

Corrective Action Plan (CAP) – Revised 1.2

**7-Eleven 46312 / Speedway 3010
NNEPA Facility No NAV018 – Release #2
Intersection of Highways 160 and 264
Tuba City, Arizona 86045**

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Prepared for:

7-Eleven, Inc.
PO Box 711 – Loc. 0148
Dallas, Texas 75221

Prepared by:

Stantec Consulting Services Inc.
3133 West Frye Road, Suite 300
Chandler, Arizona 85226

Project/File:

203724574



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Prepared by:

Signature

Michelle Clement, PG, Environmental Project Manager

Reviewed by:

Signature

Kimberly Marsh, RG, Sr. Project Manager

Approved by:

Signature

John Wainwright, PE, Sr. Principal Engineer

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1 Site Information

1.1 Site Description

The site identified as 7-Eleven Store 46312/Speedway 3010 (NAV018) is located north of the intersection of Highways 160 and 264 in Tuba City, Arizona, 86045. The property is on the Navajo Nation Reservation in Township 32 North, Range 11 East, Section 28 (**Figure 1**). Parking is available to the south and west of the convenience store building. The service station canopy is located in the southern portion of the site.

The site is bounded by Highway 160 and a hotel (Moenkopi Legacy Inn & Suites) to the south/southeast, Highway 264 and a gas station (Tuuvi Travel Center) to the south, Highway 264 and a gas station (Sinclair) to the west/southwest, and commercial properties to the north and east. Residential properties are located to the northwest and northeast (**Figure 2**). The boundary between the Navajo Nation Reservation and the Hopi Reservation is situated south of the site, along Highway 160.

The site is currently an active retail gasoline facility and Speedway convenience store. The Speedway convenience store building is located in the southwestern portion of the property boundary, with the underground storage tanks (USTs) located northwest of the Speedway convenience store building. Previous USTs existed on-site and were replaced in 1998. The current UST system includes three 10,000-gallon USTs containing regular unleaded gasoline (RUL), premium unleaded gasoline (PUL), and diesel (DSL) fuel. The product piping trench connects the USTs to the fuel dispensers located on the south side of the Speedway convenience store building (**Figure 3**). The USTs are owned by Giant Four Corners, LLC.

1.2 Site Background

1.2.1 NAV018 Release #1

Prior to 7-Eleven, Inc. (7-Eleven)/Speedway, LLC's (Speedway) operation of the gasoline service station at the site, a former Thriftway store (Station #701) operated at the NAV018 location. A release associated with the former Thriftway occurred in the mid-1990's (prior to the installation of the current UST system) and is identified as NAV018 Release #1. The NAV018 Release #1 is commingled with the former Sunshine West NAV019 Release #1 and remediation is ongoing for impacts currently present at the Tuuvi Travel Center, as well as semi-annual groundwater sampling (**Figure 2**).

1.2.2 NAV018 Release #2

A gasoline release associated with the current facility at NAV018 was discovered in 2018 (referred to as NAV018 Release #2) based on increasing concentrations and detected light nonaqueous phase liquid (LNAPL) in groundwater monitoring well MW-44, which is located immediately south of the UST basin.



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In May 2019, the Navajo Nation Environmental Protection Agency (NNEPA) notified Speedway regarding a suspected new release at the site indicating Speedway was the Responsible Party (RP)¹. To evaluate the source of the release, Stantec collected an LNAPL sample from existing monitoring well MW-44 and gasoline fuel was collected from the three gasoline product dispensers (RUL, PUL and DSL) for a forensic evaluation. The forensic analysis indicated the fuel release subject to NAV018 Release #2 was premium grade gasoline and was reflective of minimally weathered fuel.

On behalf of 7-Eleven / Speedway, Stantec conducted various site investigation and remediation activities between 2020 and 2024 for the NAV018 Release #2. Further details regarding the historical corrective actions are summarized in the various reports referenced in the bullets below. Each report referenced was submitted to NNEPA and Region 9 EPA (EPA).

- **2020** – In January, four groundwater monitoring wells (SMW-1 through SMW-4), hereinafter referred to as “well(s)”, were installed to depths ranging between 15 to 17 feet below ground surface (bgs). In January and February, two multi-phase vacuum extraction events were conducted to remove detected LNAPL from well MW-44, and to remove groundwater from wells SMW-1, SMW-2, and SMW-3 to determine if LNAPL would appear; however, LNAPL was not detected in wells SMW-1, SMW-2, or SMW-3. Approximately 1,060 gallons (gal) of water and product mixture were removed during the two extraction events documented in the report titled *Speedway 3010 Site Assessment Report* dated March 9, 2021, prepared by Stantec.
- **2021** – In November and December, approximately 4,036.50 pounds (lbs.) of Total Petroleum Hydrocarbons Gasoline Range Organics (TPH-G) (average mass removal of 115 lbs. per day) and approximately 26,700 gal of impacted groundwater were removed from the site by a six-week mobile dual-phase extraction system event documented in the report titled *Speedway 3010 Dual Phase Extraction Feasibility Report* dated May 10, 2022, prepared by Stantec.
- **2020 to 2024** – Eleven groundwater monitoring and sampling events were conducted via low-flow purge at wells MW-25B, MW-26, MW-41, MW-43, MW-44, MW-45, SMW-1, SMW-2, SMW-3 and/or SMW-4. The groundwater sampling activities are documented by the following reports prepared by Stantec: *Speedway 3010 Site Assessment Report* dated March 9, 2021; *Speedway 3010 Groundwater Monitoring Report Q2 and Q3 2021* dated August 18, 2021; *Speedway 3010 Dual Phase Extraction Feasibility Report* dated May 10, 2022; *Speedway 3010 Groundwater Monitoring Report January – June 2022* dated August 25, 2022; *Speedway 3010 Groundwater Monitoring Report July – December 2022* dated January 12, 2023; *Speedway 3010 Groundwater Monitoring Report January – June 2023* dated August 15, 2023; *7-Eleven Store 46312/Speedway 3010 Groundwater Monitoring Report June –December 2023* dated April 11, 2024; and the *7-Eleven*

¹ *Investigation of Soil and Groundwater Petroleum Contamination at NAV018, Tuba City, AZ owned by Western Refining, LLC,” Letter dated May 23, 2019*



Store 46312/Speedway 3010 Groundwater Monitoring Report (January to June 2024) dated November 6, 2024.

- In February 2024, Speedway and Thriftway Marketing Corporation executed an “*Agreement to Transfer Ownership and Responsibility of Monitoring Wells*” which transferred ownership of wells MW-27B, MW-41, MW-43, and MW-44 to Speedway, LLC.
- **2024** – In November 2024, five wells (SMW-5 through SMW-9), one air sparge well (AS-1), and one dual-nested soil vapor extraction well (SVE-1S/D) were drilled and installed under Stantec oversight to a depth of up to 17 feet bgs. Following the new well installation, a groundwater sampling event was conducted at wells MW-25B, MW-41, MW-43, MW-44, MW-45, and SMW-1 through SMW-9 (*Groundwater and Remediation Well Installation and Groundwater Monitoring Report* dated February 21, 2025 and “*Groundwater and Remediation Well Installation and Groundwater Monitoring Report (Revision 1)*” dated May 28, 2025.)
- **2025** – In March 2025, an air sparge (AS) and soil vapor extraction (SVE) pilot testing was conducted at wells SVE-1S/D and AS-1 (*SVE/AS Pilot Test Report – NAV018*”, dated July 23, 2025, prepared by Stantec.) In May 2025, a groundwater monitoring and sampling event was conducted via low-flow purge at wells MW-25B, MW-41, MW-43, MW-44, MW-45, and SMW-1 through SMW-9. The report documenting the May 2025 groundwater monitoring and sampling event will be submitted to NNEPA and EPA in conjunction with this revised CAP.

Please note that various groundwater monitoring wells were installed at the site prior to 2020 when Speedway’s (and 7-Eleven’s) involvement with the current NAV018 Release #2 began. Wells installed under the direct supervision of Stantec personnel are identified with an “S” (i.e., SMW-1) and are presented in **Table 1**. This distinction is important since information regarding the lithology and screen intervals for the pre-2020 wells may or may not be available and, if available, may or may not have been confirmed for complete accuracy. The physical locations of the wells installed prior to 2020 to assess a separate release related to NAV018 Release #1 and well locations installed by Speedway/7-Eleven, are indicated on **Figure 3**.

1.3 Site Geology and Hydrogeology

The site is located within the Colorado Plateau physiographic province, which is characterized by nearly flat lying bedrock comprised of sandstone, mudstone, conglomerate, limestone, and siltstone. The bedrock in the site vicinity exhibits broad anticlines and synclines with a southeast trend to northwest and slight dip



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(less than 1 degree). The Navajo Sandstone, Kayenta Formation, and Moenave Formation comprising the bedrock are present beneath the unconsolidated Quaternary alluvium².

The subsurface alluvial sediments at the site consist primarily of silty sand and sand with clay overlying sandstone bedrock encountered at depths ranging from 15 to 19 feet bgs. Boring logs and well completion details for the monitoring and remediation wells installed related to the NAV018 Release # 2 are included in **Appendix A**.

The regional unconfined aquifer, known as the N-Aquifer, is associated with the Navajo and Kayenta formations³. Public water supply in the Tuba City area is primarily sourced from groundwater and pumped from wells, ranging from several feet to hundreds of feet in depth, and from streams and springs. The water is treated to become potable water before being distributed to the community. A limited number of communities receive their potable water from surface water, such as, the Animas River, the San Juan River, Farmington Lake, and Lake Powell. Surface water is pre-treated, filtered, and post-treated to become potable water⁴.

The Hopi Utilities Corporation (HUC) does not directly supply water to Tuba City, but manages water resources for the Hopi Tribe, including the nearby Moenkopi Village. The primary source of drinking water is the N-aquifer, accessed through deep wells. The Moenkopi Utility Authority (MUA) treats and supplies water to the Moenkopi Village as well but does not supply water to Tuba City.

Based on field measurements taken during the November 2024 groundwater monitoring and sampling event, the depth to water at the site ranged from 9.7 to 13.7 feet below top of casing (b-TOC), with a groundwater flow direction to the south⁵.

