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SITE MANAGEMENT PLAN

FORMER PENNZOIL REFINERY
ROOSEVELT, UTAH

November 2020

Prepared on behalf of:
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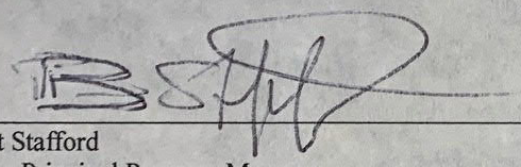

Brent Stafford
Senior Principal Program Manager

Site Management Plan

Former Pennzoil Refinery
Roosevelt, Utah
EPA ID UTD073093874

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Acronyms and Abbreviations

AECOM	AECOM Technical Services, Inc.
AULs	Activity and Use Limitations
CAP	Corrective Action Plan
COC	Constituent of Concern
dba	Doing Business As
EC	Environmental Covenant
LNAPL	Light non-aqueous phase liquid
Pirnie	Malcolm Pirnie, Inc.
PQS	Pennzoil-Quaker State Company dba SOPUS Products
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAP	Sampling and Analysis Plan
Site	Former Pennzoil Refinery, located in Roosevelt City, Duchesne County, Utah
SWMU	Solid Waste Management Unit
UAC	Utah Administrative Code
UDEQ	Utah Department of Environmental Quality
VOC	Volatile Organic Compound
WDC	Waste Disposal Cell

Executive Summary

The former Pennzoil Refinery located in Roosevelt City, Duchesne County, Utah (Site) was once used to refine crude oil from 1968 to 1994. A Hazardous Waste Post-Closure Permit (Post-Closure Permit) was issued for the Site's waste disposal cell (WDC) by the Utah Department of Environmental Quality (UDEQ) Waste Management and Radiation Control in December 1992, renewed September 2014 and modified in July and December 2019 (UDEQ, 2014 and 2019). Both the Pennzoil-Quaker State Company (PQS) doing business as (dba) SOPUS Products and Roosevelt Land Investment LLC (RLI), the property owner, are identified as co-permittees in the 2019 modified Post-Closure Permit.

The Post-Closure Permit includes requirements for monitoring the shallow perched groundwater in six groundwater monitoring wells located upgradient and downgradient of the WDC; requirements for Site-wide investigation; and other ongoing management and monitoring activities to be protective of human health and the environment, including post-closure care of the WDC and conducting semi-annual site inspections. In June 2009, a Corrective Action Plan (CAP) for solid waste management units (SWMUs) identified at the Site was developed and submitted by Malcolm Pirnie, Inc. (Pirnie) as required by the Post-Closure Permit (Pirnie, 2009). The CAP outlined monitoring requirements for Site-wide wells and included a Site Management Plan (SMP), as required by Utah Administrative Code (UAC) R315-101-6(a) (UAC, 2001).

This updated SMP serves as a stand-alone document (removed from the 2009 CAP), provides updates to reflect the current and future site management activities, and incorporates the UDEQ 2010 Environmental Covenant (EC), and changes that were included in the 2014 update to the Post-Closure Permit and the July and December 2019 Post-Closure Permit modifications.

Ongoing site management activities include semi-annual inspections, continued groundwater monitoring of the WDC wells as required by the Post-Closure Permit, implementing activity and use limitations (AULs) at the Site, maintaining Site security, and monitoring of the Site-wide wells conducted in accordance with the 2009 CAP, UDEQ correspondence dated April 12, 2018, and the 2020 Sampling and Analysis Plan (SAP), including the Quality Assurance Project Plan (QAPP). Annual Groundwater Monitoring and Site Management Reports (formerly Corrective Action Progress Reports) will be prepared to describe the ongoing management and monitoring activities required by the Post-Closure Permit to be protective of human health and the environment at the Site. The SMP will be implemented by PQS and RLI, co-permittees of the Post-Closure Permit.

1. Background and Introduction

The Pennzoil-Quaker State Company (PQS) doing business as (dba) SOPUS Products contracted AECOM Technical Services, Inc. (AECOM) to prepare this Site Management Plan (SMP) for the former Pennzoil Refinery located in Roosevelt City, Duchesne County, Utah (Site) (**Figure 1**). This SMP serves as an updated stand-alone document to reflect current and future site management activities, as required by the Site's Hazardous Waste Post-Closure Permit issued by the Utah Department of Environmental Quality (UDEQ) (UDEQ, 2014 and 2019) and requirements outlined in the Corrective Action Plan (CAP) developed by Malcolm Pirnie, Inc. (Pirnie) (Pirnie, 2009). This updated SMP also incorporates the Environmental Covenant (EC) activity and use limitations (AULs) recorded in January 2010. The Post-Closure Permit was reissued on September 30, 2014, and included the following modifications:

- Reduced the schedule of Site Inspections from monthly to semi-annually,
- Reduced the groundwater monitoring program from semi-annually to annually,
- Reduced the reporting frequency from semi-annually to annually, and
- Removed semi-volatile organic compound analysis from the list of groundwater monitoring parameters and constituents.

The July and December 2019 Post-Closure Permit modifications included the following changes:

- Reduced sampling of the six waste disposal cell (WDC) monitoring wells for groundwater general chemistry from annually to every 5 years, and
- Reduced sampling of the six WDC monitoring wells for metals from annually to every 5 years, and
- Addressed necessary typographic corrections and name clarifications.

1.1 Background

The Site is a former petroleum refinery that operated from 1968 to 1994 (**Figure 2**). A Post-Closure Permit was issued on December 18, 1992, renewed September 2014 and modified in July and December 2019 for the care and monitoring of the Site's WDC and includes requirements for Site-wide investigation and potential corrective action for solid waste management units (SWMUs) identified at the Site (UDEQ, 2014 and 2019).

