin (CAS 309-00-2)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
DDT (CAS 50-29-3)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Dieldrin (CAS 60-57-1)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Polychlorinated biphenyls (PCBs) (CAS 1336-36-3)	8082	0.0005	0.00025	6-1 L glass amber	Unpreserved	40 days
2,4,5-TP (Silvex)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
2,4-D (2,4-Dichlorophenoxyacetic acid)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
Monochlorobenzene (CAS 108-90-7)	8260	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Thiolane 1,1 dioxide (sulfolane) (CAS 126-33-0)	8270	—	Narrative only	6-1 L glass amber	Unpreserved	7 days
2,4,6-Trinitrotoluene (TNT) (CAS 118-96-7)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 3 of 9

Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (CAS 121-82-4)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Octrahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) (CAS 2691-41-0)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Alkalinity, total	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Bicarbonate	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Carbonate	2320B	—	2	1-250 mL HDPE	Unpreserved	14 days
Specific conductance (µmhos/cm)	2510B	—	10 µmhos/cm	1-125 mL HDPE	Unpreserved	28 days
Total dissolved solids	2540C	—	20	1-1 L HDPE	Unpreserved	7 days
Cadmium, dissolved	6010B	—	0.002	1-125 mL plastic (F&S)	HNO_3	180 days
Chlordane	8081A	—	0.001	2-40 mL VOAs	HCl	7 days
Endosulfan (CAS 115-29-7)	8081A	—	0.0001	2-40 mL VOAs	HCl	7 days
Endrin	8081A	—	0.0001	4-40 mL VOAs	HCl	7 days
Heptachlor (and its epoxide)	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Hexachlorocyclohexane (HCH, lindane): alpha-HCH; beta-HCH; gamma-HCH; and, technical-HCH	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Lindane	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Methoxychlor	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Toxaphene	8081A	—	0.001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
1,1,1-Trichloroethane (TCA)	8260B	0.2	0.001	3-40 mL VOAs	HCl	14 days
1,1,2,2-Tetrachloroethane	8260B	0.01	0.001	3-40 mL VOAs	HCl	14 days
1,1,2-Trichloroethane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethane	8260B	0.025	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethene (1,1-DCE) (CAS 75-35-4)	8260B	0.007	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorobenzene (CAS 120-82-1)	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorophenol	8260B	—	Narrative only	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 4 of 9

1,2-Dichlorobenzene	8260B	0.6	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloroethane (EDC)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloropropane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,4-Dichlorobenzene	8260B	0.075	0.001	3-40 mL VOAs	HCl	14 days
1-Methylnaphthalene (CAS 90-12-0)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days
2-Methylnaphthalene (CAS 91-57-6)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days
Acrolein (CAS 107-02-8)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Acrylonitrile (CAS 107-13-1)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Benzene	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Bromodichloromethane (CAS 75-27-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Bromomethane (CAS 74-83-9)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Carbon tetrachloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Chlorobenzene	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chloroform	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Chloromethane (CAS 74-87-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chlorothene (vinyl chloride) (CAS 75-01-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
cis-1,2-dichloroethene	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
Dichlorodifluoromethane (fluorocarbon-12) (CAS 75-71-8)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Ethylbenzene	8260B	0.7	0.001	3-40 mL VOAs	HCl	14 days
Methyl ethyl ketone	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Methyl tertiary-butyl ether (MTBE)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Methylene chloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Naphthalene (CAS 91-20-3)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Styrene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 5 of 9

Tetrachloroethene (perchloroethylene, PCE) (CAS 127-18-4)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Tetrachloromethane (carbon tetrachloride) (CAS 56-23-5)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Toluene	8260B	1	0.001	3-40 mL VOAs	HCl	14 days
trans-1,2-Dichloroethene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Tribromomethane (bromoform) (CAS 75-25-2)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloroethylene (TCE)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Trichlorofluoromethane (fluorocarbon-11) (CAS 75-69-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloromethane (chloroform) (CAS 67-66-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Vinyl chloride	8260B	0.002	0.001	3-40 mL VOAs	HCl	14 days
Xylenes (total) including m-xylene, o-xylene and p-xylene	8260B	0.62	0.002	3-40 mL VOAs	HCl	14 days
1,4-Dioxane (CAS 123-91-1)	8270C	—	0.001	6-1 L glass amber	Unpreserved	14 days
2,4,5-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4,6-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dichlorophenol (CAS 120-83-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitro-o-cresol (CAS 534-52-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitrotoluene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,6-Dinitrotoluene (2,6-DNT) (CAS 606-20-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,4-Benzofluoranthene (CAS 205-99-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Anthracene (CAS 120-12-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Atrazine	8270C	0.003	0.0015	6-1 L glass amber	Unpreserved	14 days
Benzidine (CAS 92-87-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Benzo(k)fluoranthene (CAS 207-08-9)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 6 of 9

Benzo-a-pyrene	8270C	0.0002	0.00014	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroethyl) ether (CAS 111-44-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroisopropyl) ether (CAS 108-60-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (chloromethyl) ether (CAS 542-88-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Di-2-ethylhexyl phthalate (DEHP) (CAS 117-81-7)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dibutyl phthalate (CAS 84-74-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,3-Dichlorobenzidine (CAS 91-94-1)	8270 C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Dichloropropenes (CAS 542-75-6)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diethyl phthalate (DEP) (CAS 84-66-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dimethyl phthalate (DMP) (CAS 131-11-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dinitrophenols (CAS 51-28-5)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diphenylhydrazine (CAS 122-66-7	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Fluoranthene (CAS 206-44-0)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Fluorene (CAS 86-73-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Hexachlorobenzene (CAS 118-74-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachlorobutadiene (CAS 87-68-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachlorocyclopentadiene (CAS 77-47-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachloroethane	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Isophorone (CAS 78-59-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
m-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Nitrobenzene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodibutylamine (CAS 924-16-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodiethylamine (CAS 55-18-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodimethylamine (CAS 62-75-9)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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N-nitrosodiphenylamine (CAS 86-30-6)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosopyrrolidine (CAS 930-55-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
o-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
PAHs (total napthalene plus monomethylnapthalenes)	8270C	0.03	0.0003	6-1 L glass amber	Unpreserved	14 days
p-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorobenzene (CAS 608-93-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorophenol	8270C	0.001	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenanthrene (CAS 85-01-8)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenol (CAS 108-95-2)	8270C	0.005	0.0005	2-1 L glass amber	H_2SO_4	7 days
Polynuclear aromatic hydrocarbons (PAHs)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Prometon (CAS 1610-18-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pyrene (CAS 129-00-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pyridine	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
1,2,4,5-Tetrachlorobenzene (CAS 95-94-3)	8270E	—	0.0005	6-1 L glass amber	Unpreserved	7 days
Radium-226 and -228 combined (pCi/L)	903.0 and 904.0	5 pCi/L	<5	2-1 L HDPE	HCl	180 days
pH (s.u.)	9040C	6–9	~2–12	1-1 L HDPE	Unpreserved	15 minutes
Cation/anion balance	Calculation	—	NA	—	—	—
Temperature (°C)	Provided with pH	—	—	—	—	—

Source: 20.6 2 3103 NMAC and 20.6 2.7 NMAC "Toxic Parameters"

[a] Unless otherwise noted
mg/L = Milligrams per liter
— = Unspecified
µmhos/cm = Micromhos per centimeter
pCi/L = Picocuries per liter
s.u. = Standard units
NA = Not applicable

Notes are provided at the end of the table.

ORIGIN ID:ABQA (505) 345-3975
SAMPLE RECEIVING

4901 HAWKINS NE

ALBUQUERQUE, NM 87109
UNITED STATES US

SHIP DATE: 12JUN25
ACTWGT: 60.00 LB
CAD: 1717027/INET4535

BILL SENDER

TO **SAMPLE RECIEVING**
EUROFINS TUSTIN
2841 DOW AVE
SUITE 100
TUSTIN CA 92780
(714) 895-5494 REF:
INV:
PO: DEPT:

58GJ5/0E74/59F2

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Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-5317.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 885-26493-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 6/19/2025			
City: Earth City	TAT Requested (days): N/A			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21 Standard Target List	904.0/PrecSep_0 Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
WDW-1-MW-1 20250610 (885-26493-1)	6/10/25	11:32 Mountain	G	Water			X	X	4	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/11/25 14:00		M. Pinette	JUN 13 2025 820	
Relinquished by:	Date/Time:	Company	Received by: Meadow Pinette	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-5329.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP - Oregon		Job #: 885-26493-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/19/2025			Preservation Codes:
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			Other: N/A

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	537.1/537.1_Prep EPA 537.1 18 Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WDW-1-MW-1 20250610 (885-26493-1)	6/10/25	11:32 Mountain	G	Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
~~Deliverable Requested: I, II, III, IV, Other (specify)~~ Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		06/12/25 15:30			6.13.25 905	
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4.4c

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-5322.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Southeast L		Accreditations Required (See note): NELAP - Oregon		Job #: 885-26493-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 6/19/2025			Preservation Codes: -
City: Pensacola	TAT Requested (days): N/A			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	420.4	Total Number of containers	Special Instructions/Note:
WDW-1-MW-1 20250610 (885-26493-1)	6/10/25	11:32 Mountain	G	Water				X		

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	06/12/25 15:00		VB	6/13/25 9:20	EETS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.0°C IR10

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Loc: 885 26493

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-5314.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Southwest,		Accreditations Required (See note): NELAP - Oregon		Job #: 885-26493-1
Address: 2841 Dow Avenue, Suite 100,	Due Date Requested: 6/19/2025			
City: Tustin	TAT Requested (days): N/A			
State, Zip: CA, 92780				
Phone: 714-895-5494(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330/8330_P_SA Routine Nitroaromatics & Nitramines List	8151A/8151A_AP Routine Herbicides List (Standard Spike	331	4500_CN_E/4500_CN_C Total Cyanide	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
WDW-1-MW-1 20250610 (885-26493-1)	6/10/25	11:32 Mountain	G	Water			X	X	X	X	6	

885-26493 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/12/25 13:25				
Relinquished by: Fedex	Date/Time:	Company	Received by:	Date/Time: 6/13 10:00	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4.8 / 5.8

Ver: 10/10/2024

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-26493-1

Login Number: 26493 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Rojas, Juan

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-26493-1

Login Number: 26493
List Number: 4
Creator: Khana, Piyush

List Source: Eurofins Calscience
List Creation: 06/13/25 12:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-26493-1

Login Number: 26493
List Number: 3
Creator: Bankston, Victoria K

List Source: Eurofins Pensacola
List Creation: 06/13/25 01:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0°C IR10
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-26493-1

Login Number: 26493
List Number: 5
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 06/13/25 02:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.4c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-26493-1

Login Number: 26493
List Number: 2
Creator: Forrest, Cheyenne L

List Source: Eurofins St. Louis
List Creation: 06/13/25 12:52 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Elizabeth Bastien
Daniel B. Stephens & Associates Inc.
6501 Americas Pkwy NE
Suite 200
Albuquerque, New Mexico 87110

Generated 10/1/2025 1:28:45 PM

JOB DESCRIPTION

HFSNR

JOB NUMBER

885-32182-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

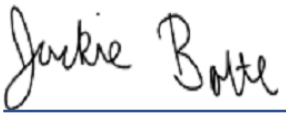
See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization



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Authorized for release by
Jackie Bolte, Project Manager
jackie.bolte@et.eurofinsus.com
(505)345-3975

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Laboratory Job ID: 885-32182-1

Table of Contents

Definitions/Glossary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit

Definitions/Glossary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project: HFSNR

Job ID: 885-32182-1 Eurofins Albuquerque

Job Narrative
885-32182-1

The analytical test results presented in this report meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page, unless otherwise noted. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable. Regulated compliance samples (e.g. SDWA, NPDES) must comply with associated agency requirements/permits.

- Matrix-specific batch QC (e.g., MS, MSD, SD) may not be reported when insufficient sample volume is available or when site-specific QC samples are not submitted. In such cases, a Laboratory Control Sample Duplicate (LCSD) may be analyzed to provide precision data for the batch.
- For samples analyzed using surrogate and/or isotope dilution analytes, any recoveries falling outside of established acceptance criteria are re-prepared and/or re-analyzed to confirm results, unless the deviation is due to sample dilution or otherwise explained in the case narrative.

Receipt
The samples were received on 8/29/2025 8:14 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 0.8°C, 1.3°C, 4.2°C and 4.8°C.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA
Method 8270E_QQQ: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-33674 and analytical batch 885-33850 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8270E_QQQ: The method blank for preparation batch 885-33674 and analytical batch 885-33850 contained Butyl benzyl phthalate, Di-n-octyl phthalate and Phenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8270E_QQQ: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-33674 and analytical batch 885-33850 recovered outside control limits for the following analytes: Pyridine. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E_QQQ: The continuing calibration verification (CCV) associated with batch 885-33850 recovered above the upper control limit for 4,6-Dinitro-2-methylphenol, 4-Nitrophenol, Benzoic acid and Pyridine. The samples associated with this CCV were non-detects or j values for the affected analytes; therefore, the data have been reported. The associated samples are:WDW-1MW-1-20250828 (885-32182-1) and DUP-20250828 (885-32182-2).

Method 8270E_QQQ: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: DUP-20250828 (885-32182-2), (885-32043-B-1-B MS) and (885-32043-B-1-C MSD). These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Herbicides
Method 8151A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-619939 and analytical batch 570-623301 recovered outside control limits for the following analytes: 2,4,5-T and MCPA.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PCBs

Case Narrative

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project: HFSNR

Job ID: 885-32182-1 (Continued) Eurofins Albuquerque

Method 8082A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 885-33697 and analytical batch 885-34204.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Pesticides
Method 8081B: The continuing calibration verification (CCV) associated with batch 885-34033 recovered above the upper control limit for Toxaphene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are:WDW-1MW-1-20250828 (885-32182-1) and DUP-20250828 (885-32182-2).

Method 8081B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 885-33697 and analytical batch 885-34033 recovered outside control limits for the following analytes: 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aldrin, alpha-BHC, beta-BHC, delta-BHC, Dieldrin, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin aldehyde, gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide and Methoxychlor.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_OF_48H_PREC: The following samples were diluted due to the nature of the sample matrix: WDW-1MW-1-20250828 (885-32182-1) and DUP-20250828 (885-32182-2). Elevated reporting limits (RLs) are provided.

Method 8330A: The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-620440.Method:8330

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

LCMS
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

PFAS
Method 537.1: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: After solid phase extraction and adjusting to the final volume, the following samples opaque in color in the collection tube which could have caused instrument clogging: WDW-1MW-1-20250828 (885-32182-1) and DUP-20250828 (885-32182-2). Thus, the samples were filtered with a 0.20um filter Lot number: 0000374374

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 200.8 - Dissolved: The continuing calibration verification (CCV) associated with batch 885-34256 recovered above the upper control limit for Uranium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 245.1: The continuing calibration verification (CCV) associated with batch 885-33799 recovered above the upper control limit for Mercury. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry
Method 2540C_SingleDry: The analysis volume selected for the following samples produced a base result greater than 200mg before calculation of the final result: WDW-1MW-1-20250828 (885-32182-1) and DUP-20250828 (885-32182-2). Reanalysis could not be performed due to holding time exceedance. Visual inspection by analyst shows no signs of trapped moisture, report as is The reference method specifies that no more than 200mg of weight be recovered for a chosen sample analysis volume in order to produce the best data precision. As such, these data have been qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Gas Flow Proportional Counter
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Case Narrative

Client: Daniel B. Stephens & Associates Inc.
Project: HFSNR

Job ID: 885-32182-1

Job ID: 885-32182-1 (Continued)

Eurofins Albuquerque

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			09/10/25 15:41	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			09/10/25 15:41	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/10/25 15:41	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			09/10/25 15:41	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/10/25 15:41	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			09/10/25 15:41	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			09/10/25 15:41	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 15:41	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			09/10/25 15:41	1
2-Butanone	ND		10	2.0	ug/L			09/10/25 15:41	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
2-Hexanone	ND		10	2.0	ug/L			09/10/25 15:41	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 15:41	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/10/25 15:41	1
Acetone	ND		10	2.5	ug/L			09/10/25 15:41	1
Benzene	**0.19**	**J**	1.0	0.15	ug/L			09/10/25 15:41	1
Bromobenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Bromodichloromethane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Dibromochloromethane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Bromoform	ND		1.0	0.40	ug/L			09/10/25 15:41	1
Bromomethane	ND		3.0	2.0	ug/L			09/10/25 15:41	1
Carbon disulfide	ND		10	0.40	ug/L			09/10/25 15:41	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Chlorobenzene	ND		1.0	0.50	ug/L			09/10/25 15:41	1
Chloroethane	ND		2.0	0.40	ug/L			09/10/25 15:41	1
Chloroform	ND		1.0	0.25	ug/L			09/10/25 15:41	1
Chloromethane	ND		3.0	1.0	ug/L			09/10/25 15:41	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/10/25 15:41	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Dibromomethane	ND		1.0	0.40	ug/L			09/10/25 15:41	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			09/10/25 15:41	1
Ethylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			09/10/25 15:41	1
Isopropylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			09/10/25 15:41	1
Methylene Chloride	ND		2.5	1.0	ug/L			09/10/25 15:41	1
n-Butylbenzene	ND		3.0	0.20	ug/L			09/10/25 15:41	1
N-Propylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Naphthalene	ND		2.0	0.50	ug/L			09/10/25 15:41	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Styrene	ND		1.0	0.25	ug/L			09/10/25 15:41	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			09/10/25 15:41	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Toluene	**11**		1.0	0.20	ug/L			09/10/25 15:41	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			09/10/25 15:41	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/10/25 15:41	1
Vinyl chloride	ND		1.0	0.30	ug/L			09/10/25 15:41	1
Xylenes, Total	ND		1.5	0.20	ug/L			09/10/25 15:41	1
Acrylonitrile	ND		10	0.75	ug/L			09/10/25 15:41	1
Acrolein	ND		10	3.3	ug/L			09/10/25 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*09/10/25 15:41*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/10/25 15:41*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*09/10/25 15:41*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*09/10/25 15:41*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Prometon	ND		1.0	0.22	ug/L		09/04/25 13:40	09/05/25 17:46	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 17:43	1
1,2-Dichlorobenzene	ND		1.0	0.087	ug/L		09/02/25 06:57	09/04/25 17:43	1
1,3-Dichlorobenzene	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 17:43	1
1,4-Dichlorobenzene	ND		2.0	0.082	ug/L		09/02/25 06:57	09/04/25 17:43	1
1,4-Dioxane	ND		0.50	0.23	ug/L		09/02/25 06:57	09/04/25 17:43	1
1-Methylnaphthalene	ND		0.20	0.097	ug/L		09/02/25 06:57	09/04/25 17:43	1
2,4,5-Trichlorophenol	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosodi-n-butylamine	ND		10	1.1	ug/L		09/04/25 13:40	09/05/25 17:46	1
2,4,6-Trichlorophenol	ND		1.0	0.082	ug/L		09/02/25 06:57	09/04/25 17:43	1
Pentachlorobenzene	ND		10	0.34	ug/L		09/04/25 13:40	09/05/25 17:46	1
1,2,4,5-Tetrachlorobenzene	ND		10	0.36	ug/L		09/04/25 13:40	09/05/25 17:46	1
2,4-Dichlorophenol	ND		1.0	0.072	ug/L		09/02/25 06:57	09/04/25 17:43	1
2,4-Dimethylphenol	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosodiethylamine	ND		10	0.54	ug/L		09/04/25 13:40	09/05/25 17:46	1
2,4-Dinitrophenol	ND		3.0	1.4	ug/L		09/02/25 06:57	09/04/25 17:43	1
Sulfolane	ND		10	0.81	ug/L		09/04/25 13:40	09/05/25 17:46	1
2,4-Dinitrotoluene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosopyrrolidine	ND		10	0.80	ug/L		09/04/25 13:40	09/05/25 17:46	1
2,6-Dinitrotoluene	ND		1.0	0.51	ug/L		09/02/25 06:57	09/04/25 17:43	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 17:43	1
2-Chlorophenol	ND		1.0	0.31	ug/L		09/02/25 06:57	09/04/25 17:43	1
2-Methylnaphthalene	ND		0.20	0.087	ug/L		09/02/25 06:57	09/04/25 17:43	1
2-Methylphenol	**0.068**	**J**	1.0	0.063	ug/L		09/02/25 06:57	09/04/25 17:43	1
2-Nitroaniline	ND		1.0	0.38	ug/L		09/02/25 06:57	09/04/25 17:43	1
2-Nitrophenol	ND		1.0	0.079	ug/L		09/02/25 06:57	09/04/25 17:43	1
3 & 4 Methylphenol	**0.44**	**J**	1.0	0.066	ug/L		09/02/25 06:57	09/04/25 17:43	1
3,3'-Dichlorobenzidine	ND		1.0	0.63	ug/L		09/02/25 06:57	09/04/25 17:43	1
3-Nitroaniline	ND		1.0	0.36	ug/L		09/02/25 06:57	09/04/25 17:43	1
4,6-Dinitro-2-methylphenol	ND		2.0	1.2	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Bromophenyl phenyl ether	ND		1.0	0.077	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Chloro-3-methylphenol	ND		1.0	0.12	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Chloroaniline	ND		1.0	0.33	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Chlorophenyl phenyl ether	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Nitroaniline	ND		1.0	0.50	ug/L		09/02/25 06:57	09/04/25 17:43	1
4-Nitrophenol	ND		1.0	0.64	ug/L		09/02/25 06:57	09/04/25 17:43	1
Acenaphthene	ND		0.20	0.085	ug/L		09/02/25 06:57	09/04/25 17:43	1
Acenaphthylene	ND		0.20	0.064	ug/L		09/02/25 06:57	09/04/25 17:43	1
Aniline	ND		10	1.7	ug/L		09/02/25 06:57	09/04/25 17:43	1
Anthracene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 17:43	1
Azobenzene	ND		1.0	0.49	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzo[a]anthracene	ND		0.20	0.047	ug/L		09/02/25 06:57	09/04/25 17:43	1
Atrazine	ND		0.50	0.44	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzo[a]pyrene	ND		0.070	0.057	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzo[b]fluoranthene	ND		0.20	0.066	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzidine	ND		10	2.0	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzo[g,h,i]perylene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzo[k]fluoranthene	ND		0.20	0.048	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzoic acid	**13**	**J**	15	7.1	ug/L		09/02/25 06:57	09/04/25 17:43	1
Benzyl alcohol	**0.18**	**J**	1.0	0.14	ug/L		09/02/25 06:57	09/04/25 17:43	1
Bis(2-chloroethoxy)methane	ND		1.0	0.060	ug/L		09/02/25 06:57	09/04/25 17:43	1
Bis(2-chloroethyl)ether	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 17:43	1
2,2'-oxybis[1-chloropropane]	ND		1.0	0.092	ug/L		09/02/25 06:57	09/04/25 17:43	1
Bis(2-ethylhexyl) phthalate	ND		1.0	0.95	ug/L		09/02/25 06:57	09/04/25 17:43	1
Butyl benzyl phthalate	ND		1.0	0.44	ug/L		09/02/25 06:57	09/04/25 17:43	1
Carbazole	ND		1.0	0.083	ug/L		09/02/25 06:57	09/04/25 17:43	1
Chrysene	ND		0.20	0.062	ug/L		09/02/25 06:57	09/04/25 17:43	1
Di-n-butyl phthalate	ND		1.5	1.1	ug/L		09/02/25 06:57	09/04/25 17:43	1
Di-n-octyl phthalate	**0.13**	**J B**	1.0	0.061	ug/L		09/02/25 06:57	09/04/25 17:43	1
Dibenz(a,h)anthracene	ND		0.20	0.045	ug/L		09/02/25 06:57	09/04/25 17:43	1
Dibenzofuran	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 17:43	1
Diethyl phthalate	ND		1.5	1.5	ug/L		09/02/25 06:57	09/04/25 17:43	1
Dimethyl phthalate	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 17:43	1
Fluoranthene	ND		0.20	0.068	ug/L		09/02/25 06:57	09/04/25 17:43	1
Fluorene	ND		0.20	0.081	ug/L		09/02/25 06:57	09/04/25 17:43	1
Hexachlorobenzene	ND		5.0	0.49	ug/L		09/02/25 06:57	09/04/25 17:43	1
Hexachlorobutadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 17:43	1
Hexachlorocyclopentadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 17:43	1
Hexachloroethane	ND		5.0	3.3	ug/L		09/02/25 06:57	09/04/25 17:43	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc.
Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828
Lab Sample ID: 885-32182-1
Date Collected: 08/28/25 14:00
Matrix: Water
Date Received: 08/29/25 08:14

