Stantec Consulting Services Inc.
1687 114th Avenue Southeast, Suite 100
Bellevue WA 98004-6965

August 13, 2025

Project 203724605.W01

Chelsea Wisotzkey
Washington State Department of Ecology
Central Region Office
1250 West Alder Street
Union Gap, Washington 98903
chelsea.wisotzkey@ecy.wa.gov

Reference: Draft Remedial Investigation Work Plan – 101 East and 101 West, DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington, Facility Site ID: 94369212, Cleanup Site ID: 6910

Dear Ms. Wisotzkey,

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) conducts environmental activities at the 101 East and 101 West Wine Country Road properties of the DeBocks Main Street Texaco Site. Stantec prepared the enclosed *Draft Remedial Investigation Work Plan – 101 East and 101 West* (RI Work Plan), dated August 13, 2025, at the request of the Washington State Department of Ecology (Ecology). The RI Work Plan was prepared in accordance with Washington Administrative Code (WAC) 173-340-350.[1]

The purpose of the RI Work Plan is to outline a soil and groundwater investigation at the 101 East and 101 West properties for the purpose of collecting more information required to characterize the scope and scale of contamination, aid in determining strategies for future environmental remediation, if warranted, and address any existing data gaps essential for finalizing the feasibility study.

[1] Washington Administrative Code (WAC). Updated August 23, 2023. Washington Administration Code – Model Toxics Control Act Cleanup Regulations. https://app.leg.wa.gov/wac/default.aspx?cite=173-340.

Site Identification

Agreed Order No.: DE 22952
Facility Site ID: 94369212
Cleanup Site ID: 6910

Site Location

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Chevron Contact

Chevron Environmental Management Company
5001 Executive Parkway, Suite 200
San Ramon, California 94583

James P. Kiernan, P.E.
Risk Specialist
Phone: (510) 606-0156
Email: jkiernan@chevron.com

Stantec Contact

Stantec Consulting Services Inc.
1687 114th Avenue Southeast, Suite 100
Bellevue, Washington 98004

Ryan Pozzuto
Project Manager
Phone: (206) 510-6681
Email: ryan.pozzuto@stantec.com

ExxonMobil Contact

ExxonMobil Environmental and Property Solutions Company
100 Walnut Avenue, Suite 210
Clark, New Jersey 07066

Christopher Gaule
Senior Manager
Phone: (908) 839-8271
Email: christopher.gaule@exxonmobil.com

Ecology Contact

Washington State Department of Ecology
Central Region Office
1250 West Alder Street
Union Gap, Washington 98903

Chelsea Wisotzkey
Site Manager
Phone: (509) 571-4708
Email: chelsea.wisotzkey@ecy.wa.gov

Please contact me using the contact information listed below with questions.

Regards,

Stantec Consulting Services Inc.



Ryan Pozzuto
Project Manager
Mobile: (206) 510-6681
ryan.pozzuto @stantec.com

c. Daniele B. Peters, EES Environmental Consulting, Inc. (Email)
James P. Kiernan, Chevron Environmental Management Company (Email)
Brandon Christensen, Powell Distributing, LLC, DBA Christensen, Inc. (Email)
Christopher Gaule, ExxonMobil Environmental and Property Solutions Company (Email)

Draft Remedial Investigation Work Plan – 101 East and 101 West

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington
Facility Site ID: 94369212
Cleanup Site ID: 6910

August 13, 2025

Prepared for:
Chevron Environmental Management Company and ExxonMobil Environmental and Property Solutions Company

Prepared by:
Stantec Consulting Services Inc.

Project Number:
203724605.W01

The conclusions in the Report titled *Draft Remedial Investigation Work Plan – 101 East and 101 West* are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Signature

Laina Cole, Environmental Scientist
Printed Name

Signature

Keri L. Chappell, LG 2719
Printed Name

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Acronyms / Abbreviations

°F	Degrees Fahrenheit
µg/L	Micrograms per liter
µg/m^3	Micrograms per cubic meter
AO	Agreed Order No. DE 22952
ARAR	Applicable, relevant, and appropriate requirement
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CEMC	Chevron Environmental Management Company
CFR	Code of Federal Regulations
Chevron	Chevron U.S.A. Inc.
City	City of Grandview
CLARC	Cleanup Levels and Risk Calculation
COPC	Contaminant of potential concern
DBA	Doing business as
DRPH	Diesel range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EES	EES Environmental Consulting, Inc.
ExxonMobil	Exxon Mobil Corporation
FS	Feasibility study
GRPH	Gasoline range petroleum hydrocarbons
HASP	Site-specific Health and Safety Plan
HCID	Hydrocarbon Identification
IDP	Inadvertent Discovery Plan
LNAPL	Light non-aqueous phase liquid
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
MIHPT	Membrane Interface Probe-Hydraulic Profiling Tool
MTCA	Model Toxics Control Act
NWTPH-Dx	Northwest Total Petroleum Hydrocarbon for Diesel/Oil Range Organics
NWTPH-Gx	Northwest Total Petroleum Hydrocarbon for Gasoline Range Organics
Olympus Environmental	Olympus Environmental, Inc.
Olympus Technical	Olympus Technical Services, Inc.
ORC	Oxygen release compound
ORPH	Oil range petroleum hydrocarbons
OVA	Organic vapor analyzer
PLIA	Pollution Liability Insurance Agency
PLP	Potentially liable person
POC	Point of compliance
Powell Distributing	Powell Distributing, LLC
ppm	Parts per million
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RI	Remedial investigation
RI Work Plan	*Draft Remedial Investigation Work Plan – 101 East and 101 West*
RV	Recreational vehicle
Sage	Sage Earth Sciences, Inc.
SAP	Sampling and Analysis Plan
Site	DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington
Stantec	Stantec Consulting Services Inc.
TAP	Technical Assistance Program

TEE	Terrestrial ecological evaluation
TFR	Total fluids pumping and recovery
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
UVOST	Ultra-Violet Optical Screening Tool
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
WAC	Washington Administrative Code
WSI	White Shield, Inc.

1 Introduction

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) prepared this *Draft Remedial Investigation Work Plan – 101 East and 101 West* (RI Work Plan), dated August 13, 2025, for the DeBocks Main Street Texaco Site (Site) comprising 100 West, 101 East, and 101 West Wine Country Road in Grandview, Washington (Plate 1).

The Washington State Department of Ecology (Ecology) issued Agreed Order No. DE 22952 (AO) on May 15, 2025, directing preparation of this RI Work Plan for the 101 East and 101 West properties at the Site (Ecology, 2025c). The potentially liable persons (PLPs) identified in the AO and described in Section 2.2 of this document will conduct a remedial investigation (RI) to further assess the nature, extent, and magnitude of petroleum hydrocarbons at the 101 East and 101 West properties. When this is complete, they will use the information to develop a feasibility study (FS) and identify remedial alternatives for implementation at the 101 East and 101 West properties, if warranted. The preparation of this RI Work Plan, completion of fieldwork, and reporting comprises Tasks 1 and 2 as set forth in Exhibit B of the AO.

1.1 Site Information

Site Name:	DeBocks Main Street Texaco Site		
Property Address:	100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington		
Facility Site ID:	94369212		
Cleanup Site ID:	6910		
AO No.:	DE 22952		
Site Coordinates:	46°15'21.85"N, 119°54'7.14"		
Section / Township / Range	S23 / T09N / R23E		
	100 West	**101 East**	**101 West**
Tax Parcels:	230923-12463	230923-12401	230923-12555
Current Property Owners:	Eduardo Velasquez	Gorgeous Property LLC	101 W Wine Country Rd LLC
Current Property Uses:	Auto repair	Real estate office	Tortilleria
PLPs:	**Former Property Owner and Operator:** Powell Distributing, LLC (Powell Distributing), doing business as (DBA) Christensen, Inc.	**Property Owner:** Gorgeous Property LLC **Former Owner and/or Operator:** Chevron U.S.A. Inc (a successor to Standard Oil Company of California)	**Former Property Owner:** A.J. Still and Elizabeth Still **Former Owners and/or Operators:** • Chevron (a successor to The Texas Company, Signal Oil Company, and Standard Oil Company of California) • ExxonMobil (a successor to Humble Oil and Refining Company and Exxon Corporation)

Ecology Contact: Chelsea Wisotzkey
Washington State Department of Ecology, Central Region Office
1250 West Alder Street, Union Gap, Washington 98903
Phone: (509) 571-4708
Email: chelsea.wisotzkey@ecy.wa.gov

1.2 Objective – Task 1

Task 1, as identified in the AO, is to prepare a work plan outlining procedures for the RI (Task 2) on the 101 East and 101 West Wine Country Road properties. The objective of this RI Work Plan is to outline a soil and groundwater investigation on the 101 East and 101 West Wine Country Road properties and their surrounding rights-of-way for the purpose of gathering additional information required to characterize the scope and scale of petroleum hydrocarbon concentrations, aid in determining strategies for possible future environmental remediation, and address any existing data gaps essential for finalizing the FS.

The RI Work Plan for Task 1 includes the following information:

- General facility information such as past and present ownership, adjacent property usage, and zoning designations.
- Site conditions maps illustrating current Site features, groundwater monitoring wells, and subsurface structures.
- General geology and hydrogeology of the Site vicinity, including an inventory of wells within a 1-mile radius of the site.
- Summary of previous investigations and interim remedial actions at the Site.
- Preliminary conceptual site model.
- Planning and description of Task 2.
- Project management team and distribution of responsibilities.
- Schedule for RI fieldwork, analysis, and report preparation.
- Sampling and Analysis Plan (SAP) consistent with the requirements specified in Washington Administrative Code (WAC) 173-340-820 (WAC, 2023) and comprising a description of all proposed fieldwork, including the locations for borings/wells, the number and types of samples to be collected, and the laboratory analytical methods to be used.
- Quality Assurance Project Plan (QAPP) consistent with the requirements specified in WAC 173-340-820 (WAC, 2023) and comprising field and laboratory quality assurance/quality control (QA/QC) procedures and expectations, decontamination procedures, data management, and data validation.
- Site-specific Health and Safety Plan (HASP) consistent with the requirements specified in WAC 173-340-810 (WAC, 2023) and including chemical protection levels, hazard evaluation, emergency procedures, and other special considerations.
- Inadvertent Discovery Plan (IDP) conforming with WAC 173-340-815 (WAC, 2023) and comprising procedures to be followed upon discovery of any Native American or Euromerican artifacts or human remains and contact information for all applicable parties subject to notification.

1.3 Work Plan Organization

This RI Work Plan was prepared in accordance with WAC 173-340-350 and fulfills Task 1 as defined in Exhibit B of the AO. The organization of this RI Work Plan is presented below:

- **Section 2 Site Background:** This section provides background information on the Site, including its location, historical ownership, adjacent properties, regulatory oversight, geological and hydrogeological characteristics, climate, and past Site assessment and interim actions.
- **Section 3 Preliminary Conceptual Site Model:** This section outlines the preliminary conceptual site model discussing sources, transport mechanisms, exposure pathways, and receptors of contaminants, while highlighting ongoing model refinement during the RI process with a focus on underground storage tanks (USTs) and associated piping and dispensing equipment, soil, groundwater, light non-aqueous phase liquid (LNAPL), and potential receptors including workers while also addressing future exposure pathways.
- **Section 4 Preliminary Cleanup Standards:** This section establishes preliminary cleanup standards for the preliminary contaminants of potential concern (COPCs), preliminary points of compliance (POCs), and preliminary applicable or relevant and appropriate requirements (ARARs) for petroleum hydrocarbons and their associated compounds released from USTs and associated piping, following the Model Toxics Control Act (MTCA) rules and considering Site-specific conditions and exposure pathways identified in the preliminary conceptual site model. Final cleanup standards will be determined by Ecology in the Cleanup Action Plan.
- **Section 5 Proposed Characterization:** The proposed characterization includes determining the presence or absence of USTs on the 101 West property, installing nine groundwater monitoring wells, collecting soil samples, installing and sampling sub-slab soil vapor pins at the 101 East property, and evaluating the influence of stormwater infiltration on groundwater hydrology beneath the Site. Specific details outlined in the SAP, QAPP, and site-specific HASP are provided in the appendices.
- **Section 6 Preliminary Cleanup Action Alternatives:** This section comprises a list of preliminary cleanup action alternatives that may be considered as part of the FS to address petroleum hydrocarbons and their associated compounds released from USTs and associated piping and dispensing equipment along with associated data or studies that may be required for their applicability evaluation.
- **Section 7 Task 2 – Remedial Investigation:** This section summarizes Task 2 as outlined in the AO.
- **Section 8 Project Management:** This section identifies key personnel associated with this Site and provides their contact information.
- **Section 9 Schedule for Implementation:** The section provides an implementation schedule for fieldwork and reporting following Ecology's approval and finalization of this RI Work Plan.

Cumulative soil analytical results are summarized on Tables 1 through 6. Well construction details are summarized on Table 7. Cumulative groundwater analytical results are summarized on Tables 8 through 10. Characteristics of an LNAPL sample collected from well MW-2 are summarized on Table 11. Cumulative soil vapor analytical results are summarized on Tables 12 through 15. The Site vicinity is illustrated on Plate 2, and the Site and Site features are illustrated on Plate 3. Tables and plates comprise cumulative data for all three properties at the Site including 100 West, 101 East, and 101 West Wine Country Road and associated rights-of-ways.

2 Site Background

2.1 Site Description

The Site is located in Grandview, Washington (Plate 1). As defined by Ecology in Exhibit A of the AO, the Site is an area comprising the properties at 100 West, 101 East, and 101 West Wine Country Road and their surrounding rights-of-way where hazardous substances have been deposited, stored, disposed of, placed, or otherwise come to be located. The Site is located in a historical commercial district of downtown Grandview. The ground surface across the Site is covered with concrete, asphalt, gravel, or curated vegetation (planter boxes, trees, etc.).

2.2 Site Discovery and Regulatory Background

This section summarizes the regulatory background of the Site, including the AO.

The cleanup of the Site is regulated under WAC Chapter 173-340 – MTCA Cleanup Regulations (WAC, 2023). Environmental investigation and interim actions have been conducted at the Site since 1995 when petroleum hydrocarbons in soil were discovered during UST removal activities on the 100 West Wine Country Road property (WSI, 1995).

In September 2017, Ecology issued a Potential Liability letter to Powell Distributing, DBA R.E. Powell & SeaPort, for the 100 West Wine Country Road property (Ecology, 2017).

Based on data presented in EES Environmental Consulting, Inc.'s (EES) *Technical Memorandum, Supplemental Investigation Tasks (August 2019)* report for the 100 West Wine Country Road property (EES, 2019b), Ecology determined that gasoline releases also occurred at 101 East Wine Country Road and 101 West Wine Country Road and that the releases at these three properties appeared to be commingled and were considered to be one Site under the MTCA (Ecology, 2019a; 2019b; 2019c; 2019d).

In November 2019, Ecology issued Potential Liability letters to Chevron and ExxonMobil, as successors to historical oil companies named on title records for the properties at 101 East Wine Country Road and 101 West Wine Country Road (Ecology, 2019a; 2019b). The letters identified Chevron as a PLP for the 101 East and 101 West properties and ExxonMobil as a PLP for the 101 West property (Ecology, 2019a; 2019b). Additional PLPs notified in November 2019 included A.J. Still and Elizabeth Still as owners of 101 West and Gorgeous Property LLC as owner of 101 East (Ecology, 2019c; 2019d).

In March 2020, Ecology issued Final Determination of Liability letters to Chevron and ExxonMobil, indicating that they were each determined to be PLPs for the commingled Site (Ecology, 2020a; 2020b). Ecology also issued Final Determination of Liability letters to A.J. Still and Elizabeth Still, Gorgeous Property LLC, and Powell Distributing, DBA Christensen, indicating that they were each determined to be PLPs for the commingled Site comprising the three properties at 100 West, 101 East, and 101 West Wine Country Road (Ecology, 2020c; 2020d; 2020e).

The 100 West property was enrolled in Ecology's Voluntary Cleanup Program (VCP) between 2017 and 2023 as VCP Project Number CE0488. On August 1, 2023, Ecology terminated the VCP Agreement in order to "supervise further action at the Site under an order or decree" (Ecology, 2023).

The commingled Site was briefly enrolled in Ecology's Pollution Liability Insurance Agency's (PLIA) Technical Assistance Program (TAP) from July 28 to August 9, 2023, as TAP Project P-C2679; however, PLIA terminated the Site's enrollment based on Ecology's August 1, 2023, request to "supervise further action at the Site under an order or decree" (AECOM, 2024; Ecology, 2023).

Ecology invited Chevron, ExxonMobil, and Powell Distributing, to negotiate an agreed order on July 25, 2024, for completion of a RI, FS, and draft cleanup action plan for the Site, identified as the "DeBocks Main Street Texaco" (Ecology, 2024a; 2024b).

The AO was issued on May 15, 2025, with tasks assigned to the PLPs for completion of RI, FS, and draft cleanup plans (Ecology, 2025c). This RI Work Plan (Task 1) was prepared by Chevron and ExxonMobil for the 101 East and 101 West properties. The RI (Task 2) will further assess the nature, extent, and magnitude of petroleum hydrocarbon concentrations at the 101 East and 101 West properties. Tasks for the FS and draft cleanup action plan have been separated with Chevron and ExxonMobil leading the efforts for the 101 East and 101 West properties and Powell Distributing leading the efforts for the 100 West property.

2.3 Property Description – 100 West Wine Country Road

The 100 West Wine Country Road property is a 0.19-acre parcel, identified as Yakima County tax parcel number 23092312463 (Yakima County, 2025a). One 1,922-square-foot masonry-wall building currently exists at the property along with a canopy extending from the building northward to the sidewalk along West Wine Country Road. The legal description and select Yakima County assessor information is summarized in Appendix A.

2.3.1 Ownership

2.3.1.1 Current Property Owner and Property Use

The current property owner is Eduardo Velasquez. The property currently operates as an auto repair business, Grandview Auto Electric & Diesel LLC.

2.3.1.2 Past Property Owners and UST Owners/Operators

On August 5, 2021, Christensen, Inc. sold the property to Eduardo Velasquez (Appendix A).

The UST records from 1986, 1991, 1992, 1993, and 1994 were signed by Gary Christensen on behalf of Powell-Christensen, Inc. (Appendix B). R.E. Powell Distributing Co. was noted as the owner and operator of the USTs at the time of their removal in 1995 (WSI, 1995). R.E. Powell Distributing Co. is part of Christensen, Inc., a distributor of fuel, lubricants, and propane in the Pacific Northwest; formerly operating under separate names, the brands were consolidated under the Christensen name in 2019 (Christensen, Inc., 2019).

2.3.2 Historical Fueling Infrastructure

Four USTs are known to have operated on the 100 West Wine Country Road property between 1920 and 1995.

A 550-gallon UST associated with a historical fueling system in the 1920s to 1930s reportedly existed near the northeast corner of the property. The 1920 Sanborn map labeled this UST as containing gasoline (Appendix C); however, additional details regarding the contents of this tank, its removal date, and other associated conveyance equipment are not available in Site records.

Two single-wall steel USTs (a 5,000-gallon and an 8,000-gallon) located south of the building were reportedly installed in 1961 according to UST records from 1986 and 1991; however, UST records from 1993 and 1994 indicate that the USTs were installed in 1972 (Appendix B). Historical UST records indicate that the 5,000-gallon UST contained unleaded gasoline in 1986 and 1992 and leaded gasoline in 1993 and 1994 (Appendix B). Historical UST records indicate that the 8,000-gallon UST contained leaded gasoline in 1986 and 1992 and unleaded gasoline in 1993 and 1994 (Appendix B). Ecology records and White Shield, Inc.'s (WSI) *UST Closure Site Assessment and Interim Remedial Action Report* indicates that the 5,000-gallon UST held leaded gasoline and the 8,000-gallon UST held unleaded gasoline at the time of their removal in 1995 (Ecology, 2025b; WSI, 1995).

A 1,000-gallon single-wall steel UST located northwest of the building near the northwestern corner of the present-day canopy was reportedly installed in 1978 according to UST records from 1986 and 1991; however, UST records from 1993 and 1994 indicate that the UST was installed in 1972 (Appendix B). UST records indicate this UST contained diesel in 1986 and 1992 and unleaded gasoline in 1993 and 1994 (Appendix B). Ecology records and WSI's *UST Closure Site Assessment and Interim Remedial Action Report* indicate that the 1,000-gallon UST held unleaded gasoline at the time of its removal in 1995 (Ecology, 2025b; WSI, 1995).

The three modern USTs (1,000-gallon, 5,000-gallon, and 8,000-gallon) were conveyed to a dispenser island on the north side of the building via underground steel piping (Appendix B).

During a geophysical survey at the property in 2018, one or two potential heating oil USTs were tentatively identified south of the building near the former gasoline UST area; however, the presence or absence of these heating oil USTs has not been confirmed (EES, 2020a).

2.4 Property Description – 101 East Wine Country Road

The 101 East Wine Country Road property is a 0.11-acre parcel, identified as Yakima County tax parcel number 23092312401 (Yakima County, 2025b). One 1,372-square-foot wood-frame building with a covered car port area on the north side currently exists at the property. The legal description and select Yakima County assessor information is summarized in Appendix A.

2.4.1 Ownership

2.4.1.1 Current Property Owner and Property Use

The current property owner is Gorgeous Property LLC. The property currently operates as a real estate office, Northwest Wine Country Real Estate, Inc.

2.4.1.2 Past Property Owners and UST Owners/Operators

On May 21, 2018, Kenneth S. Castle and Holly R. Winters-Castle sold the property to Gorgeous Property LLC; Holly Castle is the registered agency for Gorgeous Property LLC (Appendix A; Ecology, 2020d).

Historical chain of title entries indicate that Standard Oil Company of California, a predecessor to Chevron, leased the property in 1937 and in 1945 (Appendix A).

Historical Sanborn maps identify a small building on the southwest corner of the property; it is labeled as vacant in 1915 and 1920 and as a tin shop in 1925 and 1931 (Appendix C). The Sanborn maps from 1942 and 1952 identify a greasing, gas, and oils business in a layout typical of a mid-century retail fueling station (Appendix C). The aerial photographs from 1963 and 1973 show a vacant lot with the presumed retail fueling station building removed; this may signify a change in property use (Appendix C). The aerial photograph from 1982 includes the current building, reported to have been constructed in 1979 (Appendices A and C).

Historical photographs and tax records indicate that the property operated as a real estate office from at least 1981 to 1999 (AECOM, 2020).

2.4.2 Historical Fueling Infrastructure

Historical Sanborn maps indicate that the property operated as a greasing, gas, and oils business in 1942 and 1952 (Appendix C). The building and canopy shape and placement on the corner of the property are consistent with retail fueling stations of the mid-century era. No details on USTs (number, volume, location, content, or removal) are available in Site records.

During the geophysical survey at the property in 2021, no indications of existing or former USTs or associated subsurface conveyance equipment were identified (AECOM, 2022). The current building overlies the majority of the historical service station building and canopy footprint, as depicted on Sanborn maps in 1942 and 1952 (Appendix C).

2.5 Property Description – 101 West Wine Country Road

The 101 West Wine Country Road property is a 0.24-acre parcel, identified as Yakima County tax parcel number 23092312555 (Yakima County, 2025c). Two buildings and a utility shed currently exist on the property. The larger building on the southern portion of the property fronting West Wine Country Road is a 1,474-square-foot wood-frame building. The smaller building on the northern portion of the property is a 784-square foot masonry-wall building; the 196-square foot wood-frame utility shed is immediately

adjacent to this building on its east side. The legal description and select Yakima County assessor information is summarized in Appendix A.

2.5.1 Ownership

2.5.1.1 Current Property Owner and Property Use

The current property owner is 101 W Wine Country Rd LLC. The property currently operates as a specialty tortilla bakery, Tortilleria La Milpa LLC.

2.5.1.2 Past Property Owners and UST Owners/Operators

On January 7, 2025, A.J. Still and Elizabeth Still sold the property to 101 W Wine Country Rd LLC (Appendix A). A.J. Still and Elizabeth Still purchased the property in October 1978 from Exxon Corporation, a predecessor to ExxonMobil (Appendix A).

Historical chain of title entries indicate that predecessors to both Chevron and ExxonMobil leased and/or owned the property between 1931 and 1978 (Appendix A):

- The Texas Company (predecessor to Chevron) leased the property in 1931.
- Signal Oil Company (predecessor to Chevron) purchased the property in 1941.
- Standard Oil Company of California (which acquired Signal Oil Company in 1947) sold the property to Humble Oil and Refining Company (predecessor to ExxonMobil) in 1967.
- Exxon Corporation (a rebrand from Humble Oil and Refining Company in 1973) sold the property to A.J. Still and Elizabeth Still in 1978.

The current southern building footprint appears to change on aerial photography between 1949 and 1963, suggesting that the building was modified to enclose the canopy area; this may signify a change in property use on the southern portion of the property (Appendix C).

Historical photographs and tax records from 1981 to 1999 indicate that the southern building has operated as a vehicle consignment sales business, a recreational vehicle (RV) repair shop, and an auto repair and tire shop (AECOM, 2020).

2.5.2 Historical Fueling Infrastructure

2.5.2.1 Southern Half of Property – Retail Station

Historical Sanborn maps indicate that the building on the southern half of the property operated as a greasing, gas, and oils business in 1942 and 1952 (Appendix C). The building and canopy shape and placement on the corner of the property are consistent with retail fueling stations of the mid-century era. No details on USTs (number, volume, location, content, or removal) associated with the retail fueling operation are available in Site records.

2.5.2.2 Northern Half of Property – Bulk Fueling

Previous consultants have noted that an oil depot and fuel loading rack operated on the northern half of the property (AECOM, 2020; 2022). Historical Sanborn maps indicate that an oil storage and dispensing business was present in 1942 and 1952 (Appendix C).

An undated historical tax assessor document (Appendix B) includes a photograph of the bulk fueling dispenser filling a tanker truck along with the modern assemblage of buildings on the northern half of the property. The document also indicates that four USTs (two 5,000-gallon, one 10,000-gallon, and one 15,000-gallon) along with piping for three dispensers were present (Appendix B).

During the geophysical survey at the property in 2021, an anomaly interpreted to be disturbed soil in the northern portion of the property in a shape consistent with a UST cavity was identified; however, the concrete pad in this area is reinforced with rebar and the presence or absence of USTs beneath it could not be confirmed (AECOM, 2022). Additionally, the concrete pad has four pipes extending through the surface that could potentially have been associated with a UST venting or fueling system (AECOM, 2022). The former property owner (A.J. Still or Elizabeth Still) indicated that three USTs were removed from this area of the property at the time of their purchase in 1978 (AECOM, 2022).

2.6 Adjacent Ecology Cleanup Site

On the southeast corner of East Wine Country Road and Division Street is the Grandview Market Petrosun 1070 site (Facility Site No. 91458995, Cleanup Site No. 6845, VCP Project Number CE442). The property currently operates as a Time-branded fueling station and convenience store (Grandview Food Mart) dispensing three grades of fuel at one dispenser island from three USTs on the northwest portion of the property. The property has operated as a retail fueling station since 1965 (ES, 2018). A historical UST basin was located on the eastern portion of the property in front of the current convenience store building (ES, 2018).

Environmental investigation at the site was initiated in 1991 after concerns of gasoline vapors in the building adjacent to the site; a soil vapor survey indicated “elevated” levels of petroleum hydrocarbons in vapor samples (ES, 2018). During cathodic protection upgrades in 1998, petroleum hydrocarbons were reported in soil borings at concentrations exceeding pre-2001 MTCA cleanup levels (ES, 2018). Additional remedial investigations completed in 2000 led to the design and installation of a remediation system comprising groundwater pump and treat coupled with air sparging and soil vapor extraction (ES, 2018). The remediation system operated from 2002 to 2006, successfully reducing concentrations of petroleum hydrocarbons in soil and groundwater across the site (ES, 2018). Confirmation soil and groundwater sampling was completed in 2016 and 2017, and the site was issued a no further action determination in 2018 (Ecology, 2018).

2.7 Geology and Hydrogeology

2.7.1 Regional Geology

The Grandview region is underlain by the Columbia River Basalt Group. The Columbia River Basalt Group comprises over 300 layers of extensive basalt flows, covering an area of 81,000 to 87,000 square

miles (Camp et al., 2017; DNR, 2025). Most layers were deposited as pāhoehoe sheet flows, ranging from 30 to greater than 150 feet thick, comprising a total estimated thickness of up to 16,000 feet (Camp et al., 2017; DNR, 2025). Eruptions lasted for more than 11 million years between 16.7 and 5.5 million years ago; the main eruptive phase lasted approximately 1.1 million years from 16.7 to 15.6 million years ago (Camp et al., 2017). The Miocene-age rock, generated in a back-arc region between the Cascade Range and Rocky Mountains, comprises the youngest continental flood basalt province on Earth (Camp et al., 2017; DNR, 2025). Grandview is underlain by the Saddle Mountains Basalt and Wanapum Basalt, members of the Yakima Basalt, a subgroup of the Columbia River Basalt (DNR, 2025; Camp et al., 2017).

The youngest of the regional basalt, the Saddle Mountains Basalt, is overlain by and interfingered with the Ellensburg Formation comprising pyroclastic and sedimentary deposits (both fluvial and lacustrine) of late Miocene to early Pliocene (Bingham and Grolier, 1966; Mackin, 1961). The Ellensburg Formation is noted to be up to 2,000 feet thick near Yakima (Bingham and Grolier, 1966). Basalt was first encountered at approximately 50 feet below ground surface (bgs) in City of Grandview (City) Well S02 (aka Balcom), approximately 0.20-mile south-southeast of the Site (Appendix D).

Surficial sediments in the Grandview area are mapped as silt and sand outburst flood deposits (Reidel and Fecht, 1994; Schuster, 2005). Silts and fine sands are lacustrine in origin, with accompanying coarse to fine sands of fluvial origin composed primarily of quartz and feldspar with basalt in coarser sands (Reidel and Fecht, 1994). The flood deposits are rhythmically bedded (aka rhythmites) and include Touchet Beds, deposited by outburst floods from glacial Lake Missoula and back floods as the flow met a choke point at the Wallula Gap (DNR, 2025; Reidel and Fecht, 1994; Schuster, 2005; Vaccaro et al., 2009). The combined sedimentary (Ellensburg) and glacial (outburst and back flood) deposits are estimated to be an average of 550 feet thick in the Grandview area of the Yakima Valley (Vaccaro et al., 2009).

The major physiographic feature of the greater regional area is the Columbia Basin, a broad structural basin situated between the Cascade Range and the Idaho batholith (Camp et al., 2017). Grandview is located in the southeastern (also called lower) part of the Yakima Valley, a structural depression bounded on the north by the Rattlesnake Hills and on the south by Horse Heaven Hills (Schuster, 2005) within the greater Yakima Fold Belt (Camp et al., 2017; DNR, 2025). There have been no significant changes to the regional topography since the Pleistocene flood events.

2.7.2 Regional Hydrogeology

Grandview lies in the lower part of the Toppenish groundwater basin, one of six structural basins within the greater Yakima River Basin Aquifer System (Vaccaro et al., 2009). The Yakima River Basin Aquifer System comprises approximately 6,200 square miles where hydraulic gradients are typically similar to topographic gradients and flow is directed toward the Yakima River (Vaccaro et al., 2009). Irrigation was initiated in the Yakima River Basin in the 1800s and irrigated agriculture remains the principal economic activity today (Vaccaro et al., 2009). Water levels have been stable or have declined less than 20 feet in most of the Yakima River Basin; however, some areas have experienced up to 300 feet of decline due to irrigation pumping, primarily in the Columbia River Basalt Group members of the aquifer system (Vaccaro et al., 2009).

Groundwater occurs in the flood deposits (aka rhythmites or Touchet Beds), sediments of the Ellensburg Formation, as well as the Saddle Mountain and Wanapum Basalt units under perched, unconfined, semiconfined, or confined conditions (Vaccaro et al., 2009). Public supply wells for the City are largely sourced from the Saddle Mountain and Wanapum Basalt units, which appear to be under confined conditions (City, 2015). Groundwater recharge to the Yakima River Basin occurs via infiltration of precipitation as well as irrigation return flows (Vaccaro et al., 2009). Depth to water fluctuates regionally in the Toppenish basin on the order of 10 feet based on seasonal precipitation and irrigation application (Vaccaro et al., 2009).

Hydraulic conductivities for the two primary groundwater-bearing units in the Yakima River Basin, the basin-fill (flood deposits and Ellensburg Formation) and Columbia River Basalt Group members, estimated using aquifer test data for 99 wells, were compiled by Vaccaro et al. (2009). The average hydraulic conductivity for the basin-fill units was 167 feet per day and the average hydraulic conductivity for the Columbia River Basalt Group members was 36 feet per day (Vaccaro et al., 2009).

The Yakima River Basin is primarily drained by the Yakima River and the Naches River, before joining the Columbia River near the city of Richland (Vaccaro et al., 2009). The Yakima River is fed by the Teanaway, Cle Elum, and Kachess Rivers; the Naches River is fed by the Tieton, Bumping, America, and Little Naches Rivers before its confluence with the Yakima River near the city of Yakima (Vaccaro et al., 2009).

2.7.3 Site Geology

Boring logs at the Site indicate that silt and sand mixtures extend from ground surface to 30 feet bgs, the maximum depth explored at the Site (WSI, 1995; Sage, 1996; Olympus Environmental, 1998; EES, 2019a, 2019b, 2020a; AECOM, 2020). Boring logs compiled on the 101 East and the eastern half of the 101 West properties tend to describe the soils as silt with varying amounts of fine-grained sand. Boring logs compiled on the western halves of the 100 West and 101 West properties tend to describe the soils as alternating layers of silty sand and silt. Many of the silt layers are described as having thin (1 to 6 inches) layers of fine- to medium-grained sand within them (Olympus Environmental, 1998). Pea gravel and non-native fill material was encountered in borings on the 100 West property where UST removal activities had previously occurred (EES, 2019a). These silt and sand mixtures are interpreted to be the outburst flood and back flood deposits identified as surficial units in the region (Reidel and Fecht, 1994; Schuster, 2005).

2.7.4 Site Hydrogeology

Groundwater is typically encountered at approximately 18 to 22 feet bgs (Table 8); however, the groundwater table was shallower (approximately 13 feet bgs) as recently as 25 years ago (EES, 2019a). Groundwater monitoring wells at the Site are installed within first-encountered groundwater and are typically screened from 15 to 25 feet bgs. Groundwater is unconfined and generally flows from the northeast to the southwest across the Site (EES, 2025b; AECOM, 2020, 2025). Groundwater fluctuates seasonally; higher elevations are observed during irrigation season between April and October (EES, 2019a). A groundwater elevation map from the most recent groundwater monitoring event (June 2025) is included as Plate 4.

The Site is surrounded by several laterals, drain lines, and canals associated with the Sunnyside Valley Irrigation District (SVID, 2025). The Yakima River is located approximately 2.5 miles southwest of the Site.

2.8 Climate

Grandview is situated in the rain shadow of the Cascade Range and experiences over 270 sunny days each year, with hot dry summers and high temperatures near 90 degrees Fahrenheit (°F) and cool winters with low temperatures near 20 °F (Port, 2025). The climate of the Grandview area is classified as semi-arid with an average rainfall of 7 to 10 inches per year, including 14 to 25 inches of snowfall during the winter (Port, 2025).

2.9 Groundwater Use Evaluation

A beneficial use evaluation for groundwater was completed by EES in their November 2020 *Remedial Investigation Report* (EES, 2020a). A well search was completed for an approximate 0.25-mile radius of the 100 West property. Information for 219 wells was reviewed as part of the evaluation; of those 219 wells, three water supply wells were identified within the search radius (EES, 2020a). Because those three wells source their water from much deeper (>105 feet bgs) than the first-encountered groundwater at the Site, EES concluded that there is no beneficial shallow groundwater use known or anticipated at the Site (EES, 2020a).

The City provides water service to the properties encompassing and surrounding the Site. A review of City documents, including a map of the Existing Water System, the 2024 Water Quality Report, and the 2015 Water System Plan indicates the City obtains its drinking water from 14 groundwater wells (City, 2015; 2024a; 2024b). Three City wells draw water from the Saddle Mountain Basalt Aquifer with total depths ranging from 112 to 760 feet bgs, and the remaining 11 draw water from the Wanapum Basalt Aquifer with total depths ranging from 1,150 to 1,294 feet bgs (City, 2015). There are two City wells within 0.25-mile radius of the Site: Well S01 (aka West Main), located approximately 0.13-mile west-northwest of the Site, and Well S02 (aka Balcom), located 0.20-mile south-southeast of the Site (City, 2015). Well S01 is cased to 247 feet bgs in the Saddle Mountain Basalt Aquifer and Well S02 is cased to 253 feet bgs in the Wanapum Basalt Aquifer (City, 2015).

2.10 Stormwater Conveyance Evaluation

Multiple stormwater conveyance installations to prevent localized ponding are present at the Site in the rights-of-way surrounding the three private properties (EES, 2020a). It remains unclear whether these structures influence local groundwater behavior during times of infiltration.

Beneath the north side of Wine Country Road, immediately adjacent to the 101 West property, is an infiltration trench measuring approximately 60 feet long and extending approximately 10 feet from the sidewalk (Plate 2). In April 2021, this feature was subjected to geophysical and conductive surveys; however, the depth of the structure could not be discerned (AECOM, 2022).

In North Division Street, two dry wells were identified (Plate 2). The City Public Works Department reported that the dry wells are concrete structures that are 2 feet in diameter and 6 feet deep (AECOM, 2024).

An evaluation of the stormwater conveyance structures and their influence (if any) on local groundwater hydrology is proposed for completion as part of this RI Work Plan (Section 5.0).

2.11 Terrestrial Ecological Evaluation

A terrestrial ecological evaluation (TEE) was completed for the 100 West property in 2020 (EES, 2020a). Based upon the evaluation, the property met the undeveloped land exclusion because less than 1.5 acres of contiguous undeveloped land are located within 500 feet of the property (EES, 2020a).

TEEs for the 101 East and 101 West properties are not available in Site records. A TEE encompassing the entirety of the Site, including all three properties and the associated rights-of-way, is proposed for completion as part of this RI Work Plan (Section 5.5).

2.12 Site Assessment Activities

Previous environmental investigation and remediation activities have been conducted at the Site by various consultants since 1995. Site assessment began with investigations at the 100 West property and expanded to include the 101 East and 101 West properties in 2019. Cumulative soil analytical results are summarized on Tables 1 through 6. Well construction details are summarized on Table 7. Cumulative groundwater analytical results are summarized on Tables 8 through 10. Characteristics of an LNAPL sample collected from well MW-2 are summarized on Table 11. Cumulative soil vapor analytical results are summarized on Tables 12 through 15. Historical soil and groundwater conditions are illustrated on Plates 5 and 6. An analytical results map from the most recent groundwater monitoring event (June 2025) is included as Plate 7. Tables and plates comprise cumulative data for all three properties at the Site including 100 West, 101 East, and 101 West Wine Country Road and associated rights-of-ways.

In March 1995, WSI provided oversight and environmental soil sample collection during removal of three USTs (1,000-gallon, 5,000-gallon, and 8,000-gallon) at the 100 West property (WSI, 1995). The USTs were noted as being in good condition with minor corrosion and were reportedly repurposed by the owner (R.E. Powell Distributing Co.) and a third party for continued fuel storage off-Site (WSI, 1995). Excavation #1 was completed where the 5,000-gallon and 8,000-gallon USTs were co-located south of the building; excavation #2 was completed on the northwest corner of the property where the 1,000-gallon UST was located (WSI, 1995). Soil samples were collected on the sidewalls of the excavations and beneath each UST (Plate 5); several soil samples, including those from sidewalls, were composited before laboratory analysis for gasoline range petroleum hydrocarbons (GRPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX). The composited sidewall samples and the bottom samples were non-detect for all constituents (Table 1).

Soil excavated from Excavation #1 (south of the building) was used to backfill the excavation; soil excavated from Excavation #2 (northwest of the building) was transported off-Site for disposal (WSI, 1995).

Product lines between the USTs and dispenser island were purged and capped in place; their removal via excavation was prevented by their partial conveyance beneath the building foundation (WSI, 1995).

Soil samples collected beneath the dispenser island at 2.5 feet bgs were field screened with an organic vapor analyzer (OVA), which indicated concentrations exceeding 1,000 parts per million (ppm); however, these samples were not submitted for laboratory analysis (WSI, 1995). In response to the OVA measurements, a test pit was excavated beneath the dispenser island to a total depth of 14.5 feet bgs (WSI, 1995). Field notes indicated that a sandy layer at 9 feet bgs had a “high concentration of petroleum product” and that a “high concentration of petroleum” was detected at 14.5 feet bgs; however, the presumed OVA measurements or a description of the soil’s physical appearance that led the author to conclude the concentrations were “high” were not recorded in the field notes nor were soil samples submitted for laboratory analysis (WSI, 1995). The test pit was backfilled with the excavated soil “until a remediation strategy is chosen” (WSI, 1995).

In October 1995, Sage Earth Sciences, Inc. (Sage) advanced nine hand-augered soil borings (SB#1 through SB#9) to a maximum depth of 17 feet bgs at the 100 West property (Sage, 1996). Soil samples collected between 10 and 15 feet bgs in five of the borings (SB#3 through SB#7) contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples from five of the borings (SB#3 through SB#7) contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

In February 1998, Olympus Environmental, Inc. (Olympus Environmental) completed five GeoProbe borings (GP-1 through GP-5), four of which were in the rights-of-way around the 100 West property, to a maximum depth of 16 feet bgs (Olympus Environmental, 1998). Soil samples collected at 15 feet bgs from four of the five borings contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples from four of five borings contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

In March 1998, groundwater monitoring wells MW-1 through MW-3 were installed at the 100 West property (Olympus Technical, 2001). Soil samples collected from 14 to 16 feet bgs in the borings for wells MW-2 and MW-3 contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Site records do not indicate whether soil samples were collected from the boring for well MW-1. Additionally, boring logs for wells MW-1 through MW-3 are not available in Site records.

In September 2000, Olympus Technical Services, Inc. (Olympus Technical) completed five soil probe borings (SP-1 through SP-5) to a maximum depth of 18 feet bgs around the decommissioned dispenser island at the 100 West property (Olympus Technical, 2001). Soil samples collected from borings SP-1 and SP-2 from 7 to 9 feet bgs and from boring SP-2 at 11 to 13 feet bgs contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples from all five borings contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

In March and April 2018, EES advanced 17 soil borings (B1 through B17) and completed nine of them as groundwater monitoring wells (MW-4 through MW-12) at the 100 West property (EES, 2019a). The borings were advanced to a maximum depth of 25 feet bgs using direct-push drilling (EES, 2019a). Sixty-one (61) soil samples were collected from the 17 borings; soil samples shallower than 10 feet and at 25

feet bgs did not contain concentrations of petroleum hydrocarbons above laboratory reporting limits (Table 1). Concentrations of petroleum hydrocarbons in soil exceeding MTCA cleanup levels were concentrated between 14 and 20 feet bgs (Table 1).

Additionally in March 2018, EES completed soil vapor sampling at the 100 West property (EES, 2019a). Nine borings (SG1 through SG9) were advanced to 5 feet bgs using direct-push drilling; the drill rig was equipped with post-run tubing vapor sampling equipment (EES, 2019a). Soil vapor sample results indicated concentrations of petroleum hydrocarbons and associated compounds were present above laboratory reporting limits but below MTCA screening levels with the exception of naphthalene in the sample collected at SG7 (Table 11).

In August 2019, EES advanced five soil borings (B19 through B23) in the rights-of-way north and northeast of the 100 West property and installed one groundwater monitoring well (MW-13) on the 100 West property (EES, 2019b). The soil borings were advanced to a maximum depth of 25 feet bgs using direct-push drilling (EES, 2019b). Soil samples collected at 15 feet bgs in soil boring B19 (near the 101 West property), soil boring B21 (near the 101 East property), and soil boring MW-13 (on the 100 West property), and at 20 feet bgs in soil boring MW-13 contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples from soil borings B19 and B20 near the 101 West property, and B21 near the 101 East property, contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

In 2020, EES published an RI report for the 100 West property comprising an evaluation of historical soil, groundwater, and soil vapor sampling completed between 1995 and 2020, focusing on data collected between 2018 and 2020 (EES, 2020a). The report identified three distinct source areas at the Site: the former fuel dispenser island at the 100 West property, the former gasoline UST areas and associated piping at the 100 West property, and the upgradient source area(s) on the north side of Wine Country Road (EES, 2020a).

In April 2021, AECOM completed geophysical and conductive surveys on the 101 East and 101 West properties (AECOM, 2022). On the 101 West property, an anomaly interpreted to be disturbed soil in the northern portion of the property in a shape consistent with a UST cavity was identified; however, the concrete pad in this area is reinforced with rebar and the presence or absence of USTs beneath it could not be confirmed (AECOM, 2022). Additionally, the concrete pad has four pipes extending through the surface that could potentially have been associated with a UST venting or fueling system (AECOM, 2022). No potential indicators of existing or former UST or fuel lines were identified on the 101 East property (AECOM, 2022).

In September 2021, AECOM observed Cascade Technical Services complete seven Membrane Interface Probe-Hydraulic Profiling Tool (MIHPT) borings and nine Ultra-Violet Optical Screening Tool (UVOST) borings across the Site (AECOM, 2022). Total depths ranged from 23 to 27 feet bgs (AECOM, 2022). On the 101 West property, data collected from both sets of tooling identified a potential area of LNAPL near the former fueling rack area on the northern portion of the property at UVOST-2 and UVOST-3, and dissolved-phase hydrocarbons on the southern and southeastern portion of the property at UVOST/MIHPT-4 (AECOM, 2022). On the 101 East property, data collected from both sets of tooling identified dissolved-phase hydrocarbons on the southwestern corner of the property at UVOST/MIHPT-7

(AECOM, 2022). On the 100 West property, data collected from both sets of tooling identified dissolved-phase hydrocarbons on the northern edge of the property at UVOST/MIHPT-9 (AECOM, 2022).

In October 2022, AECOM advanced four soil borings (B24 through B27) and installed five groundwater monitoring wells (MW-14 through MW-18) on the 101 West property and advanced one angled soil boring (B29) and installed three groundwater monitoring wells (MW-19 through MW-21) on the 101 East property (AECOM, 2023). Soil borings B24 through B27 and the borings for the eight groundwater monitoring wells were advanced to 25 feet bgs using direct-push drilling (AECOM, 2023). Soil boring B29 was an angled boring advanced a total length of 28 feet from the ground surface west of the building on the 101 East property at a 59 degree angle; the maximum depth was approximately 24 feet bgs at a point beneath the building 14.5 feet laterally east of the surface origination point (AECOM, 2023). Soil samples collected on the 101 West property (B24 through B26 and MW-14 through MW-16) contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Soil samples collected on the 101 East property (B29, MW-20, and MW-21) contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples collected from all five borings (B24 through B27 and B29) contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

As part of their remedial investigation, AECOM completed an evaluation of chromatograms for GRPH by Northwest Total Petroleum Hydrocarbons (NWTPH) for Gasoline Range Organics (NWTPH-Gx) and DRPH and ORPH by NWTPH for Diesel/Oil Range Organics (NWTPH-Dx) analyses (AECOM, 2023). Two distinct gasoline patterns and three distinct diesel patterns were identified across the Site (AECOM, 2023). The chromatographic patterns for both gasoline and diesel in groundwater collected from borings MW-15, MW-16, B25, and B26 on the northern half of the 101 West property were noted as similar to each other, suggesting a common source area (AECOM, 2023). The chromatographic patterns for both gasoline and diesel in groundwater collected from borings MW-17 and MW-18 on the 101 West property and borings MW-20, MW-21, and B29 on the 101 East property were noted as similar to each other, suggesting a common source area for petroleum hydrocarbons in groundwater beneath the southern edge of the 101 West property and beneath the southwestern corner of the 101 East property (AECOM, 2023). These two conclusions, coupled with the known source area on the 100 West property south of Wine Country Road, suggested that there are at least three distinct source areas across the Site (AECOM, 2023).

In December 2023, AECOM advanced two soil borings (B31 and B32) west of the 101 East property; advanced one soil boring (B30), installed one injection well (IW-1), and installed three groundwater monitoring wells (MW-22 through MW-24) at the 101 West property; and installed four groundwater monitoring wells (MW-25 through MW-28) in Wine Country Road between the 101 West and 100 West properties (AECOM, 2023). All borings and wells were advanced to 27.5 to 30 feet bgs using direct-push drilling (AECOM, 2023). With the exceptions of borings MW-24 and MW-26, soil samples collected between 10 and 20 feet bgs in all borings contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 1). Grab groundwater samples collected from borings B30 and B32 contained concentrations of petroleum hydrocarbons exceeding MTCA cleanup levels (Table 8).

Additionally in December 2023, a sub-slab soil vapor survey was completed in the two main buildings on the 101 West property (AECOM, 2023). Sub-slab soil vapor pins SSV-1 and SSV-2 were installed in the northern building and sub-slab soil vapor pins SSV-3 through SSV-6 were installed in the southern

building (AECOM, 2023). GRPH was above MTCA screening levels in five of the soil vapor pins. Other than GRPH, concentrations of petroleum hydrocarbons and other volatile organic compounds (VOCs) were present above laboratory reporting limits but below MTCA screening levels in all six sub-slab soil vapor samples (Tables 11 through 13). A sub-slab soil vapor survey planned for the building on the 101 East property could not be completed as planned due to building access limitations (AECOM, 2023).

2.13 Interim Actions

2.13.1 Dispenser Island Excavation

In their *Remedial Investigation Report* (EES, 2020a), EES summarized a soil excavation near the former dispenser island on the 100 West property that removed approximately 50 tons of soil in December 2003 (EES, 2020a). As noted in the EES report, work completed by 3Kings Environmental and Blue Mountain Environmental included excavation of soil containing petroleum hydrocarbons, transportation and disposal of soil off-Site, and laboratory analysis of soil samples by OnSite Environmental; however, no summary report, laboratory analytical report, or Site map illustrating the excavation limits and soil sample locations are available in Site records.

2.13.2 LNAPL Characterization and Removal

2.13.2.1 LNAPL Characterization

LNAPL was first observed in groundwater monitoring well MW-2 in October 2017 at 0.91 foot (EES, 2019a). Because no environmental activities at the 100 West property occurred between 2003 and October 2017, it is unknown when the LNAPL first began to accumulate in the well. The maximum accumulation of LNAPL noted in Site records was 1.14 foot in February 2018 (EES, 2019a).

In February 2018, EES collected a bulk product sample from well MW-2 for hydrocarbon characterization (Table 11; EES, 2019a). Analysis of the LNAPL sample from well MW-2 using Hydrocarbon Identification (HCID) Screen by NWTPH-HCID indicated that gasoline range organics were present (>18,000 milligrams per kilogram [mg/kg]) but that diesel range and oil range organics were not present (<45,000 mg/kg and <90,100 mg/kg, respectively) (EES, 2019a). EES also evaluated benzene and toluene to ethylbenzene and xylenes ratios, concluding that gasoline (LNAPL) was “extensively degraded” (EES, 2019a).

2.13.2.2 LNAPL Recovery

In May 2018, EES initiated monthly LNAPL skimming using a disposable bailer or peristaltic pump with disposable tubing (EES, 2019a). This was also referred to as total fluids pumping and recovery (TFR) and was performed on a monthly basis between May 2018 and January 2019, removing approximately 6 gallons of emulsified LNAPL and water (EES, 2020a). Citing low yield and slow recharge rates, TFR was discontinued in January 2019 (EES, 2020a).

In February 2019, passive product recovery was initiated with the installation of an absorbent sock in well MW-2 (EES, 2020a). The most recent *Interim Action Status Update* published by EES in February 2025

indicates that approximately 5.2 gallons of LNAPL has been removed from well MW-2 via absorbent socks between February 2019 and December 2024 (EES, 2025a).

LNAPL accumulations have been observed to be highest during low water periods (March and April) and lowest during irrigation season (April through October) as the local groundwater level rises (EES, 2020b).

3 Preliminary Conceptual Site Model

MTCA Section 173-340-200 defines the conceptual site model as a conceptual understanding of a site that identifies potential or suspected sources of hazardous substances, types, and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors (WAC, 2023). A preliminary conceptual site model was developed for this RI Work Plan based on the geology and hydrogeology, Site history and use, and nature and extent of preliminary COPCs in soil and groundwater.

The conceptual site model will continue to be refined during the RI (Task 2) as data gaps are closed and the site is fully characterized. As the Site progresses through the RI, FS, and cleanup action plan process, the conceptual site model may vary slightly from property to property in terms of completed exposure pathways and receptors. PLPs will make an effort to be specific to differing property conditions, where applicable, in text discussions of the conceptual site model while keeping illustrations representative of the Site as a whole. A preliminary conceptual site model is shown on Plate 8.

3.1 Sources of Preliminary Contaminants of Potential Concern

The primary sources of preliminary COPCs at the Site are the confirmed and suspected USTs, product piping, and dispensing equipment associated with historical operations at the 100 West, 101 East, and 101 West Wine Country Road properties. Secondary sources of preliminary COPCs at the Site include soil and groundwater; the 100 West property also includes LNAPL in the subsurface as a secondary source. These secondary sources are also referred to as contaminated media. The secondary sources (contaminated media) are not fully characterized or delineated.

3.2 Fate and Transport

Petroleum hydrocarbons as gasoline and diesel fuel were released to the soil from the USTs, product piping, and/or dispensing equipment associated with historical operations at retail fueling stations on the 100 West, 101 East, and 101 West properties and bulk fueling operations on the 101 West property. Once released, the fuel began to enter the pore spaces in the soil. When sufficient fuel was released to the soil to overcome the capillary forces, it began to migrate downward though the soil via gravity. In addition to the vertical migration, horizontal spreading also occurs due to capillary forces, varying hydraulic conductivities, and geologic features such as bedding planes or fractures. Residual concentrations were left in the pore spaces as the fuel migrated vertically away from the source zone though the soil. These residual petroleum hydrocarbons in soil may be a source of dissolved-phase concentrations by interacting with pore water or vapor-phase concentrations through volatilization.

Eventually, a sufficient volume of fuel was released to migrate vertically through the vadose zone and capillary fringe to reach the water table. Once reaching the water table (as shallow as 13 feet bgs, historically), the available pore space was saturated with groundwater, resulting in the lateral migration of petroleum hydrocarbons, primarily in the downgradient (southwest) direction based on the head pressure. As the groundwater levels fluctuated, a smear zone was created, leaving an area of residual petroleum hydrocarbons in pore spaces near the fluctuating groundwater surface and capillary fringe. Fuel migrated laterally until the fuel head pressure was no longer sufficient to saturate the available pore spaces. As water table levels fell over time to 18 to 22 feet bgs, this smear zone grew and now includes several vertical feet (12 to 18 feet bgs) that has been left suspended in soil above the groundwater table.

Once the fuel was in contact with groundwater, individual constituents partitioned into the dissolved-phase based on their respective solubilities. The dissolved-phase constituents migrated along with groundwater in the downgradient direction, controlled by the hydraulic conductivity and groundwater gradient. Additionally, to a lesser extent, dissolved-phase constituents traveled both laterally and vertically due to dispersion. As the dissolved-phase constituents traveled through the soil, compounds sorbed to the soil, reducing the concentrations and slowing the rate of migration. In addition, biodegradation occurred during the migration, resulting in reduced concentrations.

Volatilization of compounds from the dissolved-phase to the vapor-phase occurred during the downgradient migration. Vapor-phase constituents migrated through diffusion and advection and were reduced by biodegradation.

3.3 Potential Exposure Pathways and Receptors

The Site is located in a historical commercial district of the City's downtown. Four commercial buildings plus a storage shed exist across the three properties comprising the Site. The buildings are slab-on-grade foundation construction. The ground surface across the Site is covered with concrete, asphalt, gravel, or curated vegetation (planter boxes, trees, etc.). There is little to no natural undisturbed habitat in the immediate vicinity of the Site.

The potentially complete exposure pathways and potential receptors of preliminary COPCs at the Site, comprising the 100 West, 101 East, and 101 West properties, include the following:

- **Dermal contact or ingestion of soil and groundwater:** Commercial/Industrial Workers, Construction Workers, Terrestrial Receptors.
- **Inhalation of indoor or outdoor air from volatilization/atmospheric dispersion of soil and groundwater:** Commercial/Industrial Workers, Construction Workers, Terrestrial Receptors.
- **Soil leaching to groundwater:** Commercial/Industrial Workers, Construction Workers.
- **Potable water ingestion:** Water Beneficial Use Receptors.

Additionally, the following are potentially complete exposure pathways and potential receptors of LNAPL at the 100 West property only:

- **Dermal contact of LNAPL:** Commercial/Industrial Workers, Construction Workers, Terrestrial Receptors.

- **Inhalation of indoor or outdoor air from volatilization/atmospheric dispersion of LNAPL:** Commercial/Industrial Workers, Construction Workers, Terrestrial Receptors.

3.4 Potential Future Exposure Pathways and Receptors

Future exposure pathways and receptors are expected to remain the same. There are no known redevelopment plans for any of the three properties comprising the Site.

4 Preliminary Cleanup Standards

Cleanup standards must be established for affected media and must be considered appropriate for projected land uses, groundwater uses, and relevant potential exposure pathways identified in the conceptual site model (Plate 8). Cleanup standards will be proposed at the completion of the RI to facilitate the FS development and determined by Ecology in the cleanup action plan.

4.1 Preliminary Contaminants of Potential Concern

The preliminary COPCs for the Site are petroleum hydrocarbons and their associated compounds originating from gasoline and diesel fuel released from the USTs, product piping, and/or dispensing equipment associated with historical operations at retail fueling stations on the 100 West, 101 East, and 101 West properties and bulk fueling operations on the 101 West property. The list of preliminary COPCs comprises the current understanding of the Site based on historical soil, groundwater, and soil vapor sample analyses, and consultation with the guidance provided in WAC 173-340-900 Table 830-1: Required Testing for Petroleum Releases (WAC, 2023). This list, summarized in Figure 1, will be revised based on results of RI fieldwork.

Figure 1. Preliminary COPCs in Soil, Groundwater, and Soil Vapor

Chemical Group	COPC
TPH	GRPH Diesel range petroleum hydrocarbons (DRPH) Oil range petroleum hydrocarbons (ORPH)
VOCs	BTEX Naphthalene
Metals	Lead[a]

NOTES:
a = Lead is not a COPC for soil vapor.

4.2 Preliminary Points of Compliance

The point of compliance is defined as the point or points where the cleanup standards established by Ecology in the cleanup action plan will be attained. Preliminary points of compliance for soil and groundwater at the Site are considered to be the standard or conditional points of compliance, as specified in WAC 173-340-720 and 173-340-740 (WAC, 2023):

- For soil cleanup levels based on direct contact, the point of compliance is defined as throughout the Site from the ground surface to 15 feet bgs.
- For soil cleanup levels based on the protection of groundwater, the point of compliance shall be established in the soils throughout the Site.
- For groundwater cleanup levels, the point of compliance shall be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected by the Site.
- Where it can be demonstrated under WAC 173-340-350 through 173-340-390 that it is not practicable to meet the groundwater cleanup level throughout the Site within a reasonable restoration time frame, Ecology may approve a conditional point of compliance for groundwater that will be as close as practicable to the source of hazardous substances, and, except as provided by 173-340-720(8)(d), not to exceed the property boundary.

4.3 Preliminary Applicable or Relevant and Appropriate Requirements

Preliminary ARARs include the following:

- MTCA Requirements.
- State Environmental Policy Act.
- Public Works Permits.
- Washington State and Federal Worker Safety.
- Air Quality.
- National Recommended Water Quality Criteria.
- Native American Graves Protection and Repatriation Act.
- Archaeological Resources Protection Act.
- Washington Dangerous Waste Regulations.
- Washington Solid Waste Handling Standards.
- Federal Waste Transportation Standards.
- 14 Code of Federal Regulations (CFR) Chapter I – Federal Aviation Administration, Department of Transportation.

4.4 Preliminary Screening Levels

The MTCA rules provide three methods for establishing cleanup levels: Method A, Method B, and Method C. The MTCA Method A Cleanup Levels may be used for sites undergoing a routine cleanup action as defined in WAC 173-340-200. The MTCA Method B Cleanup Levels may be used for any site to develop site-specific cleanup levels. The MTCA Method C Cleanup Levels are applicable in limited scenarios such as soil cleanup at industrial facilities.

The Site meets the criteria for undergoing a routine cleanup action as defined under WAC 173-340-200; therefore, for the purposes of preliminary screening and delineation of preliminary COPCs during the RI, analytical results will be compared against the MTCA Method A and Method B Cleanup Levels for soil, groundwater, and soil vapor.

For compounds with an established Maximum Contaminant Level (MCL), the preliminary screening level will be the MCL or the MTCA value, whichever is the lowest. Preliminary screening levels are available in the Ecology Cleanup Levels and Risk Calculation (CLARC) tables (Ecology, 2025a).

Preliminary screening levels for individual TPH, VOC, and metal compounds identified as preliminary COPCs for the Site are provided in Figure 2.

Figure 2. Preliminary Screening Levels for COPCs

COPC	MTCA Method A Soil (mg/kg)	MTCA Method A Groundwater (µg/L)	MTCA Method B Soil Gas (µg/m^3)
GRPH	30/100[a]	800/1,000[b]	1,500
DRPH + ORPH	2,000	500	
Benzene	0.03	5	460 noncancer / 11 cancer
Toluene	7	1,000	76,000
Ethylbenzene	6	700	15,000
Total Xylenes	9	1,000	1,500
Naphthalene	5	160	46 noncancer / 2.5 cancer
Total Lead	250	15	Not applicable
Dissolved Lead	Not applicable	15	Not applicable

NOTES:
µg/L = Micrograms per liter
µg/m^3 = Micrograms per cubic meter
a = GRPH cleanup level of 100 mg/kg if there is no benzene and the total of toluene, ethylbenzene, and xylenes are less than 1 percent; 30 mg/kg if benzene is present or total of toluene, ethylbenzene, and xylenes are greater than 1 percent.
b = GRPH cleanup level of 1,000 µg/L if no detectable benzene is present in groundwater; 800 µg/L if benzene is present in groundwater.

5 Proposed Characterization – 101 East and 101 West

Proposed characterization at the 101 East and 101 West properties includes the following work:

- Collection of soil samples at proposed groundwater monitoring well locations for soil assessment.
- Installation of groundwater monitoring wells for groundwater assessment.
- Sub-slab soil vapor assessment of the building at 101 East Wine Country Road.
- Determination of the presence or absence of USTs beneath the rebar-reinforced concrete slab on the northern half of the 101 West property.
- Evaluation of the stormwater conveyance features (infiltration trench and dry wells) and their effect during active stormwater events on the local groundwater elevation, flow direction, and gradient.

5.1 Sampling and Analysis Plan

All fieldwork and laboratory analyses will be performed in accordance with the SAP included in Appendix E. Proposed sub-slab soil vapor pin and groundwater monitoring well locations are illustrated on Plate 9.

5.2 Quality Assurance Project Plan

All fieldwork and laboratory analyses will be performed in accordance with the QAPP included in the SAP (Appendix E).

5.3 Site-Specific Health and Safety Plan

All fieldwork will be performed in accordance with the Site-specific *Health and Safety Plan* included in Appendix F.

5.4 Inadvertent Discovery Plan

All fieldwork will be performed in accordance with the Inadvertent Discovery Plan included in Appendix G.

5.5 Terrestrial Ecological Evaluation

A TEE will be conducted for the 101 East and 101 West properties to assess whether the release of hazardous substances may pose a threat to the terrestrial environment in accordance with WAC 173-340-7490 for TEE procedures (WAC, 2023).

6 Preliminary Cleanup Action Alternatives – 101 East and 101 West

In accordance with WAC 173-340-350, a summary of preliminary cleanup action alternatives likely to be considered in the FS, based on current information for the 101 East and 101 West properties, and a preliminary summary of studies needed to develop or evaluate cleanup action alternatives in the FS has been compiled (Figure 3). Cleanup action alternatives will be thoroughly evaluated for applicability to the 101 East and 101 West properties and discussed in detail in the FS report (Task 5) at the completion of the RI (Task 2).

Figure 3. Preliminary Cleanup Action Alternatives

Preliminary Cleanup Action Alternative	Associated Studies or Other Potential Requirements
Excavation	Develop an engineering design report including methodologies on building demolition, UST removal, subsurface piping removal, sidewall stability/support, excavation, backfill, and resurfacing. Evaluation on emplacement of oxygen release compound (ORC) or similar media.

Preliminary Cleanup Action Alternative	Associated Studies or Other Potential Requirements
Soil Vapor Extraction	Pilot testing to determine radius of influence, system specifications, air discharge permitting, establish operations and maintenance plan, and establish remediation lifecycle estimate including rebound analysis.
Dual-Phase Extraction	Pilot testing to determine radius of influence, system specifications, air discharge permitting, water discharge treatment and permitting, establish operations and maintenance plan, and establish remediation lifecycle estimate including rebound analysis.
Groundwater Extraction	Pilot testing to determine radius of influence, system specifications, water discharge, establish operations and maintenance plan, and establish remediation lifecycle estimate including rebound analysis.
Air Sparge/Soil Vapor Extraction	Pilot testing to determine radius of influence, system specifications, air discharge permitting, establish operations and maintenance plan, and establish remediation lifecycle estimate including rebound analysis.
Air Sparge/Dual-Phase Extraction	Pilot testing to determine radius of influence, system specifications, air discharge permitting, water discharge treatment and permitting, establish operations and maintenance plan, and establish remediation lifecycle estimate including rebound analysis.
Subsurface Barrier Wall	Engineering design review including barrier type and extensive groundwater flow study.
Permeable Reactive Barrier Wall	Engineering design review including barrier type and extensive groundwater flow study. Soil and groundwater analysis of natural attenuation parameters. Literature review of media alternatives to trap contamination.
In Situ Chemical Oxidation	Soil and groundwater analysis of natural attenuation parameters. Literature review of media alternatives to target contamination.
In Situ Soil Stabilization	Soil and groundwater analysis of natural attenuation parameters. Literature review of media alternatives to immobilize contamination.
Enhanced Natural Attenuation/Biosparging	Soil and groundwater analysis of natural attenuation parameters. Literature review of biological alternatives to target contamination.
Monitored Natural Attenuation	Soil and groundwater analysis of natural attenuation parameters. Establish long-term soil and groundwater monitoring plan with degradation analysis.
Institutional Controls	Evaluation of cleanup levels in association with administrative investigation of zoning and redevelopment restrictions.

7 Task 2 – Remedial Investigation for 101 East and 101 West

7.1 RI Fieldwork

Chevron and ExxonMobil will begin implementation of the work (Task 2) defined in Task 1 of the AO after receiving Ecology's formal written approval of this RI Work Plan (Task 1). Upon approval, PLPs will initiate Task 2 coordination efforts including bid solicitation and contracting, access coordination,

laboratory coordination, development of utility protection plans, and execution of the assessment work defined within the final RI Work Plan (Task 1).

Task 2 will include the following characterization elements:

- Installation of new groundwater monitoring wells and soil borings in compliance with WAC 173-160 (WAC, 2023) as needed for characterization and delineation of contaminants.
- Collection of soil samples for characterization of stratigraphy and lithology, subsurface conditions, and contaminant concentrations.
- Generation of boring/well logs for the purpose of characterizing regional stratigraphy.
- Measurement of groundwater elevation.
- Incorporation of newly-installed wells into the existing quarterly groundwater sampling program for the Site (Task 3).
- Analysis of soil samples for TPH, VOCs, and metals.
- Generation of maps showing groundwater elevation and regional/Site hydrogeology.
- Installation of sub-slab soil vapor pins through the interior foundation or near the foundation on the exterior of the building at 101 East Wine Country Road.
- Collection of sub-slab soil vapor samples for determination of any potential vapor intrusion concerns.
- Analysis of sub-slab soil vapor samples for TPH and VOCs.
- Determination of the presence or absence of USTs beneath the rebar-reinforced concrete slab on the northern half of the 101 West property.
- Installation of data loggers in groundwater monitoring wells near the stormwater conveyance features (infiltration trench and dry wells) to collect groundwater elevation data prior to, during, and after active stormwater events.

Task 2 will include collection of data in support of an evaluation of potential receptors:

- Potential use of the 101 East and 101 West properties and presence or absence of controls to limit public access.
- Identification of endangered or threatened species, potential habitats, and ecological environments at the 101 East and 101 West properties.

In accordance with the schedule provided in Exhibit B of the AO, fieldwork will be completed within 180 days of Ecology's formal written approval of this document.

7.2 RI Report

Following completion of fieldwork, PLPs will prepare the draft RI report (Task 2). In accordance with the schedule provided in Exhibit B of the AO, the draft RI report will be submitted to Ecology within 90 days of receipt of all validated analytical data.

The report documenting all fieldwork and laboratory analyses completed as part of Task 2 will include, but not be limited to, a RI in accordance with WAC 173-340-350 comprising:

- Site and facility operational history, Site use, physical setting, and previous investigations.

- Nature and extent of contamination including maps and tables, laboratory reports, and boring/well logs.
- ARARs analysis identifying applicable state and federal laws for cleanup of the 101 East and 101 West properties in accordance with WAC 173-340-710.
- Cleanup levels analysis and baseline risk assessment characterizing current and potential threats to public health and the environment integrating cleanup standards and risk assessment in accordance with WAC 173-340-357 and WAC 173-340-708.
- Discussion of data and recommendations, including an update to the conceptual site model, summary of all possible and suspected source areas, known or potential risks to public health and the environment, and identification of any remaining data gaps or additional data requirements for characterization and decision making at the 101 East and 101 West properties.

8 Project Management

Per the AO, project coordinators are listed in Figure 4.

Figure 4. Project Coordinator Contact Information

Project Coordinator	Organization	Address	Contact
Chelsea Wisotzkey	Washington State Department of Ecology	Central Region Office 1250 West Alder Street Union Gap, WA 98903	Phone: (509) 571-4708 Email: chelsea.wisotzkey@ecy.wa.gov
Ryan Pozzuto	Stantec Consulting Services, Inc. at the request of Chevron U.S.A. Inc. and Exxon Mobil Corporation	1687 114th Avenue Southeast, Suite 100 Bellevue, WA 98004	Phone: (206) 550-6681 Email: ryan.pozzuto@stantec.com
Daniele B. Peters	EES Environmental Consulting, Inc. at the request of Powell Distributing, LLC, DBA Christensen, Inc.	514 NW 11th Avenue #209 Portland, OR 97209	Phone: (808) 634-9373 Email: daniele@ees-environmental.com

The project coordinators for Ecology, Chevron, and ExxonMobil are responsible for leading the work at the 101 East and 101 West properties defined in this document. Ecology's designated representative for the site is Chelsea Wisotzkey. Ryan Pozzuto will be the primary point of contact for Chevron and ExxonMobil. To the maximum extent possible, communication between Ecology and the PLPs shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the work, including designation of environmental consultants to support the project work.

Per the AO, any party may change its respective project coordinator by way of written notification given to the other parties at least 10 calendar days prior to the change.