Groundwater elevations at the site have been observed to fluctuate seasonally, with higher groundwater elevations observed from February to July, and lower groundwater elevations observed from August to January. Fluctuations in groundwater elevations directly correlate to observed concentrations of dissolved-phase petroleum constituents. Data suggests that chemicals of concern (COCs) concentrations (primarily benzene, toluene, ethylbenzene, and total xylenes [BTEX]) increase with rises in groundwater elevation, as observed in the hydrographs of wells MW-44, MW-45, SMW-1, SMW-3, and SMW-4. As such, sorbed-phase contamination is likely present downgradient of the existing UST basin in the smear zone, with

² *Groundwater Flow Model of the Tuba City, Arizona Disposal Site, U.S. Department of Energy, Doc. No. S12512, dated February 2016.*

³ *Map Showing Ground-Water Conditions in the Kaibito and Tuba City Areas, Coconino and Navajo Counties, Arizona, 1978, Water-Resources Investigations Report 79-58, United States Geological Survey.*

⁴ *Navajo Tribal Utility Authority's 2021 Annual Water Quality Report, Public Water System NN0400206, Tuba City, Arizona*

⁵ *Groundwater and Remediation Well Installation and Groundwater Monitoring and Sampling Report (Revision 1) dated May 28, 2025, prepared by Stantec Consulting Services, Inc.*



groundwater elevations ranging from 4,825 to 4,827 feet. The groundwater hydrographs are included in **Appendix B**.

2 Site Conditions

2.1 Media of Concern

The previous site investigation activities for NAV018 Release #2 have identified petroleum hydrocarbon contamination associated with unleaded gasoline in soil and groundwater. The following media of concern will be addressed by the selected remedial remedy presented in the CAP:

- The sorbed-phase contamination in soil is present above NNEPA soil cleanup standards. Soil analytical data for samples collected associated with NAV018 Release #2 indicates depths of the sorbed-phase contamination range from five to 17 feet bgs and is estimated to be present in an approximately 7,800 square foot area, extending approximately 130 feet south of the UST basin.
- The dissolved-phase contamination in groundwater is present above NNEPA water cleanup standards. Groundwater analytical data for samples collected indicate the dissolved-phase plume length related to NAV018 Release #2 is estimated to extend from the UST basin south approximately 160 feet.

LNAPL (free phase) has not been detected in the site groundwater monitoring wells since the two limited multi-phase extraction events conducted in January and February 2020. The proposed remedial approach of soil vapor extraction will remove localized LNAPL, if present.

Vapor-phase media has not specifically been assessed. However, the proposed remedial approach of soil vapor extraction would remove vapor-phase impacts.

2.2 Source Area Description

2.2.1 Chemicals of Concern (COCs)

The chemicals detected in soil and groundwater at the site exceeding the NNEPA cleanup standards include BTEX, 1,2-Dibromomethane (EDB) and 1,2-dichloroethane (1,2-DCA), naphthalene, methyl tert-butyl ether (MTBE), t-butyl alcohol (TBA), polycyclic aromatic hydrocarbons (PAHs), TPH-G and/or lead. For NAV018 Release #2, the COCs to be addressed by this CAP include BTEX, naphthalene, and TPH-G as further discussed in Sections 2.2.2 and 2.2.3 below.

The following chemicals are proposed to be excluded from the cleanup objective under this CAP as they are not related to the NAV018 Release #2:

- MTBE was not detected in the LNAPL sample collected from well MW-44, nor from the fuels sampled from the three gasoline dispensers. Thus, MTBE and the degradation byproduct TBA in



soil and groundwater are not related to the NAV018 Release #2 and are proposed to be excluded from the cleanup objective under this CAP. The gas chromatographs for the fuel samples collected in 2019 are presented in **Appendix C**.

- In 1996 leaded gasoline was banned from general automotive fuel, and thus the use of “lead scavengers” were no longer added to gasoline fuel. Prior to 1996, EDB and 1,2-DCA were synthetic organic chemicals used in leaded gasoline to prevent the buildup of lead deposits that foul internal combustion engines. The presence of lead scavengers (and in particular EDB) from releases of leaded fuel can persist in the subsurface environment for many years⁶, as evidenced by the detections of EDB and 1,2-DCA at the site. Considering NAV018 Release #2 occurred approximately 20 years after the use of leaded gasoline, 1,2-DCA, EDB, and lead in soil and groundwater are proposed to be excluded from the cleanup objective under this CAP.

2.2.2 Sorbed-Phase Source Area

The COCs (BTEX, naphthalene, and TPH-G) related to NAV018 Release #2 exceeding the NNEPA soil cleanup standards were detected in soils at depths from five to 17 feet bgs (**Figure 4**). The maximum BTEX and TPH-G concentrations in soil were detected at 13 feet bgs in well SMW-6, which is approximately 55 feet south of the USTs. The maximum naphthalene concentrations in soil were also in well SMW-6, but at 12 feet bgs. The remaining VOCs and PAHs analyzed were below the NNEPA cleanup standards.

As illustrated on **Figure 4**, the NAV018 Release #2 soil impacts extend from the UST basin to approximately 130 feet south following the trend of the existing product distribution piping trench. The southern extent of the soil impacts is defined by wells SMW-3, SMW-4, and SMW-7. Due to the buildings and infrastructure at the site, soil data is unable to be collected east or southeast of well SMW-6. Soil samples from a future well, to be installed as part of the CAP, will be located west of well MW-43 to provide western/southwestern delineation of the soil impacts.

A summary of the soil laboratory analytical results for NAV018 Release #2 is presented as **Tables 2 and 3**. The soil concentrations related to NAV018 Release #2 are illustrated on **Figure 4**. The cross section location map and cross sections A-A', B-B' and C-C' are illustrated on **Figures 5 to 8**, respectively.

2.2.3 Dissolved-Phase Source Area

The COCs (BTEX and naphthalene) related to NAV018 Release #2 exceeding the NNEPA water cleanup standards have consistently been detected in wells MW-43, MW-44, SMW-1, SMW-5, and SMW-6.

⁶ *Lead Scavengers Compendium: Overview of Properties, Occurrence, and Remedial Technologies*, EPA, May 2006



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However, due to the seasonal groundwater fluctuations, one or more COCs are inconsistently detected above the NNEPA water cleanup standards at wells MW-45, SMW-2, SMW-3, SMW-4, and SMW-8.

In review of the groundwater data, benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; and/or indeno(1,2,3-cd)pyrene) have had limited detections exceeding the NNEPA cleanup standards at wells SMW-1 (March 2023) and MW-25B (March 2020 and February 2022). Since there have been no detections of these chemicals exceeding the NNEPA cleanup standards since at least March 2023, these chemicals are not included as a COC in the CAP.

The dissolved-phase plume for NAV018 Release #2 is defined to the northeast (wells SMW-9 and MW-27B) and northwest (well MW-41) but is not defined west of well MW-43. In review of current and historic groundwater data presented in the *Semi-Annual Groundwater Monitoring and Sampling Report*, dated April 15, 2025, prepared by Animas Environmental Services, the COCs related to NAV018 Release #2 also appear defined to the south and southeast by wells MW-46, MW-49, and MW-50. Groundwater samples from a future groundwater monitoring well, to be installed as part of the CAP, will be located west of well MW-43 to provide western delineation.

The groundwater parameters and laboratory analytical results are presented as **Tables 3 through 5**. The groundwater hydrographs are provided in **Appendix B**. The groundwater contour and conditions map for the November 2024 sampling event are presented as **Figures 9 and 10**, respectively. The isoconcentration maps for the various COCs from the November 2024 sampling event are presented in **Figures 11 through 13**. The isoconcentration maps for the May 2025 sampling event are included in the *Groundwater Monitoring and Sampling Report – January to June 2025* dated August 1, 2025, which was submitted to NNEPA/EPA simultaneously with this CAP.

2.2.3.1 Well MW-48

Based on a review of the current and historic BTEX concentrations in groundwater at well MW-48 and surrounding monitoring wells, the BTEX concentrations at well MW-48 does not appear related to the NAV018 Release #2 as described below.

- The following trends are illustrated by the BTEX and MTBE concentrations vs. time graph for well MW-48 presented in **Appendix D**:
 - Historic high BTEX and MTBE concentrations were detected prior to 2000, when AS/SVE remediation began related to the NAV018 Release #1.
 - BTEX and MTBE concentrations fluctuated between 2000 and 2009 during AS/SVE remediation related to the NAV018 Release #1.
 - Following shutdown of the AS/SVE remediation in 2009, benzene and ethylbenzene concentrations rebounded in well MW-48. An increase in benzene and ethylbenzene was observed in late 2014, but concentrations are within historic range and have remained similar since 2014.



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- In review of historic reports prepared by BioTech Remediation^{7, 8, 9} for post-2014 sampling events, the reports stated that groundwater concentrations “have, are, or remained” stable or the same or “concentrations have remained consistent” (Biotech, 2016, 2017, and 2018).
- Stantec’s evaluation of the post-2014 BTEX concentrations trends indicate that observed fluctuations could be attributable to post-remediation rebound.
- In review of groundwater concentrations at well MW-44 between 2014 to 2016 as illustrated on the BTEX concentrations vs. time graph for well MW-44 presented in **Appendix D**, there was no increase in BTEX concentrations. If the late 2014 concentration increase at well MW-48 was associated with the NAV018 Release #2, you would expect to see changes in groundwater concentrations in the wells closer to the USTs (i.e., MW-44), which did not occur.
- The former AS/SVE remediations system piping and wells (associated with Release NAV018 #1) were plugged in placed in July 2009¹⁰ and further remediation in the vicinity of well MW-28 was not conducted.
- In July 2009, the fuel system piping was replaced, and a new canopy was installed at NAV018. Soil samples were collected from the new canopy support post locations at 9 feet bgs and from beneath the fuel system piping at 3 to 6 feet bgs. The fuel system piping was located in an unlined trench, lying on top of the native sand lithology. The collected soil samples were analyzed for VOCs and TPH-G and results detected did not indicate that release had occurred from the fuel system piping¹¹.
- Since assignment of the NAV018 Release #2 in 2018, BTEX concentrations in well MW-48 have been typically an order of magnitude or greater than concentrations observed at upgradient well SMW-4 and the newly installed well SMW-8.
- The BTEX concentrations at well MW-48 appear isolated, considering groundwater concentrations at surrounding wells MW-46, MW-47, MW-49, MW-51, MW-52, and MW-53 since 2019. The

⁷ *Semi-annual Groundwater Monitoring and Sampling Report, Thriftway #701, Sunwest, and Tuba City Truck Stop Sites, Tuba City, Arizona*, prepared by BioTech Remediation, dated January 11, 2016.