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		0.20	0.058	ug/L		09/02/25 06:57	09/04/25 17:43	1
Isophorone	ND		1.0	0.22	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosodi-n-propylamine	ND		1.0	0.65	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosodimethylamine	ND		1.0	0.29	ug/L		09/02/25 06:57	09/04/25 17:43	1
N-Nitrosodiphenylamine	ND		1.0	0.32	ug/L		09/02/25 06:57	09/04/25 17:43	1
Naphthalene	ND		0.20	0.077	ug/L		09/02/25 06:57	09/04/25 17:43	1
Nitrobenzene	ND		1.0	0.66	ug/L		09/02/25 06:57	09/04/25 17:43	1
Pentachlorophenol	ND		0.33	0.33	ug/L		09/02/25 06:57	09/04/25 17:43	1
Phenanthrene	ND		0.20	0.061	ug/L		09/02/25 06:57	09/04/25 17:43	1
Phenol	ND		1.0	0.28	ug/L		09/02/25 06:57	09/04/25 17:43	1
Pyrene	ND		0.20	0.067	ug/L		09/02/25 06:57	09/04/25 17:43	1
Pyridine	ND	*+	10	2.6	ug/L		09/02/25 06:57	09/04/25 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*31*		*10 - 150*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
Terphenyl-d14 (Surr)	*70*		*28 - 150*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
2,4,6-Tribromophenol (Surr)	*30*		*10 - 150*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
2-Fluorobiphenyl	*65*		*25 - 139*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
2-Fluorophenol (Surr)	*16*		*10 - 150*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
Nitrobenzene-d5 (Surr)	*78*		*22 - 150*	*09/04/25 13:40*	*09/05/25 17:46*	*1*
Phenol-d5 (Surr)	*56*		*15 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*
2,4,6-Tribromophenol (Surr)	*82*		*15 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*
Nitrobenzene-d5 (Surr)	*126*		*29 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*
2-Fluorobiphenyl	*120*		*20 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*
p-Terphenyl-d14 (Surr)	*87*		*41 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*
2-Fluorophenol (Surr)	*54*		*15 - 130*	*09/02/25 06:57*	*09/04/25 17:43*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0095	0.0076	ug/L		09/05/25 16:11	09/06/25 17:41	1
1,2-Dibromo-3-Chloropropane	ND		0.019	0.0081	ug/L		09/05/25 16:11	09/06/25 17:41	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*1	0.10	0.085	ug/L		09/02/25 11:21	09/06/25 17:02	1
4,4'-DDE	ND	*1	0.10	0.037	ug/L		09/02/25 11:21	09/06/25 17:02	1
4,4'-DDT	ND	*1	0.10	0.075	ug/L		09/02/25 11:21	09/06/25 17:02	1
Aldrin	ND	*1	0.10	0.067	ug/L		09/02/25 11:21	09/06/25 17:02	1
alpha-BHC	ND	*1	0.10	0.034	ug/L		09/02/25 11:21	09/06/25 17:02	1
beta-BHC	ND	*1	0.15	0.11	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane	ND		1.0	0.50	ug/L		09/02/25 11:21	09/06/25 17:02	1
delta-BHC	ND	*1	0.10	0.086	ug/L		09/02/25 11:21	09/06/25 17:02	1
Dieldrin	ND	*1	0.10	0.068	ug/L		09/02/25 11:21	09/06/25 17:02	1
Endosulfan I	ND	*1	0.10	0.035	ug/L		09/02/25 11:21	09/06/25 17:02	1
Endosulfan II	ND	*1	0.10	0.070	ug/L		09/02/25 11:21	09/06/25 17:02	1
Endosulfan sulfate	ND	*1	0.10	0.085	ug/L		09/02/25 11:21	09/06/25 17:02	1
Endrin	ND	*1	0.10	0.080	ug/L		09/02/25 11:21	09/06/25 17:02	1
Endrin aldehyde	ND	*1	0.10	0.072	ug/L		09/02/25 11:21	09/06/25 17:02	1
gamma-BHC (Lindane)	ND	*1	0.10	0.066	ug/L		09/02/25 11:21	09/06/25 17:02	1
Heptachlor	ND	*1	0.10	0.070	ug/L		09/02/25 11:21	09/06/25 17:02	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	ND	*1	0.10	0.036	ug/L		09/02/25 11:21	09/06/25 17:02	1
Methoxychlor	ND	*1	0.10	0.092	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene	ND		2.0	0.50	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane (technical) Peak 1	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane (technical) Peak 2	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane (technical) Peak 3	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane (technical) Peak 4	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Chlordane (technical) Peak 5	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene Peak 1	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene Peak 2	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene Peak 3	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene Peak 4	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1
Toxaphene Peak 5	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*86*		*53 - 130*	*09/02/25 11:21*	*09/06/25 17:02*	*1*
Tetrachloro-m-xylene	*63*		*18 - 130*	*09/02/25 11:21*	*09/06/25 17:02*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1221	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1232	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1242	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1248	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1254	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1
PCB-1260	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*58*		*15 - 137*	*09/02/25 11:21*	*09/09/25 00:18*	*1*
DCB Decachlorobiphenyl (Surr)	*62*		*15 - 175*	*09/02/25 11:21*	*09/09/25 00:18*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.54	0.23	ug/L		09/03/25 14:06	09/10/25 20:21	1
2,4,5-TP (Silvex)	ND		0.54	0.15	ug/L		09/03/25 14:06	09/10/25 20:21	1
2,4-D	ND		5.4	2.1	ug/L		09/03/25 14:06	09/10/25 20:21	1
2,4-DB	ND		5.4	3.8	ug/L		09/03/25 14:06	09/10/25 20:21	1
Dalapon	ND		14	5.1	ug/L		09/03/25 14:06	09/10/25 20:21	1
Dicamba	ND		0.54	0.31	ug/L		09/03/25 14:06	09/10/25 20:21	1
Dichlorprop	ND		5.4	2.1	ug/L		09/03/25 14:06	09/10/25 20:21	1
Dinoseb	ND		2.7	2.4	ug/L		09/03/25 14:06	09/10/25 20:21	1
MCPA	ND	*1	540	380	ug/L		09/03/25 14:06	09/10/25 20:21	1
MCPP	ND		540	330	ug/L		09/03/25 14:06	09/10/25 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr)	*69*		*20 - 161*	*09/03/25 14:06*	*09/10/25 20:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**1.6**		1.0	0.50	mg/L			08/30/25 01:22	10

Eurofins Albuquerque

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: EPA 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate	ND		1.0	0.20	mg/L			08/30/25 01:22	10
Chloride	**1100**		50	25	mg/L			08/30/25 01:32	100
Nitrite	ND		1.0	0.12	mg/L			08/30/25 01:22	10
Fluoride	**0.51**	**J**	1.0	0.46	mg/L			08/30/25 01:22	10
Sulfate	**1900**		5.0	3.9	mg/L			08/30/25 01:22	10

Method: SW846 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 18:28	1
1,3-Dinitrobenzene	ND		1.1	0.13	ug/L		09/03/25 14:07	09/04/25 18:28	1
2,4,6-Trinitrotoluene	ND		1.1	0.66	ug/L		09/03/25 14:07	09/04/25 18:28	1
2,4-Dinitrotoluene	ND		1.1	0.17	ug/L		09/03/25 14:07	09/04/25 18:28	1
2,6-Dinitrotoluene	ND		1.1	0.080	ug/L		09/03/25 14:07	09/04/25 18:28	1
2-Amino-4,6-DNT	ND		1.1	0.087	ug/L		09/03/25 14:07	09/04/25 18:28	1
2-Nitrotoluene	ND		1.1	0.071	ug/L		09/03/25 14:07	09/04/25 18:28	1
3-Nitrotoluene	ND		1.1	0.099	ug/L		09/03/25 14:07	09/04/25 18:28	1
4-Amino-2,6-DNT	ND		1.1	0.22	ug/L		09/03/25 14:07	09/04/25 18:28	1
4-Nitrotoluene	ND		1.1	0.16	ug/L		09/03/25 14:07	09/04/25 18:28	1
HMX	**0.22**	**J**	1.1	0.12	ug/L		09/03/25 14:07	09/04/25 18:28	1
Nitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 18:28	1
RDX	ND		1.1	0.11	ug/L		09/03/25 14:07	09/04/25 18:28	1
Tetryl	ND		1.1	0.68	ug/L		09/03/25 14:07	09/04/25 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*101*		*60 - 150*	*09/03/25 14:07*	*09/04/25 18:28*	*1*

Method: EPA 331.0 - Perchlorate (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	**0.54**		0.50	0.10	ug/L			09/09/25 15:28	5

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.00088**	**J**	0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluoroheptanoic acid (PFHpA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorooctanoic acid (PFOA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorononanoic acid (PFNA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorodecanoic acid (PFDA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluoroundecanoic acid (PFUnA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorododecanoic acid (PFDoA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorotetradecanoic acid (PFTA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
Hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0019	0.00047	ug/L		09/11/25 04:38	09/11/25 15:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*09/11/25 04:38*	*09/11/25 15:58*	*1*
13C2 PFDA	*97*		*70 - 130*	*09/11/25 04:38*	*09/11/25 15:58*	*1*
d5-NEtFOSAA	*95*		*70 - 130*	*09/11/25 04:38*	*09/11/25 15:58*	*1*
13C3 HFPO-DA	*86*		*70 - 130*	*09/11/25 04:38*	*09/11/25 15:58*	*1*

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.020	0.017	mg/L			09/03/25 08:21	1
Barium	**0.058**		0.030	0.018	mg/L			09/05/25 11:19	10
Beryllium	ND		0.0020	0.0011	mg/L			09/03/25 08:21	1
Boron	**1.7**		0.40	0.053	mg/L			09/03/25 08:23	10
Cadmium	ND		0.0020	0.0017	mg/L			09/03/25 08:21	1
Calcium	**730**		10	4.2	mg/L			09/03/25 08:23	10
Chromium	ND		0.060	0.030	mg/L			09/05/25 11:19	10
Cobalt	ND		0.060	0.033	mg/L			09/05/25 11:19	10
Iron	ND		0.020	0.0093	mg/L			09/03/25 08:21	1
Magnesium	**110**		10	0.64	mg/L			09/03/25 08:23	10
Manganese	**0.065**		0.020	0.012	mg/L			09/05/25 11:19	10
Molybdenum	**0.053**		0.0080	0.0063	mg/L			09/03/25 08:21	1
Nickel	ND		0.10	0.040	mg/L			09/05/25 11:19	10
Potassium	**31**		1.0	0.45	mg/L			09/03/25 08:21	1
Sodium	**430**		10	2.5	mg/L			09/08/25 08:25	10
Zinc	ND		0.10	0.075	mg/L			09/05/25 11:19	10
Silver	**0.0097**		0.0050	0.0015	mg/L			09/03/25 08:21	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00044**	**J**	0.0010	0.00028	mg/L			09/08/25 17:03	1
Arsenic	**0.0013**		0.00050	0.00041	mg/L			09/08/25 17:03	1
Copper	ND		0.00050	0.00030	mg/L			09/08/25 17:03	1
Lead	ND		0.00050	0.00034	mg/L			09/08/25 17:03	1
Selenium	**0.0023**		0.0010	0.00092	mg/L			09/08/25 17:03	1
Cadmium	ND		0.00050	0.00018	mg/L			09/08/25 17:03	1
Thallium	ND		0.00025	0.000036	mg/L			09/08/25 17:03	1
Uranium	ND	^+	0.00050	0.00019	mg/L			09/08/25 17:03	1

Method: EPA 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000080	mg/L		09/02/25 12:53	09/03/25 10:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4600**	**E**	50	25	mg/L			09/03/25 16:34	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total (EPA 420.4)	ND		0.0050	0.0020	mg/L			09/04/25 15:59	1
Total Alkalinity as CaCO3 (SM 2320B)	**21**		20	20	mg/L			09/02/25 11:40	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		20	20	mg/L			09/02/25 11:40	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	**16**		2.0	2.0	mg/L			09/02/25 11:40	1
Specific Conductance (SM 2510B)	**5800**		10	10	umhos/cm			09/02/25 11:40	1
Cyanide, Total (SM 4500 CN E)	ND		0.025	0.0093	mg/L		09/03/25 13:36	09/03/25 16:18	1
pH (SM 4500 H+ B)	**9.2**	**HF**	0.1	0.1	SU			09/02/25 11:40	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.710**		0.297	0.303	1.00	0.341	pCi/L	09/04/25 08:22	09/30/25 21:02	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*30 - 110*	*09/04/25 08:22*	*09/30/25 21:02*	*1*

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**1.26**		0.630	0.640	1.00	0.882	pCi/L	09/04/25 08:27	09/30/25 16:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*30 - 110*	*09/04/25 08:27*	*09/30/25 16:13*	*1*
Y Carrier	*86.4*		*30 - 110*	*09/04/25 08:27*	*09/30/25 16:13*	*1*

Client Sample Results

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Job ID: 885-32182-1

Client Sample ID: DUP-20250828

Date Collected: 08/28/25 13:00
Date Received: 08/29/25 08:14

Lab Sample ID: 885-32182-2

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			09/10/25 16:09	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			09/10/25 16:09	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/10/25 16:09	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			09/10/25 16:09	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/10/25 16:09	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			09/10/25 16:09	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			09/10/25 16:09	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 16:09	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			09/10/25 16:09	1
2-Butanone	ND		10	2.0	ug/L			09/10/25 16:09	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
2-Hexanone	ND		10	2.0	ug/L			09/10/25 16:09	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 16:09	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/10/25 16:09	1
Acetone	ND		10	2.5	ug/L			09/10/25 16:09	1
Benzene	**0.18**	**J**	1.0	0.15	ug/L			09/10/25 16:09	1
Bromobenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Bromodichloromethane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Dibromochloromethane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Bromoform	ND		1.0	0.40	ug/L			09/10/25 16:09	1
Bromomethane	ND		3.0	2.0	ug/L			09/10/25 16:09	1
Carbon disulfide	ND		10	0.40	ug/L			09/10/25 16:09	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Chlorobenzene	ND		1.0	0.50	ug/L			09/10/25 16:09	1
Chloroethane	ND		2.0	0.40	ug/L			09/10/25 16:09	1
Chloroform	ND		1.0	0.25	ug/L			09/10/25 16:09	1
Chloromethane	ND		3.0	1.0	ug/L			09/10/25 16:09	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/10/25 16:09	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Dibromomethane	ND		1.0	0.40	ug/L			09/10/25 16:09	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			09/10/25 16:09	1
Ethylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			09/10/25 16:09	1
Isopropylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Job ID: 885-32182-1

Client Sample ID: DUP-20250828

Date Collected: 08/28/25 13:00
Date Received: 08/29/25 08:14

Lab Sample ID: 885-32182-2

Matrix: Water

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			09/10/25 16:09	1
Methylene Chloride	ND		2.5	1.0	ug/L			09/10/25 16:09	1
n-Butylbenzene	ND		3.0	0.20	ug/L			09/10/25 16:09	1
N-Propylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Naphthalene	ND		2.0	0.50	ug/L			09/10/25 16:09	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Styrene	ND		1.0	0.25	ug/L			09/10/25 16:09	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			09/10/25 16:09	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Toluene	**11**		1.0	0.20	ug/L			09/10/25 16:09	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			09/10/25 16:09	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/10/25 16:09	1
Vinyl chloride	ND		1.0	0.30	ug/L			09/10/25 16:09	1
Xylenes, Total	ND		1.5	0.20	ug/L			09/10/25 16:09	1
Acrylonitrile	ND		10	0.75	ug/L			09/10/25 16:09	1
Acrolein	ND		10	3.3	ug/L			09/10/25 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*09/10/25 16:09*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*09/10/25 16:09*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*09/10/25 16:09*	*1*
Dibromofluoromethane (Surr)	*96*		*70 - 130*		*09/10/25 16:09*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Prometon	ND		1.0	0.22	ug/L		09/04/25 13:40	09/05/25 18:16	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 18:19	1
1,2-Dichlorobenzene	ND		1.0	0.087	ug/L		09/02/25 06:57	09/04/25 18:19	1
1,3-Dichlorobenzene	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 18:19	1
1,4-Dichlorobenzene	ND		2.0	0.082	ug/L		09/02/25 06:57	09/04/25 18:19	1
1,4-Dioxane	ND		0.50	0.23	ug/L		09/02/25 06:57	09/04/25 18:19	1
1-Methylnaphthalene	ND		0.20	0.097	ug/L		09/02/25 06:57	09/04/25 18:19	1
2,4,5-Trichlorophenol	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosodi-n-butylamine	ND		10	1.1	ug/L		09/04/25 13:40	09/05/25 18:16	1
2,4,6-Trichlorophenol	ND		1.0	0.082	ug/L		09/02/25 06:57	09/04/25 18:19	1
Pentachlorobenzene	ND		10	0.34	ug/L		09/04/25 13:40	09/05/25 18:16	1
1,2,4,5-Tetrachlorobenzene	ND		10	0.36	ug/L		09/04/25 13:40	09/05/25 18:16	1
2,4-Dichlorophenol	ND		1.0	0.072	ug/L		09/02/25 06:57	09/04/25 18:19	1
2,4-Dimethylphenol	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosodiethylamine	ND		10	0.55	ug/L		09/04/25 13:40	09/05/25 18:16	1
2,4-Dinitrophenol	ND		3.0	1.4	ug/L		09/02/25 06:57	09/04/25 18:19	1
Sulfolane	ND		10	0.81	ug/L		09/04/25 13:40	09/05/25 18:16	1
2,4-Dinitrotoluene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosopyrrolidine	ND		10	0.80	ug/L		09/04/25 13:40	09/05/25 18:16	1
2,6-Dinitrotoluene	ND		1.0	0.51	ug/L		09/02/25 06:57	09/04/25 18:19	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chloronaphthalene	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 18:19	1
2-Chlorophenol	ND		1.0	0.31	ug/L		09/02/25 06:57	09/04/25 18:19	1
2-Methylnaphthalene	ND		0.20	0.087	ug/L		09/02/25 06:57	09/04/25 18:19	1
2-Methylphenol	ND		1.0	0.063	ug/L		09/02/25 06:57	09/04/25 18:19	1
2-Nitroaniline	ND		1.0	0.38	ug/L		09/02/25 06:57	09/04/25 18:19	1
2-Nitrophenol	ND		1.0	0.079	ug/L		09/02/25 06:57	09/04/25 18:19	1
3 & 4 Methylphenol	**0.40**	**J**	1.0	0.066	ug/L		09/02/25 06:57	09/04/25 18:19	1
3,3'-Dichlorobenzidine	ND		1.0	0.63	ug/L		09/02/25 06:57	09/04/25 18:19	1
3-Nitroaniline	ND		1.0	0.36	ug/L		09/02/25 06:57	09/04/25 18:19	1
4,6-Dinitro-2-methylphenol	ND		2.0	1.2	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Bromophenyl phenyl ether	ND		1.0	0.077	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Chloro-3-methylphenol	ND		1.0	0.12	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Chloroaniline	ND		1.0	0.33	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Chlorophenyl phenyl ether	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Nitroaniline	ND		1.0	0.50	ug/L		09/02/25 06:57	09/04/25 18:19	1
4-Nitrophenol	ND		1.0	0.64	ug/L		09/02/25 06:57	09/04/25 18:19	1
Acenaphthene	ND		0.20	0.085	ug/L		09/02/25 06:57	09/04/25 18:19	1
Acenaphthylene	ND		0.20	0.064	ug/L		09/02/25 06:57	09/04/25 18:19	1
Aniline	**1.8**	**J**	10	1.7	ug/L		09/02/25 06:57	09/04/25 18:19	1
Anthracene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 18:19	1
Azobenzene	ND		1.0	0.49	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzo[a]anthracene	ND		0.20	0.047	ug/L		09/02/25 06:57	09/04/25 18:19	1
Atrazine	ND		0.50	0.44	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzo[a]pyrene	ND		0.070	0.057	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzo[b]fluoranthene	ND		0.20	0.066	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzidine	ND		10	2.0	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzo[g,h,i]perylene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzo[k]fluoranthene	ND		0.20	0.048	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzoic acid	ND		15	7.1	ug/L		09/02/25 06:57	09/04/25 18:19	1
Benzyl alcohol	**0.17**	**J**	1.0	0.14	ug/L		09/02/25 06:57	09/04/25 18:19	1
Bis(2-chloroethoxy)methane	ND		1.0	0.060	ug/L		09/02/25 06:57	09/04/25 18:19	1
Bis(2-chloroethyl)ether	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 18:19	1
2,2'-oxybis[1-chloropropane]	ND		1.0	0.092	ug/L		09/02/25 06:57	09/04/25 18:19	1
Bis(2-ethylhexyl) phthalate	ND		1.0	0.95	ug/L		09/02/25 06:57	09/04/25 18:19	1
Butyl benzyl phthalate	ND		1.0	0.44	ug/L		09/02/25 06:57	09/04/25 18:19	1
Carbazole	ND		1.0	0.083	ug/L		09/02/25 06:57	09/04/25 18:19	1
Chrysene	ND		0.20	0.062	ug/L		09/02/25 06:57	09/04/25 18:19	1
Di-n-butyl phthalate	ND		1.5	1.1	ug/L		09/02/25 06:57	09/04/25 18:19	1
Di-n-octyl phthalate	**0.14**	**J B**	1.0	0.061	ug/L		09/02/25 06:57	09/04/25 18:19	1
Dibenz(a,h)anthracene	ND		0.20	0.045	ug/L		09/02/25 06:57	09/04/25 18:19	1
Dibenzofuran	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 18:19	1
Diethyl phthalate	ND		1.5	1.5	ug/L		09/02/25 06:57	09/04/25 18:19	1
Dimethyl phthalate	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 18:19	1
Fluoranthene	ND		0.20	0.068	ug/L		09/02/25 06:57	09/04/25 18:19	1
Fluorene	ND		0.20	0.081	ug/L		09/02/25 06:57	09/04/25 18:19	1
Hexachlorobenzene	ND		5.0	0.49	ug/L		09/02/25 06:57	09/04/25 18:19	1
Hexachlorobutadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 18:19	1
Hexachlorocyclopentadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 18:19	1
Hexachloroethane	ND		5.0	3.3	ug/L		09/02/25 06:57	09/04/25 18:19	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	ND		0.20	0.058	ug/L		09/02/25 06:57	09/04/25 18:19	1
Isophorone	ND		1.0	0.22	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosodi-n-propylamine	ND		1.0	0.65	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosodimethylamine	ND		1.0	0.29	ug/L		09/02/25 06:57	09/04/25 18:19	1
N-Nitrosodiphenylamine	ND		1.0	0.32	ug/L		09/02/25 06:57	09/04/25 18:19	1
Naphthalene	ND		0.20	0.077	ug/L		09/02/25 06:57	09/04/25 18:19	1
Nitrobenzene	ND		1.0	0.66	ug/L		09/02/25 06:57	09/04/25 18:19	1
Pentachlorophenol	ND		0.33	0.33	ug/L		09/02/25 06:57	09/04/25 18:19	1
Phenanthrene	ND		0.20	0.061	ug/L		09/02/25 06:57	09/04/25 18:19	1
Phenol	ND		1.0	0.28	ug/L		09/02/25 06:57	09/04/25 18:19	1
Pyrene	ND		0.20	0.067	ug/L		09/02/25 06:57	09/04/25 18:19	1
Pyridine	ND	*+	10	2.6	ug/L		09/02/25 06:57	09/04/25 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*31*		*10 - 150*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
Terphenyl-d14 (Surr)	*73*		*28 - 150*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
2,4,6-Tribromophenol (Surr)	*26*		*10 - 150*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
2-Fluorobiphenyl	*69*		*25 - 139*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
2-Fluorophenol (Surr)	*13*		*10 - 150*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
Nitrobenzene-d5 (Surr)	*78*		*22 - 150*	*09/04/25 13:40*	*09/05/25 18:16*	*1*
Phenol-d5 (Surr)	*58*		*15 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*
2,4,6-Tribromophenol (Surr)	*86*		*15 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*
Nitrobenzene-d5 (Surr)	*133*	*S1+*	*29 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*
2-Fluorobiphenyl	*125*		*20 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*
p-Terphenyl-d14 (Surr)	*93*		*41 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*
2-Fluorophenol (Surr)	*53*		*15 - 130*	*09/02/25 06:57*	*09/04/25 18:19*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0095	0.0076	ug/L		09/05/25 16:11	09/06/25 17:56	1
1,2-Dibromo-3-Chloropropane	ND		0.019	0.0080	ug/L		09/05/25 16:11	09/06/25 17:56	1