In 1991, a Resource Conservation and Recovery Act (RCRA) Facility Assessment conducted by the UDEQ identified the SWMUs at the Site. A two-phase RCRA Facility Investigation (RFI) was subsequently conducted to investigate each SWMU. Phase I of the RFI was conducted in 1996, with additional soil sampling conducted in 2001 in accordance with an addendum to the Phase I RFI (URS, 2002). The Phase II activities of the RFI were conducted in 2004.

Results of the soil and groundwater data obtained during Phase I and Phase II of the RFI were submitted to the UDEQ in one consolidated report (Pirnie, 2005). The RFI Report included a human health risk assessment and developed Site-specific corrective action levels. RFI data were compared to Site management screening levels, and SWMUs requiring corrective action were subsequently identified. Interim measures were conducted between 2005 and 2007 to reduce concentrations of constituents of concern (COCs) in soil.

A CAP was submitted to the UDEQ that established cleanup objectives, identified corrective actions to meet the cleanup objectives, and outlined monitoring requirements for the Site (Pirnie, 2009). Interim measures previously conducted at the Site reduced concentrations of COCs in soil below the established cleanup objectives. Institutional controls, including specific AULs, and Site monitoring to be protective of human health and the environment were presented in an SMP, which was initially included in the 2009 CAP, the 2010 EC, and the SAP, updated in 2020 to include a QAPP and to reflect current and future Site activities. The EC specifies the activity and use limitations for the Site property, which includes land use, groundwater use, and construction limitations. The land use limitations are applicable to the restricted area, impacted areas, and affected area, including site use restriction, disturbance limitations, and risk mitigation. The AUL details and Figures are also included in Section 3 of the SMP. The Post-Closure Permit was renewed in 2014 and modified in July and December 2019 as related to the site monitoring program and reporting requirements (UDEQ, 2014 and 2019).

Correspondence received from the UDEQ, dated February 16, 2018, following the review of the 2016 and 2017 Annual Corrective Action Progress Reports included several comments. In correspondence dated March 22, 2018, AECOM/PQS provided a response to each comment, including UDEQ request for additional groundwater gauging to generate a more accurate groundwater potentiometric surface map, and to update the SMP (remove the SMP from the 2009 CAP) and initiate a modification to the Post-Closure Permit. UDEQ approved the AECOM/PQS responses to comments in a letter dated April 12, 2018.

1.2 Refinery History

The refinery operated from 1968 to 1994 processing approximately 5,000 to 7,500 barrels of oil per day while producing gasoline, diesel fuel, fuel gas, butane, and propane. **Figure 2** presents the former refinery Site plan. The crude oil was a low-sulfur stock produced locally in the nearby Altamont and Bluebell fields of the Uinta Basin, and was known as Altamont-Bluebell crude.

The refinery closed in September 1994 after which Pennzoil Products Company (Pennzoil) ceased operations and began to dismantle the process units. The Site was sold to Inland Resources, Inc. in 1998, which subsequently transferred ownership to Silver Eagle Refining. Pennzoil retained the environmental liability for impacts relating to its operations prior to the 1998 sale to Inland. This liability was transferred to PQS when Pennzoil was sold to SOPUS Products in 2002. On May 10, 2006, the Site was sold to Roosevelt Land Investment LLC, the current Site owner who uses it for commercial purposes.

1.3 Purpose of Site Management Plan

This document serves as a stand-alone SMP (removed from the 2009 CAP), provides updates to reflect current and future site management activities, and incorporates changes that were included in the 2014 and 2019 modifications to the Post-Closure Permit. The SMP outlines the following ongoing Site management activities:

- Conducting semi-annual Site Inspections, including inspection of the WDC, surrounding fence line, and monitoring wells;
- Continued groundwater monitoring of WDC wells MW-7, MW-11, MW-12, MW-19, MW-20, and MW-21, as required by the Post-Closure Permit;
- Continued groundwater monitoring of Site-wide monitoring wells MW-24, MW-105, MW-108, MW-109, and MW-115 as required by the 2009 CAP and UDEQ correspondence dated April 12, 2018; and

- Implementation of AULs at the Site, including restrictions on land and groundwater use, disturbance limitations, construction limitations, and measures utilized to maintain Site security.

2. Site Management Plan Activities

2.1 Site Inspections

As required by the existing Post-Closure Permit, the WDC, surrounding fence line, and associated monitoring wells will be inspected semi-annually. As part of the inspection, the fence and gates that control access to the WDC will be assessed for signs of weakness, damage, or deterioration. Items requiring maintenance will be noted during the inspections. A new metal chain-link fence was installed around the WDC in approximately mid-2015.

These inspections will continue as specified in Attachment 2 of the Post-Closure Permit inspection plan. The attachment requires inspection of the following AULs and facility components associated with the WDC:

- Land use
- Groundwater use
- Disturbance restrictions
- Security-control devices
- Cover settlement and displacement
- Integrity of erosion-protection layer
- Integrity of run-on and run-off control measures
- Functioning of cover drainage system
- Monitoring well conditions
- Benchmark integrity

The Site Inspections were initially conducted on a monthly basis; the frequency of the inspections was updated to occur on a semi-annual basis in the 2014 Post-Closure Permit. Efforts will be made to conduct one of two semi-annual inspections during the annual groundwater monitoring event (second quarter of the year) and the second event during the last quarter of the year.

2.2 Groundwater Monitoring

Monitoring activities will be conducted to assess conditions in the perched groundwater beneath the former WDC in accordance with the Post-Closure Permit. Monitoring wells associated with the WDC include MW-7, MW-11, MW-12, MW-19, MW-20, and MW-21. Groundwater samples will also be collected from five Site-wide wells, including MW-24, MW-105, MW-108, MW-109, and MW-115, to monitor the stability of volatile organic compound (VOC) concentrations in the perched groundwater beneath the northern portion of the Site in accordance with the 2009 CAP, UDEQ correspondence dated April 12, 2018, and the 2020 SAP or a future modified SAP approved by the Director of the Utah Division of Waste Management and Radiation Control. **Figure 3** presents the locations of the WDC and Site-wide monitoring well network.