⁸ *Semi-annual Groundwater Monitoring and Sampling Report, Thriftway #701, Sunwest, and Tuba City Truck Stop Sites, Tuba City, Arizona*, prepared by BioTech Remediation, dated July 12, 2017.

⁹ *Interim Groundwater Monitoring and Sampling Report, Thriftway #701, Sunwest, and Tuba City Truck Stop Site, Tuba City, Arizona*, prepared by BioTech Remediation, dated August 8, 2018.

¹⁰ *Proposed Closure of Subsurface Ventilation and Volatilization System (SVVS)® at the Giant 506/Former Thriftway 701, Thriftway and Sunwest Joint Site, Tuba City, Arizona*, prepared by Animas Environmental Services, LLC, dated July 1, 2009.

¹¹ *UST System Piping Removal Oversight Report for Mustang #7506, US Highway and State Highway 264, Tuba City, Arizona*, prepared by Basin Engineering, Inc., dated August 5, 2009



localized groundwater concentrations at well MW-48 may be influenced by localized alluvial lithology and bedrock topography or remnant absorbed phase in soil.

- Groundwater samples from well MW-48 were collected via non-purge methods (grab samples) until 2021, when purged methods were implemented. Since the time of the change in sampling methods in 2021, there has been a slight increase in benzene and ethylbenzene concentrations, which have remained similar since 2021.

Considering the following information, groundwater impacts at well MW-48 are proposed to be excluded from the cleanup objective under this CAP as they do not appear related to the NAV018 Release #2.

2.2.3.2 Well MW-25B

A BTEX/MTBE concentration graph for well MW-25B is presented in **Appendix E**, illustrating BTEX concentrations since 1993. Historic high concentrations were detected prior to 2000, before the initiation of AS/SVE remediation associated with to NAV018 Release #1. BTEX concentrations declined between 2000 and 2009 during AS/SVE remediation. Between 2009 and 2020, one groundwater sampling event was conducted in November 2014, but the event is considered insufficient to assess the potential effects of the NAV018 Release #2 on well MW-25B.

Since 2002, toluene, ethylbenzene, and total xylenes at well MW-25B have remained below the NNEPA water cleanup standards. Benzene is the one compound that continues to exceed the NNEPA water cleanup standard.

In Stantec’s review of the BTEX trends, the November 2014 results show anomalously low concentrations, with similar anomalies observed in fall 2022 and spring 2023. The cause of these anomalies is uncertain and may be related to natural groundwater variability or sampling-related factors. A second graph in **Appendix E**, excluding these three events, is provided for comparison purposes, and illustrates reduced apparent concentration variability. Stantec’s evaluation of the BTEX concentration trends indicate that observed concentration fluctuations could potentially be attributable to post-remediation rebound.

Based on these findings, well MW-25B is proposed as a monitoring/observation point to evaluate the lateral influence of AS/SVE remediation. Upon completion of remediation activities, groundwater concentrations at MW-25B will be evaluated to assess remedial effectiveness.

2.3 Land Use and Demographics

The site lies within the Navajo Nation Reservation Land Trust. The Hopi Reservation Partitioned Lands and Navajo Nation Reservation Partitioned Lands boundary lies along Highway 160 (**Appendix F**). The primary land use surrounding the site is commercial, consisting of four gasoline service stations, a tire shop, and several restaurants. The Moenkopi Legacy Inn & Suites is located south, across from Highway 160 and the Diné Inn Motel is located approximately 500 feet to the northeast. Future use of the site and the immediate surrounding area is unlikely to change during the duration of this CAP.



Isolated residential properties are located approximately 325 feet upgradient to the north and approximately 750 feet cross-gradient to the west. The Pasture Canyon Reservoir lies approximately one mile east and cross-gradient of the site. Various springs are located southwest and southeast (up and cross-gradient) of the site. The closest spring is the John Etsitty Spring, which is located approximately 2,500 feet to the southwest, up and cross-gradient from the site. Other springs at further distances from the site, include the Navajo Spring, Litte Spring, Main Spring and Irrigation Spring.

The site is located approximately 4,840 feet above mean sea level, with a site topography sloping to the south (**Figure 1**). Average annual temperatures range from 41 degrees Fahrenheit (° F) to 70° F. The average rainfall in Tuba City, Arizona is 6.37 inches per year¹². Per the United States Census Bureau, the 2020 population for Tuba City, Arizona was reported at 8,072, with a median age of 33.2 and 12.4% being 65 year or older.

As discussed in **Section 1.3**, NTUA provides potable water to the community of Tuba City. Drinking water is sourced from groundwater, springs and surface water which is treated to applicable standards prior to distribution. The HUC and MUA provide drinking water for the Hopi Tribe.

2.4 Exposure Pathway Evaluation

Stantec has evaluated the potential exposure pathways for impacted media related to the release associated with NNEPA Facility No. NAV018 Release #2. The potential exposure pathways evaluated include incidental groundwater ingestion, soil ingestion, inhalation of dust and vapor in outdoor air, and inhalation of chemicals in the vapor phase migrating from soil and groundwater to indoor air.

2.4.1 Groundwater – Ingestion

Soil leaching to groundwater is a complete exposure pathway considering the depth of soil impacts (five to 17 feet bgs) and dissolved-phase concentrations in groundwater exceeding NNEPA soil and water cleanup standards.

The groundwater ingestion pathway is a potentially complete pathway. Based on the November 2024 data, groundwater at the site ranges from 9.70 to 13.70 feet bgs. Despite COCs present in groundwater exceeding the NNEPA cleanup standards, it is unlikely for the public to ingest or come into contact with the groundwater since the drinking water to the site and surrounding areas are provided to the public through the NTUA, HUC and/or the MUA.

¹² <https://www.usclimatedata.com/climate/tuba-city/arizona/united-states/usaz0245>



Subsurface utilities at the site include water, sewer, electrical, and gas lines. However, considering the depth to groundwater at the site (greater than 8 feet bgs), utilities are not considered to be threatened exposure pathways.

2.4.2 Surficial Soil – Ingestion, Ambient Vapors, Particulates, and Dermal Contact

Exposure to petroleum constituents through direct exposure (i.e. incidental soil ingestion, dermal contact or outdoor inhalation of dust and vapor) is considered a complete exposure pathway. Benzene associated with the NAV018 Release #2 was detected in soil at well SVE-1 at five feet bgs, which is slightly above the NNEPA soil cleanup standard. Since well SVE-1 is located in an unpaved area, this represents a complete exposure pathway for dermal, ingestion, and inhalation exposure. BTEX and/or naphthalene detected above the NNEPA soil cleanup standards at seven to 15 ft bgs at wells AS-1, SMW-2, SMW-5, SMW-6, and SMW-8 represent a complete exposure pathway for construction and/or utility workers.

2.5 Vapor Inhalation

The inhalation of petroleum vapor from subsurface soil and/or groundwater migrating to indoor air is considered a complete pathway considering the proximity of the Speedway convenience store building to the sorbed and dissolved-phase plumes. However, the product piping trench and sale of fuel at the site present an additional source of petroleum vapor inhalation risk beyond a source from soil and groundwater.

Groundwater at the site is at an average depth of 10.75 feet bgs. Based on this data, the vertical separation distance between the bottom of the Speedway convenience store building and the dissolved-phase soil vapor source exceeds the vertical screening/separation distance for dissolved-phase petroleum sources (five feet) as outlined in the Interstate Technology Regulatory Council (ITRC) guidance document for petroleum vapor intrusion assessment.

For the reasons stated above (existing fuel sales and separation distance), no further evaluation of the vapor intrusion pathway is necessary at this time.

3 Remediation Evaluation

3.1 Remedial Cleanup Objectives

The overall clean up objective is to protect groundwater resources by reaching the NNEPA cleanup standards as discussed in **Section 3.2** below. Further, the remedial objective is to remove source mass sorbed in the soil and prevent potential off-site migration of contaminants until the sorbed and dissolved-phases of contaminants have been remediated to acceptable closure levels and remain at acceptable levels throughout the required post-remediation monitoring period. If during site monitoring it is determined



that migration of contaminants is occurring, Stantec will prepare and submit a work plan to EPA and NNEPA that will include the proposed actions to stop migration.

Performance metrics and remedial milestones are outlined in **Section 4.6**, below. These measures will ensure that the remedial objective is a SMART (specific, measurable, agreed-upon, realistic, and time-based) objective.

3.2 Target Cleanup Levels

Stantec has identified target cleanup levels at the site based on EPA Regional Screening Levels (RSLs) for residential soil and groundwater protection and NNEPA soil and water cleanup standards outlined in *The Navajo Nation Leaking Storage Tank Soil and Water Cleanup Standards 2012*. Upon historic review of the site data, as well as knowledge of fuel gasoline chemistry related to NAV018 Release #2 detailed in **Section 2.2.1** above, Stantec has determined that the COCs impacting soils and groundwater associated with NAV018 Release #2 should exclude MTBE, TBA, 1,2-DCA, EDB and lead.

Soil Target Cleanup Levels

Regulatory Agency Cleanup Standards	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	TPH-G
EPA RSLs for Residential Soil (mg/kg)	1.2	4900	5.8	580	2.0	250
EPA RSLs for Protection of Groundwater (MCL-based) (mg/kg)	0.026	0.69	0.78	9.9	Not Established	Not Established
NNEPA Cleanup Standards (mg/kg)	0.002 (0.5) [^]	0.6	0.7	7	0.02	500

MCL = Maximum contaminant level

[^] Per *The Navajo Nation Leaking Storage Tank Soil and Water Cleanup Standards 2012*, the estimated analytical method detection limit is in parentheses after the cleanup standards – detection levels may vary somewhat based on instruments and laboratory practices.