Stantec will facilitate the completion of the scope presented in this RI Work Plan in collaboration with the designated project coordinators and will coordinate and execute work with the project team comprised of geologists, staff scientists, editors, accountants, and other resources supporting the project.

9 Schedule for Implementation

In accordance with the AO, and as defined in the following table, the PLPs will execute Task 2 (Implementation of RI and RI report).

Activity	Schedule
PLPs Receive Ecology's Approval of the Final RI Work Plan (Task 1)	Day 0
Field Work Execution	Day 0 – Day 180
Submit Draft RI Report	90 days following completion of data validation

For the duration of the AO, quarterly progress reports will be prepared and submitted to the Ecology project coordinator. These reports will serve to inform Ecology of the project progress and any significant interim findings that have been identified, including those related to QA. This will streamline the process of addressing issues as they arise and adjust the program to better achieve project objectives. The progress reports shall include the following:

- A list of on-Site activities that have taken place during the quarter.
- Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.
- Description of all deviations from the AO scope of work and schedule (Exhibit B of the AO) during the current quarter and any planned deviations in the upcoming quarter.
- For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.
- All raw data (including laboratory analyses) received during the previous quarter (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.
- A list of deliverables that have been submitted during the quarter.
- A list of deliverables for the upcoming quarter if different from the schedule.

Progress reports shall be submitted by the 10th day of the month in which they are due after the effective date of the AO. Progress reports for the 101 East and 101 West will be prepared by Chevron and ExxonMobil. Progress reports for the 100 West property will be prepared by Powell Distributing.

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101 West Wine Country Road, Grandview, Facility Site No. 94369212, Cleanup Site ID No. 6910, Parcel Nos. 23092312463 – 100 West Wine Country Road, Grandview, 23092312555 – 101 West Wine Country Road, Grandview, 23092312401 - 101 East Wine Country Road, Grandview."

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Washington State Department of Ecology (Ecology). March 13, 2020e. Letter to Brandon Christensen of Powell Distributing, LLC, DBA Christensen. "Re: Final Determination of Liability for Release of Hazardous Substances at the following Contaminated Site: DeBock's Main Street Texaco (aka Debock's Auto Repair), 100 West, 101 East, and 101 West Wine Country Road, Grandview, Facility Site No. 94369212, Cleanup Site ID No. 6910, Parcel Nos. 23092312463 – 100 West Wine Country Road, Grandview, 23092312555 – 101 West Wine Country Road, Grandview, 23092312401 - 101 East Wine Country Road, Grandview."

Washington State Department of Ecology (Ecology). August 1, 2023. Letter to Brandon Christensen of Christensen Inc. "Re: Termination of VCP Agreement for the following Site: DeBocks Main Street Texaco, 100 W. Country Road, Grandview, Facility/Site No. 94369212, Cleanup Site No. 6910, VCP Project No. CE0488."

Washington State Department of Ecology (Ecology). July 25, 2024a. Letter to Greg Vogelpohl of Resource Environmental LLC (RELLC) on behalf of Chevron USA and ExxonMobil Corporation. "Re: Invitation to Participate in Agreed Order Negotiations for the following Site, DeBocks Main Street Texaco, 100 W Wine Country Road, Grandview, 101 W Wine Country Road, Grandview, 101 E Wine Country Road, Grandview, Facility Site ID 94369212, Cleanup Site ID 6910, Parcels 23092312463 – 100 W Wine Country Road, 23092312555 – 1010 W Wine Country Road, 23092312401 – 101 E Wine Country Road."

Washington State Department of Ecology (Ecology). July 25, 2024b. Letter to Brandon Christensen of Powell Distributing LLC. "Re: Invitation to Participate in Agreed Order Negotiations for the following Site, DeBocks Main Street Texaco, 100 W Wine Country Road, Grandview, 101 W Wine Country Road, Grandview, 101 E Wine Country Road, Grandview, Facility Site ID 94369212, Cleanup Site ID 6910, Parcels 23092312463 – 100 W Wine Country Road, 23092312555 – 1010 W Wine Country Road, 23092312401 – 101 E Wine Country Road."

Washington State Department of Ecology (Ecology). February 2025a. Cleanup Levels and Risk Calculation (CLARC) Master Table. https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables.

Washington State Department of Ecology (Ecology). Accessed February 20, 2025b. Underground Storage Tank System Summary, UST ID 9566, Facility/Site ID 94369212.

Washington State Department of Ecology (Ecology). May 15, 2025c. Agreed Order No. DE 22952.

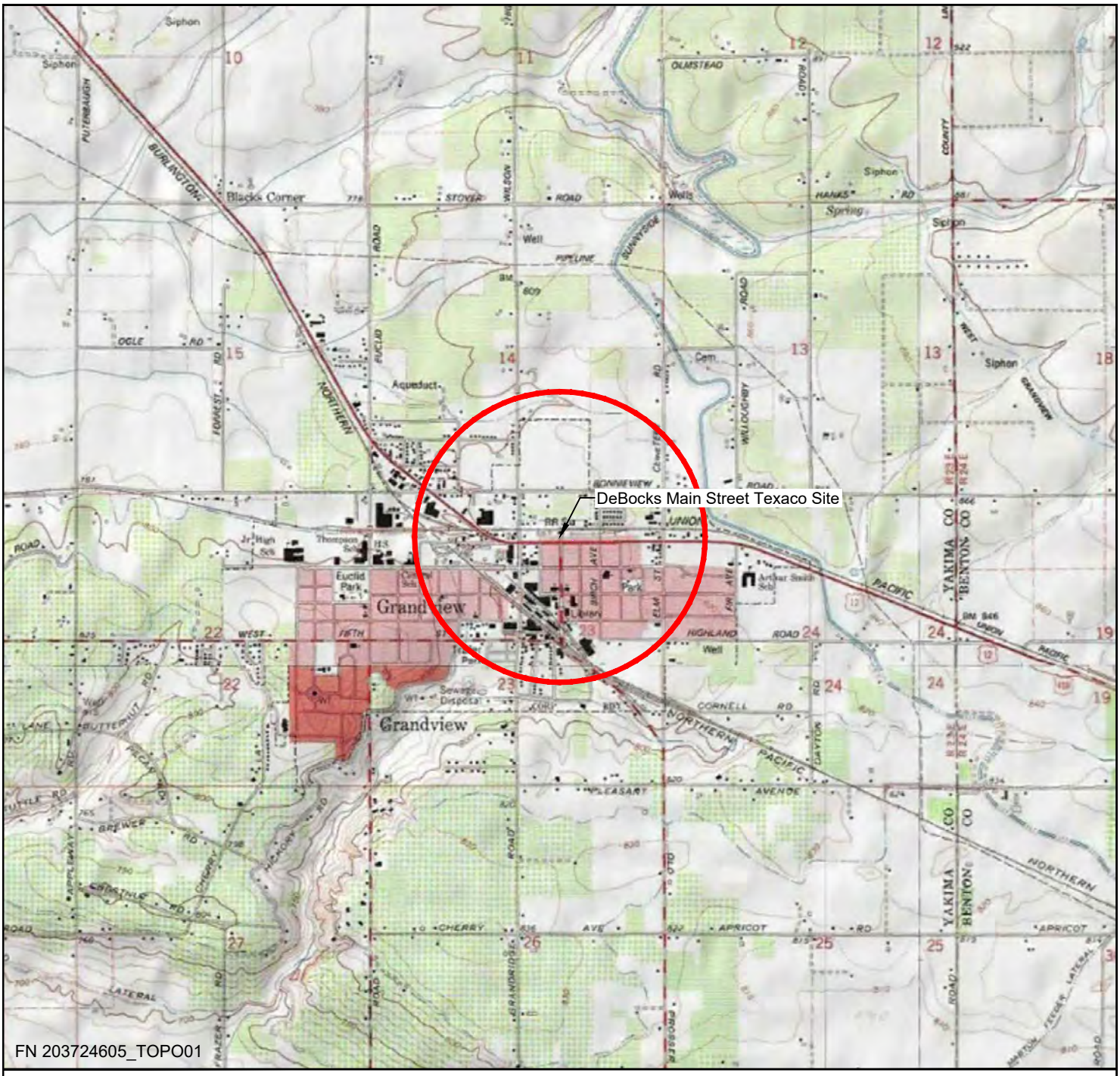
Washington State Department of Natural Resources (DNR). 2025. Washington Geological Survey, Explore Popular Geology, Geologic Provinces Of Washington, Columbia Basin. https://dnr.wa.gov/washington-geological-survey/explore-popular-geology/geologic-provinces-washington/columbia-basin.

White Shield Inc. (WSI). May 2, 1995. *UST Closure Site Assessment and Interim Remedial Action Report, DeBock's Main Street Texaco, 100 West Main Street, Grandview, WA*.

Yakima County Department of Assessment (Yakima County). Accessed July 8, 2025a.Yakima County GIS – Washington, 100 W Wine Country Road, Grandview, WA 98930, Parcel Number 23092312463.

Yakima County Department of Assessment (Yakima County). Accessed July 8, 2025b.Yakima County GIS – Washington, 101 E Wine Country Road, Grandview, WA 98930, Parcel Number 23092312401.

Yakima County Department of Assessment (Yakima County). Accessed July 8, 2025c. Yakima County GIS – Washington, 101 W Wine Country Road, Grandview, WA 98930, Parcel Number 23092312555.



EXPLANATION

1/2-mile distance from site

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from maps provided by Google Earth Pro and
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Stantec

SITE LOCATION MAP

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

PROJECT NO.
203724605

PLATE
1



EXPLANATION

- Stormwater dry well
- MW-28 — Groundwater monitoring well
- IW-1 — Injection well
- B32 — Soil boring
- B29 — Angled soil boring
- SSV6 — Soil vapor sample location
- 303 — UST excavation sample location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary
- Fiber optic line (FO)
- Gas line (G)
- Irrigation line (IR)
- Sanitary line (S)
- Storm sewer line (ST)
- Electrical line (E)
- Water line (W)
- Unknown line (?)

SOURCE:
Modified from maps provided by Google Earth Pro and
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APPROXIMATE SCALE

0 40 80 FEET

FN 2037246050002

LOCAL AREA MAP

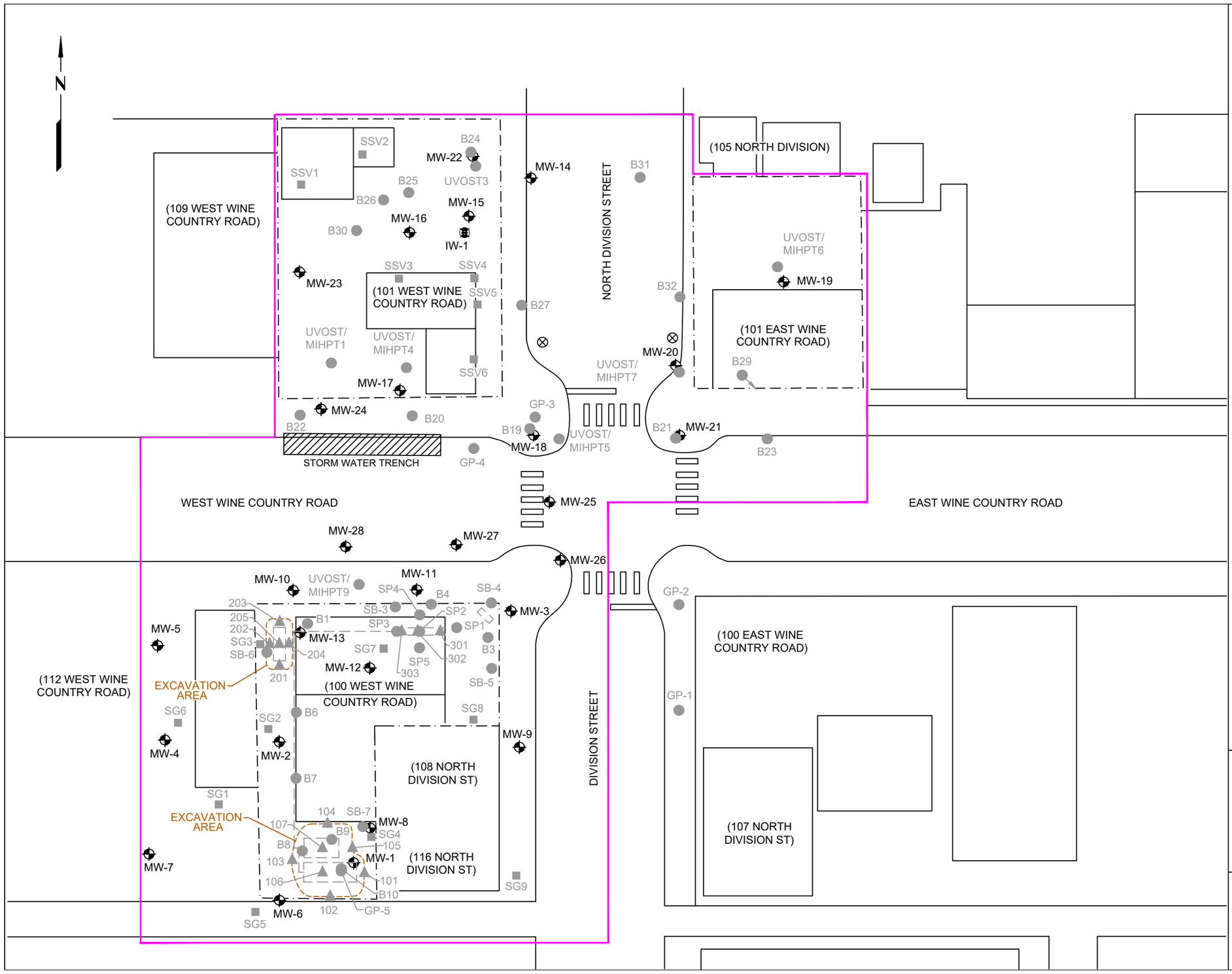
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 2

DATE: 08/12/25



EXPLANATION

- Stormwater dry well
- MW-28 — Groundwater monitoring well
- IW-1 — Injection well
- B32 — Soil boring
- B29 — Angled soil boring
- SSV6 — Soil vapor sample location
- 303 — UST excavation sample location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary

SOURCE:
Modified from maps provided by Google Earth Pro and
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

GENERALIZED SITE PLAN

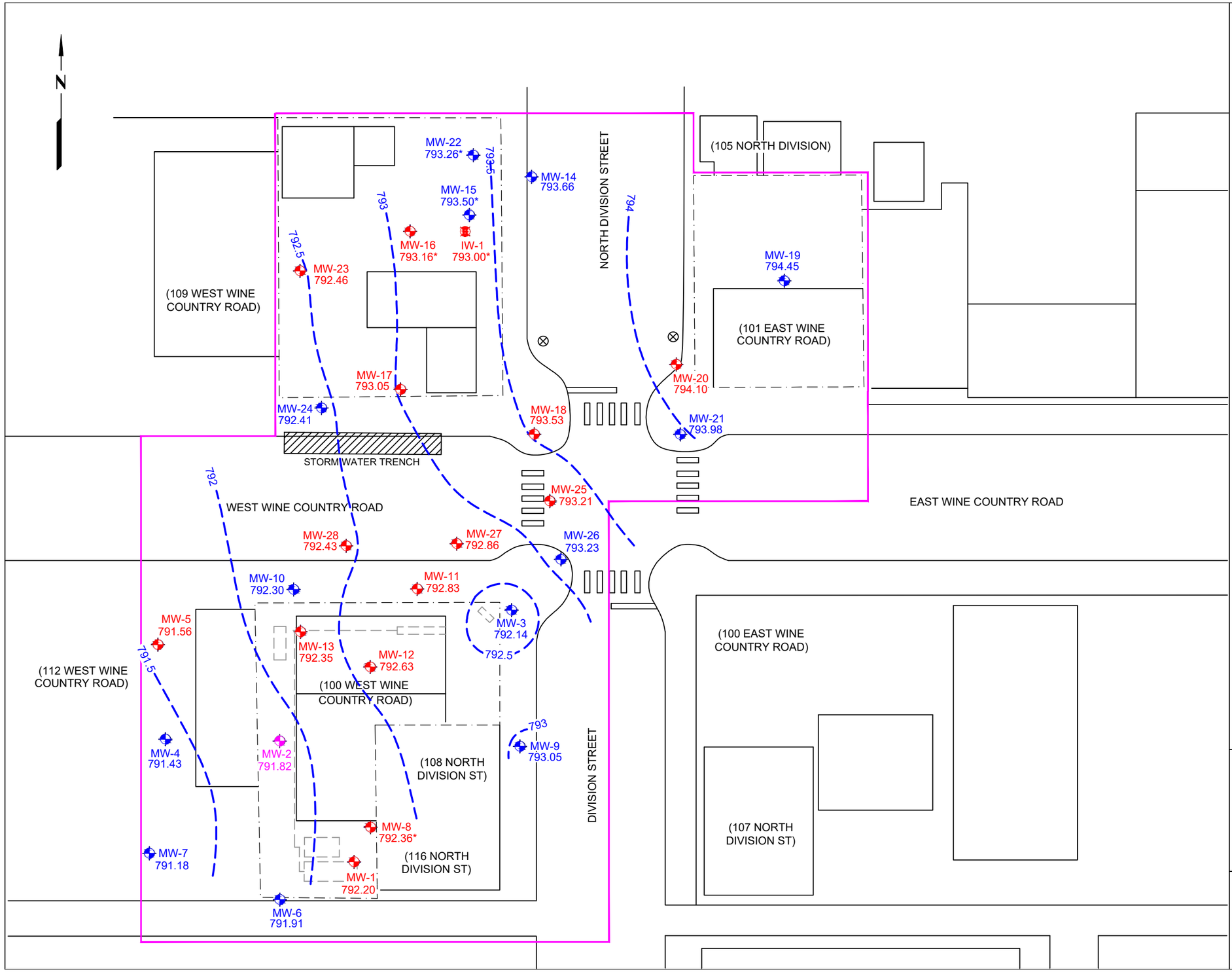
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 3

DATE: 08/12/25



EXPLANATION

- ⊗ Stormwater dry well
- MW-28 Groundwater monitoring well
- IW-1 Injection well
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary
- 794.45 Groundwater elevation in feet relative to mean sea level
- * Inaccessible on 06/16/25. DTW measured on 06/17/25 and omitted from contouring.
- Line of equal groundwater elevation

- Numbers or Well Symbols in Red Indicate Dissolved Hydrocarbon Concentrations Which Exceed MTCA Method A Cleanup Levels
- Numbers or Well Symbols in Blue Indicate Dissolved Hydrocarbon Concentrations Less Than MTCA Method A Cleanup Levels
- Numbers and Symbols in Magenta Indicate Absorbent Sock Installed in Well Due to the Presence of Non-aqueous Phase Liquid (NAPL)

SOURCE:
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

GROUNDWATER ELEVATION CONTOUR MAP - 06/16/25

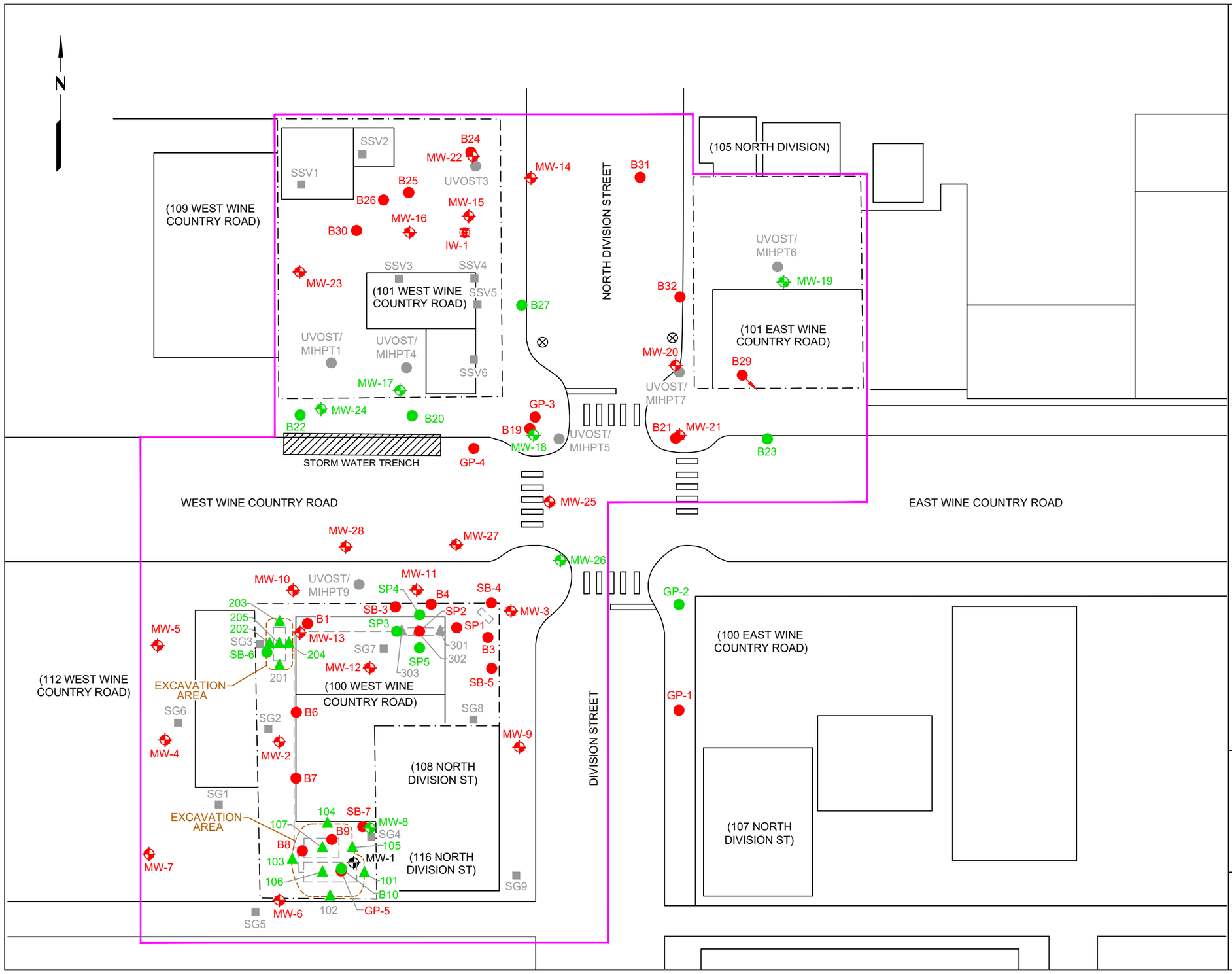
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 4

DATE: 08/12/25



EXPLANATION

- Stormwater dry well
- MW-28 — Groundwater monitoring well
- IW-1 — Injection well
- B32 — Soil boring
- B29 — Angled soil boring
- SSV6 — Soil vapor sample location
- 303 — UST excavation sample location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary

Symbols in red exceed one or more MTCA Method A Cleanup Levels for soil

Symbols in blue do not exceed one or more MTCA Method A Cleanup Levels for groundwater

Symbols in black or gray have no historical soil data available in site records

SOURCE:
Modified from maps provided by Google Earth Pro and
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

HISTORICAL SOIL CONDITIONS MAP

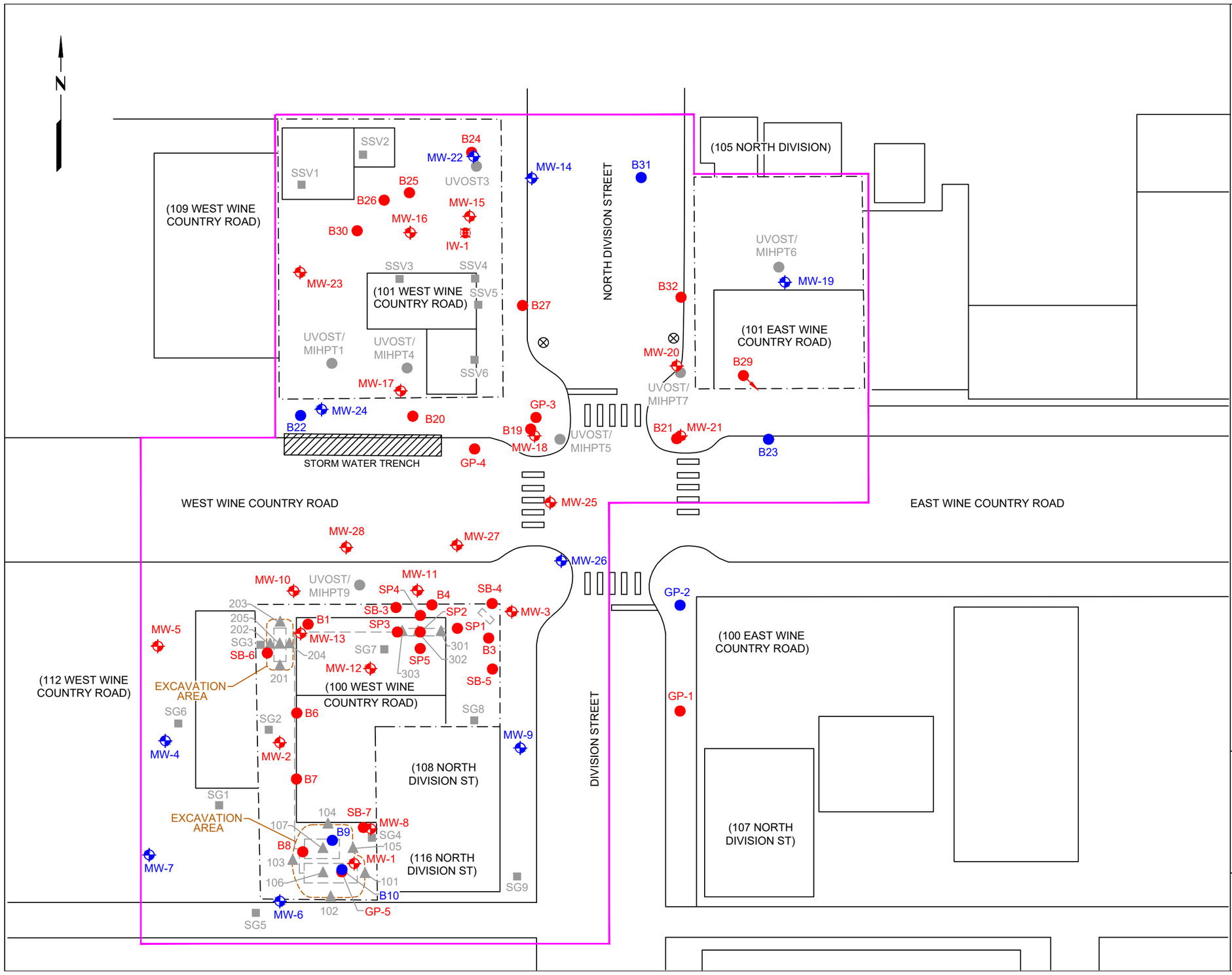
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 5

DATE: 08/12/25



EXPLANATION

- ⊗ Stormwater dry well
- MW-28 Groundwater monitoring well
- IW-1 Injection well
- B32 Soil boring
- B29 Angled soil boring
- SSV6 Soil vapor sample location
- 303 UST excavation sample location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary

- Symbols in red exceed one or more MTCA Method A Cleanup Levels for groundwater
- Symbols in blue do not exceed one or more MTCA Method A Cleanup Levels for groundwater
- Symbols in black or gray have no historical groundwater data available in site records

SOURCE:
Modified from maps provided by Google Earth Pro and
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

HISTORICAL GROUNDWATER CONDITIONS MAP

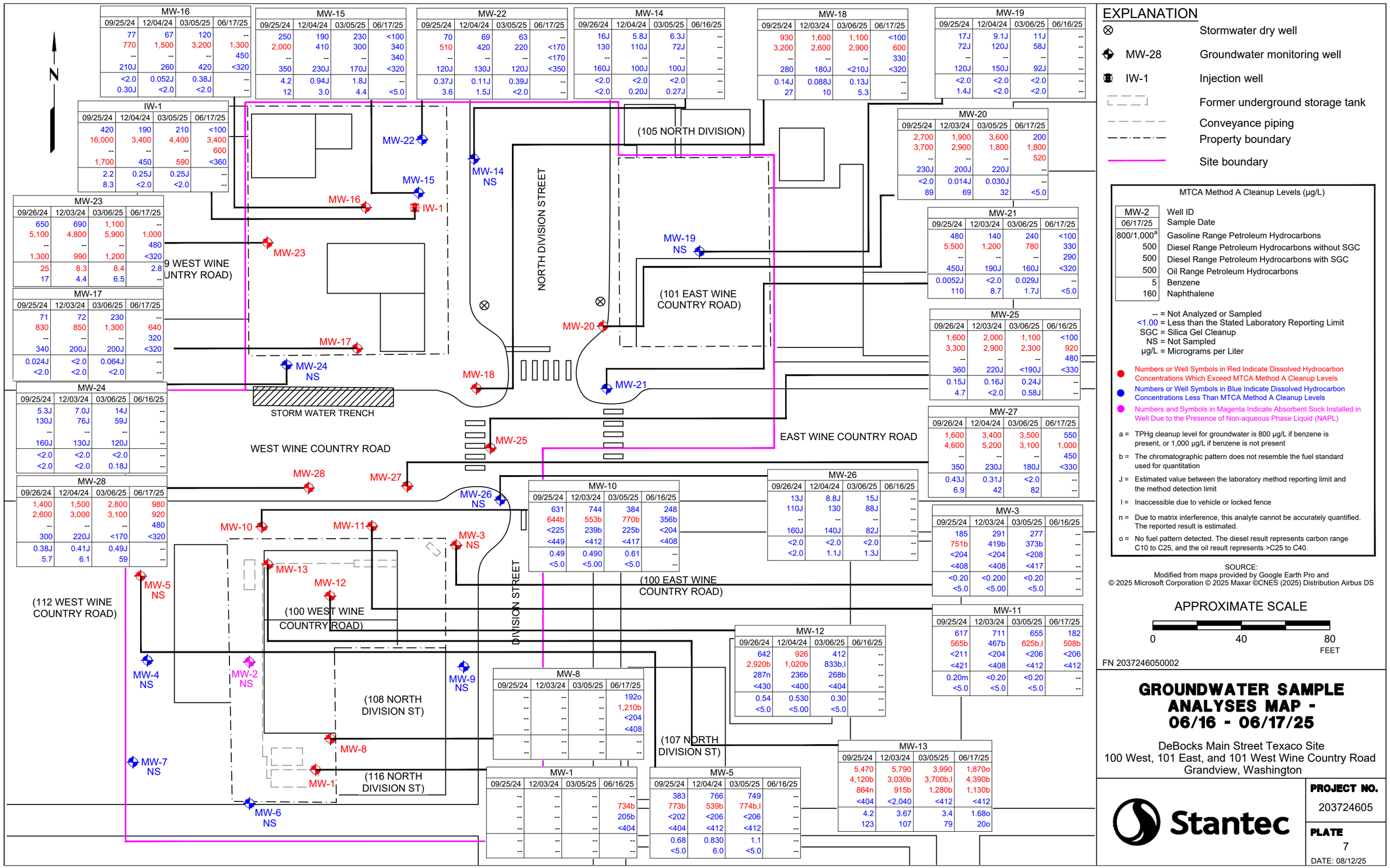
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 6

DATE: 08/12/25



EXPLANATION

- ⊗ Stormwater dry well
- MW-28 Groundwater monitoring well
- IW-1 Injection well
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary

MTCA Method A Cleanup Levels (µg/L)

MW-2	Well ID
06/17/25	Sample Date
800/1,000[a]	Gasoline Range Petroleum Hydrocarbons
500	Diesel Range Petroleum Hydrocarbons without SGC
500	Diesel Range Petroleum Hydrocarbons with SGC
500	Oil Range Petroleum Hydrocarbons
5	Benzene
160	Naphthalene

-- = Not Analyzed or Sampled
<1.00 = Less than the Stated Laboratory Reporting Limit
SGC = Silica Gel Cleanup
NS = Not Sampled
µg/L = Micrograms per Liter

Numbers or Well Symbols in Red Indicate Dissolved Hydrocarbon Concentrations Which Exceed MTCA Method A Cleanup Levels

Numbers or Well Symbols in Blue Indicate Dissolved Hydrocarbon Concentrations Less Than MTCA Method A Cleanup Levels

Numbers and Symbols in Magenta Indicate Absorbent Sock Installed in Well Due to the Presence of Non-aqueous Phase Liquid (NAPL)

a = TPHg cleanup level for groundwater is 800 µg/L if benzene is present, or 1,000 µg/L if benzene is not present

b = The chromatographic pattern does not resemble the fuel standard used for quantitation

J = Estimated value between the laboratory method reporting limit and the method detection limit

l = Inaccessible due to vehicle or locked fence

n = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.

o = No fuel pattern detected. The diesel result represents carbon range C10 to C25, and the oil result represents >C25 to C40.

SOURCE:
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

GROUNDWATER SAMPLE ANALYSES MAP - 06/16 - 06/17/25

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 7

DATE: 08/12/25

Primary Sources
Fueling Operations
Underground Storage Tanks
Product Piping
Product Dispensing

Primary Mechanism
Spills and Releases



Secondary Sources	Transport Mechanisms	Exposure Routes	Receptors
Constituents of Potential Concern in **Soil**	Vapor Intrusion Volatilization and/or Atmospheric Dispersion	**SOIL** Dermal Contact or Ingestion **AIR** Inhalation	Commercial/Industrial Workers Construction Workers Terrestrial Receptors
	Leaching and Groundwater Transport	**GROUNDWATER** Dermal Contact or Ingestion Potable Water Ingestion	Commercial/Industrial Workers Construction Workers Water Beneficial Use
Constituents of Potential Concern in **Groundwater**	Vapor Intrusion Volatilization and/or Atmospheric Dispersion	**GROUNDWATER** Dermal Contact or Ingestion **AIR** Inhalation	Commercial/Industrial Workers Construction Workers
	Groundwater Transport	**GROUNDWATER** Potable Water Ingestion	Water Beneficial Use (workers, etc.)
Light Non-Aqueous Phase Liquid (LNAPL)	Vapor Intrusion Volatilization and/or Atmospheric Dispersion	**LNAPL** Dermal Contact or Ingestion **AIR** Inhalation	Commercial/Industrial Workers Construction Workers Terrestrial Receptors
	Dispersion and Groundwater Transport	**GROUNDWATER** Dermal Contact or Ingestion Potable Water Ingestion	Commercial/Industrial Workers Construction Workers Water Beneficial Use

Shaded boxes indicate potentially complete pathway

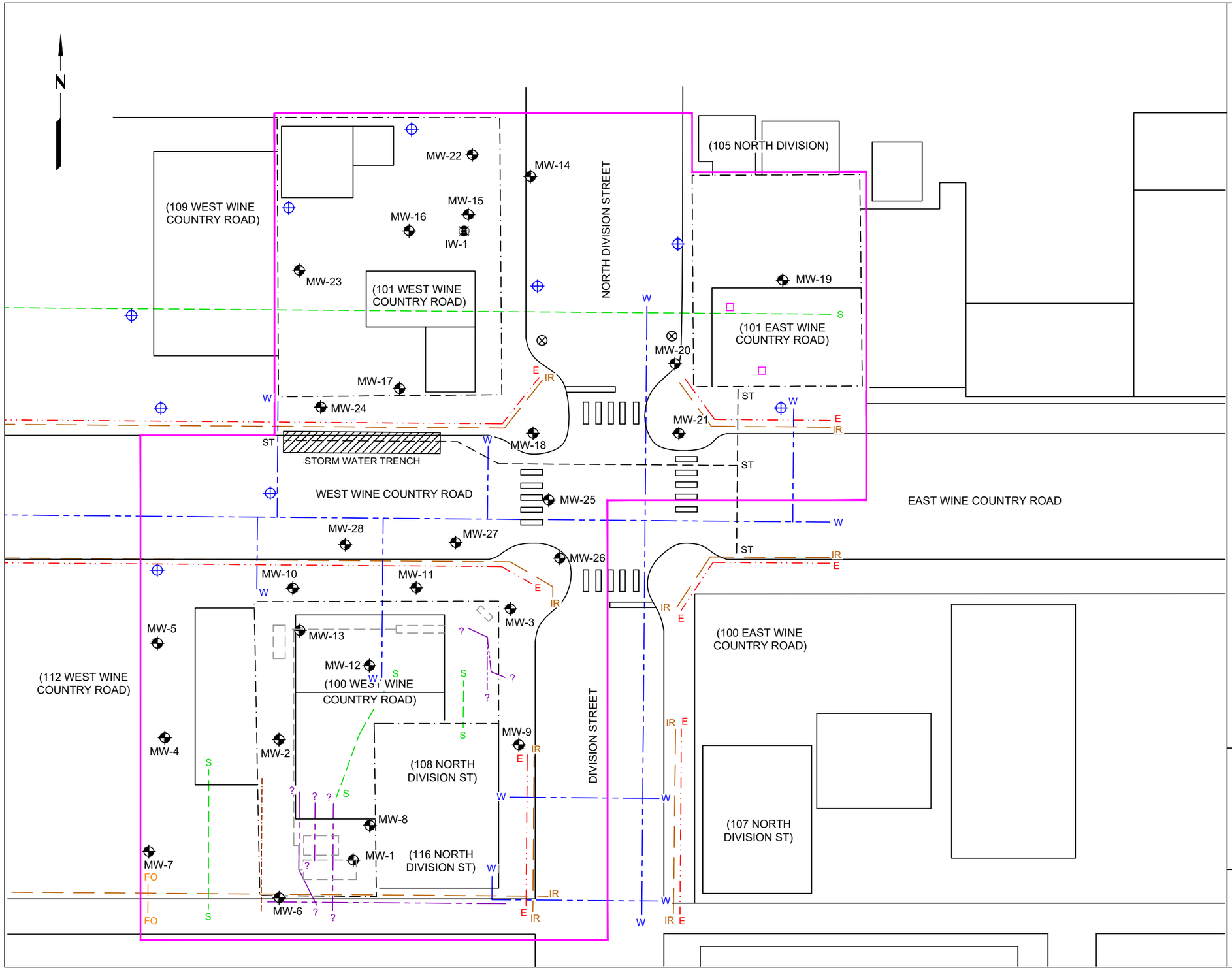
Stantec

CONCEPTUAL SITE MODEL

DEBOCKS MAIN STREET TEXACO SITE
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

PROJECT NO.
203724605

PLATE
8



EXPLANATION

- ⊗ Stormwater dry well
- MW-28 Groundwater monitoring well
- IW-1 Injection well
- Proposed groundwater monitoring well
- Proposed soil vapor sampling location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary
- Fiber optic line (FO)
- Gas line (G)
- Irrigation line (IR)
- Sanitary line (S)
- Storm sewer line (ST)
- Electrical line (E)
- Water line (W)
- Unknown line (?)

SOURCE:
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APPROXIMATE SCALE

0 40 80 FEET

FN 2037246050002

PROPOSED SITE CHARACTERIZATION MAP

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 9

DATE: 08/12/25

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
White Shield, Inc. (WSI) - UST Closure Site Assessment and Interim Remedial Action Report - May 1995:															
Excavation #1															
REP-1295-101/102	101, 102	03/14/95	7.5, 7.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-103/104	103, 104	03/14/95	7.5, 7.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-105	105	03/14/95	7.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-106	106	03/14/95	12.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-107	107	03/14/95	12.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Excavation #2															
REP-1295-201/202	201, 202	03/14/95	6.5, 6.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-203/204	203, 204	03/14/95	6.5, 6.5	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
REP-1295-205	205	03/14/95	9	<0.100	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--
Sage Earth Sciences, Inc. (Sage) - Draft Limited Site Characterization Report - March 1996:															
REP-0395-S3	SB3	10/20/95	10	<20.0	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	--
REP-0395-S4	SB3	10/20/95	15	**1,800**	--	--	--	<0.1	<0.1	1.7	--	--	4.1	--	<25
REP-0395-S7	SB4	10/20/95	10	**255**	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	<25
REP-0395-S10	SB5	10/20/95	10	**117**	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	--
REP-0395-S13	SB6	10/23/95	10	<20	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	--
REP-0395-S16	SB7	10/23/95	10	<20	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	--
REP-0395-S17	SB7	10/23/95	12	**426**	--	--	--	<0.1	<0.1	<0.3	--	--	<0.1	--	<25
Olympus Environmental, Inc. (Olympus Environmental) - Preliminary Site Investigation Report - April 13, 1998:															
GP-1-15	GP-1	02/20/98	15	**1,280**	--	--	--	**1.33**	1.03	**8.66**	--	--	**40.2**	--	--
GP-2-15	GP-2	02/20/98	15	<5.00	--	--	--	<0.0500	<0.0500	<0.0500	--	--	<0.100	--	--
GP-3-15	GP-3	02/20/98	15	**154**	--	--	--	<0.250	<0.250	0.584	--	--	0.803	--	--
GP-4-15	GP-4	02/20/98	15	**299**	--	--	--	<0.500	<0.500	0.973	--	--	1.13	--	--
GP-5-15	GP-5	02/20/98	15	**5,910**	--	--	--	<2.50	<2.50	**14.3**	--	--	**54.2**	--	--
GP-5-20	GP-5	02/20/98	20	<5.00	--	--	--	<0.0500	<0.0500	<0.0500	--	--	<0.100	--	--

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
Olympus Technical Services, Inc. (Olympus Technical) - Site Assessment Report - January 24, 2001:															
SS2-15	MW-2	03/26/98	14-16	**886**	--	--	--	<0.500	<0.500	<10	--	--	<20	--	--
SS3-15	MW-3	03/26/98	14-16	**306**	--	--	--	**0.194**	0.292	0.995	--	--	3.48	--	--
SP-1-79	SP-1	09/26/00	7-9	**641**	--	--	--	<0.250	0.353	0.592	--	--	**11.7**	--	--
SP-2-79	SP-2	09/26/00	7-9	**15,900**	--	--	--	**2.67**	**7.76**	**19.8**	--	--	**1,090**	--	--
SP-2-1113	SP-2	09/26/00	11-13	**32,500**	--	--	--	**10.4**	**346**	**280**	--	--	**1,900**	--	--
SP-3-79	SP-3	09/26/00	7-9	30.1	--	--	--	<0.0500	0.0539	<0.0500	--	--	1.29	--	--
SP-4-79	SP-4	09/26/00	7-9	14.9	--	--	--	<0.0500	0.0503	<0.0500	--	--	0.282	--	--
SP-5-79	SP-5	09/26/00	7-9	25.7	--	--	--	<0.0500	<0.0500	<0.0500	--	--	0.312	--	--
OnSite Environmental, Inc. - Laboratory Analytical Report 0312-211 - January 6, 2004:															
1216-01	--	12/16/03	--	**680 e**	--	--	--	<0.023	<0.11	0.17	0.88	<0.11	0.88	--	11
1216-02	--	12/16/03	--	<5.4	--	--	--	<0.011	<0.054	<0.054	<0.054	<0.054	<0.054	--	5.6
1216-03	--	12/16/03	--	<5.5	--	--	--	<0.011	<0.055	<0.055	<0.055	<0.055	<0.055	--	6.3
1217-04	--	12/17/03	--	<5.4	--	--	--	<0.011	<0.054	<0.054	<0.054	<0.054	<0.054	--	5.4
1217-05	--	12/17/03	--	<5.4	--	--	--	<0.011	<0.054	<0.054	<0.054	<0.054	<0.054	--	5.7
1217-06	--	12/17/03	--	<5.4	--	--	--	<0.011	<0.054	<0.054	<0.054	<0.054	<0.054	--	6.6
1217-07	--	12/17/03	--	<5.4	--	--	--	<0.011	<0.054	<0.054	<0.054	<0.054	<0.054	--	6.9
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:															
B1-3	B1	03/15/18	3	<6.47	--	--	--	<0.0129	<0.0647	<0.0323	--	--	<0.0970	<0.129	--
B1-10	B1	03/15/18	10	<7.09	--	--	--	<0.0142	<0.0709	<0.0354	--	--	<0.106	<0.142	--
B1-15	B1	03/15/18	15	**9,970**	<25.0	<50.0	<50.0	<0.234	<1.17	**36.4**	--	--	**84.6**	**39.8**	12.1
B1-20	B1	03/15/18	20	43.5	--	--	--	0.0263	<0.0536	<0.0268	--	--	<0.0804	0.339	--
B1-25	B1	03/15/18	25	<6.39	--	--	--	<0.0128	<0.0639	<0.0319	--	--	<0.0958	<0.128	--
B2-10	MW-4	03/15/18	10	<6.32	--	--	--	<0.0126	<0.0632	<0.0316	--	--	<0.0948	<0.126	--
B2-15	MW-4	03/15/18	15	**648**	--	--	--	<0.0245	<0.123	0.800	--	--	1.25	1.87	--
B2-19	MW-4	03/15/18	19	**1,530**	--	--	--	**0.0776**	<0.338	1.82	--	--	1.93	1.79	--
B2-25	MW-4	03/15/18	25	<5.11	--	--	--	<0.0102	<0.0511	<0.0255	--	--	<0.0766	<0.102	--

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019 (continued):															
B3-3	B3	03/16/18	3	<6.34	--	--	--	<0.0127	<0.0634	<0.0317	--	--	<0.0950	<0.127	--
B3-10	B3	03/16/18	10	<6.41	--	--	--	<0.0128	<0.0641	<0.0320	--	--	<0.0961	<0.128	--
B3-15	B3	03/16/18	15	**10,000**	--	--	--	<0.467	<2.33	**72.7**	--	--	**374**	**37.3**	--
B3-20	B3	03/16/18	20	12.5	--	--	--	<0.0109	<0.0544	<0.0272	--	--	<0.0817	<0.109	--
B3-25	B3	03/16/18	25	<6.93	--	--	--	<0.0139	<0.0693	<0.0347	--	--	<0.104	<0.139	--
B4-15	B4	03/16/18	15	**5,600**	--	--	--	<0.261	**7.75**	**40.4**	--	--	**342**	**28.9**	--
B4-17	B4	03/16/18	17	**22,300**	342 d	<51.9	342	<0.519	**97.5**	**276**	--	--	**1,870**	**126**	10.3
B4-20	B4	03/16/18	20	**10,500**	--	--	--	<0.503	**15.2**	**70.6**	--	--	**343**	**38.6**	--
B4-25	B4	03/16/18	25	<5.76	--	--	--	<0.0115	<0.0576	<0.0288	--	--	<0.0864	<0.115	--
B5-5	MW-5	03/16/18	5	<6.20	--	--	--	<0.0124	<0.0620	<0.0310	--	--	<0.0931	<0.124	--
B5-10	MW-5	03/16/18	10	<5.62	--	--	--	<0.0112	<0.0562	<0.0281	--	--	<0.0843	<0.112	--
B5-15	MW-5	03/16/18	15	81.8	--	--	--	<0.0114	<0.0572	<0.0286	--	--	<0.0859	0.186	--
B5-20	MW-5	03/16/18	20	**2,300**	--	--	--	<0.0120	0.0876	**8.11**	--	--	**18.9**	**9.10**	--
B5-25	MW-5	03/16/18	25	<6.76 H	--	--	--	<0.0135 H	<0.0676 H	<0.0338 H	--	--	<0.101 H	<0.135 H	--
B6-3	B6	04/02/18	3	<6.45	--	--	--	<0.0129	<0.0645	<0.0322	--	--	<0.0967	<0.129	--
B6-15	B6	04/02/18	15	**631**	--	--	--	<0.0146	<0.0732	1.09	--	--	6.63	2.73	--
B6-17	B6	04/02/18	17	**206**	<25.0	<50.0	<50.0	0.0263	0.0766	1.48	--	--	5.97	0.863	--
B6-20	B6	04/02/18	20	**1,110**	--	--	--	**0.0536**	<0.233	5.43	--	--	**11.5**	2.68	--
B6-25	B6	04/02/18	25	<6.11 H	--	--	--	<0.0122 H	<0.0611 H	<0.0306 H	--	--	<0.0917 H	<0.122 H	--
B7-3	B7	04/02/18	3	<6.80	--	--	--	<0.0136	<0.0680	<0.0340	--	--	<0.102	<0.136	--
B7-15	B7	04/02/18	15	**4,190**	--	--	--	<0.0454	<0.227	2.50	--	--	5.21	**7.57**	8.51
B7-20	B7	04/02/18	20	9.49	--	--	--	<0.0112	<0.0558	<0.0279	--	--	<0.0838	<0.112	--
B8-3	B8	04/02/18	3	<6.91	--	--	--	<0.0138	<0.0691	<0.0346	--	--	<0.104	<0.138	--
B8-15	B8	04/02/18	15	**141**	--	--	--	<0.0134	<0.0669	<0.0334	--	--	<0.100	0.233	--
B8-20	B8	04/02/18	20	**367**	--	--	--	<0.0131	<0.0653	1.21	--	--	2.86	0.599	--
B8-25	B8	04/02/18	25	<5.78 H	--	--	--	<0.0116 H	<0.0578 H	<0.0289 H	--	--	<0.0867 H	<0.116 H	--
B9-16.5	B9	04/03/18	16.5	**6,360**	50.8	<50.0	50.8	<0.139	<0.697	**15.0**	--	--	**60.6**	**11.1**	--
B9-20	B9	04/03/18	20	<5.43	--	--	--	<0.0109	<0.0543	0.0413	--	--	<0.0815	<0.109	--

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DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019 (continued):															
B10-3	B10	04/03/18	3	<7.09	--	--	--	<0.0142	<0.0709	<0.0354	--	--	<0.106	<0.142	--
B10-15	B10	04/03/18	15	<6.38	--	--	--	<0.0128	<0.0638	<0.0319	--	--	<0.0957	<0.128	--
B10-20	B10	04/03/18	20	<6.38	--	--	--	<0.0128	<0.0638	<0.0319	--	--	<0.0956	<0.128	--
B11-3	MW-8	04/03/18	3	<6.04	--	--	--	<0.0121	<0.0604	<0.0302	--	--	<0.0906	<0.121	--
B11-16	MW-8	04/03/18	16	52.8	<26.0	<51.9	<51.9	<0.0140	<0.0700	0.107	--	--	0.614	0.342	--
B11-20	MW-8	04/03/18	20	14.7	--	--	--	<0.0122	<0.0608	0.364	--	--	1.51	0.128	--
B12-3	MW-6	04/03/18	3	<6.18	--	--	--	<0.0124	<0.0618	<0.0309	--	--	<0.0926	<0.124	--
B12-10	MW-6	04/03/18	10	<6.54	--	--	--	<0.0131	<0.0654	<0.0327	--	--	<0.0981	<0.131	--
B12-16	MW-6	04/03/18	16	**915**	--	--	--	<0.0258	<0.129	0.393	--	--	<0.193	1.78	7.61
B12-20	MW-6	04/03/18	20	<5.92	--	--	--	<0.0118	<0.0592	<0.0296	--	--	<0.0888	<0.118	--
B13-15	MW-7	04/03/18	15	<6.36	--	--	--	<0.0127	<0.0636	<0.0318	--	--	<0.0954	<0.127	--
B13-20	MW-7	04/03/18	20	**4,530**	--	--	--	<0.242	<1.21	3.82	--	--	6.06	2.46	--
B13-25	MW-7	04/03/18	25	<6.30	--	--	--	<0.0126	<0.0630	<0.0315	--	--	<0.0945	<0.126	--
B14-3	MW-9	04/04/18	3	<6.40	--	--	--	<0.0128	<0.0640	<0.0320	--	--	<0.0960	<0.128	--
B14-16	MW-9	04/04/18	16	**108**	--	--	--	<0.0141	<0.0705	<0.0353	--	--	<0.106	<0.141	--
B15-3	MW-10	04/04/18	3	<7.63	--	--	--	<0.0153	<0.0763	<0.0382	--	--	<0.114	<0.153	--
B15-15	MW-10	04/04/18	15	**7,840**	--	--	--	<0.235	<1.17	**16.0**	--	--	**39.2**	**23.5**	--
B15-20	MW-10	04/04/18	20	**318**	--	--	--	<0.0245	<0.123	<0.0613	--	--	<0.184	<0.245	--
B16-3	MW-11	04/05/18	3	<6.95	--	--	--	<0.0139	<0.0695	<0.0347	--	--	<0.104	<0.139	--
B16-14	MW-11	04/05/18	14	**441**	--	--	--	<0.0253	<0.127	1.13	--	--	3.39	1.79	--
B16-20	MW-11	04/05/18	20	34.4	--	--	--	<0.0159	<0.0793	<0.0397	--	--	<0.119	<0.159	--
B17-3	MW-12	04/05/18	3	<7.60	--	--	--	<0.0152	<0.0760	<0.0380	--	--	<0.114	<0.152	--
B17-16.5	MW-12	04/05/18	16.5	**670**	--	--	--	**0.0653**	1.22	5.45	--	--	**25.8**	1.96	--
B17-20	MW-12	04/05/18	20	<7.91	--	--	--	<0.0158	<0.0791	<0.0396	--	--	<0.119	<0.158	--
B19-15	B19	08/07/19	15	**4,740**	--	--	--	<0.449	<2.25	3.14	--	--	4.19	**35.6**	--
B20-15	B20	08/07/19	15	<5.51	--	--	--	<0.0110	<0.0551	<0.0275	--	--	<0.0826	<0.110	--
B21-14	B21	08/07/19	14	**119**	--	--	--	<0.0162	<0.0809	<0.0404	--	--	<0.121	1.38	--

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Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
EES Environmental, Inc. (EES) - Supplemental Investigation Tasks (August 2019) - October 23, 2019:															
B22-15	B22	08/07/19	15	<5.55	--	--	--	<0.0111	<0.0555	<0.0277	--	--	<0.0832	<0.111	--
B23-15	B23	08/08/19	15	<6.06	--	--	--	<0.0121	<0.0606	<0.0303	--	--	<0.0909	<0.121	--
MW-13-10	MW-13	08/06/19	10	<7.00	--	--	--	<0.0140	<0.0700	<0.0350	--	--	<0.105	<0.140	--
MW-13-15	MW-13	08/06/19	15	**1,600**	--	--	--	<0.0130	0.0723	4.01	--	--	8.78	**7.28**	--
MW-13-20	MW-13	08/06/19	20	**1,210**	--	--	--	**0.0305**	0.0776	0.0778	--	--	0.224	3.79	--
MW-13-25	MW-13	08/06/19	25	<6.21	--	--	--	<0.0124	<0.0621	<0.0311	--	--	<0.0932	<0.124	--
AECOM - Additional Investigation Report - July 6, 2023:															
B24-5	B24	10/25/22	5	4.9	41 J	150	191	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	86
B24-10	B24	10/25/22	10	7.1	68	200	268	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	67
B24-13	B24	10/25/22	13	**1,000**	1,500	<250	1,500	<0.021	0.098	4.7	--	--	**30**	0.15	15
B24-15	B24	10/25/22	15	**1,600**	4,100	<250 U	**4,100**	**0.072**	0.96 J	**24 J**	--	--	**150**	0.16	10
FD-9	B24	10/25/22	15 (DUP)	**1,600**	5,300	<250 U	**5,300**	<0.020	0.32 J	**14 J**	--	--	**100**	0.21	11
B24-20	B24	10/25/22	20	24	280	<50	280	<0.0050	<0.010	<0.010	--	--	<0.020	0.0034 j	8.1
B24-25	B24	10/25/22	25	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
B25-5	B25	10/26/22	5	<3.0	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	27
B25-10	B25	10/26/22	10	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.4
B25-12	B25	10/26/22	12	22	180	<50	180	<0.0050	<0.010	0.0046 j	--	--	0.029	0.043	19
B25-15	B25	10/26/22	15	**1,600 J**	1,500 J	<250	1,500	<0.022	1.3 J	**14 J**	--	--	**87 J**	0.13 J	13
FD-10	B25	10/26/22	15 (DUP)	**4,100 J**	2,700 J	<250	**2,700**	<0.027	5.6 J	**59 J**	--	--	**350 J**	**14 J**	13
B25-20	B25	10/26/22	20	3.9	<25 U	<50	<50	<0.0050	<0.010	0.0018 j	--	--	0.0080 j	0.0017 j	5.9
B25-25	B25	10/26/22	25	<3.0	3.6 j	<50	3.6	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	9.6
B26-5	B26	10/26/22	5	<3.0	3.1 j	<50	3.1	<0.0050	<0.010	<0.010	--	--	<0.020	0.0022 j	13
B26-10	B26	10/26/22	10	0.52 j	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	8.7
B26-15	B26	10/26/22	15	**5,500**	4,300	<250 U	**4,300**	<0.26	3.7	**60**	--	--	**370**	**13**	15
B26-20	B26	10/26/22	20	0.44 j	4.3 j	<50	4.3	<0.0050	0.00089 j	<0.010	--	--	<0.020	<0.010	7.5
B26-25	B26	10/26/22	25	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	11
B27-5	B27	10/26/22	5	<3.0	15 j	40 j	55	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
B27-10	B27	10/26/22	10	<3.0	8.2 j	8.5 j	16.7	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.4
B27-15	B27	10/26/22	15	<3.0	7.0 j	<50	7.0	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	8.8
B27-20	B27	10/26/22	20	<3.0 UJ	6.8 j	<50	6.8	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.3
B27-25	B27	10/26/22	25	<3.0 UJ	6.3 j	<50	6.3	<0.0050	0.00017 j	0.00028 j	--	--	0.00037 j	0.00014 j	13

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Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
AECOM - Additional Investigation Report - July 6, 2023 (continued):															
B29-5	B29 b	10/26/22	5	<3.0	8.7 j	9.2 j	17.9	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	17
B29-10	B29 b	10/26/22	10	<3.0	5.0 j	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	9.5
B29-15	B29 b	10/26/22	15	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	15
B29-20	B29 b	10/26/22	20	<3.0	8.7 j	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.7
B29-24.5	B29 b	10/26/22	24.5	**1,600**	130	<50	130	<0.024 UJ	<0.014 UJ	<0.020 UJ	--	--	<0.025 UJ	0.095 J	8.5
B29-25	B29 b	10/26/22	25	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-14-5	MW-14	10/25/22	5	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.9
MW-14-10	MW-14	10/25/22	10	1.2 j	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	0.0033 j	7.1
MW-14-15	MW-14	10/25/22	15	**770 J**	810 J	<50 U	810	<0.0050	<0.010	<0.010	--	--	<0.020	0.012	8.8
FD-8	MW-14	10/25/22	15 (DUP)	<3.0 UJ	<25 UJ	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	8.4
MW-14-20	MW-14	10/25/22 c	20	3.7	1,200	<250	1,200	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.6
MW-14-25	MW-14	10/25/22	25	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	11
MW-15-5	MW-15	10/19/22	5	35	770	240	1,010	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	91
MW-15-10	MW-15	10/19/22	10	0.41 j	16 j	23 j	39	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.8
MW-15-15	MW-15	10/19/22	15	**920 J**	1,000	34 j	1,034	<0.083	<0.049	0.47 J	--	--	2.9 J	1.8 J	14
FD-3	MW-15	10/19/22	15 (DUP)	**240 J**	890	<50 U	890	<0.019	<0.011	0.099 J	--	--	0.55 J	0.22 J	14
MW-15-18	MW-15	10/19/22	18	15 J	1,100	<250	1,100	<0.0050	<0.010	0.023	--	--	0.047	0.011	6.1
MW-15-20	MW-15	10/19/22	20	1.4 j	1.1 j	<50	1.1	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.2
MW-15-25	MW-15	10/19/22	25	<3.0	13 j	19 j	32	<0.0050	<0.010	<0.010	--	--	<0.020	0.0097 j	8.3
MW-16-5	MW-16	10/19/22	5	<3.0	12 j	65	77	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-16-10	MW-16	10/19/22	10	<3.0	3.6 j	<50	3.6	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	10
MW-16-15	MW-16	10/19/22	15	**410**	2,900	650	**3,550**	<0.025	<0.015	0.28	--	--	0.82	0.68 J	18
FD-4	MW-16	10/19/22	15 (DUP)	**430**	2,500	<500 U	**2,500**	<0.019	<0.011	0.38	--	--	1.1	0.29 J	15
MW-16-18	MW-16	10/19/22	18	**1,100**	940	28 j	968	<0.025	0.28	**8.8**	--	--	**35**	0.60	7.4
MW-16-20	MW-16	10/19/22	20	**2,700**	860	23 j	883	<0.27	<0.16	**8.3**	--	--	**18**	4.1	7.1
MW-16-25	MW-16	10/19/22	25	0.54 j	4.3 j	<50	4.3	<0.0050	<0.010	<0.010	--	--	<0.020	0.0038 j	7.6
MW-17-5	MW-17	10/18/22	5	0.80 j	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-17-10	MW-17	10/18/22	10	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	8.5
MW-17-15	MW-17	10/18/22	15	<3.0 UJ	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.2
FD-1	MW-17	10/18/22	15 (DUP)	<3.0	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.5
MW-17-20	MW-17	10/18/22	20	<3.0	3.4 j	<50	3.4	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.0
MW-17-25	MW-17	10/18/22	25	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	11

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
AECOM - Additional Investigation Report - July 6, 2023 (continued):															
MW-18-5	MW-18	10/18/22	5	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	10
MW-18-10	MW-18	10/18/22	10	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	9.6
MW-18-15	MW-18	10/18/22	15	14	16 j	<50	16	<0.0050	<0.010	<0.010	--	--	<0.020	0.032	9.7
FD-2	MW-18	10/18/22	15 (DUP)	13	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	0.0021	12
MW-18-20	MW-18	10/18/22	20	20 J	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	6.0
MW-18-25	MW-18	10/18/22	25	0.54 j	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	9.6
MW-19-5	MW-19	10/20/22	5	<3.0	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	10
MW-19-10	MW-19	10/20/22	10	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	11
MW-19-15	MW-19	10/20/22	15	<3.0	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.0
FD-5	MW-19	10/20/22	15 (DUP)	0.59 j	<25 U	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	0.016	6.8
MW-19-20	MW-19	10/20/22	20	<3.0	<25 U	<50 U	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.2
MW-19-25	MW-19	10/20/22	25	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	8.5
MW-20-5	MW-20	10/21/22	5	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.7
MW-20-10	MW-20	10/21/22	10	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	13
MW-20-13	MW-20	10/21/22	13	39	23 j	<50	23	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	19
MW-20-15	MW-20	10/21/22	15	**200 J**	160 J	<50	160	<0.018	<0.010	0.079 J	--	--	0.14 J	0.43 J	10
FD-7	MW-20	10/21/22	15 (DUP)	14 J	70 J	22 J	92	<0.0050	<0.010	<0.010 UJ	--	--	<0.020 UJ	0.0066 J	10
MW-20-20	MW-20	10/21/22	20	2.8 jJ	7.5 j	<50	7.5	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	7.9
MW-20-25	MW-20	10/21/22	25	<3.0	6.1 j	<50	6.1	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-21-5	MW-21	10/21/22	5	<3.0	5.0 j	23 j	28	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-21-10	MW-21	10/21/22	10	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	9.7
MW-21-15	MW-21	10/21/22	15	3.2	6.3 j	<50	6.3	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	12
MW-21-18	MW-21	10/21/22	18	**860 J**	29 J	<50	29	<0.039	<0.023	<0.033 UJ	--	--	<0.041 UJ	0.79 J	6.9
FD-6	MW-21	10/21/22	18 (DUP)	**2,800 J**	320 J	<50	320	<0.027	<0.016	1.4 J	--	--	1.5 J	0.15 J	9.2
MW-21-20	MW-21	10/21/22	20	3.1	3.8 j	<6.8	3.8	<0.0050	<0.010	<0.010	--	--	<0.020	0.0036 j	7.4
MW-21-25	MW-21	10/21/22	25	<3.0	<25	<50	<50	<0.0050	<0.010	<0.010	--	--	<0.020	<0.010	13
AECOM - Investigation Report - July 14, 2024:															
B-30-5	B30	11/27/23	5	0.66 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	0.00058 jJ	0.0014 jJ	0.00032 jJ	0.00172	<0.010 UJ	7.9
B-30-7.5	B30	11/28/23	7.5	0.89 j	<25 U	<50	<50	<0.0050	0.00044 j	0.0013 j	0.0033 j	0.0011 j	0.0044	0.018	11
B-30-10	B30	11/28/23	10	0.55 j	<25 U	35 j	35	<0.0050	<0.010	0.00052 j	0.0012 j	0.00026 j	0.00146	0.0013 j	11
B-30-12.5	B30	11/28/23	12.5	0.64 j	<25 U	<50	<50	<0.0050	0.00028 j	0.00065 j	0.0016 j	0.00034 j	0.00194	<0.010	12
B-30-15	B30	11/28/23	15	37	240	290	530	<0.0050	0.00068 j	0.016	0.044	0.018	0.062	0.032	12
B-30-18	B30	11/28/23	18	**990**	310	<50	310	**0.032**	0.41	5.0	21	6.5	**27.5**	0.60	5.8

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CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
AECOM - Investigation Report - July 14, 2024 (continued):															
B-30-20	B30	11/28/23	20	20	<25	<50	<50	0.0060	0.0023	0.078	0.16	0.014	0.174	0.074	5.6
B-30-20	B30	11/28/23	20	20	<25	<50	<50	0.0060	0.0023	0.078	0.16	0.014	0.174	0.074	5.6
B-30-25	B30	11/28/23	25	1.1 j	<25	<50	<50	<0.0050	<0.010	0.00052 j	0.0016 j	0.00044 j	0.00204	0.0089 j	12
B-30-30	B30	11/28/23	30	0.86 j	<25	<50	<50	<0.0050	<0.010	0.00046 j	0.0014 j	0.00034 j	0.00174	0.0035 j	14
B-31-5	B31	11/29/23	5	<3.0	4.1 j	<50	4.1	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	9.3
B-31-7.5	B31	11/29/23	7.5	0.50 j	4.6 j	<50	4.6	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	8.0
B-31-10	B31	11/29/23	10	0.46 j	4.4 j	<50	4.4	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.1
B-31-12.5	B31	11/29/23	12.5	1.1 j	1,000	1,000	**2,000**	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	26
B-31-15	B31	11/29/23	15	0.44 j	17 j	22 j	39	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	5.9
B-31-20	B31	11/29/23	20	0.65 j	7.2 j	<50	7.2	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	9.0
B-31-25	B31	11/29/23	25	0.55 j	4.8 j	<50	4.8	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	10
B-31-30	B31	11/29/23	30	0.53 j	4.5 j	<50	4.5	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	16
B-32-5	B32	11/29/23	5	0.49 j	<25	13 j	13	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.5
B-32-7.5	B32	11/29/23	7.5	5.4	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	9.4
B-32-10	B32	11/29/23	10	0.77 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	12
B-32-12.5	B32	11/29/23	12.5	1.5 j	7.9 j	<50	7.9	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	14
B-32-16	B32	11/29/23	16	**740**	490	<50	490	<0.0050	<0.021	0.61	0.98	<0.037	0.98	0.68	8.1
B-32-20	B32	11/29/23	20	13	<25	<50	<50	<0.0050	<0.010	0.00077	0.00074	<0.010	0.00074	0.0013 j	9.1
B-32-25	B32	11/29/23	25	0.76 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0018 j	16
B-32-30	B32	11/29/23	30	0.44 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.00069 j	16
AECOM - Investigation Report - July 14, 2024:															
MW-22-5	MW-22	11/30/23	5	6.5	98	550	648	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0097 jJ	72
MW-22-7.5	MW-22	11/30/23	7.5	53 J	71	280	351	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0026 jJ	75
MW-22-10	MW-22	11/30/23	10	7.8	24 j	<50	24	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0015 jJ	15
MW-22-13.5	MW-22	11/30/23	13.5	**3,300**	6,000	<500	**6,000**	<29	0.074	**7.2**	28	12	**40**	0.42	16
MW-22-15	MW-22	11/30/23	15	**6,000**	17,000	<1,000	**17,000**	**0.065 J**	0.79 J	**44**	180	67	**247**	1.3 J	8.6
MW-22-20	MW-22	11/30/23	20	**210**	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	6.6
MW-22-25	MW-22	11/30/23	25	<3.0 U	<25	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	8.5
MW-22-30	MW-22	11/30/23	30	<3.0 U	<25	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0050 jJ	14
MW-23-5	MW-23	11/27/23	5	0.52 j	<25 U	46 j	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	7.6
MW-23-7.5	MW-23	11/28/23	7.5	0.48 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	0.00080 J	0.0018 jJ	0.00041 jJ	0.00221	<0.010 UJ	8.4
MW-23-10	MW-23	11/28/23	10	0.82 j	34 J	270	304	<0.0050	0.00033 j	0.00057 j	0.0015 j	0.00038 j	0.00188	<0.010	17
MW-23-12.5	MW-23	11/28/23	12.5	0.63 j	<25 U	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	6.8

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Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
AECOM - Investigation Report - July 14, 2024 (continued):															
MW-23-15	MW-23	11/28/23	15	**1,300**	3,500	59 j	**3,559**	<0.033	0.052	1.6	0.095	0.32	0.415	0.82	14
MW-23-17.5	MW-23	11/28/23	17.5	**880**	160	<50	160	**0.049**	0.78	4.9	11	3.9	**14.9**	0.62	8.2
MW-23-20	MW-23	11/28/23	20	**230**	47 J	<50 U	47	0.00024 j	0.0018 j	0.025	0.063	0.021	0.084	0.032	8.0
MW-23-25	MW-23	11/28/23	25	1.0 j	<25	<50 U	<50	<0.0050	<0.010	0.0012 j	0.0023 j	0.00087 j	0.00317	0.0013 j	8.7
MW-23-30	MW-23	11/28/23	30	1.2 j	<25	<50 U	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0013 j	15
MW-24-5	MW-24	11/27/23	5	0.62 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	11
MW-24-7.5	MW-24	11/27/23	7.5	0.82 j	<25	<50 U	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.00065 j	8.8
MW-24-10	MW-24	11/27/23	10	0.64 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	7.6
MW-24-12.5	MW-24	11/27/23	12.5	0.44 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	10
MW-24-17.5	MW-24	11/27/23	17.5	0.50 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	7.3
MW-24-22.5	MW-24	11/27/23	22.5	0.96 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	10
MW-24-27.5	MW-24	11/27/23	27.5	0.58 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	12
MW-25-5	MW-25	11/28/23	5	0.97 j	<25	<50	<50	<0.0050	<0.010	0.00062 j	0.0017 j	0.00036 j	0.00206	0.0024 j	10
MW-25-7.5	MW-25	11/28/23	7.5	0.49 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0013 j	7.4
MW-25-10	MW-25	11/28/23	10	0.76 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0014 j	8.5
MW-25-12.5	MW-25	11/28/23	12.5	0.62 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	10
MW-25-15	MW-25	11/28/23	15	0.84 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.00085 j	8.3
MW-25-17	MW-25	11/28/23	17	**270**	13 j	<50	13	<0.0050	<0.010	0.012	<0.020	<0.010	<0.020	0.64	6.7
MW-25-20	MW-25	11/28/23	20	4.8	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0085 j	11
MW-25-25	MW-25	11/28/23	25	0.95 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0019 j	9.3
MW-25-30	MW-25	11/28/23	30	0.45 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.00070 j	11
MW-26-5	MW-26	11/29/23	5	0.52 j	5.1 j	<50	5.1	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.9
MW-26-7.5	MW-26	11/29/23	7.5	2.0 j	82 j	640	722	<0.0050	<0.010	0.00068 j	0.0030 j	0.0012 j	0.0042	0.0026 j	15
MW-26-10	MW-26	11/29/23	10	0.45 j	7.9 j	84	91.9	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	10
MW-26-12.5	MW-26	11/29/23	12.5	0.43 j	6.5 j	51	57.5	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.8
MW-26-15	MW-26	11/29/23	15	0.43 j	4.0 j	<50	4.0	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	6.5
MW-26-20	MW-26	11/29/23	20	0.44 j	4.0 j	<50	4.0	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	5.7
MW-26-25	MW-26	11/29/23	25	<3.0	13 j	88	101	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.2
MW-26-30	MW-26	11/29/23	30	0.56 j	<25	37 j	37	<0.0050	<0.010	0.00070 j	0.0034 j	0.0013 j	0.0047	<0.010	7.6
MW-27-5	MW-27	12/02/23	5	1.4 j	<25	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.00071 jJ	8.8
MW-27-10	MW-27	12/02/23	10	46	<25	<50	<50	0.00047 jJ	0.00035 jJ	0.00054 jJ	0.00074 jJ	<0.010 UJ	0.00074	0.0012 jJ	8.4
MW-27-15	MW-27	12/02/23	15	**750**	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	0.076 J	0.10 J	<0.010 UJ	0.10	0.012 J	8.5
MW-27-20	MW-27	12/02/23	20	**150**	<25	<50	<50	<0.0050 UJ	<0.010 UJ	0.0060 jJ	0.016 jJ	0.00050 jJ	0.0165	0.021 J	6.4

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250
AECOM - Investigation Report - July 14, 2024 (continued):															
MW-27-25	MW-27	12/02/23	25	3.2	<25 U	<50	<50	0.00039 jJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0011 jJ	7.7
MW-27-30	MW-27	12/02/23	30	1.1 j	<25 U	<50	<50	<0.0050 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	13
MW-28-5	MW-28	12/02/23	5	0.74 j	<25	<50	<50	0.00058 jJ	0.00044 jJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.00078 jJ	9.5
MW-28-10	MW-28	12/02/23	10	0.72 j	<25	<50	<50	0.00063 jJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	<0.010 UJ	9.9
MW-28-15	MW-28	12/02/23	15	**10,000**	92	<50	92	0.00062 jJ	0.00035 jJ	0.0018 jJ	0.0046 jJ	<0.010 UJ	0.0046	0.013 J	8.1
MW-28-20	MW-28	12/02/23	20	**960**	78	<50	78	<0.0050 UJ	<0.010 UJ	0.016 J	0.012 jJ	<0.010 UJ	0.012	0.025 J	9.5
MW-28-25	MW-28	12/02/23	25	22	<25	<50	<50	<0.0050 UJ	<0.010 UJ	0.0029 jJ	0.0028 jJ	<0.010 UJ	0.0028	0.0093 jJ	8.9
MW-28-30	MW-28	12/02/23	30	2.5 j	<25	<50	<50	0.00028 jJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.020	0.0016 jJ	13
IW-1-5	IW-1	11/29/23	5	0.54 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0011 j	9.6
IW-1-7.5	IW-1	11/29/23	7.5	0.38 j	<25	<50	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	7.3
IW-1-10	IW-1	11/29/23	10	0.52 j	6.5 j	<50	6.5	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	8.7
IW-1-12.5	IW-1	11/29/23	12.5	0.51 j	14 j	<50	14	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	<0.010	12
IW-1-15	IW-1	11/29/23	15	**920**	870	18 j	888	<0.0050	<0.010	0.021	0.033	0.031	0.064	0.56	8.8
IW-1-20	IW-1	11/29/23	20	6.5	<25	<50	<50	0.00020 j	<0.010	<0.010	<0.020	<0.010	<0.020	0.0015 j	6.1
IW-1-25	IW-1	11/29/23	25	1.2 j	<25	<50 U	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0057 j	12
IW-1-30	IW-1	11/29/23	30	5.3	<25	<50 U	<50	<0.0050	<0.010	<0.010	<0.020	<0.010	<0.020	0.0024 j	14

TABLE 1
CUMULATIVE SOIL ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	DRPH + ORPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	Lead (mg/kg)
MTCA Method A Cleanup Levels				30/100 a	--	--	2,000	0.03	7	6	--	--	9	5	250

EXPLANATION:
feet bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
GRPH = Gasoline range petroleum hydrocarbons analyzed in accordance with NWTPH-Gx or EPA Method 8015M.
DRPH, ORPH = Diesel range and oil range petroleum hydrocarbons, respectively, analyzed in accordance with NWTPH-Dx.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes, analyzed in accordance with EPA Method 8260 or 8021B.
Naphthalene = Naphthalene analyzed in accordance with EPA Method 8260.
Lead = Lead analyzed in accordance with EPA Method 6020.
MTCA = Model Toxics Control Act.
NE = Not established.
-- = Not available, not applicable, not measured, and/or not sampled.
< = Less than the stated laboratory reporting limit.
Shaded and bolded values exceed the MTCA Method A Cleanup Levels.
j = Laboratory qualifier. Analyte was positively identified. Reported result is an estimate below the associated reporting limit but above the method detection limit.
U = Data validation qualifier. The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J = Data validation qualifier. The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = Data validation qualifier. The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
H = Laboratory qualifier. Sample extracted and/or analyzed outside the recommended holding time.
a = The TPHg cleanup level is 30 mg/kg unless benzene is not detected in the sample, or if the total of toluene, ethylbenzene, and xylenes constitutes less than 1% of the TPHg present in the sample. If these conditions are met, the cleanup level for TPHg may be elevated to 100 mg/kg.
b = Boring B29 was advanced to a total length of 28 feet at a 59 degree angle from surface. The listed sample depths represent the downhole length within the angled borehole, not the depth below (perpendicular to) ground surface.
c = Laboratory analytical report and associated chain-of-custody record have incorrect date of 10/26/22.
d = Laboratory qualifier. Result for diesel is estimated due to overlap from gasoline-range organics or other volatile organic compounds.
e = Laboratory qualifier. Gasoline result is being impacted by the presence of diesel fuel.