2.3 WDC Monitoring Well Network

The Post-Closure Permit includes requirements for monitoring the shallow perched groundwater to assess groundwater conditions in six wells located upgradient and downgradient of the WDC (UDEQ, 2014 and 2019). In accordance with the Post-Closure Permit, groundwater samples are collected from monitoring wells MW-7, MW-11, MW-12, MW-19, MW-20, and MW-21 and analyzed for VOCs, metals, and other water quality parameters outlined in the Permit. Data such as benzene and 1,2-dichloroethane concentration trends and concentrations plots, Mann-Kendall statistical analysis, and decay rate estimations will be used to evaluate whether natural attenuation is occurring.

These groundwater monitoring requirements will continue following the protocols and analytical methods outlined in the 2014 and 2019 Post-Closure Permits. A 2019 Permit Modification reduced the sampling frequency of the six WDC wells for groundwater general chemistry from annually to every 5 years. The sampling frequency of metals analyses for the six WDC wells was also reduced from annually to every 5 years. VOC analysis for the six WDC monitoring wells will continue on an annual basis.

2.4 Site-Wide Monitoring Well Network

In accordance with the 2009 CAP and UDEQ correspondence dated April 12, 2018, Site-wide monitoring, including source well MW-24 and four cross-gradient and downgradient wells MW-105, MW-108, MW-109, and MW-115, located on the eastern half of the Site, near SWMU P-5, will be monitored on an annual basis. Groundwater samples collected from Site-wide monitoring wells will be analyzed for VOCs outlined in the Permit.

2.5 Fluid Level Measurements

Field activities conducted during groundwater monitoring events include the collection of fluid level measurements and light non-aqueous phase liquid (LNAPL) recovery from the WDC and Site-wide monitoring wells. Depth-to-product, depth-to-water, and total depth will be measured in each groundwater monitoring well, including specific wells added per the April 2018 UDEQ request to determine groundwater elevation and inferred direction of groundwater flow.

In accordance with the updated 2020 SAP and to accurately assess the groundwater potentiometric surface, the following additional wells in the vicinity of the WDC and SWMU P-5 areas will be gauged for light non-aqueous phase liquid (LNAPL) thickness, if present, and depth to perched groundwater: MW-15, MW-17, MW-102, MW-106, MW-107, MW-112, MW-116A, MW-120 and MW-127.

Additional monitoring wells and piezometers, which are neither a WDC nor Site-wide well, and observed to have contained LNAPL at some point in the historical record, will be gauged during post-closure care including MW-1, MW-117, MW-118, MW-119, MW-121, MW-122, MW-126, P-1, TP-40, TP-41, and TP-42.

Fluid levels will be measured using an oil-water interface meter capable of measuring water and oil-based liquid (LNAPL) levels to the nearest 0.01 foot. Measurable LNAPL observed in monitoring wells and piezometers at the Site will be recovered using existing passive skimmers and absorbent socks and hand-bailed by field staff. LNAPL will continue to be measured during future sampling events to evaluate any change of LNAPL presence near SWMU P-5. Passive LNAPL recovery skimmers and oil-sorbent socks will continue to be maintained, as needed, during subsequent monitoring events.

LNAPL measurements and recovery information may be completed in the near future to evaluate and assess LNAPL recoverability (determine LNAPL transmissivity) due to fairly low LNAPL recovery amounts and to limit exposure to field personnel.

2.6 Reporting

In accordance with the 2014 Post-Closure Permit, the reporting requirements outlined in the 2009 CAP for the submittal of the monitoring reports were updated to be submitted on an annual basis. The title of the monitoring report was revised to “Annual Groundwater Monitoring and Site Management Report” as part of the July 2019 Post-Closure Permit modification.

The purpose of the Annual Groundwater Monitoring and Site Management Report is to present the methods and findings of the semi-annual site inspections and groundwater monitoring program conducted at the subject Site as part of the 30-year post-closure care program established per the Post-Closure Permit and CAP. The annual report will document the following:

- Site inspection activities as required by the Post-Closure Permit and CAP;
- Results of groundwater monitoring activities as required by the Post-Closure Permit and established in the CAP; UDEQ letter dated April 12, 2018; and updated 2020 SAP; and
- The progress of other Site management activities outlined in this SMP.

3. Activity and Use Limitations

The Site is subject to certain AULs, as documented in the 2010 EC or an EC if amended in accordance with Section 17 of the 2010 EC, the 2014 Post-Closure Permit or a Post-Closure Permit if modified or renewed in accordance with Permit Condition I.D and R315-270-41 and 42 of Utah Administrative Code. The AULs include limitations on land use (e.g., Site can only be used for industrial/commercial purposes), groundwater use (e.g., perched water cannot be a potable water source), disturbance restrictions (e.g., no soil disturbances at the WDC and additional controls in areas where cancer risk is greater than 1×10^{-6}), and construction limitations (e.g., some future buildings may require passive venting systems).

Site security components, including the fence surrounding the WDC, warning signs, and the condition of gates, locks, and monitoring wells, will also be assessed during the semi-annual inspections. The AULs and Site security components at the Site are described in the sections below.

3.1 Land Use

The Site can only be used for industrial/commercial purposes to ensure that the potential exposure pathway and receptors remain consistent with the human health risk assessment.

Pursuant to UAC R315-101- 6(d), additional Site management is required in certain areas where the cancer risk is greater than 1×10^{-6}, which are currently vacant, to eliminate or reduce potential exposure to soils if future construction is initiated in these areas.

The EC for the Site identifies areas that may require future additional Site management and the parties who are responsible for implementing the additional Site management in these areas. Proposed Site management activities in these areas will be presented to UDEQ for approval before they are initiated.