Method: SW846 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*1	0.10	0.085	ug/L		09/02/25 11:21	09/06/25 17:15	1
4,4'-DDE	ND	*1	0.10	0.037	ug/L		09/02/25 11:21	09/06/25 17:15	1
4,4'-DDT	ND	*1	0.10	0.075	ug/L		09/02/25 11:21	09/06/25 17:15	1
Aldrin	ND	*1	0.10	0.067	ug/L		09/02/25 11:21	09/06/25 17:15	1
alpha-BHC	ND	*1	0.10	0.034	ug/L		09/02/25 11:21	09/06/25 17:15	1
beta-BHC	ND	*1	0.15	0.11	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane	ND		1.0	0.50	ug/L		09/02/25 11:21	09/06/25 17:15	1
delta-BHC	ND	*1	0.10	0.086	ug/L		09/02/25 11:21	09/06/25 17:15	1
Dieldrin	ND	*1	0.10	0.068	ug/L		09/02/25 11:21	09/06/25 17:15	1
Endosulfan I	ND	*1	0.10	0.035	ug/L		09/02/25 11:21	09/06/25 17:15	1
Endosulfan II	ND	*1	0.10	0.070	ug/L		09/02/25 11:21	09/06/25 17:15	1
Endosulfan sulfate	ND	*1	0.10	0.085	ug/L		09/02/25 11:21	09/06/25 17:15	1
Endrin	ND	*1	0.10	0.080	ug/L		09/02/25 11:21	09/06/25 17:15	1
Endrin aldehyde	ND	*1	0.10	0.072	ug/L		09/02/25 11:21	09/06/25 17:15	1
gamma-BHC (Lindane)	ND	*1	0.10	0.066	ug/L		09/02/25 11:21	09/06/25 17:15	1
Heptachlor	ND	*1	0.10	0.070	ug/L		09/02/25 11:21	09/06/25 17:15	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc.
Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828
Lab Sample ID: 885-32182-2
Date Collected: 08/28/25 13:00
Matrix: Water
Date Received: 08/29/25 08:14

Method: SW846 8081B - Organochlorine Pesticides (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	ND	*1	0.10	0.036	ug/L		09/02/25 11:21	09/06/25 17:15	1
Methoxychlor	ND	*1	0.10	0.092	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene	ND		2.0	0.50	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane (technical) Peak 1	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane (technical) Peak 2	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane (technical) Peak 3	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane (technical) Peak 4	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Chlordane (technical) Peak 5	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene Peak 1	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene Peak 2	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene Peak 3	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene Peak 4	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1
Toxaphene Peak 5	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 17:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*95*		*53 - 130*	*09/02/25 11:21*	*09/06/25 17:15*	*1*
Tetrachloro-m-xylene	*74*		*18 - 130*	*09/02/25 11:21*	*09/06/25 17:15*	*1*

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1221	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1232	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1242	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1248	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1254	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1
PCB-1260	ND		0.25	0.25	ug/L		09/02/25 11:21	09/09/25 00:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*15 - 137*	*09/02/25 11:21*	*09/09/25 00:54*	*1*
DCB Decachlorobiphenyl (Surr)	*70*		*15 - 175*	*09/02/25 11:21*	*09/09/25 00:54*	*1*

Method: SW846 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND	*1	0.50	0.21	ug/L		09/03/25 14:06	09/10/25 20:44	1
2,4,5-TP (Silvex)	ND		0.50	0.13	ug/L		09/03/25 14:06	09/10/25 20:44	1
2,4-D	ND		5.0	1.9	ug/L		09/03/25 14:06	09/10/25 20:44	1
2,4-DB	ND		5.0	3.5	ug/L		09/03/25 14:06	09/10/25 20:44	1
Dalapon	ND		12	4.7	ug/L		09/03/25 14:06	09/10/25 20:44	1
Dicamba	ND		0.50	0.28	ug/L		09/03/25 14:06	09/10/25 20:44	1
Dichlorprop	ND		5.0	1.9	ug/L		09/03/25 14:06	09/10/25 20:44	1
Dinoseb	ND		2.5	2.2	ug/L		09/03/25 14:06	09/10/25 20:44	1
MCPA	ND	*1	500	350	ug/L		09/03/25 14:06	09/10/25 20:44	1
MCPP	ND		500	300	ug/L		09/03/25 14:06	09/10/25 20:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr)	*65*		*20 - 161*	*09/03/25 14:06*	*09/10/25 20:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	**1.5**		1.0	0.50	mg/L			08/30/25 01:42	10

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: EPA 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate	ND		1.0	0.20	mg/L			08/30/25 01:42	10
Chloride	**1100**		50	25	mg/L			08/30/25 01:52	100
Nitrite	ND		1.0	0.12	mg/L			08/30/25 01:42	10
Fluoride	**0.51**	**J**	1.0	0.46	mg/L			08/30/25 01:42	10
Sulfate	**1900**		5.0	3.9	mg/L			08/30/25 01:42	10

Method: SW846 8330A - Nitroaromatics and Nitramines

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 18:51	1
1,3-Dinitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 18:51	1
2,4,6-Trinitrotoluene	ND		1.1	0.67	ug/L		09/03/25 14:07	09/04/25 18:51	1
2,4-Dinitrotoluene	ND		1.1	0.17	ug/L		09/03/25 14:07	09/04/25 18:51	1
2,6-Dinitrotoluene	ND		1.1	0.080	ug/L		09/03/25 14:07	09/04/25 18:51	1
2-Amino-4,6-DNT	ND		1.1	0.088	ug/L		09/03/25 14:07	09/04/25 18:51	1
2-Nitrotoluene	ND		1.1	0.071	ug/L		09/03/25 14:07	09/04/25 18:51	1
3-Nitrotoluene	**0.11**	**J**	1.1	0.099	ug/L		09/03/25 14:07	09/04/25 18:51	1
4-Amino-2,6-DNT	ND		1.1	0.22	ug/L		09/03/25 14:07	09/04/25 18:51	1
4-Nitrotoluene	ND		1.1	0.17	ug/L		09/03/25 14:07	09/04/25 18:51	1
HMX	**0.26**	**J**	1.1	0.12	ug/L		09/03/25 14:07	09/04/25 18:51	1
Nitrobenzene	ND		1.1	0.15	ug/L		09/03/25 14:07	09/04/25 18:51	1
RDX	ND		1.1	0.11	ug/L		09/03/25 14:07	09/04/25 18:51	1
Tetryl	ND		1.1	0.68	ug/L		09/03/25 14:07	09/04/25 18:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*98*		*60 - 150*	*09/03/25 14:07*	*09/04/25 18:51*	*1*

Method: EPA 331.0 - Perchlorate (LC/MS/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	**0.16**	**J**	0.20	0.040	ug/L			09/09/25 15:39	2

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.00052**	**J**	0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorooctanoic acid (PFOA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorononanoic acid (PFNA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorodecanoic acid (PFDA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluoroundecanoic acid (PFUnA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorododecanoic acid (PFDoA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorotetradecanoic acid (PFTA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
Hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0018	0.00046	ug/L		09/11/25 04:38	09/11/25 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*09/11/25 04:38*	*09/11/25 16:07*	*1*
13C2 PFDA	*92*		*70 - 130*	*09/11/25 04:38*	*09/11/25 16:07*	*1*
d5-NEtFOSAA	*97*		*70 - 130*	*09/11/25 04:38*	*09/11/25 16:07*	*1*
13C3 HFPO-DA	*83*		*70 - 130*	*09/11/25 04:38*	*09/11/25 16:07*	*1*

Method: EPA 200.7 Rev 4.4 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.020	0.017	mg/L			09/03/25 08:35	1
Barium	**0.062**		0.030	0.018	mg/L			09/05/25 11:23	10
Beryllium	ND		0.0020	0.0011	mg/L			09/03/25 08:35	1
Boron	**1.7**		0.40	0.053	mg/L			09/03/25 08:37	10
Cadmium	ND		0.0020	0.0017	mg/L			09/03/25 08:35	1
Calcium	**720**		10	4.2	mg/L			09/03/25 08:37	10
Chromium	ND		0.060	0.030	mg/L			09/05/25 11:23	10
Cobalt	ND		0.060	0.033	mg/L			09/05/25 11:23	10
Iron	ND		0.020	0.0093	mg/L			09/03/25 08:35	1
Magnesium	**100**		10	0.64	mg/L			09/03/25 08:37	10
Manganese	**0.063**		0.020	0.012	mg/L			09/05/25 11:23	10
Molybdenum	**0.049**		0.0080	0.0063	mg/L			09/03/25 08:35	1
Nickel	ND		0.10	0.040	mg/L			09/05/25 11:23	10
Potassium	**29**		1.0	0.45	mg/L			09/03/25 08:35	1
Sodium	**420**		10	2.5	mg/L			09/08/25 08:27	10
Zinc	ND		0.10	0.075	mg/L			09/05/25 11:23	10
Silver	**0.010**		0.0050	0.0015	mg/L			09/03/25 08:35	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**0.00055**	**J**	0.0010	0.00028	mg/L			09/08/25 17:12	1
Arsenic	**0.0011**		0.00050	0.00041	mg/L			09/08/25 17:12	1
Copper	ND		0.00050	0.00030	mg/L			09/08/25 17:12	1
Lead	ND		0.00050	0.00034	mg/L			09/08/25 17:12	1
Selenium	**0.0023**		0.0010	0.00092	mg/L			09/08/25 17:12	1
Cadmium	ND		0.00050	0.00018	mg/L			09/08/25 17:12	1
Thallium	ND		0.00025	0.000036	mg/L			09/08/25 17:12	1
Uranium	ND	^+	0.00050	0.00019	mg/L			09/08/25 17:12	1

Method: EPA 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000080	mg/L		09/02/25 12:53	09/03/25 10:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids (SM 2540C)	**4600**	**E**	50	25	mg/L			09/03/25 16:34	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total (EPA 420.4)	ND		0.0050	0.0020	mg/L			09/04/25 16:02	1
Total Alkalinity as CaCO3 (SM 2320B)	**20**		20	20	mg/L			09/02/25 11:48	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	ND		20	20	mg/L			09/02/25 11:48	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	**17**		2.0	2.0	mg/L			09/02/25 11:48	1
Specific Conductance (SM 2510B)	**5700**		10	10	umhos/cm			09/02/25 11:48	1
Cyanide, Total (SM 4500 CN E)	ND		0.025	0.0093	mg/L		09/03/25 13:36	09/03/25 16:19	1
pH (SM 4500 H+ B)	**9.2**	**HF**	0.1	0.1	SU			09/02/25 11:48	1

Method: EPA 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**1.03**		0.327	0.340	1.00	0.312	pCi/L	09/04/25 08:22	09/30/25 21:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*30 - 110*	*09/04/25 08:22*	*09/30/25 21:03*	*1*

Method: EPA 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.753	U	0.546	0.550	1.00	0.831	pCi/L	09/04/25 08:27	09/30/25 16:14	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.4*		*30 - 110*	*09/04/25 08:27*	*09/30/25 16:14*	*1*
Y Carrier	*86.0*		*30 - 110*	*09/04/25 08:27*	*09/30/25 16:14*	*1*

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: Trip Blank
Lab Sample ID: 885-32182-3
Date Collected: 08/28/25 00:00
Matrix: Water
Date Received: 08/29/25 08:14

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			09/10/25 12:56	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			09/10/25 12:56	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/10/25 12:56	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			09/10/25 12:56	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/10/25 12:56	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			09/10/25 12:56	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			09/10/25 12:56	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 12:56	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			09/10/25 12:56	1
2-Butanone	ND		10	2.0	ug/L			09/10/25 12:56	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
2-Hexanone	ND		10	2.0	ug/L			09/10/25 12:56	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 12:56	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/10/25 12:56	1
Acetone	ND		10	2.5	ug/L			09/10/25 12:56	1
Benzene	ND		1.0	0.15	ug/L			09/10/25 12:56	1
Bromobenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Bromodichloromethane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Acrolein	ND		10	3.3	ug/L			09/10/25 12:56	1
Dibromochloromethane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Acrylonitrile	ND		10	0.75	ug/L			09/10/25 12:56	1
Bromoform	ND		1.0	0.40	ug/L			09/10/25 12:56	1
Bromomethane	ND		3.0	2.0	ug/L			09/10/25 12:56	1
Carbon disulfide	ND		10	0.40	ug/L			09/10/25 12:56	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Chlorobenzene	ND		1.0	0.50	ug/L			09/10/25 12:56	1
Chloroethane	ND		2.0	0.40	ug/L			09/10/25 12:56	1
Chloroform	ND		1.0	0.25	ug/L			09/10/25 12:56	1
Chloromethane	ND		3.0	1.0	ug/L			09/10/25 12:56	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/10/25 12:56	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Dibromomethane	ND		1.0	0.40	ug/L			09/10/25 12:56	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			09/10/25 12:56	1
Ethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1

Client Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: Trip Blank **Lab Sample ID: 885-32182-3**
Date Collected: 08/28/25 00:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	ND		1.0	0.40	ug/L			09/10/25 12:56	1
Isopropylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			09/10/25 12:56	1
Methylene Chloride	ND		2.5	1.0	ug/L			09/10/25 12:56	1
n-Butylbenzene	ND		3.0	0.20	ug/L			09/10/25 12:56	1
N-Propylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Naphthalene	ND		2.0	0.50	ug/L			09/10/25 12:56	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Styrene	ND		1.0	0.25	ug/L			09/10/25 12:56	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			09/10/25 12:56	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Toluene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			09/10/25 12:56	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/10/25 12:56	1
Vinyl chloride	ND		1.0	0.30	ug/L			09/10/25 12:56	1
Xylenes, Total	ND		1.5	0.20	ug/L			09/10/25 12:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*		*09/10/25 12:56*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/10/25 12:56*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*09/10/25 12:56*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*09/10/25 12:56*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.0093	0.0075	ug/L		09/05/25 16:11	09/06/25 18:10	1
1,2-Dibromo-3-Chloropropane	ND		0.019	0.0079	ug/L		09/05/25 16:11	09/06/25 18:10	1

Tracer/Carrier Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
		Ba
Lab Sample ID	Client Sample ID	(30-110)
885-32182-1	WDW-1MW-1-20250828	91.5
885-32182-2	DUP-20250828	94.4
LCS 160-734790/2-A	Lab Control Sample	86.3
MB 160-734790/1-A	Method Blank	88.3

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Ba	Y
Lab Sample ID	Client Sample ID	(30-110)	(30-110)
885-32182-1	WDW-1MW-1-20250828	91.5	86.4
885-32182-2	DUP-20250828	94.4	86.0
LCS 160-734791/2-A	Lab Control Sample	86.3	81.9
MB 160-734791/1-A	Method Blank	88.3	83.4

Tracer/Carrier Legend

Ba = Ba Carrier

Y = Y Carrier

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-34338/5 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34338

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	0.25	ug/L			09/10/25 12:01	1
1,1,1-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,1,2,2-Tetrachloroethane	ND		2.0	0.41	ug/L			09/10/25 12:01	1
1,1,2-Trichloroethane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/10/25 12:01	1
1,1-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,1-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,2,3-Trichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,2,3-Trichloropropane	ND		2.0	0.20	ug/L			09/10/25 12:01	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/10/25 12:01	1
1,2,4-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,2-Dibromo-3-Chloropropane	ND		2.0	0.75	ug/L			09/10/25 12:01	1
1,2-Dibromoethane (EDB)	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,2-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,2-Dichloroethane (EDC)	ND		1.0	0.25	ug/L			09/10/25 12:01	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,3,5-Trimethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,3-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,3-Dichloropropane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1,4-Dichlorobenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
1-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 12:01	1
2,2-Dichloropropane	ND		2.0	0.25	ug/L			09/10/25 12:01	1
2-Butanone	ND		10	2.0	ug/L			09/10/25 12:01	1
2-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
2-Hexanone	ND		10	2.0	ug/L			09/10/25 12:01	1
2-Methylnaphthalene	ND		4.0	1.0	ug/L			09/10/25 12:01	1
4-Chlorotoluene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
4-Isopropyltoluene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/10/25 12:01	1
Acetone	ND		10	2.5	ug/L			09/10/25 12:01	1
Benzene	ND		1.0	0.15	ug/L			09/10/25 12:01	1
Bromobenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Bromodichloromethane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Dibromochloromethane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Bromoform	ND		1.0	0.40	ug/L			09/10/25 12:01	1
Bromomethane	ND		3.0	2.0	ug/L			09/10/25 12:01	1
Carbon disulfide	ND		10	0.40	ug/L			09/10/25 12:01	1
Carbon tetrachloride	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Chlorobenzene	ND		1.0	0.50	ug/L			09/10/25 12:01	1
Chloroethane	ND		2.0	0.40	ug/L			09/10/25 12:01	1
Chloroform	ND		1.0	0.25	ug/L			09/10/25 12:01	1
Chloromethane	ND		3.0	1.0	ug/L			09/10/25 12:01	1
cis-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/10/25 12:01	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Dibromomethane	ND		1.0	0.40	ug/L			09/10/25 12:01	1
Dichlorodifluoromethane	ND		1.0	0.50	ug/L			09/10/25 12:01	1
Ethylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Hexachlorobutadiene	ND		1.0	0.40	ug/L			09/10/25 12:01	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc.
Project/Site: HFSNR

Job ID: 885-32182-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 885-34338/5
Matrix: Water
Analysis Batch: 34338

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0	0.40	ug/L			09/10/25 12:01	1
Methylene Chloride	ND		2.5	1.0	ug/L			09/10/25 12:01	1
n-Butylbenzene	ND		3.0	0.20	ug/L			09/10/25 12:01	1
N-Propylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Naphthalene	ND		2.0	0.50	ug/L			09/10/25 12:01	1
sec-Butylbenzene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Styrene	ND		1.0	0.25	ug/L			09/10/25 12:01	1
tert-Butylbenzene	ND		1.0	0.40	ug/L			09/10/25 12:01	1
Tetrachloroethene (PCE)	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Toluene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Trichloroethene (TCE)	ND		1.0	0.30	ug/L			09/10/25 12:01	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			09/10/25 12:01	1
Vinyl chloride	ND		1.0	0.30	ug/L			09/10/25 12:01	1
Xylenes, Total	ND		1.5	0.20	ug/L			09/10/25 12:01	1
Acrylonitrile	ND		10	0.75	ug/L			09/10/25 12:01	1
Acrolein	ND		10	3.3	ug/L			09/10/25 12:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*09/10/25 12:01*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/10/25 12:01*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*09/10/25 12:01*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*09/10/25 12:01*	*1*

Lab Sample ID: LCS 885-34338/4
Matrix: Water
Analysis Batch: 34338

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			20.0	19.9		ug/L		99	70 - 130		
Benzene			20.0	21.5		ug/L		107	70 - 130		
Chlorobenzene			20.0	21.7		ug/L		108	70 - 130		
Toluene			20.0	21.6		ug/L		108	70 - 130		
Trichloroethene (TCE)			20.0	18.8		ug/L		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*100*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
Dibromofluoromethane (Surr)	*101*		*70 - 130*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC/MS/MS)

Lab Sample ID: MB 400-721936/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722042 **Prep Batch: 721936**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Prometon	ND		1.0	0.22	ug/L		09/04/25 13:39	09/05/25 13:15	1

Lab Sample ID: LCS 400-721936/4-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Prometon	33.3	28.0		ug/L		84	40 - 140

Lab Sample ID: LCSD 400-721936/5-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Prometon	33.3	34.3		ug/L		103	40 - 140	20	50

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS)