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
OnSite Environmental, Inc. - Laboratory Analytical Report 0312-211 - January 6, 2004:																
1216-02	--	12/16/03	--	--	--	--	--	--	--	<0.054	--	--	--	--	--	--
1216-04	--	12/17/03	--	--	--	--	--	--	--	<0.054	--	--	--	--	--	--
1216-06	--	12/17/03	--	--	--	--	--	--	--	<0.054	--	--	--	--	--	--
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:																
B4-17	B4	03/16/18	17	--	--	--	<0.0242	--	--	--	--	--	--	--	--	--
AECOM - Additional Investigation Report - July 6, 2023:																
B24-5	B24	10/25/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B24-10	B24	10/25/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B24-13	B24	10/25/22	13	<0.010	<0.012	--	--	--	<0.029	<0.043	<0.30	<0.041	--	--	--	--
B24-15	B24	10/25/22	15	<0.0098	<0.012	--	--	--	<0.029	<0.042	<0.30	<0.040	--	--	--	--
FD-9	B24	10/25/22	15 (DUP)	<0.0093	<0.012	--	--	--	<0.027	<0.040	<0.28	<0.038	--	--	--	--
B24-20	B24	10/25/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B24-25	B24	10/25/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B25-5	B25	10/26/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B25-10	B25	10/26/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B25-12	B25	10/26/22	12	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B25-15	B25	10/26/22	15	<0.011	<0.013	--	--	--	<0.031	<0.046	<0.32	<0.044	--	--	--	--
FD-10	B25	10/26/22	15 (DUP)	<0.13	<0.16	--	--	--	<0.37	<0.55	<3.9	<0.52	--	--	--	--
B25-20	B25	10/26/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	0.0061 j	<0.010	--	--	--	--
B25-25	B25	10/26/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B26-5	B26	10/26/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B26-10	B26	10/26/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B26-15	B26	10/26/22	15	<0.12	<0.15	--	--	--	<0.37	<0.54	<3.8	<0.51	--	--	--	--
B26-20	B26	10/26/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	0.013 j	<0.010	--	--	--	--
B26-25	B26	10/26/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Additional Investigation Report - July 6, 2023 (continued):																
B27-5	B27	10/26/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B27-10	B27	10/26/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B27-15	B27	10/26/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B27-20	B27	10/26/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B27-25	B27	10/26/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B29-5	B29 a	10/26/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B29-10	B29 a	10/26/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B29-15	B29 a	10/26/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B29-20	B29 a	10/26/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
B29-24.5	B29 a	10/26/22	24.5	<0.012 UJ	<0.014 UJ	--	--	--	<0.034 UJ	<0.050 UJ	<0.35 UJ	<0.047 UJ	--	--	--	--
B29-25	B29 a	10/26/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-14-5	MW-14	10/25/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-14-10	MW-14	10/25/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-14-15	MW-14	10/25/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	0.013 j	<0.010	--	--	--	--
FD-8	MW-14	10/25/22	15 (DUP)	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-14-20	MW-14	10/25/22[d]	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-14-25	MW-14	10/25/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-15-5	MW-15	10/19/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-15-10	MW-15	10/19/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-15-15	MW-15	10/19/22	15	<0.039	<0.049	--	--	--	<0.12	<0.17	<1.2	<0.16	--	--	--	--
FD-3	MW-15	10/19/22	15 (DUP)	<0.0091	<0.011	--	--	--	<0.027	<0.039	<0.28	<0.037	--	--	--	--
MW-15-18	MW-15	10/19/22	18	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-15-20	MW-15	10/19/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-15-25	MW-15	10/19/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Additional Investigation Report - July 6, 2023 (continued):																
MW-16-5	MW-16	10/19/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-16-10	MW-16	10/19/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-16-15	MW-16	10/19/22	15	<0.012	<0.015	--	--	--	<0.035	<0.052	<0.37	<0.049	--	--	--	--
FD-4	MW-16	10/19/22	15 (DUP)	<0.0091	<0.011	--	--	--	<0.027	<0.039	<0.27	<0.037	--	--	--	--
MW-16-18	MW-16	10/19/22	18	<0.012	<0.015	--	--	--	<0.035	<0.052	<0.36	<0.049	--	--	--	--
MW-16-20	MW-16	10/19/22	20	<0.13	<0.16	--	--	--	<0.37	<0.55	<3.9	<0.52	--	--	--	--
MW-16-25	MW-16	10/19/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-17-5	MW-17	10/18/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-17-10	MW-17	10/18/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-17-15	MW-17	10/18/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
FD-1	MW-17	10/18/22	15 (DUP)	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-17-20	MW-17	10/18/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-17-25	MW-17	10/18/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-18-5	MW-18	10/18/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-18-10	MW-18	10/18/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-18-15	MW-18	10/18/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
FD-2	MW-18	10/18/22	15 (DUP)	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-18-20	MW-18	10/18/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-18-25	MW-18	10/18/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-19-5	MW-19	10/20/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-19-10	MW-19	10/20/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-19-15	MW-19	10/20/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
FD-5	MW-19	10/20/22	15 (DUP)	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-19-20	MW-19	10/20/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-19-25	MW-19	10/20/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Additional Investigation Report - July 6, 2023 (continued):																
MW-20-5	MW-20	10/21/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-20-10	MW-20	10/21/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-20-13	MW-20	10/21/22	13	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-20-15	MW-20	10/21/22	15	<0.0084	<0.010	--	--	--	<0.025	<0.036	<0.25	<0.034	--	--	--	--
FD-7	MW-20	10/21/22	15 (DUP)	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-20-20	MW-20	10/21/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-20-25	MW-20	10/21/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-21-5	MW-21	10/21/22	5	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-21-10	MW-21	10/21/22	10	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-21-15	MW-21	10/21/22	15	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-21-18	MW-21	10/21/22	18	<0.019	<0.023	--	--	--	<0.055	<0.081	<0.57	<0.077	--	--	--	--
FD-6	MW-21	10/21/22	18 (DUP)	<0.013	<0.016	--	--	--	<0.037	<0.055	<0.39	<0.052	--	--	--	--
MW-21-20	MW-21	10/21/22	20	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
MW-21-25	MW-21	10/21/22	25	<0.0050	<0.010	--	--	--	<0.010	<0.010	<0.020	<0.010	--	--	--	--
AECOM - Investigation Report - July 14, 2024:																
B-30-5	B30	11/27/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
B-30-7.5	B30	11/28/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-10	B30	11/28/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-12.5	B30	11/28/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-15	B30	11/28/23	15	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-18	B30	11/28/23	18	<0.015	<0.018	<0.036	--	<0.040	<0.043	<0.064	<0.450	<0.060	<0.040	<0.058	<0.034	<0.010
B-30-20	B30	11/28/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	0.0099 j	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-25	B30	11/28/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-30-30	B30	11/28/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-5	B31	11/29/23	5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-7.5	B31	11/29/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Investigation Report - July 14, 2024 (continued):																
B-31-10	B31	11/29/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-12.5	B31	11/29/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-15	B31	11/29/23	15	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-20	B31	11/29/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-25	B31	11/29/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-31-30	B31	11/29/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-5	B32	11/29/23	5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-7.5	B32	11/29/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-10	B32	11/29/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-12.5	B32	11/29/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-16	B32	11/29/23	16	<0.017	<0.021	<0.042	--	<0.046	<0.049	<0.073	<0.51	<0.069	<0.046	<0.066	<0.039	<0.010
B-32-20	B32	11/29/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	0.0027 j	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-25	B32	11/29/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
B-32-30	B32	11/29/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-22-5	MW-22	11/30/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-22-7.5	MW-22	11/30/23	7.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-22-10	MW-22	11/30/23	10	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-22-13.5	MW-22	11/30/23	13.5	<0.014	<0.017	<0.035	--	<0.038	<0.041	<0.060	<0.43	<0.057	<0.038	<0.055	<0.032	<0.010
MW-22-15	MW-22	11/30/23	15	<0.015	<0.018	<0.037	--	<0.041	<0.044	<0.064	<0.45	<0.061	<0.040	<0.059	<0.034	<0.010
MW-22-20	MW-22	11/30/23	20	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-22-25	MW-22	11/30/23	25	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-22-30	MW-22	11/30/23	30	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-23-5	MW-23	11/27/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-23-7.5	MW-23	11/28/23	7.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-23-10	MW-23	11/28/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-23-12.5	MW-23	11/28/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

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MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Investigation Report - July 14, 2024 (continued):																
MW-23-15	MW-23	11/28/23	15	<0.016	<0.020	<0.039	--	<0.043	<0.046	<0.068	<0.480	<0.065	<0.043	<0.062	<0.036	<0.010
MW-23-17.5	MW-23	11/28/23	17.5	<0.017	<0.021	<0.042	--	<0.046	<0.049	<0.073	<0.510	<0.069	<0.046	<0.067	<0.039	<0.010
MW-23-20	MW-23	11/28/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	0.014 j	<0.010	<0.010	<0.010	<0.010	<0.010
MW-23-25	MW-23	11/28/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-23-30	MW-23	11/28/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-24-5	MW-24	11/27/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-24-7.5	MW-24	11/27/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-24-10	MW-24	11/27/23	10	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-24-12.5	MW-24	11/27/23	12.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-24-17.5	MW-24	11/27/23	17.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-24-22.5	MW-24	11/27/23	22.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-24-27.5	MW-24	11/27/23	27.5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-25-5	MW-25	11/28/23	5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-7.5	MW-25	11/28/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-10	MW-25	11/28/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-12.5	MW-25	11/28/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-15	MW-25	11/28/23	15	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-17	MW-25	11/28/23	17	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-20	MW-25	11/28/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-25	MW-25	11/28/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-25-30	MW-25	11/28/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-5	MW-26	11/29/23	5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-7.5	MW-26	11/29/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-10	MW-26	11/29/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-12.5	MW-26	11/29/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-15	MW-26	11/29/23	15	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67
AECOM - Investigation Report - July 14, 2024 (continued):																
MW-26-20	MW-26	11/29/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-25	MW-26	11/29/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-26-30	MW-26	11/29/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
MW-27-5	MW-27	12/02/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-27-10	MW-27	12/02/23	10	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-27-15	MW-27	12/02/23	15	<0.0050 UJ	0.00042 jJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-27-20	MW-27	12/02/23	20	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-27-25	MW-27	12/02/23	25	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-27-30	MW-27	12/02/23	30	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-5	MW-28	12/02/23	5	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-10	MW-28	12/02/23	10	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-15	MW-28	12/02/23	15	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-20	MW-28	12/02/23	20	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-25	MW-28	12/02/23	25	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
MW-28-30	MW-28	12/02/23	30	<0.0050 UJ	<0.010 UJ	<0.010 UJ	--	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.020 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ	<0.010 UJ
IW-1-5	IW-1	11/29/23	5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-7.5	IW-1	11/29/23	7.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-10	IW-1	11/29/23	10	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-12.5	IW-1	11/29/23	12.5	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-15	IW-1	11/29/23	15	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-20	IW-1	11/29/23	20	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	0.0099 j	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-25	IW-1	11/29/23	25	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010
IW-1-30	IW-1	11/29/23	30	<0.0050	<0.010	<0.010	--	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

TABLE 2
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1,2-Dibromoethane (EDB) (mg/kg)	1,2-Dichloroethane (1,2-DCA or EDC) (mg/kg)	cis-1,2-Dichloroethene (cis-1,2-DCE) (mg/kg)	Dibenzofuran (mg/kg)	Di-isopropyl ether (DIPE) (mg/kg)	Ethyl tertiary butyl ether (ETBE) (mg/kg)	Methyl tertiary butyl ether (MTBE) (mg/kg)	Tertiary butyl alcohol (TBA) (mg/kg)	Tertiary amyl methyl ether (TAME) (mg/kg)	Tetrachloroethene (PCE) (mg/kg)	trans-1,2-Dichloroethene (trans-1,2-DCE) (mg/kg)	Trichloroethene (TCE) (mg/kg)	Vinyl Chloride (mg/kg)
MTCA Method A Cleanup Levels				0.005	NE	NE	NE	NE	NE	0.1	NE	NE	0.05	NE	0.03	NE
MTCA Method B Cleanup Levels				0.5	11	160	80	NE	80,000	560	32,000	NE	480	1,600	12	0.67

EXPLANATION:
EPA = Environmental Protection Agency.
feet bgs = Feet below ground surface.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
VOCs = Volatile organic compounds.
NE = Not established.
-- = Not available, not applicable, not measured, and/or not sampled.
< = Less than the stated laboratory reporting limit.
Shaded and bolded values exceed the MTCA Method A Cleanup Levels.
VOCs analyzed in accordance with EPA Method 8260 or 8270; refer to laboratory reports.
j = Laboratory qualifier. Analyte was positively identified. Reported result is an estimate below the associated reporting limit but above the method detection limit.
UJ = Data validation qualifier. The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
a = Boring B29 was advanced to a total length of 28 feet at a 59 degree angle from surface. The listed sample depths represent the downhole length within the angled borehole, not the depth below (perpendicular to) ground surface.

TABLE 3
CUMULATIVE SOIL ANALYTICAL RESULTS - VOLATILE PETROLEUM HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	Aliphatics				Aromatics			Individual Constituents							
				C5-C6 (mg/kg)	C6-C8 (mg/kg)	C8-C10 (mg/kg)	C10-C12 (mg/kg)	C8-C10 (mg/kg)	C10-C12 (mg/kg)	C12-C13 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m,p-Xylene (mg/kg)	o-Xylene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	MTBE (mg/kg)
MTCA Method A Cleanup Levels				NE	NE	NE	NE	NE	NE	NE	0.03	7	6	NE	NE	9	5	0.1
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:																		
B2-19	MW-4	03/15/18	19	2.48	62.5	52.2	68.2	82.2	68.3	93.9	<0.554	1.13	2.22	1.97	0.985	2.955	3.74	<0.462
B4-17	B4	03/16/18	17	3.89	92.5	173	129	461	468	140	<0.563	22.3	41.9	147	56.5	203.5	17.9	<0.469
B6-17	B6	04/02/18	17	<1.69	12.4	20.3	20.2	37.8	48.0	22.9	<0.581	<0.678	2.16	7.30	1.43	8.73	2.93	<0.484
B9-16.5	B9	04/03/18	16.5	2.56	240	430	199	483	790	243	<0.591	7.63	15.4	31.7	15.0	46.7	22.5	<0.492
B11-20	MW-8	04/03/18	20	<1.53	<2.19	<1.23	<1.32	3.52	2.41	<6.14	<0.526	<0.614	<0.614	<1.14	<0.526	<1.14	0.515	<0.439

EXPLANATION:
mg/kg = Milligram per kilogram.
NE = Not established.
NWVPH = Northwest Volatile Petroleum Hydrocarbon.
< = Less than the stated laboratory reporting limit.
Analyses performed in accordance with NWVPH.

TABLE 4
CUMULATIVE SOIL ANALYTICAL RESULTS - EXTRACTABLE PETROLEUM HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	Aliphatics					Aromatics				
				C8-C10 (mg/kg)	C10-C12 (mg/kg)	C12-C16 (mg/kg)	C16-C21 (mg/kg)	C21-C34 (mg/kg)	C8-C10 (mg/kg)	C10-C12 (mg/kg)	C12-C16 (mg/kg)	C16-C21 (mg/kg)	C21-C34 (mg/kg)
MTCA Method A Cleanup Levels				NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:													
B2-19	MW-4	03/15/18	19	105	93.5	<12.9	<12.9	<12.9	30.6	27.4	<12.9	<12.9	<12.9
B4-17	B4	03/16/18	17	1,140	495	164	104	<11.4	443	294	128	24.9	<11.4
B6-17	B6	04/02/18	17	42.3	29.0	<10.8	<10.8	<10.8	19.3	16.0	<10.8	<10.8	<10.8
B9-16.5	B9	04/03/18	16.5	34.8	24.2	<12.2	<12.2	<12.2	<12.2	<12.2	<12.2	<12.2	<12.2
B11-20	MW-8	04/03/18	20	<23.7	<11.8	<11.8	<11.8	<11.8	<11.8	<11.8	<11.8	<11.8	<11.8

EXPLANATION:
mg/kg = Milligram per kilogram.
NE = Not established.
NWEPH = Northwest Extractable Petroleum Hydrocarbon.
-- = Not analyzed.
Analyses performed in accordance with NWEPH.

TABLE 5
CUMULATIVE SOIL ANALYTICAL RESULTS - POLYAROMATIC HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

				Polyaromatic Hydrocarbons (PAHs)																		
				Non-Carcinogenic											Carcinogenic							
Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)	Dibenz(a,h)anthracene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	TEF-adjusted cPAHs (mg/kg)
MTCA Method A Cleanup Levels				NE	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	NE	0.1	NE	NE	NE	NE	NE	0.1
MTCA Method B Cleanup Levels				5,600	320	4,800	NE	24,000	NE	3,200	3,200	1,600	NE	2,400	NE	0.19	NE	NE	NE	NE	NE	NE
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:																						
B4-17	B4	03/16/18	17	5.30	10.1	<0.0363	<0.0156	<0.0121	<0.00864	0.0104	0.0600	**9.79**	0.0981	0.0141	<0.00864	<0.00864	<0.00864	<0.00864	<0.00864	<0.00864	<0.00864	<0.00864

EXPLANATION:
cPAHs = Carcinogenic polyaromatic hydrocarbons.
EPA = Environmental Protection Agency.
feet bgs = Feet below ground surface.
mg/kg = Milligram per kilogram.
MTCA = Model Toxics Control Act.
NE = Not established.
TEF = Toxicity Equivalency Factors in accordance with Table 708-2 under WAC 173-340-708(8).
-- = Not analyzed, Not applicable.
< = Less than the stated laboratory reporting limit.

Shaded and bolded values exceed MTCA Method Cleanup Levels.
For constituents with no established MTCA Method A Cleanup Levels, the lowest direct contact MTCA Method B Cleanup Level is included in this summary table.
PAHs analyzed in accordance with EPA Method 8270D SIM.

TABLE 6
CUMULATIVE SOIL ANALYTICAL RESULTS - TEF-ADJUSTED POLYAROMATIC HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Name	Sample Location	Sample Date	Sample Depth (feet bgs)		B(a)A (mg/kg)	B(a)P (mg/kg)	B(b)F (mg/kg)	B(k)F (mg/kg)	Chrysene (mg/kg)	DB(a,h)A (mg/kg)	IP (mg/kg)	TEF-adjusted cPAHs (mg/kg)
				TEF	0.1	1	0.1	0.1	0.01	0.1	0.1	
MTCA Method A Cleanup Level					0.1	NE	NE	NE	NE	NE	NE	0.1
EES Environmental, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:												
B4-17	B4	03/16/18	17		< 0.00864	< 0.00864	< 0.00864	< 0.00864	< 0.00864	< 0.00864	< 0.00864	
				TEF*value	0.000432	0.00432	0.000432	0.000432	0.0000432	0.000432	0.000432	<0.00864

EXPLANATION:
feet bgs = Feet below ground surface.
mg/kg = Milligram per kilogram.
B(a)A = Benzo(a)anthracene.
B(a)P = Benzo(a)pyrene.
B(b)F = Benzo(b)fluoranthene.
B(k)F = Benzo(k)fluoranthene.
DB(a,h)A = Dibenzo(a,h)anthracene.
IP = Indeno(1,2,3-cd)pyrene.
TEF = Toxicity Equivalency Factors in accordance with Table 708-2 under WAC 173-340-708(8).
< = Less than the stated laboratory reporting limit.

TABLE 7
WELL CONSTRUCTION DETAILS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Well Location	Date of Installation	Wellhead Elevation NAVD88 (feet amsl)	Northing NAD83/11	Easting NAD83/11	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Borehole/ Casing Diameter (Inches)	Slot Size (Inches)	Ecology Well Tag ID
MW-1	100 West Wine Country Road	March 26, 1998	812.37	336914.048	1791587.958	--	25	-- / 2	0.020	AEB 422
MW-2	100 West Wine Country Road	March 26, 1998	812.91	336962.549	1791557.551	--	25	-- / 2	0.020	AEB 423
MW-3	100 West Wine Country Road	March 26, 1998	812.74	337016.086	1791650.704	10-25	25	-- / 2	0.010	AEB 424
MW-4	100 West Wine Country Road	March 15, 2018	811.91	336962.904	1791511.413	10-25	25	-- / 2	0.020	BKR 328
MW-5	100 West Wine Country Road	March 16, 2018	811.61	337001.070	1791508.149	10-25	25	-- / 2	0.020	BKR 329
MW-6	100 West Wine Country Road	April 3, 2018	811.99	336898.593	1791558.155	10-25	25	-- / 2	0.020	BKR 331
MW-7	100 West Wine Country Road	April 3, 2018	812.28	336916.882	1791505.341	10-25	25	-- / 2	0.020	BKR 332
MW-8	100 West Wine Country Road	April 3, 2018	812.28	336928.120	1791594.524	10-25	25	-- / 2	0.020	BKR 333
MW-9	100 West Wine Country Road	April 4, 2018	812.76	336961.135	1791654.499	10-25	25	-- / 2	0.020	BKR 334
MW-10	100 West Wine Country Road	April 4, 2018	812.05	337023.795	1791562.478	10-25	25	-- / 2	0.020	BKR 335
MW-11	100 West Wine Country Road	April 5, 2018	812.13	337024.300	1791612.559	10-25	25	-- / 2	0.020	BKR 336
MW-12	100 West Wine Country Road	April 5, 2018	812.81	336992.710	1791593.880	10-25	25	-- / 2	0.020	BKR 337
MW-13	100 West Wine Country Road	August 6, 2019	812.72	337006.660	1791565.641	10-25	25	-- / 2	0.020	BLW 391
MW-14	101 West Wine Country Road	October 25, 2022	813.43	337190.844	1791657.438	10-25	25	8.25 / 2	0.020	BNR 184
MW-15	101 West Wine Country Road	October 19, 2022	813.60	337175.267	1791632.446	10-25	25	8.25 / 2	0.020	BNR 191
MW-16	101 West Wine Country Road	October 20, 2022	813.46	337168.486	1791608.615	10-25	25	8.25 / 2	0.020	BNR 192
MW-17	101 West Wine Country Road	October 20, 2022	813.05	337104.728	1791605.227	10-25	25	8.25 / 2	0.020	BNR 193
MW-18	101 West Wine Country Road	October 20, 2022	813.06	337087.051	1791659.318	10-25	25	8.25 / 2	0.020	BNR 194
MW-19	101 East Wine Country Road	October 20, 2022	813.15	337149.724	1791759.743	10-25	25	8.25 / 2	0.020	BNR 195
MW-20	101 East Wine Country Road	October 24, 2022	813.02	337115.631	1791716.418	10-25	25	8.25 / 2	0.020	BNR 196
MW-21	101 East Wine Country Road	October 24, 2022	813.18	337087.452	1791718.189	10-25	25	8.25 / 2	0.020	BNR 197
MW-22	101 West Wine Country Road	November 30, 2023	813.03	337198.934	1791633.761	10-25	25	8.25 / 2	0.010	BPR 690
MW-23	101 West Wine Country Road	November 27, 2023	813.06	337151.760	1791564.555	10-25	25	8.25 / 2	0.010	BPR 686
MW-24	101 West Wine Country Road	November 27, 2023	812.22	337096.695	1791573.388	10-25	25	8.25 / 2	0.010	BPR 685

TABLE 7
WELL CONSTRUCTION DETAILS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Well Location	Date of Installation	Wellhead Elevation NAVD88 (feet amsl)	Northing NAD83/11	Easting NAD83/11	Screened Interval (feet bgs)	Total Well Depth (feet bgs)	Borehole/ Casing Diameter (Inches)	Slot Size (Inches)	Ecology Well Tag ID
MW-25	Wine Country Road South of 101 West Wine Country Road	November 28, 2023	812.85	337059.892	1791665.726	10-25	25	8.25 / 2	0.010	BPR 687
MW-26	100 West Wine Country Road	November 29, 2023	812.48	337036.446	1791670.406	10-25	25	8.25 / 2	0.010	BPR 688
MW-27	ROW North of 100 Wine Country Road	December 2, 2023	812.15	337042.349	1791628.355	10-25	25	8.25 / 2	0.010	BPR 692
MW-28	ROW North of 100 Wine Country Road	December 2, 2023	811.53	337041.262	1791583.689	10-25	25	8.25 / 2	0.010	BPR 691
IW-1	101 West Wine Country Road	November 29, 2023	813.13	337168.161	1791630.743	10-25	25	8.25 / 2	0.010	BPR 689

EXPLANATION:
feet amsl = Feet above mean sea level
feet bgs = Feet below ground surface
-- = Not available

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
100 West Wine Country Road Monitoring Wells																	
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																	
MW-1	04/01/98		99.08	17.34	--	81.74	**1,370**	--	--	--	2.2	2.9	24	62	--	--	--
MW-1	09/27/00		99.08	14.26	--	84.82	120	--	--	--	0.783	0.529	1.34	3.49	--	--	--
MW-1	10/25/17		99.08	18.59	--	80.49	--	--	--	--	--	--	--	--	--	--	--
MW-1	11/07/17		99.08	18.88	--	80.20	--	--	--	--	--	--	--	--	--	--	--
MW-1	02/02/18		99.08	20.18	--	78.90	**928**	**866J,b**	--	<385	<0.200	<1.00	<0.500	<1.50	<2.00	0.267	<0.200
MW-1	03/06/18		812.37	20.59	--	791.78	--	--	--	--	--	--	--	--	--	--	--
MW-1	03/16/18		812.37	20.71	--	791.66	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/02/18		812.37	20.93	--	791.44	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/05/18		812.37	20.96	--	791.41	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/24/18		812.37	21.14	--	791.23	725	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	<0.200	0.200
MW-1	07/17/18		812.37	20.40	--	791.97	--	--	--	--	--	--	--	--	--	--	--
MW-1	07/18/18	d	812.37	--	--	--	364	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	<0.200	--
MW-1	10/22/18		812.37	19.07	--	793.30	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/23/18	d	812.37	--	--	--	250	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	<0.200	--
MW-1	01/22/19		812.37	20.64	--	791.73	--	--	--	--	--	--	--	--	--	--	--
MW-1	01/23/19	d	812.37	--	--	--	412	--	--	--	<0.20	<1.0	<0.50	<1.5	<2.0	--	--
MW-1	08/08/19		812.37	19.36	--	793.01	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/29/19		812.37	18.66	--	793.71	--	--	--	--	--	--	--	--	--	--	--
MW-1	01/16/20		812.37	20.22	--	792.15	--	--	--	--	--	--	--	--	--	--	--
MW-1	02/19/20		812.37	20.73	--	791.64	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/24/20		812.37	21.59	--	790.78	--	--	--	--	--	--	--	--	--	--	--
MW-1	07/21/20		812.37	20.48	--	791.89	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/28/20		812.37	19.20	--	793.17	--	--	--	--	--	--	--	--	--	--	--
MW-1	01/14/21		812.37	20.72	--	791.65	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/08/21		812.37	21.75	--	790.62	--	--	--	--	--	--	--	--	--	--	--
MW-1	07/22/21		812.37	19.61	--	792.76	--	--	--	--	--	--	--	--	--	--	--
MW-1	10/28/21		812.37	18.88	--	793.49	--	--	--	--	--	--	--	--	--	--	--
MW-1	01/19/22		812.37	19.98	--	792.39	--	--	--	--	--	--	--	--	--	--	--
MW-1	01/16/23		812.37	18.22	--	794.15	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/24/23		812.37	19.67	--	792.70	--	--	--	--	--	--	--	--	--	--	--
MW-1	07/26/23		812.37	18.11	--	794.26	--	--	--	--	--	--	--	--	--	--	--
MW-1	11/03/23		812.37	18.15	--	794.22	--	--	--	--	--	--	--	--	--	--	--
MW-1	12/12/23		812.37	18.88	--	793.49	--	--	--	--	--	--	--	--	--	--	--
MW-1	02/29/24		812.37	19.33	--	793.04	--	--	--	--	--	--	--	--	--	--	--
MW-1	06/12/24		812.37	20.09	--	792.28	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-1	09/25/24	812.37	18.17	--	794.20	--	--	--	--	--	--	--	--	--	--	--
MW-1	12/03/24	812.37	19.13	--	793.24	--	--	--	--	--	--	--	--	--	--	--
MW-1	03/05/25	812.37	19.71	--	792.66	--	--	--	--	--	--	--	--	--	--	--
MW-1	06/16/25	812.37	20.17	--	792.20	--	**734b**	205b	<404	--	--	--	--	--	--	--
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																
MW-2	04/01/98	99.55	17.93	0.00	81.62	**5,970**	--	--	--	**94**	30	217	396	--	--	--
MW-2	09/27/00	99.55	14.66	0.00	84.89	**11,700**	--	--	--	**1,040**	74.0	649	710	--	--	--
MW-2	10/25/17	99.55	19.91	**0.86**	80.27	**NAPL Present**										
MW-2	11/07/17	99.55	20.13	**0.91**	80.08	**NAPL Present**										
MW-2	02/01/18	99.55	21.81	**1.14**	78.57	**NAPL Present**										
MW-2	02/02/18	99.55	21.31	**0.13**	78.33	**NAPL Present**										
MW-2	02/03/18	99.55	21.14	**0.25**	78.59	**NAPL Present**										
MW-2	03/06/18	812.91	21.61	**0.39**	791.58	**NAPL Present**										
MW-2	03/16/18	812.91	21.73	**0.41**	791.48	**NAPL Present**										
MW-2	04/02/18	812.91	22.03	**0.50**	791.24	**NAPL Present**										
MW-2	04/05/18	812.91	22.03	**0.47**	791.22	**NAPL Present**										
MW-2	04/24/18	812.91	22.32	**0.59**	791.02	**NAPL Present**										
MW-2	05/04/18	812.91	22.42	**0.59**	790.92	**NAPL Present**										
MW-2	06/05/18	812.91	21.80	**0.13**	791.20	**NAPL Present**										
MW-2	07/17/18	812.91	21.00	0.00	791.91	--	--	--	--	--	--	--	--	--	--	--
MW-2	07/18/18 d	812.91	--	--	--	**14,500**	**948c**	--	<404	**12.2**	34.2	441	936	**193**	2.60	--
MW-2	08/17/18	812.91	20.53	**0.13**	792.47	**NAPL Present**										
MW-2	09/10/18	812.91	19.86	**0.08**	793.11	**NAPL Present**										
MW-2	10/22/18	812.91	19.73	**0.10**	793.25	**NAPL Present**										
MW-2	11/13/18	812.91	20.13	**0.07**	792.83	**NAPL Present**										
MW-2	12/11/18	812.91	20.65	**0.08**	792.32	**NAPL Present**										
MW-2	01/22/19	812.91	21.32	**0.06**	791.63	**NAPL Present**										
MW-2	02/19/19	812.91	21.62	**0.06**	791.33	**NAPL Present**										
MW-2	04/23/19	812.91	22.08	**0.48**	791.18	**NAPL Present**										
MW-2	07/23/19	812.91	20.21	**0.01**	792.71	**NAPL Present**										
MW-2	10/29/19	812.91	19.38	0.00	793.53	--	--	--	--	--	--	--	--	--	--	--
MW-2	01/16/20	812.91	20.97	0.00	791.94	--	--	--	--	--	--	--	--	--	--	--
MW-2	04/24/20	812.91	22.59	**0.19**	790.46	**NAPL Present**										
MW-2	07/21/20	812.91	21.23	0.00	791.68	--	--	--	--	--	--	--	--	--	--	--
MW-2	10/28/20	812.91	19.99	0.00	792.92	--	--	--	--	--	--	--	--	--	--	--
MW-2	01/14/21	812.91	21.50	0.00	791.41	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-2	04/08/21		812.91	22.82	**0.03**	790.11	**NAPL Present**										
MW-2	07/22/21		812.91	20.35	0.00	792.56	--	--	--	--	--	--	--	--	--	--	--
MW-2	10/28/21		812.91	19.61	0.00	793.30	--	--	--	--	--	--	--	--	--	--	--
MW-2	01/19/22		812.91	19.79	0.00	793.12	--	--	--	--	--	--	--	--	--	--	--
MW-2	04/29/22		812.91	21.91	0.00	791.00	--	--	--	--	--	--	--	--	--	--	--
MW-2	07/19/22		812.91	19.73	0.00	793.18	--	--	--	--	--	--	--	--	--	--	--
MW-2	10/10/22		812.91	17.73	0.00	795.18	--	--	--	--	--	--	--	--	--	--	--
MW-2	01/16/23		812.91	18.96	0.00	793.95	--	--	--	--	--	--	--	--	--	--	--
MW-2	04/24/23		812.91	20.55	0.00	792.36	--	--	--	--	--	--	--	--	--	--	--
MW-2	07/26/23		812.91	18.90	0.00	794.01	--	--	--	--	--	--	--	--	--	--	--
MW-2	11/03/23		812.91	18.87	0.00	794.04	--	--	--	--	--	--	--	--	--	--	--
MW-2	12/12/23		812.91	19.60	0.00	793.31	--	--	--	--	--	--	--	--	--	--	--
MW-2	01/19/24		812.91	20.21	**0.01**	792.71	**NAPL Present**										
MW-2	02/29/24	i	812.91	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	04/25/24		812.91	20.62	0.00	792.29	--	--	--	--	--	--	--	--	--	--	--
MW-2	06/12/24		812.91	20.83	0.00	792.08	--	--	--	--	--	--	--	--	--	--	--
MW-2	09/25/24		812.91	18.89	0.00	794.02	--	--	--	--	--	--	--	--	--	--	--
MW-2	12/03/24		812.91	19.79	0.00	793.12	--	--	--	--	--	--	--	--	--	--	--
MW-2	03/06/25		812.91	20.49	0.00	792.42	--	--	--	--	--	--	--	--	--	--	--
MW-2	06/16/25		812.91	21.09	0.00	791.82	--	--	--	--	--	--	--	--	--	--	--
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																	
MW-3	04/01/98		99.23	16.29	--	82.94	**2,590**	--	--	--	**18.8**	3.45	61	205	--	--	--
MW-3	09/27/00		99.23	13.01	--	86.22	**2,270**	--	--	--	**14.9**	1.99	73.9	47.7	--	--	--
MW-3 DUP	09/27/00		99.23	13.01	--	86.22	**1,440**	--	--	--	**7.12**	1.07	25.9	25.6	--	--	--
MW-3	10/25/17		99.23	17.92	--	81.31	--	--	--	--	--	--	--	--	--	--	--
MW-3	11/07/17		99.23	18.18	--	81.05	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/02/18		99.23	19.58	--	79.65	121	269b	--	377	<0.200	<1.00	<0.500	<1.50	<2.00	0.267	<0.200
MW-3	03/06/18		812.74	19.99	--	792.75	--	--	--	--	--	--	--	--	--	--	--
MW-3	03/16/18		812.74	21.02	--	791.72	--	--	--	--	--	--	--	--	--	--	--
MW-3	04/05/18		812.74	20.38	--	792.36	--	--	--	--	--	--	--	--	--	--	--
MW-3	04/24/18		812.74	20.62	--	792.12	**821**	--	--	--	<0.200	<1.00	4.95	13.1	<2.00	<0.200	0.444
MW-3	07/17/18		812.74	19.83	--	792.91	--	--	--	--	--	--	--	--	--	--	--
MW-3	07/18/18	d	812.74	--	--	--	715	--	--	--	<0.200	<1.00	11.6	20.2	<2.00	<0.200	--
MW-3	10/22/18		812.74	18.40	--	794.34	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/23/18	d	812.74	--	--	--	564	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	<0.200	--
MW-3	01/22/19		812.74	20.05	--	792.69	**847**	--	--	--	<0.20	<1.0	4.7	13	<2.0	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-3	08/08/19		812.74	18.72	--	794.02	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/29/19		812.74	17.92	--	794.82	--	--	--	--	--	--	--	--	--	--	--
MW-3	01/16/20		812.74	19.56	--	793.18	--	--	--	--	--	--	--	--	--	--	--
MW-3	02/19/20		812.74	20.20	--	792.54	--	--	--	--	--	--	--	--	--	--	--
MW-3	04/24/20		812.74	19.99	--	792.75	--	--	--	--	--	--	--	--	--	--	--
MW-3	07/21/20		812.74	19.80	--	792.94	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/28/20		812.74	18.42	--	794.32	--	--	--	--	--	--	--	--	--	--	--
MW-3	01/14/21		812.74	20.07	--	792.67	--	--	--	--	--	--	--	--	--	--	--
MW-3	07/22/21		812.74	18.75	--	793.99	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/28/21		812.74	18.09	--	794.65	--	--	--	--	--	--	--	--	--	--	--
MW-3	01/19/22		812.74	19.24	--	793.50	--	--	--	--	--	--	--	--	--	--	--
MW-3	04/29/22		812.74	20.42	--	792.32	--	--	--	--	--	--	--	--	--	--	--
MW-3	07/19/22		812.74	18.16	--	794.58	--	--	--	--	--	--	--	--	--	--	--
MW-3	10/10/22		812.74	16.13	--	796.61	--	--	--	--	--	--	--	--	--	--	--
MW-3	01/16/23		812.74	17.45	--	795.29	--	--	--	--	--	--	--	--	--	--	--
MW-3	04/24/23		812.74	19.00	--	793.74	--	--	--	--	--	--	--	--	--	--	--
MW-3	07/26/23		812.74	17.32	--	795.42	--	--	--	--	--	--	--	--	--	--	--
MW-3	11/03/23		812.74	17.37	--	795.37	--	--	--	--	--	--	--	--	--	--	--
MW-3	12/12/23		812.74	18.19	--	794.55	522	**1,080**	--	<460	<0.20	<1.0	1.6	<1.5	<5.0	0.34	--
MW-3	02/29/24		812.74	18.73	--	794.01	344	434c	--	<455	<0.20	<1.0	<0.50	<1.5	<5.0	<0.20	--
MW-3	06/12/24		812.74	19.44	--	793.30	--	--	--	--	--	--	--	--	--	--	--
MW-3	06/13/24	d	812.74	--	--	--	<100	260	<192	<385	<0.20	<1.0	<0.50	<1.5	<5.0	--	--
MW-3	09/25/24		812.74	17.34	--	795.40	185	**751b**	<204	<408	<0.20	<1.0	<0.50	<1.5	<5.0	0.20	--
MW-3	12/03/24		812.74	18.40	--	794.34	291	419b	<204	<408	<0.200	<1.00	<0.500	<1.50	<5.00	<0.200	--
MW-3	03/05/25		812.74	19.10	--	793.64	277	373b	<208	<417	<0.20	<1.0	<0.50	<1.5	<5.0	<0.20	--
MW-3	06/16/25		812.74	20.60	--	--	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-4	03/16/18		NE	21.04	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/02/18		NE	21.27	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/05/18		NE	21.30	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/24/18		811.94	21.48	--	790.46	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/25/18	d	811.94	--	--	--	521	--	--	--	0.532	<1.00	<0.500	<1.50	<2.00	0.930	0.644
MW-4	07/17/18		811.94	20.66	--	791.28	--	--	--	--	--	--	--	--	--	--	--
MW-4	07/19/18	d	811.94	--	--	--	121	--	--	--	0.208	<1.00	<0.500	<1.50	<2.00	--	--
MW-4	10/22/18		811.94	19.27	--	792.67	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/23/18	d	811.94	--	--	--	653	--	--	--	1.18	<1.00	<0.500	<1.50	<2.00	2.72	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-4	01/22/19		811.94	20.90	--	791.04	628	--	--	--	0.37	<1.0	<0.50	<1.5	<2.0	--	--
MW-4	08/08/19		811.94	19.59	--	792.35	--	--	--	--	--	--	--	--	--	--	--
MW-4	10/29/19		811.94	18.90	--	793.04	--	--	--	--	--	--	--	--	--	--	--
MW-4	01/16/20		811.94	20.27	--	791.67	--	--	--	--	--	--	--	--	--	--	--
MW-4	02/19/20		811.94	20.96	--	790.98	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/24/20	g	811.94	21.89	--	790.05	--	--	--	--	--	--	--	--	--	--	--
MW-4	12/12/23	g	811.91	19.23	--	792.68	--	--	--	--	--	--	--	--	--	--	--
MW-4	02/29/24		811.91	19.73	--	792.18	--	--	--	--	--	--	--	--	--	--	--
MW-4	04/25/24		811.91	20.24	--	791.67	--	--	--	--	--	--	--	--	--	--	--
MW-4	06/12/24		811.91	20.42	--	791.49	--	--	--	--	--	--	--	--	--	--	--
MW-4	09/25/24		811.91	18.39	--	793.52	--	--	--	--	--	--	--	--	--	--	--
MW-4	12/03/24		811.91	19.44	--	792.47	--	--	--	--	--	--	--	--	--	--	--
MW-4	03/05/25		811.91	20.00	--	791.91	--	--	--	--	--	--	--	--	--	--	--
MW-4	06/16/25		811.91	20.48	--	791.43	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-5	04/05/18		NE	20.83	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-5	04/24/18		811.64	20.99	--	790.65	--	--	--	--	--	--	--	--	--	--	--
MW-5	04/25/18	d	811.64	--	--	--	390	--	--	--	0.243	<1.00	<0.500	<1.50	<2.00	0.943	0.711
MW-5	07/17/18		811.64	19.91	--	791.73	--	--	--	--	--	--	--	--	--	--	--
MW-5	07/19/18	d	811.64	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
MW-5	10/22/18		811.64	18.56	--	793.08	--	--	--	--	--	--	--	--	--	--	--
MW-5	10/23/18	d	811.64	--	--	--	767	--	--	--	0.330	<1.00	1.32	2.20	<2.00	1.13	--
MW-5	01/22/19		811.64	20.40	--	791.24	**981**	--	--	--	0.32	<1.0	<0.50	<1.5	<2.0	--	--
MW-5	08/08/19		811.64	18.82	--	792.82	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
MW-5	10/29/19		811.64	18.35	--	793.29	--	--	--	--	--	--	--	--	--	--	--
MW-5	01/16/20		811.64	19.98	--	791.66	--	--	--	--	--	--	--	--	--	--	--
MW-5	02/19/20		811.64	20.49	--	791.15	771	--	--	--	0.30	<1.0	<0.50	<1.5	<2.0	--	--
MW-5	04/24/20	g	811.64	21.40	--	790.24	--	--	--	--	--	--	--	--	--	--	--
MW-5	12/12/23	g	811.61	18.78	--	792.83	572	**748h**	--	<435h	0.52	<1.0	<0.50	<1.5	<5.0	1.4	--
MW-5 DUP	12/12/23	g	811.61	18.78	--	792.83	548	--	--	--	0.50	<1.0	<0.50	<1.5	<5.0	-	--
MW-5	02/29/24		811.61	19.31	--	792.30	394	455e	--	<426	0.37	<1.0	<0.50	<1.5	<5.0	0.40	--
MW-5 DUP	02/29/24		811.61	19.31	--	792.30	368	**575e**	--	<571	<0.20	<1.0	<0.50	<1.5	<5.0	--	--
MW-5	04/25/24		811.61	19.83	--	791.78	--	--	--	--	--	--	--	--	--	--	--
MW-5	06/14/24		811.61	19.92	--	791.69	<100	325l	<198	<396	<0.20	<1.0	<0.50	<1.5	<5.0	0.56	--
MW-5	09/25/24		811.61	17.78	--	793.83	383	**773b**	<202	<404	0.68	<1.0	<0.50	<1.5	<5.0	0.74	--
MW-5	12/03/24		811.61	18.99	--	792.62	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-5	12/04/24	d	811.61	--	--	--	766	**539b**	<206	<412	0.830	<1.00	<0.500	<1.50	<5.00	0.490	--
MW-5 DUP	12/04/24	d	811.61	--	--	--	706	**563b**	<217	<435	0.74	<1.0	<0.50	<1.5	<5.0	-	--
MW-5	03/05/25		811.61	19.57	--	792.04	749	**774b,l**	<206	<412	1.1	<1.0	<0.50	<1.5	<5.0	0.44	--
MW-5 DUP	03/05/25		811.61	19.57	--	792.04	**903**	**713b**	220b	<417	1.2	<1.0	<0.50	<1.5	<5.0	0.53	--
MW-5	06/16/25		811.61	20.05	--	791.56	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-6	04/05/18		NE	20.96	--	NE	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/24/18		811.99	21.10	--	790.89	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/25/18	d	811.99	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	0.824	0.233
MW-6	07/17/18		811.99	20.34	--	791.65	--	--	--	--	--	--	--	--	--	--	--
MW-6	07/18/18	d	811.99	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
MW-6	10/22/18		811.99	19.02	--	792.97	--	--	--	--	--	--	--	--	--	--	--
MW-6	10/23/18	d	811.99	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	0.709	--
MW-6	01/22/19		811.99	20.60	--	791.39	<100	--	--	--	<0.20	<1.0	<0.50	<1.5	<2.0	--	--
MW-6	08/08/19		811.99	19.31	--	792.68	--	--	--	--	--	--	--	--	--	--	--
MW-6	10/29/19		811.99	18.62	--	793.37	--	--	--	--	--	--	--	--	--	--	--
MW-6	01/16/20		811.99	20.15	--	791.84	--	--	--	--	--	--	--	--	--	--	--
MW-6	02/19/20		811.99	20.63	--	791.36	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/24/20		811.99	21.51	--	790.48	--	--	--	--	--	--	--	--	--	--	--
MW-6	07/21/20		811.99	20.42	--	791.57	--	--	--	--	--	--	--	--	--	--	--
MW-6	10/28/20		811.99	19.11	--	792.88	--	--	--	--	--	--	--	--	--	--	--
MW-6	01/14/21		811.99	20.67	--	791.32	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/08/21		811.99	21.68	--	790.31	--	--	--	--	--	--	--	--	--	--	--
MW-6	07/22/21		811.99	19.59	--	792.40	--	--	--	--	--	--	--	--	--	--	--
MW-6	10/28/21		811.99	18.80	--	793.19	--	--	--	--	--	--	--	--	--	--	--
MW-6	01/19/22		811.99	19.87	--	792.12	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/29/22		811.99	21.05	--	790.94	--	--	--	--	--	--	--	--	--	--	--
MW-6	01/16/23		811.99	18.22	--	793.77	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/24/23		811.99	19.60	--	792.39	--	--	--	--	--	--	--	--	--	--	--
MW-6	07/26/23		811.99	18.11	--	793.88	--	--	--	--	--	--	--	--	--	--	--
MW-6	11/03/23		811.99	18.11	--	793.88	--	--	--	--	--	--	--	--	--	--	--
MW-6	12/12/23		811.99	18.87	--	793.12	--	--	--	--	--	--	--	--	--	--	--
MW-6	02/29/24		811.99	19.28	--	792.71	--	--	--	--	--	--	--	--	--	--	--
MW-6	04/25/24		811.99	19.84	--	792.15	--	--	--	--	--	--	--	--	--	--	--
MW-6	06/12/24		811.99	20.03	--	791.96	--	--	--	--	--	--	--	--	--	--	--
MW-6	09/25/24		811.99	18.13	--	793.86	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-6	12/03/24		811.99	19.10	--	792.89	--	--	--	--	--	--	--	--	--	--	--
MW-6	03/05/25		811.99	19.63	--	792.36	--	--	--	--	--	--	--	--	--	--	--
MW-6	06/16/25		811.99	20.08	--	791.91	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-7	04/05/18		NE	22.82	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	04/24/18		811.92	21.75	--	790.17	--	--	--	--	--	--	--	--	--	--	--
MW-7	04/25/18	d	811.92	--	--	--	<100	--	--	--	<0.200	<1.00	0.740	<1.50	<2.00	1.47	0.711
MW-7	07/17/18		811.92	20.99	--	790.93	--	--	--	--	--	--	--	--	--	--	--
MW-7	07/19/18	d	811.92	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
MW-7	10/22/18		811.92	19.65	--	792.27	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/24/18	d	811.92	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	0.625	0.66
MW-7	01/22/19		811.92	21.20	--	790.72	--	--	--	--	--	--	--	--	--	--	--
MW-7	01/23/19	d	811.92	--	--	--	<100	--	--	--	<0.20	<1.0	<0.50	<1.5	<2.0	--	--
MW-7	08/08/19		811.92	19.93	--	791.99	--	--	--	--	--	--	--	--	--	--	--
MW-7	10/29/19		811.92	19.24	--	792.68	--	--	--	--	--	--	--	--	--	--	--
MW-7	01/16/20		811.92	20.78	--	791.14	--	--	--	--	--	--	--	--	--	--	--
MW-7	02/19/20		811.92	21.27	--	790.65	--	--	--	--	--	--	--	--	--	--	--
MW-7	04/24/20	g	811.92	22.14	--	789.78	--	--	--	--	--	--	--	--	--	--	--
MW-7	12/12/23	g	812.28	19.93	--	792.35	--	--	--	--	--	--	--	--	--	--	--
MW-7	02/29/24		812.28	20.36	--	791.92	--	--	--	--	--	--	--	--	--	--	--
MW-7	04/25/24		812.28	20.89	--	791.39	--	--	--	--	--	--	--	--	--	--	--
MW-7	06/12/24		812.28	21.06	--	791.22	--	--	--	--	--	--	--	--	--	--	--
MW-7	09/25/24		812.28	19.15	--	793.13	--	--	--	--	--	--	--	--	--	--	--
MW-7	12/03/24		812.28	20.13	--	792.15	--	--	--	--	--	--	--	--	--	--	--
MW-7	03/05/25		812.28	20.65	--	791.63	--	--	--	--	--	--	--	--	--	--	--
MW-7	06/16/25		812.28	21.10	--	791.18	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-8	04/05/18		NE	20.77	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	04/24/18		812.28	20.94	--	791.34	--	--	--	--	--	--	--	--	--	--	--
MW-8	04/25/18	d	812.28	--	--	--	**5,860**	--	--	--	<0.200	3.87	75.2	299	57.9	3.84	0.656
MW-8	07/17/18		812.28	20.20	--	792.08	--	--	--	--	--	--	--	--	--	--	--
MW-8	07/18/18	d	812.28	--	--	--	**1,590**	--	--	--	<0.200	<1.00	8.93	18.0	21.5	1.28	--
MW-8 DUP	07/18/18	d	812.28	--	--	--	**1,410**	--	--	--	<0.200	<1.00	8.9	16	17	--	--
MW-8	10/22/18		812.28	18.84	--	793.44	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-8	10/24/18	d	812.28	--	--	--	**2,390**	--	--	--	<0.200	5.19	121	206	35.3	0.897	--
MW-8 DUP	10/24/18	d	812.28	--	--	--	**2,170**	--	--	--	<0.20	4.9	112J	190J	32J	0.920	--
MW-8	01/22/19		812.28	20.41	--	791.87	--	--	--	--	--	--	--	--	--	--	--
MW-8	01/23/19	d	812.28	--	--	--	**2,980**	--	--	--	0.22	<1.0	64	10	59	--	--
MW-8 DUP	01/23/19	d	812.28	--	--	--	**2,920**	--	--	--	0.24	<1.0	72	11	62	--	--
MW-8	08/08/19		812.28	19.15	--	793.13	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/29/19		812.28	18.42	--	793.86	--	--	--	--	--	--	--	--	--	--	--
MW-8	01/16/20		812.28	20.01	--	792.27	--	--	--	--	--	--	--	--	--	--	--
MW-8	02/19/20		812.28	20.49	--	791.79	--	--	--	--	--	--	--	--	--	--	--
MW-8	04/24/20		812.28	21.38	--	790.90	--	--	--	--	--	--	--	--	--	--	--
MW-8	07/21/20		812.28	20.26	--	792.02	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/28/20		812.28	18.95	--	793.33	--	--	--	--	--	--	--	--	--	--	--
MW-8	01/14/21		812.28	20.48	--	791.80	--	--	--	--	--	--	--	--	--	--	--
MW-8	04/08/21		812.28	21.54	--	790.74	--	--	--	--	--	--	--	--	--	--	--
MW-8	07/22/21		812.28	19.36	--	792.92	--	--	--	--	--	--	--	--	--	--	--
MW-8	10/28/21		812.28	18.64	--	793.64	--	--	--	--	--	--	--	--	--	--	--
MW-8	01/19/22		812.28	19.72	--	792.56	--	--	--	--	--	--	--	--	--	--	--
MW-8	02/29/24	k	812.28	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	06/12/24	k	812.28	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	09/25/24	k	812.28	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	12/03/24	k	812.28	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	03/05/25	k	812.28	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-8	06/17/25		812.28	19.92	--	792.36	192o	**1,210b**	<204	<408	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-9	04/05/18		NE	21.02	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/24/18		812.76	20.69	--	792.07	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	2.47	<0.200
MW-9	07/17/18		812.76	19.92	--	792.84	--	--	--	--	--	--	--	--	--	--	--
MW-9	07/18/18	d	812.76	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
MW-9	10/22/18		812.76	18.56	--	794.20	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/23/18	d	812.76	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	0.282	--
MW-9	01/22/19		812.76	20.15	--	792.61	<100	--	--	--	<0.20	<1.0	<0.50	<1.5	<2.0	--	--
MW-9	08/08/19		812.76	18.81	--	793.95	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/29/19		812.76	18.15	--	794.61	--	--	--	--	--	--	--	--	--	--	--
MW-9	01/16/20		812.76	19.73	--	793.03	--	--	--	--	--	--	--	--	--	--	--
MW-9	02/19/20		812.76	20.24	--	792.52	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/24/20		812.76	21.13	--	791.63	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-9	07/21/20		812.76	20.00	--	792.76	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/28/20		812.76	18.67	--	794.09	--	--	--	--	--	--	--	--	--	--	--
MW-9	01/14/21		812.76	20.22	--	792.54	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/08/21		812.76	21.30	--	791.46	--	--	--	--	--	--	--	--	--	--	--
MW-9	07/22/21		812.76	19.13	--	793.63	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/28/21		812.76	18.34	--	794.42	--	--	--	--	--	--	--	--	--	--	--
MW-9	01/19/22		812.76	19.43	--	793.33	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/29/22		812.76	20.61	--	792.15	--	--	--	--	--	--	--	--	--	--	--
MW-9	07/19/22		812.76	18.47	--	794.29	--	--	--	--	--	--	--	--	--	--	--
MW-9	10/10/22		812.76	16.40	--	796.36	--	--	--	--	--	--	--	--	--	--	--
MW-9	01/16/23		812.76	17.63	--	795.13	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/24/23		812.76	19.13	--	793.63	--	--	--	--	--	--	--	--	--	--	--
MW-9	07/26/23		812.76	17.59	--	795.17	--	--	--	--	--	--	--	--	--	--	--
MW-9	11/03/23		812.76	17.56	--	795.20	--	--	--	--	--	--	--	--	--	--	--
MW-9	12/12/23		812.76	18.39	--	794.37	--	--	--	--	--	--	--	--	--	--	--
MW-9	02/29/24		812.76	18.85	--	793.91	--	--	--	--	--	--	--	--	--	--	--
MW-9	04/25/24		812.76	19.42	--	793.34	--	--	--	--	--	--	--	--	--	--	--
MW-9	06/12/24		812.76	19.59	--	793.17	--	--	--	--	--	--	--	--	--	--	--
MW-9	09/25/24		812.76	17.62	--	795.14	--	--	--	--	--	--	--	--	--	--	--
MW-9	12/03/24		812.76	18.68	--	794.08	--	--	--	--	--	--	--	--	--	--	--
MW-9	03/05/25		812.76	19.25	--	793.51	--	--	--	--	--	--	--	--	--	--	--
MW-9	06/16/25		812.76	19.71	--	793.05	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-10	04/05/18		NE	20.91	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	04/24/18		812.05	20.70	--	791.35	**1,210**	--	--	--	2.48	<1.00	9.22	12.6	<2.00	1.13	1.09
MW-10 DUP	04/24/18		812.05	20.70	--	791.35	799	--	--	--	2.1	<1.0	3.8	5.1	<2.0	--	--
MW-10	07/17/18		812.05	19.79	--	792.26	--	--	--	--	--	--	--	--	--	--	--
MW-10	07/18/18	d	812.05	--	--	--	466	--	--	--	1.23	<1.00	<0.500	<1.50	<2.00	1.43	--
MW-10	10/22/18		812.05	18.38	--	793.67	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/23/18	d	812.05	--	--	--	**1,910**	--	--	--	3.45	<1.00	2.26	3.01	<2.00	1.75	--
MW-10	01/22/19		812.05	20.10	--	791.95	--	--	--	--	--	--	--	--	--	--	--
MW-10	01/23/19	d	812.05	--	--	--	**1,450**	--	--	--	3.0	<1.0	0.51	<1.5	<2.0	--	--
MW-10	08/08/19		812.05	18.70	--	793.35	115	--	--	--	0.470	<1.00	<0.500	<1.50	<2.00	--	--
MW-10	10/29/19		812.05	18.02	--	794.03	--	--	--	--	--	--	--	--	--	--	--
MW-10	01/16/20		812.05	19.71	--	792.34	--	--	--	--	--	--	--	--	--	--	--
MW-10	02/19/20		812.05	20.21	--	791.84	**1,930**	--	--	--	2.9	<1.0	2.1	<1.5	<2.0	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-10	04/24/20		812.05	21.13	--	790.92	--	--	--	--	--	--	--	--	--	--	--
MW-10	07/21/20		812.05	19.85	--	792.20	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/28/20		812.05	18.60	--	793.45	--	--	--	--	--	--	--	--	--	--	--
MW-10	12/19/20	d	812.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-10	07/22/21		812.05	18.84	--	793.21	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/28/21		812.05	18.20	--	793.85	--	--	--	--	--	--	--	--	--	--	--
MW-10	01/19/22		812.05	19.44	--	792.61	--	--	--	--	--	--	--	--	--	--	--
MW-10	04/29/22		812.05	20.62	--	791.43	--	--	--	--	--	--	--	--	--	--	--
MW-10	07/19/22		812.05	18.21	--	793.84	--	--	--	--	--	--	--	--	--	--	--
MW-10	10/10/22		812.05	16.16	--	795.89	--	--	--	--	--	--	--	--	--	--	--
MW-10	01/16/23		812.05	17.72	--	794.33	--	--	--	--	--	--	--	--	--	--	--
MW-10	04/24/23		812.05	19.22	--	792.83	--	--	--	--	--	--	--	--	--	--	--
MW-10	07/26/23		812.05	17.45	--	794.60	--	--	--	--	--	--	--	--	--	--	--
MW-10	11/03/23		812.05	17.63	--	794.42	--	--	--	--	--	--	--	--	--	--	--
MW-10	12/12/23		812.05	18.40	--	793.65	418	**737**	--	<426	0.68	<1.0	<0.50	<1.5	<5.0	1.2	--
MW-10	02/29/24		812.05	18.97	--	793.08	**903**	**704c**	--	<449	0.74	<1.0	<0.50	<1.5	<5.0	**17**	--
MW-10	04/25/24		812.05	19.53	--	792.52	--	--	--	--	--	--	--	--	--	--	--
MW-10	06/12/24		812.05	19.65	--	792.40	--	--	--	--	--	--	--	--	--	--	--
MW-10	06/13/24	d	812.05	--	--	--	392	334l	<222	<444	0.43	<1.0	<0.50	<1.5	<5.0	0.30	--
MW-10	09/25/24		812.05	17.49	--	794.56	631	**644b**	<225	<449	0.49	<1.0	3.6	<1.5	<5.0	0.33	--
MW-10 DUP	09/25/24		812.05	17.49	--	794.56	**803**	**884b**	<196	<392	0.43	<1.0	4.7	<1.5	6.0	--	--
MW-10	12/03/24		812.05	18.61	--	793.44	744	**553b**	239b	<412	0.490	<1.00	<0.500	<1.50	<5.00	0.275	--
MW-10	03/05/25		812.05	19.26	--	792.79	384	**770b**	225b	<417	0.61	<1.0	<0.50	<1.5	<5.0	0.38	--
MW-10	06/16/25		812.05	19.75	--	792.30	248	356b	<204	<408	--	--	--	--	--	--	--
MW-10 DUP	06/16/25		812.05	19.75	--	792.30	430	366b	<204	<408	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-11	04/05/18		NE	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-11	04/24/18		812.13	20.29	--	791.84	**2,060**	--	--	--	0.733	1.54	1.56	15.6	<2.00	0.716	0.611
MW-11	07/17/18		812.13	19.47	--	792.66	--	--	--	--	--	--	--	--	--	--	--
MW-11	07/18/18	d	812.13	--	--	--	**834**	--	--	--	0.313	<1.00	<0.500	<1.50	<2.00	0.588	--
MW-11	10/22/18		812.13	18.05	--	794.08	--	--	--	--	--	--	--	--	--	--	--
MW-11	10/24/18	d	812.13	--	--	--	**2,180**	--	--	--	0.720	<1.00	4.78 J	3.19	9.37	0.774	--
MW-11	01/22/19		812.13	19.68	--	792.45	--	--	--	--	--	--	--	--	--	--	--
MW-11	01/23/19	d	812.13	--	--	--	**1,880**	--	--	--	0.66	<1.0	0.73	1.7	<2.0	--	--
MW-11	08/08/19		812.13	18.40	--	793.73	600	--	--	--	0.290	<1.00	<0.500	<1.50	<2.00	--	--
MW-11	10/29/19		812.13	17.63	--	794.50	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-11	01/16/20		812.13	19.29	--	792.84	--	--	--	--	--	--	--	--	--	--	--
MW-11	02/19/20		812.13	19.81	--	792.32	**1,720**	--	--	--	0.58	<1.0	0.67	<1.5	<2.0	--	--
MW-11	04/24/20		812.13	20.72	--	791.41	--	--	--	--	--	--	--	--	--	--	--
MW-11	07/21/20		812.13	19.49	--	792.64	--	--	--	--	--	--	--	--	--	--	--
MW-11	10/28/20		812.13	18.24	--	793.89	--	--	--	--	--	--	--	--	--	--	--
MW-11	01/14/21		812.13	19.80	--	792.33	--	--	--	--	--	--	--	--	--	--	--
MW-11	04/08/21		812.13	20.86	--	791.27	--	--	--	--	--	--	--	--	--	--	--
MW-11	07/22/21		812.13	18.46	--	793.67	--	--	--	--	--	--	--	--	--	--	--
MW-11	10/28/21		812.13	17.83	--	794.30	--	--	--	--	--	--	--	--	--	--	--
MW-11	01/19/22		812.13	18.93	--	793.20	--	--	--	--	--	--	--	--	--	--	--
MW-11	04/29/22		812.13	20.20	--	791.93	--	--	--	--	--	--	--	--	--	--	--
MW-11	07/19/22		812.13	17.97	--	794.16	--	--	--	--	--	--	--	--	--	--	--
MW-11	10/10/22		812.13	15.98	--	796.15	--	--	--	--	--	--	--	--	--	--	--
MW-11	01/16/23		812.13	17.21	--	794.92	--	--	--	--	--	--	--	--	--	--	--
MW-11	04/24/23		812.13	18.75	--	793.38	--	--	--	--	--	--	--	--	--	--	--
MW-11	07/26/23		812.13	17.02	--	795.11	--	--	--	--	--	--	--	--	--	--	--
MW-11	11/03/23		812.13	17.44	--	794.69	--	--	--	--	--	--	--	--	--	--	--
MW-11	12/12/23		812.13	17.92	--	794.21	510	**1,060**	--	<426	0.22	<1.0	0.68	2.0	<5.0	0.43	--
MW-11	02/29/24		812.13	18.51	--	793.62	--	--	--	--	--	--	--	--	--	--	--
MW-11	03/01/24	d	812.13	--	--	--	**854**	**565e**	--	<388	0.20	<1.0	<0.50	<1.5	<5.0	4.1	--
MW-11	04/25/24		812.13	19.08	--	793.05	--	--	--	--	--	--	--	--	--	--	--
MW-11	06/12/24		812.13	19.19	--	792.94	--	--	--	--	--	--	--	--	--	--	--
MW-11	06/13/24	d	812.13	--	--	--	542	**504**	<215	<430	0.24	<1.0	<0.50	<1.5	<5.0	0.25	--
MW-11	09/25/24		812.13	17.12	--	795.01	617	**565b**	<211	<421	0.20m	<1.0	<0.50	<1.5	<5.0	0.29	--
MW-11	12/03/24		812.13	18.16	--	793.97	711	467b	<204	<408	<0.20	<1.0	<0.50	<1.5	<5.0	0.275	--
MW-11	03/05/25		812.13	18.82	--	793.31	655	**625b,l**	<206	<412	<0.20	<1.0	<0.50	<1.5	<5.0	0.47	--
MW-11	06/16/25		812.13	19.30	--	792.83	--	--	--	--	--	--	--	--	--	--	--
MW-11	06/17/25	d	--	--	--	--	182	**508b**	<206	<412	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-12	04/05/18		NE	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-12	04/24/18		812.81	21.18	--	791.63	**3,780**	--	--	--	**5.83**	49.5	92.0	596	5.97	0.905	1.07
MW-12	07/17/18		812.81	20.38	--	792.43	--	--	--	--	--	--	--	--	--	--	--
MW-12	07/19/18	d	812.81	--	--	--	**2,070**	--	--	--	2.26	<10.0	14.6	281	<20.0	0.513	--
MW-12	10/22/18		812.81	18.93	--	793.88	--	--	--	--	--	--	--	--	--	--	--
MW-12	10/24/18	d	812.81	--	--	--	**2,060**	--	--	--	**5.07**	2.53	17.4	59.2	6.94	0.600	--
MW-12	01/22/19		812.81	20.62	--	792.19	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-12	01/23/19	d	812.81	--	--	--	**1,160**	--	--	--	1.9	<1.0	0.95	4.1	2.4	--	--
MW-12	08/08/19		812.81	19.31	--	793.50	272	--	--	--	0.430	<1.00	<0.500	1.84	<2.00	--	--
MW-12	01/16/20		812.81	20.18	--	792.63	--	--	--	--		--	--	--	--	--	--
MW-12	02/19/20		812.81	20.51	--	792.30	**1,090**	--	--	--	1.8	<1.0	1.1	3.6	<2.0	--	--
MW-12 DUP	02/19/20		812.81	20.51	--	792.30	**1,270**	--	--	--	1.8	<1.0	1.2	4.1	<2.0	--	--
MW-12	04/24/20		812.81	21.58	--	791.23	--	--	--	--	--	--	--	--	--	--	--
MW-12	07/21/20		812.81	20.43	--	792.38	--	--	--	--	--	--	--	--	--	--	--
MW-12	10/28/20		812.81	19.13	--	793.68	--	--	--	--	--	--	--	--	--	--	--
MW-12	01/14/21		812.81	20.67	--	792.14	--	--	--	--	--	--	--	--	--	--	--
MW-12	07/22/21		812.81	19.41	--	793.40	--	--	--	--	--	--	--	--	--	--	--
MW-12	10/28/21		812.81	18.78	--	794.03	--	--	--	--	--	--	--	--	--	--	--
MW-12	01/19/22		812.81	19.89	--	792.92	--	--	--	--	--	--	--	--	--	--	--
MW-12	10/10/22		812.81	16.85	--	795.96	--	--	--	--	--	--	--	--	--	--	--
MW-12	04/24/23		812.81	19.85	--	792.96	--	--	--	--	--	--	--	--	--	--	--
MW-12	07/26/23		812.81	18.08	--	794.73	--	--	--	--	--	--	--	--	--	--	--
MW-12	11/03/23		812.81	18.06	--	794.75	--	--	--	--	--	--	--	--	--	--	--
MW-12	12/12/23		812.81	18.85	--	793.96	--	**3,070h**	--	<426h	--	--	--	--	--	--	--
MW-12	02/29/24		812.81	19.40	--	793.41	701	**1,100e**	--	<476	0.61	<1.0	5	<1.5	<5.0	0.37	--
MW-12	06/12/24		812.81	20.10	--	792.71	--	--	--	--	--	--	--	--	--		--
MW-12	06/15/24	d	812.81	--	--	--	<100	**637l**	<196	<392	<0.20	<1.0	<0.50	2.0	<5.0	1.0	--
MW-12	09/25/24		812.81	18.00	--	794.81	--	--	--	--	--	--	--	--	--		--
MW-12	09/26/24	d	812.81	--	--	--	642	**2,920b**	287n	<430	0.54	<1.0	15	6.7	<5.0	0.70	--
MW-12	12/03/24		812.81	19.09	--	793.72	--	--	--	--	--	--	--	--	--		--
MW-12	12/04/24	d	812.81	--	--	--	**926**	**1,020b**	236b	<400	0.530	<1.00	3.48	<1.50	<5.00	0.304	--
MW-12	03/06/25		812.81	19.73	--	793.08	412	**833b,l**	268b	<404	0.30	<1.0	<0.50	<1.5	<5.0	<0.20	--
MW-12	06/16/25		812.81	20.18	--	792.63	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																	
MW-13	08/08/19		812.72	19.40	--	793.32	**2,580**	**1,000f,e**	--	<374	**8.08**	1.51	12.90	24.50	29.70	--	--
MW-13	02/19/20		812.72	20.85	--	791.87	**8,560**	--	--	--	**16**	4.4	114	86	104	--	--
MW-13	04/24/20		812.72	22.17	--	790.55	--	--	--	--	--	--	--	--	--	--	--
MW-13	07/21/20		812.72	20.55	--	792.17	--	--	--	--	--	--	--	--	--	--	--
MW-13	10/28/20		812.72	19.23	--	793.49	--	--	--	--	--	--	--	--	--	--	--
MW-13	01/14/21		812.72	20.86	--	791.86	--	--	--	--	--	--	--	--	--	--	--
MW-13	04/08/21		812.72	21.53	--	791.19	--	--	--	--	--	--	--	--	--	--	--
MW-13	07/22/21		812.72	19.54	--	793.18	--	--	--	--	--	--	--	--	--	--	--
MW-13	10/28/21		812.72	18.86	--	793.86	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-13	01/19/22		812.72	19.98	--	792.74	--	--	--	--	--	--	--	--	--	--	--
MW-13	04/29/22		812.72	21.25	--	791.47	--	--	--	--	--	--	--	--	--	--	--
MW-13	07/19/22		812.72	18.93	--	793.79	--	--	--	--	--	--	--	--	--	--	--
MW-13	10/10/22		812.72	16.93	--	795.79	--	--	--	--	--	--	--	--	--	--	--
MW-13	01/16/23		812.72	18.35	--	794.37	--	--	--	--	--	--	--	--	--	--	--
MW-13	11/03/23		812.72	18.26	--	794.46	--	--	--	--	--	--	--	--	--	--	--
MW-13	12/12/23		812.72	19.02	--	793.70	**6,910**	**4,310h**	--	<426l	3.9	<5.0	99	131	**203**	0.85	--
MW-13	02/29/24		812.72	19.58	--	793.14	**6,320**	**3,590e**	--	<488	3.9	3.0	54	65	114	2.2	--
MW-13	06/12/24		812.72	20.26	--	792.46	--	--	--	--	--	--	--	--	--	--	--
MW-13	06/14/24	d	812.72	--	--	--	**1,700**	**3,100l**	<194	<388	2.5	<2.5	31	26	20	1.8	--
MW-13 DUP	06/14/24	d	812.72	--	--	--	**2,680**	**--**	<198	<396	3.2	1.8	44	39	32	--	--
MW-13	09/25/24		812.72	18.13	--	794.59		**4,120b**	**864n**	<404	4.2	4.1	77	97	123	0.71	--
MW-13	12/03/24		812.72	19.24	--	793.48	**5,790**	**3,030b**	**915b**	<2,040	3.67	3.23	36.6	49.2	107	2.50	--
MW-13	03/05/25		812.72	19.88	--	792.84	**3,990**	**3,700b,l**	**1,280b**	<412	3.4	2.8	49	62	79	0.50	--
MW-13	06/16/25		812.72	20.37	--	792.35	--	--	--	--	--	--	--	--	--	--	--
MW-13	06/17/25	d	812.72	--	--	--	**1,870o**	**4,390b**	**1,130b**	<412	1.68o	1.4o	37o	38o	20o	--	--
101 East and 101 West Wine Country Road Monitoring Wells																	
Screened Interval 10-25 \ Total Depth 25 ft bgs																	
MW-14	10/27/22		813.43	16.34	0.00	797.09	13J	170J	--	84J	<2.0	<2.0	<2.0	<2.0	<2.0	1.5	--
MW-14	11/29/22		813.43	17.06	0.00	796.37	--	--	--	--	--	--	--	--	--	--	--
MW-14	03/08/23		813.43	18.40	0.00	795.03	9.3J	100J	--	33J	<2.0	<2.0	<2.0	<2.0	<2.0	0.42J	--
MW-14	03/30/23		813.43	18.71	0.00	794.72	--	--	--	--	--	--	--	--	--	--	--
MW-14	06/27/23		813.43	18.09	0.00	795.34	9.2J	91J	--	73J	<2.0	<2.0	<2.0	<6.0	<2.0	0.50J	--
MW-14	09/27/23		813.43	16.49	0.00	796.94	16J	240	--	120J	<2.0	<2.0	<2.0	<6.0	<2.0	0.24J	--
MW-14	12/13/23		813.43	18.27	0.00	795.16	11J	120J	--	52J	<2.0	<2.0	<2.0	<2.0	1.9J	2.9	--
MW-14	03/01/24		813.43	18.88	0.00	794.55	6.3J	81J	--	<250	<2.0	<2.0	<2.0	<2.0	0.89J	0.29J	--
MW-14	06/12/24		813.43	19.49	0.00	793.94	<50	98J	--	130J	<2.0	<2.0	<2.0	<2.0	<2.0	**25**	--
MW-14	09/25/24		813.43	17.10	0.00	796.33	--	--	--	--	--	--	--	--	--	--	--
MW-14	09/26/24		813.43	17.10	0.00	796.33	16J	130	--	160J	<2.0	<2.0	<2.0	<2.0	<2.0	0.62J	--
MW-14	12/03/24		813.43	18.33	0.00	795.10	--	--	--	--	--	--	--	--	--	--	--
MW-14	12/04/24		813.43	18.33	0.00	795.10	5.8J	110J	--	100J	<2.0	<2.0	<2.0	<2.0	0.20J	0.12J	--
MW-14	03/05/25		813.43	19.12	0.00	794.31	6.3J	72J	--	100J	<2.0	<2.0	<2.0	<2.0	0.27J	0.37J	--
MW-14	06/16/25		813.43	19.77	0.00	793.66	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