Groundwater Target Cleanup Levels

Regulatory Agency Cleanup Standards	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	TPH-G
EPA Regional MCL (µ/L)	5	1,000	700	10,000	Not Established	Not Established
NNEPA Cleanup Standards (µ/L)	5	1,000	700	10,000	6.2	Not Established

MCL = Maximum contaminant level

3.3 Active Remediation Determination

Recent soil and groundwater analytical data indicate that BTEX, naphthalene, and/or TPH-G concentrations have been detected above the NNEPA cleanup standards. Considering the soil mass volume estimate,



sandy soil lithology, shallow groundwater, historic AS/SVE remediation conducted for the NAV018 Release #1 and the mass removal estimates from the 2021 Dual-Phase Extraction (DPE) feasibility test, active remediation via AS/SVE was identified for further evaluation.

For planned pilot testing, in November 2024, one dual-nested SVE well (SVE-1S/D) was installed with a lower screened interval from nine to 11 feet bgs and an upper screened interval from four to six feet bgs. The dual-nested SVE well was designed to account for the seasonal fluctuations in the water table. One AS well (AS-1) was also installed with a screened interval from 14 to 16 ft bgs. The AS/SVE pilot testing was completed in March 2025, which determined AS/SVE as a feasible remediation technology for the site¹³.

3.4 Contaminant Mass Estimates

In review of the available soil laboratory analytical data related to the NAV018 Release #2, Stantec estimated the area of impacted soil at approximately 7,800 square feet. The soil impacts are present from five feet bgs near the USTs (source area) to 17 feet bgs at wells SMW-6 and SMW-8. Using soil data from wells AS-1, SMW-5, SMW-6, and SMW-8, Stantec estimates the average hydrocarbon concentration at 200 milligrams per kilogram. Using a soil density of 100 lbs. per cubic foot and multiplying the soil mass by the average hydrocarbon concentration, Stantec estimates a mass of approximately 9,100 lbs. of hydrocarbons in soil within the known plume extent.

3.5 Estimated Time to Reach Cleanup Standards

In review of the 2021 DPE feasibility testing and the March 2025 AS/SVE pilot testing, the following average mass removal rates were observed:

- November 8 to December 17, 2021 – mass removal rate of 114.9 lbs. per day was observed during the DPE feasibility testing. The dual-phase extraction occurred at one to three wells at a time.
- March 17 to 20, 2025 – mass removal rates between 100.5 (combined AS/SVE test at wells SVE-1S and AS-1) and 122.4 lbs. per day (SVE constant rate test at well SVE-1S) were observed.

Considering the DPE and AS/SVE pilot testing mass removal rates noted above and that the mass removal rates will decrease over time during operation, it could be estimated that approximately six months of SVE operation would be required to remediate the existing contaminant mass of 9,100 lbs. using of a mass removal rate of approximately 50 lbs./day. It is anticipated that AS/SVE will achieve the regulatory agency cleanup standards as discussed in **Section 3.2**. However, if the regulatory agency cleanup standards are not achieved, Stantec will evaluate additional remediation alternatives and present the options to EPA and NNEPA as discussed in **Section 4.1.1** below.

¹³ "SVE/AS Pilot Test Report – NAV018", dated July 23, 2025, prepared by Stantec



3.6 Data Gaps

The dissolved-phase plume is currently undefined west of well MW-43. As part of this CAP, Stantec proposes to install one cross-gradient groundwater monitoring well to define the plume west of well MW-43. The new groundwater monitoring well will be installed during the remedial well installation mobilization. No other significant data gaps have been identified for the site.

Due to drill rig access limitations related to the remedial well locations as further discussed in **Section 4.2** below, Stantec proposes use of a limited access, track-mounted hollow-stem auger (HSA) rig to advance and install the well using 4.25 inner diameter (I.D) augers (8-inch diameter borehole). The well is proposed to a total depth of approximately 17 feet bgs (or bedrock refusal) with four-inch diameter 0.020-inch factory slotted screen and schedule 40 poly-vinyl chloride (PVC) casing with a 10-foot length screened interval from approximately 7 to 17 feet bgs. The annulus between the casing and borehole will be filled with 10x12 silica sand (or similar) to approximately one foot above the screened interval. The remaining annular space will be filled with hydrated bentonite chips from approximately five to six feet bgs, a cement seal from approximately five feet bgs to one-foot bgs. A secure 12-inch diameter flush-mounted, traffic rated well vault will be installed to protect the well casing and to serve as an access point in the future. The proposed groundwater monitoring well construction diagram is illustrated on **Figure 14**.

Following installation, the well will be developed using surge and bailing techniques. The well will be developed until groundwater has low turbidity and measurements of pH, conductivity, temperature, dissolved oxygen (DO), and oxidation-reduction potential (ORP) are relatively stable, or the well is pumped dry, whichever occurs first.

Prior to the advancement of the augers, the borehole will be cleared to at least five feet bgs using air knife and vacuum clearing methods. Down-the-hole drilling equipment will be decontaminated via pressure washing or steam cleaning before drilling and between boreholes.

Soil samples will be collected in general accordance with ASTM Standard D1586 using a California-type split barrel sampler lined with brass sleeves. The sampling equipment will be cleaned prior to use and between each sampling interval. Stantec will collect soil samples approximately at 2.5 feet intervals from five feet to the total boring depth (approximately 17 feet bgs). Upon collection, the soil samples will be placed in laboratory supplied clean glass jars or preserved in the field utilizing a TerraCore™ sampler and a premeasured volume of sodium bisulfate and/or methanol in a volatile organic analysis (VOA) sampling vial and entered onto a chain-of-custody form. The remaining soil from the sample will be screened for volatile organic compounds (VOCs) using a portable photoionization detector (PID) calibrated on-site to 100 parts per million by volume (ppmv) isobutylene-in-air standard and classified in general accordance with the Unified Soil Classification System (USCS). For quality assurance/quality control (QA/QC), Stantec will collect one duplicate sample per every ten soil samples, one matrix spike/matrix spike duplicate per every twenty soil samples, and one trip blank per each cooler for VOC analysis. The soil samples will be submitted to Pace Analytical for analysis of VOCs (including TBA and EDB) by EPA Method 8260D, PAHs according to EPA Method 8270E, TPH-G according to EPA Method 8015D and lead according to EPA Method 6010D or 6020B.



Following installation, the well will be surveyed under the direction of an Arizona licensed surveyor, for physical location (northern and easting) and top of casing elevation.

See **Section 4.3** below for the description for soil and water waste disposal.

3.7 Corrective Action Technologies

3.7.1 Treatment Train Considerations

This CAP presents treatment of the sorbed-phase and dissolved-phase contamination associated with NAV018 Release #2. The goal of this CAP is to perform remediation of the sorbed-phase and dissolved-phase impacts within the treatment area on-site until concentrations test below the NNEPA cleanup standards outlined in **Section 3.2** above, and for the dissolved-phase concentrations to remain below cleanup standards throughout the post-remediation monitoring period of four semi-annual sampling events.

3.7.2 Technology Evaluation and Selection

After reviewing the estimated 7,800 square foot treatment area, above and below ground utilities and structures, soil lithology, groundwater monitoring data, AS/SVE pilot testing data for the site, Stantec performed a brief evaluation of the selected remedial technologies. Below is the list of the common remediation technologies for unconsolidated sediments and a description as to why it was, or was not, considered for corrective action at this site. The orange shaded cells identified the selected remedial technology for the site.

Technology	Description*	Reason for Selecting / Not Selecting as Remedial Approach
Air Sparge	Involves the injection of air or oxygen through a contaminated aquifer to remove volatile organic contaminants from groundwater by volatilization. The injected air helps to flush the contaminants into the unsaturated zone for treatment. Release vapors can be captured by vapor extraction wells and treated. The technology also adds oxygen to the groundwater to assist with the natural degradation of petroleum hydrocarbon contamination.	Based on the results of pilot testing and historic use of AS/SVE for Release #1, AS technology is technologically and economically feasible for remediation at this site. This technology is considered practical for remediation and is the chosen method moving forward. Given the lag time and significantly higher costs required for a fixed system installation and startup, a mobile equipment approach was chosen for this site.
Soil Vapor Extraction	Applies a vacuum to unsaturated zone soil to induce the controlled flow of air and remove volatile and some semi-volatile organic contaminants from the soil. Vapor extraction testing has already successfully removed over 4,000 lbs. of contamination associated with the NAV018 Release #2.	Based on the results of pilot testing and historic use of AS/SVE for Release #1, SVE technology is technologically and economically feasible for remediation at this site. This technology is considered practical for remediation and is the chosen method moving forward. Given the lag time and significantly higher costs required for a fixed system installation



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Technology	Description*	Reason for Selecting / Not Selecting as Remedial Approach
		and startup, a mobile equipment approach was chosen for this site.