The following land use areas were identified in the 2010 Environmental Covenant:

The WDC is defined as the “Restricted Area”, located in the north central area of the former refinery, west of the former wastewater treatment unit, and is identified as SWMU P-4 in the Permit as depicted on Exhibits C-1 and C-2 of the attachments. The WDC was closed, the soil, sludge and hazardous waste in the ponds stabilized, and the area capped. The WDC is subject to the restrictions and management requirements outlined below.

Certain SWMUs and portions of SWMUs have been impacted and are identified as “Impacted Areas”. These impacts occurred due to historical refinery operations and future activities in these areas will require additional exposure controls to mitigate potential exposure risks. The Impacted Areas are depicted on Exhibit C-2 of the attachment. The Impacted Areas include a few locations, primarily in the central refinery area, where volatile and semi-volatile organic compounds are present in the soil at concentrations that could pose a carcinogenic risk greater than 1×10^{-6} for an on-site commercial worker. Impacted Areas are subject to the site management requirements and restrictions outlined below.

Certain SWMUs and portions of SWMUs have been affected by historical refinery operations and are defined as “Affected Areas”. There are 17 SWMUs that do not have soil impacts at concentrations above preliminary screening levels; therefore, they qualified for No Further Corrective Action (“NFCA”) but remain subject to the SMP and EC restrictions. Additionally there are other SWMUs and portions of SWMUs outside of the Restricted Area and the Impacted Areas where, due to risk assessment and/or interim measures, COPCs are present in the soil at

concentrations that would pose a carcinogenic risk greater than 1 x 10^{-6} and/or a hazard index greater than one for an on-site residential receptor, but would not pose a carcinogenic risk greater than 1 x 10^{-6} or a hazard index greater than one for an on-site commercial worker. These Affected Areas will not require additional exposure controls but are subject to the site management requirements and restrictions outlined in the SMP and this Covenant. The Affected Areas are depicted on Exhibit C-2 in the attachments.

The three areas (restricted, impacted, affected) are subject to the following restrictions:

The Restricted Area, the Impacted Areas, and the Affected Areas are referred to collectively as the Site. The Site is prohibited from being used for managed care facilities, hospitals, child day care, schools, human consumption agriculture, or residential uses and no caretaker shall reside on the Site. Additional investigation, human health risk assessment and possible corrective action, amendment or modification of the SMP and EC, and approval by the UDEQ and any then Holder of the EC are required to allow for prohibited uses to be developed on the Site. Presently, the Site is allowed to be used for commercial, industrial and any other comparable use with a similar level of human occupancy or use. Should the then owner or subsequent users of the Site develop any use other than allowed uses, the owner of the Site and the user shall, prior to developing the use, demonstrate to the UDEQ's satisfaction that the risk levels of the proposed use will not exceed the applicable exposure risk level.

3.2 Groundwater Use

The perched groundwater is prohibited from being used as a potable water source without adequate pretreatment. There are no restrictions on using groundwater from the deep aquifer beneath the perched groundwater zone.

The perched water beneath the Site is saline and does not produce water in sufficient quantities to be classified as an aquifer; therefore, it has not been and will not be used as a drinking water source. Perched groundwater monitoring activities will continue to be conducted to assess groundwater conditions in the perched groundwater beneath the former WDC.

The cleanup objectives for the perched groundwater considered the following exposure scenarios: direct contact by a construction worker, vapor intrusion into on-site buildings and inhalation by on-site workers, and vapor intrusion into off-site residences and inhalation by residents. Ingestion of the perched groundwater at the Site was eliminated as an exposure pathway of concern because it is not a drinking water source.

The deeper aquifer, beneath the perched water at the Site, was sampled and analyzed during the RFI and subsequent semi-annual groundwater sampling events and has not been affected by historical Site operations.

3.3 Disturbance Limitations

Restricted Area - Soil disturbance of any kind within the Restricted Area (the WDC) is prohibited without approval from UDEQ. A person planning to manage soil within the Restricted Area shall obtain approval of the UDEQ prior to any activity in the Restricted Area.

Impacted Area - Any excavation, trenching, or other soil disturbance activities at the Site must manage the excavated soil adjacent to the disturbed area and then return the soil to the same location (or transport it off site and replace it with imported fill material). Any soils generated from the above activities will be properly managed in accordance with applicable regulations and best management practices. A person planning to employ some other means to manage soil from Impacted Areas shall obtain approval of the UDEQ prior to implementing that means.

Any activity undertaken that disturbs the soil in the Impacted Areas shall be conducted in a manner that adequately protects the person(s) conducting the activity and to future users of the property from exposure to the residual contaminants in the soil. Mitigation activities to control exposures within the Impacted Areas shall include soil removal or treatment to eliminate the potential exposure, or the installation of engineered controls (such as a cap, paving, building/structure, or vegetative cover/landscaping) to reduce direct exposures to the impacted soils. A person planning to employ some other means to mitigate exposures shall obtain approval of the UDEQ prior to implementing that means.

Affected Area - Soils within Affected Areas may be used anywhere within the boundaries of the Property.

The cleanup objectives were developed to be protective of construction workers who may be exposed to impacted soil during future soil disturbance activities. However, to further protect workers from potential contact with impacted subsurface soil and/or perched water, proper personal protective equipment (PPE) will be required for future construction activities, in compliance with applicable Occupational Safety and Health Act (OSHA) standards. The construction worker will need to be trained under a hazardous communications program, and a site-specific Health and Safety Plan that specifies the required PPE will need to be developed for the Site by the contractor prior to initiating any soil disturbance activities. The PPE requirements may include the use of gloves, coveralls, and boots, as necessary when impacted soil and/or perched water are encountered during soil disturbance activities. Tools and equipment used during construction activities will require cleaning prior to leaving the Impacted Areas or Affected Areas to prevent potential drag out /migration of impacted soil.

3.4 Construction Limitations

Construction of any property improvements, including, but not limited to, buildings, utilities, pavement, and roadways, will be prohibited within the limits of the WDC.