Screened Interval 10-25 \ Total Depth 25 ft bgs

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-15	10/27/22	813.60	16.48	0.00	797.12	**4,300**	**2,000**	--	210J	**11**	6.0	87	380	93	3.5	--
MW-15	11/29/22	813.60	17.44	0.00	796.16	--	--	--	--	--	--	--	--	--	--	--
MW-15	03/08/23	813.60	18.44	0.00	795.16	320	**1,500**	--	160J	0.41J	<2.0	<2.0	0.50J	7.7	1.2	--
MW-15	03/30/23	813.60	19.09	0.00	794.51	--	--	--	--	--	--	--	--	--	--	--
MW-15	06/27/23	813.60	18.44	0.00	795.16	630	420	--	68J	4.6	1.0J	3.7	38.1	7.8	0.39J	--
MW-15	09/27/23	813.60	16.84	0.00	796.76	**3,600**	71J	--	110J	**10**	3.3	52	159	**170**	1.4	--
MW-15	12/12/23	813.60	18.63	0.00	794.97	500	**590**		110J	0.58J	0.15J	2.8	8.4	11	0.60J	--
MW-15	03/01/24	813.60	19.29	0.00	794.31	520	360	--	47J	1.5J	0.42J	6.6	30	12	<1.0	--
MW-15	06/12/24	813.60	19.86	0.00	793.74	320	270	--	120J	3.2	0.59J	4.6	29	4.2	0.21J	--
MW-15	09/25/24	813.60	17.50	0.00	796.10	250	**2,000**	--	350	4.2	0.23J	1.9J	14	12	0.53J	--
MW-15	12/04/24	813.60	18.88	0.00	794.72	190	410	--	230J	0.94J	0.14J	1.4J	6.0	3.0	0.23J	--
MW-15	03/05/25	813.60	19.50	0.00	794.10	230	300	--	170J	1.8J	0.45J	3.0	20	4.4	0.098J	--
MW-15	06/16/25	813.60	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-15	06/17/25	813.60	20.10	0.00	793.50	<100	340	340	<320	--	--	--	--	<5.0	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-16	10/27/22	813.46	17.20	0.00	796.26	**3,800**	**1,900**	--	190J	**5.9**	5.9	27	510	69	2.2	--
MW-16 DUP	10/27/22	--	--	0.00	--	**3,600**	**2,300**	--	310	**5.7**	5.6	25	520	72	2.0	--
MW-16	11/29/22	813.46	17.67	0.00	795.79	--	--	--	--	--	--	--	--	--	--	--
MW-16	03/08/23	813.46	16.67	0.00	796.79	110	**1,900**	--	190J	0.15J	0.16J	<2.0	<2.0	<2.0	0.27J	--
MW-16 DUP	03/08/23	--	--	0.00	--	95	**1,800**	--	220J	0.12J	<2.0	<2.0	<2.0	<2.0	0.30J	--
MW-16	03/30/23	813.46	19.29	0.00	794.17	--	--	--	--	--	--	--	--	--	--	--
MW-16	06/27/23	813.46	18.73	0.00	794.73	330	**760**	--	130J	0.60J	0.56J	3.9	33.8	2.3	0.48J	--
MW-16 DUP	06/27/23	813.46	18.73	0.00	794.73	310	**750**	--	120J	0.58J	0.53J	3.9	32.3	2.3	0.95J	--
MW-16	09/27/23	813.46	18.73	0.00	794.73	120	**590**	--	150J	<2.0	<2.0	<2.0	<6.0	<2.0	0.31J	--
MW-16 DUP	09/27/23	813.46	17.12	0.00	796.34	120	**8,100**	--	**850J**	<2.0	<2.0	<2.0	<6.0	<2.0	0.30J	--
MW-16	12/12/23	813.46	18.83	0.00	794.63	120	**1,500**	--	470	0.11J	<2.0	<2.0	<6.0	<2.0	0.25J	--
MW-16 DUP	12/12/23	813.46	18.83	0.00	794.63	120	**1,400**	--	200J	0.11J	<2.0	<2.0	<6.0	<2.0	0.20J	--
MW-16	03/01/24	813.46	19.46	0.00	794.00	220	**1,100**	--	75J	0.69J	0.41J	4.0	14	0.70J	<1.0	--
MW-16	06/12/24	813.46	20.06	0.00	793.40	330	**1,300**	--	200J	0.71J	0.77J	6.4	45	2.0J	0.43J	--
MW-16 DUP	06/12/24	813.46	20.06	0.00	793.40	350	**1,300**	--	210J	0.58J	0.99J	8.3	54	1.5J	0.47J	--
MW-16	09/25/24	813.46	17.76	0.00	795.70	77	**770**	--	210J	<2.0	<2.0	<2.0	0.45J	0.30J	0.20J	--
MW-16 DUP	09/25/24	813.46	17.76	0.00	795.70	87	**920**	--	240J	<2.0	<2.0	<2.0	0.43J	0.21J	0.13J	--
MW-16	12/03/24	813.46	18.88	0.00	794.58	--	--	--	--	--	--	--	--	--	--	--
MW-16	12/04/24	813.46	19.08	0.00	794.38	67	**1,500**	--	260	0.052J	<2.0	<2.0	<2.0	<2.0	0.61J	--
MW-16 DUP	12/04/24	813.46	19.08	0.00	794.38	78	**1,500**	--	330	0.052J	<2.0	<2.0	<2.0	<2.0	0.58J	--
MW-16	03/05/25	813.46	19.68	0.00	793.78	120	**3,200**	--	420	0.38J	<2.0	0.39J	0.99J	<2.0	0.12J	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-16 DUP	03/05/25	813.46	19.68	0.00	793.78	<50	**3,600**	--	**510**	0.37J	<2.0	0.38J	0.96J	<2.0	0.092J	--
MW-16	06/16/25	813.46	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-16	06/17/25	813.46	20.30	0.00	793.16	--	**1,300**	450	<320	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-17	10/27/22	813.05	16.59	0.00	796.46	150	**620**	--	120J	<2.0	<2.0	<2.0	<2.0	<2.0	1.2	--
MW-17	11/29/22	813.05	17.38	0.00	795.67	--	--	--	--	--	--	--	--	--	--	--
MW-17	03/08/23	813.05	14.67	0.00	798.38	100	**1,600**	--	160J	<2.0	0.32J	<2.0	<2.0	<2.0	0.45J	--
MW-17	03/30/23	813.05	18.97	0.00	794.08	--	--	--	--	--	--	--	--	--	--	--
MW-17	06/27/23	813.05	18.40	0.00	794.65	42J	**820**	--	150J	<2.0	<2.0	<2.0	<6.0	<2.0	1.1	--
MW-17	09/27/23	813.05	16.80	0.00	796.25	220	**1,400**	--	290	0.17J	<2.0	0.17J	<6.0	<2.0	0.46J	--
MW-17	12/13/23	813.05	18.27	0.00	794.78	190	**1,600**	--	150J	<2.0	<2.0	<2.0	<6.0	<2.0	0.34J	--
MW-17	03/01/24	813.05	19.14	0.00	793.91	170	**510**	--	47J	0.031J	0.087J	0.14J	0.23J	0.79J	1.0J	--
MW-17	06/13/24	813.05	19.79	0.00	793.26	630	**2,100**	--	210J	0.18J	<2.0	<2.0	0.71J	1.6J	1.1	--
MW-17	09/25/24	813.05	17.53	0.00	795.52	71	**830**	--	340	0.024J	<2.0	<2.0	<2.0	<2.0	3.0	--
MW-17	12/03/24	813.05	18.58	0.00	794.47	72	**850**	--	200J	<2.0	<2.0	<2.0	<2.0	<2.0	0.44J	--
MW-17	03/05/25	813.05	19.35	0.00	793.70	--	--	--	--	--	--	--	--	--	--	--
MW-17	03/06/25	813.05	19.35	0.00	793.70	230	**1,300**	--	200J	0.064J	<2.0	<2.0	<2.0	<2.0	0.51J	--
MW-17	06/16/25	813.05	20.00	0.00	793.05	--	--	--	--	--	--	--	--	--	--	--
MW-17	06/17/25	813.05	19.95	0.00	793.10	--	**640**	320	<320	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-18	10/27/22	813.06	16.21	0.00	796.85	**3,700**	**4,000**	--	<250	0.12J	<2.0	2.0	5.4	140	1.5	--
MW-18	11/29/22	813.06	16.91	0.00	796.15	--	--	--	--	--	--	--	--	--	--	--
MW-18	03/08/23	813.06	16.53	0.00	796.53	**3,600**	**2,000**	--	89J	<2.0	<2.0	<2.0	0.71J	2.3	1.5	--
MW-18	03/30/23	813.06	18.53	0.00	794.53	--	--	--	--	--	--	--	--	--	--	--
MW-18	06/27/23	813.06	17.94	0.00	795.12	**1,300**	**690**	--	87J	<2.0	<2.0	<2.0	<6.0	1.3J	2.3	--
MW-18	09/27/23	813.06	16.40	0.00	796.66	**1,800**	**2,700**	--	170J	0.16J	<2.0	0.50J	1.30J	44	0.44J	--
MW-18	12/13/23	813.06	17.96	0.00	795.10	**2,900**	**1,500**	--	88J	<2.0	<2.0	<2.0	<6.0	13	0.49J	--
MW-18	03/01/24	813.06	18.64	0.00	794.42	**1,500**	**640**	--	84J	0.12J	<2.0	0.29J	0.79J	12	10	--
MW-18	06/13/24	813.06	19.32	0.00	793.74	**810**	**1,800**	--	200J	0.087J	<2.0	<2.0	0.38J	2.1	1.9	--
MW-18	09/25/24	813.06	17.09	0.00	795.97	**930**	**3,200**	--	280	0.14J	<2.0	0.27J	0.72J	27	1.2	--
MW-18	12/03/24	813.06	18.70	0.00	794.36	**1,600**	**2,600**	--	180J	0.088J	<2.0	0.26J	0.54J	10	0.25J	--
MW-18	03/05/25	813.06	19.94	0.00	--	--	--	--	--	--	--	--	--	--	--	--
MW-18	03/06/25	813.06	19.94	0.00	793.12	**1,100**	**2,900**	--	210J	0.13J	<2.0	0.24J	0.13J	5.3	0.75J	--
MW-18	06/16/25	813.06	19.53	0.00	793.53	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-18	06/17/25	813.06	19.55	0.00	793.51	<100	**600**	330	<320	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-19	10/27/22	813.15	15.31	0.00	797.84	11J	<120J	--	89J	<2.0	<2.0	<2.0	<2.0	<2.0	2.2	--
MW-19	11/29/22	813.15	15.96	0.00	797.19	--	--	--	--	--	--	--	--	--	--	--
MW-19	03/08/23	813.15	19.78	0.00	793.37	14J	90J	--	42J	<2.0	<2.0	<2.0	<2.0	<2.0	1.3	--
MW-19	03/30/23	813.15	17.65	0.00	795.50	--	--	--	--	--	--	--	--	--	--	--
MW-19	06/27/23	813.15	17.11	0.00	796.04	9.6J	120J	--	130J	<2.0	<2.0	<2.0	<6.0	<2.0	**140**	--
MW-19	09/27/23	813.15	15.61	0.00	797.54	32J	110J	--	130J	0.15J	<2.0	<2.0	<6.0	<2.0	0.18J	--
MW-19	12/13/23	813.15	17.19	0.00	795.96	25J	71J	--	52J	<2.0	<2.0	<2.0	<2.0	<2.0	0.42J	--
MW-19	03/01/24	813.15	17.76	0.00	795.39	7.2J	74J	--	53J	<2.0	<2.0	<2.0	<2.0	<2.0	0.46J	--
MW-19	06/12/24	813.15	18.43	0.00	794.72	<50	130J	--	150J	0.056J	<2.0	<2.0	<2.0	0.97J	0.79J	--
MW-19	09/25/24	813.15	16.28	0.00	796.87	17J	72J	--	120J	<2.0	<2.0	<2.0	<2.0	1.4J	0.28J	--
MW-19	12/03/24	813.15	17.50	0.00	795.65	--	--	--	--	--	--	--	--	--	--	--
MW-19	12/04/24	813.15	17.50	0.00	795.65	9.1J	120J	--	150J	<2.0	<2.0	0.11J	<2.0	<2.0	0.54J	--
MW-19	03/05/25	813.15	18.13	0.00	795.02	--	--	--	--	--	--	--	--	--	--	--
MW-19	03/06/25	813.15	18.13	0.00	795.02	11J	58J	--	92J	<2.0	<2.0	<2.0	<2.0	<2.0	0.46J	--
MW-19	06/16/25	813.15	18.70	0.00	794.45	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-20	10/27/22	813.02	15.49	0.00	797.53	**5,100**	**1,900**	--	120J	<2.0	<2.0	120	41	**520**	4.0	--
MW-20	11/29/22	813.02	16.19	0.00	796.83	--	--	--	--	--	--	--	--	--	--	--
MW-20	03/08/23	813.02	17.11	0.00	795.91	**3,500**	**1,800**	--	120J	<2.0	<2.0	4.2	6.3	39	1.0	--
MW-20	03/30/23	813.02	17.86	0.00	795.16	--	--	--	--	--	--	--	--	--	--	--
MW-20	06/27/23	813.02	17.35	0.00	795.67	**2,500**	**1,500**	--	120J	<2.0	<2.0	1.6J	4.41J	14	0.47J	--
MW-20	09/27/23	813.02	15.82	0.00	797.20	**6,100**	**2,900**	--	170J	<2.0	<2.0	75	5.24J	**390**	0.19J	--
MW-20	12/13/23	813.02	17.20	0.00	795.82	**5,300**	**2,000**	--	120J	<2.0	<2.0	35	31.66J	**220**	0.12J	--
MW-20	03/01/24	813.02	17.98	0.00	795.04	**5,300**	**1,200**	--	97J	<2.0	<2.0	24	49	**160**	1.1	--
MW-20 DUP	03/01/24	813.02	17.98	0.00	795.04	**5,300**	**880**	--	49J	<2.0	<2.0	24	47	**160**	0.29J	--
MW-20	06/12/24	813.02	18.67	0.00	794.35	**1,600**	**2,500**	--	80J	0.038J	<2.0	0.62J	0.26J	22	2.2	--
MW-20	09/25/24	813.02	16.54	0.00	796.48	**2,700**	**3,700**	--	230J	<2.0	<2.0	12	9.4	89	0.27J	--
MW-20	12/03/24	813.02	17.59	0.00	795.43	**1,900**	**2,900**	--	200J	0.014J	<2.0	5.3	6.1	69	0.26J	--
MW-20	03/05/25	813.02	18.25	0.00	794.77	**3,600**	**1,800**	--	220J	0.030J	<2.0	13	22	32	0.68J	--
MW-20	06/16/25	813.02	18.92	0.00	794.10	--	--	--	--	--	--	--	--	--	--	--
MW-20	06/17/25	813.02	19.00	0.00	794.02	200	**1,800**	**520**	--	--	--	--	--	<5.0	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-21	10/27/22	813.18	15.88	0.00	797.30	**2,100**	**4,100**	--	260	<2.0	<2.0	1.5J	3.6	87	2.4	--
MW-21	11/29/22	813.18	16.53	0.00	796.65	--	--	--	--	--	--	--	--	--	--	--
MW-21	03/08/23	813.18	17.60	0.00	795.58	**960**	**3,000**	--	170J	<2.0	<2.0	<2.0	<2.0	13	1.8	--
MW-21	03/30/23	813.18	18.19	0.00	794.99	--	--	--	--	--	--	--	--	--	--	--
MW-21	06/27/23	813.18	17.73	0.00	795.45	63	400	--	130J	<2.0	<2.0	<2.0	<6.0	<2.0	4.3	--
MW-21	09/27/23	813.18	16.20	0.00	796.98	**1,100**	**4,400**	--	350J	0.067J	<2.0	<2.0	1.29J	**210**	0.52J	--
MW-21	12/13/23	813.18	17.70	0.00	795.48	420	**1,900**	--	140J	<2.0	<2.0	<2.0	<6.0	21	0.76J	--
MW-21	03/01/24	813.18	18.30	0.00	794.88	260	**590**	--	66J	0.026J	<2.0	<2.0	<2.0	2.9	0.40J	--
MW-21	06/13/24	813.18	18.98	0.00	794.20	41J	210	--	100J	0.050J	<2.0	<2.0	<2.0	5.6	0.54J	--
MW-21	09/25/24	813.18	16.89	0.00	796.29	480	**5,500**	--	450J	0.0052J	<2.0	0.28J	0.91J	110	0.26J	--
MW-21	12/03/24	813.18	18.00	0.00	795.18	140	**1,200**	--	190J	<2.0	<2.0	<2.0	<2.0	8.7	0.44J	--
MW-21	03/05/25	813.18	18.64	0.00	794.54	--	--	--	--	--	--	--	--	--	--	--
MW-21	03/06/25	813.18	18.64	0.00	794.54	240	**780**	--	160J	0.029J	<2.0	<2.0	<2.0	1.7J	0.22J	--
MW-21	06/16/25	813.18	19.20	0.00	793.98	--	--	--	--	--	--	--	--	--	--	--
MW-21	06/17/25	813.18	19.30	0.00	793.88	<100	330	290	<320	--	--	--	--	<5.0	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-22	12/12/23	813.03	18.34	0.00	794.69	300	**1,000**	--	190J	0.48J	0.58J	2.5	15.9	3.7	3.6	--
MW-22	03/01/24	813.03	18.92	0.00	794.11	110	380	--	44J	2.1	0.26J	<2.0	5.9	1.1J	0.14J	--
MW-22	06/12/24	813.03	19.56	0.00	793.47	67	240	--	100J	1.1J	<2.0	<2.0	0.59J	2.7	0.76J	--
MW-22	09/25/24	813.03	17.04	0.00	795.99	70	**510**	--	120J	0.37J	0.18J	0.47J	2.2	3.6	0.42J	--
MW-22	12/03/24	813.03	18.56	0.00	794.47	--	--	--	--	--	--	--	--	--	--	--
MW-22	12/04/24	813.03	18.56	0.00	794.47	69	420	--	130J	0.11J	<2.0	<2.0	0.32J	1.5J	0.10J	--
MW-22	03/05/25	813.03	19.17	0.00	793.86	63	220	--	120J	0.39J	0.11J	0.39J	2.1	<2.0	0.17J	--
MW-22	06/16/25	813.03	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-22	06/17/25	813.03	19.77	0.00	793.26	--	<170	<170	<350	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-23	12/13/23	813.06	19.12	0.00	793.94	**1,700**	**2,500**	--	320	**15**	8.3	20	71	15	2.0	--
MW-23	02/29/24	813.06	19.76	0.00	793.30	**1,000**	**2,100**	--	200J	**12**	5.2	6.2	32	8.8	0.32J	--
MW-23	06/13/24	813.06	20.40	0.00	792.66	**910**	**3,600**	--	**640**	4.9	2.7	5.6	17	4.7	1.1	--
MW-23	09/25/24	813.06	18.09	0.00	794.97	--	--	--	--	--	--	--	--	--	--	--
MW-23	09/26/24	813.06	18.09	0.00	794.97	650	**5,100**	--	**1,300**	**25**	8.8	7.3	42	17	0.46J	--
MW-23	12/03/24	813.06	18.96	0.00	794.10	690	**4,800**	--	**990**	**8.3**	1.9J	4.7	11	4.4	0.61J	--
MW-23	03/05/25	813.06	19.15	0.00	793.91	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-23	03/06/25	813.06	19.96	0.00	793.10	**1,100**	**5,900**	--	**1,200**	**8.4**	4.8	8.7	22	6.5	0.36J	--
MW-23	06/16/25	813.06	20.60	0.00	792.46	--	--	--	--	--	--	--	--	--	--	--
MW-23	06/17/25	813.06	20.55	0.00	792.51	--	**1,000**	480	<320	2.8	<2.0	<1.0	2.2	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-24	12/13/23	812.22	17.92	0.00	794.30	19J	87J	--	69J	<2.0	0.27J	<2.0	0.82J	<2.0	1.2	--
MW-24	02/29/24	812.22	18.95	0.00	793.27	8.5J	58J	--	<250	<2.0	<2.0	<2.0	<2.0	0.68J	0.14J	--
MW-24	06/13/24	812.22	19.67	0.00	792.55	5.8J	110J	--	100J	0.015J	<2.0	<2.0	<2.0	1.6J	0.23J	--
MW-24	09/25/24	812.22	17.43	0.00	794.79	5.3J	130J	--	160J	<2.0	<2.0	<2.0	<2.0	<2.0	0.70J	--
MW-24	12/03/24	812.22	18.38	0.00	793.84	7.0J	76J	--	130J	<2.0	<2.0	<2.0	<2.0	<2.0	0.89J	--
MW-24	03/05/25	812.22	19.15	0.00	793.07	--	--	--	--	--	--	--	--	--	--	--
MW-24	03/06/25	812.22	19.15	0.00	793.07	14J	59J	--	120J	<2.0	<2.0	<2.0	<2.0	0.18J	0.099J	--
MW-24	06/16/25	812.22	19.81	0.00	792.41	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-25	12/12/23	812.85	18.16	0.00	794.69	**1,900**	**4,000**	--	290	0.14J	0.56J	<2.0	2.10J	6.4	0.99J	--
MW-25	02/29/24	812.85	18.77	0.00	794.08	680	**1,500**	--	65J	0.13J	0.35J	0.34J	2.2	0.99J	0.39J	--
MW-25	06/13/24	812.85	19.44	0.00	793.41	**1,000**	**2,100**	--	280	0.16J	<2.0	0.19J	0.62J	2.7	0.26J	--
MW-25	09/25/24	812.85	17.38	0.00	795.47	--	--	--	--	--	--	--	--	--	--	--
MW-25	09/26/24	812.85	17.38	0.00	795.47	**1,600**	**3,300**	--	360	0.15J	<2.0	1.1J	0.58J	4.7	0.12J	--
MW-25	12/03/24	812.85	18.14	0.00	794.71	**2,000**	**2,900**	--	220J	0.16J	<2.0	0.23J	0.26J	<2.0	0.54J	--
MW-25	03/05/25	812.85	19.04	0.00	793.81	--	--	--	--	--	--	--	--	--	--	--
MW-25	03/06/25	812.85	19.04	0.00	793.81	**1,100**	**2,300**	--	190J	0.24J	<2.0	0.21J	<2.0	0.58J	<1.0	--
MW-25	06/16/25	812.85	19.64	0.00	793.21	<100	**920**	480	<330	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-26	12/13/23	812.48	17.81	0.00	794.67	23J	100J	--	53J	<2.0	0.51J	<2.0	1.5J	<2.0	1.7	--
MW-26	03/01/24	812.48	18.48	0.00	794.00	26J	87J	--	47J	<2.0	0.17J	0.15J	0.91J	1.4J	0.41J	--
MW-26	06/13/24	812.48	19.08	0.00	793.40	<50	99J	--	89J	<2.0	<2.0	<2.0	<2.0	<2.0	7.2	--
MW-26 DUP	06/13/24	812.48	19.08	0.00	793.40	<50	95J	--	88J	<2.0	<2.0	<2.0	<2.0	<2.0	**15**	--
MW-26	09/25/24	812.48	16.98	0.00	795.50	--	--	--	--	--	--	--	--	--	--	--
MW-26	09/26/24	812.48	16.98	0.00	795.50	13J	110J	--	160J	<2.0	<2.0	<2.0	<2.0	<2.0	0.30J	--
MW-26	12/03/24	812.48	18.10	0.00	794.38	--	--	--	--	--	--	--	--	--	--	--
MW-26	12/04/24	812.48	18.10	0.00	794.38	8.8J	130	--	140J	<2.0	<2.0	<2.0	0.21J	1.1J	0.23J	--
MW-26	03/05/25	812.48	18.74	0.00	793.74	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
MW-26	03/06/25	812.48	18.74	0.00	793.74	15J	88J	--	82J	<2.0	<2.0	<2.0	<2.0	1.3J	0.098J	--
MW-26	06/16/25	812.48	19.25	0.00	793.23	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-27	12/13/23	812.15	17.83	0.00	794.32	**6,300**	**4,200**	--	160J	0.29J	0.60J	32	70.3	74	0.54J	--
MW-27	03/01/24	812.15	18.42	0.00	793.73	**3,300**	**2,100**	--	57J	0.31J	0.28J	9.4	22	33	1.4	--
MW-27	06/13/24	812.15	19.13	0.00	793.02	**2,800**	**4,100**	--	220J	0.52J	<2.0	0.73J	2.3	3.2	0.44J	--
MW-27	09/25/24	812.15	17.02	0.00	795.13	--	--	--	--	--	--	--	--	--	--	--
MW-27	09/26/24	812.15	17.02	0.00	795.13	**1,600**	**4,600**	--	350	0.43J	<2.0	4.9	7.3	6.9	0.52J	--
MW-27	12/03/24	812.15	18.18	0.00	793.97	--	--	--	--	--	--	--	--	--	--	--
MW-27	12/04/24	812.15	18.18	0.00	793.97	**3,400**	**5,200**	--	230J	0.31J	<2.0	26	53	42	0.62J	--
MW-27	03/05/25	812.15	18.78	0.00	793.37	--	--	--	--	--	--	--	--	--	--	--
MW-27	03/06/25	812.15	18.78	0.00	793.37	**3,500**	**3,100**	--	180J	<2.0	<2.0	6.3	14	82	0.28J	--
MW-27	06/16/25	812.15	19.29	0.00	792.86	--	--	--	--	--	--	--	--	--	--	--
MW-27	06/17/25	812.15	19.29	0.00	792.86	550	**1,000**	450	<330	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
MW-28	12/13/23	811.53	17.55	0.00	793.98	**2,900**	**1,200**	--	110J	0.41J	0.55J	6.5	7.33J	14	2.4	--
MW-28	03/01/24	811.53	18.19	0.00	793.34	**2,300**	**1,100**	--	46J	0.56J	<2.0	1.6J	2.9	13	1.3	--
MW-28	06/13/24	811.53	18.94	0.00	792.59	**2,000**	**2,000**	--	200J	0.46J	<2.0	2.1	2.8	7.2	0.67J	--
MW-28	09/25/24	811.53	16.83	0.00	794.70	--	--	--	--	--	--	--	--	--	--	--
MW-28	09/26/24	811.53	16.83	0.00	794.70	**1,400**	**2,600**	--	300	0.38J	0.38J	3.4	4.0	5.7	0.74J	--
MW-28	12/03/24	811.53	17.87	0.00	793.66	--	--	--	--	--	--	--	--	--	--	--
MW-28	12/04/24	811.53	17.87	0.00	793.66	**1,500**	**3,000**	--	220J	0.41J	<2.0	3.3	3.5	6.1	1.2	--
MW-28	03/05/25	811.53	18.58	0.00	792.95	--	--	--	--	--	--	--	--	--	--	--
MW-28	03/06/25	811.53	18.58	0.00	792.95	**2,800**	**3,100**	--	170J	0.49J	<2.0	1.8J	3.6	59	0.55J	--
MW-28	06/16/25	811.53	19.10	0.00	792.43	--	--	--	--	--	--	--	--	--	--	--
MW-28	06/17/25	811.53	19.15	0.00	792.38	**980**	**920**	480	<320	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																
IW-1	12/12/23	813.13	18.59	0.00	794.54	**950**	**3,600**	--	290	0.35J	0.55J	2.5	7.0	8.7	2.7	--
IW-1	03/01/24	813.13	19.09	0.00	794.04	430	**2,000**	--	110J	0.36J	<2.0	0.18J	0.28J	3.7	0.46J	--
IW-1	06/12/24	813.13	19.85	0.00	793.28	240	**3,200**	--	390	0.19J	<2.0	<2.0	<2.0	2.9	0.53J	--
IW-1	09/25/24	813.13	17.44	0.00	795.69	420	**16,000**	--	**1,700**	2.2	0.40J	2.5	2.7	8.3	0.30J	--
IW-1	12/03/24	813.13	18.82	0.00	794.31	--	--	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
IW-1	12/04/24	813.13	18.82	0.00	794.31	190	**3,400**	--	450	0.25J	<2.0	<2.0	0.12J	<2.0	0.16J	--
IW-1	03/05/25	813.13	19.46	0.00	793.67	210	**4,400**	--	**590**	0.25J	<2.0	<2.0	<2.0	<2.0	0.12J	--
IW-1	06/16/25	813.13	NM	--	--	--	--	--	--	--	--	--	--	--	--	--
IW-1	06/17/25	813.13	20.13	0.00	793.00	<100	**3,400**	**600**	<360	--	--	--	--	--	--	--
IW-1 DUP	06/17/25	813.13	20.13	0.00	793.00	<100	**3,200**	**670**	<340	--	--	--	--	--	--	--
Grab Groundwater Samples																
Sage Earth Sciences, Inc. (Sage) - Draft Limited Site Characterization Report - March 1996																
SB3-16 (W5)	10/20/95	NE	16	--	--	**67,400**	--	**--**	--	**4,200**	<1,200	**1,580**	**3,430**	--	**64**	--
SB4-16 (W8)	10/20/95	NE	16	--	--	**53,100**	--	**--**	--	**160**	830	**1,250**	**5,800**	--	**47**	--
SB5-16 (W11)	10/20/95	NE	16	--	--	**55,600**	--	**--**	--	<50	340	**1,420**	**4,870**	--	**145**	--
SB6-16 (W14)	10/23/95	NE	16	--	--	**185,000**	--	**--**	--	**3,480**	**1,890**	**2,440**	**5,730**	--	**96**	--
SB7-16.5 (W18)	10/23/95	NE	16.5	--	--	**111,000**	--	**--**	--	**140**	**2,080**	**1,530**	**6,930**	--	**37**	--
Olympus Environmental - Preliminary Site Investigation Report - April 13, 1998																
GP-1-1SW	02/20/98	NE	15	--	--	**8,400**	--	--	--	**1,910**	<12.5	527	**1,160**	--	--	--
GP-2-1SW	02/20/98	NE	15	--	--	77.7	--	--	--	**5.26**	2.49	1.76	6.63	--	--	--
GP-3-1SW	02/20/98	NE	15	--	--	594	--	--	--	**22.1**	1.57	16.6	22.3	--	--	--
GP-4-1SW	02/20/98	NE	15	--	--	**1,220**	--	--	--	92.0	3.88	72.0	13.7	--	--	--
GP-5-1SW	02/20/98	NE	15	--	--	**2,930**	--	--	--	7.94	4.87	80.7	113	--	--	--
Olympus Technical Services - Site Assessment																
SP-1-1418W	09/26/00	NE	14-18	--	--	**12,600**	--	--	--	**153**	100	430	**1,030**	--	--	--
SP-2-1418W	09/26/00	NE	14-18	--	--	**281,000**	--	--	--	**2,690**	**31,900**	**8,390**	**55,100**	--	--	--
SP-3-1418W	09/26/00	NE	14-18	--	--	**26,400**	--	--	--	**365**	**2,090**	**718**	**4,040**	--	--	--
SP-4-1418W	09/26/00	NE	14-18	--	--	**6,570**	--	--	--	**37.0**	63.9	73.1	154	--	--	--
SP-5-1418W	09/26/00	NE	14-18	--	--	**34,200**	--	--	--	**630**	**2,400**	**1,120**	**6,060**	--	--	--
Environmental Consulting, Inc. - 2018 Remedial Investigation Status Report - January 4, 2019:																
B1-W	03/15/18	NE	--	--	--	**7,240**	**1,070J,c**	--	<1,960	**31**	6.9	98	195	**162**	7.6	1.3
B3-W	03/16/18	NE	--	--	--	**1,440**	**348J,c**	--	<388	<0.20	<1.0	9.9	35	<2.0	**18**	<2.0
B4-W	03/16/18	NE	--	--	--	**5,250**	**411J,c**	--	<388	1.3	66	92	588	21	13	<1.0
B6-W	04/03/18	NE	--	--	--	**1,280**	<194	--	<388	**6.09**	5.24	36.4	125	4.29	**28.0**	1.13
B7-W	04/03/18	NE	--	--	--	**1,270**	<190	--	<381	<0.200	1.38	28.2	40.3	6.22	**27**	0.257
B8-W	04/03/18	NE	--	--	--	**1,290**	317c	--	<381	0.257	13.0	38.7	67.8	5.2	**26.2**	<2.00
B9-W	04/03/18	NE	--	--	--	725	238c	--	<392	<0.200	2.26	17.5	39.2	<2.00	10.5	<2.00
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)
Environmental Consulting, Inc. - 2018 Remedial Investigation Status Report - January 4, 2019 (continued):																
B10-W	04/04/18	NE	--	--	--	449	389c	--	<374	<0.200	3.93	<0.500	<1.50	<2.00	4.29	<2.00
Environmental Consulting, Inc. - Supplemental Investigation Tasks (August 2019) - October 23, 2019:																
B19-W	08/07/19	NE	--	--	--	**4,160**	--	--	--	<0.200	<1.00	4.92	6.68	15.2	--	--
B20-W	08/07/19	NE	--	--	--	**1,840**	--	--	--	0.220	<1.00	<0.500	<1.50	<2.00	--	--
B21-W	08/07/19	NE	--	--	--	**1,130**	--	--	--	<0.200	<1.00	<0.500	<1.50	3.36	--	--
B22-W	08/07/19	NE	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
B23-W	08/08/19	NE	--	--	--	<100	--	--	--	<0.200	<1.00	<0.500	<1.50	<2.00	--	--
AECOM - Additional Investigation Report - July 6, 2023																
B24	10/26/22	NE	17.5	--	--	**5,100**	**19,000**	--	**670J**	2.2	9.7	180	740	110	**100**	--
B24 DUP	10/26/22	NE	17.5	--	--	**2,600**	**2,200**	--	260J	3.2	12	140	550	67	5.9	--
B25	10/26/22	NE	17.5	--	--	**1,500,000**	**230,000**	--	**13,000**	**54**	350	**2,200**	**11,000**	**830**	**370**	--
B26	10/26/22	NE	14	--	--	**48,000**	**6,300**	--	**1,200**	**9.9**	57	320	**1,700**	98	**32**	--
B27	10/26/22	NE	15	--	--	87	**710**	--	470	0.046J	<2.0	0.92J	5.4	1.6J	**140**	--
B29	10/26/22	NE	18	--	--	530	**5,800**	--	**580**	0.051J	0.10J	<2.0	<2.0	43	0.67J	--
AECOM - Investigation Report - June 14, 2024																
B30	11/30/23	NE	17	--	--	**1,300**	--	--	--	**9.1**	5.0	34	89	13	--	--
B31	11/29/23	NE	16	--	--	18J	300	--	220J	<2.0	<2.0	<2.0	0.39J	<2.0	8.0	<1.0
B32	11/29/23	NE	16	--	--	**2,700**	**2,100**	--	<310	<2.0	<2.0	140	14.73J	35	2.8	0.19J
MTCA Method A Cleanup Levels						800/1,000a	500	500	500	5	1,000	700	1,000	160	15	15

TABLE 8
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE / LEAD
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (µg/L)	DRPH (µg/L)	DRPH w/ SGC (µg/L)	ORPH (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Naphthalene (µg/L)	Total Pb (µg/L)	Diss Pb (µg/L)

EXPLANATION:
ft bgs = Feet below ground surface
µg/L = Micrograms per liter
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
GRPH = Gasoline Range Petroleum Hydrocarbons in accordance with EPA Method 8015M and Ecology Methods WTPH-G and NWTPH-Gx - refer to laboratory reports
DRPH and ORPH = Diesel Range Petroleum Hydrocarbons and Oil Range Petroleum Hydrocarbons in accordance with Ecology Method NWTPH-Dx
SGC = Silica gel cleanup
B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes
BTEX and naphthalene in accordance with EPA Method 8020, 8021B, 8260, 8260C, or 8260D - refer to laboratory reports
Total Pb = Total lead; Diss Pb = Dissolved lead
Total and dissolved lead analyses in accordance with EPA Method 200.8, 602, or 6020 - refer to laboratory reports
DUP = Field duplicate
MTCA = Model Toxics Control Act
NM = Not measured; -- = Not analyzed or sampled; NE = Not established
< = Less than the stated laboratory reporting limit
XXXX Values equal or exceed MTCA Method A Cleanup Levels
a = TPHg cleanup level for groundwater is 800 µg/L if benzene is present, or 1,000 µg/L if benzene is not present
b = The chromatographic pattern does not resemble the fuel standard used for quantitation
c = The result for diesel (diesel range organics, C12-C24) is due to overlap from gasoline or a gasoline range product
d = DTW for sampling date not available
e = The result for diesel is estimated due to overlap from gasoline range organics or other VOCs
f = Analyte detected in an associated blank at a level between one-half the MRL and the MRL
g = Well monument paved over in 2020. Well monument raised to current grade in December 2023.
h= At time of receipt sample pH was verified at <2. At the time of extraction the pH was >2. Sample was not extracted within 7 days with a pH of <2 therefore it's considered out of hold.
i = Sock installed in well, not sampled
J = Estimated value between the laboratory method reporting limit and the method detection limit
k = Inaccessible due to vehicle or locked fence
l = Incomplete field preservation. Additional preservative was added to adjust the pH within the appropriate range for this analysis.
m = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
n = No fuel pattern detected. The diesel result represents carbon range C10 to C25, and the oil result represents >C25 to C40.
o = The sample aliquot was taken from a vial with headspace (air bubble greater than 6 millimeter diameter)

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
100 West Wine Country Road Monitoring Wells																				
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																				
MW-1	02/02/18		99.08	20.18	--	78.90	--	--	<0.0330b, d	<0.500	--	<1.00	--	--	--	--	--	--	--	--
MW-1	04/24/18		812.37	21.14	--	791.23	--	--	<0.0200a, b, d	<0.500	--	<1.00	--	--	--	--	--	--	--	--
MW-1	10/23/18	e	812.37	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--	--
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																				
MW-2	10/25/17		99.55	19.91	**0.86**	80.27														
MW-2	11/07/17		99.55	20.13	**0.91**	80.08														
MW-2	02/01/18		99.55	21.81	**1.14**	78.57														
MW-2	02/02/18		99.55	21.31	**0.13**	78.33														
MW-2	02/03/18		99.55	21.14	**0.25**	78.59														
MW-2	03/06/18		812.91	21.61	**0.39**	791.58														
MW-2	03/16/18		812.91	21.73	**0.41**	791.48														
MW-2	04/02/18		812.91	22.03	**0.50**	791.24														
MW-2	04/05/18		812.91	22.03	**0.47**	791.22														
MW-2	04/24/18		812.91	22.32	**0.59**	791.02														
MW-2	05/04/18		812.91	22.42	**0.59**	790.92														
MW-2	06/05/18		812.91	21.80	**0.13**	791.20														
MW-2	07/18/18	e	812.91	--	--	--	--	--	<5.00	<5.00	--	<10.0	--	--	--	--	--	--	--	--
MW-2	08/17/18		812.91	20.53	**0.13**	792.47														
MW-2	09/10/18		812.91	19.86	**0.08**	793.11														
MW-2	10/22/18		812.91	19.73	**0.10**	793.25														
MW-2	11/13/18		812.91	20.13	**0.07**	792.83														
MW-2	12/11/18		812.91	20.65	**0.08**	792.32														
MW-2	01/22/19		812.91	21.32	**0.06**	791.63														
MW-2	02/19/19		812.91	21.62	**0.06**	791.33														
MW-2	04/23/19		812.91	22.08	**0.48**	791.18														
MW-2	07/23/19		812.91	20.21	**0.01**	792.71														
MW-2	04/24/20		812.91	22.59	**0.19**	790.46														
MW-2	04/08/21		812.91	22.82	**0.03**	790.11														
MW-2	01/19/24		812.91	20.21	**0.01**	792.71														
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																				
MW-3	02/02/18		99.23	19.58	--	79.65	--	--	<0.0100b, d	<0.500	--	<1.00	--	--	--	--	--	--	--	--
MW-3	04/24/18		812.74	20.62	--	792.12	--	--	<0.0200a, b, d	<0.500	--	<1.00	--	--	--	--	--	--	--	--
MW-3	10/23/18	e	812.74	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--	--
MW-3	12/12/23		812.74	18.19	--	794.55	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2	
MTCA Method B Cleanup Levels - Noncancer							NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24	
MTCA Method B Cleanup Levels - Cancer							NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029	

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
MW-3	02/29/24		812.74	18.73	--	794.01	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-3	06/13/24	e	812.74	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-3	09/25/24		812.74	17.34	--	795.40	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-3	12/03/24		812.74	18.40	--	794.34	--	--	<0.500	<0.400	--	<1.00	--	--	--	--	--	--	--
MW-3	03/05/25		812.74	19.10	--	793.64	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-4	04/25/18	e	811.94	--	--	--	--	--	<0.0100a, d	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-4	10/23/18	e	811.94	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-5	04/25/18	e	811.64	--	--	--	--	--	<0.0100a, d	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-5	10/23/18	e	811.64	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-5	12/12/23	f	811.61	18.78	--	792.83	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5 DUP	12/12/23	f	811.61	18.78	--	792.83	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5	02/29/24		811.61	19.31	--	792.30	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5 DUP	02/29/24		811.61	19.31	--	792.30	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5	06/14/24		811.61	19.92	--	791.69	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5	09/25/24		811.61	17.78	--	793.83	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5	12/04/24	e	811.61	--	--	--	--	--	<0.500	<0.400	--	<1.00	--	--	--	--	--	--	--
MW-5 DUP	12/04/24	e	811.61	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5	03/05/25		811.61	19.57	--	792.04	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-5 DUP	03/05/25		811.61	19.57	--	792.04	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-6	04/25/18	e	811.99	--	--	--	--	--	<0.0100a	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-6	10/23/18	e	811.99	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-7	04/25/18	e	811.92	--	--	--	--	--	<0.0100a	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-7	10/24/18	e	811.92	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-8	04/25/18	e	812.28	--	--	--	--	--	<0.200a,b	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-8	10/24/18	e	812.28	--	--	--	--	--	<0.50	<0.50	--	<1.0	--	--	--	--	--	--	--
MW-8 DUP	10/24/18	e	812.28	--	--	--	--	--	<0.50	<0.50	--	<1.0	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer							NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer							NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-9	04/24/18		812.76	20.69	--	792.07	--	--	<0.0100a	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-9	10/23/18	e	812.76	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-10	04/24/18		812.05	20.70	--	791.35	--	--	<0.0200a,b,d	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-10 DUP	04/24/18		812.05	20.70	--	791.35	--	--	<0.020a,b,c,d	<0.050	--	<1.0	--	--	--	--	--	--	--
MW-10	10/23/18	e	812.05	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-10	12/12/23		812.05	18.40	--	793.65	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-10	02/29/24		812.05	18.97	--	793.08	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-10	06/13/24	e	812.05	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-10	09/25/24		812.05	17.49	--	794.56	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-10 DUP	09/25/24		812.05	17.49	--	794.56	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-10	12/03/24		812.05	18.61	--	793.44	--	--	<0.500	<0.400	--	<1.00	--	--	--	--	--	--	--
MW-10	03/05/25		812.05	19.26	--	792.79	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-11	04/24/18		812.13	20.29	--	791.84	--	--	<0.0200a,b,d	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-11	10/24/18	e	812.13	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-11	12/12/23		812.13	17.92	--	794.21	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-11	03/01/24	e	812.13	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-11	06/13/24	e	812.13	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-11	09/25/24		812.13	17.12	--	795.01	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-11	12/03/24		812.13	18.16	--	793.97	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-11	03/05/25		812.13	18.82	--	793.31	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-12	04/24/18		812.81	21.18	--	791.63	--	--	<0.0200a,b,d	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-12	10/24/18	e	812.81	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
MW-12	02/29/24		812.81	19.40	--	793.41	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-12	06/15/24	e	812.81	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-12	09/26/24	e	812.81	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-12	12/04/24	e	812.81	--	--	--	--	--	<0.500	<0.400	--	<1.00	--	--	--	--	--	--	--
MW-12	03/06/25		812.81	19.73	--	793.08	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
Screened Interval 10-25 ft bgs \ Total Depth 25 ft bgs																			
MW-13	12/12/23		812.72	19.02	--	793.70	--	--	<2.5	<2.0	--	<5.0	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels							NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer							NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer							NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date		Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
MW-13	02/29/24		812.72	19.58	--	793.14	--	--	<1.3	<1.0	--	<2.5	--	--	--	--	--	--	--
MW-13	06/14/24	e	812.72	--	--	--	--	--	<1.3	<1.0	--	<2.5	--	--	--	--	--	--	--
MW-13 DUP	06/14/24	e	812.72	--	--	--	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-13	09/25/24		812.72	18.13	--	794.59	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
MW-13	12/03/24		812.72	19.24	--	793.48	--	--	<0.500	<0.400	--	<1.00	--	--	--	--	--	--	--
MW-13	03/05/25		812.72	19.88	--	792.84	--	--	<0.50	<0.40	--	<1.0	--	--	--	--	--	--	--
101 East and 101 West Wine Country Road Monitoring Wells																			
Screened Interval 10-25 \ Total Depth 25 ft bgs																			
MW-14	10/27/22		813.43	16.34	0.00	797.09	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	03/08/23		813.43	18.40	0.00	795.03	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	06/27/23		813.43	18.09	0.00	795.34	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	09/27/23		813.43	16.49	0.00	796.94	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	12/13/23		813.43	18.27	0.00	795.16	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-14	03/01/24		813.43	18.88	0.00	794.55	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	06/12/24		813.43	19.49	0.00	793.94	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	09/26/24		813.43	17.10	0.00	796.33	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	12/04/24		813.43	18.33	0.00	795.10	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-14	03/05/25		813.43	19.12	0.00	794.31	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																			
MW-15	10/27/22		813.60	16.48	0.00	797.12	--	--	<0.010	0.058J	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-15	03/08/23		813.60	18.44	0.00	795.16	--	--	<0.010	<2.0	<10	<2.0	<2.0	1.7J	--	--	--	--	--
MW-15	06/27/23		813.60	18.44	0.00	795.16	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-15	09/27/23		813.60	16.84	0.00	796.76	--	--	<0.010	<2.0	<10	<2.0	<2.0	23	--	--	--	--	--
MW-15	12/12/23		813.60	18.63	0.00	794.97	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-15	03/01/24		813.60	19.29	0.00	794.31	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-15	06/12/24		813.60	19.86	0.00	793.74	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-15	09/25/24		813.60	17.50	0.00	796.10	--	<10	<0.010	<2.0	<10	<2.0	<2.0	7.8J	--	--	--	--	--
MW-15	12/04/24		813.60	18.88	0.00	794.72	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-15	03/05/25		813.60	19.50	0.00	794.10	--	<10	<0.0010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																			
MW-16	10/27/22		813.46	17.20	0.00	796.26	--	--	<0.010	0.072J	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-16 DUP	10/27/22		--	--	0.00	--	--	--	<0.010	0.061J	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-16	03/08/23		813.46	16.67	0.00	796.79	--	--	<0.010	<2.0	<10	<2.0	<2.0	17J	--	--	--	--	--
MW-16 DUP	03/08/23		--	--	0.00	--	--	--	<0.010	<2.0	<10	<2.0	<2.0	19J	--	--	--	--	--
MTCA Method A Cleanup Levels							NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer							NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer							NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
MW-16	06/27/23	813.46	18.73	0.00	794.73	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-16 DUP	06/27/23	813.46	18.73	0.00	794.73	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-16	09/27/23	813.46	18.73	0.00	794.73	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-16 DUP	09/27/23	813.46	17.12	0.00	796.34	--	--	<0.010	<2.0	<10	<2.0	<2.0	3.9J	--	--	--	--	--
MW-16	12/12/23	813.46	18.83	0.00	794.63	--	<10	<0.010	<2.0	<10	<2.0	<2.0	20J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-16 DUP	12/12/23	813.46	18.83	0.00	794.63	--	<10	<0.010	<2.0	<10	<2.0	<2.0	18J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-16	03/01/24	813.46	19.46	0.00	794.00	--	<10	<0.010	<2.0	<10	<2.0	<2.0	18J	--	--	--	--	--
MW-16	06/12/24	813.46	20.06	0.00	793.40	--	<10	<0.010	<2.0	<10	<2.0	<2.0	19J					
MW-16 DUP	06/12/24	813.46	20.06	0.00	793.40	--	<10	<0.010	<2.0	<10	<2.0	<2.0	18J	--	--	--	--	--
MW-16	09/25/24	813.46	17.76	0.00	795.70	--	<10	<0.010	<2.0	<10	<2.0	<2.0	6.7J					
MW-16 DUP	09/25/24	813.46	17.76	0.00	795.70	--	<10	<0.010	<2.0	<10	<2.0	<2.0	6.7J	--	--	--	--	--
MW-16	12/04/24	813.46	19.08	0.00	794.38	--	<10	<0.010	<2.0	<10	<2.0	<2.0	18J	--	--	--	--	--
MW-16 DUP	12/04/24	813.46	19.08	0.00	794.38	--	<10	<0.010	<2.0	<10	<2.0	<2.0	17J	--	--	--	--	--
MW-16	03/05/25	813.46	19.68	0.00	793.78	--	<10	<0.010	<2.0	<10	<2.0	<2.0	40	--	--	--	--	--
MW-16 DUP	03/05/25	813.46	19.68	0.00	793.78	--	<10	<0.010	<2.0	<10	<2.0	<2.0	41	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-17	10/27/22	813.05	16.59	0.00	796.46	--	--	<0.010	<2.0	<10	<2.0	<2.0	61	--	--	--	--	--
MW-17	03/08/23	813.05	14.67	0.00	798.38	--	--	<0.010	<2.0	<10	<2.0	<2.0	75	--	--	--	--	--
MW-17	06/27/23	813.05	18.40	0.00	794.65	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-17	09/27/23	813.05	16.80	0.00	796.25	--	--	<0.010	<2.0	<10	<2.0	<2.0	34	--	--	--	--	--
MW-17	12/13/23	813.05	18.27	0.00	794.78	--	<10	<0.010	<2.0	<10	<2.0	<2.0	44	<2.0	<2.0	<2.0	<2.0	<0.20
MW-17	03/01/24	813.05	19.14	0.00	793.91	--	<10	<0.010	<2.0	<10	<2.0	<2.0	21	--	--	--	--	--
MW-17	06/13/24	813.05	19.79	0.00	793.26	--	<10	<0.010	<2.0	<10	<2.0	<2.0	41	--	--	--	--	--
MW-17	09/25/24	813.05	17.53	0.00	795.52	--	<10	<0.010	<2.0	<10	<2.0	<2.0	9.4J	--	--	--	--	--
MW-17	12/03/24	813.05	18.58	0.00	794.47	--	<10	<0.010	<2.0	<10	<2.0	<2.0	9.6J	--	--	--	--	--
MW-17	03/06/25	813.05	19.35	0.00	793.70	--	--	<0.010	<2.0	<10	<2.0	<2.0	61	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-18	10/27/22	813.06	16.21	0.00	796.85	--	--	<0.010	<2.0	<10	<2.0	<2.0	2.8J	--	--	--	--	--
MW-18	03/08/23	813.06	16.53	0.00	796.53	--	--	<0.010	<2.0	<10	<2.0	<2.0	3.6J	--	--	--	--	--
MW-18	06/27/23	813.06	17.94	0.00	795.12	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-18	09/27/23 g	813.06	16.40	0.00	796.66	--	--	<0.010	<2.0	<10	<2.0	<2.0	3.3J	--	--	--	--	--
MW-18	12/13/23	813.06	17.96	0.00	795.10	--	<10	<0.010	<2.0	<10	<2.0	<2.0	1.8J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-18	03/01/24	813.06	18.64	0.00	794.42	--	<10	<0.010	<2.0	<10	<2.0	<2.0	3.0J	--	--	--	--	--
MW-18	06/13/24	813.06	19.32	0.00	793.74	--	<10	<0.010	<2.0	<10	<2.0	<2.0	5.6J	--	--	--	--	--
MW-18	09/25/24	813.06	17.09	0.00	795.97	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-18	12/03/24	813.06	18.70	0.00	794.36	--	<10	<0.010	<2.0	<10	<2.0	<2.0	5.2J	--	--	--	--	--
MW-18	03/06/25	813.06	19.94	0.00	793.12	--	--	<0.010	<2.0	<10	<2.0	<2.0	8.7J	--	--	--	--	--
MTCA Method A Cleanup Levels						NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer						NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer						NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

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100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-19	10/27/22	813.15	15.31	0.00	797.84	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	03/08/23	813.15	19.78	0.00	793.37	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	06/27/23	813.15	17.11	0.00	796.04	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	09/27/23	813.15	15.61	0.00	797.54	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	12/13/23	813.15	17.19	0.00	795.96	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-19	03/01/24	813.15	17.76	0.00	795.39	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	06/12/24	813.15	18.43	0.00	794.72	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	09/25/24	813.15	16.28	0.00	796.87	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	12/04/24	813.15	17.50	0.00	795.65	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-19	03/06/25	813.15	18.13	0.00	795.02	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-20	10/27/22	813.02	15.49	0.00	797.53	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-20	03/08/23	813.02	17.11	0.00	795.91	--	--	<0.010	<2.0	<10	<2.0	<2.0	2.0J	--	--	--	--	--
MW-20	06/27/23	813.02	17.35	0.00	795.67	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-20	09/27/23	813.02	15.82	0.00	797.20	--	--	<0.010	<2.0	<10	<2.0	<2.0	1.0J	--	--	--	--	--
MW-20	12/13/23	813.02	17.20	0.00	795.82	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-20	03/01/24	813.02	17.98	0.00	795.04	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-20 DUP	03/01/24	813.02	17.98	0.00	795.04	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-20	06/12/24	813.02	18.67	0.00	794.35	--	<10	<0.010	<2.0	<10	<2.0	<2.0	3.3J	--	--	--	--	--
MW-20	09/25/24	813.02	16.54	0.00	796.48	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-20	12/03/24	813.02	17.59	0.00	795.43	--	<10	<0.010	<2.0	<10	<2.0	<2.0	5.3J	--	--	--	--	--
MW-20	03/05/25	813.02	18.25	0.00	794.77	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-21	10/27/22	813.18	15.88	0.00	797.30	--	--	<0.010	<2.0	<10	<2.0	<2.0	21	--	--	--	--	--
MW-21	03/08/23	813.18	17.60	0.00	795.58	--	--	<0.010	<2.0	<10	<2.0	<2.0	17J	--	--	--	--	--
MW-21	06/27/23	813.18	17.73	0.00	795.45	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-21	09/27/23	813.18	16.20	0.00	796.98	--	--	<0.010	<2.0	<10	<2.0	<2.0	27	--	--	--	--	--
MW-21	12/13/23	813.18	17.70	0.00	795.48	--	<10	<0.010	<2.0	<10	<2.0	<2.0	8.1J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-21	03/01/24	813.18	18.30	0.00	794.88	--	<10	<0.010	<2.0	<10	<2.0	<2.0	3.0J	--	--	--	--	--
MW-21	06/13/24	813.18	18.98	0.00	794.20	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-21	09/25/24	813.18	16.89	0.00	796.29	--	<10	<0.010	<2.0	<10	<2.0	<2.0	23	--	--	--	--	--
MW-21	12/03/24	813.18	18.00	0.00	795.18	--	<10	<0.010	<2.0	<10	<2.0	<2.0	5.0J	--	--	--	--	--
MW-21	03/06/25	813.18	18.64	0.00	794.54	--	--	<0.010	<2.0	<10	<2.0	<2.0	2.5J	--	--	--	--	--
MTCA Method A Cleanup Levels						NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer						NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer						NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-22	12/12/23	813.03	18.34	0.00	794.69	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-22	03/01/24	813.03	18.92	0.00	794.11	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-22	06/12/24	813.03	19.56	0.00	793.47	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-22	09/25/24	813.03	17.04	0.00	795.99	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-22	12/04/24	813.03	18.56	0.00	794.47	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-22	03/05/25	813.03	19.17	0.00	793.86	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-23	12/13/23	813.06	19.12	0.00	793.94	--	<10	<0.010	<2.0	<10	<2.0	<2.0	66	<2.0	<2.0	<2.0	<2.0	<0.20
MW-23	02/29/24	813.06	19.76	0.00	793.30	--	<10	<0.010	0.26J	<10	<2.0	<2.0	47	--	--	--	--	--
MW-23	06/13/24	813.06	20.40	0.00	792.66	--	<10	<0.010	<2.0	<10	<2.0	<2.0	32	--	--	--	--	--
MW-23	09/26/24	813.06	18.09	0.00	794.97	--	<10	<0.010	<2.0	<10	<2.0	<2.0	46	--	--	--	--	--
MW-23	12/03/24	813.06	18.96	0.00	794.10	--	<10	<0.010	<2.0	<10	<2.0	<2.0	46	--	--	--	--	--
MW-23	03/06/25	813.06	19.96	0.00	793.10	--	<10	<0.010	<2.0	<10	<2.0	<2.0	48	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-24	12/13/23	812.22	17.92	0.00	794.30	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MW-24	02/29/24	812.22	18.95	0.00	793.27	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-24	06/13/24	812.22	19.67	0.00	792.55	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-24	09/25/24	812.22	17.43	0.00	794.79	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-24	12/03/24	812.22	18.38	0.00	793.84	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-24	03/06/25	812.22	19.15	0.00	793.07	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-25	12/12/23	812.85	18.16	0.00	794.69	--	<10	<0.010	<2.0	<10	<2.0	<2.0	27	<2.0	<2.0	<2.0	<2.0	<0.20
MW-25	02/29/24	812.85	18.77	0.00	794.08	--	<10	<0.010	<2.0	<10	<2.0	<2.0	19J	--	--	--	--	--
MW-25	06/13/24	812.85	19.44	0.00	793.41	--	<10	<0.010	<2.0	<10	<2.0	<2.0	12J	--	--	--	--	--
MW-25	09/25/24	812.85	17.38	0.00	795.47	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-25	09/26/24	812.85	17.38	0.00	795.47	--	<10	<0.010	<2.0	<10	<2.0	<2.0	9.0J	--	--	--	--	--
MW-25	12/03/24	812.85	18.14	0.00	794.71	--	<10	<0.010	<2.0	<10	<2.0	<2.0	8.5J	--	--	--	--	--
MW-25	03/05/25	812.85	19.04	0.00	793.81	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-25	03/06/25	812.85	19.04	0.00	793.81	--	<10	<0.010	<2.0	<10	<2.0	<2.0	8.1J	--	--	--	--	--
MW-25	06/16/25	812.85	19.64	0.00	793.21	--	--	--	--	--	--	--	--	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-26	12/13/23	812.48	17.81	0.00	794.67	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
MTCA Method A Cleanup Levels						NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer						NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer						NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
MW-26	03/01/24	812.48	18.48	0.00	794.00	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-26	06/13/24	812.48	19.08	0.00	793.40	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-26 DUP	06/13/24	812.48	19.08	0.00	793.40	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-26	09/26/24	812.48	16.98	0.00	795.50	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-26	12/04/24	812.48	18.10	0.00	794.38	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-26	03/06/25	812.48	18.74	0.00	793.74	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-27	12/13/23	812.15	17.83	0.00	794.32	--	<10	<0.010	<2.0	<10	<2.0	<2.0	14J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-27	03/01/24	812.15	18.42	0.00	793.73	--	<10	<0.010	<2.0	<10	<2.0	<2.0	23	--	--	--	--	--
MW-27	06/13/24	812.15	19.13	0.00	793.02	--	<10	<0.010	<2.0	<10	<2.0	<2.0	19J	--	--	--	--	--
MW-27	09/26/24	812.15	17.02	0.00	795.13	--	<10	<0.010	<2.0	<10	<2.0	<2.0	16J	--	--	--	--	--
MW-27	12/04/24	812.15	18.18	0.00	793.97	--	<10	<0.010	<2.0	<10	<2.0	<2.0	15J	--	--	--	--	--
MW-27	03/06/25	812.15	18.78	0.00	793.37	--	<10	<0.010	<2.0	<10	<2.0	<2.0	20J	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
MW-28	12/13/23	811.53	17.55	0.00	793.98	--	<10	<0.010	<2.0	<10	<2.0	<2.0	10J	<2.0	<2.0	<2.0	<2.0	<0.20
MW-28	03/01/24	811.53	18.19	0.00	793.34	--	<10	<0.010	0.22J	<10	<2.0	<2.0	17J	--	--	--	--	--
MW-28	06/13/24	811.53	18.94	0.00	792.59	--	<10	<0.010	<2.0	<10	<2.0	<2.0	17J	--	--	--	--	--
MW-28	09/26/24	811.53	16.83	0.00	794.70	--	<10	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
MW-28	12/04/24	811.53	17.87	0.00	793.66	--	<10	<0.010	<2.0	<10	<2.0	<2.0	19J	--	--	--	--	--
MW-28	03/06/25	811.53	18.58	0.00	792.95	--	<10	<0.010	<2.0	<10	<2.0	<2.0	26	--	--	--	--	--
Screened Interval 10-25 \ Total Depth 25 ft bgs																		
IW-1	12/12/23	813.13	18.59	0.00	794.54	--	<10	<0.010	<2.0	<10	<2.0	<2.0	23	<2.0	<2.0	<2.0	<2.0	<0.20
IW-1	03/01/24	813.13	19.09	0.00	794.04	--	<10	<0.010	<2.0	<10	<2.0	<2.0	33	--	--	--	--	--
IW-1	06/12/24	813.13	19.85	0.00	793.28	--	<10	<0.010	<2.0	<10	<2.0	<2.0	24	--	--	--	--	--
IW-1	09/25/24	813.13	17.44	0.00	795.69	--	<10	<0.010	<2.0	<10	<2.0	<2.0	76	--	--	--	--	--
IW-1	12/04/24	813.13	18.82	0.00	794.31	--	<10	<0.010	<2.0	<10	<2.0	<2.0	17J	--	--	--	--	--
IW-1	03/05/25	813.13	19.46	0.00	793.67	--	<10	<0.010	<2.0	<10	<2.0	<2.0	19J	--	--	--	--	--
Grab Groundwater Samples																		
Environmental Consulting, Inc. - 2018 Remedial Investigation Status Report - January 4, 2019:																		
B1-W	03/15/18	NE	--	--	--	--	--	<2.5	<2.5	--	<5.0	--	--	--	--	--	--	--
B3-W	03/16/18	NE	--	--	--	--	--	<0.50	<0.50	--	<1.0	--	--	--	--	--	--	--
B4-W	03/16/18	NE	--	--	--	--	--	<2.5	<2.5	--	<5.0	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels						NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer						NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer						NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

TABLE 9
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Ethanol (µg/L)	DIPE (µg/L)	EDB (µg/L)	EDC (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
B6-W	04/03/18	NE	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
B7-W	04/03/18	NE	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
B8-W	04/03/18	NE	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
B9-W	04/03/18	NE	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
B10-W	04/04/18	NE	--	--	--	--	--	<0.500	<0.500	--	<1.00	--	--	--	--	--	--	--
AECOM - Additional Investigation Report - July 6, 2023																		
B24	10/26/22	NE	17.5	--	--	--	--	<0.010	<2.0	<0.10	<2.0	<2.0	28	--	--	--	--	--
B24 DUP	10/26/22	NE	17.5	--	--	--	--	<0.010	0.054J	<0.10	<2.0	<2.0	<20	--	--	--	--	--
B25	10/26/22	NE	17.5	--	--	--	--	<0.10	<20	<100	<20	<20	420	--	--	--	--	--
B26	10/26/22	NE	14	--	--	--	--	<0.010	<2.0	<10	<2.0	<2.0	360	--	--	--	--	--
B27	10/26/22	NE	15	--	--	--	--	<0.010	<2.0	<10	<2.0	<2.0	<20	--	--	--	--	--
B29	10/26/22	NE	18	--	--	--	--	<0.010	<2.0	<10	<2.0	<2.0	2.8J	--	--	--	--	--
AECOM - Investigation Report - June 14, 2024																		
B30	11/30/23	NE	17	--	--	--	<10	<0.010	<2.0	<10	<2.0	<2.0	56	<2.0	<2.0	<2.0	<2.0	<0.20
B31	11/29/23	NE	16	--	--	--	<10	<0.010	<2.0	<10	<20	<2.0	<20	<2.0	<2.0	<2.0	<2.0	<0.20
B32	11/29/23	NE	16	--	--	--	<10	<0.010	<2.0	<10	<2.0	<2.0	200	<2.0	<2.0	<2.0	<2.0	<0.20
MTCA Method A Cleanup Levels						NE	NE	0.01	5	NE	20	NE	NE	NE	NE	5	5	0.2
MTCA Method B Cleanup Levels - Noncancer						NE	NE	72	48	8,000	NE	NE	3,200	16	160	48	4	24
MTCA Method B Cleanup Levels - Cancer						NE	NE	0.022	0.48	NE	560	NE	88	NE	NE	21	0.54	0.029

EXPLANATION:
ft bgs = Feet below ground surface
µg/L = Micrograms per liter
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
DUP = Field duplicate
MTCA = Model Toxics Control Act
NM = Not measured; -- = Not analyzed or sampled; NE = Not established
< = Less than the stated laboratory reporting limit
XXXX Values equal or exceed MTCA Method A Cleanup Levels. If no published MTCA Method A Cleanup Level, the most stringent MTCA Method B Cleanup Level for Direct Contact used as the point of compliance.
a = Analyte was reported down to the method detection limit (MDL)
b = The reporting limit for this analyte has been raised to account for interference from coeluting compounds and/or matrix interference
c = The sample aliquot was taken from a vial with headspace (air bubble greater than 6 millimeter diameter)
d = EDB was analyzed by EPA Method 8260C-SIM
e = DTW for sampling date not available
f = Well monument paved over in 2020. Well monument raised to current grade in December 2023.
J = Estimated value between the laboratory method reporting limit and the method detection limit

TABLE 10
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS - POLYAROMATIC HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	Acenaphthene (µg/L)	Acenaphthylene (µg/L)	Anthracene (µg/L)	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Dibenzofuran (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	1-Methylnaphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)
100 West Wine Country Road Monitoring Wells																								
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																								
MW-1	02/02/18	99.08	20.18	--	78.90	<0.0417	<0.0833	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.0417	<0.104	<0.0833	<0.198	<0.0417	<0.0417
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																								
MW-3	02/02/18	99.23	19.58	--	79.65	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.417	<0.0833	<0.0833	<0.0833	<0.417	<0.417
MTCA Method A Cleanup Levels						NE	NE	NE	NE	0.1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	160	NE	NE
MTCA Method C Cleanup Levels - Noncancer						480	NE	2,400	NE	4.8	NE	NE	NE	NE	NE	NE	640	320	NE	560	32	160	NE	240
MTCA Method B Cleanup Levels - Cancer						NE	NE	NE	NE	0.023	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.86	NE	NE	NE	NE

EXPLANATION:
ft bgs = Feet below ground surface
µg/L = Micrograms per liter
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
Polyaromatic hydrocarbons in accordance with EPA Method 8270D SIM
MTCA = Model Toxics Control Act
-- = Not measured; not analyzed or sampled
< = Less than the stated laboratory reporting limit
XXXX Values equal or exceed MTCA Method A Cleanup Levels. If no published MTCA Method A Cleanup Level, the most stringent MTCA Method B Cleanup Level for Direct Contact used as the point of compliance.