Technology	Description*	Reason for Selecting / Not Selecting as Remedial Approach
Multi-Phase Extraction	Uses a vacuum system, sometimes combined with a downhole pump, to remove various combinations of contaminated groundwater, separate-phase petroleum product and vapors from the subsurface. The system lowers the water table around the well, exposing more of the formation for vapor extraction.	Despite removal of soil vapor mass during the 2022 pilot testing averaging 114.9 lbs. per day, due to the sandy lithology, the water table was not lowered sufficiently around the extraction wells to “dewater” and expose submerged impacts. Further, limited options for on-site discharge of treated water (e.g., no sanitary sewer/ storm sewer) and need for off-site transport and disposal, MPE was not selected as the sole remediation method at the site. However, MPE could potentially be a viable option for future remediation efforts to address localized “hot spots” following AS/SVE.
In-Situ Chemical Oxidation (ISCO)	Typically involves reduction/oxidation (redox) reactions that chemically convert hazardous compounds to nonhazardous or less toxic compounds that are more stable, less mobile or inert. The ISCO liquid reagents are typically applied via direct push borehole under slight pressure.	Due to the current treatment area (~7,800 square feet), the active UST system, shallow nature of the impacts near subsurface utility trenches, and the success of AS/SVE pilot testing and mass removed previously via vapor extraction, ISCO was not selected as the sole remediation method at the site. However, this could potentially be a viable option for future remediation efforts to address localized “hot spots” following AS/SVE.
Activated Carbon	Involves emplacement of AC-based amendments for in situ remediation of soil and groundwater. AC-based amendments remove contaminants through adsorption by AC and degradation by reactive amendments	Due to the current treatment area (~7,800 square feet), the success of AS/SVE pilot testing and mass removed previously via vapor extraction, and that Activated Carbon does not physically remove the contaminants, it is not considered technically feasible as the sole remediation method at the site. However, his could potentially be a viable option for future remediation efforts to address localized “hot spots” following AS/SVE.
Enhanced Biodegradation	Stimulates microorganisms to degrade organic contaminants in soil, groundwater, sludge and solids. The microorganisms break down contaminants by using them as an energy	Due to the magnitude of BTEX and naphthalene concentrations in soil and groundwater, Stantec feels that a more aggressive technology should be



Technology	Description*	Reason for Selecting / Not Selecting as Remedial Approach
	source or co-metabolizing them with an energy source.	implemented for timely corrective action at this site.
Natural Attenuation	Relies on natural processes to clean up or attenuate pollution in soil and groundwater. Natural attenuation occurs at most polluted sites. However, preassessment is needed to understand the geochemical processes occurring at the site.	Due to the magnitude of BTEX and naphthalene concentrations in soil and groundwater, Stantec feels that a more aggressive technology should be implemented for timely corrective action at this site.

*EPA Remediation Technology Descriptions for Cleaning Up Contaminated Sites [https://www.epa.gov/remedytech/remediation-technology-descriptions-cleaning-contaminated-sites#:~:text=Activated%20Carbon%20\(AC\)%2DBased,actions%20that%20address%20the%20problem.](https://www.epa.gov/remedytech/remediation-technology-descriptions-cleaning-contaminated-sites#:~:text=Activated%20Carbon%20(AC)%2DBased,actions%20that%20address%20the%20problem.)

Following a review of potential corrective actions as summarized above, Stantec proposes to utilize mobile AS/SVE remediation system versus a fixed based system to remediate the soil and groundwater impacted area at the site. Stantec believes the use of the mobile AS/SVE remediation system technology will result in timely implementation and reduction of the sorbed-phase and dissolved-phase contamination to bring the site to closure levels.

3.7.3 Justification for Mobile AS/SVE System Selection

While fixed implementation of AS/SVE equipment housed on-site is a viable technology to implement at the site, Stantec has determined the lag time associated with the engineering design, permitting, bidding, and installation of a fixed-based system equipment with below-ground remediation piping outweighs the benefits and are prohibitive when compared to the proposed mobile AS/SVE methodology.

The following items further justify the use of a mobile AS/SVE remediation system operated by CalClean Inc. (CalClean) in lieu of installation and operation of a fixed-based system:

Benefits of Mobile System	
Quicker remediation implementation	<ul style="list-style-type: none"> • Startup can occur within a couple of weeks following AS/SVE well installation. • Eliminates time delays associated with a fix-based system related to engineer design/drawings, building permit review, bidding process, and installation of system, which can take approximately 12 to 18 months.
Shorter timeframe to complete remediation / reach remedial objectives	<ul style="list-style-type: none"> • Maximizes run time to near 100% and mass removal rates (minimal shut down periods related to fuel deliveries and general system maintenance). <ul style="list-style-type: none"> ○ The mobile system has an onboard fuel source (diesel fuel) and does not rely on electric power. <ul style="list-style-type: none"> ▪ For a fix-based system, electric power to the site can easily be distributed during power shortages in the summer (e.g., blackouts, and thunderstorms). Even with remote startup features, would require additional site visits for trouble shooting, etc. to reset system efficiency. This results in lower runtime %.



Benefits of Mobile System	
	<ul style="list-style-type: none"> • System frequently monitored (CalClean technician on-site daily) to allow for timely adjustments to system operation (e.g., dilution, flow rate and vacuum adjustments) to maximize system operation performance. • Anticipated seven months of operation considering near 100% run time and the estimated mass in soil and the estimated average mass removal rate of 50 lbs. per day (see further details in Sections 3.4 and 3.5). <ul style="list-style-type: none"> ○ For a fix-based system, the operation period is expected to extend beyond one year.
Minimizes disruption to on-site business operations	<ul style="list-style-type: none"> • Use of a mobile system eliminates the need for construction activities (such as trenching, constructing a remediation compound) since the equipment is enclosed in a box truck, has its own power source, and the temporary remediation piping is placed above ground. • Also, since no infrastructure is placed below ground (except remediation wells), there is no site restoration or system decommissioning required.
Minimized footprint for remediation system	The mobile remediation box truck has space to accommodate an air compressor without needing a separate AS trailer, thus minimizing the footprint of the system.

7-Eleven and Stantec have used CalClean to successfully clean up multiple leaking UST sites using SVE or combined AS/SVE across Arizona. One of 7-Eleven’s successes using CalClean’s mobile AS/SVE system included removal of approximately 71,100 lbs. of petroleum hydrocarbons within eight months, and the site achieved the site cleanup goals with issuance of No Further Action (7-Eleven Store #21041, Phoenix, Arizona).

4 Mobile AS/SVE Remediation Plan

4.1 Estimated Duration of Mobile AS/SVE Remediation

Considering the estimated mass (9,100 lbs.) and the estimated average mass removal rate provided in **Section 3.4 and 3.5** above, Stantec is proposing to conduct AS/SVE using a mobile remediation system at the site for up to seven months. If deemed necessary for rebound testing or treatment of "hot spots", contingency AS/SVE operation of up to three additional months is included. The actual duration of AS/SVE remediation will be determined by monitoring performance metrics and remedial milestones described in **Section 4.6** below. Prior to proceeding with rebound testing or AS/SVE contingency operation, Stantec will submit a Work Plan to EPA and NNEPA for review and approval.

The estimated seven-month operation accounts for operating the remedial system during the high and low seasonal groundwater fluctuation periods. Remediation system startup is anticipated to operate on the shallow SVE wells during the high groundwater elevation periods (typically observed from February to July). Remedial operation will move to the deep SVE wells during lower groundwater elevation periods (typically observed from August to January). Considering the proposed CAP schedule, Stantec anticipates the startup of the system in April 2026, which will result in up to four months of operation of the shallow SVE wells and up to three months of operation of the deep SVE wells (this does not include three months contingency operation if deemed necessary).



As mass removal rates become asymptotic, Stantec will evaluate the need to adjust the system/well operation and implement rebound testing. To evaluate ongoing mass removal rates, Stantec will collect one air sample from the mobile remediation system influent (post dilution after the vapor-water separator [VWS] as illustrated in **Appendix G**) upon startup and then bi-weekly throughout operation. Each influent air sample will be collected in 1-liter Summa® canisters (or Tedlar bags if hold time can be met by the laboratory) and transported under chain-of-custody protocols to Pace Analytical for analysis of full-list VOCs and TPG-G by EPA Method TO-15. The laboratory analytical results will be used to calculate the mass removal rates to compare to the remediation performance metrics and remedial milestones outlined in **Section 4.6** below.

4.1.1 Contingency Remedial Actions

A three-month contingency period of operation is included in case it is deemed necessary for rebound testing and/or treatment of localized “hot spots” observed in extraction wells or groundwater under the following conditions:

- VOC concentrations remain elevated at selected SVE wells, suggesting localized continued vapor extraction is warranted.
- Groundwater monitoring results from the post-remediation sampling event one month following AS/SVE system shutdown exhibit localized “hot spots” of COC concentrations above TCLs outlined in **Section 3.2** above.

Alternatively, if AS/SVE operation data outlined in **Section 4.6** below does not support implementation of contingency AS/SVE (e.g., asymptotic mass removal conditions), Stantec will present remedial alternatives to NNEPA/EPA for discussion. If an alternative remedial approach is necessary to address “hot spots”, Stantec will submit a Work Plan to EPA and NNEPA for review and approval.

4.2 Remediation System Well Installation

The AS/SVE remediation will be implemented using seven (one current and six new) vertical AS wells and eight (one existing and seven new) vertical SVE wells on-site. The applicable SVE wells being operated will be connected to aboveground, flexible hose to ridged 1.5-inch diameter PVC pipe (e.g., well manifold) and then to the remediation trailer’s horizontal extraction hose connector manifold (**Appendix G**). The PVC pipe manifold will allow collection of individual SVE wellhead reading for vapor concentrations, velocity, vacuum, and temperature. The applicable AS wells being operated will be connected to aboveground, flexible hose to rigid 1.5-inch diameter PVC pipe (e.g., well manifold) and then to the air compressor. The PVC pipe manifold will allow collection of individual AS wellhead readings for flow and pressure.

For AS/SVE wells located in the paved areas, the flexible hose connected to the wells will be covered with portable traffic-rated ramps that are secured in place to prevent movement as vehicles drive across the ramps. Access to the unpaved area south of the UST basin with flexible hose connected to the remediation wells be blocked off with chain link fencing. Photos of a previous CalClean remediation enclosure set up are presented in **Appendix H**.



Considering the aboveground structures (e.g., fences and buildings), overhead electrical lines, and below ground utility trenches, the proposed AS/SVE well locations may need to be modified to accommodate the drill rig. The proposed AS/SVE well locations are illustrated on **Figure 15**. This figure also identifies the inaccessible areas for drill rig access. Due to tight space constraints south of the UST basin, Stantec proposes a limited access, track-mounted HSA rig to advance and install the AS/SVE wells. The well construction details for the proposed groundwater AS wells and SVE wells are provided in **Figures 16 and 17**, respectively. The final well construction details may be modified to accommodate site lithology (i.e., sandstone bedrock).

4.2.1 AS Well Design and Installation

The existing AS well installed for pilot testing (AS-1) will be utilized in the implementation of the remediation system operation. Stantec proposes installing six additional AS wells within the soil and groundwater treatment area. The proposed AS and SVE well locations are illustrated on **Figure 15**. Considering the aboveground structures (e.g., fences and buildings), overhead electrical lines, and below ground utility trenches, the proposed locations may need to be slightly modified in the field to accommodate the drill rig and remain at safe distances (>5 feet) from underground structures.