Vapor intrusion into future on-site buildings from subsurface contamination was evaluated during the RFI. The cleanup objectives for soil and perched water at the Site are protective of future vapor intrusion. Due to the uncertainty of future building design, including, but not limited to, slab dimensions and air flow through the buildings, future buildings constructed at the Site may be required to include soil vapor intrusion protection. At a minimum, the installation of a passive sub-slab ventilation system may be required to minimize potential vapor intrusion and to avoid future exposures to indoor air concentrations that may result in an incremental cancer risk greater than 1×10^{-6}.

3.5 Access Limitations/Security

In order to maintain Site security, the Site is surrounded by a chain-linked fence that is locked when there are no on-site activities and during the evenings and weekends. The WDC is also surrounded by a chain-link fence that is locked at all times, except as necessary for inspections and periodic surveying. To provide additional security and access limitations to the WDC, a former barbed-wire fence surrounding the WDC was replaced by this same chain-link fence in 2015.

There are buildings at the Site that have been leased for commercial use. No facilities exist within the WDC fence line. Any future activity conducted by landowners and/or lessees within the Site boundaries must comply with the land use, disturbance, and construction limitations listed in the Environmental Covenant for the Site, as described above.

4. References

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UDEQ, 2018. Response to UDEQ Comments on Annual Corrective Action Progress Report. April.

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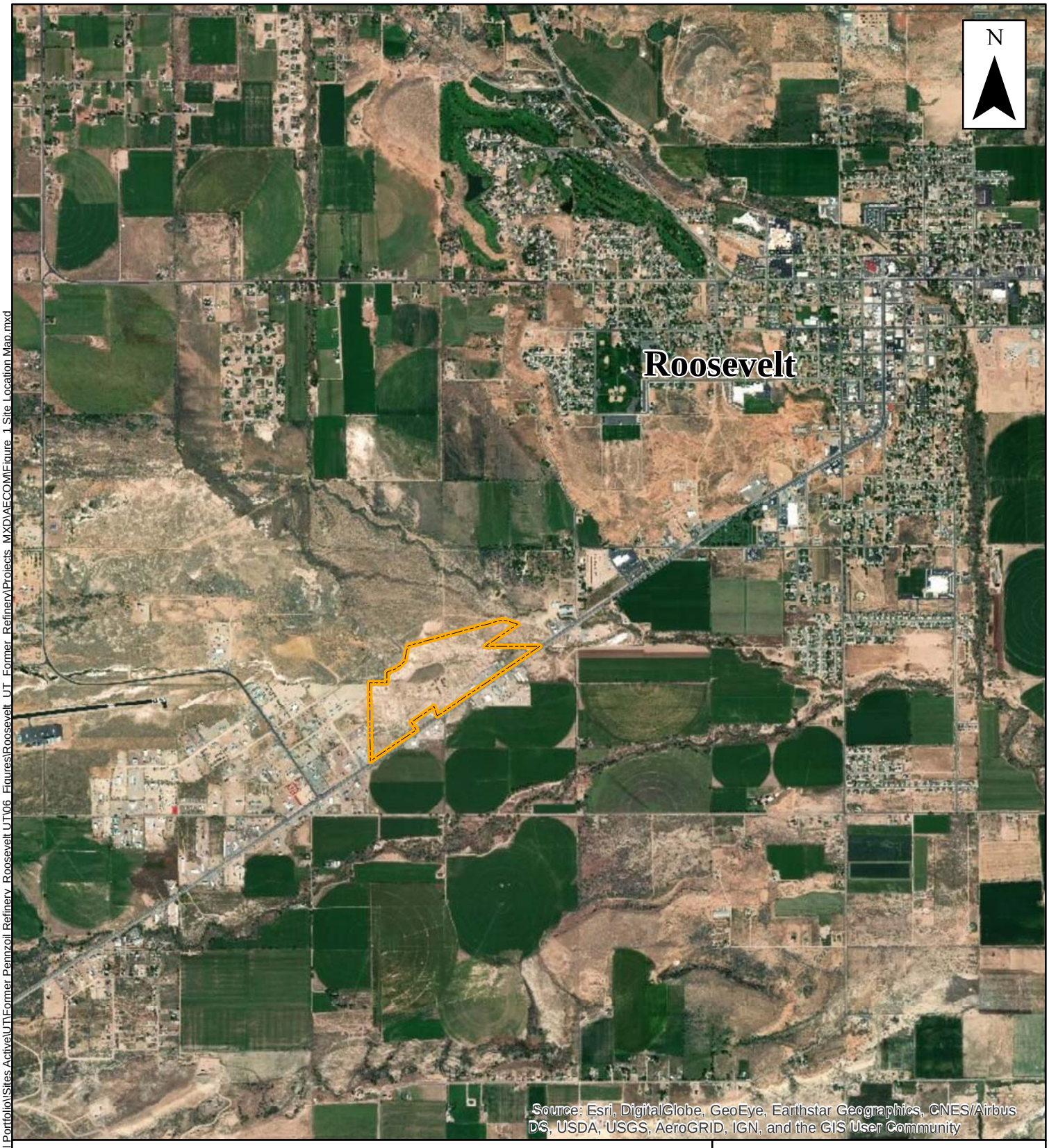
Figures