Lab Sample ID: MB 885-33674/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33850 **Prep Batch: 33674**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 11:30	1
1,2-Dichlorobenzene	ND		1.0	0.087	ug/L		09/02/25 06:57	09/04/25 11:30	1
1,3-Dichlorobenzene	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 11:30	1
1,4-Dichlorobenzene	ND		2.0	0.082	ug/L		09/02/25 06:57	09/04/25 11:30	1
1,4-Dioxane	ND		0.50	0.23	ug/L		09/02/25 06:57	09/04/25 11:30	1
1-Methylnaphthalene	ND		0.20	0.097	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4,5-Trichlorophenol	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4,6-Trichlorophenol	ND		1.0	0.082	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4-Dichlorophenol	ND		1.0	0.072	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4-Dimethylphenol	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4-Dinitrophenol	ND		3.0	1.4	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,4-Dinitrotoluene	ND		1.0	0.078	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,6-Dinitrotoluene	ND		1.0	0.51	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Chloronaphthalene	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Chlorophenol	ND		1.0	0.31	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Methylnaphthalene	ND		0.20	0.087	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Methylphenol	ND		1.0	0.063	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Nitroaniline	ND		1.0	0.38	ug/L		09/02/25 06:57	09/04/25 11:30	1
2-Nitrophenol	ND		1.0	0.079	ug/L		09/02/25 06:57	09/04/25 11:30	1
3 & 4 Methylphenol	ND		1.0	0.066	ug/L		09/02/25 06:57	09/04/25 11:30	1
3,3'-Dichlorobenzidine	ND		1.0	0.63	ug/L		09/02/25 06:57	09/04/25 11:30	1
3-Nitroaniline	ND		1.0	0.36	ug/L		09/02/25 06:57	09/04/25 11:30	1
4,6-Dinitro-2-methylphenol	ND		2.0	1.2	ug/L		09/02/25 06:57	09/04/25 11:30	1
4-Bromophenyl phenyl ether	ND		1.0	0.077	ug/L		09/02/25 06:57	09/04/25 11:30	1
4-Chloro-3-methylphenol	ND		1.0	0.12	ug/L		09/02/25 06:57	09/04/25 11:30	1
4-Chloroaniline	ND		1.0	0.33	ug/L		09/02/25 06:57	09/04/25 11:30	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: MB 885-33674/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33850 **Prep Batch: 33674**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chlorophenyl phenyl ether	ND		1.0	0.062	ug/L		09/02/25 06:57	09/04/25 11:30	1
4-Nitroaniline	ND		1.0	0.50	ug/L		09/02/25 06:57	09/04/25 11:30	1
4-Nitrophenol	ND		1.0	0.64	ug/L		09/02/25 06:57	09/04/25 11:30	1
Acenaphthene	ND		0.20	0.085	ug/L		09/02/25 06:57	09/04/25 11:30	1
Acenaphthylene	ND		0.20	0.064	ug/L		09/02/25 06:57	09/04/25 11:30	1
Aniline	ND		10	1.7	ug/L		09/02/25 06:57	09/04/25 11:30	1
Anthracene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 11:30	1
Azobenzene	ND		1.0	0.49	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzo[a]anthracene	ND		0.20	0.047	ug/L		09/02/25 06:57	09/04/25 11:30	1
Atrazine	ND		0.50	0.44	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzo[a]pyrene	ND		0.070	0.057	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzo[b]fluoranthene	ND		0.20	0.066	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzidine	ND		10	2.0	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzo[g,h,i]perylene	ND		0.20	0.056	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzo[k]fluoranthene	ND		0.20	0.048	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzoic acid	ND		15	7.1	ug/L		09/02/25 06:57	09/04/25 11:30	1
Benzyl alcohol	ND		1.0	0.14	ug/L		09/02/25 06:57	09/04/25 11:30	1
Bis(2-chloroethoxy)methane	ND		1.0	0.060	ug/L		09/02/25 06:57	09/04/25 11:30	1
Bis(2-chloroethyl)ether	ND		1.0	0.090	ug/L		09/02/25 06:57	09/04/25 11:30	1
2,2'-oxybis[1-chloropropane]	ND		1.0	0.092	ug/L		09/02/25 06:57	09/04/25 11:30	1
Bis(2-ethylhexyl) phthalate	ND		1.0	0.95	ug/L		09/02/25 06:57	09/04/25 11:30	1
Butyl benzyl phthalate	0.774	J	1.0	0.44	ug/L		09/02/25 06:57	09/04/25 11:30	1
Carbazole	ND		1.0	0.083	ug/L		09/02/25 06:57	09/04/25 11:30	1
Chrysene	ND		0.20	0.062	ug/L		09/02/25 06:57	09/04/25 11:30	1
Di-n-butyl phthalate	ND		1.5	1.1	ug/L		09/02/25 06:57	09/04/25 11:30	1
Di-n-octyl phthalate	0.202	J	1.0	0.061	ug/L		09/02/25 06:57	09/04/25 11:30	1
Dibenz(a,h)anthracene	ND		0.20	0.045	ug/L		09/02/25 06:57	09/04/25 11:30	1
Dibenzofuran	ND		1.0	0.075	ug/L		09/02/25 06:57	09/04/25 11:30	1
Diethyl phthalate	ND		1.5	1.5	ug/L		09/02/25 06:57	09/04/25 11:30	1
Dimethyl phthalate	ND		1.0	0.099	ug/L		09/02/25 06:57	09/04/25 11:30	1
Fluoranthene	ND		0.20	0.068	ug/L		09/02/25 06:57	09/04/25 11:30	1
Fluorene	ND		0.20	0.081	ug/L		09/02/25 06:57	09/04/25 11:30	1
Hexachlorobenzene	ND		5.0	0.49	ug/L		09/02/25 06:57	09/04/25 11:30	1
Hexachlorobutadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 11:30	1
Hexachlorocyclopentadiene	ND		5.0	3.5	ug/L		09/02/25 06:57	09/04/25 11:30	1
Hexachloroethane	ND		5.0	3.3	ug/L		09/02/25 06:57	09/04/25 11:30	1
Indeno[1,2,3-cd]pyrene	ND		0.20	0.058	ug/L		09/02/25 06:57	09/04/25 11:30	1
Isophorone	ND		1.0	0.22	ug/L		09/02/25 06:57	09/04/25 11:30	1
N-Nitrosodi-n-propylamine	ND		1.0	0.65	ug/L		09/02/25 06:57	09/04/25 11:30	1
N-Nitrosodimethylamine	ND		1.0	0.29	ug/L		09/02/25 06:57	09/04/25 11:30	1
N-Nitrosodiphenylamine	ND		1.0	0.32	ug/L		09/02/25 06:57	09/04/25 11:30	1
Naphthalene	ND		0.20	0.077	ug/L		09/02/25 06:57	09/04/25 11:30	1
Nitrobenzene	ND		1.0	0.66	ug/L		09/02/25 06:57	09/04/25 11:30	1
Pentachlorophenol	ND		0.33	0.33	ug/L		09/02/25 06:57	09/04/25 11:30	1
Phenanthrene	ND		0.20	0.061	ug/L		09/02/25 06:57	09/04/25 11:30	1
Phenol	0.347	J	1.0	0.28	ug/L		09/02/25 06:57	09/04/25 11:30	1
Pyrene	ND		0.20	0.067	ug/L		09/02/25 06:57	09/04/25 11:30	1
Pyridine	ND		10	2.6	ug/L		09/02/25 06:57	09/04/25 11:30	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: MB 885-33674/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33850 **Prep Batch: 33674**

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	76		15 - 130	09/02/25 06:57	09/04/25 11:30	1
2,4,6-Tribromophenol (Surr)	113		15 - 130	09/02/25 06:57	09/04/25 11:30	1
Nitrobenzene-d5 (Surr)	130		29 - 130	09/02/25 06:57	09/04/25 11:30	1
2-Fluorobiphenyl	130		20 - 130	09/02/25 06:57	09/04/25 11:30	1
p-Terphenyl-d14 (Surr)	122		41 - 130	09/02/25 06:57	09/04/25 11:30	1
2-Fluorophenol (Surr)	75		15 - 130	09/02/25 06:57	09/04/25 11:30	1

Lab Sample ID: LCS 885-33674/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33850 **Prep Batch: 33674**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,4-Trichlorobenzene	5.71	4.88		ug/L		85	28 - 98
1,2-Dichlorobenzene	5.71	5.41		ug/L		95	26 - 108
1,3-Dichlorobenzene	5.71	5.13		ug/L		90	17 - 108
1,4-Dichlorobenzene	5.71	5.34		ug/L		94	16 - 108
1,4-Dioxane	5.71	2.40		ug/L		42	30 - 49
1-Methylnaphthalene	5.71	5.27		ug/L		92	35 - 118
2,4,5-Trichlorophenol	5.71	4.86		ug/L		85	58 - 118
2,4,6-Trichlorophenol	5.71	4.07		ug/L		71	44 - 104
2,4-Dichlorophenol	5.71	5.29		ug/L		93	66 - 116
2,4-Dimethylphenol	5.71	5.72		ug/L		100	70 - 130
2,4-Dinitrophenol	5.71	3.43		ug/L		60	23 - 87
2,4-Dinitrotoluene	5.71	6.57		ug/L		115	67 - 142
2,6-Dinitrotoluene	5.71	6.03		ug/L		106	70 - 130
2-Chloronaphthalene	5.71	5.23		ug/L		91	48 - 113
2-Chlorophenol	5.71	5.29		ug/L		93	67 - 116
2-Methylnaphthalene	5.71	5.14		ug/L		90	32 - 114
2-Methylphenol	5.71	5.65		ug/L		99	70 - 130
2-Nitroaniline	5.71	6.36		ug/L		111	70 - 135
2-Nitrophenol	5.71	5.43		ug/L		95	54 - 127
3 & 4 Methylphenol	5.71	5.61		ug/L		98	67 - 113
3,3'-Dichlorobenzidine	17.1	17.0		ug/L		99	38 - 127
3-Nitroaniline	5.71	4.57		ug/L		80	35 - 94
4,6-Dinitro-2-methylphenol	5.71	4.13		ug/L		72	29 - 84
4-Bromophenyl phenyl ether	5.71	5.52		ug/L		97	70 - 130
4-Chloro-3-methylphenol	5.71	6.04		ug/L		106	70 - 130
4-Chloroaniline	5.71	3.10		ug/L		54	35 - 65
4-Chlorophenyl phenyl ether	5.71	5.29		ug/L		93	61 - 118
4-Nitroaniline	5.71	5.73		ug/L		100	43 - 125
4-Nitrophenol	5.71	1.99		ug/L		35	14 - 47
Acenaphthene	5.71	5.36		ug/L		94	54 - 122
Acenaphthylene	5.71	4.84		ug/L		85	63 - 113
Aniline	17.1	8.84	J	ug/L		52	10 - 85
Anthracene	5.71	6.16		ug/L		108	70 - 130
Azobenzene	5.71	5.34		ug/L		93	40 - 127
Benzo[a]anthracene	5.71	6.48		ug/L		113	65 - 132
Atrazine	5.71	6.11		ug/L		107	69 - 127

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LCS 885-33674/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33850 **Prep Batch: 33674**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	5.71	6.21		ug/L		109	52 - 150
Benzo[b]fluoranthene	5.71	6.17		ug/L		108	64 - 137
Benzidine	17.1	9.96	J	ug/L		58	10 - 114
Benzo[g,h,i]perylene	5.71	5.76		ug/L		101	46 - 150
Benzo[k]fluoranthene	5.71	5.92		ug/L		104	63 - 136
Benzoic acid	42.9	13.3	J	ug/L		31	10 - 61
Benzyl alcohol	5.71	4.48		ug/L		78	52 - 100
Bis(2-chloroethoxy)methane	5.71	5.67		ug/L		99	70 - 130
Bis(2-chloroethyl)ether	5.71	6.04		ug/L		106	70 - 130
2,2'-oxybis[1-chloropropane]	5.71	5.90		ug/L		103	70 - 130
Bis(2-ethylhexyl) phthalate	5.71	6.42		ug/L		112	45 - 139
Butyl benzyl phthalate	5.71	7.64		ug/L		134	63 - 137
Carbazole	5.71	6.12		ug/L		107	70 - 130
Chrysene	5.71	6.43		ug/L		113	68 - 139
Di-n-butyl phthalate	5.71	6.59		ug/L		115	68 - 135
Di-n-octyl phthalate	5.71	6.80		ug/L		119	49 - 123
Dibenz(a,h)anthracene	5.71	5.86		ug/L		103	44 - 155
Dibenzofuran	5.71	5.44		ug/L		95	66 - 121
Diethyl phthalate	5.71	6.23		ug/L		109	68 - 130
Dimethyl phthalate	5.71	5.64		ug/L		99	70 - 130
Fluoranthene	5.71	6.62		ug/L		116	70 - 130
Fluorene	5.71	4.94		ug/L		86	61 - 128
Hexachlorobenzene	5.71	5.44		ug/L		95	63 - 126
Hexachlorobutadiene	5.71	ND		ug/L		50	10 - 97
Hexachlorocyclopentadiene	5.71	3.57	J	ug/L		62	10 - 81
Hexachloroethane	5.71	4.19	J	ug/L		73	10 - 99
Indeno[1,2,3-cd]pyrene	5.71	6.01		ug/L		105	50 - 147
Isophorone	5.71	5.82		ug/L		102	70 - 130
N-Nitrosodi-n-propylamine	5.71	6.51		ug/L		114	70 - 130
N-Nitrosodimethylamine	5.71	2.03		ug/L		36	22 - 44
N-Nitrosodiphenylamine	5.71	5.38		ug/L		94	70 - 130
Naphthalene	5.71	5.47		ug/L		96	42 - 112
Nitrobenzene	5.71	6.22		ug/L		109	74 - 145
Pentachlorophenol	5.71	3.93		ug/L		69	41 - 102
Phenanthrene	5.71	5.58		ug/L		98	70 - 130
Phenol	5.71	3.76		ug/L		66	41 - 80
Pyrene	5.71	6.45		ug/L		113	60 - 134
Pyridine	17.1	8.84	J *+	ug/L		52	14 - 48

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d5 (Surr)	*64*		*15 - 130*
2,4,6-Tribromophenol (Surr)	*104*		*15 - 130*
Nitrobenzene-d5 (Surr)	*134*	*S1+*	*29 - 130*
2-Fluorobiphenyl	*111*		*20 - 130*
p-Terphenyl-d14 (Surr)	*124*		*41 - 130*
2-Fluorophenol (Surr)	*62*		*15 - 130*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: MB 400-721936/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosodi-n-butylamine	ND		10	1.1	ug/L		09/04/25 13:39	09/05/25 13:15	1
Pentachlorobenzene	ND		10	0.34	ug/L		09/04/25 13:39	09/05/25 13:15	1
1,2,4,5-Tetrachlorobenzene	ND		10	0.36	ug/L		09/04/25 13:39	09/05/25 13:15	1
N-Nitrosodiethylamine	ND		10	0.54	ug/L		09/04/25 13:39	09/05/25 13:15	1
Sulfolane	ND		10	0.80	ug/L		09/04/25 13:39	09/05/25 13:15	1
N-Nitrosopyrrolidine	ND		10	0.79	ug/L		09/04/25 13:39	09/05/25 13:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Phenol-d5 (Surr)	*39*		*10 - 150*	*09/04/25 13:39*	*09/05/25 13:15*	*1*
Terphenyl-d14 (Surr)	*81*		*28 - 150*	*09/04/25 13:39*	*09/05/25 13:15*	*1*
2,4,6-Tribromophenol (Surr)	*71*		*10 - 150*	*09/04/25 13:39*	*09/05/25 13:15*	*1*
2-Fluorobiphenyl	*68*		*25 - 139*	*09/04/25 13:39*	*09/05/25 13:15*	*1*
2-Fluorophenol (Surr)	*48*		*10 - 150*	*09/04/25 13:39*	*09/05/25 13:15*	*1*
Nitrobenzene-d5 (Surr)	*84*		*22 - 150*	*09/04/25 13:39*	*09/05/25 13:15*	*1*

Lab Sample ID: LCS 400-721936/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
N-Nitrosodi-n-butylamine			33.3	32.8		ug/L		99	50 - 150		
Pentachlorobenzene			33.3	23.0		ug/L		69	20 - 150		
1,2,4,5-Tetrachlorobenzene			33.3	21.5		ug/L		65	19 - 120		
N-Nitrosodiethylamine			33.3	23.3		ug/L		70	50 - 150		
Sulfolane			67.4	20.3		ug/L		30	10 - 142		
N-Nitrosopyrrolidine			33.3	18.5		ug/L		56	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Phenol-d5 (Surr)	*39*		*10 - 150*
Terphenyl-d14 (Surr)	*67*		*28 - 150*
2,4,6-Tribromophenol (Surr)	*68*		*10 - 150*
2-Fluorobiphenyl	*60*		*25 - 139*
2-Fluorophenol (Surr)	*45*		*10 - 150*
Nitrobenzene-d5 (Surr)	*69*		*22 - 150*

Lab Sample ID: LCSD 400-721936/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-Nitrosodi-n-butylamine			33.3	32.5		ug/L		98	50 - 150	1	40
Pentachlorobenzene			33.3	21.9		ug/L		66	20 - 150	5	40
1,2,4,5-Tetrachlorobenzene			33.3	16.0		ug/L		48	19 - 120	29	40
N-Nitrosodiethylamine			33.3	24.6		ug/L		74	50 - 150	5	40
Sulfolane			67.4	18.9		ug/L		28	10 - 142	7	40
N-Nitrosopyrrolidine			33.3	18.7		ug/L		56	50 - 150	1	40

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8270E - Semivolatile Organic Compounds (GC-MS/MS) (Continued)

Lab Sample ID: LCSD 400-721936/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722040 **Prep Batch: 721936**

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Phenol-d5 (Surr)	*40*		*10 - 150*
Terphenyl-d14 (Surr)	*67*		*28 - 150*
2,4,6-Tribromophenol (Surr)	*70*		*10 - 150*
2-Fluorobiphenyl	*60*		*25 - 139*
2-Fluorophenol (Surr)	*48*		*10 - 150*
Nitrobenzene-d5 (Surr)	*76*		*22 - 150*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 885-34010/3-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34030 **Prep Batch: 34010**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide	ND		0.010	0.0080	ug/L		09/05/25 16:11	09/06/25 16:29	1
1,2-Dibromo-3-Chloropropane	ND		0.020	0.0085	ug/L		09/05/25 16:11	09/06/25 16:29	1

Lab Sample ID: LCS 885-34010/4-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34030 **Prep Batch: 34010**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylene Dibromide	0.100	0.0976		ug/L		98	70 - 130
1,2-Dibromo-3-Chloropropane	0.100	0.100		ug/L		100	70 - 130

Lab Sample ID: LCSD 885-34010/5-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34030 **Prep Batch: 34010**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethylene Dibromide	0.100	0.0979		ug/L		98	70 - 130	0	20
1,2-Dibromo-3-Chloropropane	0.100	0.100		ug/L		100	70 - 130	0	20

Lab Sample ID: MRL 885-34010/1-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34030 **Prep Batch: 34010**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Ethylene Dibromide	0.0100	ND		ug/L		79	60 - 140
1,2-Dibromo-3-Chloropropane	0.0100	0.00938	J	ug/L		94	60 - 140

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 885-33697/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34033 **Prep Batch: 33697**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.10	0.085	ug/L		09/02/25 11:21	09/06/25 16:23	1
4,4'-DDE	ND		0.10	0.037	ug/L		09/02/25 11:21	09/06/25 16:23	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 885-33697/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34033 **Prep Batch: 33697**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDT	ND		0.10	0.075	ug/L		09/02/25 11:21	09/06/25 16:23	1
Aldrin	ND		0.10	0.067	ug/L		09/02/25 11:21	09/06/25 16:23	1
alpha-BHC	ND		0.10	0.034	ug/L		09/02/25 11:21	09/06/25 16:23	1
beta-BHC	ND		0.15	0.11	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane	ND		1.0	0.50	ug/L		09/02/25 11:21	09/06/25 16:23	1
delta-BHC	ND		0.10	0.086	ug/L		09/02/25 11:21	09/06/25 16:23	1
Dieldrin	ND		0.10	0.068	ug/L		09/02/25 11:21	09/06/25 16:23	1
Endosulfan I	ND		0.10	0.035	ug/L		09/02/25 11:21	09/06/25 16:23	1
Endosulfan II	ND		0.10	0.070	ug/L		09/02/25 11:21	09/06/25 16:23	1
Endosulfan sulfate	ND		0.10	0.085	ug/L		09/02/25 11:21	09/06/25 16:23	1
Endrin	ND		0.10	0.080	ug/L		09/02/25 11:21	09/06/25 16:23	1
Endrin aldehyde	ND		0.10	0.072	ug/L		09/02/25 11:21	09/06/25 16:23	1
gamma-BHC (Lindane)	ND		0.10	0.066	ug/L		09/02/25 11:21	09/06/25 16:23	1
Heptachlor	ND		0.10	0.070	ug/L		09/02/25 11:21	09/06/25 16:23	1
Heptachlor epoxide	ND		0.10	0.036	ug/L		09/02/25 11:21	09/06/25 16:23	1
Methoxychlor	ND		0.10	0.092	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene	ND		2.0	0.50	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane (technical) Peak 1	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane (technical) Peak 2	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane (technical) Peak 3	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane (technical) Peak 4	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Chlordane (technical) Peak 5	ND		1.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene Peak 1	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene Peak 2	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene Peak 3	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene Peak 4	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1
Toxaphene Peak 5	ND		2.0	0.10	ug/L		09/02/25 11:21	09/06/25 16:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*87*		*53 - 130*	*09/02/25 11:21*	*09/06/25 16:23*	*1*
Tetrachloro-m-xylene	*53*		*18 - 130*	*09/02/25 11:21*	*09/06/25 16:23*	*1*

Lab Sample ID: LCS 885-33697/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34033 **Prep Batch: 33697**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	0.500	0.236		ug/L		47	42 - 141
4,4'-DDE	0.500	0.243		ug/L		49	38 - 134
4,4'-DDT	0.500	0.228		ug/L		46	38 - 137
Aldrin	0.500	0.181		ug/L		36	15 - 130
alpha-BHC	0.500	0.256		ug/L		51	34 - 130
beta-BHC	0.500	0.249		ug/L		50	38 - 140
delta-BHC	0.500	0.247		ug/L		49	28 - 136
Dieldrin	0.500	0.255		ug/L		51	43 - 130
Endosulfan I	0.500	0.230		ug/L		46	42 - 130
Endosulfan II	0.500	0.242		ug/L		48	46 - 132
Endosulfan sulfate	0.500	0.245		ug/L		49	42 - 133

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 885-33697/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34033 **Prep Batch: 33697**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Endrin			0.500	0.255		ug/L		51	38 - 144		
Endrin aldehyde			0.500	0.227		ug/L		45	44 - 134		
gamma-BHC (Lindane)			0.500	0.251		ug/L		50	35 - 130		
Heptachlor			0.500	0.216		ug/L		43	17 - 130		
Heptachlor epoxide			0.500	0.241		ug/L		48	43 - 130		
Methoxychlor			0.500	0.225		ug/L		45	39 - 143		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*65*		*53 - 130*
Tetrachloro-m-xylene	*49*		*18 - 130*