Due to space constraints, a limited access, track-mounted HSA rig to advance and install the well using 4.25 I.D. augers (8-inch diameter borehole). The 2-inch diameter AS wells are proposed to a total depth of approximately 16 feet bgs with schedule 40 PVC casing with a two-foot screened interval from approximately 14 to 16 feet bgs. The annulus between the casing and borehole will be filled with 10x12 silica sand (or similar) to approximately one foot above the screened interval. The annular space above the sand pack will be filled with hydrated bentonite chips from approximately 13 to 11 feet bgs, a grout seal from approximately 11 feet bgs to one-foot bgs. A secure 12-inch diameter, traffic-rated well vault will be installed to protect the well casing and to serve as an access point in the future. In paved areas, the well cover will be flush with the ground surface, but in the unpaved areas, the well cover will be extended approximately 6-inches above the ground surface. The proposed AS well construction diagram is illustrated on **Figure 16**. Any changes to the proposed design, layout, and/or operation of the AS system will be submitted to the EPA and NNEPA in a Work Plan for review and approval.

Following installation, the AS wells will be developed using surge and bailing techniques. The wells will be developed until groundwater has low turbidity and measurements of pH, conductivity, temperature, and DO and ORP are relatively stable, or the well is pumped dry, whichever occurs first.

4.2.2 SVE Well Design and Installation

The existing dual-nested SVE well installed for pilot testing (SVE-1S/D) will be utilized in the implementation of the remediation system operation. Stantec proposes installing seven additional dual-nested SVE wells in the soil and groundwater treatment area. Considering the aboveground structures (e.g., fences and buildings), overhead electrical lines, and below ground utility trenches, the proposed locations may need to be slightly modified in the field to accommodate the drill rig and remain at safe distances (>5 feet) from underground structures.



A limited access, track-mounted HSA rig to advance and install the well using 6.25 I.D. augers (10-inch diameter borehole). The dual-nested well screens consider the depths related to the fluctuating seasonal groundwater elevations. The nested 2-inch diameter SVE wells will be constructed to a total depth of approximately 11 feet bgs. The deep screened interval will be set with a 2-foot screen (0.020-inch slot) from a depth of approximately 9 to 11 feet, with 0.5-foot of sand pack above the top of screen and 2.25-feet of hydrated bentonite chips. The shallow screened interval will be set with a 2-foot screen (0.020-inch slot) from a depth of approximately 4 to 6 feet, with a 0.5-foot of sand pack above the top of screen, 1-foot of hydrated bentonite chips, and 1.5-feet of neat cement. A secure 12-inch diameter, traffic-rated well vault will be installed to protect the well casing and to serve as an access point in the future. In paved areas, the well cover will be flush with the ground surface, but in the unpaved areas, the well cover will be extended approximately 6-inches above the ground surface. The proposed SVE well construction diagram is illustrated on **Figure 17**. Any changes to the proposed design, layout, and/or operation of the SVE system will be submitted to the EPA and NNEPA in a Work Plan for review and approval.

4.2.3 Permitting and Pre-Drilling / Remediation Activities

Prior to initiating the fieldwork associated with groundwater monitoring, AS, and SVE well installation and remediation system operation, Stantec will conduct the following activities:

- Secure drilling permits from the Navajo Nation Department of Water Resources (NNDWR).
- Prepare a site-specific health and safety plan (HASP) in accordance with 40 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. The HASP will address potential hazards associated with the proposed ground disturbance, well installation, remediation system operation and maintenance, and soil and groundwater sampling. A copy of the developed HASP will be submitted to NNEPA and EPA prior to beginning the site work.
- Notify and obtain clearance, if necessary, from the Navajo Nation Historic Preservation Department and Navajo Fish & Wildlife.
- Coordinate a public underground utility locate with the NTUA and AZ811 to identify and mark the locations of subsurface utilities at the site. Stantec will also review historical as-built information (as available) and contract a private utility locator to identify subsurface utilities across the site with a focus on the proposed drilling locations.
- Secure applicable remediation system operation permits. Based on review of the NNEPA minor source regulations and permit applications (including general permits), operation of an SVE remediation system is not listed as a permitted source requiring air permitting. However, the portable (mobile) remediation system will operate under the Arizona Department of Environmental Quality (ADEQ) General Air Quality Control Permit for Soil Vapor Extraction Systems Units (SVEU) issued June 17, 2021.



4.2.4 Borehole Clearance and Soil Sampling

The boreholes for the AS and SVE wells will be cleared to at least five feet bgs using an air knife and vacuum clearing methods. Down-the-hole drilling equipment will be decontaminated via pressure washing or steam cleaning before drilling and between boreholes.

Soil samples will be collected in general accordance with ASTM Standard D1586 using a California-type split barrel sampler lined with brass sleeves. The sampling equipment will be cleaned prior to use and between each sampling interval. Stantec will collect soil samples approximately at 2.5 feet intervals from five feet to total boring depth (approximately 16 feet bgs). Upon collection, the soil samples will be placed in laboratory supplied clean glass jars or preserved in the field utilizing a TerraCore™ sampler and a premeasured volume of sodium bisulfate and/or methanol in a VOA sampling vial and entered onto a chain-of-custody form. The remaining soil from the sample will be screened for VOCs using a PID calibrated on-site to 100 ppmv isobutylene-in-air standard and classified in general accordance with the USCS. For QA/QC, Stantec will collect one duplicate sample per every 10 soil samples, one matrix spike/matrix spike duplicate per every 20 soil samples, and one trip blank per each cooler for VOC analysis. The soil samples will be submitted to Pace Analytical for analysis of full-list VOCs (including ethanol, TBA, MTBE, and EDB) by EPA Method 8260D, PAHs according to EPA Method 8270E, TPH-G according to EPA Method 8015D and lead according to EPA Method 6010D or 6020B.

4.2.5 Well Survey

Following the AS/SVE well installation, the wells will be surveyed, under the direction of an Arizona licensed surveyor, for physical location (northern and easting) and top of casing elevation.

4.3 Soil and Water Waste Storage and Disposal

4.3.1 Well Installation Waste Disposal

Soil cuttings and wastewater generated during the AS/SVE and groundwater monitoring well drilling decontamination and well development activities will be contained in Department of Transportation (DOT) approved steel 55-gallon drums. The drums will be temporarily stored on-site pending waste profiling and disposal at an approved waste disposal facility. Stantec will collect up to five soil waste samples and up to two water waste samples for waste profile analysis. The analytical methods required will depend on the selected waste disposal facility, and may include the following analysis:

- VOCs according to US EPA Method 8260D (soil and water)
- PAHs according to US EPA Method 8270E (soil)
- RCRA 8 metals according to US EPA Method 6010D or 6020B (soil and water)
- TPH-GRO and diesel range organics according to US EPA Method 8015D (soil)



- Ignitability (Flashpoint) according to US EPA Method D93/1010 (water)
- pH according to US EPA Method 9040 (water)

4.3.2 Remediation / Groundwater Sampling Generated Water Waste Disposal

If condensate water is generated during SVE operations, it will be temporarily held in the 50-gallon VWS contained within the remediation system box trailer. Depending on the overall volume generated, the water in the VWS will be transferred to either DOT approved 55-gallon steel drums or an approximate 2,500-gallon holding tank. The condensate water will be transported to an approved disposal facility. The disposal facility will be identified based on the water profile results discussed in **Section 4.3.1** above.

Purge water generated during groundwater sampling events will be placed in DOT approved 55-gallon steel drums and temporarily stored on-site pending transportation and disposal at an approved disposal facility. The disposal facility will be identified based on the water profile results discussed in **Section 4.3.1** above.

4.4 AS/SVE Well Layout

The limited locations for drill rig access resulting from above and below ground structure was considered in determining the AS/SVE well layout locations, along with the radius of influence (ROI) observed during pilot testing. As noted in the *SVE/AS Pilot Test Report – NAV018*, windy conditions during the SVE constant rate test resulted in lower induced vacuum response and provided a conservative ROI of 30 feet, which was lower than anticipated. The AS ROI for groundwater upwelling was observed up to 57 feet.

The AS/SVE wells are proposed to be placed at accessible drill rig locations within the NAV018 Release #2 soil and groundwater treatment areas at approximately 30 feet spacing. Due to above and below ground conflicts, actual remedial well spacing may vary. Stantec will notify EPA and NNEPA if a well location needs to be moved by more than 10 feet from the original planned location or if relocating would create a spacing greater than 30 feet.

The proposed AS/SVE well layout with anticipated SVE ROI is illustrated on **Figure 15**.

4.5 Mobile AS/SVE Remediation Equipment

A mobile truck mounted AS/SVE remediation system, to be operated by CalClean, will be positioned inside a temporary chain link enclosure southwest of the UST basin as illustrated on **Figure 15**. The remedial equipment will have its own power source and will be manned daily with an on-site CalClean technician.

- **SVE Equipment:** Operations will be performed using an SVE system contained inside a box truck consisting of a 25-horsepower liquid ring pump, capable of producing a vacuum up to 29 inches of mercury (Hg) and outfitted with a 50-gallon VWS (e.g., knockout vessel). Vapors will be treated prior to discharge to the atmosphere by a catalytic/thermal oxidizer capable of system flow rates up



to 410 cubic feet per minute (cfm). The remediation equipment layout, flow diagram, and specifications are included in **Appendix G**.

During the proposed mobile remediation, the SVE wells hosing and manifold system will be set up to allow for the collection of system data from each individual SVE well. Adjustments in flow of each well will be controlled by a ball valve at the hose connector manifold on the remediation trailer (see **Appendix G**). The hose connector manifold on the remediation trailer will be set up for simultaneous connection of up to six SVE wells.

- **AS Equipment:** The AS component of the remediation system will be performed using a Kaeser rotary claw air compressor. The compressor has a specified capacity up to 20 standard cubic feet per minute (scfm) at 10 lbs. per square inch. The air compressor will be connected to the individual manifolds for each AS well. The AS wells will be controlled by individual valves at the manifold to allow for adjustment of pressure and flow. The air compressor is capable to allow for simultaneous connections to up to five AS wells.