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Legend

Approximate Site Area

0 0.25 0.5 0.75 1

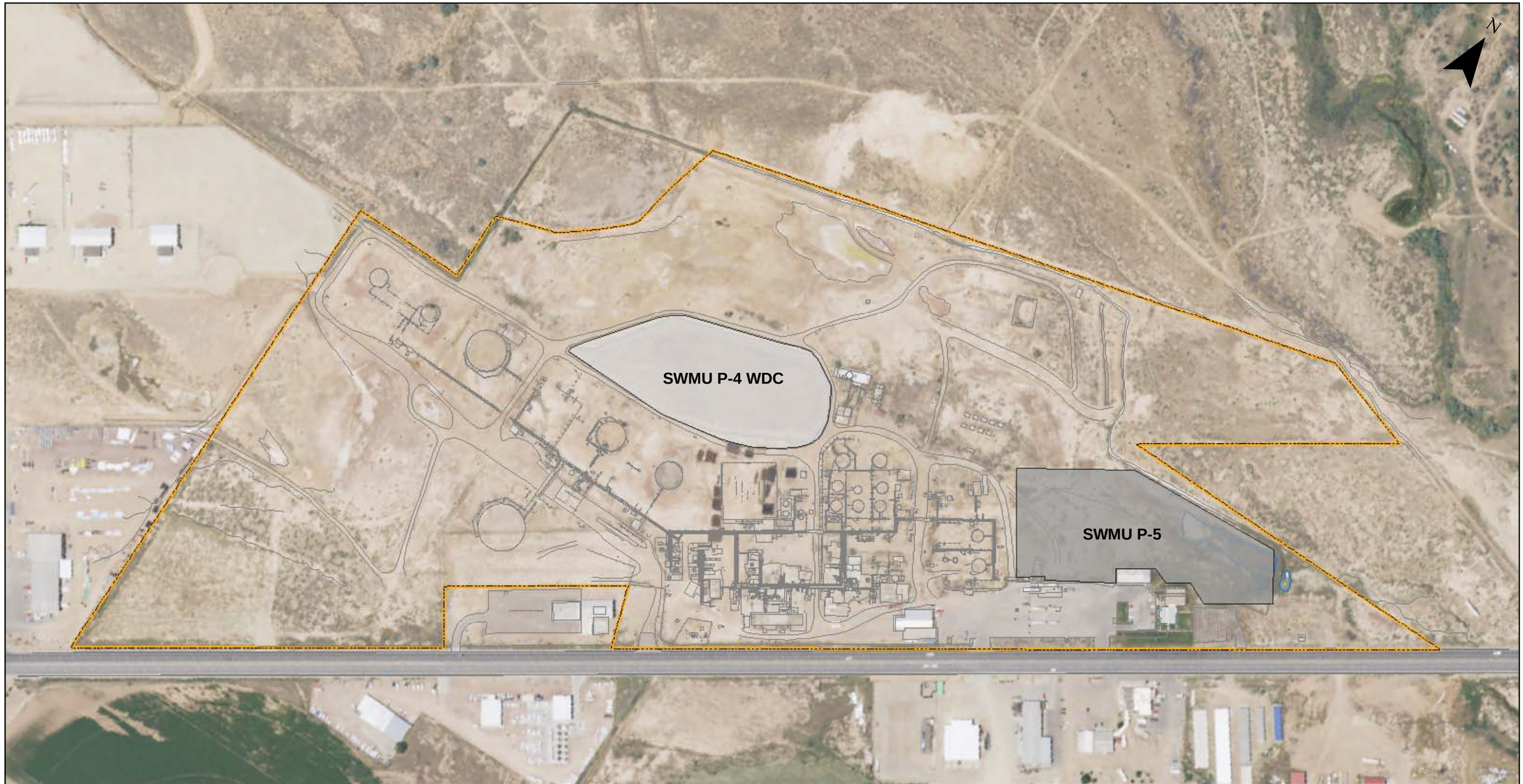
Miles

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Site Location Map
Site Management Plan
Former Pennzoil Refinery
Roosevelt, Utah

February 2019

Figure 1



Legend

- Site Boundary
- Surface Water (ephemeral)
- Former Refinery Site Facilities
- SWMU P-4 Waste Disposal Cell (WDC)
- SWMU P-5

0 280 560 840 1,120 Feet

AECOM
12420 Milestone Center Drive
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Site Plan
Site Management
Plan
Former Pennzoil Refinery
Roosevelt, Utah

February 2019 | **Figure 2**

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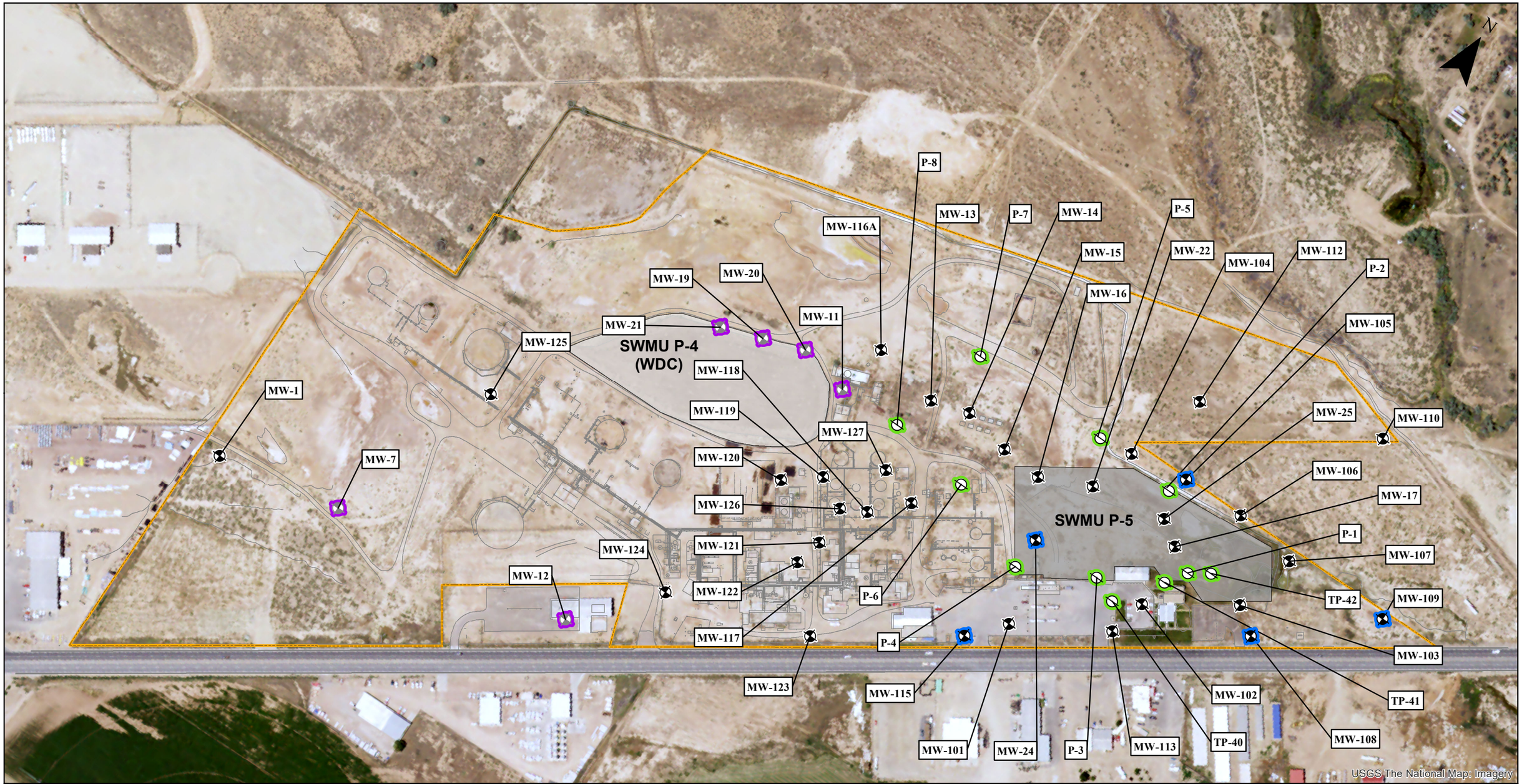