Lab Sample ID: LCSD 885-33697/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34033 **Prep Batch: 33697**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,4'-DDD			0.500	0.341	*1	ug/L		68	42 - 141	37	20
4,4'-DDE			0.500	0.354	*1	ug/L		71	38 - 134	37	20
4,4'-DDT			0.500	0.328	*1	ug/L		66	38 - 137	36	20
Aldrin			0.500	0.281	*1	ug/L		56	15 - 130	43	20
alpha-BHC			0.500	0.355	*1	ug/L		71	34 - 130	32	20
beta-BHC			0.500	0.348	*1	ug/L		70	38 - 140	33	20
delta-BHC			0.500	0.345	*1	ug/L		69	28 - 136	33	20
Dieldrin			0.500	0.363	*1	ug/L		73	43 - 130	35	20
Endosulfan I			0.500	0.328	*1	ug/L		66	42 - 130	35	20
Endosulfan II			0.500	0.344	*1	ug/L		69	46 - 132	35	20
Endosulfan sulfate			0.500	0.350	*1	ug/L		70	42 - 133	36	20
Endrin			0.500	0.366	*1	ug/L		73	38 - 144	36	20
Endrin aldehyde			0.500	0.322	*1	ug/L		64	44 - 134	35	20
gamma-BHC (Lindane)			0.500	0.352	*1	ug/L		70	35 - 130	34	20
Heptachlor			0.500	0.315	*1	ug/L		63	17 - 130	37	20
Heptachlor epoxide			0.500	0.343	*1	ug/L		69	43 - 130	35	20
Methoxychlor			0.500	0.324	*1	ug/L		65	39 - 143	36	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*93*		*53 - 130*
Tetrachloro-m-xylene	*76*		*18 - 130*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 885-33697/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34204 **Prep Batch: 33697**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1
PCB-1221	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1
PCB-1232	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 885-33697/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 34204 — **Prep Batch: 33697**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1242	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1
PCB-1248	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1
PCB-1254	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1
PCB-1260	ND		0.25	0.25	ug/L		09/02/25 11:21	09/08/25 21:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*44*		*15 - 137*	*09/02/25 11:21*	*09/08/25 21:54*	*1*
DCB Decachlorobiphenyl (Surr)	*51*		*15 - 175*	*09/02/25 11:21*	*09/08/25 21:54*	*1*

Lab Sample ID: LCS 885-33697/4-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 34204 — **Prep Batch: 33697**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			5.00	3.58		ug/L		72	17 - 111		
PCB-1260			5.00	4.27		ug/L		85	24 - 148		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*66*		*15 - 137*
DCB Decachlorobiphenyl (Surr)	*70*		*15 - 175*

Lab Sample ID: LCSD 885-33697/5-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 34204 — **Prep Batch: 33697**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			5.00	3.72		ug/L		74	17 - 111	4	20
PCB-1260			5.00	4.41		ug/L		88	24 - 148	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*65*		*15 - 137*
DCB Decachlorobiphenyl (Surr)	*71*		*15 - 175*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 570-619939/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 623301 — **Prep Batch: 619939**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50	0.21	ug/L		09/02/25 16:49	09/10/25 13:56	1
2,4,5-TP (Silvex)	ND		0.50	0.14	ug/L		09/02/25 16:49	09/10/25 13:56	1
2,4-D	ND		5.0	2.0	ug/L		09/02/25 16:49	09/10/25 13:56	1
2,4-DB	ND		5.0	3.5	ug/L		09/02/25 16:49	09/10/25 13:56	1
Dalapon	ND		13	4.7	ug/L		09/02/25 16:49	09/10/25 13:56	1
Dicamba	ND		0.50	0.29	ug/L		09/02/25 16:49	09/10/25 13:56	1
Dichlorprop	ND		5.0	2.0	ug/L		09/02/25 16:49	09/10/25 13:56	1
Dinoseb	ND		2.5	2.2	ug/L		09/02/25 16:49	09/10/25 13:56	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: MB 570-619939/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 623301 **Prep Batch: 619939**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MCPA	ND		500	350	ug/L		09/02/25 16:49	09/10/25 13:56	1
MCPP	ND		500	310	ug/L		09/02/25 16:49	09/10/25 13:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid (Surr)	*46*		*20 - 161*	*09/02/25 16:49*	*09/10/25 13:56*	*1*

Lab Sample ID: LCS 570-619939/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 623301 **Prep Batch: 619939**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4,5-T			1.00	0.809		ug/L		81	28 - 180		
2,4-D			10.0	7.32		ug/L		73	10 - 180		
2,4-DB			10.0	5.91		ug/L		59	10 - 180		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid (Surr)	*65*		*20 - 161*

Lab Sample ID: LCSD 570-619939/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 623301 **Prep Batch: 619939**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4,5-T			1.00	0.629	p *1	ug/L		63	28 - 180	53	20
2,4-D			10.0	7.14		ug/L		71	10 - 180	2	20
2,4-DB			10.0	7.06		ug/L		71	10 - 180	18	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid (Surr)	*66*		*20 - 161*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-33563/4 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33563

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.10	0.050	mg/L			08/29/25 11:23	1
Chloride	ND		0.50	0.25	mg/L			08/29/25 11:23	1
Fluoride	ND		0.10	0.046	mg/L			08/29/25 11:23	1
Sulfate	ND		0.50	0.39	mg/L			08/29/25 11:23	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 885-33563/58 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33563

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.10	0.050	mg/L			08/29/25 20:27	1
Chloride	ND		0.50	0.25	mg/L			08/29/25 20:27	1
Fluoride	ND		0.10	0.046	mg/L			08/29/25 20:27	1
Sulfate	ND		0.50	0.39	mg/L			08/29/25 20:27	1

Lab Sample ID: LCS 885-33563/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	2.50	2.42		mg/L		97	90 - 110
Chloride	5.00	4.99		mg/L		100	90 - 110
Fluoride	0.500	0.529		mg/L		106	90 - 110
Sulfate	10.0	9.77		mg/L		98	90 - 110

Lab Sample ID: LCS 885-33563/59 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	2.50	2.44		mg/L		98	90 - 110
Chloride	5.00	5.05		mg/L		101	90 - 110
Fluoride	0.500	0.534		mg/L		107	90 - 110
Sulfate	10.0	9.88		mg/L		99	90 - 110

Lab Sample ID: MRL 885-33563/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33563

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	0.100	0.102		mg/L		102	50 - 150
Chloride	0.500	0.529		mg/L		106	50 - 150
Fluoride	0.100	0.121		mg/L		121	50 - 150
Sulfate	0.500	0.517		mg/L		103	50 - 150

Lab Sample ID: MB 885-33580/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33580

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate	ND		0.10	0.020	mg/L			08/29/25 11:23	1
Nitrite	ND		0.10	0.012	mg/L			08/29/25 11:23	1

Lab Sample ID: MB 885-33580/58 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33580

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate	ND		0.10	0.020	mg/L			08/29/25 20:27	1
Nitrite	ND		0.10	0.012	mg/L			08/29/25 20:27	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 885-33580/5 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33580

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate	2.50	2.60		mg/L		104	90 - 110
Nitrite	1.00	0.952		mg/L		95	90 - 110

Lab Sample ID: LCS 885-33580/59 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33580

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate	2.50	2.63		mg/L		105	90 - 110
Nitrite	1.00	0.960		mg/L		96	90 - 110

Lab Sample ID: MRL 885-33580/3 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33580

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate	0.100	0.102		mg/L		102	50 - 150
Nitrite	0.100	0.0994	J	mg/L		99	50 - 150

Method: 8330A - Nitroaromatics and Nitramines

Lab Sample ID: MB 570-620440/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 621042 **Prep Batch: 620440**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3,5-Trinitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 17:18	1
1,3-Dinitrobenzene	ND		1.1	0.14	ug/L		09/03/25 14:07	09/04/25 17:18	1
2,4,6-Trinitrotoluene	ND		1.1	0.67	ug/L		09/03/25 14:07	09/04/25 17:18	1
2,4-Dinitrotoluene	ND		1.1	0.17	ug/L		09/03/25 14:07	09/04/25 17:18	1
2,6-Dinitrotoluene	ND		1.1	0.081	ug/L		09/03/25 14:07	09/04/25 17:18	1
2-Amino-4,6-DNT	ND		1.1	0.089	ug/L		09/03/25 14:07	09/04/25 17:18	1
2-Nitrotoluene	ND		1.1	0.072	ug/L		09/03/25 14:07	09/04/25 17:18	1
3-Nitrotoluene	ND		1.1	0.10	ug/L		09/03/25 14:07	09/04/25 17:18	1
4-Amino-2,6-DNT	ND		1.1	0.22	ug/L		09/03/25 14:07	09/04/25 17:18	1
4-Nitrotoluene	ND		1.1	0.17	ug/L		09/03/25 14:07	09/04/25 17:18	1
HMX	ND		1.1	0.12	ug/L		09/03/25 14:07	09/04/25 17:18	1
Nitrobenzene	ND		1.1	0.15	ug/L		09/03/25 14:07	09/04/25 17:18	1
RDX	ND		1.1	0.11	ug/L		09/03/25 14:07	09/04/25 17:18	1
Tetryl	ND		1.1	0.69	ug/L		09/03/25 14:07	09/04/25 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*102*		*60 - 150*	*09/03/25 14:07*	*09/04/25 17:18*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 8330A - Nitroaromatics and Nitramines (Continued)

Lab Sample ID: LCS 570-620440/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 621042 **Prep Batch: 620440**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,3,5-Trinitrobenzene			26.0	25.3		ug/L		98	44 - 152		
1,3-Dinitrobenzene			26.0	25.5		ug/L		98	48 - 162		
2,4,6-Trinitrotoluene			26.0	24.6		ug/L		95	48 - 162		
2,4-Dinitrotoluene			26.0	26.1		ug/L		101	47 - 155		
2,6-Dinitrotoluene			26.0	26.9		ug/L		103	49 - 145		
2-Amino-4,6-DNT			26.0	27.7		ug/L		107	49 - 145		
2-Nitrotoluene			26.0	26.3		ug/L		101	44 - 146		
3-Nitrotoluene			26.0	26.3		ug/L		101	43 - 157		
4-Amino-2,6-DNT			26.0	28.7		ug/L		110	47 - 149		
4-Nitrotoluene			26.0	26.3		ug/L		101	44 - 146		
HMX			26.0	27.1		ug/L		104	43 - 133		
Nitrobenzene			26.0	24.8		ug/L		95	36 - 150		
RDX			26.0	25.0		ug/L		96	42 - 150		
Tetryl			26.0	25.1		ug/L		97	40 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dinitrobenzene (Surr)	*101*		*60 - 150*

Lab Sample ID: LCSD 570-620440/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 621042 **Prep Batch: 620440**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3,5-Trinitrobenzene			26.0	24.5		ug/L		94	44 - 152	4	13
1,3-Dinitrobenzene			26.0	24.8		ug/L		95	48 - 162	3	12
2,4,6-Trinitrotoluene			26.0	24.0		ug/L		92	48 - 162	3	12
2,4-Dinitrotoluene			26.0	25.4		ug/L		98	47 - 155	3	13
2,6-Dinitrotoluene			26.0	26.2		ug/L		101	49 - 145	2	12
2-Amino-4,6-DNT			26.0	26.9		ug/L		104	49 - 145	3	14
2-Nitrotoluene			26.0	25.5		ug/L		98	44 - 146	3	16
3-Nitrotoluene			26.0	25.6		ug/L		98	43 - 157	3	15
4-Amino-2,6-DNT			26.0	27.9		ug/L		107	47 - 149	3	19
4-Nitrotoluene			26.0	25.5		ug/L		98	44 - 146	3	15
HMX			26.0	26.2		ug/L		101	43 - 133	3	13
Nitrobenzene			26.0	24.0		ug/L		92	36 - 150	3	15
RDX			26.0	24.2		ug/L		93	42 - 150	3	15
Tetryl			26.0	24.6		ug/L		95	40 - 130	2	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dinitrobenzene (Surr)	*98*		*60 - 150*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 331.0 - Perchlorate (LC/MS/MS)

Lab Sample ID: MB 570-622969/8 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 622969

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perchlorate	ND		0.10	0.020	ug/L			09/09/25 13:43	1

Lab Sample ID: LCS 570-622969/9 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 622969

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perchlorate	10.0	10.1		ug/L		101	80 - 120

Lab Sample ID: LCSD 570-622969/10 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 622969

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perchlorate	10.0	10.2		ug/L		102	80 - 120	1	20

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-874939/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluoroheptanoic acid (PFHpA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorooctanoic acid (PFOA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorononanoic acid (PFNA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorodecanoic acid (PFDA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluoroundecanoic acid (PFUnA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorododecanoic acid (PFDoA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorotetradecanoic acid (PFTA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
Hexafluoropropylene oxide dimer acid (HFPO DA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.0020	0.00050	ug/L		09/11/25 04:38	09/11/25 13:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*70 - 130*	*09/11/25 04:38*	*09/11/25 13:43*	*1*

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MB 320-874939/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	101		70 - 130	09/11/25 04:38	09/11/25 13:43	1
d5-NEtFOSAA	100		70 - 130	09/11/25 04:38	09/11/25 13:43	1
13C3 HFPO-DA	94		70 - 130	09/11/25 04:38	09/11/25 13:43	1

Lab Sample ID: LCS 320-874939/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	0.0800	0.0662		ug/L		83	70 - 130
Perfluoroheptanoic acid (PFHpA)	0.0800	0.0700		ug/L		88	70 - 130
Perfluorooctanoic acid (PFOA)	0.0800	0.0745		ug/L		93	70 - 130
Perfluorononanoic acid (PFNA)	0.0800	0.0713		ug/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	0.0800	0.0697		ug/L		87	70 - 130
Perfluoroundecanoic acid (PFUnA)	0.0800	0.0713		ug/L		89	70 - 130
Perfluorododecanoic acid (PFDoA)	0.0800	0.0692		ug/L		87	70 - 130
Perfluorotridecanoic acid (PFTrDA)	0.0800	0.0730		ug/L		91	70 - 130
Perfluorotetradecanoic acid (PFTA)	0.0800	0.0708		ug/L		88	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.0710	0.0580		ug/L		82	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	0.0730	0.0689		ug/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	0.0744	0.0676		ug/L		91	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.0800	0.0690		ug/L		86	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.0800	0.0650		ug/L		81	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.0747	0.0601		ug/L		80	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.0755	0.0666		ug/L		88	70 - 130
Hexafluoropropylene oxide dimer acid (HFPO DA)	0.0800	0.0664		ug/L		83	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.0757	0.0677		ug/L		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	84		70 - 130
13C2 PFDA	96		70 - 130
d5-NEtFOSAA	86		70 - 130
13C3 HFPO-DA	86		70 - 130

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCSD 320-874939/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)			0.0800	0.0675		ug/L		84	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)			0.0800	0.0713		ug/L		89	70 - 130	2	30
Perfluorooctanoic acid (PFOA)			0.0800	0.0716		ug/L		90	70 - 130	4	30
Perfluorononanoic acid (PFNA)			0.0800	0.0666		ug/L		83	70 - 130	7	30
Perfluorodecanoic acid (PFDA)			0.0800	0.0644		ug/L		81	70 - 130	8	30
Perfluoroundecanoic acid (PFUnA)			0.0800	0.0675		ug/L		84	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)			0.0800	0.0674		ug/L		84	70 - 130	3	30
Perfluorotridecanoic acid (PFTrDA)			0.0800	0.0714		ug/L		89	70 - 130	2	30
Perfluorotetradecanoic acid (PFTA)			0.0800	0.0697		ug/L		87	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)			0.0710	0.0603		ug/L		85	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)			0.0730	0.0702		ug/L		96	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)			0.0744	0.0662		ug/L		89	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			0.0800	0.0706		ug/L		88	70 - 130	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			0.0800	0.0708		ug/L		88	70 - 130	9	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)			0.0747	0.0616		ug/L		82	70 - 130	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)			0.0755	0.0638		ug/L		85	70 - 130	4	30
Hexafluoropropylene oxide dimer acid (HFPO DA)			0.0800	0.0660		ug/L		82	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			0.0757	0.0698		ug/L		92	70 - 130	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*90*		*70 - 130*
13C2 PFDA	*91*		*70 - 130*
d5-NEtFOSAA	*90*		*70 - 130*
13C3 HFPO-DA	*85*		*70 - 130*

Lab Sample ID: LLCS 320-874939/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorohexanoic acid (PFHxA)			0.00400	0.00336		ug/L		84	50 - 150		
Perfluoroheptanoic acid (PFHpA)			0.00400	0.00371		ug/L		93	50 - 150		
Perfluorooctanoic acid (PFOA)			0.00400	0.00337		ug/L		84	50 - 150		
Perfluorononanoic acid (PFNA)			0.00400	0.00334		ug/L		84	50 - 150		
Perfluorodecanoic acid (PFDA)			0.00400	0.00353		ug/L		88	50 - 150		
Perfluoroundecanoic acid (PFUnA)			0.00400	0.00339		ug/L		85	50 - 150		

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 320-874939/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 875077 **Prep Batch: 874939**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	0.00400	0.00355		ug/L		89	50 - 150
Perfluorotridecanoic acid (PFTrDA)	0.00400	0.00348		ug/L		87	50 - 150
Perfluorotetradecanoic acid (PFTA)	0.00400	0.00321		ug/L		80	50 - 150
Perfluorobutanesulfonic acid (PFBS)	0.00355	0.00287		ug/L		81	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	0.00365	0.00315		ug/L		86	50 - 150
Perfluorooctanesulfonic acid (PFOS)	0.00372	0.00293		ug/L		79	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.00400	0.00320		ug/L		80	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.00400	0.00339		ug/L		85	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.00374	0.00287		ug/L		77	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.00378	0.00302		ug/L		80	50 - 150
Hexafluoropropylene oxide dimer acid (HFPO DA)	0.00400	0.00316		ug/L		79	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.00378	0.00318		ug/L		84	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*89*		*70 - 130*
13C2 PFDA	*94*		*70 - 130*
d5-NEtFOSAA	*90*		*70 - 130*
13C3 HFPO-DA	*85*		*70 - 130*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 885-33801/17 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33801

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.020	0.017	mg/L			09/03/25 07:18	1
Beryllium	ND		0.0020	0.0011	mg/L			09/03/25 07:18	1
Boron	ND		0.040	0.0053	mg/L			09/03/25 07:18	1
Cadmium	ND		0.0020	0.0017	mg/L			09/03/25 07:18	1
Calcium	ND		1.0	0.42	mg/L			09/03/25 07:18	1
Iron	ND		0.020	0.0093	mg/L			09/03/25 07:18	1
Magnesium	ND		1.0	0.064	mg/L			09/03/25 07:18	1
Molybdenum	ND		0.0080	0.0063	mg/L			09/03/25 07:18	1
Potassium	ND		1.0	0.45	mg/L			09/03/25 07:18	1
Silver	ND		0.0050	0.0015	mg/L			09/03/25 07:18	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 885-33801/37 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33801

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.500	0.498		mg/L		100	85 - 115
Beryllium	0.500	0.440		mg/L		88	85 - 115
Boron	0.500	0.458		mg/L		92	85 - 115
Cadmium	0.500	0.435		mg/L		87	85 - 115
Calcium	50.0	42.8		mg/L		86	85 - 115
Iron	0.500	0.426		mg/L		85	85 - 115
Magnesium	50.0	43.9		mg/L		88	85 - 115
Molybdenum	0.500	0.428		mg/L		86	85 - 115
Potassium	50.0	44.1		mg/L		88	85 - 115
Silver	0.100	0.0879		mg/L		88	85 - 115

Lab Sample ID: MRL 885-33801/14 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33801

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.0100	ND		mg/L		95	50 - 150
Barium	0.00200	0.00186	J	mg/L		93	50 - 150
Beryllium	0.00200	0.00203		mg/L		102	50 - 150
Boron	0.0400	0.0371	J	mg/L		93	50 - 150
Cadmium	0.00200	0.00194	J	mg/L		97	50 - 150
Calcium	0.500	0.459	J	mg/L		92	50 - 150
Chromium	0.00600	0.00531	J	mg/L		88	50 - 150
Cobalt	0.00600	0.00500	J	mg/L		83	50 - 150
Iron	0.0200	0.0210	J	mg/L		105	50 - 150
Magnesium	0.500	0.460	J	mg/L		92	50 - 150
Manganese	0.00200	0.00186	J	mg/L		93	50 - 150
Molybdenum	0.00800	ND		mg/L		56	50 - 150
Nickel	0.00500	0.00370	J	mg/L		74	50 - 150
Potassium	0.500	0.475	J	mg/L		95	50 - 150
Zinc	0.0100	0.0134		mg/L		134	50 - 150
Silver	0.00500	0.00482	J	mg/L		96	50 - 150

Lab Sample ID: MB 885-34004/56 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	ND		0.0030	0.0018	mg/L			09/05/25 10:17	1
Chromium	ND		0.0060	0.0030	mg/L			09/05/25 10:17	1
Cobalt	ND		0.0060	0.0033	mg/L			09/05/25 10:17	1
Manganese	ND		0.0020	0.0012	mg/L			09/05/25 10:17	1
Nickel	ND		0.010	0.0040	mg/L			09/05/25 10:17	1
Sodium	ND		1.0	0.25	mg/L			09/05/25 10:17	1
Zinc	ND		0.010	0.0075	mg/L			09/05/25 10:17	1

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 885-34004/62 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34004

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.500	0.463		mg/L		93	85 - 115
Chromium	0.500	0.458		mg/L		92	85 - 115
Cobalt	0.500	0.449		mg/L		90	85 - 115
Manganese	0.500	0.449		mg/L		90	85 - 115
Nickel	0.500	0.452		mg/L		90	85 - 115
Sodium	50.0	43.4		mg/L		87	85 - 115
Zinc	0.500	0.454		mg/L		91	85 - 115

Lab Sample ID: MRL 885-34004/53 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34004

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.0100	ND		mg/L		96	50 - 150
Barium	0.00200	0.00187	J	mg/L		94	50 - 150
Beryllium	0.00200	0.00151	J	mg/L		76	50 - 150
Boron	0.0400	0.0391	J	mg/L		98	50 - 150
Cadmium	0.00200	0.00199	J	mg/L		100	50 - 150
Calcium	0.500	0.440	J	mg/L		88	50 - 150
Chromium	0.00600	0.00766		mg/L		128	50 - 150
Cobalt	0.00600	0.00555	J	mg/L		93	50 - 150
Iron	0.0200	0.0126	J	mg/L		63	50 - 150
Magnesium	0.500	0.483	J	mg/L		97	50 - 150
Manganese	0.00200	0.00207		mg/L		104	50 - 150
Molybdenum	0.00800	0.00875		mg/L		109	50 - 150
Nickel	0.00500	0.00415	J	mg/L		83	50 - 150
Potassium	0.500	0.463	J	mg/L		93	50 - 150
Sodium	0.500	0.501	J	mg/L		100	50 - 150
Zinc	0.0100	0.00860	J	mg/L		86	50 - 150
Silver	0.00500	0.00542		mg/L		108	50 - 150

Lab Sample ID: MB 885-34121/17 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0	0.25	mg/L			09/08/25 08:15	1