4.6 Performance Metrics and Remedial Milestones

Evaluations of the mobile AS/SVE remedial approach will be performed through the consideration of performance metrics and remedial milestones and will be performed throughout the operation of the proposed remedial approach. Potential modifications to the remedial approach (i.e. remediation schedule and frequency, operating parameters, etc.) will be considered based on an evaluation of these metrics.

4.6.1 Performance Metrics

During mobile AS/SVE equipment operation, the following performance metrics will be periodically measured at the remediation system equipment:

- Operating vacuum and corresponding extracted flow rates (SVE).
- Operating pressure and corresponding injection flow rates (AS).
- Influent vapor VOC concentrations measured by the onboard Horiba Scan Gas unit and via laboratory analysis.
- Discharge stack temperature, flow, and qualitative VOC concentrations.
- Individual SVE well extracted flow rates and vacuums, and individual AS well injection flow rates and pressures.
- Effluent vapor VOC concentrations measured via laboratory analysis to confirm treatment of vapors.

In addition to performance metrics taken from the mobile remediation equipment, performance metrics such as induced pressure/vacuum, DO, ORP, and depth to water measurements will be collected from on-site



wells to assess the ROIs achieved during the mobile remediation during AS/SVE at multiple extraction/injection points.

Mass removal estimates are an important performance metric to assist in evaluating if modifications to the mobile remediation approach are warranted. Stantec will conduct the mass removal estimates based on the daily system readings and influent VOCs concentrations and communicate system adjustments with CalClean regarding necessary changes to operation of individual AS and/or SVE wells. The mass removal estimates will also be updated using the bi-weekly influent vapor concentration laboratory analytical results. The daily system and SVE well VOC measurements and the laboratory analytical data will be used as a performance metric to evaluate progress toward the remedial objective and to evaluate if any changes to the remediation well network, or remediation approach is warranted. At least monthly during operation, CalClean will collect effluent vapor samples for laboratory analysis of VOCs to confirm treatment of vapors.

Groundwater analytical data from a three-month remediation sampling event will be used as a performance metric to evaluate progress toward the remedial objective and to evaluate if any changes to the remediation well network or remediation approach are warranted.

4.6.2 Remedial Milestones

The following remedial milestones will serve as technology-specific end points for the AS/SVE mobile remediation proposed in this CAP. In some cases, an endpoint may be utilized for one of the two combined technologies, AS or SVE.

- System Influent VOC Concentrations – If VOC concentrations at the SVE influent air reach asymptotic levels during the remediation period, Stantec will consider this a remedial endpoint for the AS/SVE component of the system. Prior to the shutdown of the SVE system, Stantec may propose rebound testing and/or activate the 3-month contingency period. Alternatively, this endpoint could prompt Stantec to enter the post-remediation monitoring phase, adjust the operating parameters or the AS or SVE equipment to attempt to increase discharge VOCs, or consider alternative remedial technologies.
- Dissolved-Phase Concentrations – The remedial endpoint will be either 90% reduction in BTEX/naphthalene concentrations or achievement of concentrations below the regulatory agency cleanup levels as specified in **Section 3.2** above in the groundwater monitoring wells discussed in **Section 4.9**. The lower value of the EPA / NNEPA regulatory agency cleanup standards will be used. If this milestone is not achieved prior to the SVE influent air reaching asymptotic levels, an alternative remedial approach may be necessary to treat targeted locations and would be presented in a Work Plan to be reviewed and approved by EPA and NNEPA.
- Sorbed-Phase Concentrations – The remedial endpoint will be the remediation of site soil to below the regulatory agency cleanup standards as specified in **Section 3.2** above. To achieve the sorbed-phase endpoint, the vadose-zone confirmation soil samples outlined below may need to be collected. If localized exceedances are identified in soil during the confirmation sampling, options



for alternative treatment approach to achieve the remediation objectives will be proposed to EPA and NNEPA in a Work Plan to be reviewed and approved.

- Once the influent VOC concentrations into the SVE system have reached asymptotic levels and upon an approximate 90% reduction in dissolved-phase concentrations, Stantec will assess whether confirmation soil sampling activities at locations where previous vadose zone soil samples were greater than TCLs are warranted. A Work Plan will be submitted if soil confirmation sampling will be required by NNEPA and EPA. The following soil sample locations may require confirmation soil sampling: SMW-2, SMW-5, SMW-6, SMW-8, AS-1, and MW-43.

4.7 CAP Schedule and Compliance Monitoring Plan

A CAP effective date of January 2026 was chosen for this site. Anticipated remediation, monitoring, and reporting costs to occur after the CAP effective date are included in the cost estimate presented in **Section 4.11** below.

The following is a list of future work activities that will be performed associated with the CAP.

Activity	Description	Schedule
Pre-Field and Planning	<ul style="list-style-type: none"> • Prepare site-specific Health and Safety Plan • Cultural A Notify and obtain clearance, if necessary, from the Navajo Nation Historic Preservation Department and Navajo Fish & Wildlife. • Acquire NNDWR well permits • Notify NTUA and AZ811 to mark public utilities • Locate and mark private on-site utilities 	Two Months / February to March 2026
Remediation and Groundwater Well Installation	<ul style="list-style-type: none"> • Install seven AS wells, eight dual-nested SVE wells, and one groundwater monitoring well • Develop AS and groundwater monitoring well 	One Month / Late March-Early April-2026
Low-flow purge Groundwater Monitoring and Sampling	<ul style="list-style-type: none"> • One week prior to AS/SVE startup 	One Week / Early April 2026
	<ul style="list-style-type: none"> • Three months after AS/SVE startup <ul style="list-style-type: none"> ○ Initial Monitoring Report <ul style="list-style-type: none"> • Report August 2026 	One Week / July 2026
	<ul style="list-style-type: none"> • One month following AS/SVE shutdown <ul style="list-style-type: none"> ○ Second Monitoring Report 	One Week / December 2026 <ul style="list-style-type: none"> • Report January 2027



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Activity	Description	Schedule
	<ul style="list-style-type: none"> Semi-annual events for two years post-remediation and reporting 	One Week / May 2027 <ul style="list-style-type: none"> Report June 2027 One Week / November 2027 <ul style="list-style-type: none"> Report December 2027 One Week / May 2028 <ul style="list-style-type: none"> Report June 2028 One Week / November 2028 <ul style="list-style-type: none"> Report December 2028
Mobile AS/SVE Operation	<ul style="list-style-type: none"> Equipment Setup / Startup 	Two Days / April 2026
	<ul style="list-style-type: none"> AS/SVE operation and bi-weekly site visits and influent air sampling 	Seven Months / April to November 2026
	<ul style="list-style-type: none"> Contingency AS/SVE Operation 	Three Months / To Be Determined – possibly November 2026 to February 2027
Quarterly Remediation Reporting	<ul style="list-style-type: none"> Three/four months after AS/SVE startup ~1 month after AS/SVE shutdown ~1 month after contingency operation (if implemented) 	Initial Report / July-August 2026 Second Report / December 2026 Contingency (if necessary) / March 2027

4.8 Remediation System Operation and Maintenance

4.8.1 Baseline Field Measurements

After remediation system setup, but prior to startup, Stantec will collect baseline on-site field measurements as summarized below:

- Depth to water, DO, ORP at wells SMW-1 through SMW-9 (plus the new well SMW-10), MW-27B, MW-41, MW-43, MW-44 and MW-45.
- Depth to water, DO, ORP and/or vacuum/pressure readings at the existing and new AS/SVE wells.

Stantec will measure depth to groundwater using a battery-powered water level indicator, DO and ORP using a YSI 556 or equivalent meter, and induced vacuums using various manometers.

4.8.2 System Startup

SVE startup will be performed with the dilution valve closed to obtain the maximum system vacuum. If the on-board Horiba Scan Gas unit measures influent VOC concentrations via exceed 20,000 ppm, the dilution valve will be opened but set to a level that maximizes system vacuum. Stantec and CalClean will record



system operating parameters such as applied system vacuum, influent VOC concentrations, discharge stack flow rate and air temperature, and discharge stack VOC concentrations. Considering the influent vapor concentrations observed during the SVE pilot testing (>5,000 ppmv), the remediation system oxidizer will operate in thermal mode upon startup.

Upon startup, Stantec will collect baseline influent (post dilution after the VWS) air sample using a 1-L Summa® canister (or Tedlar bag if hold time can be met by the laboratory) and transported under chain-of-custody protocols to Pace Analytical, an Arizona certified laboratory, for analysis of full-list VOCs and TPH-G by EPA Method TO-15. In addition, CalClean will collect influent and effluent air samples to evaluate system vapor destruction efficiency of the oxidizer and submit for laboratory analysis for VOCs (BTEX and naphthalene) according to EPA Method TO-15 and TPH-GRO by EPA Method TO-3.

Following SVE startup, AS startup will be performed by slowly increasing the applied pressure at each AS well until a sustained flow of approximately 2.0 scfm is achieved at each well. Stantec and CalClean will record applied system pressure and system flow rate measurements for each well.

4.8.3 Operations and Maintenance Activities and Air Sampling

Ongoing operation and Maintenance (O&M) and recording of system readings will be conducted daily (e.g., 8-hour day) by an on-site CalClean technician. Daily SVE system readings will include system flow, system vacuum, oxidizer temperature, and total and/or individual well vapor concentrations (post dilution after the VWS) using the onboard Horiba Gas Scan unit. Daily AS system readings will include flow and pressure for each port at the air compressor. CalClean's technician will record system reading on a daily O&M form and submit a copy of the O&M form to Stantec each day. A Stantec field technician will conduct bi-weekly site visits to monitor site conditions and evaluate system optimization.

During the bi-weekly site visits, the Stantec field technician will collect individual SVE well vapor concentrations, velocity, vacuum, and temperature from the ridged PVC pipe connected to the extraction hose to the individual SVE wells being operated. Flow measurements will be collected using a Velocicalc® anemometer (or similar), VOC vapor concentrations will be measured using a MiniRAE PID. In addition, the Stantec field technician will record the pressure and flow of the individual AS wells being operated.