Legend

- Approximate Site Boundary
- Former Refinery Site Facilities
- Site-Wide Monitoring Well Locations
- Site-Wide Piezometer Locations
- WDC Monitoring Well Locations
- Other Monitoring Well Locations
- SWMU P-4
- SWMU P-5

0 280 560 840 1,120 Feet

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Groundwater Monitoring Well Locations

Former Pennzoil Refinery
Roosevelt, Utah

February 2019 | **Figure 3**

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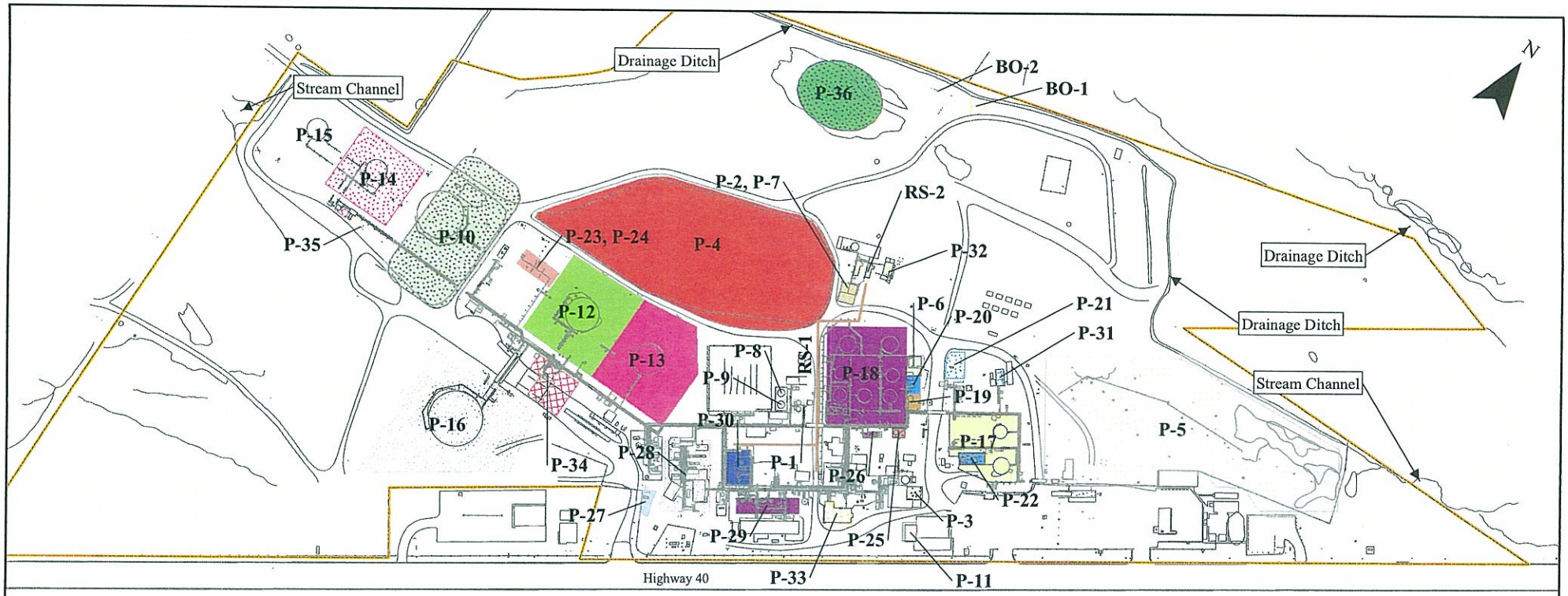
Attachments