TABLE 11
MW-2 PRODUCT SAMPLE ANALYTICAL RESULTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Wellhead Elev (ft bgs)	DTW (ft bgs)	NAPL (ft)	GW Elev (ft bgs)	GRPH (mg/kg)	DRPH (mg/kg)	ORPH (mg/kg)	Acetone (µg/kg)	Acrylonitrile (µg/kg)	Benzene (µg/kg)	Bromobenzene (µg/kg)	Bromochloromethane (µg/kg)	Bromodichloromethane (µg/kg)	Bromoform (µg/kg)	Bromomethane (µg/kg)	2-Butanone (µg/kg)	n-Butylbenzene (µg/kg)	sec-Butylbenzene (µg/kg)	tert-Butylbenzene (µg/kg)	Carbon disulfide (µg/kg)	Carbon tetrachloride (µg/kg)	Chlorobenzene (µg/kg)	Chloroethane (µg/kg)	Chloroform (µg/kg)
100 West Wine Country Road Monitoring Wells																									
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																									
MW-2	02/01/18	99.55	21.81	**1.14**	78.57	**DET >18,000**	ND <45,000	ND <90,100	<676,000	<169,000	<6,760	<16,900	<33,800	<33,800	<67,600	<338,000	<473,000	**477,000**	**414,000**	<33,800	<338,000	>33,800	<16,900	<338,000	<33,800

EXPLANATION:
ft bgs = feet below ground surface
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
GRPH = Gasoline Range Petroleum Hydrocarbons in accordance with Ecology Method NWTPH-HCID (Hydrocarbon Identification)
DRPH and ORPH = Diesel Range Petroleum Hydrocarbons and Oil Range Petroleum Hydrocarbons, respectively, in accordance with Ecology Method NWTPH-HCID
Volatile organic compounds (VOCs) in accordance with EPA Method 8260C
DET = Detected
ND = Not detected
< = Less than the stated laboratory reporting limit
> = Greater than the stated laboratory reporting limit
M-02 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
R-02 = The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

X.XX	NAPL thickness in feet
DET >MRL	Hydrocarbon detected greater than the laboratory method reporting limit (MRL)
ND <MRL	Hydrocarbon detected less than the laboratory method reporting limit (MRL)
XXXX	VOC detected greater than the laboratory reporting limit

TABLE 11
MW-2 PRODUCT SAMPLE ANALYTICAL RESULTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Chloromethane (µg/kg)	2-Chlorotoluene (µg/kg)	4-Chlorotoluene (µg/kg)	Dibromochloromethane (µg/kg)	1,2-Dibromo-3-chloropropan (µg/kg)	1,2-Dibromoethane (EDB) (µg/kg)	Dibromomethane (µg/kg)	1,2-Dichlorobenzene (µg/kg)	1,3-Dichlorobenzene (µg/kg)	1,4-Dichlorobenzene (µg/kg)	Dichlorodifluoromethane (µg/kg)	1,1-Dichloroethane (µg/kg)	1,2-Dichloroethane (µg/kg)	1,1-Dichloroethene (µg/kg)	cis-1,2-Dichloroethene (µg/kg)	trans-1,2-Dichloroethene (µg/kg)	1,2-Dichloropropane (µg/kg)	1,3-Dichloropropane (µg/kg)	2,2-Dichloropropane (µg/kg)	1,1-Dichloropropene (µg/kg)	cis-1,3-Dichloropropene (µg/kg)	trans-1,3-Dichloropropene (µg/kg)	Ethylbenzene (µg/kg)	Hexachlorobutadiene (µg/kg)	2-Hexanone (µg/kg)
100 West Wine Country Road Monitoring Wells																										
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																										
MW-2	02/01/18	<169,000	<33,800	<33,800	<67,600	<169,000	<33,800	<33,800	**55,700**	<16,900	<16,900	<67,600	<16,900	<16,900	<16,900	<16,900	<16,900	<16,900	<33,800	<33,800	<33,800	<33,800	<33,800	**1,700,000**	<67,600	<338,000

EXPLANATION:
ft bgs = feet below ground surface
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
GRPH = Gasoline Range Petroleum Hydrocarbons in accordance with Ecology Method NWTPH-HCID (Hydrocarbon Identification)
DRPH and ORPH = Diesel Range Petroleum Hydrocarbons and Oil Range Petroleum Hydrocarbons, respectively, in accordance with Ecology Method NWTPH-HCID
Volatile organic compounds (VOCs) in accordance with EPA Method 8260C
DET = Detected
ND = Not detected
< = Less than the stated laboratory reporting limit
> = Greater than the stated laboratory reporting limit
M-02 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
R-02 = The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

X.XX	NAPL thickness in feet
DET	Hydrocarbon detected greater than the laboratory method reporting limit (MRL)
>MRL	
ND	Hydrocarbon detected less than the laboratory method reporting limit (MRL)
<MRL	
XXXX	VOC detected greater than the laboratory reporting limit

TABLE 11
MW-2 PRODUCT SAMPLE ANALYTICAL RESULTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Well ID	Sample Date	Isopropylbenzene (µg/kg)	4-Isopropyltoluene (µg/kg)	Methylene chloride (µg/kg)	4-Methyl-2-pentanone (µg/kg)	Methyl tert-butyl ether (µg/kg)	Naphthalene (µg/kg)	n-Propylbenzene (µg/kg)	Styrene (µg/kg)	1,1,1,2-Tetrachloroethane (µg/kg)	1,1,2,2-Tetrachloroethane (µg/kg)	Tetrachloroethene (µg/kg)	Toluene (µg/kg)	1,2,3-Trichlorobenzene (µg/kg)	1,2,4-Trichlorobenzene (µg/kg)	1,1,1-Trichloroethane (µg/kg)	1,1,2-Trichloroethane (µg/kg)	Trichloroethene (µg/kg)	Trichlorofluoromethane (µg/kg)	1,2,3-Trichloropropane (µg/kg)	1,2,4-Trimethylbenzene (µg/kg)	1,3,5-Trimethylbenzene (µg/kg)	Vinyl chloride (µg/kg)	m,p-Xylene (µg/kg)	o-Xylene (µg/kg)
100 West Wine Country Road Monitoring Wells																									
Screened Interval unknown ft bgs \ Total Depth unknown ft bgs																									
MW-2	02/01/18	**557,000**	**414,000**	<169,000	<338,000	<33,800	**1,220,000**	**1,460,000**	<33,800	<16,900	<33,800	<16,900	**50,700**	<169,000	<169,000	<16,900	<16,900	<16,900	<67,600	<67,600	**6,150,000**	**2,010,000**	<16,900	**3,360,000**	**532,000**

EXPLANATION:
ft bgs = feet below ground surface
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram
DTW = Depth to water in feet below top of casing (TOC)
NAPL = Non-aqueous phase liquid
GW Elev = Groundwater elevation relative to TOC elevations, corrected for NAPL thickness using an equation with a hydrocarbon correction factor:
GW Elev = (TOC - DTW) + (0.729 * NAPL)
GRPH = Gasoline Range Petroleum Hydrocarbons in accordance with Ecology Method NWTPH-HCID (Hydrocarbon Identification)
DRPH and ORPH = Diesel Range Petroleum Hydrocarbons and Oil Range Petroleum Hydrocarbons, respectively, in accordance with Ecology Method NWTPH-HCID
Volatile organic compounds (VOCs) in accordance with EPA Method 8260C
DET = Detected
ND = Not detected
< = Less than the stated laboratory reporting limit
> = Greater than the stated laboratory reporting limit
M-02 = Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
R-02 = The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.

X.XX	NAPL thickness in feet
DET >MRL	Hydrocarbon detected greater than the laboratory method reporting limit (MRL)
ND <MRL	Hydrocarbon detected less than the laboratory method reporting limit (MRL)
XXXX	VOC detected greater than the laboratory reporting limit

TABLE 12
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Location	Sample Date	Sample Depth (feet bgs)	GRPH ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	o-Xylene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)
MTCA Method B Soil Gas Screening Level[a]			1,500	11	76,000	15,000	--	--	1,500	2.5
EES Environmental Consulting, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:										
100 West Wine Country Road										
SG1	03/14/18	5	<75	0.66	0.77	0.16	0.33	0.19	0.52	<0.48
SG2	03/14/18	5	90	2.0	3.0	0.70	2.3	1.1	3.4	<0.50
SG3	03/14/18	5	<75	0.76	2.4	0.58	2.1	0.80	2.9	<0.48
SG4	03/14/18	5	<72	0.38	1.6	0.19	0.66	0.31	0.97	<0.46
SG5	03/14/18	5	<70	1.1	1.5	0.36	0.89	0.36	1.25	<0.45
SG6	03/14/18	5	<72	0.53	11	0.44	1.8	0.94	2.74	0.59
SG7	03/15/18	5	280	1.2	2.3	1.1	5.0	2.2	7.2	**2.5**
SG8	03/15/18	5	<72	4.8	1.7	0.38	1.4	0.63	2.03	<0.46
SG9	03/15/18	5	<72	<0.28	1.0	0.21	0.76	0.33	1.09	<0.46
AECOM - Investigation Report - June 14, 2024:										
101 West Wine Country Road										
SSV-1	12/04/23	Sub-slab	**1,700**	1.2 J	180	96	440	78	518	<9.6
SSV-2	12/04/23	Sub-slab	**1,600**	1.0 J	190	88	410	70	480	<11
SSV-3	12/04/23	Sub-slab	**1,700**	<3.3	130	84	400	75	475	<11
SSV-4	12/04/23	Sub-slab	900	1.2 J	110	47	210	36	246	<10 U
SSV-4 Dup	12/04/23	Sub-slab	450	0.82 J	61	24	110	18	128	<11
SSV-5	12/04/23	Sub-slab	**2,500**	1.7 J	220	120	560	100	660	<12 U
SSV-6	12/04/23	Sub-slab	**1,900**	0.98 J	140	91	420	80	500	<11 U

TABLE 12
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - TPH / BTEX / NAPHTHALENE
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

EXPLANATION:

$\mu g/m^3$ = micrograms per cubic meter.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes, analyzed in accordance with EPA Method TO-15.
Dup = Field duplicate.
feet bgs = Feet below ground surface.
GRPH = Gasoline range petroleum hydrocarbons analyzed in accordance with EPA Method TO-15.
MTCA = Model Toxics Control Act.
Naphthalene = Naphthalene analyzed in accordance with EPA Method TO-15.
< = Less than the stated laboratory reporting limit.
-- = Not available, not applicable, not measured, and/or not sampled.
Shaded and bolded values exceed the MTCA Method B Screening Levels.
J = Laboratory qualifier. Estimated value (value between reporting limit and method detection limit).
U = Data validation qualifier. The analyte was analyzed for but was not detected above the reported sample quantitation limit.
a = For constituents with both noncancer and cancer screening levels, the lower of the two (cancer) is listed.

TABLE 13
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Location	Sample Date	Sample Depth (feet bgs)	1,2,4-Trimethylbenzene (µg/m^3)	1,3,5-Trimethylbenzene (µg/m^3)	1,2-Dibromoethane (EDB) (µg/m^3)	1,2-Dichloroethane (EDC) (µg/m^3)	cis-1,2-Dichloroethene (cis-1,2-DCE) (µg/m^3)	Ethanol (µg/m^3)	Ethyl tertiary butyl ether (ETBE) (µg/m^3)	Hexane (µg/m^3)	Isopropyl ether (DIPE) (µg/m^3)	Methyl tertiary butyl ether (MTBE) (µg/m^3)	Tertiary amyl methyl ether (TAME) (µg/m^3)	Tertiary butyl alcohol (TBA) (µg/m^3)	Tetrachloroethene (PCE) (µg/m^3)	trans-1,2-Dichloroethene (trans-1,2-DCE) (µg/m^3)	Trichloroethene (TCE) (µg/m^3)	Vinyl Chloride (µg/m^3)
MTCA Method B Soil Gas Screening Level[a]			910	910	0.14	3.2	610	--	1,000	11,000	--	320	--	--	320	610	11	9.5
EES Environmental Consulting, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:																		
100 West Wine Country Road																		
SG1	03/14/18	5	<0.90	<0.90	<0.28	<0.15	--	5.1	--	<0.64	--	<0.66	--	--	--	--	--	--
SG2	03/14/18	5	<0.94	<0.94	<0.29	<0.15	--	2.9	--	2.1	--	<0.69	--	--	--	--	--	--
SG3	03/14/18	5	1.0	<0.90	<0.28	<0.15	--	12	--	<0.64	--	<0.66	--	--	--	--	--	--
SG4	03/14/18	5	1.2	<0.86	<0.27	<0.14	--	<1.6	--	<0.62	--	<0.63	--	--	--	--	--	--
SG5	03/14/18	5	<0.84	<0.84	<0.26	<0.14	--	4.2	--	<0.60	--	<0.62	--	--	--	--	--	--
SG6	03/14/18	5	1.8	<0.86	<0.27	<0.14	--	3.2	--	1.2	--	<0.63	--	--	--	--	--	--
SG7	03/15/18	5	18	5.8	<0.26	<0.14	--	4.6	--	<0.60	--	<0.62	--	--	--	--	--	--
SG8	03/15/18	5	1.6	<0.86	<0.27	<0.14	--	4.0	--	<0.62	--	<0.63	--	--	--	--	--	--
SG9	03/15/18	5	<0.86	<0.86	<0.27	<0.14	--	2.5	--	<0.62	--	<0.63	--	--	--	--	--	--
AECOM - Investigation Report - June 14, 2024:																		
101 West Wine Country Road																		
SSV-1	12/04/23	Sub-slab	--	--	<7.0	<3.7	<3.6	--	<15	--	<15	<13	<15	<11	36	<3.6	<4.9	<2.3
SSV-2	12/04/23	Sub-slab	--	--	<7.8	<4.1	<4.0	--	<17	--	<17	<15	<17	<12	26	<4.0	<5.4	<2.6
SSV-3	12/04/23	Sub-slab	--	--	<8.0	<4.2	<4.1	--	<17	--	<17	<15	<17	<12	17	<4.1	<5.6	<2.6
SSV-4	12/04/23	Sub-slab	--	--	<7.7	<4.0	<4.0	--	<17	--	<17	<14	<17	<12	3.7 J	<4.0	<5.4	<2.6
SSV-4 Dup	12/04/23	Sub-slab	--	--	<8.1	<4.2	<4.2	--	<18	--	<18	<15	<18	<13	1.9 J	<4.2	<5.6	<2.7
SSV-5	12/04/23	Sub-slab	--	--	<8.4	<4.4	<4.4	--	<18	--	<18	<16	<18	<13	12	<4.4	<5.9	<2.8
SSV-6	12/04/23	Sub-slab	--	--	<8.4	<4.4	<4.3	--	<18	--	<18	<16	<18	<13	4.3 J	<4.3	<5.8	<2.8

TABLE 13
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

EXPLANATION:

$\mu g/m^3$ = micrograms per cubic meter.
Dup = Field duplicate.
EPA = Environmental Protection Agency.
feet bgs = Feet below ground surface.
MTCA = Model Toxics Control Act.
< = Less than the stated laboratory reporting limit.
-- = Not available, not applicable, not measured, and/or not sampled.
Volatile organic compounds analyzed in accordance with EPA Method TO-15.
Shaded and bolded values exceed the MTCA Method B Screening Levels.
J = Laboratory qualifier. Estimated value (value between reporting limit and method detection limit).
a = For constituents with both noncancer and cancer screening levels, the lower of the two (cancer) is listed.

TABLE 14
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - AIR-PHASE VOLATILE PETROLEUM HYDROCARBONS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Location	Sample Date	Sample Depth (feet bgs)	>C8-C10 Aromatic Hydrocarbons ($\mu g/m^3$)	>C10-C12 Aromatic Hydrocarbons ($\mu g/m^3$)	C5-C6 Aliphatic Hydrocarbons ($\mu g/m^3$)	>C6-C8 Aliphatic Hydrocarbons ($\mu g/m^3$)	>C8-C10 Aliphatic Hydrocarbons ($\mu g/m^3$)	>C10-C12 Aliphatic Hydrocarbons ($\mu g/m^3$)
EES Environmental Consulting, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:								
100 West Wine Country Road								
SG1	03/14/18	5	--	--	--	--	--	--
SG2	03/14/18	5	--	--	--	--	--	--
SG3	03/14/18	5	--	--	--	--	--	--
SG4	03/14/18	5	--	--	--	--	--	--
SG5	03/14/18	5	--	--	--	--	--	--
SG6	03/14/18	5	--	--	--	--	--	--
SG7	03/15/18	5	--	--	--	--	--	--
SG8	03/15/18	5	--	--	--	--	--	--
SG9	03/15/18	5	--	--	--	--	--	--
AECOM - Investigation Report - June 14, 2024:								
101 West Wine Country Road								
SSV-1	12/04/23	Sub-slab	780	<100	<59	<75	<110	<130
SSV-2	12/04/23	Sub-slab	720	<110	<66	<83	<120	<140
SSV-3	12/04/23	Sub-slab	700	<110	<67	<85	<120	<140
SSV-4	12/04/23	Sub-slab	370	<110	<65	<82	<120	<140
SSV-4 Dup	12/04/23	Sub-slab	190	<120	<68	<86	<120	<150
SSV-5	12/04/23	Sub-slab	1,000	<120	<71	<90	<130	<150
SSV-6	12/04/23	Sub-slab	750	<120	<70	<89	<130	<150

EXPLANATION:
$\mu g/m^3$ = micrograms per cubic meter.
Dup = Field duplicate.
EPA = Environmental Protection Agency.
feet bgs = Feet below ground surface.
< = Less than the stated laboratory reporting limit.
-- = Not available, not applicable, not measured, and/or not sampled.
Air-phase volatile petroleum hydrocarbon fractions analyzed in accordance with EPA Method TO-15 Modified.

TABLE 15
CUMULATIVE SOIL VAPOR ANALYTICAL RESULTS - FIXED GASES
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Location	Sample Date	Sample Depth (feet bgs)	Oxygen (%)	Nitrogen (%)	Carbon Monoxide (%)	Methane (%)	Helium (%)	Carbon Dioxide (%)
EES Environmental Consulting, Inc. (EES) - 2018 Remedial Investigation Status Report - January 4, 2019:								
100 West Wine Country Road								
SG1	03/14/18	5	--	--	--	--	--	--
SG2	03/14/18	5	--	--	--	--	--	--
SG3	03/14/18	5	--	--	--	--	--	--
SG4	03/14/18	5	--	--	--	--	--	--
SG5	03/14/18	5	--	--	--	--	--	--
SG6	03/14/18	5	--	--	--	--	--	--
SG7	03/15/18	5	--	--	--	--	--	--
SG8	03/15/18	5	--	--	--	--	--	--
SG9	03/15/18	5	--	--	--	--	--	--
AECOM - Investigation Report - June 14, 2024:								
101 West Wine Country Road								
SSV-1	12/04/23	Sub-slab	19	80	<0.018	<0.00018	<0.092	1.2
SSV-2	12/04/23	Sub-slab	21	79	<0.020	<0.00020	<0.10	0.40
SSV-3	12/04/23	Sub-slab	18	80	<0.021	<0.00021	<0.10	1.8
SSV-4	12/04/23	Sub-slab	21	79	<0.020	0.00024	<0.10	0.042
SSV-4 Dup	12/04/23	Sub-slab	21	79	<0.021	0.00024	<0.10	0.043
SSV-5	12/04/23	Sub-slab	20	80	<0.022	<0.00022	<0.11	0.11
SSV-6	12/04/23	Sub-slab	21	79	<0.022	<0.00022	<0.11	0.037

EXPLANATION:
% = Percent.
ASTM = American Society of Testing and Materials.
Dup = Field duplicate.
feet bgs = Feet below ground surface.
< = Less than the stated laboratory reporting limit.
-- = Not available, not applicable, not measured, and/or not sampled.
Fixed gases analyzed in accordance with ASTM D-1946.

Appendix A

Legal Description and Tax Parcel Information

Yakima County GIS - Washington

Department of Assessment

[Print Report]
[Close Report]

Yakimap.com

PROPERTY PHOTO	PROPERTY INFORMATION AS OF 7/8/2025 12:15:57 AM			
	Parcel Address:	**100 W WINE COUNTRY RD, GRANDVIEW ,WA 98930**		
	Parcel Owner(s):	**EDUARDO VELASQUEZ**		
	Parcel Number:	**23092312463**	Parcel Size:	**8455 Square Feet**
	Property Use:	**55 Retail Auto, Marine, Aircraft**		

TAX AND ASSESSMENT INFORMATION			
Tax Code Area (TCA):	**440**	Tax Year:	**2025**
Improvement Value:	**$188500**	Land Value:	**$34300**
CurrentUse Value:	**$0**	CurrentUse Improvement:	**$0**
New Construction:	**$0**	Total Assessed Value:	**$222800**

RESIDENTIAL INFORMATION

Quality	Year Built	Stories	Main SqFt	Upper SqFt	Bsmt SqFt	Bedrooms	Bathrooms (full/3/4,1/2)	Garage (bsmt/att/bltin)	Carport
No Residence Information Found.									

SALE INFORMATION

Excise	Sale Date	Sale Price	Grantor	Portion
E032593	**8/5/2021**	**$180000**	**CHRISTENSEN INC**	**N**

VALUE HISTORY INFORMATION

Tax Year	TCA	Land	Improvement	New Construction	CurrentUse	CurrentUse Improvement
2025	**440**	**$34300**	**$188500**	**$0**	**$0**	**$0**
2024	**440**	**$34300**	**$173500**	**$0**	**$0**	**$0**
2023	**440**	**$33000**	**$147700**	**$0**	**$0**	**$0**
2022	**440**	**$25400**	**$145000**	**$0**	**$0**	**$0**
2021	**440**	**$25400**	**$40000**	**$0**	**$0**	**$0**
2020	**440**	**$25400**	**$38300**	**$0**	**$0**	**$0**
2019	**440**	**$25400**	**$37500**	**$6100**	**$0**	**$0**
2018	**440**	**$25400**	**$31400**	**$0**	**$0**	**$0**
2017	**440**	**$25400**	**$29300**	**$0**	**$0**	**$0**
2016	**440**	**$25400**	**$29300**	**$0**	**$0**	**$0**
2015	**440**	**$25400**	**$29300**	**$0**	**$0**	**$0**
2014	**440**	**$25400**	**$29300**	**$0**	**$0**	**$0**

DISCLAIMER

While the information is intended to be accurate, any manifest errors are unintentional and subject to correction. Please let us know about any errors you discover and we will correct them. To contact us call either (509) 574-1100 or (800) 572-7354, or **email us**.

OVERLAY INFORMATION

Zoning:		Jurisdiction:	**Grandview**
Urban Growth Area:	**Grandview**	Future Landuse Designation:	**Urban (City Limits) (Yakima County Plan 2015)**
FEMA:	FEMA Map	FIRM Panel Number:	**53077C1925D**

LOCATION INFORMATION

+ Latitude:**46º 15' 20.878"**	+ Longitude:**-119º 54' 08.510"**	Range:**23** Township:**09** Section:**23**

Narrative Description: **GRANDVIEW: N 50 FT OF LOTS 11 & 12 &ALL OF LOTS 13 & 14 BLK 17**

DISCLAIMER

MAP AND PARCEL DATA ARE BELIEVED TO BE ACCURATE, BUT ACCURACY IS NOT GUARANTEED; THIS IS NOT A LEGAL DOCUMENT AND SHOULD NOT BE SUBSTITUTED FOR A TITLE SEARCH, APPRAISAL, SURVEY, FLOODPLAIN OR ZONING VERIFICATION

VALLEY TITLE GUARANTEE
502 N 2nd St, Yakima, WA 98901 ~ (509)248-4442 ~ 1-800-752-9553 ~ www.vtgco.com

CHAIN OF TITLE REPORT

Prepared For: Washington State Department of Ecology
1250 W Alder Street
Yakima, WA 98903

Customer Reference:
Order No.: 245517
Property Address: 101 E Wine Country Road, Grandview, WA 98930
Dated: November 07, 2019 at 8:00 AM
Fee: $150.00 Tax $12.30 Total: $162.30
Liability: $150.00

Legal Description:

FOR LEGAL DESCRIPTION SEE ATTACHED EXHIBIT A HERETO

1. **Valley Title Guarantee** has searched the following records with respect to the land:
    1. Title plant records for **Yakima** County.

2. Based on the search described in paragraph 1 above **Valley Title Guarantee** reports that, beginning on January 01, 1919 and ending on the effective date of this report, the Chain of Title documents affecting title to the land have been recorded in the Public Records. As used in this report, the term "Public Records" shall mean the records established under Washington law for the purpose of imparting constructive notice matters relating to real property to purchasers for value and without knowledge.

SEE ATTACHED EXHIBIT B FOR CHAIN OF TITLE DOCUMENTS

This report does not purport to report on easements, covenants, conditions and restrictions or other matters which may affect title to the land.

3. **This report is not title insurance**. The liability of **Valley Title Guarantee** shall be limited to the amount shown on Page 1 of this report. This report only provides title information contained in the above stated records and does NOT reflect un-indexed or incorrectly indexed matters or any unrecorded or off record matters that may affect said land. **Valley Title Guarantee**, in issuing this report assumes no liability on account of any instrument or proceedings in the chain of title to the land which contain defects that would render such instrument or proceedings null and void or defective. All instruments in the chain of title to the property are assumed to be good and valid. This report is not a commitment to insure and therefore does not contain the requirements and exceptions which would appear in a commitment to insure or the exception which would appear in a title policy.

Except as expressly stated herein, this report contains no express or implied opinion, warranty, guarantee, insurance or other similar assurances as to the status of title to the land.

This report was not prepared for, and may not be relied upon by third parties.

Valley Title Guarantee

Arlene Reynolds

CHAIN OF TITLE REPORT
EXHIBIT "A"

Order No.: 245517

Legal Description:

The South 85 feet of Lots 1 and 2, Block 3, GRANDVIEW, Washington, according to the Official Plat thereof recorded in Volume "B" of Plats, Page 6, records of Yakima County, Washington.

Abbreviated Legal:	Ptn of Lots 2 and 2, Blk 3, GRANDVIEW, Washington, B-6
Parcel No(s):	230923-12401
Purported Address:	101 E Wine Country Road, Grandview, WA 98930

END OF EXHIBIT A

CHAIN OF TITLE REPORT
EXHIBIT "B"

Chain of Title Documents

1. Instrument: Quit Claim Deed
   Dated: May 10, 1926
   Recorded: May 18, 1926
   Auditor's File No: 385931
   Grantor: Milton N. Richards and Minnie S. Richards, husband and wife
   Grantee: A. G. Shelby

2. Instrument: Sheriff's Deed
   Dated: July 1928
   Recorded: July 23, 1928
   Auditor's File No: 463553
   Grantor: L. D. Luce, Sheriff of Yakima County Washington
   Grantee: John E. Price and Company, a corporation

3. Instrument: Tax Deed
   Dated: September 7, 1929
   Recorded: September 27, 1929
   Auditor's File No: 507676
   Grantor: Still White, as Treasurer of Yakima County, State of Washington
   Grantee: Yakima County, State of Washington

4. Instrument: Treasurer Deed
   Dated: December 21, 1929
   Recorded: February 6, 1930
   Auditor's File No: 520561
   Grantor: Still White, as Treasurer of Yakima County, State of Washington
   Grantee: A. G. Shelby

5. Instrument: Quit Claim Deed
   Dated: August 30, 1930
   Recorded: September 3, 1930
   Auditor's File No: 544521
   Grantor: A. G. Shelby and Selma Shelby, husband and wife
   Grantee: J.R. Haasze, whose wife's name is Lottie Haasze

6. Instrument: Quit Claim Deed
   Dated: February 21, 1931
   Recorded: March 6, 1931
   Auditor's File No: 563090
   Grantor: J. R. Haasze and Lottie Haasze, husband and wife
   Grantee: A. G. Shelby whose wife's name is Selma Shelby

7. Instrument: Contract Option
   Dated: January 8, 1936
   Recorded: January 9, 1936
   Auditor's File No: 710532
   Grantor: A.G. Shelby and Selma Shelby
   Grantee: A. H. Waugh, a bachelor

8. Instrument: Warranty Deed
   Dated: June 30, 1936
   Recorded: July 1, 1936
   Auditor's File No: 729970
   Grantor: A.G. Shelby and Selma Shelby
   Grantee: A. H. Waugh, a bachelor

9. Instrument: Lease
   Dated: May 27, 1937
   Recorded: June 24, 1937
   Auditor's File No: 773567
   Grantor: A. H. Waugh, a bachelor
   Grantee: Standard Oil Company of California, a corporation

10. Instrument: Lease
    Dated: September 12, 1945
    Recorded: November 1, 1945
    Auditor's File No: 1102873
    Grantor: A. H. Waugh, a bachelor
    Grantee: Standard Oil Company of California, a corporation

11. Instrument: Lease Agreement
    Dated: September 11, 1945
    Recorded: November 1, 1945
    Auditor's File No: 1102874
    Grantor: A. H. Waugh, a bachelor
    Grantee: Standard Oil Company of California, a corporation

12. Instrument: Statutory Warranty Deed
    Dated: July 17, 1957
    Recorded: July 24, 1957
    Auditor's File No: 1680082
    Grantor: Mary Ellen Killian, Ruby Ethel Nickerson and Malissa Mae Townsend
    Grantee: E. A. Rado, husband of Clara Rado

13. Instrument: Statutory Warranty Deed
    Dated: November 18, 1976
    Recorded: November 19, 1976
    Auditor's File No: 2441780
    Grantor: E. A. Rado, a his separate estate
    Grantee: Leslie A. Rado, an unmarried woman

14. Instrument: Real Estate Contract
    Dated: November 17, 1976
    Recorded: November 19, 1976
    Auditor's File No: 2441788
    Grantor: Leslie A. Rado, an unmarried woman
    Grantee: Jack Kimbrough and Pauline Kimbrough, husband and wife, an undivided one-half interest, James Montgomery, a single man, an undivided one-half interest

15. Instrument: Purchaser's Assigment of Contract and Deed
Dated: June 30, 1978
Recorded: July 3, 1978
Auditor's File No: 2509936
Grantor: Jack Kimbrough and Pauline Kimbrough, husband and wife, and James Montgomery, a single man
Grantee: William S. Castle and Jeanette R. Castle

16. Instrument: Statutory Warranty Deed
Dated: November 19, 1978
Recorded: December 20, 1978
Auditor's File No: 2528840
Grantor: Leslie A. Rado, an unmarried woman
Grantee: Jack Kimbrough and Pauline Kimbrough, husband and wife, an undivided one-half interest; James Montgomery, a single man, an undivided one-half

17. Instrument: Quit Claim Deed
Dated: May 28, 1980
Recorded: May 30, 1980
Auditor's File No: 2583805
Grantor: James H. Montgomery, as his separate property
Grantee: Jack Kimbrough and Pauline Kimbrough, husband and wife, and William Castle and Jeanette Castle, husband and wife

18. Instrument: Quit Claim Deed
Dated: April 15, 1981
Auditor's File No: 2614614
Grantor: Jack B. Kimbrough, also known as Jack Kimbrough, and Pauline Kimbrough, his wife
Grantee: William S. Castle and Jeanette R. Castle, husband and wife

19. Instrument: Statutory Warranty Deed
Dated: May 19, 2014
Recorded: May 23, 2014
Auditor's File No: 7840211
Grantor: William S. Castle and Jeanette R. Castle, husband and wife
Grantee: Kenneth S. Castle and Holly R. Castle, husband and wife

20. Instrument: Quit Claim Deed
Dated: May 21, 2018
Recorded: May 22, 2018
Auditor's File No: 7981514
Grantor: Kenneth S. Castle and Holly R. Winters-Castle
Grantee: Gorgeous Property LLC, a Washington Limited Liability Company

Yakima County GIS - Washington

Department of Assessment

[Print Report]
[Close Report]

Yakimap.com

PROPERTY PHOTO	PROPERTY INFORMATION AS OF 7/8/2025 12:15:57 AM			
	Parcel Address:	**101 E WINE COUNTRY RD, GRANDVIEW ,WA 98930**		
	Parcel Owner(s):	**GORGEOUS PROPERTY LLC**		
	Parcel Number:	**23092312401**	Parcel Size:	**4759 Square Feet**
	Property Use:	**61 Service Finance, Insurance, Real Estate**		

TAX AND ASSESSMENT INFORMATION			
Tax Code Area (TCA):	**440**	Tax Year:	**2025**
Improvement Value:	**$109300**	Land Value:	**$16050**
CurrentUse Value:	**$0**	CurrentUse Improvement:	**$0**
New Construction:	**$0**	Total Assessed Value:	**$125350**

RESIDENTIAL INFORMATION

Quality	Year Built	Stories	Main SqFt	Upper SqFt	Bsmt SqFt	Bedrooms	Bathrooms (full/3/4,1/2)	Garage (bsmt/att/bltin)	Carport
No Residence Information Found.									

SALE INFORMATION

Excise	Sale Date	Sale Price	Grantor	Portion
435949	**5/19/2014**	**$67807**	**CASTLE, WILLIAM, KEN & HOLLY**	**N**

VALUE HISTORY INFORMATION

Tax Year	TCA	Land	Improvement	New Construction	CurrentUse	CurrentUse Improvement
2025	**440**	**$16050**	**$109300**	**$0**	**$0**	**$0**
2024	**440**	**$11900**	**$111200**	**$0**	**$0**	**$0**
2023	**440**	**$11900**	**$106600**	**$0**	**$0**	**$0**
2022	**440**	**$11900**	**$97800**	**$0**	**$0**	**$0**
2021	**440**	**$11900**	**$100400**	**$0**	**$0**	**$0**
2020	**440**	**$11900**	**$100700**	**$0**	**$0**	**$0**
2019	**440**	**$11900**	**$51700**	**$0**	**$0**	**$0**
2018	**440**	**$11900**	**$47100**	**$0**	**$0**	**$0**
2017	**440**	**$11900**	**$46700**	**$0**	**$0**	**$0**
2016	**440**	**$11900**	**$51100**	**$0**	**$0**	**$0**
2015	**440**	**$11900**	**$59900**	**$0**	**$0**	**$0**
2014	**440**	**$11900**	**$59900**	**$0**	**$0**	**$0**

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OVERLAY INFORMATION

Zoning:		Jurisdiction:	**Grandview**
Urban Growth Area:	**Grandview**	Future Landuse Designation:	**Urban (City Limits) (Yakima County Plan 2015)**
FEMA:	FEMA Map	FIRM Panel Number:	**53077C1925D**

LOCATION INFORMATION

+ Latitude:**46° 15' 22.671"**	+ Longitude:**-119° 54' 06.077"**	Range:**23** Township:**09** Section:**23**

Narrative Description: **GRANDVIEW: S 85 FT OF LOT 1 & 2 BLK 3**

DISCLAIMER

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VALLEY TITLE GUARANTEE
502 N 2nd St, Yakima, WA 98901 ~ (509)248-4442 ~ 1-800-752-9553 ~ www.vtgco.com

CHAIN OF TITLE REPORT

Prepared For: Washington State Department of Ecology
1250 W Alder Street
Yakima, WA 98903

Customer Reference:
Order No.: 245516
Property Address: 101 W Wine, Grandview, WA 98930
Dated: November 07, 2019 at 8:00 AM
Fee: $150.00 Tax $12.36 Total: $162.36
Liability: $150.00

Legal Description:

FOR LEGAL DESCRIPTION SEE ATTACHED EXHIBIT A HERETO

1. **Valley Title Guarantee** has searched the following records with respect to the land:
    1. Title plant records for **Yakima** County.

2. Based on the search described in paragraph 1 above **Valley Title Guarantee** reports that, beginning on January 01, 1919 and ending on the effective date of this report, the Chain of Title documents affecting title to the land have been recorded in the Public Records. As used in this report, the term "Public Records" shall mean the records established under Washington law for the purpose of imparting constructive notice matters relating to real property to purchasers for value and without knowledge.

SEE ATTACHED EXHIBIT B FOR CHAIN OF TITLE DOCUMENTS

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3. **This report is not title insurance**. The liability of **Valley Title Guarantee** shall be limited to the amount shown on Page 1 of this report. This report only provides title information contained in the above stated records and does NOT reflect un-indexed or incorrectly indexed matters or any unrecorded or off record matters that may affect said land. **Valley Title Guarantee**, in issuing this report assumes no liability on account of any instrument or proceedings in the chain of title to the land which contain defects that would render such instrument or proceedings null and void or defective. All instruments in the chain of title to the property are assumed to be good and valid. This report is not a commitment to insure and therefore does not contain the requirements and exceptions which would appear in a commitment to insure or the exception which would appear in a title policy.

Except as expressly stated herein, this report contains no express or implied opinion, warranty, guarantee, insurance or other similar assurances as to the status of title to the land.

This report was not prepared for, and may not be relied upon by third parties.

Valley Title Guarantee

Arlene Reynolds

CHAIN OF TITLE REPORT
EXHIBIT "A"

Order No.: 245516

Legal Description:

Lots 1, 2 and 3, Block 4, Town of Grandview, Washington, as recorded in Volume "B" of Plats, Page 6.

Abbreviated Legal:	Lots 1, 2 and 3, Town of Grandview, Washington, B-6
Parcel No(s):	230923-12555
Purported Address:	101 W Wine, Grandview, WA 98930

END OF EXHIBIT A

CHAIN OF TITLE REPORT
EXHIBIT "B"

Chain of Title Documents

1. Instrument: Sheriff's Deed
   Dated: July 28, 1920
   Recorded: July 30, 1920
   Auditor's File No: 196473
   Grantor: Sam'l Hutchinson, Sheriff of Yakima County Washington
   Grantee: E. W. Morse

2. Instrument: Warranty Deed
   Dated: June 16, 1922
   Recorded: November 10, 1922
   Auditor's File No: 267337
   Grantor: E. W. Morse and Fannie C. Morse, husband and wife
   Grantee: Airo Metal Products Co.

3. Instrument: Sheriff's Deed
   Dated: July 12, 1928
   Recorded: July 23, 1928
   Auditor's File No: 463553
   Grantor: L. D. Luce, Sheriff of Yakima County Washington
   Grantee: John E. Price and Company, a corporation

4. Instrument: Tax Deed
   Dated: August 29, 1928
   Recorded: August 29, 1928
   Auditor's File No: 466837
   Grantor: Still White as Treasurer of Yakima County State of Washington
   Grantee: Yakima County, a Municipal corporation

5. Instrument: Warranty Deed
   Dated: March 14, 1930
   Recorded: March 31, 1930
   Auditor's File No: 526993
   Grantor: Amy R. Nelson (formerly Amy R. Gibson) and H. V. Nelson, her husband
   Grantee: Tully Investment Company, a Washington corporation

6. Instrument: Assignment of Contract
   Dated: April 18, 1931
   Recorded: April 21, 1931
   Auditor's File No: 569022
   Grantor: The Tully Investment Company, a Washington corporation
   Grantee: R. F. Snead, whose wife is Mary M. Snead

7. Instrument: Quit Claim Deed
   Dated: September 10, 1931
   Recorded: September 12, 1931
   Auditor's File No: 582233
   Grantor: Albert H. Huebner and Myrtle S. Huebner, husband and wife
   Grantee: R. F. Snead

8. Instrument: Treasurers Deed
   Dated: September 5, 1931
   Recorded: September 12, 1931
   Auditor's File No: 582234
   Grantor: R. W. White, as Treasurer of Yakima County Washington
   Grantee: Albert H. Huebner

9. Instrument: Lease and License Agreement
   Dated: September 3, 1931
   Recorded: December 21, 1931
   Auditor's File No: 589976
   Grantor: Paul E. Wise and Mrs. Flossie Wise (his wife)
   Grantee: The Texas Company (a California corporation)

10. Instrument: Quit Claim Deed
    Dated: June 16, 1933
    Recorded: June 16, 1933
    Auditor's File No: 629886
    Grantor: R. F. Snead and Mary M. Snead, husband and wife
    Grantee: Tully Investment Company, a corporation

11. Instrument: Quit Claim Deed
    Dated: May 17, 1934
    Recorded: May 19, 1934
    Auditor's File No: 657249
    Grantor: Tully Investment Company, a Washington corporation
    Grantee: R. F. Snead, whose wife is Mary M. Snead

12. Instrument: Deed
    Dated: July 28, 1936
    Recorded: July 29, 1936
    Auditor's File No: 733279
    Grantor: R. F. Snead and Mary. M. Snead, husband and wife
    Grantee: J. R. Haasze, whose wife is Lottie Haasze

13. Instrument: Quit Claim Deed
    Dated: March 24, 1938
    Recorded: April 2, 1938
    Auditor's File No: 805708
    Grantor: J. R. Haasze and Lottie Haasze, husband and wife
    Grantee: Grandview Investment Company, a Washington corporation

14. Instrument: Treasurer's Deed
    Dated: April 28, 1938
    Recorded: May 18, 1938
    Auditor's File No: 811683
    Grantor: C. D. Stephens, as Treasurer of Yakima County Washington
    Grantee: R. F. Snead, whose wife is Mary M. Snead

15. Instrument: Quit Claim Deed
Recorded: May 18, 1938
Auditor's File No: 811684
Grantor: R. F. Snead and Mary M. Snead, husband and wife
Grantee: Paul E. Wise

16. Instrument: Contract
Dated: March 20, 1941
Recorded: May 2, 1941
Auditor's File No: 946263
Grantor: Grandview Investment Company, a corporation of Wn
Grantee: Signal Oil Company, a corporation

17. Instrument: Quit Claim Deed
Dated: July 5, 1941
Recorded: July 11, 1941
Auditor's File No: 955763
Grantor: Paul E. Wise and Flossie Wise, husband and wife
Grantee: J. R. Haasze and Lottie Haasze, husband and wife

18. Instrument: Warranty Deed
Dated: October 29, 1941
Recorded: November 21, 1941
Auditor's File No: 971922
Grantor: Paul E. Wise and Flossie M. Wise, husband and wife
Grantee: Signal Oil Company, a corporation

19. Instrument: Assigment of Contract and Deed
Dated: May 9, 1941
Recorded: April 3, 1942
Auditor's File No: 988482
Grantor: Grandview Investment Company, a Washington corporation
Grantee: J.R. Haasze whose wife is Lottie Haasze

20. Instrument: Warranty Deed
Dated: February 16, 1944
Recorded: April 3, 1944
Auditor's File No: 1054540
Grantor: Lottie Haasze, a widow
Grantee: Signal Oil Company, a corporation

21. Instrument: Statutory Warranty Deed
Dated: March 29, 1967
Recorded: April 1987
Auditor's File No: 2127331
Grantor: Standard Oil Company of California , a Delaware corporation
Grantee: Humble Oil and Refining Company, a Delaware corporation

22. Instrument: Special Warranty Deed
Dated: October 10, 1978
Recorded: October 25, 1978
Auditor's File No: 2522706
Grantor: Exxon Corporation, a New Jersey corporation
Grantee: A. J. Still and Elizabeth M. Still, his wife

Yakima County GIS - Washington

Department of Assessment

[Print Report]
[Close Report]

Yakimap.com

PROPERTY PHOTO	PROPERTY INFORMATION AS OF 7/8/2025 12:15:57 AM			
	Parcel Address:	**101 W WINE COUNTRY RD, GRANDVIEW ,WA 98930**		
	Parcel Owner(s):	**101 W WINE COUNTRY RD LLC**		
	Parcel Number:	**23092312555**	Parcel Size:	**0.24 Acre(s)**
	Property Use:	**51 Wholesale Trade**		

TAX AND ASSESSMENT INFORMATION			
Tax Code Area (TCA):	**440**	Tax Year:	**2025**
Improvement Value:	**$68900**	Land Value:	**$35350**
CurrentUse Value:	**$0**	CurrentUse Improvement:	**$0**
New Construction:	**$0**	Total Assessed Value:	**$104250**

RESIDENTIAL INFORMATION

Quality	Year Built	Stories	Main SqFt	Upper SqFt	Bsmt SqFt	Bedrooms	Bathrooms (full/3/4,1/2)	Garage (bsmt/att/bltin)	Carport
No Residence Information Found.									

SALE INFORMATION

Excise	Sale Date	Sale Price	Grantor	Portion
468795	**1/7/2025**	**$125000**	**STILL, A J ETUX**	**N**

VALUE HISTORY INFORMATION

Tax Year	TCA	Land	Improvement	New Construction	CurrentUse	CurrentUse Improvement
2025	**440**	**$35350**	**$68900**	**$0**	**$0**	**$0**
2024	**440**	**$35350**	**$66600**	**$0**	**$0**	**$0**
2023	**440**	**$34050**	**$67000**	**$0**	**$0**	**$0**
2022	**440**	**$26200**	**$65700**	**$0**	**$0**	**$0**
2021	**440**	**$26200**	**$62800**	**$0**	**$0**	**$0**
2020	**440**	**$26200**	**$62700**	**$0**	**$0**	**$0**
2019	**440**	**$26200**	**$52400**	**$0**	**$0**	**$0**
2018	**440**	**$26200**	**$19100**	**$0**	**$0**	**$0**
2017	**440**	**$26200**	**$17800**	**$0**	**$0**	**$0**
2016	**440**	**$26200**	**$17900**	**$0**	**$0**	**$0**
2015	**440**	**$26200**	**$18000**	**$0**	**$0**	**$0**
2014	**440**	**$26200**	**$19200**	**$0**	**$0**	**$0**

DISCLAIMER

While the information is intended to be accurate, any manifest errors are unintentional and subject to correction. Please let us know about any errors you discover and we will correct them. To contact us call either (509) 574-1100 or (800) 572-7354, or **email us**.

OVERLAY INFORMATION

Zoning:		Jurisdiction:	**Grandview**
Urban Growth Area:	**Grandview**	Future Landuse Designation:	**Urban (City Limits) (Yakima County Plan 2015)**
FEMA:	FEMA Map	FIRM Panel Number:	**53077C1925D**

LOCATION INFORMATION

+ Latitude:**46º 15' 22.738"**	+ Longitude:**-119º 54' 08.309"**	Range:**23** Township:**09** Section:**23**

Narrative Description: **Section 23 Township 09 Range 23 Quarter NE: Plat GRANDVIEW (B6) Block 4 Lot 1 THRU 3**

DISCLAIMER

MAP AND PARCEL DATA ARE BELIEVED TO BE ACCURATE, BUT ACCURACY IS NOT GUARANTEED; THIS IS NOT A LEGAL DOCUMENT AND SHOULD NOT BE SUBSTITUTED FOR A TITLE SEARCH, APPRAISAL, SURVEY, FLOODPLAIN OR ZONING VERIFICATION

Appendix B

Historical UST Records

100 West Wine Country Road

K. E. POWELL DISTRIBUTING CO.

Phone 882-2115 P. O. Box 98

GRANDVIEW, WASHINGTON 98930

000956

C JS
001626
U5570

March 7, 1996

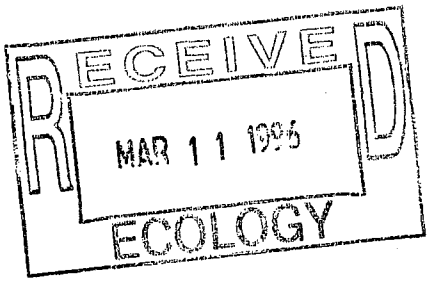
Underground Storage Tank Unit
Department of Ecology
P.O. Box 47655
Olympia, WA 98504-7655

In February 1995 we sent a letter giving notice of tank removal at two of our sites. We removed the tanks at one site but were unable to do the second site at that time. We will be removing the tanks at the following site before the end of March.

1102 Meade Avenue
Prosser, Washington
Site Number - 001626

The owner of this site is:

Powell-Christensen, Inc.
501 E. Wine Country Road
P.O. Box 98
Grandview, Wa 98930-0098
D.O.E. Owner Number - V0005570



Sincerely,

Gary Christensen

Gary Christensen

UNDERGROUND STORAGE TANK TEMPORARY/PERMANENT CLOSURE and SITE ASSESSMENT NOTICE

WASHINGTON STATE DEPARTMENT OF ECOLOGY

See back of form for instructions
Please ☑ the appropriate box(es)
Please type or print information

For Office Use Only
Ow # U0005570
Site # 000956 JS.

☐ Temporary Tank Closure ☐ Permanent Tank Closure ☐ Change-In-Service ☐ Site Assessment/ Site Check

SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tanks are registered): 000956

Site/Business Name: VAUGHN'S SERVICE STATION TEXACO

Site Address: 100 W. MAIN STREET (Street) Telephone: ( )

(City) (State) (ZIP Code)

RECEIVED MAY 05 1995

TANK INFORMATION:

Tank ID	Closure Date	Tank Capacity	Substance Stored
1	3/13/95	8000	Unleaded Gasoline
1	3/14/95	5,000	Leaked Gasoline
1	3/14/95	1,000	Unleaded Gasoline

Entered 6/20/95 SI

CONTAMINATION PRESENT AT THE TIME OF CLOSURE

☐ Yes ☒ No

☐ Unknown

Check unknown if no obvious contamination was observed and sample results have not yet been received from analytical lab.

UST SYSTEM OWNER/OPERATOR:

UST Owner/Operator: POWELL - CHRISTENSEN, INC.

Owners Signature: [signature] Telephone: (509) 882-2115

Address: 501 E. MAIN (Street) 98 (P.O. Box)

GRANDVIEW (City) WA (State) 98930 (ZIP Code)

TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Service Provider: ALBA EXCAVATING INC. License Number: 201027

Licensed Supervisor: WILLIAM K. HOGGIN, P.E Decommissioning License Number: W001863

Supervisors Signature: [signature]

Address: 801 GRANDRIDGE ROAD (Street) 477 (P.O. Box)

GRANDVIEW (City) WA (State) 98930 (ZIP Code)

Telephone: (509) 882-1144

SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Name of Registered Site Assessor: HARI SHARMA

Telephone: (509) 882-1144

Address: 801 GRANDRIDGE ROAD (Street) 477 (P.O. Box)

GRANDVIEW (City) WA (State) 98930 (ZIP Code)

ECY 020-34

C

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

ECOLOGY

For Office Use Only
Owner # U0005570 J.S
Site # 000956

MAY 05 1995

INSTRUCTIONS:
When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with the Department of Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

SITE INFORMATION: Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

TANK INFORMATION: Please list all the tanks for which the site check and site assessment is being conducted. Use the tank ID number if available, and indicate tank capacity and substance stored.

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT: Please check the appropriate item.

CHECKLIST: Please initial each item in the appropriate box.

SITE ASSESSOR INFORMATION: This form must be signed by the registered site assessor who is responsible for conducting the site check/ site assessment.

Underground Storage Tank Section
Department of Ecology
P. O. Box 47655
Olympia, WA 98504-7655

SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): 000956

Site/Business Name: VAUGHN'S SERVICE STATION TEXACO.

Site Address: 100 WEST MAIN STREET (Street) Telephone: (509) 882-2115

GRANDVIEW (City) WA (State) 98930 (ZIP Code)

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
1	8,000	Unleaded Gasoline
1	5,000	Leaded Gasoline
1	1,000	Unleaded Gasoline

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination.
- ____ Investigate suspected release due to off-site environmental contamination.
- ____ Extend temporary closure of UST system for more than 12 months.
- ____ UST system undergoing change-in-service.
- ____ UST system permanently closed-in-place.
- ✓ UST system permanently closed with tank removed.
- ____ Abandoned tank containing product.
- ____ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ____ Other (describe): ____

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

		YES	NO
1.	The location of the UST site is shown on the vicinity map.	HS	
2.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in the Site Assessment Guidance)	HS	
3.	A summary of UST system data is provided. (see Section 3.1)	HS	
4.	The soils characteristics at the UST site are described. (see Section 5.2)	HS	
5.	Is there apparent groundwater in the tank excavation?		HS
6.	A brief description of the surrounding land is provided. (see Section 3.1)	HS	
7.	Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	HS	
8.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	HS	
	- groundwater samples distinguished from soil samples (if applicable)	N/A	
	- samples collected from stockpiled excavated soil	HS	
	- tank and piping locations and limits of excavation pit	HS	
	- adjacent structures and streets	HS	
	- approximate locations of any on-site and nearby utilities	HS	
9.	If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)	N/A	
10.	A table is provided showing laboratory results for each sample collected including: sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	HS	
11.	Any factors that may have compromised the quality of the data or validity of the results are described.		HS
12.	*The results of this site check/site assessment indicate that a confirmed release of regulated substance has occured.*	HS	

SITE ASSESSOR INFORMATION

Hari Sharma — PERSON REGISTERED WITH ECOLOGY

White Shield, Inc — FIRM AFFILIATED WITH

BUSINESS ADDRESS: 801 GRANDRIDGE ROAD

TELEPHONE: (509) 882-1144

GRANDVIEW — CITY

WA — STATE

98930 — ZIP+CODE

I hereby certify that I have been in responsible charge of performing the site check / site assessment described above. Persons submitting false information are subject to penalties under Chapter 173-360 WAC.

4/4/95 — Date

Hari Sharma — Signature of Person Registered with Ecology

C 4000557O J.S.
000956

RECEIVED
MAY 05 1995

UST CLOSURE SITE ASSESSMENT AND INTERIM REMEDIAL ACTION REPORT

1/1

DeBock's Main Street Texaco
Grandview, WA

Report sent to the Central Regional Office

Joyce

Prepared For:
Mr. Gary Christensen
Powell Christensen, Inc.
501 East Main Street
Grandview, WA 98930

MAY, 1995

WHITE SHIELD INC.

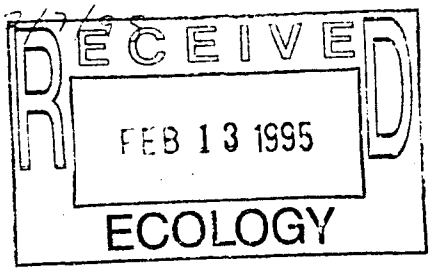
P.O. BOX 477, 801 GRANDRIDGE ROAD, GRANDVIEW, WA 98930
TELEPHONE: (509) 882-1144 VOICE (509) 882-4566 FAX

V0005570
001626
C

V0005570
000956
C
JJ

R. E. POWELL DISTRIBUTING CO.

Phone 882-2115 P.O. Box 98
GRANDVIEW, WASHINGTON 98930



Underground Storage Tank Unit
Department of Ecology
P.O. Box 47655
Olympia, WA 98504-7655

Please be advised that we plan to remove the tanks at two of our locations this spring therfore we are providing you with 30 days notice of tank removal.

The sites are:

1) 1102 Meade Avenue
Prosser, WA
Site Number - 001626

2) 100 West Main Street
Grandview, WA
Site Number - 000956

The owner of both sites is

Powell-Christensen, Inc.
501 E. Main
P.O. Box 98
Grandview, WA 98930-0098
D.O.E. Owner Number - V0005570

Sincerely,

Gary Christensen

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Proof of Financial Responsibility Due!

Mensaje Importante!

중요사항 알려드림!

RECEIVED
JAN 0 1 1995
ECOLOGY

Financial responsibility is now required for **all petroleum underground storage tanks**. As a tank owner or operator you need to show proof of financial responsibility by January 1, 1995.

Since 1990, Ecology has implemented the financial responsibility compliance deadlines exclusively through education and technical assistance. Ecology will continue this emphasis. However, inspectors will now step up enforcement using field tickets, formal orders, and penalties to obtain compliance with the requirements. Those who have not provided proof by January will be targeted for inspections.

Any further delay in enforcement is unfair to those who have already complied and poses risk to human health and the environment. Owners and operators who cannot demonstrate compliance with this requirement will not be issued tank permits in 1995.

If you have any questions regarding the financial responsibility requirements, please contact Dale Jensen at (206) 407-7176.

Please fill out the lower portion of this form with all the information requested.
Refold the entire letter with Ecology's address showing on the outside.
DO NOT SEPARATE, TEAR OR CUT THIS SHEET. Tape or seal closed and drop this form in the mail. You do not need to put a stamp on it.

Method of Compliance with Financial Responsibility Requirement

Acceptable methods for compliance with the financial responsibility requirement are defined in WAC 173-360-410. Please indicate which of these methods is being used by checking the appropriate box below.

☑	A.	Pollution liability insurance or risk retention coverage.
☐	B.	Self-Insured.
☐	C.	Financial Guarantee.
☐	D.	Surety bond.
☐	E.	Letter of Credit.
☐	F.	Trust fund.
☐	G.	Combination of methods. Please check all methods used.
☐	H.	State or Federal Government self-insured.
☐	I.	None.
☐	J.	Bond rating test.
☐	K.	Local government self-insured.
☐	L.	Government guarantee.
☐	M.	Maintenance of a local fund balance.

000956
001626
001635
001644

Insurer (if applicable). Please write in the name of your insurance coverage provider.

E	N	V	I	R	O	N	M	E	N	T	A	L		I	N	S	U	R	A	N	C	E		A	G	E	N	C	Y

Policy Number (if applicable). Please write in your insurance policy number.

B	P	L	0	0	0	2	1	5	8				

Si necesita ayuda para interpretar este documento, favor de hablar con Antonio Valero al numero (509) 454-7833.

상기 양식에 대하여 의문이 있으시면 박헌석씨 1-800-822-3905 에게 연락하시기 바랍니다.

Ecology is an Equal Opportunity and Affirmative Action Employer. If you have special accommodation needs please contact the Toxics Cleanup Program at (206) 407-7212 (Voice) or (206) 407-7155 (TDD).

9/8/94

UNDERGROUND STORAGE TANK INFORMATION UPDATE

VALIDATED
5/16 94

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

1. TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
OWNER NUMBER:	U0005570	
OWNER NAME:	POWELL-CHRISTENSEN INC.	
OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	

2. TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
SITE NUMBER:	000956	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
SITE COUNTY:	YAKIMA	
CONTACT PERSON:	~~DALE MCINTIRE~~	Frank DeBack
CONTACT PHONE:	(509) 882-2376	

3. TANK INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
TANK ID:	1-1,000	
TANK STATUS:	OPERATIONAL	
SUBSTANCE STORED:	UNLEADED GASOLINE	
TANK SIZE:	111-1100 GALLONS	
INSTALLATION DATE:	10-01-1972	

4. TANK FEE INFORMATION

The Annual Fee is for the Period 7/01/94 - 6/30/95

Tanks that are temporarily closed will not receive a permit but are subject to annual tank fees. Payments should be made by check or money order - no cash please. Return update form and payment to the Department of Ecology, P.O. Box 5128, Lacey, WA 98503-0210, or use return envelope provided.

Disputes must be made in writing. If you have general questions, please call 1-800-826-7716 (Voice) or (206) 407-7155 (TDD)

ANNUAL FEE INFORMATION FOR ALL TANKS AT THIS SITE:

INVOICE NUMBER: UST48720 SITE NUMBER: 000956
3 TANKS AT $75.00 EACH; DUE FOR CURRENT YEAR: $225 ; TOTAL DUE FOR ALL YEARS: $225
DATE DUE: JUNE 1, 1994

PREVIOUS YEARS' OUTSTANDING FEES:
1990: $0 1991: $0 1992: $0 1993: $0 1994: $0

5. OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my knowledge of the tank identified by the tank ID number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statements may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE. Gary Christensen
Name of UST owner or Authorized Representative

Gary Christensen
Signature of UST Owner or Authorized Representative

3/14/94
Date Signed

(509)882-2115
Telephone Number

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY)

UNDERGROUND STORAGE TANK INFORMATION UPDATE

VALIDATED
5/16/94

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

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OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	

2. TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
SITE NUMBER:	000956	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
SITE COUNTY:	YAKIMA	
CONTACT PERSON:	~~DALE MCINTIRE~~ /	Frank De Bock
CONTACT PHONE:	(509) 882-2376	

3. TANK INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
TANK ID:	1-5,000	
TANK STATUS:	OPERATIONAL	
SUBSTANCE STORED:	LEADED GASOLINE	
TANK SIZE:	5000-9999 GALLONS	
INSTALLATION DATE:	10-01-1972	

4. TANK FEE INFORMATION

The Annual Fee is for the Period 7/01/94 - 6/30/95

Tanks that are temporarily closed will not receive a permit but are subject to annual tank fees. Payments should be made by check or money order - no cash please. Return update form and payment to the Department of Ecology, P.O. Box 5128, Lacey, WA 98503-0210, or use return envelope provided.

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ANNUAL FEE INFORMATION FOR ALL TANKS AT THIS SITE:

5. OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my knowledge of the tank identified by the tank ID number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statements may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE. Powell-Christensen Inc
Name of UST owner or Authorized Representative

Signature of UST Owner or Authorized Representative

3/14/94
Date Signed

(509)882-2115
Telephone Number

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY)

UNDERGROUND STORAGE TANK INFORMATION UPDATE

VALIDATED
5/16/94

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

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OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	

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	Current Information	Corrected Information (PRINT OR TYPE)
SITE NUMBER:	000956	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
SITE COUNTY:	YAKIMA	
CONTACT PERSON:	~~DALE MCINTIRE~~	Frank DeBock
CONTACT PHONE:	(509) 882-2376	

3. TANK INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
TANK ID:	1-8,000	
TANK STATUS:	OPERATIONAL	
SUBSTANCE STORED:	UNLEADED GASOLINE	
TANK SIZE:	5000-9999 GALLONS	
INSTALLATION DATE:	10-01-1972	

4. TANK FEE INFORMATION

The Annual Fee is for the Period 7/01/94 - 6/30/95

Tanks that are temporarily closed will not receive a permit but are subject to annual tank fees. Payments should be made by check or money order - no cash please. Return update form and payment to the Department of Ecology, P.O. Box 5128, Lacey, WA 98503-0210, or use return envelope provided.

Disputes must be made in writing. If you have general questions, please call 1-800-826-7716 (Voice) or (206) 407-7155 (TDD)

ANNUAL FEE INFORMATION FOR ALL TANKS AT THIS SITE:

5. OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my knowledge of the tank identified by the tank ID number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statements may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE. Powell - Christensen, Inc

Name of UST owner or Authorized Representative

Gary Olmstead — 3/14/94 — (509) 882-2115

Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY)

UNDERGROUN. STORAGE TANK INF(RMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

OWNER MUST SIGN THE BACK OF THIS FORM TO RECEIVE A VALID PERMIT

TANK OWNER INFORMATION

	Current Information	Corrected Information *(PRINT OR TYPE)*
A. OWNER NUMBER:	U0005570	
OWNER NAME:	POWELL-CHRISTENSEN INC.	
OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	[A] [B] [C] [D] [E] [F]
B. OWNER TYPE:	A - PRIVATE	[O]_____

TANK SITE INFORMATION

	Current Information	Corrected Information *(PRINT OR TYPE)*
A. SITE NUMBER:	000956	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
B. CONTACT PERSON:	DALE MCINTIRE	
CONTACT PHONE:	(509) 882-2376	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J]
C. SITE TYPE:	A - SERVICE STATION	[K] [L] [M] [N] [P] [Q] [R] [S] [T]
		[O]:_____

TANK INFORMATION

	Current Information	Corrected Information
		Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
FEES PAID (If no, please call Ecology):		
1989-1990: YES	1990-1991: YES	
1991-1992: YES	1992-1993: YES	
1993-1994: PLEASE PAY ENCLOSED INVOICE		
A. TANK ID:	1-1,000	
B. TANK STATUS:	A - OPERATIONAL	[A] [B]
C. INSTALLATION DATE:	10-01-1972	/ /
D. TANK SIZE:	A - 111-1100 GALLONS	[A] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [F] [O]:_____
F. TANK CONSTRUCTION:	A - SINGLE WALL	[A] [B] [C] [O]:_____
G. COMPARTMENTS:	1	[1] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	F - GROUNDWATER MONITOR	[A] [B] [C] [D] [E] [F] [G] [H]
I. TANK CORROSION PROTECTION:	B - COATED W/IMPRSD CURR	[A] [B] [C] [D] [E] [O]:_____
J. SPILL PREVENTION:	A - CATCHMENT BASIN	[A] [B] [C]
K. OVERFILL PREVENTION:	A - AUTOMATIC SHUTOFF	[A] [B] [C] [D] [E]
L. PIPING MATERIAL:	A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	A - SINGLE WALL	[A] [B] [C] [D] [E] [O]:_____
N. PUMPING SYSTEM	B - SUCTION VALVE AT SURFACE	[A] [B] [C] [D] [E]
O. PIPING RELEASE DETECTION:	Z/A/B - *** UNKNOWN ***	[A] [B] [C] [D] [E] [F] [G] [H]
P. PIPING CORROSION PROTECTION:	B - COATED W/IMP. CURRENT	[A] [B] [C] [D] [E] [O]:_____
Q. SUBSTANCE STORED:	B - UNLEADED GASOLINE	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE:	A - MOTOR FUEL FOR VEHICLES	[A] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS:	E - 1-12 TANKS	[A] [B] [C] [D] [E] [F] [G] [H] [I]
T. FIN. RESP. METHOD:	I - NOT YET REQUIRED	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J]

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY

OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by tank id number on front, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Powell-Christensen Inc

Name and Official Title of UST Owner or UST Owners's Authorized Representative

Tony Ch / Inc — 4/7/93 — (509) 582-2115

Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

FOR OFFICE USE ONLY - DO NOT WRITE BELOW THIS LINE

DATE RECEIVED:

PERMIT ISSUED:

VALIDATED BY
DEPARTMENT OF ECOLOGY

APR 2 1 1993

EXPIRES
JUNE 30, 1994

NOTES:

UNDERGROUN. STORAGE TANK INFO .RMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

OWNER MUST SIGN THE BACK OF THIS FORM TO RECEIVE A VALID PERMIT

TANK OWNER INFORMATION

	Current Information	Corrected Information *(PRINT OR TYPE)*
A. OWNER NUMBER:	V0005570	
OWNER NAME:	POWELL-CHRISTENSEN INC.	
OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	[A] [B] [C] [D] [E] [F]
B. OWNER TYPE:	A - PRIVATE	[O]_____

TANK SITE INFORMATION

	Current Information	Corrected Information *(PRINT OR TYPE)*
A. SITE NUMBER:	000956	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
B. CONTACT PERSON:	DALE MCINTIRE	
CONTACT PHONE:	(509) 882-2376	
C. SITE TYPE:	A - SERVICE STATION	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

	Current Information	Corrected Information
		Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
FEES PAID (If no, please call Ecology):		
1989-1990: YES	1990-1991: YES	
1991-1992: YES	1992-1993: YES	
1993-1994: PLEASE PAY ENCLOSED INVOICE		
A. TANK ID: 1-5,8&9		
B. TANK STATUS:	A - OPERATIONAL	[A] [B]
C. INSTALLATION DATE:	10-01-1972	/ /
D. TANK SIZE:	D - 5000-9999 GALLONS	[A] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [F] [O]:_____
F. TANK CONSTRUCTION:	A - SINGLE WALL	[A] [B] [C] [D]:_____
G. COMPARTMENTS:	1	[1] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	C - TIGHTNESS TESTING	[A] [B] [C] [D] [E] [F] [G] [H]
I. TANK CORROSION PROTECTION:	B - COATED W/IMPRSD CURR	[A] [B] [C] [D] [E] [O]:_____
J. SPILL PREVENTION:	A - CATCHMENT BASIN	[A] [B] [C]
K. OVERFILL PREVENTION:	A - AUTOMATIC SHUTOFF	[A] [B] [C] [D] [E]
L. PIPING MATERIAL:	A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	A - SINGLE WALL	[A] [B] [C] [D] [E] [O]:_____
N. PUMPING SYSTEM:	B - SUCTION VALVE AT SURFACE	[A] [B] [C] [D] [E]
O. PIPING RELEASE DETECTION:	D - SPECIAL SUCTION SYSTEM	[A] [B] [C] [D] [E] [F] [G] [H]
P. PIPING CORROSION PROTECTION:	B - COATED W/IMP. CURRENT	[A] [B] [C] [D] [E] [O]:_____
Q. SUBSTANCE STORED:	A - LEADED GASOLINE	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE:	A - MOTOR FUEL FOR VEHICLES	[A] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS:	E - 1-12 TANKS	[A] [B] [C] [D] [E] [F] [G] [H] [I]
T. FIN. RESP. METHOD:	I - NOT YET REQUIRED	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J]

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY

OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by tank id number on front, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Powell-Christensen, Inc.
Name and Official Title of UST Owner or UST Owners's Authorized Representative

Signature of UST Owner or Authorized Representative | 4/1/93 Date Signed | (509) 882-2115 Telephone Number

FOR OFFICE USE ONLY - DO NOT WRITE BELOW THIS LINE

DATE RECEIVED:

PERMIT ISSUED:

VALIDATED BY
DEPARTMENT OF ECOLOGY

APR 2 1 1993

EXPIRES
JUNE 30, 1994

NOTES:

UNDERGROUND STORAGE TANK INFORMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column on the right.