Lab Sample ID: LCS 885-34121/18 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34121

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50.0	47.2		mg/L		94	85 - 115

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: MRL 885-34121/14 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34121

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.0100	ND		mg/L		108	50 - 150
Barium	0.00200	0.00242	J	mg/L		121	50 - 150
Beryllium	0.00200	0.00240		mg/L		120	50 - 150
Boron	0.0400	0.0400		mg/L		100	50 - 150
Cadmium	0.00200	0.00190	J	mg/L		95	50 - 150
Calcium	0.500	0.469	J	mg/L		94	50 - 150
Chromium	0.00600	0.00714		mg/L		119	50 - 150
Cobalt	0.00600	0.00663		mg/L		111	50 - 150
Iron	0.0200	0.0245	J	mg/L		123	50 - 150
Magnesium	0.500	0.485	J	mg/L		97	50 - 150
Manganese	0.00200	0.00206		mg/L		103	50 - 150
Molybdenum	0.00800	0.00642	J	mg/L		80	50 - 150
Potassium	0.500	0.474	J	mg/L		95	50 - 150
Sodium	0.500	0.439	J	mg/L		88	50 - 150
Silver	0.00500	0.00532		mg/L		106	50 - 150

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 885-34256/13 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34256

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.0010	0.00028	mg/L			09/08/25 14:58	1
Arsenic	ND		0.00050	0.00041	mg/L			09/08/25 14:58	1
Copper	ND		0.00050	0.00030	mg/L			09/08/25 14:58	1
Lead	ND		0.00050	0.00034	mg/L			09/08/25 14:58	1
Selenium	ND		0.0010	0.00092	mg/L			09/08/25 14:58	1
Cadmium	ND		0.00050	0.00018	mg/L			09/08/25 14:58	1
Thallium	ND		0.00025	0.000036	mg/L			09/08/25 14:58	1
Uranium	ND		0.00050	0.00019	mg/L			09/08/25 14:58	1

Lab Sample ID: LCS 885-34256/14 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34256

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.0250	0.0245		mg/L		98	85 - 115
Arsenic	0.0250	0.0249		mg/L		99	85 - 115
Copper	0.0250	0.0255		mg/L		102	85 - 115
Lead	0.0125	0.0128		mg/L		102	85 - 115
Selenium	0.0250	0.0250		mg/L		100	85 - 115
Cadmium	0.0125	0.0130		mg/L		104	85 - 115
Thallium	0.0125	0.0127		mg/L		101	85 - 115
Uranium	0.0125	0.0127		mg/L		102	85 - 115

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: MRL 885-34256/10 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34256

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			0.00100	0.00106		mg/L		106	50 - 150		
Lead			0.000500	0.000502		mg/L		100	50 - 150		
Selenium			0.00100	0.000922	J	mg/L		92	50 - 150		
Cadmium			0.000500	0.000555		mg/L		111	50 - 150		
Uranium			0.000500	0.000497	J	mg/L		99	50 - 150		

Lab Sample ID: MRL 885-34256/11 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 34256

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic			0.000500	0.000579		mg/L		116	50 - 150		
Copper			0.000500	0.000595		mg/L		119	50 - 150		
Thallium			0.000250	0.000294		mg/L		118	50 - 150		

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 885-33722/12-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33799 **Prep Batch: 33722**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020	0.000080	mg/L		09/02/25 12:52	09/03/25 09:23	1

Lab Sample ID: LCS 885-33722/14-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33799 **Prep Batch: 33722**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00500	0.00510		mg/L		102	85 - 115		

Lab Sample ID: LLCS 885-33722/13-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33799 **Prep Batch: 33722**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.000150	0.000134	J	mg/L		89	50 - 150		

Lab Sample ID: MRL 885-33722/9-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33799 **Prep Batch: 33722**

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.000150	0.000134	J	mg/L		89	50 - 150		

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 885-33838/1 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33838

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		50	25	mg/L			09/03/25 16:34	1

Lab Sample ID: LCS 885-33838/2 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33838

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	1000	1020		mg/L		102	80 - 120

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 400-722045/25 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722045

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	ND		0.0050	0.0020	mg/L			09/04/25 14:48	1

Lab Sample ID: LCS 400-722045/26 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722045

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.102		mg/L		102	90 - 110

Lab Sample ID: MRL 400-722045/20 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 722045

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.00500	0.00599		mg/L		120	50 - 150

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 885-33735/2 **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33735

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3	ND		20	20	mg/L			09/02/25 09:45	1
Bicarbonate Alkalinity as CaCO3	ND		20	20	mg/L			09/02/25 09:45	1
Carbonate Alkalinity as CaCO3	ND		2.0	2.0	mg/L			09/02/25 09:45	1

Lab Sample ID: LCS 885-33735/3 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 33735

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	84.8	78.4		mg/L		92	90 - 110

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MRL 885-33735/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33735

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3	21.2	25.8		mg/L		122	50 - 150

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: LCS 885-33736/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33736

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	100	102		umhos/cm		102	85 - 115

Lab Sample ID: MRL 885-33736/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 33736

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	9.49	9.40	J	umhos/cm		99	50 - 150

Method: SM 4500 CN E - Cyanide, Total

Lab Sample ID: MB 570-620429/2-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 620583 — **Prep Batch: 620429**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.025	0.0093	mg/L		09/03/25 13:36	09/03/25 16:10	1

Lab Sample ID: LCS 570-620429/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 620583 — **Prep Batch: 620429**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.100	0.0995		mg/L		99	80 - 120

Lab Sample ID: LCSD 570-620429/4-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 620583 — **Prep Batch: 620429**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	0.100	0.0986		mg/L		99	80 - 120	1	20

Lab Sample ID: MRL 570-620429/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 620583 — **Prep Batch: 620429**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.0250	0.0210	J	mg/L		84	50 - 150

QC Sample Results

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-734790/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 738387 **Prep Batch: 734790**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.002239	U	0.176	0.176	1.00	0.357	pCi/L	09/04/25 08:22	09/30/25 18:53	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*30 - 110*	*09/04/25 08:22*	*09/30/25 18:53*	*1*

Lab Sample ID: LCS 160-734790/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 738387 **Prep Batch: 734790**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-226			9.57	8.522		1.20	1.00	0.459	pCi/L	89	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.3*		*30 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-734791/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 738401 **Prep Batch: 734791**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.003435	U	0.489	0.489	1.00	0.908	pCi/L	09/04/25 08:27	09/30/25 15:54	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.3*		*30 - 110*	*09/04/25 08:27*	*09/30/25 15:54*	*1*
Y Carrier	*83.4*		*30 - 110*	*09/04/25 08:27*	*09/30/25 15:54*	*1*

Lab Sample ID: LCS 160-734791/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 738387 **Prep Batch: 734791**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec Limits		
Radium-228			9.02	8.929		1.27	1.00	0.535	pCi/L	99	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*86.3*		*30 - 110*
Y Carrier	*81.9*		*30 - 110*

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

GC/MS VOA

Analysis Batch: 34338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8260B	
885-32182-2	DUP-20250828	Total/NA	Water	8260B	
885-32182-3	Trip Blank	Total/NA	Water	8260B	
MB 885-34338/5	Method Blank	Total/NA	Water	8260B	
LCS 885-34338/4	Lab Control Sample	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 33674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	3511	
885-32182-2	DUP-20250828	Total/NA	Water	3511	
MB 885-33674/1-A	Method Blank	Total/NA	Water	3511	
LCS 885-33674/2-A	Lab Control Sample	Total/NA	Water	3511	

Analysis Batch: 33850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8270E	33674
885-32182-2	DUP-20250828	Total/NA	Water	8270E	33674
MB 885-33674/1-A	Method Blank	Total/NA	Water	8270E	33674
LCS 885-33674/2-A	Lab Control Sample	Total/NA	Water	8270E	33674

Prep Batch: 721936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	3511	
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	3511	
885-32182-2	DUP-20250828	Total/NA	Water	3511	
885-32182-2	DUP-20250828	Total/NA	Water	3511	
MB 400-721936/1-A	Method Blank	Total/NA	Water	3511	
LCS 400-721936/2-A	Lab Control Sample	Total/NA	Water	3511	
LCS 400-721936/4-A	Lab Control Sample	Total/NA	Water	3511	
LCSD 400-721936/3-A	Lab Control Sample Dup	Total/NA	Water	3511	
LCSD 400-721936/5-A	Lab Control Sample Dup	Total/NA	Water	3511	

Analysis Batch: 722040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8270E	721936
885-32182-2	DUP-20250828	Total/NA	Water	8270E	721936
MB 400-721936/1-A	Method Blank	Total/NA	Water	8270E	721936
LCS 400-721936/2-A	Lab Control Sample	Total/NA	Water	8270E	721936
LCS 400-721936/4-A	Lab Control Sample	Total/NA	Water	8270E	721936
LCSD 400-721936/3-A	Lab Control Sample Dup	Total/NA	Water	8270E	721936
LCSD 400-721936/5-A	Lab Control Sample Dup	Total/NA	Water	8270E	721936

Analysis Batch: 722042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8270E	721936
885-32182-2	DUP-20250828	Total/NA	Water	8270E	721936
MB 400-721936/1-A	Method Blank	Total/NA	Water	8270E	721936

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

GC Semi VOA

Prep Batch: 33697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	3510C	
885-32182-2	DUP-20250828	Total/NA	Water	3510C	
MB 885-33697/1-A	Method Blank	Total/NA	Water	3510C	
LCS 885-33697/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCS 885-33697/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 885-33697/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
LCSD 885-33697/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 34010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8011	
885-32182-2	DUP-20250828	Total/NA	Water	8011	
885-32182-3	Trip Blank	Total/NA	Water	8011	
MB 885-34010/3-A	Method Blank	Total/NA	Water	8011	
LCS 885-34010/4-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 885-34010/5-A	Lab Control Sample Dup	Total/NA	Water	8011	
MRL 885-34010/1-A	Lab Control Sample	Total/NA	Water	8011	

Analysis Batch: 34030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8011	34010
885-32182-2	DUP-20250828	Total/NA	Water	8011	34010
885-32182-3	Trip Blank	Total/NA	Water	8011	34010
MB 885-34010/3-A	Method Blank	Total/NA	Water	8011	34010
LCS 885-34010/4-A	Lab Control Sample	Total/NA	Water	8011	34010
LCSD 885-34010/5-A	Lab Control Sample Dup	Total/NA	Water	8011	34010
MRL 885-34010/1-A	Lab Control Sample	Total/NA	Water	8011	34010

Analysis Batch: 34033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8081B	33697
885-32182-2	DUP-20250828	Total/NA	Water	8081B	33697
MB 885-33697/1-A	Method Blank	Total/NA	Water	8081B	33697
LCS 885-33697/2-A	Lab Control Sample	Total/NA	Water	8081B	33697
LCSD 885-33697/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	33697

Analysis Batch: 34204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8082A	33697
885-32182-2	DUP-20250828	Total/NA	Water	8082A	33697
MB 885-33697/1-A	Method Blank	Total/NA	Water	8082A	33697
LCS 885-33697/4-A	Lab Control Sample	Total/NA	Water	8082A	33697
LCSD 885-33697/5-A	Lab Control Sample Dup	Total/NA	Water	8082A	33697

Prep Batch: 619939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8151A	
885-32182-2	DUP-20250828	Total/NA	Water	8151A	
MB 570-619939/1-A	Method Blank	Total/NA	Water	8151A	
LCS 570-619939/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 570-619939/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

GC Semi VOA

Analysis Batch: 623301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8151A	619939
885-32182-2	DUP-20250828	Total/NA	Water	8151A	619939
MB 570-619939/1-A	Method Blank	Total/NA	Water	8151A	619939
LCS 570-619939/2-A	Lab Control Sample	Total/NA	Water	8151A	619939
LCSD 570-619939/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	619939

HPLC/IC

Analysis Batch: 33563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	300.0	
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	300.0	
885-32182-2	DUP-20250828	Total/NA	Water	300.0	
885-32182-2	DUP-20250828	Total/NA	Water	300.0	
MB 885-33563/4	Method Blank	Total/NA	Water	300.0	
MB 885-33563/58	Method Blank	Total/NA	Water	300.0	
LCS 885-33563/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-33563/59	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-33563/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 33580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	300.0	
885-32182-2	DUP-20250828	Total/NA	Water	300.0	
MB 885-33580/4	Method Blank	Total/NA	Water	300.0	
MB 885-33580/58	Method Blank	Total/NA	Water	300.0	
LCS 885-33580/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 885-33580/59	Lab Control Sample	Total/NA	Water	300.0	
MRL 885-33580/3	Lab Control Sample	Total/NA	Water	300.0	

Prep Batch: 620440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8330	
885-32182-2	DUP-20250828	Total/NA	Water	8330	
MB 570-620440/1-A	Method Blank	Total/NA	Water	8330	
LCS 570-620440/2-A	Lab Control Sample	Total/NA	Water	8330	
LCSD 570-620440/3-A	Lab Control Sample Dup	Total/NA	Water	8330	

Analysis Batch: 621042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	8330A	620440
885-32182-2	DUP-20250828	Total/NA	Water	8330A	620440
MB 570-620440/1-A	Method Blank	Total/NA	Water	8330A	620440
LCS 570-620440/2-A	Lab Control Sample	Total/NA	Water	8330A	620440
LCSD 570-620440/3-A	Lab Control Sample Dup	Total/NA	Water	8330A	620440

LCMS

Analysis Batch: 622969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	331.0	
885-32182-2	DUP-20250828	Total/NA	Water	331.0	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

LCMS (Continued)

Analysis Batch: 622969 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-622969/8	Method Blank	Total/NA	Water	331.0	
LCS 570-622969/9	Lab Control Sample	Total/NA	Water	331.0	
LCSD 570-622969/10	Lab Control Sample Dup	Total/NA	Water	331.0	

Prep Batch: 874939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	537.1	
885-32182-2	DUP-20250828	Total/NA	Water	537.1	
MB 320-874939/1-A	Method Blank	Total/NA	Water	537.1	
LCS 320-874939/3-A	Lab Control Sample	Total/NA	Water	537.1	
LCSD 320-874939/4-A	Lab Control Sample Dup	Total/NA	Water	537.1	
LLCS 320-874939/2-A	Lab Control Sample	Total/NA	Water	537.1	

Analysis Batch: 875077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-874939/1-A	Method Blank	Total/NA	Water	537.1	874939
LCS 320-874939/3-A	Lab Control Sample	Total/NA	Water	537.1	874939
LCSD 320-874939/4-A	Lab Control Sample Dup	Total/NA	Water	537.1	874939
LLCS 320-874939/2-A	Lab Control Sample	Total/NA	Water	537.1	874939

Analysis Batch: 875079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	537.1	874939
885-32182-2	DUP-20250828	Total/NA	Water	537.1	874939

Metals

Prep Batch: 33722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	245.1	
885-32182-2	DUP-20250828	Total/NA	Water	245.1	
MB 885-33722/12-A	Method Blank	Total/NA	Water	245.1	
LCS 885-33722/14-A	Lab Control Sample	Total/NA	Water	245.1	
LLCS 885-33722/13-A	Lab Control Sample	Total/NA	Water	245.1	
MRL 885-33722/9-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 33799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	245.1	33722
885-32182-2	DUP-20250828	Total/NA	Water	245.1	33722
MB 885-33722/12-A	Method Blank	Total/NA	Water	245.1	33722
LCS 885-33722/14-A	Lab Control Sample	Total/NA	Water	245.1	33722
LLCS 885-33722/13-A	Lab Control Sample	Total/NA	Water	245.1	33722
MRL 885-33722/9-A	Lab Control Sample	Total/NA	Water	245.1	33722

Analysis Batch: 33801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Dissolved	Water	200.7 Rev 4.4	
885-32182-1	WDW-1MW-1-20250828	Dissolved	Water	200.7 Rev 4.4	
885-32182-2	DUP-20250828	Dissolved	Water	200.7 Rev 4.4	
885-32182-2	DUP-20250828	Dissolved	Water	200.7 Rev 4.4	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Metals (Continued)

Analysis Batch: 33801 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-33801/17	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 885-33801/37	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
MRL 885-33801/14	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	

Analysis Batch: 34004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Dissolved	Water	200.7 Rev 4.4	
885-32182-2	DUP-20250828	Dissolved	Water	200.7 Rev 4.4	
MB 885-34004/56	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 885-34004/62	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
MRL 885-34004/53	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	

Analysis Batch: 34121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Dissolved	Water	200.7 Rev 4.4	
885-32182-2	DUP-20250828	Dissolved	Water	200.7 Rev 4.4	
MB 885-34121/17	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 885-34121/18	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
MRL 885-34121/14	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	

Analysis Batch: 34256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Dissolved	Water	200.8	
885-32182-2	DUP-20250828	Dissolved	Water	200.8	
MB 885-34256/13	Method Blank	Total/NA	Water	200.8	
LCS 885-34256/14	Lab Control Sample	Total/NA	Water	200.8	
MRL 885-34256/10	Lab Control Sample	Total/NA	Water	200.8	
MRL 885-34256/11	Lab Control Sample	Total/NA	Water	200.8	

General Chemistry

Analysis Batch: 33735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	SM 2320B	
885-32182-2	DUP-20250828	Total/NA	Water	SM 2320B	
MB 885-33735/2	Method Blank	Total/NA	Water	SM 2320B	
LCS 885-33735/3	Lab Control Sample	Total/NA	Water	SM 2320B	
MRL 885-33735/1	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 33736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	SM 2510B	
885-32182-2	DUP-20250828	Total/NA	Water	SM 2510B	
LCS 885-33736/4	Lab Control Sample	Total/NA	Water	SM 2510B	
MRL 885-33736/3	Lab Control Sample	Total/NA	Water	SM 2510B	

Analysis Batch: 33737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	SM 4500 H+ B	
885-32182-2	DUP-20250828	Total/NA	Water	SM 4500 H+ B	

QC Association Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

General Chemistry

Analysis Batch: 33838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	2540C	
885-32182-2	DUP-20250828	Total/NA	Water	2540C	
MB 885-33838/1	Method Blank	Total/NA	Water	2540C	
LCS 885-33838/2	Lab Control Sample	Total/NA	Water	2540C	

Prep Batch: 620429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	SM 4500 CN C	
885-32182-2	DUP-20250828	Total/NA	Water	SM 4500 CN C	
MB 570-620429/2-A	Method Blank	Total/NA	Water	SM 4500 CN C	
LCS 570-620429/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	
LCSD 570-620429/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN C	
MRL 570-620429/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN C	

Analysis Batch: 620583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	SM 4500 CN E	620429
885-32182-2	DUP-20250828	Total/NA	Water	SM 4500 CN E	620429
MB 570-620429/2-A	Method Blank	Total/NA	Water	SM 4500 CN E	620429
LCS 570-620429/3-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	620429
LCSD 570-620429/4-A	Lab Control Sample Dup	Total/NA	Water	SM 4500 CN E	620429
MRL 570-620429/1-A	Lab Control Sample	Total/NA	Water	SM 4500 CN E	620429

Analysis Batch: 722045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	420.4	
885-32182-2	DUP-20250828	Total/NA	Water	420.4	
MB 400-722045/25	Method Blank	Total/NA	Water	420.4	
LCS 400-722045/26	Lab Control Sample	Total/NA	Water	420.4	
MRL 400-722045/20	Lab Control Sample	Total/NA	Water	420.4	

Rad

Prep Batch: 734790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	PrecSep-21	
885-32182-2	DUP-20250828	Total/NA	Water	PrecSep-21	
MB 160-734790/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-734790/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 734791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-32182-1	WDW-1MW-1-20250828	Total/NA	Water	PrecSep_0	
885-32182-2	DUP-20250828	Total/NA	Water	PrecSep_0	
MB 160-734791/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-734791/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Lab Chronicle

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: WDW-1MW-1-20250828 **Lab Sample ID: 885-32182-1**
Date Collected: 08/28/25 14:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	34338	JP	EET ALB	09/10/25 15:41
Total/NA	Prep	3511			33674	JM	EET ALB	09/02/25 06:57
Total/NA	Analysis	8270E		1	33850	DB	EET ALB	09/04/25 17:43
Total/NA	Prep	3511			721936	AMM	EET PEN	09/04/25 13:40
Total/NA	Analysis	8270E		1	722040	S1B	EET PEN	09/05/25 17:46
Total/NA	Prep	3511			721936	AMM	EET PEN	09/04/25 13:40
Total/NA	Analysis	8270E		1	722042	S1B	EET PEN	09/05/25 17:46
Total/NA	Prep	8011			34010	MB	EET ALB	09/05/25 16:11
Total/NA	Analysis	8011		1	34030	JE	EET ALB	09/06/25 17:41
Total/NA	Prep	3510C			33697	JM	EET ALB	09/02/25 11:21
Total/NA	Analysis	8081B		1	34033	MB	EET ALB	09/06/25 17:02
Total/NA	Prep	3510C			33697	JM	EET ALB	09/02/25 11:21
Total/NA	Analysis	8082A		1	34204	DB	EET ALB	09/09/25 00:18
Total/NA	Prep	8151A			619939	DVE6	EET CAL 4	09/03/25 14:06
Total/NA	Analysis	8151A		1	623301	ZE2W	EET CAL 4	09/10/25 20:21
Total/NA	Analysis	300.0		10	33563	RC	EET ALB	08/30/25 01:22
Total/NA	Analysis	300.0		10	33580	RC	EET ALB	08/30/25 01:22
Total/NA	Analysis	300.0		100	33563	RC	EET ALB	08/30/25 01:32
Total/NA	Prep	8330			620440	UM1W	EET CAL 4	09/03/25 14:07
Total/NA	Analysis	8330A		1	621042	U9XB	EET CAL 4	09/04/25 18:28
Total/NA	Analysis	331.0		5	622969	M5Z3	EET CAL 4	09/09/25 15:28
Total/NA	Prep	537.1			874939	GAT	EET SAC	09/11/25 04:38
Total/NA	Analysis	537.1		1	875079	Y1S	EET SAC	09/11/25 15:58
Dissolved	Analysis	200.7 Rev 4.4		1	33801	VP	EET ALB	09/03/25 08:21
Dissolved	Analysis	200.7 Rev 4.4		10	33801	VP	EET ALB	09/03/25 08:23
Dissolved	Analysis	200.7 Rev 4.4		10	34004	VP	EET ALB	09/05/25 11:19
Dissolved	Analysis	200.7 Rev 4.4		10	34121	VP	EET ALB	09/08/25 08:25
Dissolved	Analysis	200.8		1	34256	BV	EET ALB	09/08/25 17:03
Total/NA	Prep	245.1			33722	JR	EET ALB	09/02/25 12:53
Total/NA	Analysis	245.1		1	33799	JR	EET ALB	09/03/25 10:08
Total/NA	Analysis	2540C		1	33838	KS	EET ALB	09/03/25 16:34
Total/NA	Analysis	420.4		1	722045	VB	EET PEN	09/04/25 15:59
Total/NA	Analysis	SM 2320B		1	33735	DL	EET ALB	09/02/25 11:40
Total/NA	Analysis	SM 2510B		1	33736	DL	EET ALB	09/02/25 11:40
Total/NA	Prep	SM 4500 CN C			620429	ZVB7	EET CAL 4	09/03/25 13:36
Total/NA	Analysis	SM 4500 CN E		1	620583	ZVB7	EET CAL 4	09/03/25 16:18
Total/NA	Analysis	SM 4500 H+ B		1	33737	DL	EET ALB	09/02/25 11:40
Total/NA	Prep	PrecSep-21			734790	JTR	EET SL	09/04/25 08:22
Total/NA	Analysis	903.0		1	738401	SWS	EET SL	09/30/25 21:02
Total/NA	Prep	PrecSep_0			734791	JTR	EET SL	09/04/25 08:27
Total/NA	Analysis	904.0		1	738386	SWS	EET SL	09/30/25 16:13