Legend

- Approximate Property Boundary
- Refinery Site Facilities
- Solid Waste Management Units (SWMUs)
- RS-1 Refinery Sewer System
- RS-2 RS-2, Wastewater Treatment System
- P-1, P-8, P-9 P-1,P-8, P-9, Old API Separator System (Slop Oil Tank, Old API Oil Pond)
- P-2, P-7 P-2, P-7, New K050 Cleaning Area (Oil Recovery Tank System)
- P-3, Old K050 Cleaning Area
- P-4, Waste Disposal Cell
- P-5, Hydrocarbon Seep
- P-6 Oily Dirt Pad
- P-10 Landfills A & B
- P-11 Solvent Cleaning Unit
- P-12 Tank Dike A Water Draw
- P-13 Tank Dike B Water Draw
- P-14 Tank Dike C Water Draw
- P-15 Tank Dike D Water Draw
- P-16 Tank Dike E Water Draw
- P-17 Tank Dike F Water Draw
- P-18 Tank Dike G Water Draw
- P-19 Tank Dike H Water Draw
- P-20 Tank Dike I Water Draw
- P-21 Tank Dike J Water Draw
- Tank Dike K Water Draw
- P-23, P-24 Tank 40 Area Water Draw, Tank 41 Area Water Draw
- Tank 6 Area Water Draw
- P-26 Desalting Tower
- P-27 Desulfurization Unit
- P-28 Storage Unit
- FCC
- Spent Phosphoric Acid Catalyst Area
- P-31 Tetraethyl Lead Sump
- 90-day Hazardous Waste Storage Area
- P-33 East Control Building
- Crude Unloading Pad
- P-35 Platformate Load Station
- Borrow Pit
- BO-1 K050 Heat Exchange Area
- BO-2 Spent Phosphoric Acid Area

0 150 300 450 600
Feet

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Solid Waste Management Units
Environmental Covenant
Former Pennzoil Refinery
Roosevelt, Utah

July 2009 | **Exhibit C-1**

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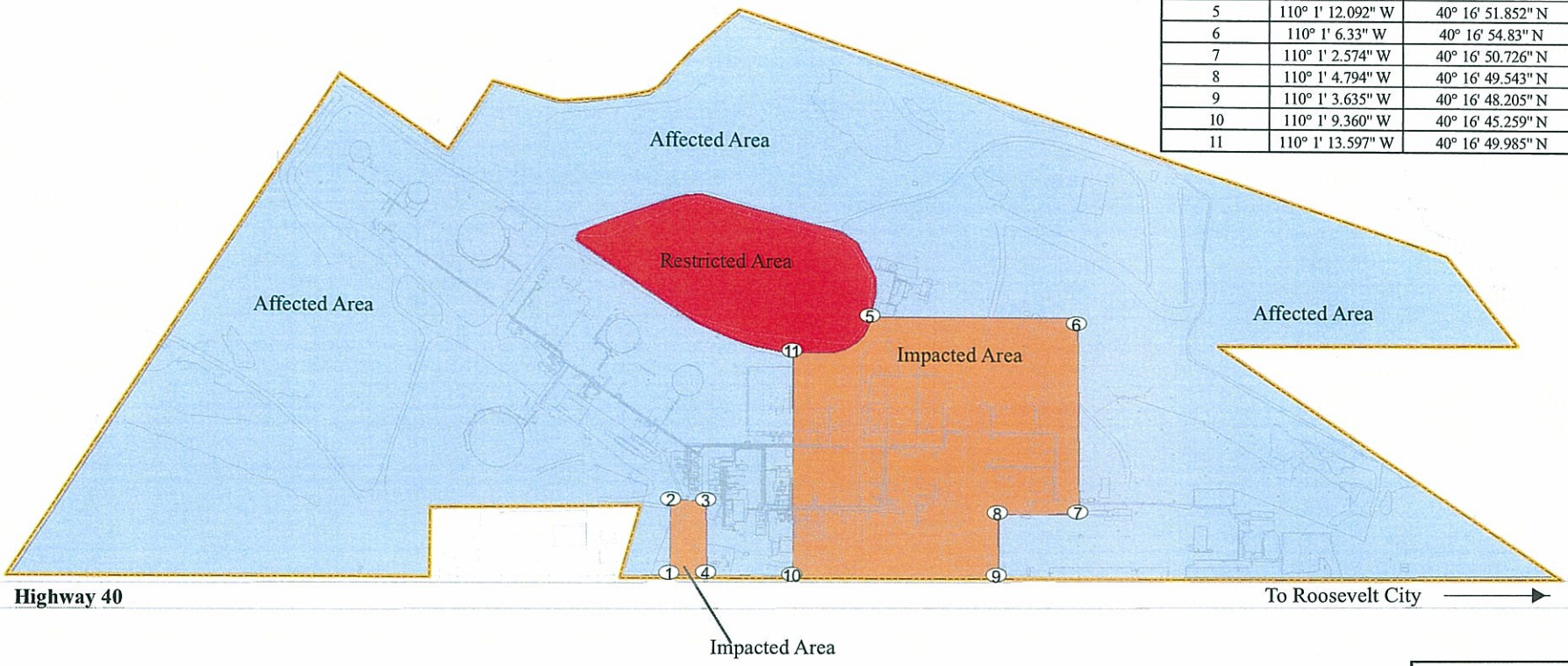
Impacted Area Boundary		
Location ID	Longitude	Latitude
1	110° 1' 12.819" W	40° 16' 43.519" N
2	110° 1' 14.168" W	40° 16' 45.099" N
3	110° 1' 13.183" W	40° 16' 45.592" N
4	110° 1' 11.808" W	40° 16' 44.059" N
5	110° 1' 12.092" W	40° 16' 51.852" N
6	110° 1' 6.33" W	40° 16' 54.83" N
7	110° 1' 2.574" W	40° 16' 50.726" N
8	110° 1' 4.794" W	40° 16' 49.543" N
9	110° 1' 3.635" W	40° 16' 48.205" N
10	110° 1' 9.360" W	40° 16' 45.259" N
11	110° 1' 13.597" W	40° 16' 49.985" N



Legend

- Affected Area (Cancer Risk <1x10-6 for Commercial/Industrial Setting)
- Impacted Area (Cancer Risk >1x10-6 for Commercial/Industrial Setting)
- Restricted Area (SWMU P-4, WDC)
- Refinery Site Facilities
- Approximate Property Boundary

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Activity and Use
Restricted Areas
Environmental Covenant
Former Pennzoil Refinery
Roosevelt, Utah

July 2009 | **Exhibit C-2**

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