OWNER MUST SIGN THE BACK OF THIS FORM TO RECEIVE A VALID PERMIT

TANK OWNER INFORMATION

Current Information	Corrected Information *(PRINT OR TYPE)*
A. OWNER NUMBER: U0005570 OWNER NAME: POWELL-CHRISTENSEN INC. OWNER ADDRESS: 501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098 OWNER PHONE: (509) 882-2115 B. OWNER TYPE: A - PRIVATE	[A] [B] [C] [D] [E] [F] [O]_____

TANK SITE INFORMATION

Current Information	Corrected Information *(PRINT OR TYPE)*
A. SITE NUMBER: 000956 SITE NAME: DEBOCKS MAIN STREET TEXACO SITE ADDRESS: 100 WEST MAIN GRANDVIEW, WA 98930-1342 B. CONTACT PERSON: DALE MCINTIRE CONTACT PHONE: (509) 882-2376 C. SITE TYPE: A - SERVICE STATION	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

Current Information	Corrected Information
FEES PAID (If no, please call Ecology): 1989-1990: YES 1990-1991: YES 1991-1992: YES 1992-1993: YES 1993-1994: PLEASE PAY ENCLOSED INVOICE	Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
A. TANK ID: 1-8,DW2	
B. TANK STATUS: A - OPERATIONAL	[A] [B]
C. INSTALLATION DATE: 10-01-1972	/ /
D. TANK SIZE: D - 5000-9999 GALLONS	[A] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL: A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [F] [O]:_____
F. TANK CONSTRUCTION: A - SINGLE WALL	[A] [B] [C] [D]:_____
G. COMPARTMENTS: 1	[1] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION: F - GROUNDWATER MONITOR	[A] [B] [C] [D] [E] [F] [G] [H]
I. TANK CORROSION PROTECTION: B - COATED W/IMPRSD CURR	[A] [B] [C] [D] [E] [O]:_____
J. SPILL PREVENTION: A - CATCHMENT BASIN	[A] [B] [C]
K. OVERFILL PREVENTION: A - AUTOMATIC SHUTOFF	[A] [B] [C] [D] [E]
L. PIPING MATERIAL: A - STEEL UNPROTECTED	[A] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION: A - SINGLE WALL	[A] [B] [C] [D] [E] [O]:_____
N. PUMPING SYSTEM A - PRESSURIZED	[A] [B] [C] [D] [E]
O. PIPING RELEASE DETECTION: E,F,D,J,C - *** UNKNOWN ***	[A] [B] [C] [D] [E] [F] [G] [H]
P. PIPING CORROSION PROTECTION: B - COATED W/IMP. CURRENT	[A] [B] [C] [D] [E] [O]:_____
Q. SUBSTANCE STORED: B - UNLEADED GASOLINE	[A] [B] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE: A - MOTOR FUEL FOR VEHICLES	[A] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS: E - 1-12 TANKS	[A] [B] [C] [D] [E] [F] [G] [H] [I]
T. FIN. RESP. METHOD: I - NOT YET REQUIRED	[A] [B] [C] [D] [E] [F] [G] [H] [I] [J]

(DO NOT DETACH - RETURN ALL PARTS OF THIS FORM TO ECOLOGY

OWNER MUST SIGN IN THIS BLOCK TO RECEIVE VALID PERMITS

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by tank id number on front, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Powell-Christensen Inc

Name and Official Title of UST Owner or UST Owners's Authorized Representative

Signature of UST Owner or Authorized Representative | 4/7/93 Date Signed | (509) 882-2115 Telephone Number

FOR OFFICE USE ONLY - DO NOT WRITE BELOW THIS LINE

DATE RECEIVED:

PERMIT ISSUED:

VALIDATED BY
DEPARTMENT OF ECOLOGY

APR 2 1 1993

EXPIRES
JUNE 30, 1994

NOTES:

UNDERGROUND STORAGE TANK INFORMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER:	V0005570	
OWNER NAME:	POWELL-CHRISTENSEN INC.	
OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	
B. OWNER TYPE:	-	[redacted] [B] [C] [D] [E] [F] [O]_____

TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER:	0000956	
SITE NAME:	DEDOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
B. CONTACT PERSON: CONTACT PHONE:		
C. SITE TYPE:	-	[redacted] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

	Current Information	Corrected Information
		Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.
A. TANK ID: 1-1,000	FEE PAID: YES	
B. TANK STATUS:	A - OPERATIONAL	[redacted] [B]
C. INSTALLATION DATE:		101 172
D. TANK SIZE:	-	[redacted] [B] [C] [D] [E] [F] [G] [H]
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[redacted] [B] [C] [D] [E] [O]:_____
F. TANK CONSTRUCTION:	-	[redacted] [B] [C] [O]:_____
G. COMPARTMENTS:		[redacted] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	-	[A] [redacted] [redacted] [D] [E] [redacted] [G] [H] [O]:_____
I. TANK CORROSION PROTECTION:	-	[A] [redacted] [C] [D] [E] [O]:_____
J. SPILL PREVENTION:	-	[redacted] [B] [C] [O]:_____
K. OVERFILL PREVENTION:	-	[redacted] [B] [C] [D] [E] [O]:_____
L. PIPING MATERIAL:	A - STEEL UNPROTECTED	[redacted] [B] [C] [D] [E] [O]:_____
M. PIPING CONSTRUCTION:	-	[redacted] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD:	-	[A] [redacted] [C] [D] [E] [O]:_____
O. PIPING RELEASE DETECTION:	-	[A] [redacted] [C] [D] [redacted] [F] [G] [O]:_____
P. PIPING CORROSION PROTECTION:	-	[A] [redacted] [C] [D] [E] [O]:_____
Q. SUBSTANCE STORED:	D - DIESEL FUEL	[A] [redacted] [C] [D] [E] [F] [G] [H] [I] [O]:_____
R. SUBSTANCE USE:	-	[redacted] [B] [C] [D] [E] [O]:_____
S. FIN. RESP. CLASS:	-	[A] [B] [C] [D] [redacted] [F] [G] [H] [I]
T. FIN. RESP. METHOD:	-	[A] [B] [C] [D] [E] [F] [G] [H] [redacted] [J]

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: G. B. Christensen Gen Mgr
Name and Official Title of UST Owner or UST Owners's Authorized Representative

G B Christensen
Signature of UST Owner or Authorized Representative

4/18/92
Date Signed

(509) 882-2115
Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

UNDERGROUND STORAGE TANK INFORMATION UPDATE

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TANK OWNER INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER:	V0005570	
OWNER NAME:	POWELL-CHRISTENSEN INC.	
OWNER ADDRESS:	501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098	
OWNER PHONE:	(509) 882-2115	[redacted] [B] [C] [D] [E] [F]
B. OWNER TYPE:	-	[O]_____

TANK SITE INFORMATION

	Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER:	000756	
SITE NAME:	DEBOCKS MAIN STREET TEXACO	
SITE ADDRESS:	100 WEST MAIN GRANDVIEW, WA 98930-1342	
B. CONTACT PERSON:		[redacted] [B] [C] [D] [E] [F] [G] [H] [I] [J]
CONTACT PHONE:		[K] [L] [M] [N] [P] [Q] [R] [S] [T]
C. SITE TYPE:	-	[O]:_____

TANK INFORMATION

	Current Information	Corrected Information
A. TANK ID: 1-5,000	FEE PAID: YES	
B. TANK STATUS:	A - OPERATIONAL	[redacted] [B]
C. INSTALLATION DATE:		10 1 72
D. TANK SIZE:	D - 5000-9999 GALLONS	[A] [B] [C] [redacted] [E] [F] [G] [H]
E. TANK MATERIAL:	A - STEEL UNPROTECTED	[redacted] [B] [C] [D] [E] [O]:_____
F. TANK CONSTRUCTION:	-	[redacted] [B] [C] [O]:_____
G. COMPARTMENTS:		[redacted] [2] [3] [4] [O]:_____
H. TANK RELEASE DETECTION:	-	[A] [redacted] [D] [E] [F] [G] [H]
I. TANK CORROSION PROTECTION:	-	[O]:_____
J. SPILL PREVENTION:	-	[A] [redacted] [C] [D] [E]
K. OVERFILL PREVENTION:	-	[O]:_____
L. PIPING MATERIAL:	A - STEEL UNPROTECTED	[redacted] [B] [C] [O]:_____
M. PIPING CONSTRUCTION:	-	[redacted] [B] [C] [D] [E] [O]:_____
N. PRODUCT DELIVERY METHOD:	-	[redacted] [B] [C] [D] [E] [O]:_____
O. PIPING RELEASE DETECTION:	-	[A] [redacted] [C] [D] [E]
P. PIPING CORROSION PROTECTION:	-	[O]:_____
Q. SUBSTANCE STORED:	B - UNLEADED GASOLINE	[A] [B] [C] [redacted] [E] [F] [G]
R. SUBSTANCE USE:	-	[O]:_____
S. FIN. RESP. CLASS:	-	[A] [redacted] [C] [D] [E]
T. FIN. RESP. METHOD:	-	[O]:_____
		[redacted] [B] [C] [D] [E] [F] [G] [H] [I]
		[O]:_____
		[redacted] [B] [C] [D] [E] [O]:_____
		[A] [B] [C] [D] [redacted] [F] [G] [H] [I]
		[A] [B] [C] [D] [E] [F] [G] [H] [redacted] [J]

Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form.

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Gary Christensen President
Name and Official Title of UST Owner or UST Owners's Authorized Representative

Gary Christensen | 5/6/92 | 882-2115
Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

UNDERGROUND STORAGE TANK INFORMATION UPDATE

Please check all of the information on this page to make sure it is correct. Make any changes on this page, and fill in any missing or incorrect information in the corrected information column.

TANK OWNER INFORMATION

Current Information	Corrected Information (PRINT OR TYPE)
A. OWNER NUMBER: U0005570 OWNER NAME: POWELL-CHRISTENSEN INC. OWNER ADDRESS: 501 E MAIN PO BOX 98 GRANDVIEW, WA 98930-0098 OWNER PHONE: (509) 882-2115 B. OWNER TYPE: -	[B] [C] [D] [E] [F] [O]_____

TANK SITE INFORMATION

Current Information	Corrected Information (PRINT OR TYPE)
A. SITE NUMBER: 000956 SITE NAME: DEBOCKS MAIN STREET TEXACO SITE ADDRESS: 100 WEST MAIN GRANDVIEW, WA 98930-1342 B. CONTACT PERSON: CONTACT PHONE: C. SITE TYPE: -	[B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M] [N] [P] [Q] [R] [S] [T] [O]:_____

TANK INFORMATION

Current Information	Corrected Information
A. TANK ID: 1-8,000 FEE PAID: YES B. TANK STATUS: A - OPERATIONAL C. INSTALLATION DATE: D. TANK SIZE: D - 5000-9999 GALLONS E. TANK MATERIAL: A - STEEL UNPROTECTED F. TANK CONSTRUCTION: - G. COMPARTMENTS: H. TANK RELEASE DETECTION: - I. TANK CORROSION PROTECTION: - J. SPILL PREVENTION: - K. OVERFILL PREVENTION: - L. PIPING MATERIAL: A - STEEL UNPROTECTED M. PIPING CONSTRUCTION: - N. PRODUCT DELIVERY METHOD: - O. PIPING RELEASE DETECTION: - P. PIPING CORROSION PROTECTION: - Q. SUBSTANCE STORED: A - LEADED GASOLINE R. SUBSTANCE USE: - S. FIN. RESP. CLASS: - T. FIN. RESP. METHOD: -	Mark out the correct choice for each item by coloring between the brackets. If the Current Information is correct, you do not need to fill in that item. See the example and instruction booklet for more information on using this form. [B] 10 / 72 [A] [B] [C] [E] [F] [G] [H] [B] [C] [D] [E] [O]:_____ [B] [C] [O]:_____ [2] [3] [4] [O]:_____ [A] [D] [F] [G] [H] [O]:_____ [A] [C] [D] [E] [O]:_____ [B] [C] [O]:_____ [B] [C] [D] [E] [O]:_____ [B] [C] [D] [E] [O]:_____ [B] [C] [D] [E] [O]:_____ [B] [C] [D] [E] [O]:_____ [A] [B] [F] [G] [O]:_____ [A] [C] [D] [E] [O]:_____ [A] [C] [D] [E] [F] [G] [H] [I] [O]:_____ [B] [C] [D] [E] [O]:_____ [A] [B] [C] [D] [F] [G] [H] [I] [A] [B] [C] [D] [E] [F] [G] [H] [J]

SWORN STATEMENT: I hereby swear under penalty of law that, based on my review of the underground storage tank self-certification of compliance and tank information update and my knowledge of the tank identified by the above tank id number, this tank is in compliance with applicable state requirements. Also, any new or corrected information required on this form has been entered accurately. I understand that false statement may result in this permit being immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

PRINT OR TYPE: Gary Christensen President
Name and Official Title of UST Owner or UST Owners's Authorized Representative

Gary Christensen — 5/6/92 — 882-2115
Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

(DO NOT DETACH. RETURN BOTH PARTS TO ECOLOGY.)

Underground St[illegible]ge Tank Self-Certification of Compliance Form

This form must be completed and signed for the underground storage tank identified below [illegible]eceive a permit from the Department of Ecology. Without a permit, the tank cannot receive product or be operated (in the case of waste oil tanks, the tank cannot have the product removed).

OWNER NUMBER: U0005570

OWNER: POWELL-CHRISTENSEN INC.
501 E MAIN PO BOX 98

GRANDVIEW, WA. 98930-

TEL NO: (509) 882-2115

TANK SIZE: 5000-9999 GALLONS
YEAR INSTALLED: 1961

SITE NUMBER: 000956

SITE: DeBocks Main street Texaco
ADDR: 100 West Main
Grandview, Wash 98930

TANK ID NO: 1-5,000
STATUS: OPERATIONAL
FY91 FEE PAID: YES

INFORMATION REGARDING FINANCIAL RESPONSIBILITY:
This must be completed for the Underground Storage Tank Permit to be validated.

1. Mark the box which accurately describes the UST identified by the above Tank ID number:
   - a. ☐ The UST is owned by the state or federal government.
   - b. ☐ The UST stores a non-petroleum hazardous substance.
   - c. ☐ The UST is a deferred tank (listed on page 9 of the guide).
   - d. ☒ None of the above.
2. Financial Responsibility Compliance Category.
   Enter the appropriate letter from page 6 or 7 of the Self-Certification Guide: D
3. Financial Responsibility Compliance Method(s).
   Enter the appropriate letter(s) from page 8 of the Self-Certification Guide: H

SWORN STATEMENT:
I hereby swear under penalty of law that, based on my review of the UST Self-Certification Guide and my knowledge of the tank identified by the above Tank ID Number, this tank is in compliance with the applicable state requirements. Also, the information required above regarding financial responsibility requirements has been accurately entered for this tank. I understand that if this is a false statement the permit for the UST may be immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

print or type: Powell-Christensen, Inc
Name and Official Title of UST Owner or UST Owner's Authorized Representative

Signature of UST Owner or Authorized Representative | Date Signed: 5/4/91 | Telephone Number: (509) 882-2115

[Do not detach. Return both parts to Ecology]

Underground St ge Tank Self-Certification of Compliance Form

This form must be completed and signed for the underground storage tank identified below eceive a permit from the Department of Ecology. Without a permit, the tank cannot receive product or be operated (in the case of waste oil tanks, the tank cannot have the product removed).

OWNER NUMBER: U0005570

OWNER: POWELL-CHRISTENSEN INC.
501 E MAIN PO BOX 98

GRANDVIEW, WA. 98930-

TEL NO: (509) 882-2115

SITE NUMBER: 000956

SITE ADDR DeBocks Main Street Texaco
100 West Main
Grandview, Wash 98930

TANK SIZE: 1000-4999 GALLONS
YEAR INSTALLED: 1978

TANK ID NO: 1-1,000
STATUS: OPERATIONAL
FY91 FEE PAID: YES

INFORMATION REGARDING FINANCIAL RESPONSIBILITY:
This must be completed for the Underground Storage Tank Permit to be validated.

1. Mark the box which accurately describes the UST identified by the above Tank ID number:
   - a. ☐ The UST is owned by the state or federal government.
   - b. ☐ The UST stores a non-petroleum hazardous substance.
   - c. ☐ The UST is a deferred tank (listed on page 9 of the guide).
   - d. ☒ None of the above.
2. Financial Responsibility Compliance Category.
   Enter the appropriate letter from page 6 or 7 of the Self-Certification Guide: D
3. Financial Responsibility Compliance Method(s).
   Enter the appropriate letter(s) from page 8 of the Self-Certification Guide: H

SWORN STATEMENT:
I hereby swear under penalty of law that, based on my review of the UST Self-Certification Guide and my knowledge of the tank identified by the above Tank ID Number, this tank is in compliance with the applicable state requirements. Also, the information required above regarding financial responsibility requirements has been accurately entered for this tank. I understand that if this is a false statement the permit for the UST may be immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

print or type: Powell-Christensen Inc
Name and Official Title of UST Owner or UST Owner's Authorized Representative

J B Christensen — Signature of UST Owner or Authorized Representative
5/1/91 — Date Signed
(509) 882-2115 — Telephone Number

[Do not detach. Return both parts to Ecology]

Underground St[illegible]ge Tank Self-Certification of Compliance Form

This form must be completed and signed for the underground storage tank identified below [illegible]eceive a permit from the Department of Ecology. Without a permit, the tank cannot receive product or be operated (in the case of waste oil tanks, the tank cannot have the product removed).

OWNER NUMBER: U0005570

OWNER: POWELL-CHRISTENSEN INC.
501 E MAIN PO BOX 98

GRANDVIEW, WA. 98930-

TEL NO: (509) 882-2115

SITE NUMBER: 000956

SITE: DeBocks Main Street Texaco
ADDR: 100 West Main
Grandview Wa 98930

TANK ID NO: 1-8,000
STATUS: OPERATIONAL
FY91 FEE PAID: YES

TANK SIZE: 5000-9999 GALLONS
YEAR INSTALLED: 1961

INFORMATION REGARDING FINANCIAL RESPONSIBILITY:

This must be completed for the Underground Storage Tank Permit to be validated.

1. Mark the box which accurately describes the UST identified by the above Tank ID number:
   - a. ☐ The UST is owned by the state or federal government.
   - b. ☐ The UST stores a non-petroleum hazardous substance.
   - c. ☐ The UST is a deferred tank (listed on page 9 of the guide).
   - d. ☒ None of the above.
2. Financial Responsibility Compliance Category. Enter the appropriate letter from page 6 or 7 of the Self-Certification Guide: D
3. Financial Responsibility Compliance Method(s). Enter the appropriate letter(s) from page 8 of the Self-Certification Guide: H

SWORN STATEMENT:

I hereby swear under penalty of law that, based on my review of the UST Self-Certification Guide and my knowledge of the tank identified by the above Tank ID Number, this tank is in compliance with the applicable state requirements. Also, the information required above regarding financial responsibility requirements has been accurately entered for this tank. I understand that if this is a false statement the permit for the UST may be immediately revoked and I may be subject to penalties under Chapter 173-360 WAC.

print or type: Powell-Christensen Inc
Name and Official Title of UST Owner or UST Owner's Authorized Representative

[signature] | 5/4/91 | (509) 882-2115
Signature of UST Owner or Authorized Representative | Date Signed | Telephone Number

[Do not detach. Return both parts to Ecology]

OWNER'S NAME = POWELL-CHRISTENSEN INC.
OWNER'S ADDR = 501 E MAIN PO BOX 98
CITY, ST ZIP = GRANDVIEW , WA 98930

PLEASE EXAMINE THIS INFORMATION CAREFULLY!

SITE #	SITE NAME AND ADDRESS	# OF TANKS REPORTED	TANK ID #	TANK SIZE (000 'S)	YEAR INSTLD	TANK STATUS
000956	~~DALE MCINTIRE~~ Phil's Main Street Texaco 100 WEST MAIN GRANDVIEW WA 98930	3				
			1-1,000	1 - 5	78	ACTIVE
			1-5,000	5 - 10	61	ACTIVE
			1-8,000	5 - 10	61	ACTIVE
001436	~~KRACHTS MOBIL~~ Donna Collier Jon's Texaco "B" & MAIN MABTON WA 98935	3				
			1-8,000	5 - 10	68	ACTIVE
			2-5,000	5 - 10	68	ACTIVE
			3-1,500	1 - 5	78	ACTIVE
001626	DISCOUNT TIRE - Mid Town Texaco 1102 MEADE AVE PROSSER WA 99350	3				
			1-8,000	5 - 10	68	ACTIVE
			2-5,000	5 - 10	68	ACTIVE
			3-1,000	1 - 5	68	ACTIVE
001635	JOHNNY'S MOBIL 636 EAST EDISON SUNNYSIDE WA 98944	3				
			1-1,000	1 - 5	56	ACTIVE
			2-1,000	1 - 5	56	ACTIVE
			3-1,000	1 - 5	56	ACTIVE
001644	MABTON MINI MART MAIN & STATE HWY 22 MABTON WA 98935	3				
			1-8,000	5 - 10	61	ACTIVE
			2-5,000	5 - 10	61	ACTIVE
			3-2,500	1 - 5	86	ACTIVE

9/27/89 ✓

9/27/89 ✓

9/27/89 ✓

changed site name 9/27/89 JS

This unit was sold to Donna Collier
P.O. Box 688
Mabton, Wa 98935
9/27/89 JS

Jon's Chevron only has one tank now

ANDREA BEATTY RINIKER
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

September 29, 1986

Dear Mr. Christensen,

Your Underground Storage Tank Notification Form is being returned to you for completion or correction. The form was returned for the reason(s) indicated below. Please complete or correct the form and resubmit it to the Department of Ecology (ATTN: Melany Vorass) by Oct. 10, 1986.

1. [ ] The information regarding individual tanks was entered incorrectly. The proper way to enter this information is to put the tank identification code for the first tank on the first row of column "a" and the additional information regarding that tank (age, capacity, etc.) on the first row of the remaining columns (use "1" - "n" only if the tank is permanently out of service). Information for each additional tank should be entered in the same way, using separate rows for each. Please carefully read and follow the instructions above each column. AN EXAMPLE, IN RED, IS ENTERED ON THE FORM WE ARE RETURNING TO YOU. PLEASE CORRECTLY COMPLETE THE BLANK FORM WE HAVE ENCLOSED.

2. [X] The following section(s) of the form were not completed, or were completed incorrectly.

I. OWNERSHIP OF THE TANK(S) (Page 1)

___ Ownership Status (current owner, former owner, etc.)
___ Owner's Name
___ Owner's Address (please give full mailing address)
___ Owner's Phone Number
___ Type of Owner or Facility (correct code(s))

II. CONTACT PERSON AT THE TANK LOCATION (Page 1)

___ Contact Person's Name (we need at least a name or a job title)
___ Contact Person's Job Title
___ Contact Person's Phone Number

III. SITE OF THE TANKS (Page 1)

___ Facility Name or Company Site Identifier

___ Location of Tanks (Street Address, State Road, Latitude and Longitude, or Township, Range and Quarter Section)
___ Phone Number

IV. THE TOTAL NUMBER OF TANKS AT THIS SITE (Page 1)

___ Number of Tanks, Line(s)

V. CERTIFICATION (Page 1)

___ Name and Title of Owner
___ Date Signed
___ Signature

VI. INFORMATION REGARDING INDIVIDUAL TANKS (Pages 2 and 3)

___ Column(s) _____, Page 2
X Column(s) i, j, k, Page 3

3. [ ] Other: _____

If you have any questions, call 1-800-826-7716 (in Washington only) or (206) 459-6300. Please be certain to send your forms to my attention when you return them. Thank you.

Sincerely,

Melany Vorass

Melany Vorass
Underground Storage Tank Program

MV/sr

Enclosure

WASHINGTON STATE UNDERGROUND STORAGE TANK NOTIFICATION FORM

IMPORTANT: PLEASE READ ALL INSTRUCTIONS ON PAGES I-1 AND I-2 BEFORE ENTERING INFORMATION.

- ABOVEGROUND TANKS MUST BE REPORTED IF THE CONNECTED UNDERGROUND PIPING COMPRISES AT LEAST 10% OF THE OVERALL STORAGE SYSTEM (TANK AND PIPING).
- A SEPARATE FORM MUST BE USED FOR EACH SITE, EXCEPT FOR SITES WITH ONLY ONE TANK EACH. SEE THE GENERAL INSTRUCTIONS (PAGE I-2) FOR THE DEFINITION OF A SITE AND DETAILS ON REPORTING SITES WITH ONE TANK EACH.
- THERE IS ROOM IN SECTION VI FOR INFORMATION CONCERNING 15 TANKS. IF YOU HAVE MORE THAN 15 TANKS, PHOTOCOPY BOTH PAGES OF SECTION VI BEFORE ENTERING ANY INFORMATION. (IF YOU HAVE MORE THAN ONE SITE, EITHER OBTAIN MORE FORMS FROM THE DEPARTMENT OF ECOLOGY OR BE SURE TO ALSO PHOTOCOPY THIS PAGE.)
- PLEASE TYPE, OR PRINT IN INK; THE SIGNATURE UNDER "CERTIFICATION" (SECTION V) MUST BE SIGNED IN INK.

DEPT. OF ECOLOGY
MAR 31 86 000956
STATE USE ONLY

I. OWNERSHIP OF THE TANK(S)

Please enter information regarding the owner of the tank(s). If the ownership of the tank(s) is uncertain, enter information regarding the owner of the property where the tanks are located, or information regarding the former owner of the tanks. Please circle the correct letter, indicating who the information given below refers to:

A. OWNERSHIP UNCERTAIN (B. CURRENT OWNER OF TANK(S)) C. FORMER OWNER OF TANK(S) (D. PROPERTY OWNER)

E. OTHER (PLEASE SPECIFY): _____

Powell-Christensen Inc
Owner Name (Corporation, Individual, Public Agency, or Other Entity)

501 East Main PO BOX 98
Street Address

Grandview | wa | 98930-
City | State | ZIP Code

Yakima | 509 - 882 - 2115
County | Area Code | Phone Number

Type of Owner or Facility: CIRCLE CORRECT CODE(s)

CODE	TYPE	CODE	TYPE	CODE	TYPE	CODE	TYPE
(A.)	Service Station	G.	Industrial/Manufacturing	(M.)	City/Town	S.	Port District
B.	Bulk Plant	H.	Private Institution	N.	County	T.	Utility District
(C.)	Petroleum Distributor	I.	Residence (Non-Farm)	O.	State	U.	Fire Dept./District
D.	Convenience Store	J.	Farm	P.	Federal (Military)*	V.	Other Special Service District (e.g., sewer, water)
E.	Auto Dealer	K.	Airport	Q.	Federal (Non-Military)*	W.	Other
F.	Other Commercial/Retail	L.	Marina	R.	School District		

*FEDERAL FACILITIES ONLY: Please give your GSA Facility ID Number (Building Number).

II. CONTACT PERSON AT THE TANK LOCATION

The contact person should be the individual responsible for regularly monitoring the operation of the tank(s).

Dale McIntire
Name (If same as Section I, mark box here ☐)

Dealer | 509 - 882 - 2376
Job Title | Area Code | Phone Number

III. SITE OF THE TANK(s)

(If the same as Section I, mark box here. ☐) See the General Instructions (Page I-2, 2.a.) for the definition of a site.

Dale McIntire
Facility Name or Company Site Identifier, as applicable. (IF THE FACILITY IS OPERATED BY A LEASEE OR RENTER, THE NAME OF THE CORPORATION, INDIVIDUAL, PUBLIC AGENCY, OR OTHER ENTITY WHICH OPERATES THE FACILITY SHOULD BE ENTERED HERE.)

100 West Main
Street Address or State Road where the tanks are located. (IF NO STREET ADDRESS OR STATE ROAD, PLEASE ENTER THE LONGITUDE AND LATITUDE OR TOWNSHIP, RANGE, AND QUARTER SECTION WHERE THE TANKS ARE LOCATED.)

Grandview | wa | 98930-
City | State | ZIP Code

Yakima | 509 - 882 - 2376
County | Area Code | Phone Number

IV. THE TOTAL NUMBER OF TANKS AT THIS SITE

1. Number of tanks containing petroleum, which are now in use: 3
2. Number ot tanks which have stored petroleum, but are not now in use: 0
3. Number of tanks containing regulated chemicals, which are now in use: 0
4. Number of tanks which have stored regulated chemicals, but are not now in use: 0

TOTAL NUMBER OF TANKS 3

Please mark this box if the site is located on land within an Indian reservation or on other Indian trust lands ☐

V. CERTIFICATION (Please read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents. To the best of my knowledge and belief, the submitted information is true, accurate, and complete.

Gary Christensen
PRESIDENT
Name and official title of owner or owner's authorized representative or, in cases where the ownership is unknown, the name and title of the person signing the form. (PLEASE TYPE OR PRINT IN INK.)

3/25/86 — Date Signed

Gary Christensen Pres. — Signature (PLEASE SIGN IN INK)

VI. INFORMATION REGARDING INDIVIDUAL TANKS (See instructions regarding individual tanks, Page I-2)

a. Tank Identification	b. Tank Status	c. Age of the Tank	d. Capacity of the Tank	e. Tank Construction	f. Leak Detection	g. Cathodic Protection	h. Internal Protection
Please list your tanks numerically (1, 2, 3, etc.) or use an established tank identification number or code. The information in the following columns should apply to the tank identified in the corresponding row of this column.	Please put the correct letter for each tank in the appropriate row of the column below. A. Currently in use. B. Temporarily out of use. C. Permanently out of use. D. Brought into use after 5/8/86.	If the year of installation of the tank is known, please enter the last 2 digits of that year in the appropriate row. If the exact year of installation is not known, please estimate as closely as possible, using the groupings shown below (choose a letter and put it in the appropriate row.) A. Less than 1 year B. 1-2 years C. 3-5 years D. 6-10 years E. 11-15 years F. 16-20 years G. 21-30 years H. More than 30 years	Please put the correct letter for each tank in the appropriate row of the column below. If the exact capacity isn't known, please choose an estimate. A. Under 500 gallons B. 500-999 gallons C. 1,000-4,999 gallons D. 5,000-9,999 gallons E. 10,000-19,999 gallons F. Over 20,000 gallons	Please put all the letters which apply to each tank in the appropriate row of the column below. (If "Other" (H) please enter type of material.) A. Carbon Steel B. Stainless Steel C. Steel, type unknown D. Fiberglass Reinforced Plastic E. Plastic F. Concrete G. Aluminum H. Other Material (please specify) I. Unknown Material J. Single Walled K. Double Walled L. Has secondary containment M. Has overfill protection	Please put all the letters which apply to each tank in the appropriate row of the column below. (If "Other" (N) please also enter type of detection.) A. Daily inventory B. Tightness/Leak test within past year C. In-tank system D. In-piping system E. Product gauge F. Electronic sensor G. Manually sampled well(s) H. Automatically sampled well(s) I. Well or detector in secondary containment J. In-ground detector K. Between walls of double-walled tank L. Groundwater monitoring plan M. Spill Prevention Control and Countermeasure Plan N. Other (please specify) O. None	Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (C) please also enter the type of protection.) A. Sacrificial Anode/Galvanic Type B. Impressed Current Type C. Other Type (please specify) D. Cathodically Protected, Type Unknown E. None F. Unknown	Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (F or I) please also enter the type of protection.) A. Rubber Lining B. Alkyd Lining C. Epoxy Lining D. Phenolic Lining E. Glass Lining F. Other Lining (please specify) G. Lined, type unknown H. Unlined I. Other Internal protection (please specify) J. Unknown
1- 8,000	A	G	D	C	A	F	J
1-5,000	A	G	D	C	A ≠ B	F	J
1- 1000	A	D	C	C	A	F	J

Tank Identification Please enter the same identification used in column a.	i. External Protection of the Tank Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (D or G) please also enter the type of coating and/or wrapping.) A. Asphalt Coated B. Fiberglass Reinforced Plastic Coated C. Epoxy Coated D. Other Coating (please specify) E. Vinyl Wrapped F. Polyethylene Wrapped G. Other Wrapping (please specify) H. None I. Unknown	j. Piping Please enter all the letters which apply to the portion of the piping which is underground. (If "Other" (D) please also enter the type of material.) A. Bare Steel B. Galvanized Steel C. Fiberglass Reinforced Plastic D. Other Material (please specify) E. Coated with non-corrosive materials F. Cathodically Protected G. Double-walled H. Within a secondary containment I. Protected with interior lining J. In native soil rather than backfill K. In backfill rather than native soil L. Not certain regarding backfill/native soil M. Details of piping are unknown N. None of the piping is underground	k. Type of Substance Currently or Last Stored in the Tank Please put the correct letter for each tank in the appropriate row of the column below. 1. If the substance is a hazardous substance (J) rather than a petroleum product, please also enter the name of the substance or its Chemical Abstract Service (CAS) number. (See "What Substances Are Covered"? on page 1-1 of the instructions for information regarding hazardous substances.) 2. If different substances are stored in the tank at different times, or if a mixture of substances is stored, please enter all letters which apply. A. Leaded gasoline B. Unleaded gasoline C. Alcohol enriched gasoline D. Diesel fuel E. Aviation fuel F. Kerosene G. Nos. 1, 2, or 4 fuel oil H. Nos. 5 or 6 fuel oil I. Used oil/Waste oil J. Hazardous substance K. Other (Please specify) L. Unknown M. Empty	**THESE ITEMS REFER ONLY TO TANKS PERMANENTLY OUT OF SERVICE. PLEASE LEAVE THE ROWS FOR THE TANKS STILL IN SERVICE BLANK.** l. Date of Last Use If the exact month and year of last use isn't known, please enter an estimate. (Use two digits for the month and two for the year; e.g., 06-84.)	m. Quantity Left in the Tank If the exact amount left in the tank isn't known, please enter an estimate, in gallons.	n. Was the Tank Filled? Was the tank filled with an inert material, such as sand or concrete? Was it filled with water? Please put the correct letter in the appropriate row of the column below. A. The tank was filled with an inert material. B. The tank was filled with water. C. The tank was not filled. D. Unknown
1-8,000	A	M L	A			
1-5,000	A	M L	B			
1-1,000	A	M L	D			

WASHINGTON STATE UNDERGROUND STORAGE TANK NOTIFICATION FORM

IMPORTANT: PLEASE READ ALL INSTRUCTIONS ON PAGES I-1 AND I-2 BEFORE ENTERING INFORMATION.

- ABOVEGROUND TANKS MUST BE REPORTED IF THE CONNECTED UNDERGROUND PIPING COMPRISES AT LEAST 10% OF THE OVERALL STORAGE SYSTEM (TANK AND PIPING).
- A SEPARATE FORM MUST BE USED FOR EACH SITE, EXCEPT FOR SITES WITH ONLY ONE TANK EACH. SEE THE GENERAL INSTRUCTIONS (PAGE I-2) FOR THE DEFINITION OF A SITE AND DETAILS ON REPORTING SITES WITH ONE TANK EACH.
- THERE IS ROOM IN SECTION VI FOR INFORMATION CONCERNING 15 TANKS. IF YOU HAVE MORE THAN 15 TANKS, PHOTOCOPY BOTH PAGES OF SECTION VI BEFORE ENTERING ANY INFORMATION. (IF YOU HAVE MORE THAN ONE SITE, EITHER OBTAIN MORE FORMS FROM THE DEPARTMENT OF ECOLOGY OR BE SURE TO ALSO PHOTOCOPY THIS PAGE.)
- PLEASE TYPE, OR PRINT IN INK; THE SIGNATURE UNDER "CERTIFICATION" (SECTION V) MUST BE SIGNED IN INK.

000956

STATE USE ONLY

I. OWNERSHIP OF THE TANK(S)

Please enter information regarding the owner of the tank(s). If the ownership of the tank(s) is uncertain, enter information regarding the owner of the property where the tanks are located, or information regarding the former owner of the tanks. Please circle the correct letter, indicating who the information given below refers to:

A. OWNERSHIP UNCERTAIN (B) CURRENT OWNER OF TANK(S) C. FORMER OWNER OF TANK(S) (D) PROPERTY OWNER

E. OTHER (PLEASE SPECIFY): _____

Powell-Christensen Inc.
Owner Name (Corporation, Individual, Public Agency, or Other Entity)

501 East main
Street Address

Grandview | WA | 98930-
City | State | ZIP Code

Yakima | 509 - 882 - 2115
County | Area Code | Phone Number

Type of Owner or Facility: CIRCLE CORRECT CODE(s)

CODE	TYPE	CODE	TYPE	CODE	TYPE	CODE	TYPE
(A)	Service Station	G.	Industrial/Manufacturing	(M)	City/Town	S.	Port District
B.	Bulk Plant	H.	Private Institution	N.	County	T.	Utility District
(C)	Petroleum Distributor	I.	Residence (Non-Farm)	O.	State	U.	Fire Dept./District
D.	Convenience Store	J.	Farm	P.	Federal (Military)*	V.	Other Special Service District (e.g., sewer, water)
E.	Auto Dealer	K.	Airport	Q.	Federal (Non-Military)*	W.	Other
F.	Other Commercial/Retail	L.	Marina	R.	School District		

*FEDERAL FACILITIES ONLY: Please give your GSA Facility ID Number (Building Number). _____

II. CONTACT PERSON AT THE TANK LOCATION

The contact person should be the individual responsible for regularly monitoring the operation of the tank(s).

Dale McIntire
Name (If same as Section I, mark box here ☐)

Dealer | 509 - 882 - 2376
Job Title | Area Code | Phone Number

III. SITE OF THE TANK(s)

(If the same as Section I, mark box here ☐) See the General Instructions (Page I-2, 2.a.) for the definition of a site.

Dale McIntire
Facility Name or Company Site Identifier, as applicable. (IF THE FACILITY IS OPERATED BY A LEASEE OR RENTER, THE NAME OF THE CORPORATION, INDIVIDUAL, PUBLIC AGENCY, OR OTHER ENTITY WHICH OPERATES THE FACILITY SHOULD BE ENTERED HERE.)

100 West Main
Street Address or State Road where the tanks are located. (IF NO STREET ADDRESS OR STATE ROAD, PLEASE ENTER THE LONGITUDE AND LATITUDE OR TOWNSHIP, RANGE, AND QUARTER SECTION WHERE THE TANKS ARE LOCATED.)

Grandview | WA | 98930-
City | State | ZIP Code

Yakima | 509 - 882 - 2376
County | Area Code | Phone Number

IV. THE TOTAL NUMBER OF TANKS AT THIS SITE

1.	Number of tanks containing petroleum, which are now in use:	3
2.	Number ot tanks which have stored petroleum, but are not now in use:	0
3.	Number of tanks containing regulated chemicals, which are now in use:	0
4.	Number of tanks which have stored regulated chemicals, but are not now in use:	0
	TOTAL NUMBER OF TANKS	3

Please mark this box if the site is located on land within an Indian reservation or on other Indian trust lands ☐

V. CERTIFICATION (Please read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents. To the best of my knowledge and belief, the submitted information is true, accurate, and complete.

Gary Christensen - Pres.

Name and official title of owner or owner's authorized representative or, in cases where the ownership is unknown, the name and title of the person signing the form. (PLEASE TYPE OR PRINT IN INK.)

3/25/86 | Gary Christensen Pres
Date Signed | Signature (PLEASE SIGN IN INK)

VI. INFORMATION REGARDING INDIVIDUAL TANKS (See instructions regarding individual tanks, Page I-2)

a. Tank Identification	b. Tank Status	c. Age of the Tank	d. Capacity of the Tank	e. Tank Construction	f. Leak Detection	g. Cathodic Protection	h. Internal Protection
Please list your tanks numerically (1, 2, 3, etc.) or use an established tank identification number or code. The information in the following columns should apply to the tank identified in the corresponding row of this column.	Please put the correct letter for each tank in the appropriate row of the column below. A. Currently in use. B. Temporarily out of use. C. Permanently out of use. D. Brought into use after 5/8/86.	If the year of installation of the tank is known, please enter the last 2 digits of that year in the appropriate row. If the exact year of installation is not known, please estimate as closely as possible, using the groupings shown below (choose a letter and put it in the appropriate row.) A. Less than 1 year B. 1-2 years C. 3-5 years D. 6-10 years E. 11-15 years F. 16-20 years G. 21-30 years H. More than 30 years	Please put the correct letter for each tank in the appropriate row of the column below. If the exact capacity isn't known, please choose an estimate. A. Under 500 gallons B. 500-999 gallons C. 1,000-4,999 gallons D. 5,000-9,999 gallons E. 10,000-19,999 gallons F. Over 20,000 gallons	Please put all the letters which apply to each tank in the appropriate row of the column below. (If "Other" (H) please enter type of material.) A. Carbon Steel B. Stainless Steel C. Steel, type unknown D. Fiberglass Reinforced Plastic E. Plastic F. Concrete G. Aluminum H. Other Material (please specify) I. Unknown Material J. Single Walled K. Double Walled L. Has secondary containment M. Has overfill protection	Please put all the letters which apply to each tank in the appropriate row of the column below. (If "Other" (N) please also enter type of detection.) A. Daily inventory B. Tightness/Leak test within past year C. In-tank system D. In-piping system E. Product gauge F. Electronic sensor G. Manually sampled well(s) H. Automatically sampled well(s) I. Well or detector in secondary containment J. In-ground detector K. Between walls of double-walled tank L. Groundwater monitoring plan M. Spill Prevention Control and Countermeasure Plan N. Other (please specify) O. None	Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (C) please also enter the type of protection.) A. Sacrificial Anode/Galvanic Type B. Impressed Current Type C. Other Type (please specify) D. Cathodically Protected, Type Unknown E. None F. Unknown	Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (F or I) please also enter the type of protection.) A. Rubber Lining B. Alkyd Lining C. Epoxy Lining D. Phenolic Lining E. Glass Lining F. Other Lining (please specify) G. Lined, type unknown H. Unlined I. Other Internal protection (please specify) J. Unknown
1-(8000)	A	G	D	C	A	F	J
2-(5000)	A	G	D	C	A & B	F	J
3-(1000)	A	D	C	C	A	F	J

Tank Identification Please enter the same identification used in column a.	i. External Protection of the Tank Please put the correct letter for each tank in the appropriate row of the column below. (If "Other" (D or G) please also enter the type of coating and/or wrapping.) A. Asphalt Coated B. Fiberglass Reinforced Plastic Coated C. Epoxy Coated D. Other Coating (please specify) E. Vinyl Wrapped F. Polyethylene Wrapped G. Other Wrapping (please specify) H. None I. Unknown	j. Piping Please enter all the letters which apply to the portion of the piping which is underground. (If "Other" (D) please also enter the type of material.) A. Bare Steel B. Galvanized Steel C. Fiberglass Reinforced Plastic D. Other Material (please specify) E. Coated with non-corrosive materials F. Cathodically Protected G. Double-walled H. Within a secondary containment I. Protected with interior lining J. In native soil rather than backfill K. In backfill rather than native soil L. Not certain regarding backfill/native soil M. Details of piping are unknown N. None of the piping is underground	k. Type of Substance Currently or Last Stored in the Tank Please put the correct letter for each tank in the appropriate row of the column below. 1. If the substance is a hazardous substance (J) rather than a petroleum product, please also enter the name of the substance or its Chemical Abstract Service (CAS) number. (See "What Substances Are Covered"? on page I-1 of the instructions for information regarding hazardous substances.) 2. If different substances are stored in the tank at different times, or if a mixture of substances is stored, please enter all letters which apply. A. Leaded gasoline B. Unleaded gasoline C. Alcohol enriched gasoline D. Diesel fuel E. Aviation fuel F. Kerosene G. Nos. 1, 2, or 4 fuel oil H. Nos. 5 or 6 fuel oil I. Used oil/Waste oil J. Hazardous substance K. Other (Please specify) L. Unknown M. Empty	**THESE ITEMS REFER ONLY TO TANKS PERMANENTLY OUT OF SERVICE. PLEASE LEAVE THE ROWS FOR THE TANKS STILL IN SERVICE BLANK.** l. Date of Last Use If the exact month and year of last use isn't known, please enter an estimate. (Use two digits for the month and two for the year; e.g., 06-84.)	m. Quantity Left in the Tank If the exact amount left in the tank isn't known, please enter an estimate, in gallons.	n. Was the Tank Filled? Was the tank filled with an inert material, such as sand or concrete? Was it filled with water? Please put the correct letter in the appropriate row of the column below. A. The tank was filled with an inert material. B. The tank was filled with water. C. The tank was not filled. D. Unknown
1	A	B, L	A			
2	A	B, L	B			
3	A	B, L	D			

101 West Wine Country Road



BUILDING REFINEMENTS:

ADD INT. FINISH - RETAIL AREA 8X4		
FLR. COVER 1.45, INT. 44		
CEILING .66 = 2.55 X 826 =		2106
	CCM	1.01
	LCM	1.10
		2340
	TOTAL	

CONSTRUCTION FEATURES		YARD AND MISCELLANEOUS IMPROVEMENTS		
Excavation		BULK PLANT		
Foundation		2 - 5000 GAL TANKS-U.G.	3150	6300
Frame		1 - 10 000	" "	5200
Exterior Walls		1 - 15 000	" "	7050
Pilasters		PIPING (4 TANK - 3 DISP.)		2200
Basement Walls				20750
Wall Ornamentation			CCM	1.07
Roof Structure			LCM	1.07
Roof Trusses and Beams				
Roof Cover		SEC 4		23757
Floor Structure				
Floor Covering				
Ext. Wall Finish Int. Wall Finish				
Partitions				
Ceiling Finish				
Insulation (walls ceiling roof)				
Toilets Wash Basins Urinals Tubs Shower				
Water Heaters Misc. Plumbing				
Heating			TOTAL (Fwd. to Front)	
Cooling		REMARKS:		
Sprinklers				
Fencing				
Lighting				
Special Features				
Parking Area		20 30 035		

Appendix C

EDR Aerial Photo Decade Package and Certified Sanborn Map Report

Former Mobil Station 99GRA

101 West Wine Country Road

Grandview, WA 98930

Inquiry Number: 5933380.11

January 13, 2020

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

01/13/20

Site Name:

Former Mobil Station 99GRA
101 West Wine Country Road
Grandview, WA 98930
EDR Inquiry # 5933380.11

Client Name:

Cardno
801 Second Ave, Suite 1150
Seattle, WA 98104
Contact: Laina Cole

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1996	1"=500'	Acquisition Date: July 12, 1996	USGS/DOQQ
1990	1"=500'	Flight Date: July 08, 1990	USGS
1982	1"=500'	Flight Date: August 17, 1982	USDA
1973	1"=500'	Flight Date: July 01, 1973	USGS
1963	1"=500'	Flight Date: September 09, 1963	USGS
1952	1"=500'	Flight Date: October 17, 1952	USGS
1949	1"=500'	Flight Date: July 04, 1949	USDA
1939	1"=500'	Flight Date: June 21, 1939	USDA

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INQUIRY #: 5933380.11
YEAR: 2017
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1996
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1990
= 500'
N
EDR



INQUIRY #: 5933380.11

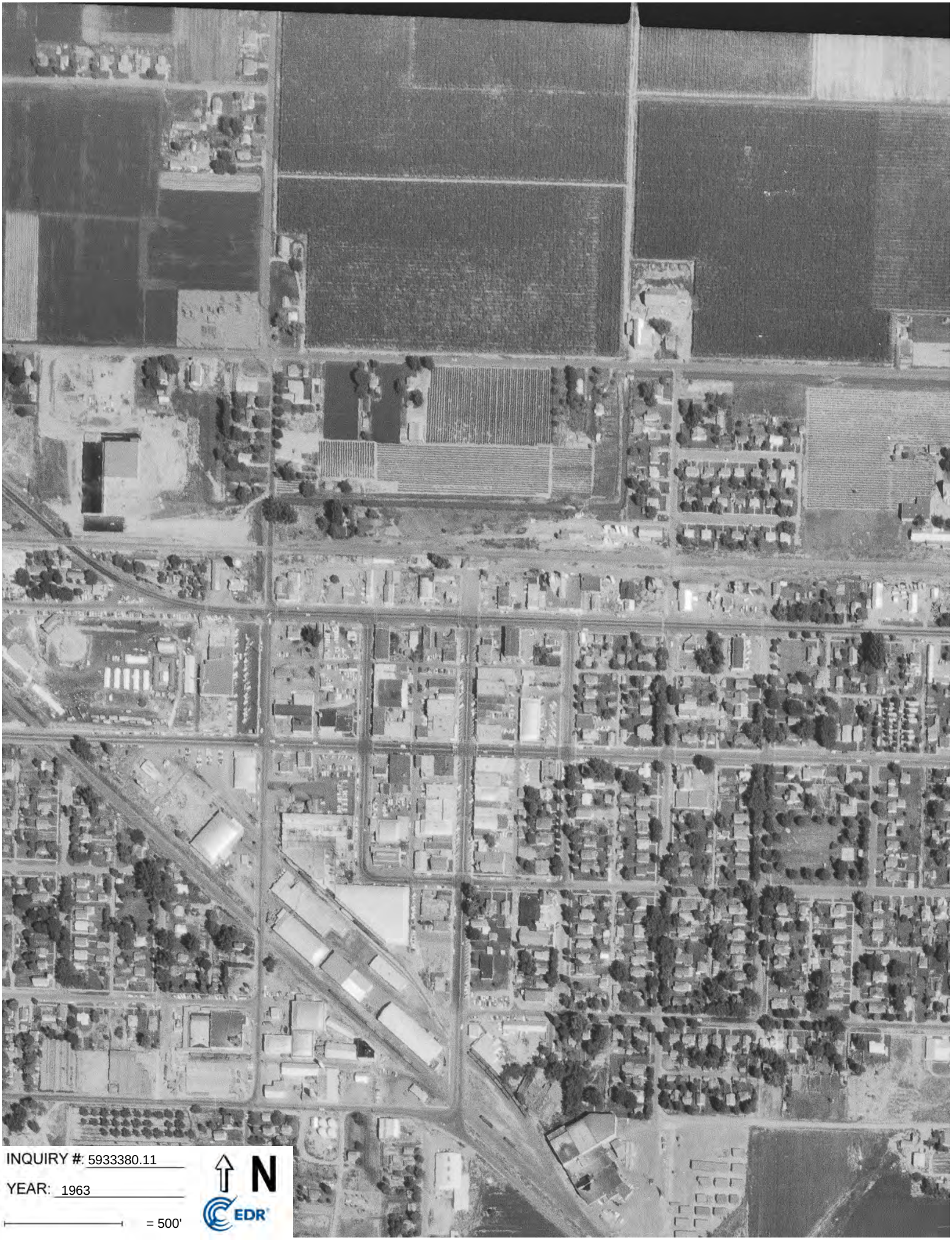
YEAR: 1982

= 500'

N

EDR


INQUIRY #: 5933380.11
YEAR: 1973
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1963
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1952
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1949
= 500'
N
EDR


INQUIRY #: 5933380.11
YEAR: 1939
= 500'
N
EDR

Former Mobil Station 99GRA
101 West Wine Country Road
Grandview, WA 98930

Inquiry Number: 5933380.3
January 13, 2020

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

01/13/20

Site Name:

Former Mobil Station 99GRA
101 West Wine Country Road
Grandview, WA 98930
EDR Inquiry # 5933380.3

Client Name:

Cardno
801 Second Ave, Suite 1150
Seattle, WA 98104
Contact: Laina Cole

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Cardno were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

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Certified Sanborn Results:

Certification # A9BE-41D8-8021

PO # Former Mobil Station 99GRA

Project 0312294220

Maps Provided:

1952
1942
1931
1925
1920
1915

Sanborn® Library search results

Certification #: A9BE-41D8-8021

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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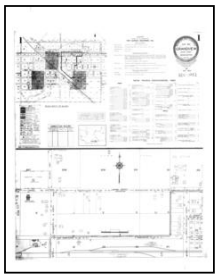
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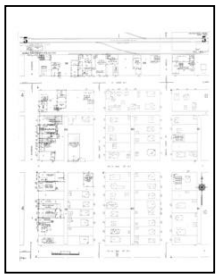
Sanborn Sheet Key

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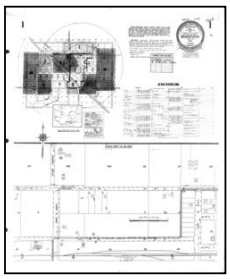
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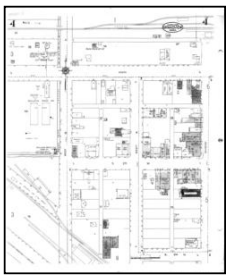

Volume 1, Sheet Keymap/Sheet 1
1952

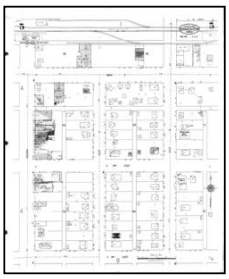

Volume 1, Sheet 4
1952


Volume 1, Sheet 5
1952

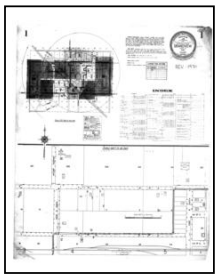
1942 Source Sheets

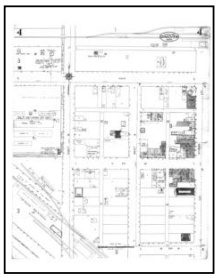

Volume 1, Sheet Keymap/Sheet 1
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Volume 1, Sheet 4
1942


Volume 1, Sheet 5
1942

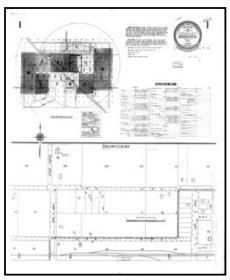
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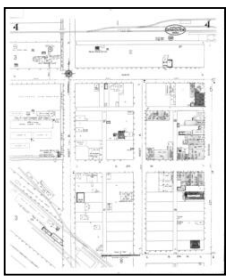

Volume 1, Sheet Keymap/Sheet 1
1931


Volume 1, Sheet 4
1931


Volume 1, Sheet 5
1931

1925 Source Sheets


Volume 1, Sheet Keymap/Sheet 1
1925

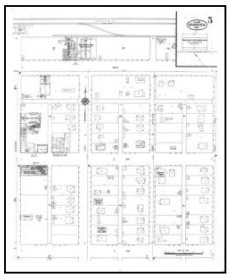

Volume 1, Sheet 4
1925


Volume 1, Sheet 5
1925

Sanborn Sheet Key

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1920 Source Sheets

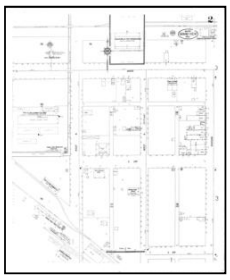


Volume 1, Sheet 5
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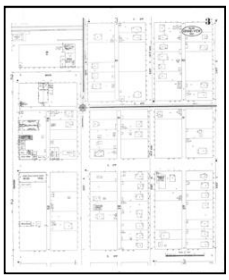


Volume 1, Sheet 4
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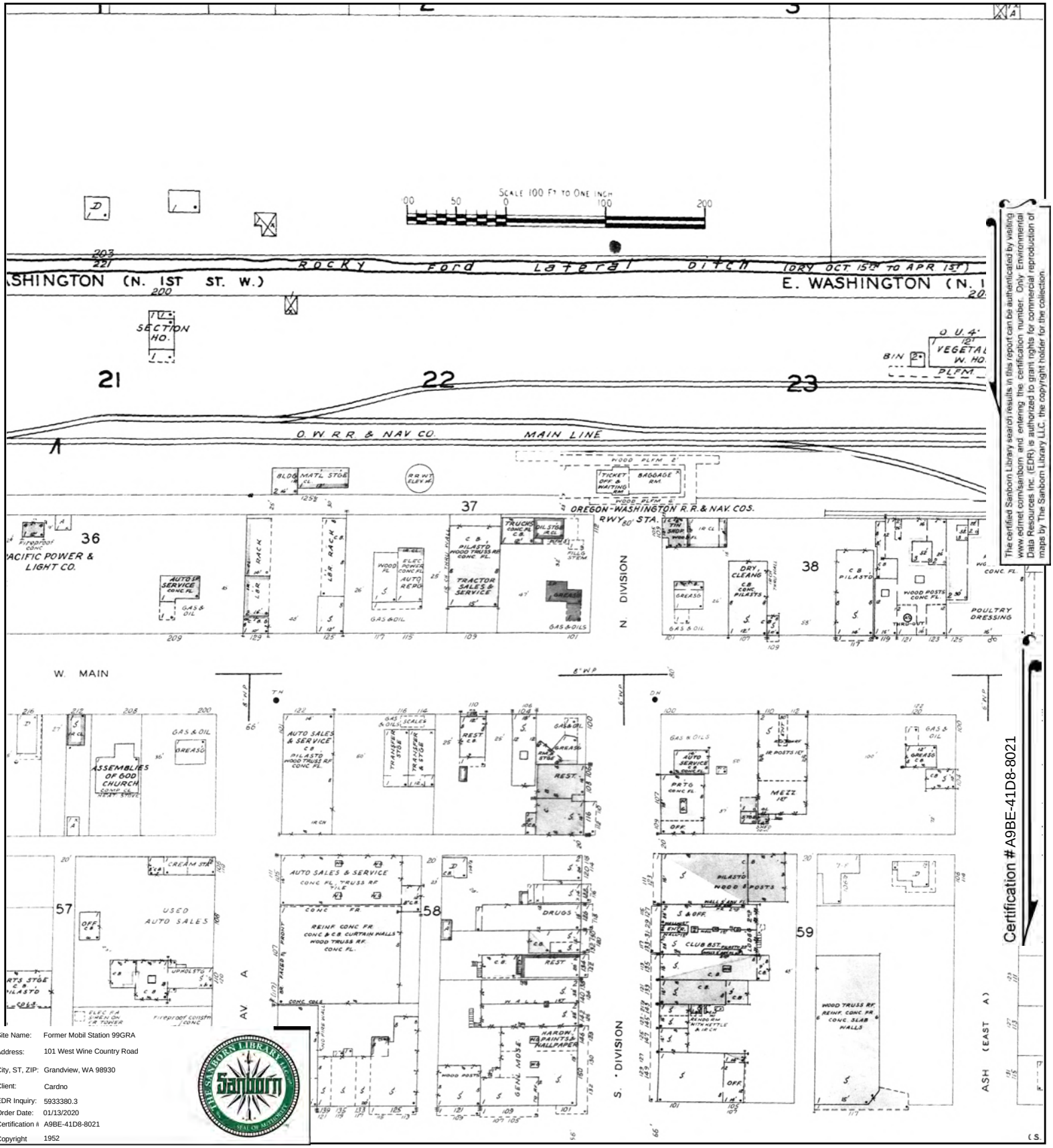
1915 Source Sheets



Volume 1, Sheet 2
1915



Volume 1, Sheet 3
1915



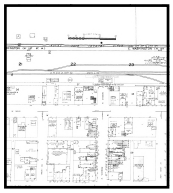
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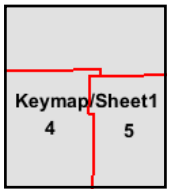
Certification # A9BE-41D8-8021

Site Name:	Former Mobil Station 99GRA
Address:	101 West Wine Country Road
City, ST, ZIP:	Grandview, WA 98930
Client:	Cardno
EDR Inquiry:	5933380.3
Order Date:	01/13/2020
Certification #	A9BE-41D8-8021
Copyright	1952

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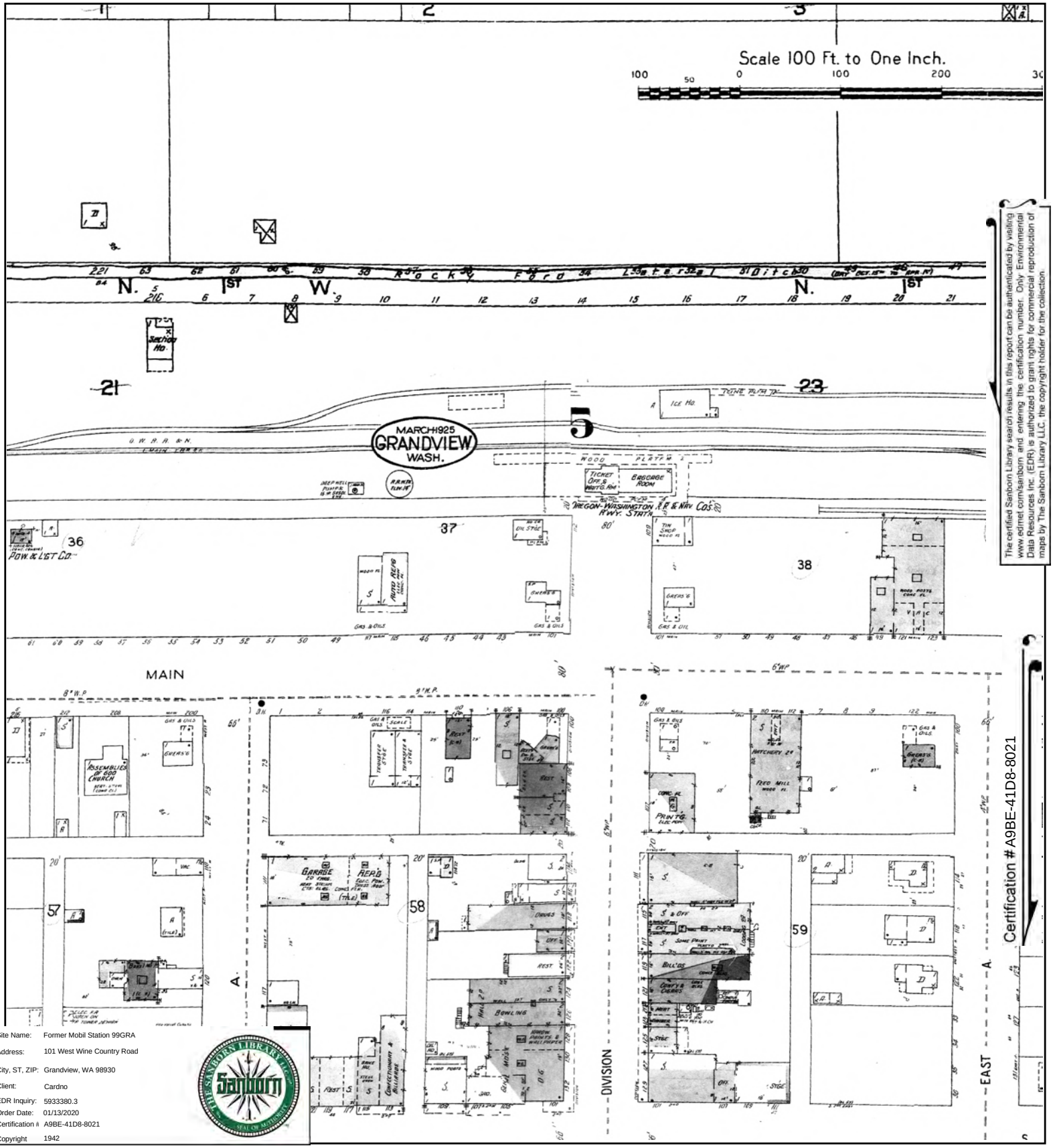
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Volume 1, Sheet 5
Volume 1, Sheet 4
Volume 1, Sheet Keymap/Sheet1

N



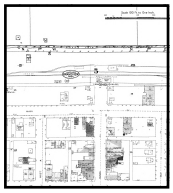
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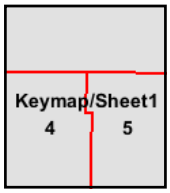
Certification # A9BE-41D8-8021

Site Name:	Former Mobil Station 99GRA
Address:	101 West Wine Country Road
City, ST, ZIP:	Grandview, WA 98930
Client:	Cardno
EDR Inquiry:	5933380.3
Order Date:	01/13/2020
Certification #	A9BE-41D8-8021
Copyright	1942

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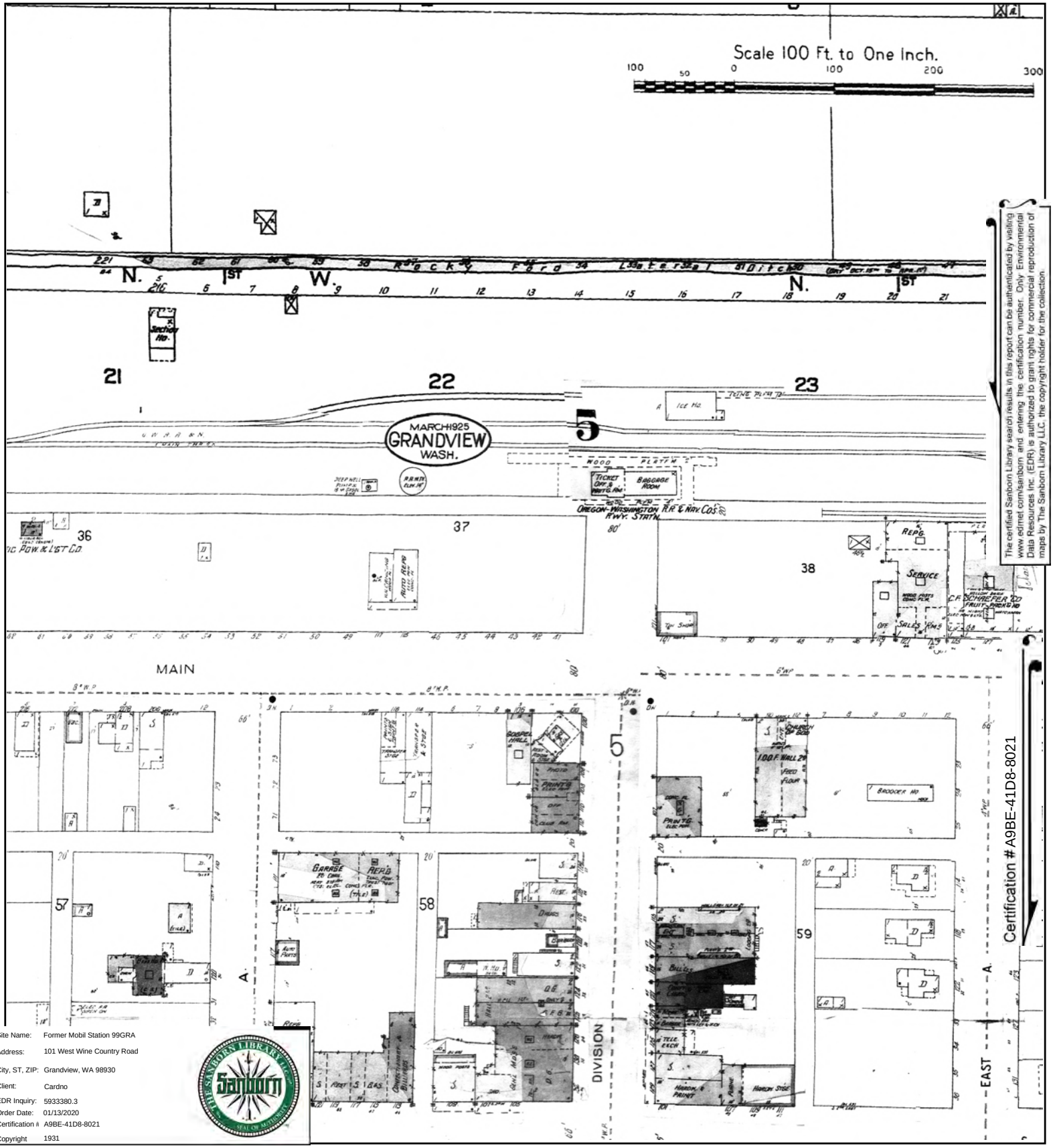
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Volume 1, Sheet 5
Volume 1, Sheet 4
Volume 1, Sheet Keymap/Sheet1

N

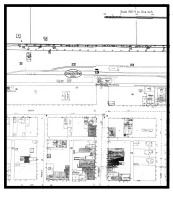


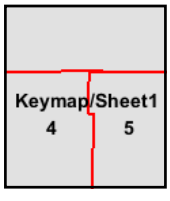
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Site Name: Former Mobil Station 99GRA
Address: 101 West Wine Country Road
City, ST, ZIP: Grandview, WA 98930
Client: Cardno
EDR Inquiry: 5933380.3
Order Date: 01/13/2020
Certification #: A9BE-41D8-8021
Copyright: 1931