Lab Chronicle

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: DUP-20250828 **Lab Sample ID: 885-32182-2**
Date Collected: 08/28/25 13:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	34338	JP	EET ALB	09/10/25 16:09
Total/NA	Prep	3511			33674	JM	EET ALB	09/02/25 06:57
Total/NA	Analysis	8270E		1	33850	DB	EET ALB	09/04/25 18:19
Total/NA	Prep	3511			721936	AMM	EET PEN	09/04/25 13:40
Total/NA	Analysis	8270E		1	722040	S1B	EET PEN	09/05/25 18:16
Total/NA	Prep	3511			721936	AMM	EET PEN	09/04/25 13:40
Total/NA	Analysis	8270E		1	722042	S1B	EET PEN	09/05/25 18:16
Total/NA	Prep	8011			34010	MB	EET ALB	09/05/25 16:11
Total/NA	Analysis	8011		1	34030	JE	EET ALB	09/06/25 17:56
Total/NA	Prep	3510C			33697	JM	EET ALB	09/02/25 11:21
Total/NA	Analysis	8081B		1	34033	MB	EET ALB	09/06/25 17:15
Total/NA	Prep	3510C			33697	JM	EET ALB	09/02/25 11:21
Total/NA	Analysis	8082A		1	34204	DB	EET ALB	09/09/25 00:54
Total/NA	Prep	8151A			619939	DVE6	EET CAL 4	09/03/25 14:06
Total/NA	Analysis	8151A		1	623301	ZE2W	EET CAL 4	09/10/25 20:44
Total/NA	Analysis	300.0		10	33563	RC	EET ALB	08/30/25 01:42
Total/NA	Analysis	300.0		10	33580	RC	EET ALB	08/30/25 01:42
Total/NA	Analysis	300.0		100	33563	RC	EET ALB	08/30/25 01:52
Total/NA	Prep	8330			620440	UM1W	EET CAL 4	09/03/25 14:07
Total/NA	Analysis	8330A		1	621042	U9XB	EET CAL 4	09/04/25 18:51
Total/NA	Analysis	331.0		2	622969	M5Z3	EET CAL 4	09/09/25 15:39
Total/NA	Prep	537.1			874939	GAT	EET SAC	09/11/25 04:38
Total/NA	Analysis	537.1		1	875079	Y1S	EET SAC	09/11/25 16:07
Dissolved	Analysis	200.7 Rev 4.4		1	33801	VP	EET ALB	09/03/25 08:35
Dissolved	Analysis	200.7 Rev 4.4		10	33801	VP	EET ALB	09/03/25 08:37
Dissolved	Analysis	200.7 Rev 4.4		10	34004	VP	EET ALB	09/05/25 11:23
Dissolved	Analysis	200.7 Rev 4.4		10	34121	VP	EET ALB	09/08/25 08:27
Dissolved	Analysis	200.8		1	34256	BV	EET ALB	09/08/25 17:12
Total/NA	Prep	245.1			33722	JR	EET ALB	09/02/25 12:53
Total/NA	Analysis	245.1		1	33799	JR	EET ALB	09/03/25 10:10
Total/NA	Analysis	2540C		1	33838	KS	EET ALB	09/03/25 16:34
Total/NA	Analysis	420.4		1	722045	VB	EET PEN	09/04/25 16:02
Total/NA	Analysis	SM 2320B		1	33735	DL	EET ALB	09/02/25 11:48
Total/NA	Analysis	SM 2510B		1	33736	DL	EET ALB	09/02/25 11:48
Total/NA	Prep	SM 4500 CN C			620429	ZVB7	EET CAL 4	09/03/25 13:36
Total/NA	Analysis	SM 4500 CN E		1	620583	ZVB7	EET CAL 4	09/03/25 16:19
Total/NA	Analysis	SM 4500 H+ B		1	33737	DL	EET ALB	09/02/25 11:48
Total/NA	Prep	PrecSep-21			734790	JTR	EET SL	09/04/25 08:22
Total/NA	Analysis	903.0		1	738401	SWS	EET SL	09/30/25 21:03
Total/NA	Prep	PrecSep_0			734791	JTR	EET SL	09/04/25 08:27
Total/NA	Analysis	904.0		1	738386	SWS	EET SL	09/30/25 16:14

Lab Chronicle

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Client Sample ID: Trip Blank Lab Sample ID: 885-32182-3

Date Collected: 08/28/25 00:00 **Matrix: Water**
Date Received: 08/29/25 08:14

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260B		1	34338	JP	EET ALB	09/10/25 12:56
Total/NA	Prep	8011			34010	MB	EET ALB	09/05/25 16:11
Total/NA	Analysis	8011		1	34030	JE	EET ALB	09/06/25 18:10

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494
EET PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600
EET SL = Eurofins St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Oregon	NELAP	NM100001	09-23-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8081B	3510C	Water	Chlordane (technical) Peak 1
8081B	3510C	Water	Chlordane (technical) Peak 2
8081B	3510C	Water	Chlordane (technical) Peak 3
8081B	3510C	Water	Chlordane (technical) Peak 4
8081B	3510C	Water	Chlordane (technical) Peak 5
8081B	3510C	Water	Toxaphene Peak 1
8081B	3510C	Water	Toxaphene Peak 2
8081B	3510C	Water	Toxaphene Peak 3
8081B	3510C	Water	Toxaphene Peak 4
8081B	3510C	Water	Toxaphene Peak 5
8260B		Water	Acrolein
8260B		Water	Acrylonitrile
8270E	3511	Water	1,2,4-Trichlorobenzene
8270E	3511	Water	1,2-Dichlorobenzene
8270E	3511	Water	1,3-Dichlorobenzene
8270E	3511	Water	1,4-Dichlorobenzene
8270E	3511	Water	1,4-Dioxane
8270E	3511	Water	1-Methylnaphthalene
8270E	3511	Water	2,2'-oxybis[1-chloropropane]
8270E	3511	Water	2,4,5-Trichlorophenol
8270E	3511	Water	2,4,6-Trichlorophenol
8270E	3511	Water	2,4-Dichlorophenol
8270E	3511	Water	2,4-Dimethylphenol
8270E	3511	Water	2,4-Dinitrophenol
8270E	3511	Water	2,4-Dinitrotoluene
8270E	3511	Water	2,6-Dinitrotoluene
8270E	3511	Water	2-Chloronaphthalene
8270E	3511	Water	2-Chlorophenol
8270E	3511	Water	2-Methylnaphthalene
8270E	3511	Water	2-Methylphenol
8270E	3511	Water	2-Nitroaniline
8270E	3511	Water	2-Nitrophenol
8270E	3511	Water	3 & 4 Methylphenol
8270E	3511	Water	3,3'-Dichlorobenzidine
8270E	3511	Water	3-Nitroaniline
8270E	3511	Water	4,6-Dinitro-2-methylphenol
8270E	3511	Water	4-Bromophenyl phenyl ether
8270E	3511	Water	4-Chloro-3-methylphenol
8270E	3511	Water	4-Chloroaniline
8270E	3511	Water	4-Chlorophenyl phenyl ether
8270E	3511	Water	4-Nitroaniline
8270E	3511	Water	4-Nitrophenol
8270E	3511	Water	Acenaphthene
8270E	3511	Water	Acenaphthylene
8270E	3511	Water	Aniline

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Laboratory: Eurofins Albuquerque (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270E	3511	Water	Anthracene
8270E	3511	Water	Atrazine
8270E	3511	Water	Azobenzene
8270E	3511	Water	Benzidine
8270E	3511	Water	Benzo[a]anthracene
8270E	3511	Water	Benzo[a]pyrene
8270E	3511	Water	Benzo[b]fluoranthene
8270E	3511	Water	Benzo[g,h,i]perylene
8270E	3511	Water	Benzo[k]fluoranthene
8270E	3511	Water	Benzoic acid
8270E	3511	Water	Benzyl alcohol
8270E	3511	Water	Bis(2-chloroethoxy)methane
8270E	3511	Water	Bis(2-chloroethyl)ether
8270E	3511	Water	Bis(2-ethylhexyl) phthalate
8270E	3511	Water	Butyl benzyl phthalate
8270E	3511	Water	Carbazole
8270E	3511	Water	Chrysene
8270E	3511	Water	Dibenz(a,h)anthracene
8270E	3511	Water	Dibenzofuran
8270E	3511	Water	Diethyl phthalate
8270E	3511	Water	Dimethyl phthalate
8270E	3511	Water	Di-n-butyl phthalate
8270E	3511	Water	Di-n-octyl phthalate
8270E	3511	Water	Fluoranthene
8270E	3511	Water	Fluorene
8270E	3511	Water	Hexachlorobenzene
8270E	3511	Water	Hexachlorobutadiene
8270E	3511	Water	Hexachlorocyclopentadiene
8270E	3511	Water	Hexachloroethane
8270E	3511	Water	Indeno[1,2,3-cd]pyrene
8270E	3511	Water	Isophorone
8270E	3511	Water	Naphthalene
8270E	3511	Water	Nitrobenzene
8270E	3511	Water	N-Nitrosodimethylamine
8270E	3511	Water	N-Nitrosodi-n-propylamine
8270E	3511	Water	N-Nitrosodiphenylamine
8270E	3511	Water	Pentachlorophenol
8270E	3511	Water	Phenanthrene
8270E	3511	Water	Phenol
8270E	3511	Water	Pyrene
8270E	3511	Water	Pyridine
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3
SM 2320B		Water	Carbonate Alkalinity as CaCO3

Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Laboratory: Eurofins Calscience (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	7296.01	11-30-26
A2LA	ISO/IEC 17025	7296.01	11-30-26
Alaska (UST)	State	25-005	03-02-26
Arizona	State	AZ0830	11-16-25
California	Los Angeles County Sanitation Districts	9257304	07-31-26
California	SCAQMD LAP	17LA0919	11-30-25
California	State	3082	07-31-26
Kansas	NELAP	E-10420	07-31-26
Nevada	State	CA00111	09-10-25
Oregon	NELAP	4175	09-18-25
USDA	US Federal Programs	525-23-159-97150	06-08-26
Utah	NELAP	CA00111	02-28-26
Washington	State	C916	10-11-25

Laboratory: Eurofins Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	06-30-26
ANAB	ISO/IEC 17025	L2471	02-22-26
Arkansas DEQ	State	88-00689	08-01-26
Florida	NELAP	E81010	06-30-26
Georgia	State	E81010(FL)	06-30-26
Illinois	NELAP	200041	10-31-26
Kansas	NELAP	E-10253	10-31-25
Kentucky (UST)	State	53	06-30-26
Louisiana (All)	NELAP	30976	06-30-26
Louisiana (DW)	State	LA017	12-31-25
North Carolina (WW/SW)	State	314	12-31-25
Oklahoma	NELAP	9810	12-31-25
Pennsylvania	NELAP	68-00467	01-31-26
South Carolina	State	96026	06-30-26
Tennessee	State	TN02907	06-30-26
Texas	NELAP	T104704286	09-30-25
US Fish & Wildlife	US Federal Programs	A22340	06-30-26
USDA	US Federal Programs	FLGNV23001	01-08-26
USDA	US Federal Programs	525-23-9-22801	01-09-26
Virginia	NELAP	460166	06-14-26
West Virginia DEP	State	136	03-31-26

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska	State	CA00044	06-30-26
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468.03	01-20-27
Arizona	State	AZ0708	08-11-26

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Laboratory: Eurofins Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	88-0691	05-18-26
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-26
Florida	NELAP	E87570	06-30-26
Georgia	State	4040	01-29-26
Illinois	NELAP	200060	03-31-26
Kansas	NELAP	E-10375	10-31-25
Louisiana	NELAP	01944	06-30-26
Louisiana (All)	NELAP	01944	06-30-26
Maine	State	CA00004	04-14-26
Massachusetts	State	M-CA044	06-30-26
Michigan	State	9947	01-29-26
Minnesota	NELAP	2749448	12-31-25
Nevada	State	CA00044	07-31-26
New Jersey	NELAP	CA005	06-30-26
New York	NELAP	11666	04-01-26
Ohio	State	41252	01-29-26
Oregon	NELAP	4040	01-29-26
Texas	NELAP	T104704399-23-17	05-31-26
US Fish & Wildlife	US Federal Programs	A22139	04-30-26
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-28-26
Virginia	NELAP	460278	03-14-26
Washington	State	C581	05-05-26
West Virginia (DW)	State	9930C	02-01-26
West Virginia DEP	State	422	03-28-26
Wisconsin	State	998204680	08-31-26
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-27
ANAB	Dept. of Defense ELAP	L2305	04-06-27
ANAB	Dept. of Energy	L2305.01	04-06-27
ANAB	ISO/IEC 17025	L2305	04-06-27
Arizona	State	AZ0813	12-08-25
California	Los Angeles County Sanitation Districts	10259	06-30-22 *
California	State	2886	07-01-26
Connecticut	State	PH-0241	03-31-27
Florida	NELAP	E87689	06-30-26
HI - RadChem Recognition	State	n/a	06-30-26
Illinois	NELAP	200023	11-30-25
Iowa	State	373	12-01-26
Kansas	NELAP	E-10236	10-31-25
Kentucky (DW)	State	KY90125	12-31-25
Kentucky (WW)	State	KY90125 (Permit KY0004049)	12-31-25
Louisiana (All)	NELAP	106151	06-30-26

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Daniel B. Stephens & Associates Inc. Job ID: 885-32182-1
Project/Site: HFSNR

Laboratory: Eurofins St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Louisiana (DW)	State	LA011	12-31-25
Maryland	State	310	10-01-26
Massachusetts	State	M-MO054	06-30-26
MI - RadChem Recognition	State	9005	06-30-26
Missouri	State	780	06-30-28
Nevada	State	MO00054	07-31-26
New Jersey	NELAP	MO002	06-30-26
New Mexico	State	MO00054	06-30-26
New York	NELAP	11616	03-31-26
North Carolina (DW)	State	29700	06-30-26
North Dakota	State	R-207	06-30-25 *
Oklahoma	NELAP	9997	12-31-25
Oregon	NELAP	4157	09-01-26
Pennsylvania	NELAP	68-00540	02-28-26
South Carolina	State	85002	06-30-25 *
Texas	NELAP	T104704193	07-31-26
US Fish & Wildlife	US Federal Programs	058448	07-31-26
USDA	US Federal Programs	525-23-138-94730	05-18-26
Utah	NELAP	MO00054	07-31-26
Virginia	NELAP	460230	06-14-26
Washington	State	C592	08-31-26
West Virginia DEP	State	381	10-31-25

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain-of-Custody Record

Client: Daniel B Stephens & Associates

Mailing Address: 6501 Americas Pkwy NE, Albuquerque NM 87110

Phone #: 505 822 9400

email or Fax#: EBastien@geo-logic.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other

☒ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: HFSNR

Project #: PO #4512504442

Project Manager: E. Bastien

Sampler: JT / SR

On Ice: ☒ Yes ☐ No

# of Coolers: 4 chucky

Cooler Temp (Including CF): See Remarks

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www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 8710[illegible]

Tel. 505-345-3975 Fax 505-345-4107

885-32182 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 8011)	PAHs by 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	505 Attached List
8/28/25	1400	AQ	WDW-1-MW-1-20250828	Various	Various												X
	1300		DUP-20250828														X
			Trip Blank														

Date	Time	Relinquished by	Received by	Via	Date	Time
8/29/25	0814	S Ramirez		DOD	8/29/25	8:14
Date	Time	Relinquished by	Received by	Via	Date	Time

Remarks: see attached list

4.6+0.2=4.8
4.0+0.2=4.2
0.6+0.2=0.8
1.1+0.2=1.3

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report.

Table 1. Analytical Parameters
Page 1 of 9

Parameter	Laboratory Method	Concentration (mg/L[a]) NMAC Standard	Concentration (mg/L[a]) Reporting Limit	Bottle	Preservative	Holding Time
Aluminum, dissolved	200.7	5	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Barium, dissolved	200.7	2	0.003	1-125 mL HDPE (F+S)	HNO_3	128 days
Beryllium, dissolved	200.7	0.004	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Boron, dissolved	200.7	0.75	0.04	1-125 mL HDPE (F+S)	HNO_3	128 days
Calcium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Cadmium, dissolved	200.7	0.005	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Chromium, dissolved	200.7	0.05	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Cobalt, dissolved	200.7	0.5	0.006	1-125 mL HDPE (F+S)	HNO_3	128 days
Iron, dissolved	200.7	1	0.02	1-125 mL HDPE (F+S)	HNO_3	128 days
Magnesium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Manganese, dissolved	200.7	0.2	0.002	1-125 mL HDPE (F+S)	HNO_3	128 days
Molybdenum, dissolved	200.7	1	0.008	1-125 mL HDPE (F+S)	HNO_3	128 days
Potassium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Sodium, dissolved	200.7	—	1	1-125 mL HDPE (F+S)	HNO_3	128 days
Nickel, dissolved	200.7	0.2	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Zinc, dissolved	200.7	10	0.01	1-125 mL HDPE (F+S)	HNO_3	128 days
Antimony, dissolved	200.8	0.006	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Arsenic, dissolved	200.8	0.01	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Copper, dissolved	200.8	1	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Lead, dissolved	200.8	0.015	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days
Selenium, dissolved	200.8	0.05	0.001	1-125 mL HDPE (F+S)	HNO_3	128 days
Silver, dissolved	200.7	0.05	0.005	1-125 mL HDPE (F+S)	HNO_3	128 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 2 of 9

Thallium, dissolved	200.8	0.002	0.00025	1-125 mL HDPE (F+S)	HNO_3	128 days
Uranium, dissolved	200.8	0.03	0.0005	1-125 mL HDPE (F+S)	HNO_3	128 days
Mercury, total	245.1	0.002	0.0002	1-250 mL HDPE	HNO_3	28 days
Bromide	300	—	0.1	1-125 mL HDPE	Unpreserved	28 days
Chloride	300	250	0.5	1-125 mL HDPE	Unpreserved	28 days
Fluoride	300	1.6	0.1	1-250 mL HDPE	Unpreserved	28 days
Nitrate	300	10	0.1	1-125 mL HDPE	Unpreserved	48 hours
Nitrite	300	1	0.1	1-125 mL HDPE	Unpreserved	48 hours
Sulfate	300	600	0.5	1-125 mL HDPE	Unpreserved	28 days
Perchlorate (CAS 14797-73-0)	331.0	—	0.00005	1-125 mL plasstic	Unpreserved	28 days
Cyanide	335.4	0.2	0.01	1-500 mL plastic amber	NaOH	14 days
1,2-Dibromoethane (ethylene dibromide, EDB) (CAS 106-93-4)	504.1	0.00005	0.00001	2-40 mL VOAs	$Na_2S_2O_3$	14 days
Perfluorohexane sulfonic acid (PHHxS) (CAS 355-46-4)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctane sulfonate (PFOS) (CAS 1763-23-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Perfluorooctanoic acid (PFOA) (CAS 335-67-1)	537	—	0.00001	2-250 mL HDPE	Unpreserved	14 days
Aldrin (CAS 309-00-2)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
DDT (CAS 50-29-3)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Dieldrin (CAS 60-57-1)	8081	—	0.0001	6-1 L glass amber	Unpreserved	7 days
Polychlorinated biphenyls (PCBs) (CAS 1336-36-3)	8082	0.0005	0.00025	6-1 L glass amber	Unpreserved	40 days
2,4,5-TP (Silvex)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
2,4-D (2,4-Dichlorophenoxyacetic acid)	8151	—	0.0001	1-1 L glass amber	Unpreserved	14 days
Monochlorobenzene (CAS 108-90-7)	8260	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Thiolane 1,1 dioxide (sulfolane) (CAS 126-33-0)	8270	—	Narrative only	6-1 L glass amber	Unpreserved	7 days
2,4,6-Trinitrotoluene (TNT) (CAS 118-96-7)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 3 of 9

Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (CAS 121-82-4)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Octrahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) (CAS 2691-41-0)	8330	—	0.00338	6-1 L glass amber	Unpreserved	14 days
Alkalinity, total	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Bicarbonate	2320B	—	20	1-250 mL HDPE	Unpreserved	14 days
Carbonate	2320B	—	2	1-250 mL HDPE	Unpreserved	14 days
Specific conductance (µmhos/cm)	2510B	—	10 µmhos/cm	1-125 mL HDPE	Unpreserved	28 days
Total dissolved solids	2540C	—	20	1-1 L HDPE	Unpreserved	7 days
Cadmium, dissolved	6010B	—	0.002	1-125 mL plastic (F&S)	HNO_3	180 days
Chlordane	8081A	—	0.001	2-40 mL VOAs	HCl	7 days
Endosulfan (CAS 115-29-7)	8081A	—	0.0001	2-40 mL VOAs	HCl	7 days
Endrin	8081A	—	0.0001	4-40 mL VOAs	HCl	7 days
Heptachlor (and its epoxide)	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Hexachlorocyclohexane (HCH, lindane): alpha-HCH; beta-HCH; gamma-HCH; and, technical-HCH	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Lindane	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Methoxychlor	8081A	—	0.0001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
Toxaphene	8081A	—	0.001	2-40 mL VOAs	$Na_2S_2O_3$	7 days
1,1,1-Trichloroethane (TCA)	8260B	0.2	0.001	3-40 mL VOAs	HCl	14 days
1,1,2,2-Tetrachloroethane	8260B	0.01	0.001	3-40 mL VOAs	HCl	14 days
1,1,2-Trichloroethane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethane	8260B	0.025	0.001	3-40 mL VOAs	HCl	14 days
1,1-Dichloroethene (1,1-DCE) (CAS 75-35-4)	8260B	0.007	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorobenzene (CAS 120-82-1)	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
1,2,4-Trichlorophenol	8260B	—	Narrative only	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 4 of 9

1,2-Dichlorobenzene	8260B	0.6	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloroethane (EDC)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,2-Dichloropropane	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
1,4-Dichlorobenzene	8260B	0.075	0.001	3-40 mL VOAs	HCl	14 days
1-Methylnaphthalene (CAS 90-12-0)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days
2-Methylnaphthalene (CAS 91-57-6)	8260B	—	0.004	3-40 mL VOAs	HCl	14 days
Acrolein (CAS 107-02-8)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Acrylonitrile (CAS 107-13-1)	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Benzene	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Bromodichloromethane (CAS 75-27-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Bromomethane (CAS 74-83-9)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Carbon tetrachloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Chlorobenzene	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chloroform	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Chloromethane (CAS 74-87-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Chlorothene (vinyl chloride) (CAS 75-01-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
cis-1,2-dichloroethene	8260B	0.07	0.001	3-40 mL VOAs	HCl	14 days
Dichlorodifluoromethane (fluorocarbon-12) (CAS 75-71-8)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Ethylbenzene	8260B	0.7	0.001	3-40 mL VOAs	HCl	14 days
Methyl ethyl ketone	8260B	—	0.01	3-40 mL VOAs	HCl	14 days
Methyl tertiary-butyl ether (MTBE)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Methylene chloride	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Naphthalene (CAS 91-20-3)	8260B	—	0.002	3-40 mL VOAs	HCl	14 days
Styrene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
Page 5 of 9

Tetrachloroethene (perchloroethylene, PCE) (CAS 127-18-4)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Tetrachloromethane (carbon tetrachloride) (CAS 56-23-5)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Toluene	8260B	1	0.001	3-40 mL VOAs	HCl	14 days
trans-1,2-Dichloroethene	8260B	0.1	0.001	3-40 mL VOAs	HCl	14 days
Tribromomethane (bromoform) (CAS 75-25-2)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloroethylene (TCE)	8260B	0.005	0.001	3-40 mL VOAs	HCl	14 days
Trichlorofluoromethane (fluorocarbon-11) (CAS 75-69-4)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Trichloromethane (chloroform) (CAS 67-66-3)	8260B	—	0.001	3-40 mL VOAs	HCl	14 days
Vinyl chloride	8260B	0.002	0.001	3-40 mL VOAs	HCl	14 days
Xylenes (total) including m-xylene, o-xylene and p-xylene	8260B	0.62	0.002	3-40 mL VOAs	HCl	14 days
1,4-Dioxane (CAS 123-91-1)	8270C	—	0.001	6-1 L glass amber	Unpreserved	14 days
2,4,5-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4,6-Trichlorophenol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dichlorophenol (CAS 120-83-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitro-o-cresol (CAS 534-52-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,4-Dinitrotoluene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
2,6-Dinitrotoluene (2,6-DNT) (CAS 606-20-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,4-Benzofluoranthene (CAS 205-99-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Anthracene (CAS 120-12-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Atrazine	8270C	0.003	0.0015	6-1 L glass amber	Unpreserved	14 days
Benzidine (CAS 92-87-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Benzo(k)fluoranthene (CAS 207-08-9)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table.