Periodically during the bi-weekly site visits, the Stantec field technician will collect depth to water, DO, ORP, and vacuum/pressure readings at select observation wells to confirm adequate ROIs and proper system function is maintained. Depth to water data will be used to evaluate the seasonal groundwater fluctuations and determine when SVE operation will change from the shallow to deep screened intervals.

Addition/subtraction of AS/SVE wells for operation will be determined prior to each bi-weekly site visit and will consider the daily system information provided by CalClean. Air sparge operation is expected to continue throughout the operation of the shallow SVE wells and operation will be determined based on system performance when SVE operation is changed to the deep SVE wells. Considering the quick response to changes in DO and depth to water were observed during pilot testing, AS well operation will be cycled at approximately 1.5 to 2-hour intervals. However, the cycle interval may be adjusted based on observed response in site wells upon system operation.



During the AS/SVE pilot test for the shallow SVE well (SVE-1S), condensate water was not generated. However, if condensate water is generated mobile AS/SVE operation from either the shallow or deep screened intervals, it will be temporarily held in the 50-gallon VWS within the remediation trailer. Depending on the overall volume generated, the water in the VWS will be transferred to either DOT approved 55-gallon steel drums or an approximate 2,500-gallon holding tank. Waste disposal is further described in **Section 4.3** above.

4.8.3.1 Air Sampling

During each bi-weekly site visit, the Stantec field technician will collect an influent (post dilution after the VWS) air sample using a 1-L Summa® canister (or Tedlar bag if hold time can be met by the laboratory) and transported under chain-of-custody protocols to Pace Analytical, an Arizona certified laboratory, for analysis of full-list VOCs and TPH-G by EPA Method TO-15. In addition, CalClean will collect influent and effluent air samples at periodic intervals (per applicable air permit requirements) to evaluate system vapor destruction efficiency of the oxidizer and submit for laboratory analysis for VOCs (BTEX and Naphthalene at a minimum) according to EPA Method TO-15 and TPH-GRO by EPA Method TO-3.

4.9 Groundwater Monitoring Plan

Stantec is proposing to conduct low-flow purge groundwater sampling events at the site according to the schedule outlined in **Section 4.7** and further described below through the proposed CAP end date of December 31, 2028. The following wells will be sampled during each sampling event: SMW-1 through SMW-9, SMW-10 (new well to be installed west of well MW-43), MW-25B, MW-27B, MW-41, MW-43, MW-44, and MW-45. During each event, one duplicate groundwater sample per every 10 groundwater samples and one matrix spike/matrix spike duplicate per every 20 groundwater samples will be collected. Further, one trip blank per cooler will be submitted for full-list VOC analysis plus oxygenates (ethanol, TBA, MTBE and di-isopropyl ether according to EPA Method 8260D).

4.9.1 Groundwater Sampling

Stantec will conduct a groundwater sampling event at the following frequency pursuant to the procedures and analytical methods outlined in **Section 4.9.3**:

- Approximately one week prior to AS/SVE startup.
- Three months after AS/SVE startup.
 - Prior to the three-month remediation sampling event, the AS/SVE system will be turned off approximately five days prior to sampling and will restart AS/SVE operation upon completing the sampling event.
 - Upon receipt and review of the groundwater analytical data, Stantec will verify if continued AS/SVE operation is necessary.



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- Stantec will notify NNEPA and Region 9 EPA if the three-month contingency operation is recommended.
- Approximately one month after AS/SVE shutdown.
- Two years post-remediation.
 - Four semi-annual events will be performed between March to May and August to November for two years.

4.9.2 Groundwater Monitoring Reporting

Stantec proposes to prepare and submit groundwater monitoring reports for NNEPA and EPA's review at the following frequency:

- Approximately four months following AS/SVE startup. The report will incorporate results from the pre-startup and the three-month AS/SVE remediation sampling events.
- Approximately two months following AS/SVE shutdown.
- If contingency remediation is implemented, approximately two months following contingency AS/SVE shutdown.

The groundwater monitoring reports will include information as listed below.

- Summary of field activities and analytical results
- Field procedure documentation
- Boring logs/well construction details
- Data table summaries, including historical data
- Figures, including but not limited to, site maps indicating the location of the wells
- Hydrographs
- Laboratory analytical reports and chain-of-custody documentation
- Conclusions and recommendations

Groundwater monitoring reports will be submitted to NNEPA and Region 9 EPA approximately two to three weeks following the receipt of laboratory data for each groundwater monitoring event, with the initial report containing details of the well installation activities.



4.9.3 Groundwater Sampling Procedures

Prior to each sampling event, Stantec will notify Thriftway and Thriftway's environmental consultant, Animas Environmental Services, and coordinate sampling if determined necessary.

During each event, Stantec will collect the groundwater samples using low-flow sampling methods. Stantec will calibrate applicable equipment and decontaminate reused equipment prior to gauging, purging and sampling the wells. Prior to sampling, Stantec will gauge the wells using an electronic oil/water interface probe to determine static groundwater elevation and to determine if LNAPL is present. Wells will be purged using a peristaltic pump with new sample tubing used at each well. The tubing will be connected to a flow through cell and multiparameter meter. Stantec will place the water intake tubing at a depth of approximately three feet below the groundwater surface. During purging, the flow rate will not exceed 0.25 liters per minute. Stantec will monitor and record field parameters including DO, pH, ORP, temperature, and electric conductivity every five minutes. When the field parameters stabilize, Stantec will reduce the flow rate to 0.1 liters per minute, disconnect the tubing from the flow through cell and collect the groundwater sample through the tubing into laboratory supplied containers. Samples will be immediately placed on ice in a cooler and sample information will then be entered onto a chain-of-custody form. During each event, one duplicate groundwater sample per every ten groundwater samples and one matrix spike/matrix spike duplicate per every twenty groundwater samples will be collected. Further, one trip blank per each cooler will be submitted for VOC analysis.

Groundwater samples will be analyzed for full-list VOCs (including TBA) by EPA Method 8260D, EDB by EPA Method 8011, PAHs according to US EPA Method 8270E and lead by EPA Method 6010D or 6020B. Even though EDB and lead are not associated with the NAV018 Release #2 (as discussed in **Section 2.2.1** above), the results from these compounds will be used to compare to historic data.

4.10 Remediation Reporting Frequency

Stantec proposes to submit two quarterly remediation reports during the AS/SVE operation, and a third report following AS/SVE contingency operation if implemented. The reports will include the following information:

- Summary of field activities and analytical results
- Field procedure documentation
- Boring logs/well construction details
- Data table summaries
- Figures, including but not limited to, site maps indicating the location of the wells, the locations of remediation equipment and calculated mass removal estimates
- Air sampling laboratory analytical reports and chain-of-custody documentation



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- Conclusions and recommendations

The first report will document the initial three months of AS/SVE operation, and the second report will document the fourth to seventh months of AS/SVE operation. A third report will document the contingency scope, if implemented.

4.11 Cost Estimate

Costs associated with the activities outlined in this CAP are presented below. The costs for supplemental remediation (if deemed warranted) and well abandonment are not included in this CAP. Those costs will be presented in a Work Plan to be submitted later during the project.

Activity	Estimated Cost	
Remediation and Groundwater Well Installation		
Costs include field planning and coordination	Stantec Costs	\$41,900
NNDWR permitting	Subcontractor Costs	\$96,600
Utility locating	Laboratory Costs	\$10,000
Well installation and oversight		
Soil laboratory analytical		
Soil and water waste disposal		
Well survey		
Reporting	Subtotal:	\$148,500
AS/SVE Operation (Seven Months)		
Costs include planning and coordination	Stantec Costs	\$74,600
permitting (if any)	Subcontractor Costs	\$429,500
Bi-weekly Stantec site visits	Laboratory Costs	\$4,000
CalClean's remediation equipment and operation		
Air sample laboratory analytical		
Water waste disposal (if any)		
Data review, mass removal estimating		
Remediation reporting	Subtotal:	\$508,100
Groundwater Sampling and Reporting During Remediation and Two Years Post-Remediation		
Costs include planning and coordination	Stantec Costs	\$69,500
Groundwater sampling	Laboratory Costs	\$28,000
Laboratory analytical		
Purged water disposal		
Data review		
Reporting	Subtotal:	\$97,500
TOTAL COST ESTIMATE		\$754,100

Contingency Remediation	Estimated Cost	
AS/SVE Operation – up to 3 Additional Months		
Costs include planning and coordination	Stantec Costs	\$25,000
Bi-weekly Stantec site visits	Subcontractor Costs	\$191,000



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Contingency Remediation	Estimated Cost	
CalClean's remediation equipment and operation	Laboratory Costs	\$1,800
Air sample laboratory analytical		
Water waste disposal (if any)		
Data review, mass removal estimating		
Remediation reporting	Subtotal:	\$217,800

5 Closing Remarks

Pending a response to the submittal of this CAP, Stantec will continue with semi-annual groundwater sampling events pursuant to the sampling schedule presented in the *Revised NAV018 Work Plan – Groundwater and Remediation Well Installation, Air Sparge/Soil Vapor Extraction Pilot Semi-Annual 2025* dated August 30, 2024, prepared by Stantec.

The most recent groundwater sampling event occurred in November 2025 and a report documenting the work is pending submission to EPA and NNEPA. Upon revised CAP approval, the groundwater reporting frequency will be converted to the CAP schedule.





TABLES

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FIGURES

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APPENDIX A

Soil Boring Logs

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APPENDIX B

Groundwater Hydrographs

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APPENDIX C

Gas Chromatographs

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APPENDIX D

BTEX/MTBE Concentration vs. Time Graphs – MW-46, MW-48, MW-49 and MW-50

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APPENDIX E

BTEX/MTBE Concentration vs. Time Graphs – MW-25B

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APPENDIX F

Arizona Tribal Lands Map

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APPENDIX G

Remediation Equipment Layout, Flow Diagram, and Specifications

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APPENDIX H

Remediation Equipment Photos for Example

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Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Stantec Consulting Services Inc.
3133 West Frye Road, Suite 300
Chandler AZ 85226-5155
stantec.com