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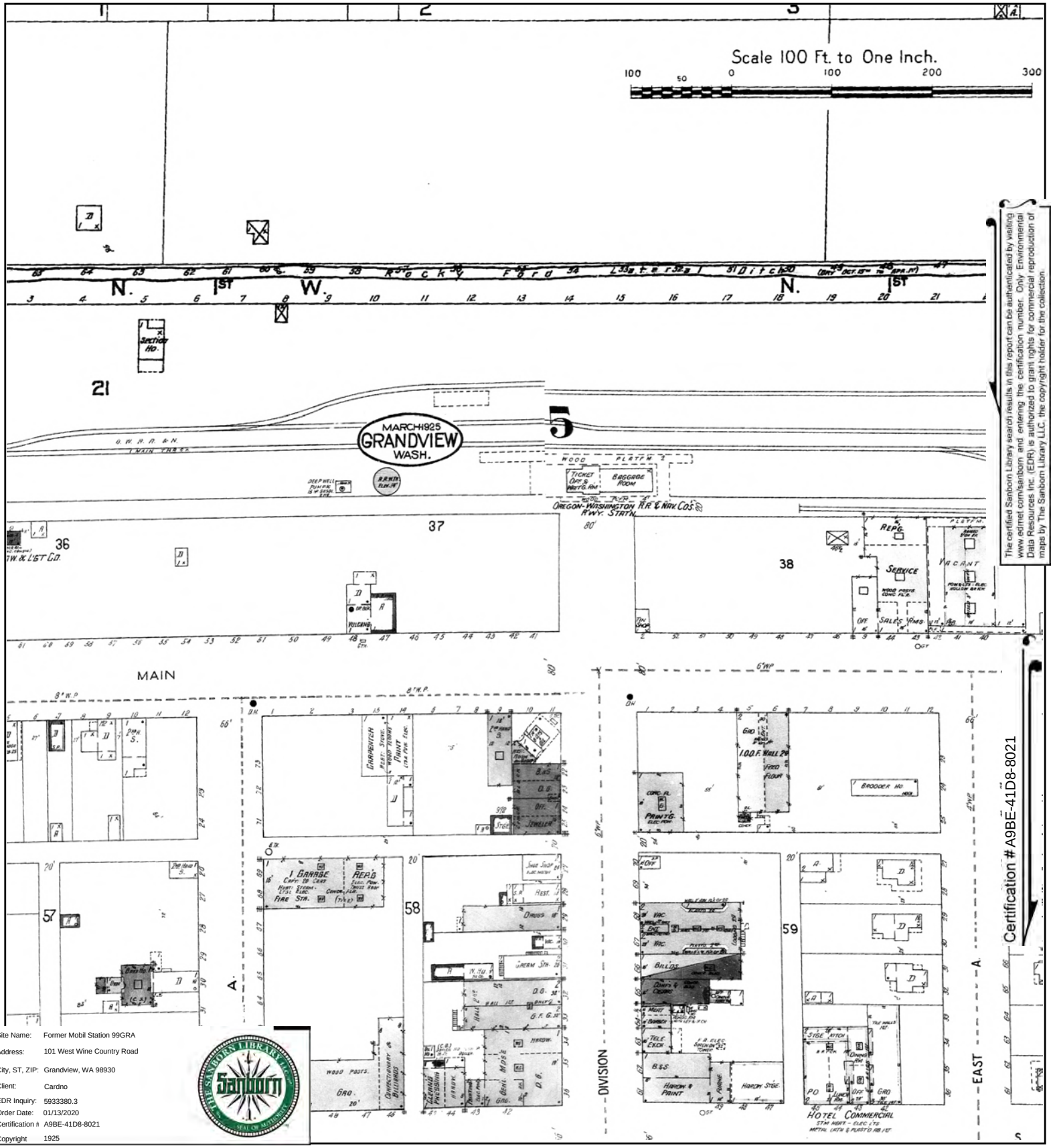
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Volume 1, Sheet 5
Volume 1, Sheet 4
Volume 1, Sheet Keymap/Sheet1

N

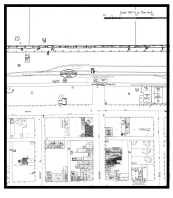


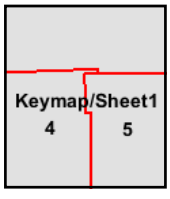
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Order Date:	01/13/2020
Certification #:	A9BE-41D8-8021
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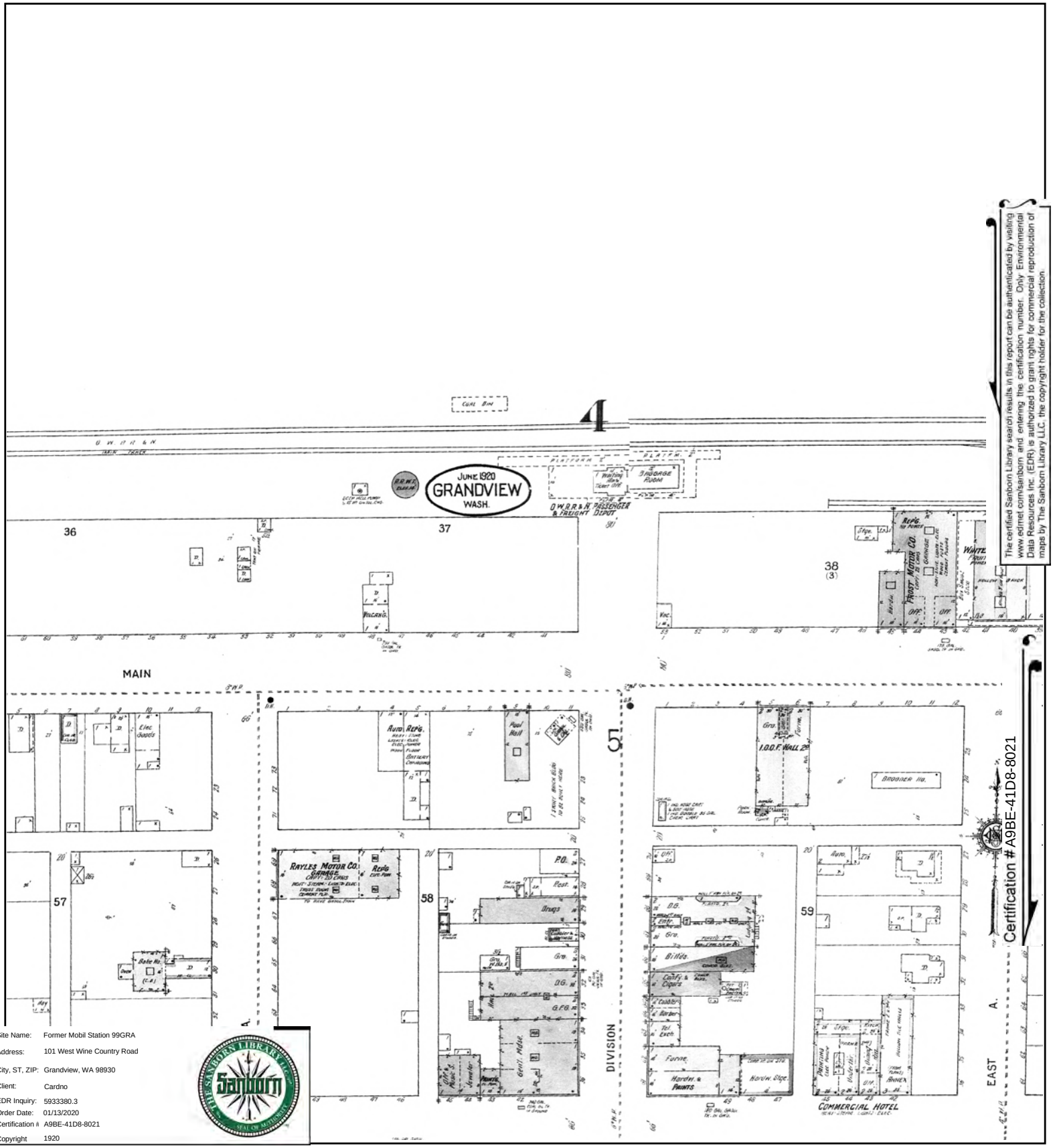
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Volume 1, Sheet 5
Volume 1, Sheet 4
Volume 1, Sheet Keymap/Sheet1

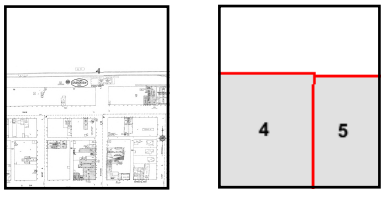
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Site Name:	Former Mobil Station 99GRA
Address:	101 West Wine Country Road
City, ST, ZIP:	Grandview, WA 98930
Client:	Cardno
EDR Inquiry:	5933380.3
Order Date:	01/13/2020
Certification #:	A9BE-41D8-8021
Copyright	1920

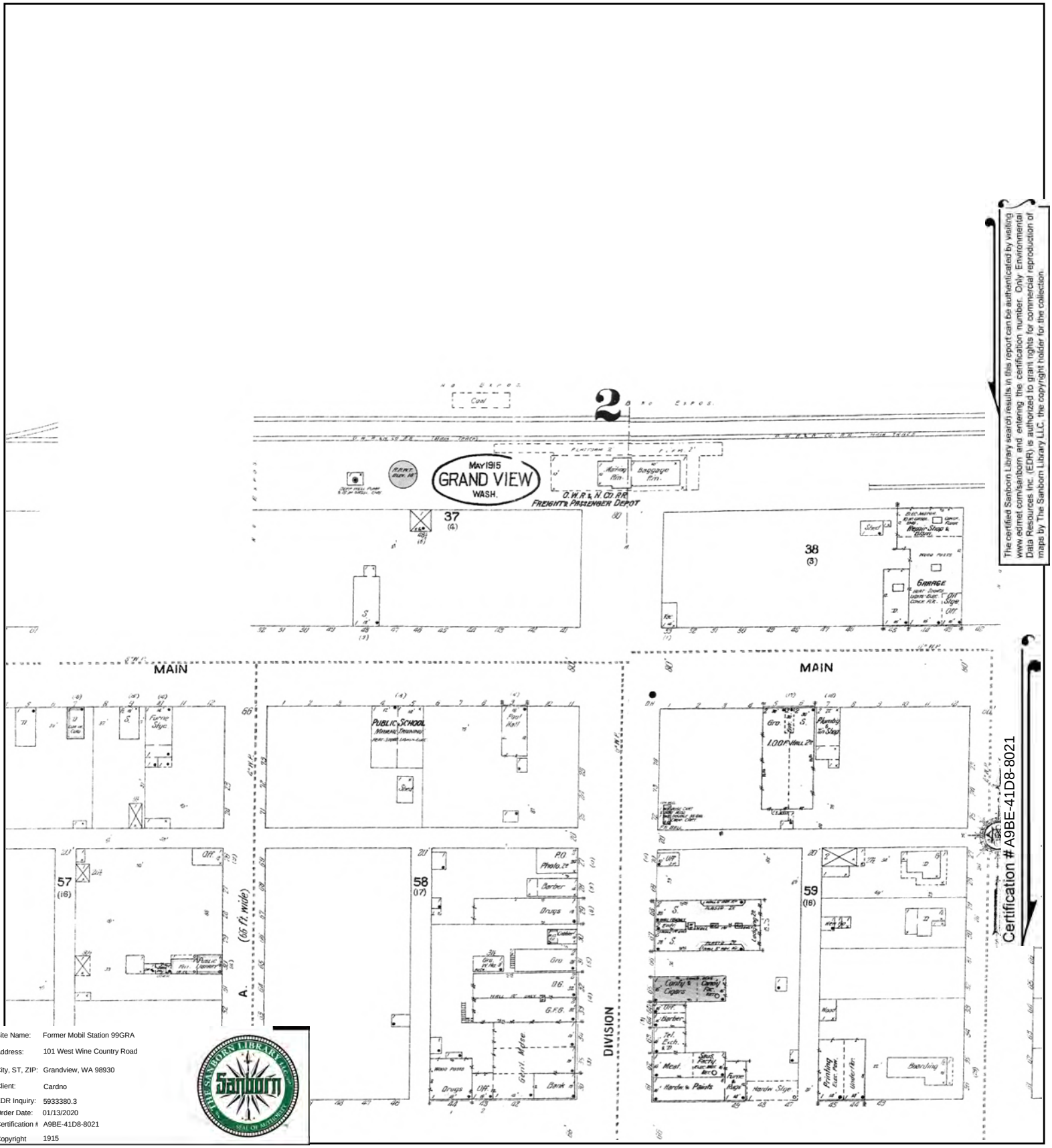
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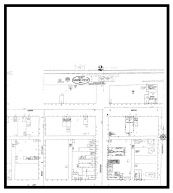
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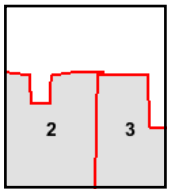
Certification # A9BE-41D8-8021

Site Name:	Former Mobil Station 99GRA
Address:	101 West Wine Country Road
City, ST, ZIP:	Grandview, WA 98930
Client:	Cardno
EDR Inquiry:	5933380.3
Order Date:	01/13/2020
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Volume 1, Sheet 3
Volume 1, Sheet 2

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Appendix D

City Well Log

Appendix D

City Well Log

The Department of Ecology does NOT Warranty the Data and/or the Information on this Web Report.

...reproduction... the written text ... on each underlying page.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No.
Permit No.

(1) OWNER: Name City of Grandview Address 114 Ave. "A" Grandview, Wash.

(2) LOCATION OF WELL: County Yakima SE 1/4 NE 1/4 Sec 23 T 9 N R 23 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 3
New well ☐ Method: Dug ☐ Bored ☒
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well inches
Drilled ft. Depth of completed well ft.

(6) CONSTRUCTION DETAILS

Casing installed 12 Diam. from 0 ft. to 243 ft.
Threaded ☐ 10 Diam. from 245 ft. to 1150 ft.
Welded ☐ Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☐ To what depth ft.
Material used in seal
Did any strata contain unusable water Yes ☐ No ☐
Type of water Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Peerless
Type HP 100

(8) WATER LEVELS: Land surface elevation above mean sea level 800 ft.
Static level 200 ft. below top of well Date 2/6/74
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was pump test made? Yes ☒ No ☐ If yes, by whom Grant
Yield gal./min. with 70 ft. drawdown after 10 hrs.

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the materials in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO

Work started 19 Completed 19

WELL DRILLER'S STATEMENT

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

NAME
Person, firm, or corporation Type or print

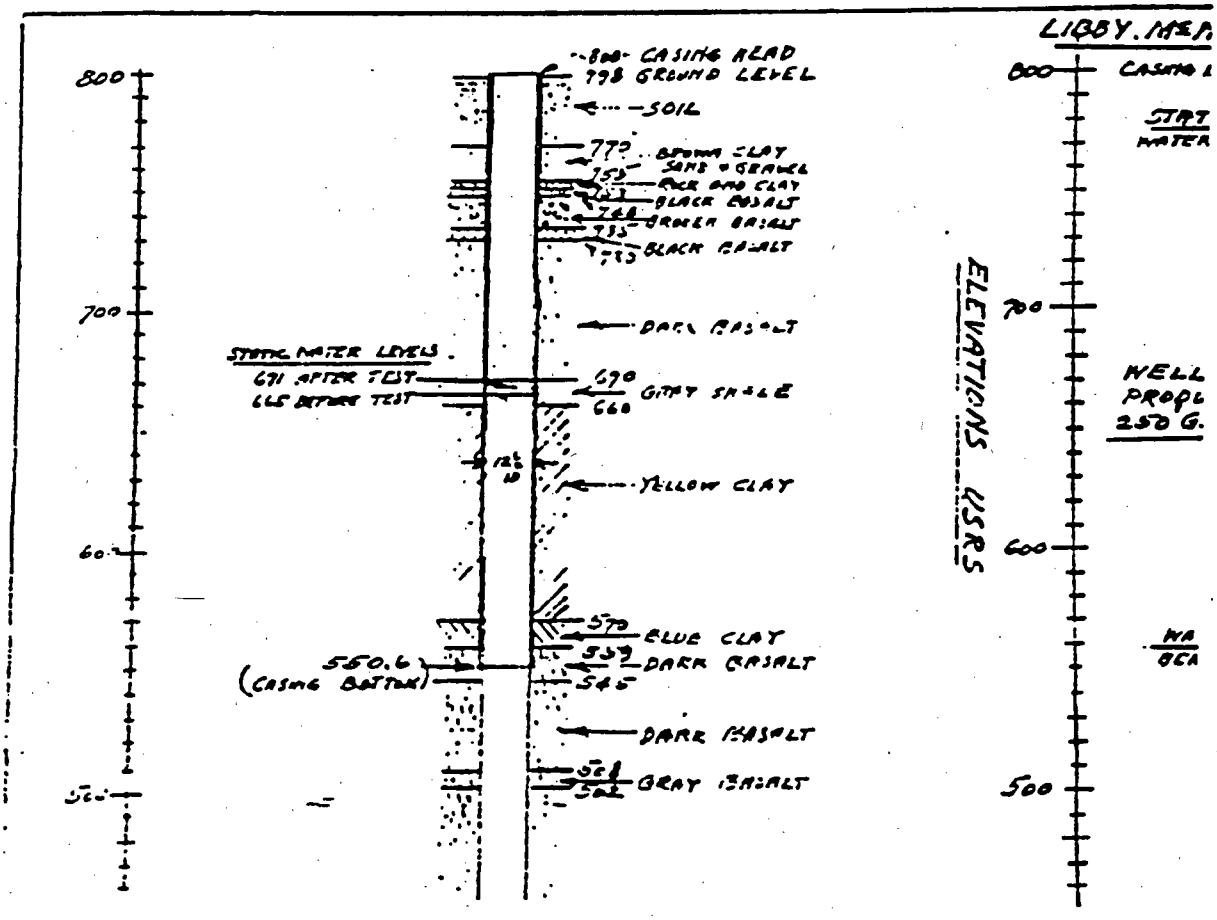
Address

[Signed]
Well Driller

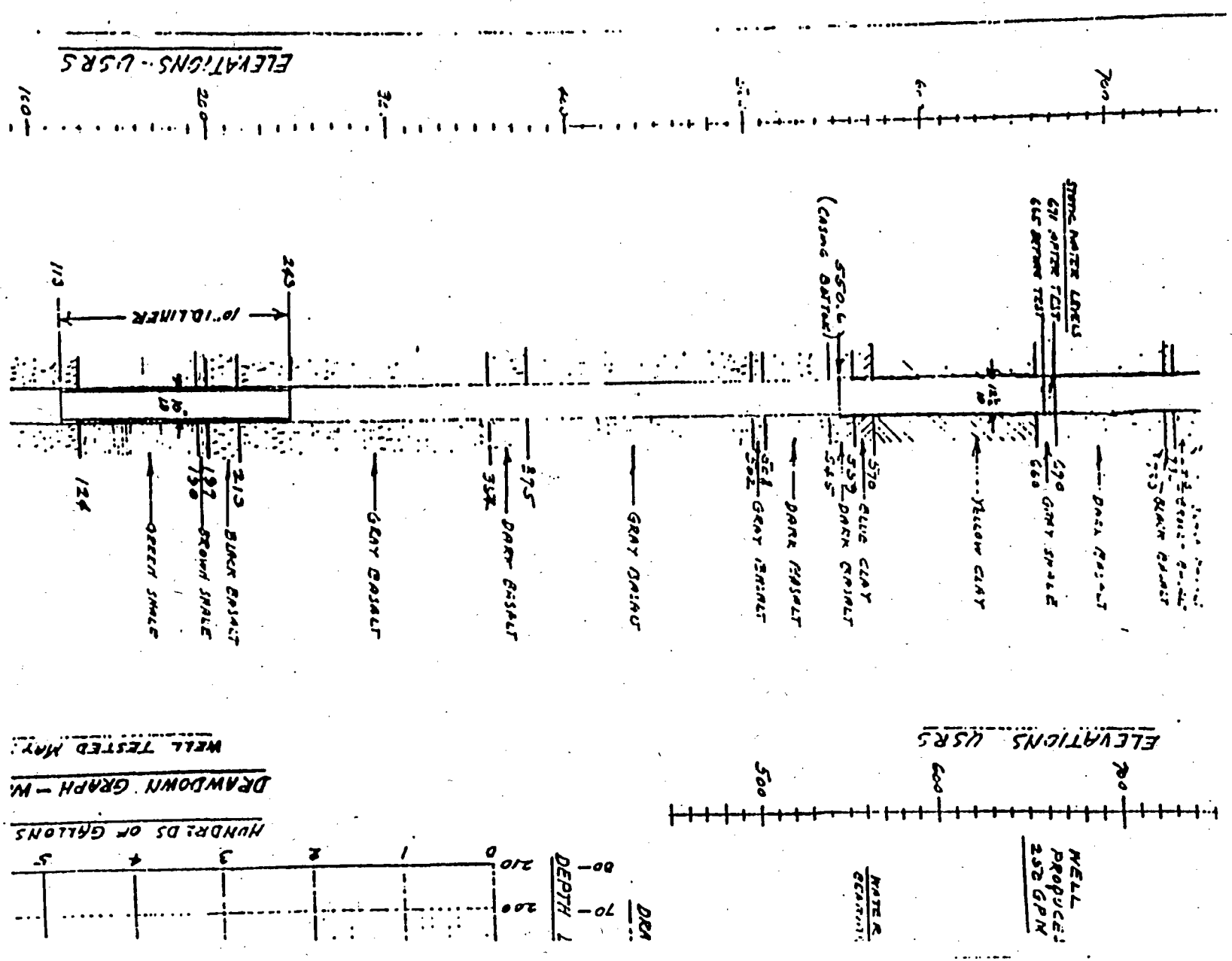
[License No.] Date 19

rk/wr8

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The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.



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Appendix E

Stantec's *Sampling and Analysis Plan*

Stantec Consulting Services Inc.
1687 114th Avenue Southeast, Suite 100
Bellevue WA 98004-6965

August 13, 2025

Project 203724605.SAP25

Chelsea Wisotzkey
Washington State Department of Ecology
Central Region Office
1250 West Alder Street
Union Gap, Washington 98903
chelsea.wisotzkey@ecy.wa.gov

Reference: Sampling and Analysis Plan – 101 East and 101 West, DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington, Facility Site ID: 94369212, Cleanup Site ID: 6910

Dear Ms. Wisotzkey,

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) is submitting the enclosed *Sampling and Analysis Plan – 101 East and 101 West*, dated August 13, 2025.

Please contact me using the contact information listed below with questions.

Regards,

Stantec Consulting Services Inc.



Ryan Pozzuto
Project Manager
Mobile: (206) 510-6681
ryan.pozzuto @stantec.com

c. James P. Kiernan, Chevron Environmental Management Company (Email)
Christopher Gaule, ExxonMobil Environmental and Property Solutions Company (Email)
Brandon Christensen, Powell Distributing, LLC, DBA Christensen, Inc. (Email)
Daniele B. Peters, EES Environmental Consulting, Inc. (Email)

Sampling and Analysis Plan – 101 East and 101 West

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington
Facility Site ID: 94369212
Cleanup Site ID: 6910

August 13, 2025

Prepared for:
Chevron Environmental Management Company and ExxonMobil Environmental and Property Solutions Company

Prepared by:
Stantec Consulting Services Inc.

Project Number:
203724605.SAP25

The conclusions in the Report titled Sampling and Analysis Plan – 101 East and 101 West are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Chevron Environmental Management Company and ExxonMobil Environmental and Property Solutions Company (the "Clients") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

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Signature

Laina Cole, Environmental Scientist
Printed Name

Signature

Keri L. Chappell, LG 2719
Printed Name

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Acronyms / Abbreviations

AO	Agreed Order No. DE 22952
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CEMC	Chevron Environmental Management Company
Chevron	Chevron U.S.A. Inc.
COC	Chain-of-custody
DCE	cis- and/or trans-1,2-Dichloroethene
DOT	Department of Transportation
DRPH	Diesel range petroleum hydrocarbons
DTW	Depth to water
Ecology	Washington State Department of Ecology
EDB	Ethylene dibromide
EDC	1,2-Dichloroethane
EPA	United States Environmental Protection Agency
ExxonMobil	Exxon Mobil Corporation
FS	Feasibility study
GPR	Ground penetrating radar
GRPH	Gasoline range petroleum hydrocarbons
LNAPL	Light non-aqueous phase liquid
MA APH	Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons
MS/MSD	Matrix spike/matrix spike duplicate
MTBE	methyl tert butyl ether
NTU	Nephelometric turbidity units
NWTPH	Northwest Total Petroleum Hydrocarbons
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons for Diesel/Oil Range Organics
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons for Gasoline Range Organics
ORPH	Oil range petroleum hydrocarbons
PCE	Tetrachloroethene
PID	Photoionization detector
PLP	Potentially liable person
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RI	Remedial investigation
SAP	Sampling and Analysis Plan
Site	DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington
Stantec	Stantec Consulting Services Inc.
SVS	Soil vapor sampling
TCE	Trichloroethene
USCS	Unified Soil Classification System
UST	Underground storage tank
VOA	Volatile organic analysis
VOC	Volatile organic compound
WAC	Washington Administrative Code

1 Introduction

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) prepared this Sampling and Analysis Plan (SAP) to describe the procedures and methods for the collection and analysis of environmental data associated with the remedial investigation (RI) at the 101 East and 101 West properties for the DeBocks Main Street Texaco Site (Site) comprising 100 West, 101 East, and 101 West Wine Country Road in Grandview, Washington. Environmental samples are being collected in support of an RI to identify and address data gaps by conducting field investigations to complete delineation and guide development of the feasibility study (FS) for the 101 East and 101 West properties.

All fieldwork will be conducted in accordance with Washington State Department of Ecology (Ecology) Agreed Order No. DE 22952 (AO) (Ecology, 2025), field protocols, the Quality Assurance Project Plan (QAPP), and applicable Washington Administrative Code (WAC) Chapters. Example field protocols applicable to the work in this SAP are included as Appendix A. Example field forms are included as Appendix B. The QAPP is provided as Appendix C.

2 Proposed Site Characterization

2.1 Soil Conditions

Nine groundwater monitoring well locations (MW-29 through MW-37) are proposed for soil evaluation around the 101 East and 101 West properties. Soil samples will be collected at a minimum of approximately 5-foot intervals along the length of the borings drilled to accommodate groundwater monitoring well construction. The purpose of the soil evaluation is to delineate petroleum hydrocarbons in soil beyond the known extent of soil contamination on the western edge of the 101 West property, characterize petroleum hydrocarbons in soil between the 101 East and 101 West properties, and characterize petroleum hydrocarbons in soil on the southern edge of the 101 East property.

Proposed soil sample locations are illustrated on Plate 1. Anticipated sample collection depths and locations are summarized on Table 1.

2.2 Groundwater Conditions

Groundwater is not proposed for separate assessment. All newly-installed groundwater monitoring wells will be incorporated into the existing quarterly groundwater monitoring and sampling program for the Site during the first available post-installation quarterly event. Results from the first monitoring and sampling event at the newly-installed groundwater monitoring wells will be used for decision making in regard to recommendations for additional site characterization and to inform development of the FS for the 101 East and 101 West properties.

2.3 Sub-Slab Soil Vapor Conditions

Two sub-slab soil vapor samples are proposed for collection on the 101 East property. Ideally, these will be sub-slab soil vapor pins within the footprint of the building. If building access is not granted, two shallow soil vapor samples will be collected near the front door and beneath the parking structure behind the building, outside the foundation. The purpose of the samples is to characterize sub-slab soil vapor at the 101 East property and assess whether a complete pathway for vapor intrusion exists.

Proposed sub-slab soil vapor sample locations are illustrated on Plate 1. Anticipated sample collection depths and locations are summarized on Table 1.

3 Pre-Fieldwork Procedures

3.1 Notifications

The Ecology project coordinator will be notified at least seven days in advance of any sample collection or work activity at the Site, in accordance with the AO. The property owners, tenants and other applicable parties will be notified in accordance with the access agreements or permits.

3.2 Pre-Work Authorizations

Prior to conducting field activities, the drilling subcontractor will obtain Washington start cards from Ecology in accordance with WAC 173-160-151 (WAC, 2008). No other permits are anticipated for completion of the fieldwork. Stantec anticipates submitting traffic control plans to the City of Grandview for review and approval prior to mobilization for drilling activities.

3.3 Utility Clearance

Consultant personnel will visit the Site to check for obstructions and mark the proposed groundwater monitoring well locations. Underground Service Alert will be notified at least 48 hours prior to the onset of field activities. A private utility locating service will be contracted to locate utilities or other subsurface structures at the Site. If subsurface utilities or structures are detected during the locate, the locations of the proposed borings and groundwater monitoring wells may be revised based on the information collected in the field.

4 Soil Sample Collection

Soil samples will be collected at a minimum of approximately 5-foot intervals for laboratory analysis and for geologic logging purposes. Additional soil samples may be collected from each location depending on soil conditions observed during drilling activities.

4.1 Subsurface Clearance

The proposed groundwater monitoring wells will be cleared using a combination of hand tools and soft digging methods to depths of approximately 5 to 8 feet below ground surface (bgs) (or to the bottom of any subsurface structure, whichever deeper) to avoid damage to subsurface utilities. Soft digging methods may include the use of an air knife in coordination with vacuum extraction or advancement of a hand auger.

Soil samples collected during air knife clearance will be advanced by a hand auger from 18 inches above the desired sample depth to preserve the sample integrity. After retrieving the hand auger from the desired sample depth, the contents of the hand auger will be transferred directly into a sample container or into a zip top bag and sealed. This bag will be taken to the sampling table where field personnel will use the contents to fill the required sample containers (Section 4.4).

An aliquot of soil will be transferred directly into a second zip top bag, sealed, and labeled with the location number, sample depth, date, and time; this soil will be set aside for field screening using a photoionization detector (PID) or similar field instrument for evaluation of the presence of volatile organic compounds (VOCs).

4.2 Drilling

The proposed groundwater monitoring wells will be advanced from their cleared depth of 5 to 8 feet bgs to their total depths using hollow-stem auger drilling methods. Soil samples will be collected by driving an 18-inch or 24-inch long split-spoon sampler at the desired sample depth.

Drilling subcontractor personnel will open the split-spoon sampler and deliver it to the sampling table. A soil sample from the desired depth, as estimated along the length of the split-spoon sampler, will be collected by hand using a disposable tool directly into a sample container or into a zip top bag and sealed. This bag will be taken to the sampling table where field personnel will use the contents to fill the required sample containers (Section 4.4).

An aliquot of soil will be transferred directly into a second zip top bag, sealed, and labeled with the location number, sample depth, date, and time; this soil will be set aside for field screening.

4.3 Field Screening

The zip top bag designated for field screening will be placed away from direct sunlight for a period of time that allows volatilization of chemical constituents, after which the tip of a PID or similar device will be inserted through the plastic bag to measure organic vapor concentrations in the headspace. The PID measurement is recorded on the boring log. Instruments such as the PID, equipped with a 10.6 electron volt lamp, are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of volatilized hydrocarbons in the soil matrix with the same precision as laboratory analysis. Samples will also be visually inspected for the presence of light non-aqueous phase liquid (LNAPL) or sheen.

4.4 Sample Collection, Preservation, and Handling

At the sample table, field personnel will prepare the required laboratory-supplied sample containers by inspecting them for the correct preservative, completing the labels, securing them in an upright position, and removing the caps. A single use, disposable Terra Core (or similar) sample plunger will be used to transfer a 5-gram portion of sample soil from the zip top bag to each volatile organic analysis (VOA) sample container. The transfer will be repeated using the same plunger until all sample containers are filled as required for a given sample. By hand or a disposable tool (spoon or similar) will be used to fill laboratory-supplied sample containers for non-VOC analyses. After transfer is completed for a given sample, the plunger and disposable tool will be disposed.

A summary of sample containers, preservatives, and hold times is provided in Table 2 and in the QAPP (Appendix C).

Field personnel will initiate chain-of-custody (COC) procedures in accordance with the QAPP. Samples will be promptly transported in iced storage in a thermally-insulated cooler, accompanied by the COC(s), to the analytical laboratory. An example COC is provided in Appendix B.

4.5 QA/QC Samples

The following quality assurance/quality control (QA/QC) samples will be collected during soil sampling activities:

- One equipment blank per day per type of sampling equipment.
- One field duplicate per 20 field samples.
- One sample collected for the purpose of matrix spike/matrix spike duplicate (MS/MSD) at the laboratory per 20 field samples.
- One trip blank will accompany all samples selected for VOC analysis per cooler.

5 Lithologic Logging

A trained geologist, under the supervision of a Washington State Licensed Geologist, will generate a lithologic log at each boring and groundwater monitoring well location. At a minimum, the geologist will describe the grain size, color, moisture, and estimated percentages of clay, silt, sand, and gravel in each soil sample examined. Additional characteristics that may be included in the lithologic description are angularity, grading, stratification, plasticity, and cementation. The geologist will note the depths and thicknesses of distinct soil layers and the depth at which groundwater is encountered. Soil layers will be named in general accordance with the Unified Soil Classification System (USCS).

The finished boring log will also include backfill materials used in borings and well construction materials (annular backfill, casing, surface vault) used to construct groundwater monitoring wells. An example boring log is included in Appendix B.

6 Groundwater Monitoring Well Construction

6.1 Construction Materials

Groundwater monitoring wells will be constructed with 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) casing. Slotted casing will be installed across the desired groundwater sampling depth; blank casing will be extended from the top of the slotted interval to within 6 inches below surface grade. Factory-sealed PVC casing will be used to reduce the probability of cross contamination and all casing joints will be flush threaded. The annulus of the well will be backfilled with an appropriately-sized silica sand filter pack from the total depth of the slotted casing to approximately 2 feet above the top of the slotted casing. A bentonite seal will be placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to within 12 inches of surface grade. Materials in the annulus will be installed using a tremie pipe to avoid bridging conditions. Surface completion will consist of a traffic-rated flush mount well vault. A concrete well pad will be installed around the flush mount well vault. A locking cap for the well casing will be installed to protect against surface water infiltration and unauthorized entry. No glues, chemical cements, or solvents will be used in well construction. A well identification tag with a unique identification number, supplied by Ecology, will be installed at the top of the well casing. All well installations will be completed in accordance with WAC Chapter 173-160 (WAC, 2008).

6.2 Screened Intervals

Groundwater monitoring wells will be screened in the first groundwater-bearing zone. Groundwater is expected to be encountered at approximately 18 feet bgs and wells are expected to be screened from approximately 10 to 25 feet bgs. The screened intervals may be modified depending on soil and groundwater conditions observed during drilling activities. The 15-foot screen length in existing groundwater monitoring wells at the Site has successfully accommodated seasonal fluctuations in groundwater elevation without submersion, and enabled purging prior to sample collection to proceed without dewatering. Based on other groundwater monitoring wells at the Site and expected lithologic conditions, a screened casing with 0.010-inch slots is proposed for installation.

6.3 Development

Prior to development, the static water level (depth to water [DTW]) will be measured with an interface probe to the nearest 0.01 foot. If LNAPL is present, the depth to LNAPL will be measured with an interface probe to the nearest 0.01 foot and the LNAPL thickness will be calculated. Well development will not occur in groundwater monitoring wells containing measurable LNAPL.

Development of a groundwater monitoring well can take place either before the seal is placed or after the grout has been allowed to cure a minimum of 48 hours. Field personnel or a contracted driller will use a surge block and submersible pump to develop the newly-installed well. The well will be developed until turbidity is stabilized (±10 percent on three successive readings), turbidity is measured to be 10 nephelometric turbidity units (NTU) or less, or 10 casing volumes have been removed. The volume of

groundwater extracted will be recorded on a log (example provided in Appendix B). Groundwater sampling will not commence until a minimum of 72 hours after development is completed.

7 101 East Vapor Intrusion Assessment

7.1 Sub-Slab Vapor Pin Installation

Two sub-slab soil vapor pins (SVS1 and SVS2) will be installed to collect sub-slab soil vapor samples from beneath the concrete slab of the building at 101 East Wine Country Road (Plate 1). The pins will be installed by drilling a 5/8-inch diameter hole approximately 2 inches beneath the concrete slab. A stainless-steel soil vapor pin with a surrounding silicone sleeve will then be hammered into the 5/8-inch diameter boring until the top of the vapor pin is approximately 0.25 inch above the surface of the concrete slab. The silicone vapor sleeve creates an impermeable seal separating the sub-slab and aboveground atmospheres. Tubing is then connected to the barbed fitting on the vapor pin to allow for the collection of a sub-slab soil vapor sample. A typical sub-slab soil vapor sampling (SVS) pin assembly is shown on Plate 2.

7.2 Sample Collection, Preservation, and Handling

Sub-slab soil vapor samples will be collected from SVS pins SVS1 and SVS2 using Summa canisters inside of a custom-made helium shroud. The vapor sampling assembly consists of a helium shroud, a flow regulator, a vacuum gauge, airtight valves, tubing, an electric air pump, a helium detector, and sample collection vessels (Summa canisters).

Prior to sampling, the sampling system will be assembled over the SVS pin and a leak test will be performed by evacuating all air from the sample tubing using an electric air pump. Ball valves will be used to isolate the tubing and a vacuum gauge will be used to monitor for any leaks. If the sampling system is not able to hold a vacuum, all connections will be checked and the leak test will be repeated.

Upon successful completion of the leak test, the ball valve leading to the pin will be opened, an atmosphere of 20 percent helium by volume will be introduced inside the shroud, and the sampling system will be purged using an electric pump. The purged vapor will be pumped into a Tedlar bag and tested with a helium detector to monitor for any leaks. Upon determination that no leaks were detected, the valve from the SVS pins to the pump will be closed. The valve to the Summa canister will then be opened, and a sample will be collected from the SVS pin for laboratory analysis. The Summa canisters will be filled until the pressure inside the vessel is approximately negative 5 inches of mercury, at which point the flow regulator and ball valve will be closed. An additional Tedlar bag will then be filled from each SVS pin for laboratory analysis.

Field personnel will initiate COC procedures in accordance with the QAPP. Samples will be promptly transported, accompanied by the COC(s), to the analytical laboratory. An example COC is provided in Appendix B.

7.3 QA/QC Samples

The following QA/QC samples will be collected during sub-slab soil vapor sampling activities: one field duplicate per sampling event or 20 field samples.

8 Survey

The horizontal coordinates of the sub-slab soil vapor sample locations and the newly-installed groundwater monitoring wells at the Site will be surveyed by a licensed land surveyor relative to a known datum, identified in their report. The survey subcontractor will provide the northing, easting, latitude, and longitude of all surveyed locations.

The ground surface elevation of the sub-slab soil vapor sample locations and the top of well casing elevation of the newly-installed groundwater monitoring wells will be surveyed by a licensed land surveyor relative to a known datum, identified in their report. The survey contractor will provide the elevation of all surveyed locations relative to mean sea level to an accuracy of at least +/- 0.01 foot. The groundwater monitoring well casings will be notched or marked on one side to identify a consistent surveying and measuring point.

9 Sample Analyses

Environmental samples collected at the Site in support of RI work will be analyzed for petroleum hydrocarbons and metals suspected of originating from the former underground storage tanks (USTs), associated piping, and/or dispensing equipment at the Site.

9.1 Soil Samples

Soil samples will be analyzed for the following constituents:

- Gasoline range petroleum hydrocarbons (GRPH) by Northwest Total Petroleum Hydrocarbons (NWTPH) for Gasoline Range Organics (NWTPH-Gx).
- Diesel range petroleum hydrocarbons (DRPH) and oil range petroleum hydrocarbons (ORPH) by NWTPH for Diesel/Oil Range Organics (NWTPH-Dx).
- Benzene, toluene, ethylbenzene, and xylenes (BTEX), and naphthalene by United States Environmental Protection Agency (EPA) Method 8260D.
- Total lead by EPA Method 6020B.

9.2 Sub-Slab Soil Vapor Samples

Sub-slab soil vapor samples will be analyzed for the following constituents:

- Total petroleum hydrocarbon fractions by Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons (MA APH).

- GRPH by EPA Method TO-15.
- BTEX, naphthalene, ethanol, 1,2-Dichloroethane (EDC), ethylene dibromide (EDB), methyl tert butyl ether (MTBE), tetrachloroethene (PCE), trichloroethene (TCE), cis- and trans-1,2-Dichloroethene (DCE), and vinyl chloride by EPA Method TO-15.
- Fixed gases (helium, oxygen, nitrogen, carbon dioxide, carbon monoxide, and methane) by EPA Method 3C.

10 Decontamination Procedures

Field personnel will decontaminate non-dedicated soil or groundwater sampling equipment between each sample location with a non-phosphate solution (such as Liquinox), followed by a minimum of two tap water rinses. Distilled water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

Between sample intervals when soil sampling, the soil sampling table is cleaned by spraying it with a non-phosphate solution and wiping with disposable paper towels.

Prior to well development, the submersible pump is decontaminated by allowing it to run and recirculate while immersed in a non-phosphate solution followed by successive immersions in potable water and distilled water baths.

Additional details regarding decontamination procedures are included in the QAPP and in the field protocols (Appendix A).

11 Equipment Calibration

Field equipment will be calibrated in accordance with manufacturer's specifications and noted on a calibration log (example provided in Appendix B). Field equipment calibration procedures are included in the QAPP (Appendix C).

12 Waste Management

12.1 Temporary Storage Pending Profiling

Soil cuttings generated from the drilling or sampling will be stored on Site in labeled, Department of Transportation (DOT)-approved 55-gallon drums or other appropriate storage container. Decontamination fluids and purge water from well development activities will be stored on Site in labeled, DOT-approved 55-gallon drums.

12.2 Waste Characterization and Profiling

Waste profiling will be completed following analysis of waste characterization samples. Samples of soil and water will be collected from waste containers and analyzed for the following constituents:

- GRPH by NWTPH-Gx.
- DRPH and ORPH by NWTPH-Dx.
- BTEX by EPA Method 8260D.
- Lead by EPA Method 6020B:
    - » Total lead for soil samples.
    - » Total and dissolved lead for water samples.

12.3 Transportation and Disposal

The soil will be removed from the Site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Water will be transported under manifest to a client- and regulatory-approved facility for disposal.

13 101 West UST Evaluation

During the geophysical survey at the 101 West property in 2021, an anomaly interpreted to be disturbed soil in the northern portion of the property in a shape consistent with a UST cavity was identified; however, the concrete pad in this area is reinforced with rebar and the presence or absence of USTs beneath it could not be confirmed with ground penetrating radar (GPR) technology. Additionally, the concrete pad has four pipes extending through the surface that could potentially have been associated with a UST venting or fueling system.

Stantec proposes to use an electromagnetic locator with direct connection to the exposed piping to induce a signal in any connected subsurface equipment. If geophysical technologies cannot confirm the presence or absence of USTs at this anomaly, Stantec may evaluate the usefulness and feasibility of potholing using soft digging methods at an angle beneath the concrete slab in an attempt to confirm the presence or absence of USTs.

Additionally, Stantec will review all available historical records for as-builts, photographs, and other documentation that may disclose where the USTs were located during bulk fueling operations and their disposition at the time of property transfer from Exxon Corporation to private individuals in 1978.

14 Stormwater Infiltration Evaluation

Multiple stormwater conveyance installations to prevent localized ponding are present at the Site in the rights-of-way surrounding the three private properties including an infiltration trench beneath the north side of Wine Country Road, immediately adjacent to the 101 West property, and two dry wells in North Division Street between the 101 East and 101 West properties (Plate 1). It remains unclear whether these structures influence local groundwater behavior during times of infiltration.

Specifically, the purpose of this evaluation is to assess whether the groundwater flow direction is changed during stormwater infiltration events such that petroleum hydrocarbons could be transported in a direction other than the dominant groundwater flow direction (southwest) beneath the Site.

A set of six In-Situ Level TROLL 400 data loggers will be installed in six wells near the stormwater infiltration trench and the dry wells. The data loggers measure and log water level, water pressure, and temperature. The data loggers' readings are manually normalized for barometric pressure readings using an In-Situ Baro TROLL. Precipitation measurements will be obtained from a local weather center. The data loggers will remain installed in the wells throughout the duration of the RI fieldwork for maximum data collection.

Hydrographs will be constructed to show changes in groundwater levels over time beginning at the onset of a stormwater infiltration event and continuing until groundwater levels have recovered to static conditions. Groundwater elevations in the six wells recorded by the transducers will be used to construct time-series groundwater elevation maps to illustrate groundwater flow direction changes (if any) beginning at the onset of a stormwater infiltration event and continuing until the flow direction has resumed its normal southwesterly flow.

If precipitation events producing stormwater runoff at the Site do not occur during the 180 days allotted to RI fieldwork in the AO, this scope of work may be extended and completed under separate cover from the RI report.

15 Schedule

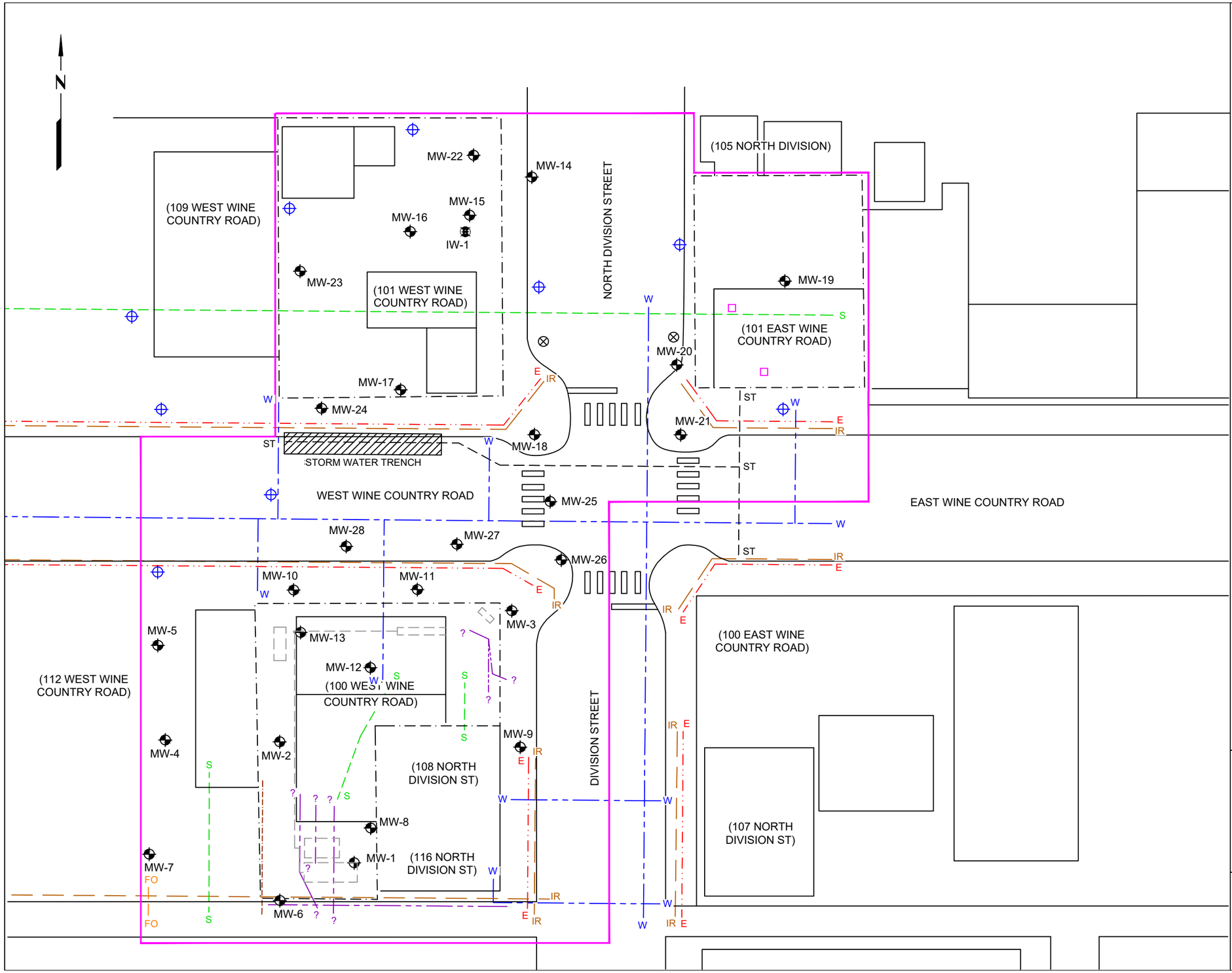
Chevron and ExxonMobil are responsible for leading the work for Task 2 at the 101 East and 101 West (Implementation of the RI and RI report) in accordance with the AO, and as defined in the following table:

Activity	Schedule
PLPs Receive Ecology's Approval of the Final RI Work Plan (Task 1)	Day 0
Field Work Execution	Day 0 – Day 180
Submit Draft RI Report	90 days following completion of data validation

16 References

Washington Administrative Code (WAC). December 19, 2008. Chapter 173-160 Minimum Standards for Construction and Maintenance of Wells. URL: https://app.leg.wa.gov/wac/default.aspx?cite=173-160.

Washington State Department of Ecology (Ecology). May 15, 2025. Agreed Order No. DE 22952.



EXPLANATION

- ⊗ Stormwater dry well
- MW-28 Groundwater monitoring well
- IW-1 Injection well
- Proposed groundwater monitoring well
- Proposed soil vapor sampling location
- Former underground storage tank
- Conveyance piping
- Property boundary
- Site boundary
- Fiber optic line (FO)
- Gas line (G)
- Irrigation line (IR)
- Sanitary line (S)
- Storm sewer line (ST)
- Electrical line (E)
- Water line (W)
- Unknown line (?)

SOURCE:
Modified from maps provided by Google Earth Pro and
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APPROXIMATE SCALE

0 40 80
FEET

FN 2037246050002

PROPOSED SITE CHARACTERIZATION MAP

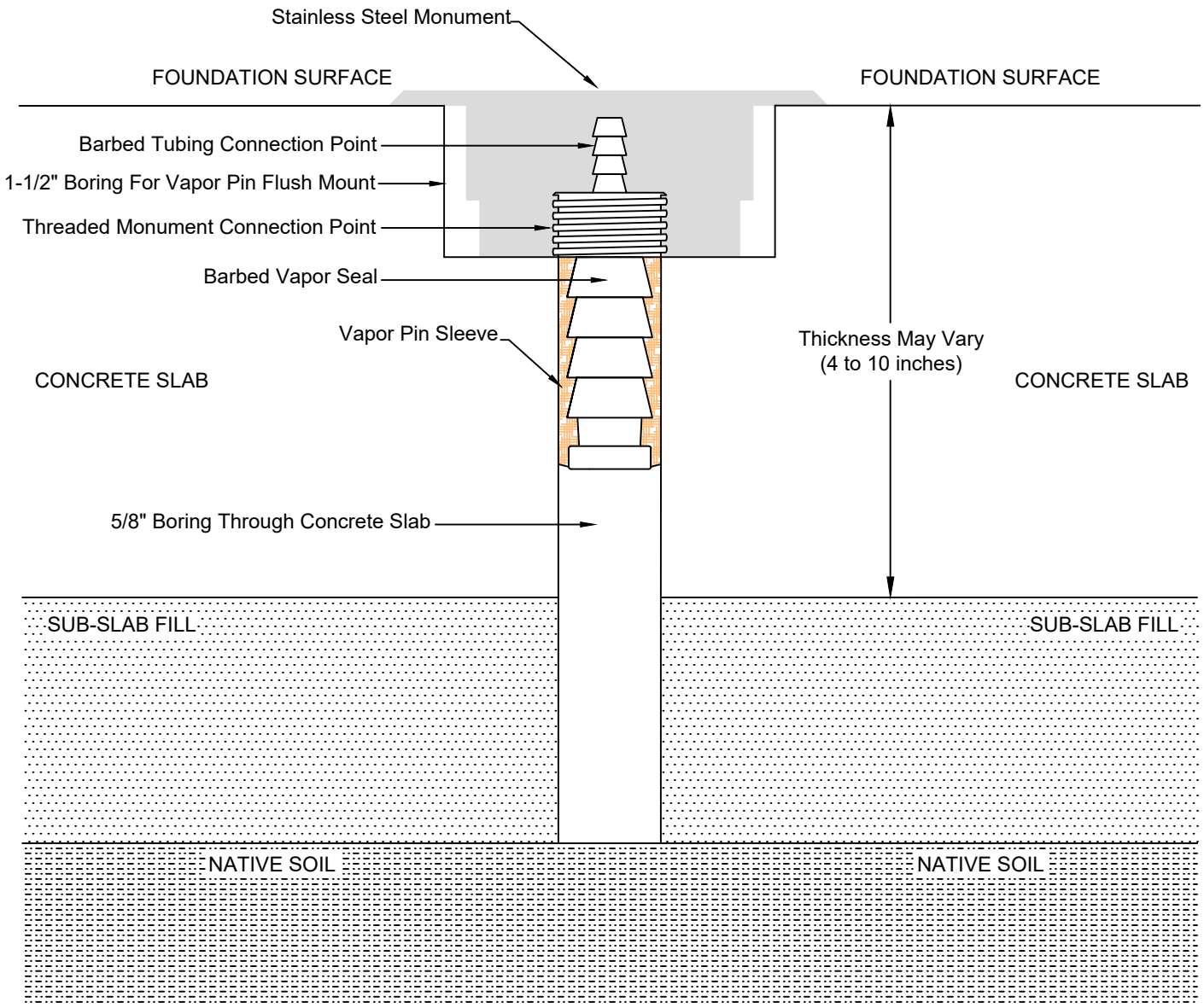
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Stantec

PROJECT NO. 203724605

PLATE 1

DATE: 08/12/25



FN 203724605

NOT TO SCALE

Stantec

PROPOSED SUB-SLAB SOIL VAPOR SAMPLING PIN DETAIL

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

PROJECT NO.
203724605

PLATE
2
LEC: 08/12/25

TABLE 1
PROPOSED SAMPLE COLLECTION DETAILS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Sample Location ID	Sample Matrix	Sample Depth (feet bgs)	Number of Samples per Sampling Event	Number of Sampling Events	Estimated Total Number of Samples
Soil Evaluation					
MW-29	Soil	5, 10, 15, 20, 25	5	1	5
MW-30	Soil	5, 10, 15, 20, 25	5	1	5
MW-31	Soil	5, 10, 15, 20, 25	5	1	5
MW-32	Soil	5, 10, 15, 20, 25	5	1	5
MW-33	Soil	5, 10, 15, 20, 25	5	1	5
MW-34	Soil	5, 10, 15, 20, 25	5	1	5
MW-35	Soil	5, 10, 15, 20, 25	5	1	5
MW-36	Soil	5, 10, 15, 20, 25	5	1	5
MW-37	Soil	5, 10, 15, 20, 25	5	1	5
				Soil Samples	**45**
Soil Vapor Evaluation					
SVS-1	Soil Vapor	Sub-slab	1	1	1
SVS-2	Soil Vapor	Sub-slab	1	1	1
				Soil Vapor Samples	**2**

EXPLANATION:
feet bgs = Feet below ground surface

TABLE 2
SAMPLE CONTAINER, PRESERVATION, AND HOLDING TIME REQUIREMENTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Matrix	Analysis	Analytical Method	Container	Preservation	Holding Time
Soil	GRPH	NWTPH-Gx	(1) 4 oz glass jar; (2) 40 mL glass VOA vial w/MeOH; (1) Field Preservation Kit	MeOH Cool to 4°C	14 days
	DRPH, ORPH	NWTPH-Dx	(1) 4 oz glass jar	Cool to 4°C	14 days for extraction; 40 days for analysis
	VOCs	EPA 8260D	(1) 4 oz glass jar; (2) 40 mL glass VOA vial w/MeOH; (1) Field Preservation Kit	MeOH Cool to 4°C	14 days
	Total Metals	EPA 6020B	(1) 4 oz glass jar	Cool to 4°C	6 months
Soil Vapor	Petroleum Fractionation	MA APH	(1) 1L or 6L Summa canister	None	30 days
	GRPH	EPA TO-15			
	VOCs	EPA TO-15			
	Fixed Gases	EPA 3C			

Notes:
The Field Preservation Kit for soil consists of (2) x 40-mL VOA vials preserved with MeOH and 5 grams of sample volume.

°C = Degrees Celsius
DRPH = Diesel range petroleum hydrocarbons
EPA = United States Environmental Protection Agency
GRPH = Gasoline range petroleum hydrocarbons
MA APH = Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons
MeOH = Methanol
mL = Milliliter
NWTPH-Dx = Northwest Total Petroleum Hydrocarbons for Diesel/Oil Range Organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbons for Gasoline Range Organics
ORPH = Oil range petroleum hydrocarbons
oz = Ounce
VOA = Volatile organic analysis
VOCs = Volatile organic compounds
w/ = With

Appendix A

Example Field Protocols

Soil Boring and Well Installation Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, Stantec obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Stantec marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

Drilling and Soil Sampling Procedures

Stantec contracts a licensed driller to advance the boring and collect soil samples. The specific drilling method (e.g., hollow-stem auger, direct push method, or sonic drilling), sampling method [e.g., core barrel or California-modified split spoon sampler (CMSSS)] and sampling depths are documented on the boring log and may be specified in a work plan. Soil samples are typically collected at the capillary fringe and at 5-foot intervals to the total depth of the boring. To determine the depth of the capillary fringe prior to drilling, the static groundwater level is measured with a water level indicator in the closest monitoring well to the boring location, if available.

The borehole is advanced to just above the desired sampling depth. For CMSSSs, the sampler is placed inside the auger and driven to a depth of 18 inches past the bit of the auger. The sampler is driven into the soil with a standard 140 pound hammer repeatedly dropped from a height of 30 inches onto the sampler. The number of blows required to drive the sampler each 6-inch increment is recorded on the boring log. For core samplers (e.g., direct push), the core is driven 18 inches using the rig apparatus.

Soil samples are preserved in the metal or plastic sleeve used with the CMSSS or core sampler, in glass jars or other manner required by the local regulatory agency (e.g., Environmental Protection Agency Method 5035). Sleeves are removed from the sample barrel, and the lowermost sample sleeve is immediately sealed with Teflon™ tape, capped and labeled. Samples are placed in a cooler chilled to 4º Celsius and transported to a state-certified laboratory. The samples are transferred under chain-of-custody (COC) protocol.

Field Screening Procedures

Stantec places the soil from the middle of the sampling interval into a plastic re-sealable bag. The bag is placed away from direct sunlight for approximately 20 minutes, after which the tip of a photo-ionization detector (PID) or similar device is inserted through the plastic bag to measure organic vapor concentrations in the headspace. The PID measurement is recorded on the boring log. At a minimum, the PID or other device is calibrated on a daily basis in accordance with manufacturer's specifications using a hexane or isobutylene standard. The calibration gas and concentration are recorded on a calibration log. Instruments such as the PID are useful for evaluating relative concentrations of volatilized hydrocarbons, but they do not measure the concentration of petroleum hydrocarbons in the soil matrix with the same precision as laboratory analysis. Stantec trained personnel describe the soil in the bag according to the Unified Soil Classification System and record the description on the boring log, which is included in the final report.

Air Monitoring Procedures

Stantec performs a field evaluation for volatile hydrocarbon concentrations in the breathing zone using a calibrated photo-ionization detector or lower explosive level meter.

Groundwater Sampling

A groundwater sample, if desired, is collected from the boring by using Hydropunch™ sampling technology or installing a well in the borehole. In the case of using Hydropunch™ technology, after collecting the capillary fringe soil sample, the boring is advanced to the top of the soil/groundwater interface and a sampling probe is pushed to approximately 2 feet below the top of the static water level. The probe is opened by partially withdrawing it and thereby exposing the screen. A new or decontaminated bailer is used to collect a water sample from the probe. The water sample is then emptied into laboratory-supplied containers constructed of the correct material and with the correct volume and preservative to comply with the proposed laboratory test. The container is slowly filled with the retrieved water sample until no headspace remains and then promptly sealed with a Teflon-lined cap, checked for the presence of bubbles, labeled, entered onto a COC record and placed in chilled storage at 4° Celsius. Laboratory-supplied trip blanks accompany the water samples as a quality assurance/quality control procedure. Equipment blanks may be collected as required. The samples are kept in chilled storage and transported under COC protocol to a client-approved, state-certified laboratory for analysis.

Backfilling of Soil Boring

If a well is not installed, the boring is backfilled from total depth to approximately 5 feet below ground surface (bgs) with either neat cement or bentonite grout using a tremie pipe and either the boring is backfilled from 5 feet bgs to approximately 1 foot bgs with hydrated bentonite chips or backfill is continued to just below grade with neat cement grout. The borehole is completed to surface grade with material that best matches existing surface conditions and meets local agency requirements. Site-specific backfilling details are shown on the respective boring log.

Well Construction

A well (if constructed) is completed using materials documented on the boring log or specified in a work plan. The well is constructed with slotted casing across the desired groundwater sampling depth(s) and completed with blank casing to within 6 inches of surface grade. No further construction is conducted on temporary wells. For permanent wells, the annular space of the well is backfilled with Monterey sand from the total depth to approximately 2 feet above the top of the screened casing. A hydrated granular bentonite seal is placed on top of the sand filter pack. Grout may be placed on top of the bentonite seal to the desired depth using a tremie pipe. The well may be completed to surface grade with a 1-foot thick concrete pad. A traffic-rated well vault and locking cap for the well casing may be installed to protect against surface-water infiltration and unauthorized entry. Site-specific well construction details including type of well, well depth, casing diameter, slot size, length of screen interval and sand size are documented on the boring log or specified in the work plan.

Well Development and Sampling

If a permanent groundwater monitoring well is installed, the grout is allowed to cure a minimum of 48 hours before development. Stantec personnel or a contracted driller use a submersible pump or surge block to develop the newly installed well. Prior to development, the pump is decontaminated by allowing it to run and re-circulate while immersed in a non-phosphate solution followed by successive immersions in potable water and de-ionized water baths. The well is developed until sufficient well casing volumes are removed so that turbidity is within allowable limits and pH, conductivity and temperature levels stabilize in the purge water. The volume of groundwater extracted is recorded on a log.

Following development, groundwater within the well is allowed to recharge until at least 80% of the drawdown is recovered. A new or decontaminated bailer is slowly lowered past the air/water interface in the well, and a water sample is collected and checked for the presence of non-aqueous phase liquid, sheen, or emulsions. The water sample is then emptied into laboratory-supplied containers as discussed above.

Surveying

If required, wells are surveyed by a licensed land surveyor relative to an established benchmark of known elevation above mean sea level to an accuracy of +/- 0.01 foot. The casing is notched or marked on one side to identify a consistent surveying and measuring point.

Decontamination Procedures

Stantec or the contracted driller decontaminates soil and water sampling equipment between each sampling event with a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned prior to drilling the borehole and at completion of the borehole.

Waste Treatment and Soil Disposal

Soil cuttings generated from the drilling or sampling are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination fluids and purge water from well development and sampling activities, if conducted, are stored on site in labeled, regulatory-approved storage containers. Fluids are subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

Soil Vapor Sampling Pin/Well Installation and Sampling Field Protocol

Preliminary Activities

Prior to the onset of field activities at the site, Stantec obtains the appropriate permit(s) from the governing agency(s). Advance notification is made as required by the agency(s) prior to the start of work. Stantec marks the borehole locations and contacts the local one call utility locating service at least 48 hours prior to the start of work to mark buried utilities. Borehole locations may also be checked for buried utilities by a private geophysical surveyor. Prior to drilling, the borehole location is cleared in accordance with the client's procedures. Fieldwork is conducted under the advisement of a registered professional geologist and in accordance with an updated site-specific safety plan prepared for the project, which is available at the job site during field activities.

Soil Vapor Pin Installation

The pins are installed by drilling a 5/8-inch diameter hole approximately 2 inches beneath the concrete slab. A stainless-steel soil vapor pin with a surrounding silicone sleeve is then hammered into the 5/8-inch diameter boring until the top of the vapor pin is approximately 0.25 inch above the surface of the concrete slab. The silicone vapor sleeve creates an impermeable seal separating the sub-slab and above ground atmospheres. Tubing is then connected to the barbed fitting on the vapor pin to allow for the collection of a sub-slab soil vapor sample.

Soil Vapor Well Construction

The borehole is advanced to the desired depth using either a direct-push rig, hand auger, or air vacuum rig. Lithologic conditions are recorded on a boring log during borehole advancement, and select soil matrix sampling may be conducted based on soil characteristics.

Each soil vapor sampling (SVS) well is constructed using inert screen material attached to 1/8- to ¼-inch outer diameter inert tubing. A gas-tight vacuum fitting or valve is attached to the top of each length of tubing using a female compression fitting. Each screen is set within a minimum of a 12-inch thick appropriately sized sand pack, with a minimum of 3 inches of sand pack above the top of the screen. A minimum of 4 inches of dry granular bentonite is set above each screen and associated sand pack. In SVS wells with multiple and separate casings and screens, the annular space between the top of the dry granular bentonite above the deep screen and the bottom of the sand pack associated with the shallow screen is sealed with a minimum of 18 inches of hydrated bentonite. The remainder of the annular space of the well is sealed with hydrated bentonite to 1 foot below ground surface. Wellheads are finished with traffic-rated well boxes set in concrete flush with the surrounding grade. No glues, chemical cements, or solvents are used in well construction.

A boring log is completed with the construction details for each well, including the materials of construction, depth of the borehole, screen length, and annular seal thickness.

Soil Vapor Sampling

Samples are collected using a soil vapor purging and sampling manifold consisting of a flow regulator, vacuum gauges, vacuum pump, shroud, and laboratory-prepared, gas-tight, opaque containers such as Summa™ canisters. Prior to use, Summa™ canisters are checked to ensure they are under the laboratory induced vacuum between 30 and 25 inches of mercury (in. Hg). New inert tubing is used to purge and sample each well. Prior to purging and sampling each SVS well, Stantec will conduct a vacuum leak test on the sampling equipment. To perform the leak test, the Summa™ canister is connected to the sampling manifold which was connected to the gas-tight vacuum fitting or valve at the wellhead, and the downstream tubing and fittings are vacuum tested at approximately 20 to 30 in. Hg. Purging and sampling are conducted only on SVS wells when the tubing and fittings hold the applied vacuum for 5 minutes per vacuum gauge reading. If the vacuum is not maintained, Stantec will isolate the leak and re-fit the fittings and tubing until the vacuum is held for 5 minutes. Purging is performed with the sampling manifold equipped with a vacuum gauge and flow regulator and vacuum pump. The flow regulator will be set to a rate of no more than 200 ml/min.

Prior to sampling, a helium leak test is performed at each SVS well, including a Summa™ canister and its fittings, to check for leaks in the SVS well annulus. To assess the potential for leaks in the SVS well annulus, a shroud is placed over the SVS well and Summa™ canister and the shroud was filled with a measured amount of helium. Helium screening is performed in the field by pumping soil gas into a Tedlar bag and screening the contents of the Tedlar bag with a helium meter. Pumping is conducted at approximately the same rate of purging, at 100 to 200 ml/min. The concentration of helium in the sample divided by the concentration of helium in the shroud provides a measure of the proportion of the sample attributable to leakage. A leak that comprises less than 5% of the sample is insignificant. Helium screening will also be performed using laboratory analysis of the contents of the Summa™ canister collected under the shroud.

After purging and the helium leak test, the Summa™ canister is opened and allowed to fill. Sampling is conducted at approximately the same rate of purging, at 100 to 200 ml/min. The canister vacuum readings at the beginning and end of sampling will be recorded. The soil vapor sample collection will end when the vacuum within the sample canister is approximately 5 in Hg. Stantec will label the sample containers, store the samples at ambient temperature in laboratory-supplied containers, and initiate COC records.

Decontamination Procedures

If soil samples are collected, Stantec or the contracted driller decontaminates the soil sampling equipment between each sampling interval using a non-phosphate solution, followed by a minimum of two tap water rinses. De-ionized water may be used for the final rinse. Downhole drilling equipment is steam-cleaned or triple-rinsed prior to advancing each borehole.

Waste Treatment and Soil Disposal

Soil cuttings generated from the well installation are stored on site in labeled, Department of Transportation-approved, 55-gallon drums or other appropriate storage container. The soil is removed from the site and transported under manifest to a client- and regulatory-approved facility for recycling or disposal. Decontamination water is stored on site in labeled, regulatory-approved storage containers, and is subsequently transported under manifest to a client- and regulatory-approved facility for disposal or treated with a permitted mobile or fixed-base carbon treatment system.

Appendix B

Example Field Forms

Daily Field Report

Stantec

Project #:		**Stantec #:**
Activity:		**Date:**
Equipment Used:		**Sheet:** **of**
Name(s):		
Arrived On Site:	**Departed Site:**	**Total Travel:**

1687 114th Avenue Souteast, Suite 100, Bellevue, WA 98004 *Office: (800) 499-8950*

Project #:	Sheet: of

CALIBRATION LOG

Equipment: _____

Date	Time	Calibrated By	Standard	Standard Concentration	Comments

Stantec

SITE ID: _____ **BORING:** _____ **PLATE:** _____

STANTEC #: _____ **DATE:** _____

DRILL CONTRACTOR: _____

SAMPLE METHOD: _____ **GEOLOGIST:** _____

DRILL RIG: _____ **SIGNATURE:** _____

BOREHOLE DIAMETER: _____ **WELL TAG #:** _____

LOCATION: _____ **LOGGED BY:** _____

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN

GROUT:

SAND SIZE:

SLOT SIZE:

CASING DIAMETER:

FIELD LOG
WELL DEVELOPMENT FIELD PARAMETERS

SITE: **STANTEC# :**
LOCATION:
FIELD CREW: **DATE:**

WELL ID:							
PURGE START hr:min	**PURGE STOP** hr:min	**INITIAL DTW** ft bgs	**FINAL DTW** ft bgs	**PUMP RATE** gal/min	**PURGE VOLUME** gal	**TIME** hr:min	**TURBIDITY** NTU
TOTAL PURGE VOLUME: 0.0 gal							
COMMENTS:							

WELL CONSTRUCTION:	Flush	**WELL DIAMETER:**	2-inch	**TOTAL DEPTH (ft bgs):**	15	**SCREEN INTERVAL (ft bgs):**	5-15

EXPLANATION:
-- = Not measured
DTW = Depth to water in feet below top of casing
ft bgs = Feet below ground surface
gal = Gallon
gal/min = Gallon per minute
hr:min = Hour:Minute time format
NTU = Nephelometric turbidity unit

FIELD LOG
DEPTH TO WATER RECORD

CLIENT NAME: **STANTEC#**:
SITE LOCATION:
FIELD CREW: **DATE**:

Well #	Time	DTNAPL (ft)	DTW (ft)	NAPL Thickness	Comments/Repairs

Comments:

FIELD LOG
PURGING & SAMPLING RECORD AND WELL EQUIPMENT STATUS

SITE: **STANTEC#**:
LOCATION:
FIELD CREW: **DATE**: Low-Flow Sampling

WELL #

TIME	DTW	PURGE VOLUME	PUMP RATE (Q)	TEMP	COND	pH	ORP	DO
hr:min	ft	mL	mL/min	deg C	mS/cm	unit	mV vs NHE	mg/L
				±3%	±3%	±0.1	±10	±10% / 0.5*
Comments:								
SW		1 gal = 3.79 L						
Total Purge Volume		0 mL		0.00 gal				

WELL #

TIME	DTW	PURGE VOLUME	PUMP RATE (Q)	TEMP	COND	pH	ORP	DO
hr:min	ft	mL	mL/min	deg C	mS/cm	unit	mV vs NHE	mg/L
				±3%	±3%	±0.1	±10mV	±10% / 0.5*
Comments:								
SW		1 gal = 3.79 L						
Total Purge Volume		0 mL		0.00 gal				

*10% for values >0.5 mg/L, if three DO values are <0.5 mg/L, values are considered stabilized.