Table 1. Analytical Parameters
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Benzo-a-pyrene	8270C	0.0002	0.00014	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroethyl) ether (CAS 111-44-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (2-chloroisopropyl) ether (CAS 108-60-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
bis (chloromethyl) ether (CAS 542-88-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Di-2-ethylhexyl phthalate (DEHP) (CAS 117-81-7)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dibutyl phthalate (CAS 84-74-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
3,3-Dichlorobenzidine (CAS 91-94-1)	8270 C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Dichloropropenes (CAS 542-75-6)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diethyl phthalate (DEP) (CAS 84-66-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dimethyl phthalate (DMP) (CAS 131-11-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Dinitrophenols (CAS 51-28-5)	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Diphenylhydrazine (CAS 122-66-7	8270C	—	0.0001	6-1 L glass amber	Unpreserved	14 days
Fluoranthene (CAS 206-44-0)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Fluorene (CAS 86-73-7)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Hexachlorobenzene (CAS 118-74-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachlorobutadiene (CAS 87-68-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachlorocyclopentadiene (CAS 77-47-4)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Hexachloroethane	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Isophorone (CAS 78-59-1)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
m-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Nitrobenzene	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodibutylamine (CAS 924-16-3)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodiethylamine (CAS 55-18-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosodimethylamine (CAS 62-75-9)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days

Notes are provided at the end of the table

Table 1. Analytical Parameters
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N-nitrosodiphenylamine (CAS 86-30-6)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
N-nitrosopyrrolidine (CAS 930-55-2)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
o-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
PAHs (total napthalene plus monomethylnapthalenes)	8270C	0.03	0.0003	6-1 L glass amber	Unpreserved	14 days
p-Cresol	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorobenzene (CAS 608-93-5)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pentachlorophenol	8270C	0.001	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenanthrene (CAS 85-01-8)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Phenol (CAS 108-95-2)	8270C	0.005	0.0005	2-1 L glass amber	H_2SO_4	7 days
Polynuclear aromatic hydrocarbons (PAHs)	8270C	—	0.0003	6-1 L glass amber	Unpreserved	14 days
Prometon (CAS 1610-18-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pyrene (CAS 129-00-0)	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
Pyridine	8270C	—	0.0005	6-1 L glass amber	Unpreserved	14 days
1,2,4,5-Tetrachlorobenzene (CAS 95-94-3)	8270E	—	0.0005	6-1 L glass amber	Unpreserved	7 days
Radium-226 and -228 combined (pCi/L)	903.0 and 904.0	5 pCi/L	<5	2-1 L HDPE	HCl	180 days
pH (s.u.)	9040C	6–9	~2–12	1-1 L HDPE	Unpreserved	15 minutes
Cation/anion balance	Calculation	—	NA	—	—	—
Temperature (°C)	Provided with pH	—	—	—	—	—

Source. 20 6.2.3103 NMAC and 20.6.2.7 NMAC "Toxic Parameters"

[a] Unless otherwise noted
mg/L = Milligrams per liter
— = Unspecified
µmhos/cm = Micromhos per centimeter
pCi/L = Picocuries per liter
s.u = Standard units
NA = Not applicable

Notes are provided at the end of the table.

ORIGIN ID:ABQA (505) 345-3975
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EUROFINS ABQ
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ALBUQUERQUE, NM 87109
UNITED STATES US

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ACTWGT: 51.00 LB
CAD: 1717027/INET4535

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1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-6386.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon		Job #: 885-32182-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 9/9/2025			
City: Earth City	TAT Requested (days): N/A			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/PrecSep_21Standard Target List	904.0/PrecSep_0Standard Target List	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
WDW-1MW-1-20250828 (885-32182-1)	8/28/25	14:00 Mountain	G	Water			X	X	4	
DUP-20250828 (885-32182-2)	8/28/25	13:00 Mountain	G	Water			X	X	4	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 9/6/25 15:42	Company	Received by:	Date/Time: 0830 SEP 03 2025	Company
Relinquished by:	Date/Time:	Company	Received by: Cheyenne Forrest	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-6375.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note): NELAP Oregon		Job #: 885-32182-1
Address: 880 Riverside Parkway	Due Date Requested: 9/9/2025			
City: West Sacramento	TAT Requested (days): N/A			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes

Other: N/A

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	537 1/537 1_PrepEPA 537 1 18 Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WDW-1MW-1-20250828 (885-32182-1)	8/28/25	14.00 Mountain	G	Water			X	2	
DUP-20250828 (885-32182-2)	8/28/25	13:00 Mountain	G	Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II, III IV Other (specify) Primary Deliverable Rank. 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		9/2/25 14:00				
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 2.7c

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-6384 1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Southeast L		Accreditations Required (See note): NELAP - Oregon		Job #: 885-32182-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 9/9/2025			Preservation Codes: -
City: Pensacola	TAT Requested (days): N/A			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			Other: N/A

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	420.4	8270E_QQQ_AGchm/3511(MOD) Routine 8270 Pest A + B Mix	8270E/3610C_LVI(MOD) 8270E	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
WDW-1MW-1-20250828 (885-32182-1)	8/28/25	14 00 Mountain	G	Water			X	X	X	3	
DUP-20250828 (885-32182-2)	8/28/25	13 00 Mountain	G	Water			X	X	X	3	

Note: Since laboratory accreditations are subject to change Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date:	Time	Method of Shipment:

Relinquished by:	Date/Time: 09/02/25 15:20	Company	Received by:	Date/Time: 9-3-25 0945	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 5-8°C IR10

Ver: 10/10/2024

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Loc: 885 32182

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Bolte, Jackie	Carrier Tracking No(s): N/A	COC No: 885-6378.1
Client Contact: Shipping/Receiving	Phone: N/A	E-Mail: jackie.bolte@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Environment Testing Southwest,		Accreditations Required (See note): NELAP - Oregon		Job #: 885-32182-1
Address: 2841 Dow Avenue, Suite 100, ,	Due Date Requested: 9/9/2025			
City: Tustin	TAT Requested (days): N/A			
State, Zip: CA, 92780				
Phone: 714-895-5494(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: HFSNR	Project #: 88503077			
Site: N/A	SSOW#: N/A			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8330/8330_P_SARoutine Nitroaromatics & Nitramines List	8151A/8151A_APRoutine Herbicides List (Standard Spike	331	4500_CN_E/4500_CN_CTotal Cyanide	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
WDW-1MW-1-20250828 (885-32182-1)	8/28/25	14:00 Mountain	G	Water			X	X	X	X	4	
DUP-20250828 (885-32182-2)	8/28/25	13:00 Mountain	G	Water			X	X	X	X	4	

Analysis Requested

Preservation Codes: -

Other: N/A

885-32182 Chain of Custody

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 9/2/25 14:30	Company	Received by:	Date/Time: 9/3/25 1044	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.9/3.2 SCV

Ver: 10/10/2024

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-32182-1

Login Number: 32182 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-32182-1

Login Number: 32182 **List Source: Eurofins Calscience**
List Number: 3 **List Creation: 09/03/25 12:12 PM**
Creator: Khana, Piyush

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-32182-1

Login Number: 32182 **List Source: Eurofins Pensacola**
List Number: 4 **List Creation: 09/03/25 05:36 PM**
Creator: Pardonner, Brett

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.8°C IR10
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-32182-1

Login Number: 32182 **List Source: Eurofins Sacramento**
List Number: 5 **List Creation: 09/03/25 03:53 PM**
Creator: Simmons, Jason C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Daniel B. Stephens & Associates Inc. Job Number: 885-32182-1

Login Number: 32182 **List Source: Eurofins St. Louis**
List Number: 2 **List Creation: 09/03/25 01:06 PM**
Creator: Forrest, Cheyenne L

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix L

Effluent Chemistry

DBS&A
a Geo-Logic Company

HF SINCLAIR WWTP EFFLUENT CONCENTRATIONS INJECTED INTO WELLS WDW-1, WDW-2, WDW-3, AND WDW-4

"<" = value less than the laboratory reporting limit (RL)

ND = not detected at elevated MDL

Parameter	Units	UICI-8 Condition 2.A Regulatory Level (a)	3/26/2019 (c)	6/26/2019 (c)	9/30/2019	12/30/2019	3/29/2020	6/30/2020 (c)	9/24/2020 (c)	1/22/2021	3/21/2021	5/24/2021 (c)	9/29/2021	12/21/2021 (c)	3/28/2022	4/26/2022	9/28/2022	11/28/2022 (b)	12/5/2022 (b)	12/12/2022 (b)	12/19/2022 (b)	3/14/2023	6/20/2023	9/15/2023	12/13/2023	3/14/2024	6/24/2024	8/22/2024	12/26/2024	3/28/2025	4/22/2025	9/18/2025	Average	Maximum
Alkalinity, bicarbonate	mg/L as CaCO3	--	488.6	537.6	408.2	460.7	1100.0	600.2	474.4	421.3	333.1	498.3	404.3	826.6	477.1	626.9	582.9	563.6	538.1	511.1	370.5	482.8	642.8	573.3	424.8	380.0	310.0	600.0	320.0	1700.0	980.0	530.0	572	1700
Alkalinity, carbonate	mg/L as CaCO3	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ND at MDL = 5.0	ND	ND
Alkalinity, total	mg/L as CaCO3	--	488.6	537.6	408.2	460.7	1100.0	600.2	474.4	421.3	333.1	498.3	404.3	826.6	477.1	626.9	582.9	563.6	538.1	511.1	370.5	482.8	642.8	573.3	424.8	380.0	310.0	600.0	320.0	1700.0	980.0	530.0	572	1700
Conductivity	uS/cm	--	4100	6100	5100	6400	6800	8000	7700	6500	6400	5700	7100	7400	6300	6500	6900	6100	5800	5800	5800	5100	7100	7700	4900	6100	6400	5600	6100	8600	6800	7200	6403	8600
Cyanide (Reactivity)	mg/L	--	0.0141	0.0269	0.0927	0.00549	0.0110	0.0585	0.0379	0.0358	0.0384	0.0319	0.0293	<0.05	0.0103	0.0133	0.0207	0.0120	0.0113	0.0151	0.0140	<0.0050	0.0716	0.0814	ND at MDL = 0.25	ND at MDL = 0.25	ND at MDL = 0.25	0.062	0.0099	0.0750	0.0600	<0.25	0.0344	0.0927
Flashpoint (Ignitability)	deg F	--	>170	>170	>170	>170	>170	>170	>170	>170	>170	>170		>170	>170	>170	>170	>170	>170	>170	>170	>170	>170	>170	>200	>200	>200	>180	>180	>180	>180	>212	ND	ND
Oxidation Reduction Potential	mV	--	192	50	190	80	102	53	171	155	83.3	122	158	-10.4	34.9	157	129	165	283	95.8	338	21.1	114.0	219.0	--	--	19	110	47	148	--	--	124.1	338.0
pH (Corrosivity)	su	--	7.56	7.47	7.69	7.39	7.84	7.77	7.53	7.27	7.40	7.53		7.39	7.47	7.25	7.83	7.66	7.81	7.77	7.26	7.28	8.08	7.64	7.7	7.4	7.5	7.6	6.7	7.8	7.6	7.6	7.54	8.08
Specific Gravity	su	--	1.0010	1.0020	1.0000	1.0100	1.0010	1.0060	1.0000	1.0030	1.0000	1.0020	1.0050	1.0020	0.9968	0.9981	0.9989	1.0070	0.9956	1.0010	0.9954	0.9992	1.0040	0.9993	1.0010	1.0003	1.0053	1.0025	1.0011	1.0027	1.0055	1.0000	1.0015	1.0100
Sulfide (Reactivity)	mg/L	--	0.123	<0.05	<0.05	0.050	0.096	0.084	<0.05	<0.05	0.065	<0.05	0.121	0.334	<0.05	0.108	<0.05	<0.05	<0.05	<0.05	0.075	0.18	<0.05	<0.25	ND at MDL = 150	ND at MDL = 150	ND at MDL = 150	0.43	3.90	<1.0	4.90	<50	0.47	4.90
Total Dissolved Solids	mg/L	--	3130	4570	3520	4480	5120	5830	5850	4940	5070	4600	4910	5340	4660	4640	5120	4420	4210	4170	4350	3250	5480	5320	3620	4200	4700	4300	4600	5200	5300	6000	4697	6000
Total Suspended Solids	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	14	21	28	30	25	30	38	120	17	11	34	85	300	28	450	800	940	480	192	940
Bromide	mg/L	--	0.94	0.59	<0.5	0.88	2.50	<0.5	1.30	1.30	0.65	0.59	0.81	0.80	0.61	0.62	<0.5	<0.5	0.84	0.90	0.72	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	0.54	0.79	0.63	5.00	0.75	0.90	5.00
Chloride	mg/L	--	420	570	430	620	730	440	860	520	520	390	510	800	720	600	490	340	340	340	520	500	300	470	510	600	700	420	820	530	630	650	543	860
Fluoride	mg/L	--	9.6	23	31	10	9.8	44	28	23	57	22	67	57	35	24	65	47	19	34	24	35	57	110	20	55	48	45	38	14	5.6	13	36	110
Nitrate	mg/L	--							0.79		0.72		0.90	<0.5	0.75	0.88	2.50		1.00	0.91	0.78	<0.5	0.83			<0.2							0.87	2.50
Nitrate/Nitrite	mg/L	--	<1	1.2	1.2	<1	<1	<1		<1		<1						<1						<1	<1		<1	<1	<1	<1	0.2	1.2	0.99	1.20
Nitrite	mg/L	--							<0.5		<0.5		<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	1.4			<0.12							0.54	1.40
Phosphorus, Ortho PO4	mg/L	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<10	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	--	<2.5	<2.5	--	<2.5	ND	ND
Sulfate	mg/L	--	1500	2300	1700	2200	2100	3400	2400	2400	2300	2300	2300	1800	2300	2400	2300	2300	2000	2100	2000	1500	3400	3000	1700	2300	2400	1900	1700	1800	1800	3200	2227	3400
Calcium	mg/L	--	330	470	340	420	310	430	390	440	400	380	340	340	460	490	400	380	380	400	400	380	410	400	420	400	550	500	470	440	460	570	417	570
Magnesium	mg/L	--	100	140	110	130	120	140	130	150	140	120	110	110	140	160	130	130	130	120	120	120	130	130	130	130	160	220	140	170	140	190	136	220
Potassium	mg/L	--	64	69	100	52	88	290	360	160	270	110	320	140	130	100	230	160	100	140	130	120	200	420	73	170	150	170	130	47	22	71	153	420
Sodium	mg/L	--	360	640	570	650	1200	1300	1000	810	780	800	780	850	640	580	880	690	750	710	710	360	1100	910	510	660	740	700	630	1400	750	960	781	1400
Cation/Anion Ratio	__:1	--	--	--	--	--	--	--	--	--	--	--	--	--	0.82	0.81	0.97	0.89	1.03	0.98	0.98	0.84	0.88	0.87	0.94	0.85	0.98	1.18	0.98	1.12	0.9	--	0.94	1.18
Arsenic	mg/L	TCLP=5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.032	ND	ND
Barium	mg/L	TCLP=100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	0.085	ND	ND
Cadmium	mg/L	TCLP=1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.050	ND	ND
Chromium	mg/L	TCLP=5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.049	ND	ND
Lead	mg/L	TCLP=5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.030	ND	ND
Mercury	mg/L	TCLP=0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.00016	ND	ND
Selenium	mg/L	TCLP=1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.12	ND	ND
Silver	mg/L	TCLP=5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.025	ND	ND
Chlordane	mg/L	TCLP=0.03	<0.03	--	--	<0.03	--	--	<0.03	<0.03	<0.03	<0.03	--	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	ND at MDL = 0.05	<0.010	ND	ND
Endrin	mg/L	TCLP=0.02													<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02													ND	ND
Lindane	mg/L	TCLP=0.4													<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4													ND	ND
Heptachlor	mg/L	TCLP=0.008													<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008													ND	ND
Heptachlor Epoxide	mg/L	TCLP=0.008													<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008													ND	ND
Methoxychlor	mg/L	TCLP=10													<10	<10	<10	<10	<10	<10	<10													ND	ND
Toxaphene	mg/L	TCLP=0.50													<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50													ND	ND
2,4,5-TP (Silvex)	mg/L	TCLP = 1													<1	<1	<1	<1	<1	<1	<1													ND	ND
2,4-D	mg/L	TCLP = 10													<10	<10	<10	<10	<10	<10	<10													ND	ND
1,1-Dichloroethene	mg/L	TCLP=0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	ND at MDL = 0.04	ND	ND
1,2-Dichloroethane	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND at MDL = 0.05	ND	ND
1,4-Dichlorobenzene	mg/L	TCLP=7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	ND at MDL = 0.04	ND	ND
2,4,5-Trichlorophenol	mg/L	TCLP=400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	--	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<400	<0.010	ND	ND
2,4,6-Trichlorophenol	mg/L	TCLP=2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.010	ND	ND
2,4-Dinitrotoluene	mg/L	TCLP=0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	ND at MDL = 0.5	ND at MDL = 0.5	<0.13	ND at MDL = 0.25	<0.13	<0.13	<0.010	ND	ND
2-Butanone	mg/L	TCLP=200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	ND at MDL = 0.4	ND	ND
2-Methylphenol	mg/L	TCLP=200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	0	ND	ND
3+4-Methylphenol	mg/L	TCLP=200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	0.0	ND	ND
Benzene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND at MDL = 0.03	ND	ND
Carbon tetrachloride	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND at MDL = 0.04	ND	ND
Chlorobenzene	mg/L	TCLP=100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	ND at MDL = 0.1	ND	ND
Chloroform	mg/L	TCLP=6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	ND at MDL = 0.05	ND	ND
Cresols	mg/L	TCLP=200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	--	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<0.0029	ND	ND
Hexachlorobenzene	mg/L	TCLP=0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	--	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	ND at MDL = 0.46	ND at MDL = 0.46	<0.13	ND at MDL = 0.23	<0.13	<0.13	<0.05	ND	ND
Hexachlorobutadiene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND at MDL = 1.1	ND at MDL = 1.1	<0.5	ND at MDL = 0.55	<0.50	<0.50	<0.05	ND	ND
Hexachloroethane	mg/L	TCLP=3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	--	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<0.05	ND	ND
Nitrobenzene	mg/L	TCLP=2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	--	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.010	ND	ND
Pentachlorophenol	mg/L	TCLP=100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	--	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<0.0033	ND	ND
Pyridine	mg/L	TCLP=5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.1	ND	ND
Tetrachloroethene	mg/L	TCLP=0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	ND at MDL = 0.06	ND	ND
Trichloroethene	mg/L	TCLP=0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND at MDL = 0.06	ND	ND
Vinyl chloride	mg/L	TCLP=0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	ND at MDL = 0.06	ND	ND

(a) TCLP = Toxicity Characteristic Leaching Procedure with regulatory level given in 40 CFR 261.24(b)
(b) TCLP parameters run as both total and filtered fractions; all results less than corresponding regulatory level
(c) Lab reports include TCLP metals analyzed with reporting limit (RL) less than TCLP regulatory level

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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

COMMENTS

Action 522222

COMMENTS

Operator: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 522222
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

COMMENTS

Created By	Comment	Comment Date
cchavez	The report overall is acceptable but supporting information (i.e., tables, figures and attachments) is not consistently referenced in sections of the report. Water quality data thus far indicates the groundwater is protectable (i.e., TDS < 10,000 ppm) under WQCC 20.6.2 NMAC. Quarterly groundwater sampling continues. The semi-artesian aquifer characteristics indicate WDW-1 MW-1 is prolific enough to be sampled and monitored for water quality information. If borings had been drilled deeper (Note: the original drilling plan was approved by OCD for 150 – 160 ft. bgl based on the presence of significant water wells in the vicinity of the WDWs) at the other WDWs, it is likely that the same aquifer system may be present.	12/29/2025

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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: HF Sinclair Navajo Refining LLC ATTN: GENERAL COUNSEL Dallas, TX 75201	OGRID: 15694
	Action Number: 522222
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
cchavez	OCD observations, comments and/or future report recommendations: 1. No regional water table or confined aquifer systems observed. More discontinuous and finite perched and semi-confined aquifers exist. More prolific water bearing zones may be near Gatuna/Salado/Tansil Formation outcrop recharge zones. Figure 3 water wells are abundant likely near GW recharge areas away from the Roswell Aquifer System. WDW-4 appears to be near a recharge area on the map. 2. Boron GW concentration elevated with high pH indicates the source as anthropogenic (Borate Ion). GW is protectable under WQCC 20.6.2 NMAC. 3. Sections of the report could be improved by adding references to associated figures, attachments, etc. located at various locations throughout the report.	12/29/2025