Stantec Consulting Services Inc.

SOIL VAPOR SAMPLING FIELD DATA SHEET

PROJECT NAME: _____ CLIENT: _____ DATE: _____

LOCATION: _____ SAMPLE I.D.: _____

SAMPLER NAME: _____ PROJECT #: _____

SHUT-IN TEST: (1 inH2O = 0.073 inHg)

	PRESSURE (inHg)	TIME OF READING
INITIAL READING		
FINAL READING		

PURGE:

FLOW RATE: _____

	PRESSURE (inHg)	TIME OF READING
INITIAL READING		
FINAL READING		

VAPOR SAMPLE:

FLOW RATE: _____

	PRESSURE (inHg)	TIME OF READING
INITIAL READING		
FINAL READING		

SITE CONDITIONS (i.e. WEATHER, TRAFFIC):

VAPOR SAMPLING FIELD MEASUREMENTS

START TIME: _____ END TIME: _____

TRACER USED: _____ TRACER METER USED: _____

TEDLAR BAG END PURGE TRACER CONCENTRATION: _____

Time (min)	Shroud Concentration (%)	Time (min)	Shroud Concentration (%)	Time (min)	Shroud Concentration (%)	Time (min)	Shroud Concentration (%)	Time (min)	Shroud Concentration (%)
0.0		6		17		28		39	
0.5		7		18		29		40	
1.0		8		19		30		41	
1.5		9		20		31		42	
2.0		10		21		32		43	
2.5		11		22		33		44	
3.0		12		23		34		45	
3.5		13		24		35		46	
4.0		14		25		36		47	
4.5		15		26		37		48	
5.0		16		27		38		49	

ADDITIONAL SITE NOTES:

SIGNATURE: _____ Page ____ of ____

Chain of Custody Record & Laboratory Services Agreement

Alliance TECHNICAL GROUP
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Date: **Page:** **of:**

Laboratory Project No (internal):

Project Name:

Special Remarks:

Client: **Project No:**

Address: **Collected by:**

City, State, Zip: **Location:**

Telephone: **Report To (PM):**

Disposal: Samples will be disposed in 30 days unless otherwise requested.
☐ Retain volume (specify above) ☐ Return to client

Email(s):

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	# of Cont.	VOCs (EPA 8260 / 624)	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (8011)				Comments
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

***Matrix:** A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

****Metals (Circle):** MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl V Zn

*****Anions (Circle):** Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:
☐ Standard ☐ Next Day
☐ 3 Day ☐ Same Day
☐ 2 Day _____ (specify)

I represent that I am authorized to enter into this Agreement with Alliance Technical Group LLC on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

Air Chain of Custody Record & Laboratory Services Agreement

Alliance TECHNICAL GROUP

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790

Date: **Page:** **of:**

Laboratory Project No (Internal):

Project Name:

Special Remarks:

Client: **Project No:**

Address: **Location:**

City, State, Zip: **Collected by:**

Telephone: **Reports to (PM):**

Disposal: Samples will be disposed of one week after report is submitted unless otherwise requested. Retain volume (specify above) ☐ Return to client

Fax: **Email (PM):**

	Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis: Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		Comments
1		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure											
2		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure											
3		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure											
4		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure											
5		Canister / Flow Reg				Date / Time	Pressure	Date / Time	Pressure											

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE RNG = Biogas / Landfill / Digester

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

*** Select one: ☐ BTEXN & APH ☐ PCE & Breakdown ☐ Other, specify in comments

I represent that I am authorized to enter into this Agreement with Alliance Technical Group LLC on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Turn-Around Time:

☐ Standard ☐ Next Day

☐ 3 Day ☐ Same Day

☐ 2 Day _____ *specify*

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

Appendix C

Quality Assurance Project Plan

Stantec Consulting Services Inc.
1687 114th Avenue Southeast, Suite 100
Bellevue WA 98004-6965

August 13, 2025

Project 203724605.QAPP25

Chelsea Wisotzkey
Washington State Department of Ecology
Central Region Office
1250 West Alder Street
Union Gap, Washington 98903
chelsea.wisotzkey@ecy.wa.gov

Reference: Quality Assurance Project Plan – 101 East and 101 West, DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington, Facility Site ID: 94369212, Cleanup Site ID: 6910

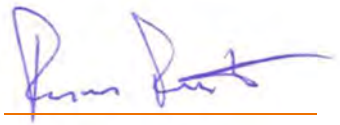
Dear Ms. Wisotzkey,

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) is submitting the enclosed *Quality Assurance Project Plan – 101 East and 101 West*, dated August 13, 2025.

Please contact me using the contact information listed below with questions.

Regards,

Stantec Consulting Services Inc.



Ryan Pozzuto
Project Manager
Mobile: (206) 510-6681
ryan.pozzuto @stantec.com

c. James P. Kiernan, Chevron Environmental Management Company (Email)
Christopher Gaule, ExxonMobil Environmental and Property Solutions Company (Email)
Brandon Christensen, Powell Distributing, LLC, DBA Christensen, Inc. (Email)
Daniele B. Peters, EES Environmental Consulting, Inc. (Email)

Quality Assurance Project Plan – 101 East and 101 West

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington
Facility Site ID: 94369212
Cleanup Site ID: 6910

August 13, 2025

Prepared for:
Chevron Environmental Management Company and ExxonMobil Environmental and Property Solutions Company

Prepared by:
Stantec Consulting Services Inc.

Project Number:
203724605.QAPP25

The conclusions in the Report titled Quality Assurance Project Plan – 101 East and 101 West are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Chevron Environmental Management Company and ExxonMobil Environmental and Property Solutions Company (the "Clients") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Clients in accordance with Stantec's contract with the Clients. While the Report may be provided by the Clients to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Signature

Laina Cole, Environmental Scientist
Printed Name

Signature

Keri L. Chappell, LG 2719
Printed Name

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Appendix A Example Laboratory Quality Assurance Manual
Appendix B Example Laboratory Certification

Acronyms / Abbreviations

Alliance	Alliance Technical Group, LLC
AO	Agreed Order No. DE 22952
bgs	Below ground surface
CEMC	Chevron Environmental Management Company
CFR	Code of Federal Regulations
Chevron	Chevron U.S.A. Inc.
CLP	Contract Laboratory Program
COC	Chain-of-custody
CPR	Cardiopulmonary resuscitation
DBA	Doing business as
DOT	Department of Transportation
DRPH	Diesel range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management
EPA	United States Environmental Protection Agency
ExxonMobil	Exxon Mobil Corporation
FS	Feasibility study
GRPH	Gasoline range petroleum hydrocarbons
HASP	Site-specific Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MA APH	Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons
MDL	Method detection limit
MS	Matrix spike
MSD	Matrix spike duplicate
MTCA	Model Toxics Control Act
NELAP	National Environmental Laboratory Accreditation Program
NFG	National Functional Guidelines
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons for Diesel/Oil Range Organics
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons for Gasoline Range Organics
OSHA	Occupational Safety and Health Administration
ORPH	Oil range petroleum hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity
PDF	Portable Document Format
PLP	Potentially liable person
QA/QC	Quality assurance/quality control
QAM	Quality Assurance Manual
QAPP	Quality Assurance Project Plan
RI	Remedial investigation
RI Work Plan	Remedial Investigation Work Plan
RL	Reporting limit
RPD	Relative percent difference
SAP	Sampling and Analysis Plan
Site	DeBocks Main Street Texaco Site, 100 West, 101 East, and 101 West Wine Country Road, Grandview, Washington
SOP	Standard operating procedure
Stantec	Stantec Consulting Services Inc.
VOC	Volatile organic compound
WAC	Washington Administrative Code

1 Introduction

At the request of Chevron Environmental Management Company (CEMC), on behalf of Chevron U.S.A. Inc. (Chevron), and at the request of ExxonMobil Environmental and Property Solutions, on behalf of Exxon Mobil Corporation (ExxonMobil), Stantec Consulting Services Inc. (Stantec) prepared this Quality Assurance Project Plan (QAPP) to describe the personnel, procedures, and methods for ensuring the quality, accuracy, and precision of environmental data associated with the remedial investigation (RI) at the 101 East and 101 West properties for the DeBocks Main Street Texaco Site (Site) comprising 100 West, 101 East, and 101 West Wine Country Road in Grandview, Washington (Plate 1). Environmental samples are being collected in support of an RI to identify and address data gaps by conducting field investigations to guide development of the feasibility study (FS) for the 101 East and 101 West properties.

The purpose of this document is to describe the personnel, procedures, and methods for ensuring the quality, accuracy, precision, and usability of data associated with the RI for the Site. This QAPP addresses quality assurance/quality control (QA/QC) associated with the field collection and laboratory analysis of environmental samples during the RI. Following the procedures outlined in this QAPP will ensure that the data collected and evaluated meet the project objectives.

This QAPP provides field and laboratory personnel with instructions regarding activities to be performed before, during, and after field investigations. These instructions will ensure data collected for use in project decisions will be of the type and quality required to meet the data use objectives for the project.

1.1 Objectives

The primary objective of this QAPP is to provide the guidance to be followed for the collection and chemical analysis of soil, soil vapor, and QA/QC samples so that the data are of sufficient quality to support the project data objectives and the data end uses. This QAPP also presents the overall project team organization and QA/QC procedures to be followed.

Consultant staff participating in the data collection work effort are required to be familiar with the requirements of the QAPP. The QAPP should be in the possession of the field team during sample collection and in possession of the analytical laboratory providing analytical services. The consultant and analytical laboratory personnel working on this project will be required to comply with the procedures documented in this QAPP to maintain comparability and representativeness of the resulting data.

2 Project Management

2.1 Project Organization and Responsibilities

Responsibilities of key project personnel are outlined in this section. The lines of communication, management activities, and technical direction within this project team will follow this organizational

arrangement. Any directions or communications from the Washington State Department of Ecology (Ecology) will be given to the project coordinator and project manager. The project manager and staff will communicate with the analytical laboratory and other subcontractors, as appropriate.

2.2 Regulatory Agency

Ecology is the lead agency and will oversee activities associated with the RI for the Site. Chelsea Wisotzkey with Ecology will provide regulatory leadership and be responsible for the review and approval of reports.

2.3 Potentially Liable Persons

Chevron and ExxonMobil have been identified as potentially liable persons (PLPs) for the Site and leaders for work at the 101 East and 101 West Wine Country Road properties under Ecology Agreed Order DE 22952 (AO; Ecology, 2025). To effectuate tasks specific to the 101 East and 101 West Wine Country Road properties under the AO in the most efficient manner, Chevron and ExxonMobil have designated Stantec to take the lead as project coordinator.

Powell Distributing, LLC, doing business as (DBA) Christensen, Inc. has been identified as a PLP for the Site and leader for work at the 100 West Wine Country Road property under the AO; however, the 100 West Wine Country Road property is not subject to the RI for the Site for which this QAPP is written.

2.4 Consultant

Stantec has been selected as the consultant for the RI for the 101 East and 101 West properties. Together, the consultant management team will be responsible for the technical planning and implementation of the work. The QA/QC staff has responsibility for effective planning, verifying, and managing QA/QC activities associated with the assigned project. The following are descriptions of project responsibilities.

2.4.1 Project Manager

The project manager is responsible for the implementation of the field program and will provide management and tracking of the project schedule and budget. Other responsibilities include coordination and preparation of the required reports and assignment of technical responsibilities to appropriate personnel or subcontractors. The project manager will be responsible for coordinating all communications between the consultant, Ecology, and the PLPs.

2.4.2 Field QA Manager

The field QA manager will be responsible for the overall quality of field data and deliverables generated during the project. It is the responsibility of the field QA manager to ensure that required QA/QC protocols are met in the field.

2.4.3 Project Database Manager

The project database manager will be responsible for management and maintenance of the project database and analytical data collected during field activities. The project database manager oversees all database efforts that support the project, including screening sample analytical results against applicable screening levels.

2.4.4 Project Chemist

The project chemist will be responsible for the overall quality and consistency with respect to chemistry procedures and products. In addition, the project chemist will provide guidance on QA/QC operations for field and laboratory activities related to sampling and analysis. The project chemist will coordinate with the analytical laboratory to ensure readiness to implement project-specific requirements. The project chemist will also support data validation and be the primary author of the data validation/data usability report.

2.4.5 QA Manager

The QA manager will be responsible for reviewing the project QA program as it relates to the collection, completeness, and quality of data and deliverables generated during the project. The QA manager is independent of the project manager and any data generation activities.

2.5 Analytical Laboratory

A state-certified laboratory will be contracted for laboratory analysis of environmental samples. For the purposes of this QAPP, Stantec solicited example documentation and materials from Alliance Technical Group, LLC (Alliance) in Seattle, Washington.

2.5.1 Laboratory Project Managers

The contract laboratory will provide laboratory analytical services in accordance with their laboratory Quality Assurance Manuals (QAMs), this QAPP, and other project-related communication. The laboratory project manager will report to the project chemist on aspects of the sample analysis and reporting. In addition, the project manager will be advised of any matters related to data quality.

2.5.2 Laboratory QA Managers

The laboratory QA managers are responsible for overseeing and implementing QA activities in the laboratory and ensuring the quality of the data for the project. The laboratory QA manager will coordinate with the laboratory project manager on responses to any QC issues that affect the project.

3 Data Quality Objectives

3.1 PARCCS Overview

Criteria for measurements made during this project will be addressed in terms of precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). The measurement criteria and numerical PARCCS parameters described in the following sections will require that the sampling be performed using standard methods with properly operated and calibrated equipment and conducted by trained personnel.

3.1.1 Precision

Precision is the degree of agreement among repeated measurements of the same parameter under the same or similar conditions. Precision is reported as either relative percent difference (RPD) or relative standard deviation, depending on the end use of the data.

3.1.1.1 Field Precision Objectives

Field precision will be assessed through the collection and analysis of field duplicate samples.

RPDs will be calculated for the detected analytes from investigative and field duplicate samples using the following equation:

$$\text{RPD} = \frac{|c_1 - c_2|}{\left(\frac{c_1 + c_2}{2}\right)} \times 100\, percent$$

Where:

- C_1 = Concentration of the compound or element in the sample.
- C_2 = Concentration of the compound or element in the duplicate/replicate.

Field duplicate samples will be collected for soil and soil vapor samples. Duplicate RPDs of ±50 percent will be used as advisory limits for analytes detected in both investigative and field duplicate samples at concentrations greater than or equal to five times its reporting limit (RL). RPDs for samples with reported results that are less than five times its RL, non-detect, or estimated or rejected based on blank contamination, are considered non-representative and will not be calculated. The number of field duplicate samples recommended for each round of sampling is one for every 20 samples per matrix.

3.1.1.2 Laboratory Precision Objectives

For the analytical laboratory to be used for this project, precision of laboratory analyses will be based upon laboratory matrix spike (MS), laboratory control sample (LCS), and laboratory duplicate analyses. Duplicate precision is reported as RPD, the equation to be used to determine precision is presented in Section 3.1.1.1. The LCS, MS, and laboratory duplicate analyses will be performed either at a rate of one per 20 samples per matrix received by the laboratory or in accordance with laboratory procedures.

3.1.2 Accuracy and Bias

Accuracy is the extent of agreement between an observed or measured value and the accepted reference, or true value of the parameter being measured.

3.1.2.1 Field Accuracy Objectives

The objective for accuracy of the field sample collection procedures will be to ensure that samples are not affected by sources external to the sample, such as sample contamination by ambient conditions or inadequate equipment decontamination procedures. Sampling accuracy will be assessed by evaluating the results of equipment and trip blank samples for contamination.

Equipment blanks will be collected only from decontaminated, reusable field equipment, such as split-spoon samplers or hand augers. Equipment blanks will be collected by pouring laboratory-prepared water or distilled water over or through reusable field sampling equipment and collecting the rinsate in the laboratory-supplied analytical containers. Equipment blanks should be collected following decontamination procedures and will not be collected for dedicated or disposable field equipment. Equipment blanks will be submitted to the laboratory with the associated investigative samples and will be analyzed for the same parameters as the investigative samples. The minimum required frequency is one equipment blank per day per type of sampling equipment. Where possible, the use of disposable, one-time use field equipment will be emphasized.

Trip blanks will be used when samples are collected for volatile organic compound (VOC) analysis. The laboratory-prepared, organic-free sample taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures will be used to assess contamination during shipping and field handling procedures. One trip blank per cooler containing samples for VOC analysis will be used.

3.1.2.2 Laboratory Accuracy Objectives

Laboratory accuracy will be assessed by determining percent recoveries from the analysis of LCS and LCS duplicate (LCSD), MS and MS duplicate (MSD), or standard reference material samples. MS/MSD samples should be collected for organic and inorganic analyses at a minimum frequency of one per 20 or fewer samples for soil.

The equation used to determine the analytical accuracy for this project is:

$$Accuracy = Percent\ Recovery = \frac{A_r - A_0}{A_f} \times 100\ percent$$

Where:

- A_r = Total amount detected in spiked sample.
- A_o = Amount detected in unspiked sample.
- A_f = Amount added to sample.

The accuracy of organics analyses will also be monitored through analysis of surrogate compounds. Surrogate compounds are added to each sample, standard, blank, and QC sample prior to sample

preparation and analysis. Surrogate compounds are not expected to be found occurring naturally in the samples but behave analytically similar to the compounds of interest. Consequently, surrogate compound percent recoveries will provide information on the effect that the sample matrix exhibits on the accuracy of the analyses.

In addition, example laboratory QA objectives can be referenced in the QAM presented in Appendix A.

3.1.3 Representativeness

Representativeness is a qualitative term that describes the extent to which a sampling design adequately reflects the environmental conditions of the site. It also reflects the ability of the sample team to collect samples and laboratory personnel to analyze those samples in such manners that the data accurately and precisely reflect the conditions at the site.

3.1.3.1 Measures to Ensure Representativeness of Field Data

Representativeness will be achieved by establishing the level of allowable uncertainty in the data and then statistically determining the number of samples needed to characterize the site. It will also be achieved by ensuring that sampling locations are properly selected. Representativeness is dependent upon the proper design of the sampling program and will be accomplished by ensuring that this QAPP, the project-specific sampling and analysis plan (SAP), and standard procedures are followed. The QA goal will be to have all samples and measurements representative of the media sampled.

3.1.3.2 Measures to Ensure Representativeness of Laboratory Data

Representativeness of laboratory data cannot be quantified; however, adherence to the prescribed analytical methods and procedures, including holding times, blanks, and duplicates, will ensure that the laboratory data are representative.

3.1.4 Completeness

Completeness is defined as the measure of the quantity of valid data obtained from a measurement system compared to the quantity that was expected under normal conditions. The equation used to determine completeness for this project is:

$$\%\ Completeness = \frac{Number\ of\ Valid\ (usable\ measurements)}{Number\ of\ Measurements\ Planned} \times 100$$

While a completeness goal of 100 percent is desirable, an overall completeness goal of 90 percent may be realistically achieved under normal field sampling and laboratory analysis conditions.

3.1.4.1 Field Completeness Objectives

The field sampling team will take measures to generate valid data in the field; however, some samples or sample containers may be lost or broken during handling and transit. Therefore, the field completeness goal for this project will be to have 90 percent of all samples be valid data. The equation for calculating completeness is presented in Section 3.1.4.

3.1.4.2 Laboratory Completeness Objectives

Laboratory completeness will be a measure of the quantity of valid data measurements and analyses obtained from all the measurements and analyses completed for the project. The laboratory completeness goal is for 90 percent of the samples analyzed to be valid data. The procedure for determining laboratory data validity is provided in Section 11.2. The equation for calculating completeness is presented in Section 3.1.4.

3.1.5 Comparability

The confidence with which one data set can be compared to another is a measure of comparability. The ability to compare data sets is particularly critical when a set of data for a specific parameter is compared to historical data for determining trends.

3.1.5.1 Measures to Ensure Comparability of Field Data

Ensuring that this QAPP and the SAP are adhered to and that samples are properly handled and analyzed will satisfy the comparability of field data. Additionally, efforts will be made to have sampling completed in a consistent manner by the same sampling team using the same methodologies.

3.1.5.2 Measures to Ensure Comparability of Laboratory Data

Analytical data are comparable when the data are collected and preserved in the same manner followed by analysis with the same standard method and RLs. Data comparability is limited to data from the same environmental media. Analytical method quality specifications have been established to help ensure that the data will produce comparable results. Tables 1A and 1B summarize example laboratory RLs.

3.1.6 Sensitivity

Sensitivity is the ability of a method or instrument to detect a parameter to be measured at a level of interest. Analytical sensitivity is a measure of both the ability of the analytical method to detect the analyte and the concentration that can be reliably quantified. The minimum concentration of the analyte that can be detected is the method detection limit (MDL). The minimum concentration that can be reliably quantified is the RL. Laboratories use both MDLs and RLs for reporting analyte concentrations, and both values will be used as measures of sensitivity for each analysis.

The sensitivity requirements for laboratory analyses are to meet the screening levels established for the project and the Model Toxics Control Act (MTCA) standards, if applicable. Analytical results will be reported to the laboratory RL except for when the RL value exceeds applicable screening levels. For these cases, analytical results will be reported to the MDL.

Tables 1A and 1B summarize example laboratory RLs.

4 Specialized Training and Certifications

4.1 Personnel Training

Field technical staff working at locations where hazardous materials and/or other contaminants may be encountered will be trained as mandated by Occupational Safety and Health Administration (OSHA) regulations (29 Code of Federal Regulations [CFR] 1910.120) and Washington Administration Code (WAC) 296-843 (WAC, 2018). The consultant will also ensure that Site personnel complete either their initial Hazardous Waste Operations and Emergency Response (HAZWOPER) training or their annual 8-Hour HAZWOPER refresher training and maintain personnel training records. At least one field member at each field sampling station will have cardiopulmonary resuscitation (CPR) and first aid training. Additionally, field personnel will be properly trained in procedures for using field equipment or monitoring devices as well as in procedures for collecting, labeling, packaging, and shipping environmental samples.

Personnel engaged in field activities will have completed health and safety training that meets the requirements of the Site-specific health and safety plan in accordance with WAC 173-340-810 (WAC, 2024). Documentation will be maintained to demonstrate that requirements of the Site-specific Health and Safety Plan (HASP) are followed. The project manager will be responsible for ensuring requirements for safety training set forth in the Site-specific HASP are satisfied. Each day, prior to work commencing, the consultant field personnel will conduct a tailgate health and safety meeting with participation by the full contractor field team.

Subcontractors will be prequalified by the consultant to determine that their training and certification meet industry standards and are contractually aligned. The consultant will verify that all subcontractors are qualified to work on the project by conducting a thorough review of their safety programs, safety records, insurance requirements, licenses, and training and certifications specific to their task. Additional details pertaining to special training and required certification are described in detail in the Site-specific HASP.

4.2 Laboratory Accreditation

The laboratory performing sample analyses will be accredited by Ecology in accordance with WAC 173-50 Accreditation of Environmental Laboratories (WAC, 2023) or the National Environmental Laboratory Accreditation Program (NELAP). The laboratory must be approved under Ecology for each analytical method or approved for each parameter of analysis under NELAP. Example laboratory certifications are provided in Appendix B.

5 Documentation and Records

Records to be used for project documentation include field forms and chain-of-custody (COC) forms. Example forms are included in the SAP. Final copies of reports and spreadsheets will be saved in Portable Document Format (PDF). The consultant will retain these files for a period of at least 10 years following the completion of work performed pursuant to the AO.

Each product completed as part of the RI will undergo a quality review by an experienced staff member and a final review by a senior reviewer prior to submittal to Ecology or discussion with outside parties. Corrective action will be implemented in response to deficiencies that are encountered during product or deliverable assessments. Any reviewer who detects a deficiency or non-conforming situation will be responsible for reporting the deficiency to the author/reviewer. A closed-loop corrective action system will be used to address these types of needed corrections.

6 Data Generation and Acquisition

This section addresses data generation and acquisition to ensure that appropriate methods for sampling measurement and analysis, data collection or generation, data handling, and QC activities are employed and documented.

6.1 Sample Design

The *Remedial Investigation Work Plan – 101 East and 101 West* (RI Work Plan) and SAP describe field activities, including the following elements:

- Project background.
- Sample matrices, numbers, locations, and depths.
- Sampling procedures.
- Number and type of QC samples to be collected and submitted for analysis.
- Field documentation and procedures.
- Requested analytical methods.
- Additional sampling, analytical, or QA/QC requirements that deviate from those established in this QAPP.

Sample containers, preservation, and holding times are summarized in Table 2. QA/QC samples will be collected in accordance with the QAPP protocols. Requirements for QA/QC samples are presented in Table 3.

6.2 Sample Methods

6.2.1 Sample Nomenclature Scheme

Each sample collected during Site activities will be given a unique identification code. Each unique sample identification will consist of the following:

- Sample Type. Each sample will be identified by a sample type code as follows:

  S – soil sample.
  V – soil vapor sample.

- Depth interval. Following the sample type, the depth, or depth interval, from which the sample was collected will be identified. For example:

  5 – sample collected at 5 feet below ground surface (bgs).

- Station Number. Following the sample type each sample will be identified by a station number as follows:

  MW-## – monitoring well sample location.
  SVS## – soil vapor sample location.

- QA Sample IDs. Field, equipment, and duplicate samples will be identified using the project area code and the codes noted below. These codes will be followed by 01, 02, 03, etc. if more than one of the sample types are collected.

  TB – trip blank sample.
  EQB – equipment blank sample.
  DUP – field duplicate sample.

Examples:

S-20-MW-1 = Soil sample collected at 20 feet bgs from groundwater monitoring well MW1.
V-0.5-SVS1 = Soil vapor sample collected at 0.5 foot bgs from soil vapor sample location SVS1.
EQB01 = First equipment blank collected.
S-20-MW-1-DUP = Field duplicate soil sample collected at 20 feet bgs from boring MW1.

Sample bottle labels appropriate for the size and type of sample containers will be provided by each laboratory. Each label will be completed in waterproof ink and indicate at a minimum:

- Site name.
- Sample identification code.
- Date and time of sample collection.
- Sampler's initials.
- Requested analyses.
- Type of preservative.

6.2.2 Sample Collection

Table 2 lists the required sample containers, preservatives, and recommended maximum holding times for samples. Samples will be collected into containers provided by the laboratory. To maintain sample integrity and prevent cross contamination, samplers will follow field protocols (example field protocols are included in the SAP).

6.3 Sample Handling

6.3.1 Sample Custody

The possession and handling of samples will be documented from the time of collection until delivery to the laboratory. Field personnel are responsible for ensuring that COC procedures are followed. Field personnel will maintain custody of all samples until they are relinquished to another custodian, the laboratory, or the freight shipper.

A sample is considered "in custody" if it is:

- In a person's possession.
- In view of the person after being in their possession.
- Sealed in such a manner that it cannot be tampered with after having been in physical possession.
- In a secure area restricted to authorized personnel.

All samples must be catalogued on a COC form using sample identification codes. The date and time of collection will be recorded on the form, as well as the number of each type of bottle, the method of preservation, and the type of analysis.

6.3.2 Sample Packing and Shipping

Samplers will transport environmental samples directly to the laboratory or use an overnight delivery service. The laboratory will be contacted in advance to expect shipment so that sample holding times will be met. The COC forms will be sealed in a plastic bag and placed inside the sample cooler. Samples will be packed in the cooler using bubble-wrap packing materials and ice. Appropriate Department of Transportation (DOT) regulations for packaging, marking/labeling, and shipping of hazardous materials and wastes will be followed.

If using an overnight delivery service, the sample cooler will be taped closed and custody seals provided by the laboratory will be affixed to prevent tampering during transport, and to facilitate the detection of possible tampering (if the seals are broken). Upon relinquishing the sample cooler to the contract laboratory or shipper, field personnel will assign custody of the samples to the laboratory or shipper by signing and dating the bottom of the COC form. One copy of the COC documentation will be retained by the project chemist and a second copy will be retained by the laboratory or shipper. The integrity of the custody seals shall be noted by the laboratory on the COC form upon arrival.

The project laboratory will perform laboratory custody procedures for sample receiving and log-in, sample storage, tracking during sample preparation and analysis, and storage of data in accordance with their standard operating procedures (SOPs). The laboratory project manager will be responsible for ensuring that laboratory custody protocol is maintained. The laboratory procedures related to sample custody are discussed in the laboratory's QAM (example QAM provided in Appendix A).

The consultant will be responsible for the custody of evidence files and will maintain and update the contents of the files during the project term. The evidence files will include all records relevant to sampling and analysis activities such as field logbooks, photographs, subcontractor reports, laboratory data deliverables, COC forms, and data reviews. The consultant will retain this file for a period of at least 10 years following the completion of work performed pursuant to the AO.

6.4 Laboratory Procedures

6.4.1 Intra-Laboratory and Subcontracted Laboratory Sample Transfer

Transfer of samples, subsamples, digestates, or extracts to another party are subject to all of the requirements for legal COC for all samples associated with legal COC.

6.5 Analytical Methods

Analytical methods will be selected that will achieve project objectives. Samples will be prepared and analyzed in accordance with the analytical methods outlined in the laboratory's QAM (example QAM provided in Appendix A).

Samples will be submitted for analysis using one or more of the following methods, as specified in the SAP:

- Gasoline range petroleum hydrocarbons (GRPH) by Ecology Method Northwest Total Petroleum Hydrocarbons (NWTPH) for Gasoline Range Organics (NWTPH-Gx) or United States Environmental Protection Agency (EPA) Method TO-15, as applicable.
- Diesel range petroleum hydrocarbons (DRPH) and oil range petroleum hydrocarbons (ORPH) by Ecology Method NWTPH for Diesel/Oil Range Organics (NWTPH-Dx).
- Total petroleum hydrocarbon fractions by Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons (MA APH).
- VOCs by EPA Method 8260D or EPA Method TO-15, as applicable.
- Total lead by EPA Method 6020B.
- Fixed gases by EPA Method 3C.

Analytical methods and example RLs are presented in Tables 1A and 1B.

After submittal of the samples to the laboratory for analysis, the analytical results are anticipated to be received on different turnaround times based on complexity of the analysis, method extraction, hold times, laboratory QA/QC validation times, and overall laboratory logistical and volume capabilities. It is anticipated that results will report on a two-week turnaround time.

7 Quality Control

QC requirements ensure that the environmental data collected are of the highest standard feasible, as appropriate for the intended application.

7.1 Field Quality Control

Where applicable, field QC checks will be conducted through replicate measurements, equipment calibration checks, and data verification by field personnel. Field sampling precision and data quality will be evaluated through use of sample duplicates, equipment blanks, and trip blanks. If there is any discrepancy in the sample data, field personnel will notify the project manager and discuss methods for resampling or otherwise addressing the discrepancy.

7.1.1 Field QA/QC Samples

The minimum required frequency for equipment blanks is one equipment blank per day per type of sampling equipment. The number of field duplicate samples recommended for each round of sampling is

one for every 20 samples per matrix. One sample collected for the purpose of MS/MSD at the laboratory will be collected for every 20 samples for soil. One trip blank per cooler containing samples for VOC analysis will be used. Ecology shall be permitted to take split or duplicate samples of any environmental samples collected at the Site in accordance with the AO.

7.1.2 Field Instrument Calibration

Measuring and test equipment used in the field and laboratory will be subject to a formal calibration program. The program will require equipment of proper type, range, accuracy, and precision to provide data compatible with the specified requirements and the desired results. Calibration of measuring and test equipment may be performed internally using in-house reference standards or externally by agencies or manufacturers. Field personnel are responsible for calibration of consultant field equipment and field equipment provided by vendors.

Calibrated equipment will be uniquely identified by the manufacturer's serial number, a consultant equipment identification number, or by other means. These identification numbers will be attached to the equipment, along with a label indicating when the next calibration is due (only for equipment that does not require daily calibration). If this is not possible, records traceable to the equipment will be readily available for reference. It will be the responsibility of all equipment operators to check the calibration status per the due date labels or records prior to using the equipment.

Measuring and testing equipment will be calibrated at prescribed intervals and/or as part of operational use. Frequency will be based on the type of equipment, inherent stability, manufacturer's recommendations, values given in national standards, intended use, and experience. Whenever possible, equipment will be calibrated using reference standards associated with nationally-recognized standards or accepted values of physical constants. If national standards do not exist, the basis for calibration will be documented.

Physical and chemical reference standards will be used only for calibration. Equipment that fails calibration or becomes inoperable during use will be removed from service, segregated to prevent inadvertent use, and tagged to indicate the fault. Such equipment will be recalibrated and repaired to the satisfaction of the project chemist or field personnel, as applicable. Equipment that cannot be repaired will be replaced.

Calibration records will be maintained for each piece of applicable equipment used for measurement and testing to demonstrate that calibration procedures have been followed. Records for consultant equipment, used only for this project, will be kept in the project files.

7.1.3 Field Instrument/Equipment Decontamination

Field personnel or the contracted driller will decontaminate non-dedicated sampling equipment between each sample location with a non-phosphate solution (such as Liquinox), followed by a minimum of two tap water rinses. Distilled water may be used for the final rinse. Downhole drilling equipment is steam cleaned prior to drilling the borehole and at completion of the borehole.

Between sample intervals, the soil sampling table is cleaned by spraying it with a non-phosphate solution and wiping it with disposable paper towels.

Prior to well development, the submersible pump is decontaminated by allowing it to run and recirculate while immersed in a non-phosphate solution followed by successive immersions in potable water and distilled water baths.

7.1.4 Field Supplies and Consumables

Supplies and consumables including standard reference materials for field meter calibration, sampling equipment, cleaning supplies, distilled water for equipment decontamination, and personal protective equipment will be obtained from vendors to meet manufacturer operation/maintenance specifications and minimum safety requirements.

7.2 Laboratory Quality Control

The laboratory QA manager will be responsible for ensuring that each laboratory's data precision and accuracy are maintained in accordance with the laboratory QAM and this QAPP. Laboratory QA/QC (initial and continuing calibration, frequency of blank analysis, etc.) will be determined in accordance with the analytical method requirements and internal laboratory SOPs.

The laboratory will qualify all results that are affected by QC exceptions or other events that affect the interpretation of the analytical results with a flag that is defined unambiguously in the analytical report.

7.2.1 Laboratory Instrument Calibration

The proper calibration of laboratory equipment is a key element to the quality of laboratory analysis. Each type of instrumentation and each Ecology- or EPA-approved method have specific calibration procedure requirements, depending on the analytes of interest and the sample medium.

Calibration procedures and frequencies of equipment used to perform analyses will be in accordance with requirements established by Ecology or EPA. The laboratory QA manager will be responsible for ensuring that laboratory instrumentation is maintained in accordance with specifications. Individual laboratory SOPs will be followed for corrective actions and preventative maintenance frequencies.

The laboratory will be responsible for the calibration of laboratory equipment and will maintain individual laboratory calibration records.

7.2.2 Laboratory Supplies and Consumables

The laboratory QA manager or designee will be responsible for ensuring the acceptability of supplies and consumables used in the collection, preservation, preparation, and analysis of samples.

8 Non-Direct Measurements

Any non-direct measurements or data will be taken from industry-recognized standard sources. These sources include the United States Geological Survey, as well as standard engineering, chemistry, and geological reference standards.

Available historical Site data from previous investigations are discussed in detail in the RI Work Plan. The historical data that met acceptance criteria were considered and used extensively to plan the investigation scope described in the RI Work Plan and SAP.

9 Data Management

Field and electronic data will be managed to provide consistent, accurate, documentable, and defensible data quality. Field personnel will manage data during field activities. Field data such as sample location latitudes and longitudes collected in the field using a global positioning system unit, geologic profiles, and field measurements, will be recorded on the appropriate field forms or in field logbooks. Example field data sheets are provided for reference in the SAP. The project database manager will collect data gathered during assessment activities and save the data in the project file. Any errors or exceptions in field QA/QC observed by field staff will be brought to the attention of the field QA manager.

The laboratory project manager will be responsible for laboratory data management. Procedures for data review and data reporting are discussed in the laboratory QAM and SOPs. Laboratory-generated analytical data reports will present all sample results, including all QA/QC samples.

The project database manager will incorporate electronic data into Ecology's Environmental Information Management (EIM) database in accordance with Ecology's *Toxics Cleanup Program Policy 840: Data Submittal Requirements* (Ecology, 2005).

9.1 Standard Operating Procedures

Whenever field protocols are applicable and available, they will be incorporated into data collection activities. To ensure environmental sample collection efforts are comparable, procedures found in sampling field protocols will be followed. Example sampling field protocols are provided in the SAP.

Data to be managed for this project includes sample documentation, field forms and logbooks, field protocols, and analytical data deliverables.

9.2 Field Notes

Field notes detailing Site activities and observations will be kept (electronically or in a field logbook) so that an accurate and factual account of field procedures may be reconstructed. All field logbook entries will be signed by the individuals who are making them. Field notes should document the following:

- Site name and project number.

- Consultant name and address.
- Names of personnel on Site.
- Dates and times of all entries.
- Descriptions of all Site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-Site personnel.
- Dates and times of sample collections and COC information.
- Photographs taken.
- Site sketches.
- Relevant and appropriate information delineated in field data sheets and sample labels.

Real-time measurements and observations will be recorded in a logbook or field form. Field data records will be organized into standard formats whenever possible. Hard copies of field notes and laboratory data reports will be kept at least until data review, verification, validation, reconciliation with user requirements, and reporting is complete. Electronic copies of field notes and laboratory reports will be kept in the electronic project file.

9.3 Analytical Data Deliverable Requirements

Analytical data will contain the necessary sample results and QC data to evaluate the data use objectives defined for the project.

The laboratory will provide Level II data deliverables. Data shall be presented on numbered pages with an index or table of contents describing the contents. Analytical results should be reported as detected concentrations, estimated concentrations below the RL, or less than the quantitation limit. All quality control samples shall be clearly linked to the associated samples and the results summarized on EPA Contract Laboratory Program (CLP) or CLP-like forms. The following information shall be included in the data package:

- A case narrative shall be included in each data package. The case narrative shall identify all samples not meeting QC criteria and any other out-of-control condition. The narrative shall describe the corrective action taken. If matrix effects are invoked as a case for out-of-control recoveries, a subsection of the narrative shall present a detailed justification for this assertion and include a summary of all relevant quality control data.
- A copy of the original COC and a copy of the cooler receipt form.
- Sample collection, extraction, preparation, and analysis dates.
- Method of analysis (name and method number).
- QC sample identification (for project-specific QC samples).
- Dilution factors for all applicable samples.
- Detection limits (RLs and MDLs) and units of measure for all analyses.
- Field sample and laboratory sample identifications cross-reference.
- QC batch identifications.
- Laboratory data qualifiers.

- Surrogate recovery results with associated control limits (all organic analyses).
- LCS precision results with associated control limits. All samples must be clearly associated with each LCS/LCD sample pair analyses (where applicable).
- MS/MSD (as applicable) precision and accuracy results with associated control limits. All samples must be clearly associated with each MS/MSD sample pair analyses.
- Laboratory duplicate (as applicable) precision and accuracy results with associated control limits. All samples must be clearly associated with each laboratory duplicate sample pair analyses.
- Method blank analytical results will be reported for all target analytes for all required analyses. All samples must be clearly associated with each method blank sample analyses.
- Post-digestion spike recovery values for metals analyses where MS/MSD or LCS samples were outside of acceptable ranges.

9.4 Electronic Data Deliverable

An Ecology EIM database formatted electronic data deliverable will be provided by the laboratory for loading the analytical results into the project database.

10 Data Quality Assessment

10.1 Assessments and Response Actions

10.1.1 Performance and System Audits

Performance and system audits may be completed to ensure that field sampling activities and laboratory analyses are performed in accordance with procedures established in this QAPP, including the SAP and field protocols.

Generally, system audits are a qualitative measure of adherence to overall sampling QA measures, including sample collection and handling, decontamination procedures, COC use and completion, and recording requirements in the field, as well as sample receiving, log-in, and instrument operating records in the laboratory.

10.1.2 Field System Audits

Early in the project, the field QA manager may conduct a field audit to assess whether field activities are being conducted in accordance with this QAPP and the SAP. If deviations are noted during the audit, the auditor will take immediate action to bring practices in line with this QAPP. The auditor will document any deficiencies encountered and corrections made. Results of the audit will be maintained in the project file.

The field audit will include the following:

- Review of field sampling records.
- Review of field measurement procedures.
- Comparison of sample identifications to the QAPP sample identification protocol.

- Review of field instrument calibration records and procedures.
- Recalibration of field instruments to verify calibration to the manufacturer's specifications.
- Review of sample handling and packaging procedures.
- Review of COC procedures.

If deficiencies are observed during the audit, each deficiency shall be noted in writing and a follow-up audit may be completed if deemed necessary by the field QA manager. Corrective action procedures may need to be implemented due to the findings from the audit, following the procedures outlined in Section 10.2.2.

Upon completion of any audit, the auditor will submit to the project manager a report or memorandum describing any problems or deficiencies identified during the audit. It is the responsibility of the project manager to assess if the deviations will result in any adverse effect on the project conclusions. If it is determined that corrective action is necessary, procedures outlined in Section 10.2.2 will be followed.

10.1.3 Laboratory Audits

The laboratory will be responsible for ensuring that laboratory data precision and accuracy are maintained in accordance with specifications and laboratory SOPs.

10.1.4 Report Preparation QA/QC

All reports will undergo a quality review by an experienced staff member and a final review by a senior reviewer prior to submittal to Ecology. The report will be signed by a Washington State professional geologist, hydrogeologist, or engineer in accordance with WAC 196-23 (WAC, 2022). Corrective action will be implemented in response to deficiencies that are encountered during product or deliverable assessments. Any reviewer who detects a deficiency or non-conforming situation will be responsible for reporting the deficiency to the author/reviewer and the project manager. A closed-loop corrective action system will be used to address these types of needed corrections.

10.2 Quality Assurance Reporting Procedures

10.2.1 Progress Reports

For the duration of the project, quarterly progress reports will be prepared and submitted to the Ecology project manager in accordance with the AO. These reports will serve to inform Ecology of the project progress and any significant interim findings that have been identified, including those related to QA. This will streamline the process of addressing issues as they arise and adjusting the program to better achieve project objectives.

The progress reports shall include the following:

- A list of on-Site activities that have taken place during the quarter.
- Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.
- Description of all deviations from the AO scope of work and schedule (Exhibit B of the AO) during the current quarter and any planned deviations in the upcoming quarter.

- For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.
- All raw data (including laboratory analyses) received during the previous quarter (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.
- A list of deliverables that have been submitted during the quarter.
- A list of deliverables for the upcoming quarter if different from the schedule.

Progress reports shall be submitted by the 10th day of the month in which they are due after the effective date of the AO. Progress reports for the 101 East and 101 West will be prepared by Chevron and ExxonMobil. Progress reports for the 100 West property will be prepared by Powell Distributing.

10.2.2 Corrective Action

Corrective actions will be initiated whenever data quality indicators suggest that data usability objectives and/or measurement criteria have not been met. Corrective actions will begin with identifying the source of the problem. Potential problem sources include failure to adhere to method procedures, improper data reduction, equipment malfunctions, or systemic contamination. The first level of responsibility for identifying the problems and initiating corrective action lies with the analyst/field personnel. The second level of responsibility lies with any person reviewing the data. Corrective actions may include more intensive staff training, equipment repair followed by a more intensive preventive maintenance program, or removal of the source of systemic contamination. If data usability objectives are not met, the samples in question may require recollection and/or reanalysis using a properly functioning system.

The project manager is responsible for verifying and documenting completion of corrective actions.

11 Data Review, Verification, and Validation

This section describes the QA activities that will be performed to verify that data collected and generated during the project are scientifically defensible, properly documented, of known quality, and meet project objectives. Data verification, validation, and usability assessment will be conducted to ensure that project data quality needs are met.

To perform the data evaluation steps in this section, reported data will be supported by complete data packages that include sample receipt and tracking information, COC records, tabulated data summary forms, QC checks, QC sample results, and other project-specific documents generated.

11.1 Data Verification Criteria and Methods

Data verification is a process of evaluating the completeness, correctness, and contractual compliance of a data set against the analytical method procedure, field protocols, or contract requirements. The goal of data verification is to assess whether the types and quantities of data specified in the QAPP and SAP were collected.

Field and laboratory data will be verified by:

1. Identifying project requirements/specifications as documented in the laboratory QAM, QAPP, SAP, field protocols, and analytical method procedures.

2. Reviewing project records such as field logbooks, COCs, sample receipts, and laboratory preparation and analysis records to verify that collected data complies with procedures outlined in this QAPP.

The project chemist will verify field data by periodically comparing field documentation including COCs, logbooks, and field forms to specifications in the QAPP and SAP. Data to be verified will include sample collection and handling procedures, sample identification system, number and type (media) of samples collected, sample location and depth, field equipment calibration and use, units of measure, and analytical services requested on COCs.

The laboratory will verify analytical data by comparing procedures and requirements in the laboratory QAM, analytical method procedures, SOPs, and QAPP to records such as COCs, sample receipt forms, and sample preparation, handling, and analysis records. The project chemist will review laboratory electronic data deliverables for compliance with contract and work order specifications.

If a significant problem that affects data usability is discovered, the project chemist will contact the laboratory to initiate corrective action. If necessary, review of raw data associated with the identified problem will be performed. This further review will focus only on the identified problem and will not include analyses that did not exhibit serious data quality deficiencies for important target analytes.

11.2 Data Validation Criteria and Methods

Data validation is an analyte- and sample-specific process that extends the qualification of data beyond method, procedural, or contractual compliance (i.e., data verification) to determine the analytical quality of specific data sets. Data validation results are accepted, qualified, or rejected data.

All analytical data received from the project laboratory will be validated based on the evaluation criteria outlined in the EPA National Functional Guidelines (NFGs) inorganic (EPA, 2020a) and organic data review (EPA, 2020b). The NFG provide specific data validation criteria that can be applied to data generated from this Site. Professional judgment will be applied by the data validator or project chemist based on the NFGs.

Level II data validation procedures will be used for this program to obtain an adequate level of confidence in the data presented. Data validation will be performed by, or under the supervision of, the project chemist and will include an evaluation of the following:

- Sample management (collection techniques, sample containers, preservation, handling, transport, COC, and holding times).
- Blanks sample results (method, equipment, and trip blanks).
- LCS/LCSD recoveries and/or precision.
- Surrogate recoveries (if applicable).
- MS/MSD recoveries and precision.
- Field duplicate comparison.

- Compound identification and quantification limits.

The consultant will document data validation results in a data validation/data usability report that will be included as an appendix to each RI-related report where laboratory analysis of samples is conducted.

If data are determined to be unusable, corrective action may be taken. Potential corrective actions may include resampling by the field team or laboratory reanalysis of the samples. Corrective actions will depend on ability to mobilize the field team and whether data are critical to project data quality objectives. Should the QA manager or project chemist identify a situation warranting corrective action, the project manager will be responsible for approving implementation of the corrective action.

11.3 Data Limitations and Actions

Sources of sampling and analytical error will be identified and corrected as early as possible. An ongoing data assessment process will be incorporated throughout the project, rather than as a final step, to facilitate early detection and correction of problems, ensuring that project quality objectives are met.

Data that do not meet the measurement performance criteria specified in this QAPP will be identified and impact on project quality objectives will be assessed and discussed within the final report. Specific actions for data that do not meet measurement performance criteria will depend on the use of data and may require that additional samples be collected or use of the data be restricted.

12 Limitations

Select documents and materials provided in this QAPP such as the example RLs, precision, and accuracy values provided in Tables 1A and 1B; the example laboratory QAM provided in Appendix A; and the example laboratory certification provided in Appendix B may not be applicable to the analytical laboratory contracted for the work outlined in Task 2 of the AO. An addendum to this QAPP may be necessary to provide updated documents and materials if they vary significantly from the examples provided herein.

13 References

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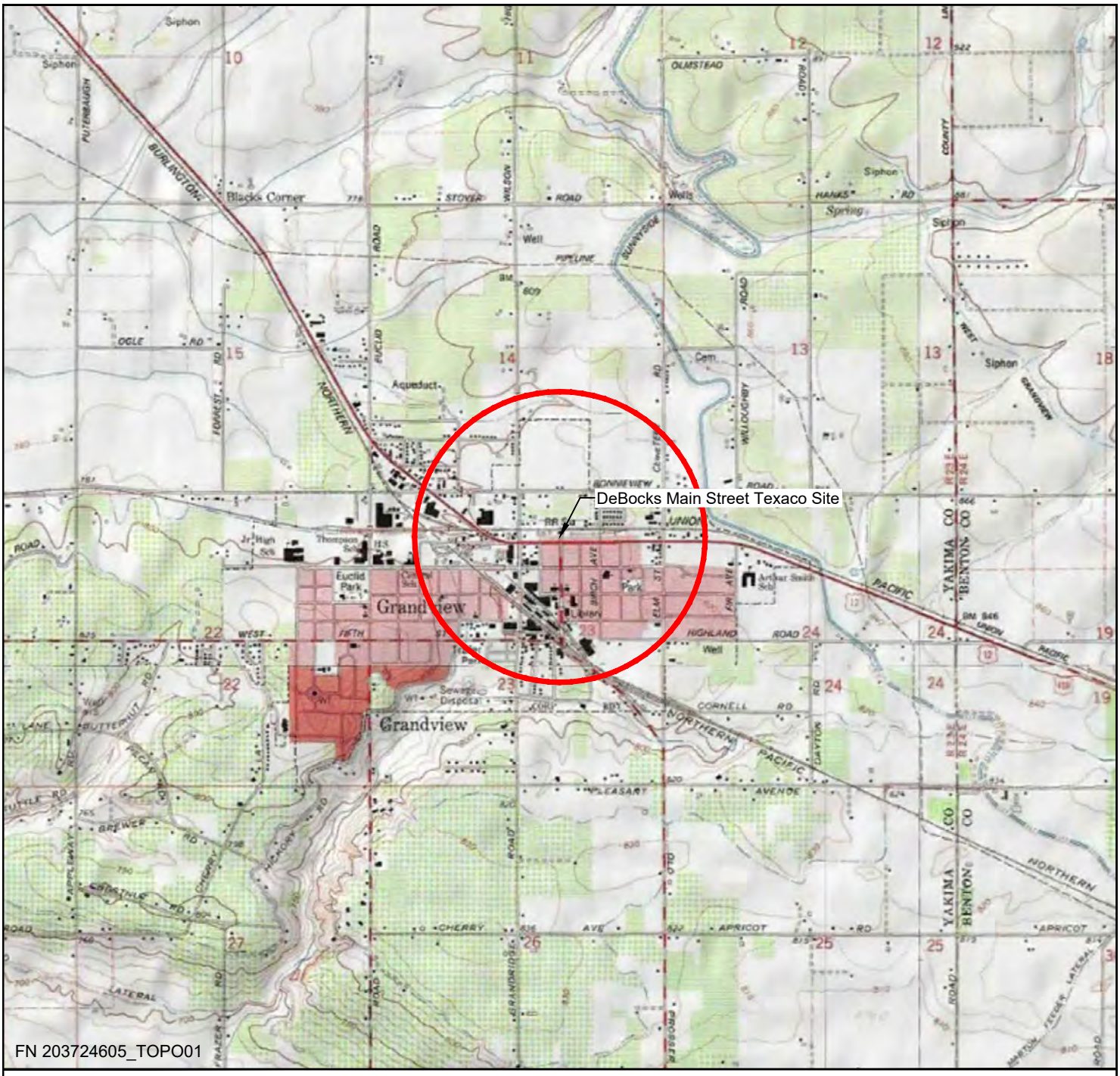
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Washington State Department of Ecology (Ecology). May 15, 2025. Agreed Order No. DE 22952.



EXPLANATION

1/2-mile distance from site

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from maps provided by Google Earth Pro and
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Stantec

SITE LOCATION MAP

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

PROJECT NO.
203724605

PLATE
1

TABLE 1A
ANALYTICAL PARAMETERS, REPORTING LIMITS, PRECISION, AND ACCURACY
ALLIANCE TECHNICAL GROUP - SOLID SAMPLES
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Analyte Group	Analyte	CAS No.	Analytical Method	MDL	RL	Lowest Preliminary Soil Screening Levels	Units	LCS Criteria (% R)	MS Criteria (% R)	Duplicate RPDL (%)
TPH	GRPH	---	NWTPH-Gx	0.502	5	30	mg/kg	65-135	65-135	20
	DRPH	---	NWTPH-Dx	10.4	50	2,000	mg/kg	67.1-134	40.5-159	30
	ORPH	---	NWTPH-Dx	36.6	100		mg/kg			
VOCs	Benzene	71-43-2	EPA 8260D	0.00386	0.012	0.03	mg/kg	80-120	64.8-130	20,30
	Ethylbenzene	100-41-4	EPA 8260D	0.00532	0.025	6	mg/kg	80-120	68.7-122	20,30
	Naphthalene	91-20-3	EPA 8260D	0.03855	0.1	5	mg/kg	80-120	73.4-120	20,30
	Toluene	108-88-3	EPA 8260D	0.00922	0.025	7	mg/kg	80-120	64.5-127	20,30
	m,p-Xylene	179601-23-1	EPA 8260D	0.00918	0.05	16,000	mg/kg	80-120	69.1-122	20,30
	o-Xylene	95-47-6	EPA 8260D	0.00507	0.025	16,000	mg/kg	80-120	72.4-118	20,30
	Total Xylenes	1330-20-7	EPA 8260D	---	0.05	9	mg/kg	---	---	---
Metals	Lead	7439-92-1	EPA 6020B	0.07345	0.2	250	mg/kg	80-120	75-125	20

Notes:

--- = Not applicable or not available
% = Percent
% R = Percent recovery
CAS = Chemical Abstracts Service
DRPH = Diesel range petroleum hydrocarbons
EPA = United States Environmental Protection Agency
GRPH = Gasoline range petroleum hydrocarbons
LCS = Laboratory control sample
MDL = Method detection limit
mg/kg = Milligrams per kilogram
MS = Matrix spike
ORPH = Oil range petroleum hydrocarbons
RL = Reporting limit
RPDL = Relative percent difference limit
TPH = Total petroleum hydrocarbons
VOCs = Volatile organic compounds

TABLE 1B
ANALYTICAL PARAMETERS, REPORTING LIMITS, PRECISION, AND ACCURACY
ALLIANCE TECHNICAL GROUP - VAPOR SAMPLES
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Analyte Group	Analyte	CAS No.	Analytical Method	MDL	RL	Lowest Preliminary Soil Gas Screening Levels	Units	LCS Criteria (% R)	Duplicate RPDL (%)
TPH Fractions	Aliphatic EC5-8	---	MA APH	39.8	114	---	µg/m^3	70-130	25
	Aliphatic EC9-12	---	MA APH	47.0	118	---	µg/m^3	70-130	25
	Aromatic EC9-10	---	MA APH	14.0	30.2	---	µg/m^3	70-130	25
TPH	GRPH	---	EPA TO-15	5.9	236	1,500	µg/m^3	70-130	25
VOCs	1,2-Dichloroethane	107-06-2	EPA TO-15	0.00777	0.162	3.2	µg/m^3	70-130	25
	Benzene	71-43-2	EPA TO-15	0.0413	0.128	11	µg/m3	70-130	25
	cis-1,2-Dichloroethene	156-59-2	EPA TO-15	0.103	0.793	610	µg/m^3	70-130	25
	Ethanol	64-17-5	EPA TO-15	0.377	1.13	---	µg/m^3	70-130	25
	Ethylbenzene	100-41-4	EPA TO-15	2.15	8.68	15,000	µg/m^3	70-130	25
	Ethylene dibromide	106-93-4	EPA TO-15	0.0164	0.0164	0.14	µg/m^3	70-130	25
	Methyl tert butyl ether	1634-04-4	EPA TO-15	0.124	0.721	320	µg/m^3	70-130	25
	Naphthalene	91-20-3	EPA TO-15	0.189	0.294	2.5	µg/m^3	70-130	25
	Tetrachloroethene	127-18-4	EPA TO-15	1.78	13.6	320	µg/m^3	70-130	25
	Toluene	108-88-3	EPA TO-15	3.14	7.54	76,000	µg/m^3	70-130	25
	trans-1,2-Dichloroethene	156-60-5	EPA TO-15	0.0871	0.215	610	µg/m^3	70-130	25
	Trichloroethene	79-01-6	EPA TO-15	0.139	0.793	11	µg/m^3	70-130	25
	Vinyl chloride	75-01-4	EPA TO-15	0.0359	0.511	9.5	µg/m^3	70-130	25
	m,p-Xylene	179601-23-1	EPA TO-15	4.28	17.4	---	µg/m^3	70-130	25
	o-Xylene	95-47-6	EPA TO-15	1.43	8.68	---	µg/m^3	70-130	25
	Total Xylenes	1330-20-7	EPA TO-15	---	17.4	1,500	µg/m^3	---	---
Fixed Gases	Helium	7440-59-7	EPA 3C	0.0717	0.2	---	%	80-120	30
	Oxygen	7782-44-7	EPA 3C	0.01	0.05	---	%	90-110	20
	Nitrogen	7727-37-9	EPA 3C	0.01	0.05	---	%	90-110	20
	Carbon Dioxide	124-38-9	EPA 3C	0.01	0.05	---	%	90-110	20
	Carbon Monoxide	630-08-0	EPA 3C	0.01	0.05	---	%	90-110	20
	Methane	74-82-8	EPA 3C	0.01	0.05	---	%	90-110	20

TABLE 1B
ANALYTICAL PARAMETERS, REPORTING LIMITS, PRECISION, AND ACCURACY
ALLIANCE TECHNICAL GROUP - VAPOR SAMPLES
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Notes:

---	=	Not applicable or not available
%	=	Percent
% R	=	Percent recovery
$\mu g/m^3$	=	Micrograms per cubic meter
CAS	=	Chemical Abstracts Service
EPA	=	United States Environmental Protection Agency
GRPH	=	Gasoline range petroleum hydrocarbons
LCS	=	Laboratory control sample
MDL	=	Method detection limit
RL	=	Reporting limit
RPDL	=	Relative percent difference limit
TPH	=	Total petroleum hydrocarbons
VOCs	=	Volatile organic compounds

TABLE 2
SAMPLE CONTAINER, PRESERVATION, AND HOLDING TIME REQUIREMENTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Matrix	Analysis	Analytical Method	Container	Preservation	Holding Time
Soil	GRPH	NWTPH-Gx	(1) 4 oz glass jar; (2) 40 mL glass VOA vial w/MeOH; (1) Field Preservation Kit	MeOH Cool to 4°C	14 days
	DRPH, ORPH	NWTPH-Dx	(1) 4 oz glass jar	Cool to 4°C	14 days for extraction; 40 days for analysis
	VOCs	EPA 8260D	(1) 4 oz glass jar; (2) 40 mL glass VOA vial w/MeOH; (1) Field Preservation Kit	MeOH Cool to 4°C	14 days
	Total Metals	EPA 6020B	(1) 4 oz glass jar	Cool to 4°C	6 months
Soil Vapor	Petroleum Fractionation	MA APH	(1) 1L or 6L Summa canister	None	30 days
	GRPH	EPA TO-15			
	VOCs	EPA TO-15			
	Fixed Gases	EPA 3C			

Notes:
The Field Preservation Kit for soil consists of (2) x 40-mL VOA vials preserved with MeOH and 5 grams of sample volume.

°C = Degrees Celsius
DRPH = Diesel range petroleum hydrocarbons
EPA = United States Environmental Protection Agency
GRPH = Gasoline range petroleum hydrocarbons
MA APH = Massachusetts Method for the Determination of Air-Phase Petroleum Hydrocarbons
MeOH = Methanol
mL = Milliliter
NWTPH-Dx = Northwest Total Petroleum Hydrocarbons for Diesel/Oil Range Organics
NWTPH-Gx = Northwest Total Petroleum Hydrocarbons for Gasoline Range Organics
ORPH = Oil range petroleum hydrocarbons
oz = Ounce
VOA = Volatile organic analysis
VOCs = Volatile organic compounds
w/ = With

TABLE 3
FIELD AND LABORATORY QUALITY ASSURANCE/QUALITY CONTROL SAMPLE REQUIREMENTS
DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

	QC Sample Type	Frequency of Sample/Analysis	Details
Field Samples	Duplicate Samples	1 duplicate per 20 samples per matrix	Duplicate sample to be collected using the same methods and at the same time (within reason) as the parent sample; used to verify sample and analytical reproducibility
	Matrix Spike/ Matrix Spike Duplicate	1 MS/MSD per 20 samples per matrix	Samples spiked by the laboratory with a known concentration of analytes of interest prior to sample preparation and analysis; used to assess the accuracy and precision of the method for that sample
	Equipment Blanks	1 equipment blank per day per sample matrix when non-dedicated/reusable sampling equipment is used	Distilled water poured over decontaminated field sampling equipment into laboratory containers (rinsate/equipment blanks); used to assess quality of data from field sampling and decontamination procedures
	Trip Blanks	1 trip blank per cooler containing samples for VOC analysis	Laboratory-prepared organic-free sample taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures; used to assess contamination during shipping and field handling procedures
Laboratory Samples	Method Blanks	1 method blank per batch of samples in accordance with laboratory SOP	A blank prepared to represent the matrix as closely as possible; used to assess contamination introduced during sample preparation by the laboratory
	Instrument Blanks	Defined by the analytical method or at the analyst's discretion	A blank analyzed with field samples; used to assess the presence or absence of instrument contamination
	Laboratory Control Samples and Sample Duplicates	Analyzed as per method requirements and laboratory SOPs	Samples prepared that contain analytes that are representative of the analytes of interest at known concentrations in distilled water or sand and process in the same manner as the field samples; used to demonstrate the laboratory has control over sample preparation and analysis of specific tests and to demonstrate reproducibility

Notes:
MS/MSD = Matrix spike/matrix spike duplicate
QC = Quality control
SOP = Standard operating procedure
VOC = Volatile organic compound

Appendix A

Example Laboratory Quality Assurance Manual

SOP Proprietary Information

ALLIANCE TECHNICAL GROUP, LLC - SEATTLE

STANDARD OPERATING PROCEDURE

This document has been prepared by and remains the sole property of Alliance Technical Group, LLC – Seattle (ATG Seattle). It is submitted to a client or government agency solely for its use in evaluating ATG Seattle's qualifications in connection with the particular project, Certification, or approval for which it was prepared and is to be held proprietary to ATG Seattle.

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Quality Assurance

Quality Assurance and Quality Control Programs

Alliance Technical Group, LLC - Seattle
3600 Fremont Ave N.
Seattle, WA 98103
206-352-3790

Date 7/2/2025

Matt Langston
Laboratory Director

Date 7-2-2025

Sean Galloway
Technical Director

Date 7/2/2025

Alex Kegley
Quality Assurance Manager

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Revisions

Date	Revision #	Notation
7.18.07	1.1	Changed section 3.2 from FA-yymmdd to CHM-yymmdd
8.3.07	1.2	USDA APHIS PPQ regulations
8.3.08	1.3	General Edits and Revisions
10.20.08	1.4	General Edits and Revisions
02.15.09	1.5	Edits and Revisions (logo, syntax)
12.17.09	1.6	Updated Storage procedure re: Foreign Soil
12.22.09	1.7	Add Appendix (addendum): Foreign Soil
12.20.10	1.8	General Review
1.11.12	1.9	Edits and Revisions
3.21.12	2.0	Final
5.29.12	2.1	NELAC Edits
2.14.13	2.2	DoD Edits
6.25.13	2.3	DoD Edits – Final Review (MCR)
1.14.14	2.3.1	General Edits and Revisions (C.Ward)

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Date	Revision #	Notation
6.03.14	2.4	DoD Edits (Kari Scott, Erica Silva, M. Ridgeway)
4.16.15	2.5	Edits and Revisions (N. Masters)
2.18.16	2.6	Edits and Revisions (N. Masters)
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3.1.16	2.8	Edits and Revisions (M. Ridgeway)
3.4.16	2.9	Edits and Revisions (N. Masters)
3.23.17	3.0	Edits and Revisions (N. Masters)
10.30.17	3.1	Edits and Revisions (E. Mar)
4.12.18	3.2	Edits, Revisions, and Review (E. Mar)
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4.13.20-5.3.20	3.4	Edits, Revisions, and Review (E.Mar, A. Kegley, M. Langston, S. Galloway)
8.3.20-8.14.20	3.5	Post-DOD Audit Edits (A. Kegley)
5.12.22	3.6	Edits and Review (A. Kegley)
4.18.23	3.7	Edits and Review (A. Kegley)
12.13.24	3.8	Edits and Review (A. Kegley)

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Date	Revision #	Notation
6.18.25	3.81	Edits for Microbiology (A. Kegley)
7.1.25	3.82	Additional Edits for Microbiology (A. Kegley)

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1. INTRODUCTION AND SCOPE (TNI V1:M2 – SECTION 1, 2, 3)

1.1. The purpose of the Quality Assurance and Quality Manual is to outline the management systems for Alliance Technical Group, LLC – Seattle (ATG Seattle). The Quality Manual identifies the policies, procedures, and documentation that assure analytical services continually meet defined standards of quality, designed to provide clients with data of known and documented quality and, where applicable, demonstrate regulatory compliance.

1.2. The Quality Manual sets the standard under which all laboratory operations are performed, including the laboratory's organization, objectives, and operating philosophy. The Quality Manual has been prepared to assure compliance with the 2016 TNI Environmental Laboratory Sector Standard – Volume 1 – Management and Technical Requirements for Laboratories Performing Environmental Analysis (EL-V1-M1 through M7-ISO-2016) and the DoD Quality Systems Manual version 5.4. These Standards are consistent with ISO/IEC 17025:2017 requirements that are relevant to the scope of environmental testing services and thus, the laboratory operates a quality system in conformance with ISO/IEC 17025:2017. In addition, the policies and procedures outlined are compliant with the following accreditation and certification programs: Washington Department of Ecology, ORELAP (recognized by NELAP), and the Department of Defense.

1.3. The Quality Assurance and Quality Control (QAQC) Program is organized so that data produced from Alliance Technical Group, LLC – Seattle is traceable, reviewed multiple times and is of the utmost quality. The QAQC Program functions at the management level working through written standard operating procedures and overall laboratory quality control.

1.4. The QAQC Program provides a means by which the integrity of data can be verified. Because industrial, engineering, and environmental decisions are based on the data produced, it is essential that clear and extensive verification procedures exist and are followed. The precision, accuracy, comparability, and completeness criteria are all aspects of a data package that verify the integrity of the analysis.

1.5. Alliance Technical Group, LLC – Seattle follows approved methods (EPA, Standard Methods, ASTM, State specific methods) and has developed and implemented a quality assurance plan for a variety of laboratory analyses. The quality control program is blended with QC requirements to provide effective and efficient laboratory protocol. When it is necessary to deviate from standard methods, documentation is developed describing the properties of the method used.

1.6. The general quality assurance program utilized in each laboratory program includes considerations of the following areas:

- Personnel training
- Sample handling and control
- Equipment and supplies
- Equipment calibration and standards
- Quality control test samples
- Data handling and documentation

1.7. Laboratory training includes:

- Observing experienced operators/Chemists
- Studying applicable SOPs
- Performing analysis under direct supervision of experienced personnel
- Performing an Initial Demonstration of Capability
- Analyzing blind QC samples (if applicable)

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1.8. The Quality Assurance Manager coordinates quality assurance training. The training may consist of seminars addressing QC problems of general laboratory interest, and distribution of reports and manuals addressing QC issues.

2. SCOPE OF TESTING

2.1. Alliance Technical Group, LLC – Seattle analyzes water, drinking water, soil, sediment, oil, air, solid and wipe samples. The parameters/analytes measured, Method used and the laboratory SOPs can be found in Appendix C.

3. APPENDICES

*Note: Appendices may be updated independently of the QA Manual and will have individual revision numbers and dates.

3.1. Appendix A: Laboratory Organization Chart

3.2. Appendix B: Laboratory Floor Plan

3.3. Appendix C: Methods, SOP, and Analytes

3.4. Appendix D: Data Qualifiers

3.5. Appendix E: Chemistry

3.6. Appendix F: Instrumentation Listing/Support Equipment

3.7. Appendix G: Common Calculations

4. REFERENCES

4.1. 2016 NELAC Standards, 2016.

4.2. DoD Quality Systems Manual, Version 5.4 Final October 2021 (based on the NELAC Institute (TNI) Standards, Volume 1, September 2009, ISO/IEC 17025:2017 and ISO/IEC 17025:2005).

4.3. 2009 NELAC Standards, September 2009.

4.4. 40CFR part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants.

4.5. 40CFR part 141, National Primary Drinking Water Regulations.

4.6. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-005/80, December 29, 1980, Office of Monitoring Systems and Quality Assurance, ORD, U.S. EPA, Washington, DC 20460.

4.7. RCRA QAPP Instructions, U. S. EPA Region 5, Revision: April 1998

4.8. ASTM D-5283-92. Generation of Environmental Data Related to Waste Management Activities: Quality assurance and Quality Control Planning and Implementation

4.9. “American National Standards Specification and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC E-4)”, 1994

4.10. EPA 2185 - Good Automated Laboratory Practices, 1995

4.11. ISO/IEC Guide 25: 1990. General requirements for the competence of calibration and testing laboratories

4.12. QA/R-2: EPA Requirements for Quality Management Plans, August, 1994

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4.13. QA/G-4: Guidance for the Data Quality Objectives Process EPA/600/R-96/055, September, 1994

4.14. QA/R-5: EPA Requirements for Quality Assurance Project Plans, Draft Final – October, 1998

4.15. QA/G-5: Guidance on Quality Assurance Project Plans, EPA/600/R-98/018, February, 1998

4.16. QA/G-6: Guidance for the Preparation of Standard Operating Procedures for Quality-Related Operations EPA/600/R-96/027, November, 1995

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4.18. Manual for the Certification of Laboratories Analyzing Drinking Water EPA 815-r-05-004, January 2005, Fifth Edition.

4.19. Estimation of Analytical Measurement Uncertainty – Laboratory Quality and Accreditation Office Uncertainty Calculation SOP, https://www.denix.osd.mil/edqw/documents/reports/uncertainty-standard-operating-procedure/, Downloaded 2018.

4.20. Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples, EPA/600/R-03/027, December 2003.

5. GLOSSARY AND ABBREVIATIONS USED

5.1. Glossary

5.1.1. **Accuracy**. The degree of agreement between an observed value and an accepted reference or true value. Laboratory accuracy is assessed through the analysis of MS/MSD, quality control check samples, laboratory control samples (LCS), and surrogate compound spikes for organic analyses as methods require. The accuracy of a result is affected by both systematic and random errors. Accuracy does not denote only systematic error. (See "bias".)

5.1.2. **Analyte**. Denotes 'that which is to be analyzed for' in chemical, but not physical or biological determinations.

5.1.3. **Analytical Method**. Denotes a set of written instructions specifying an analytical procedure followed by a Chemist to obtain a numerical estimate of the concentration of a determinant (analyte) in each of one or more samples.

5.1.4. **Analytical Response**. A numerical observation which is obtained when a portion of a sample is presented to a measurement sub-system (e.g., spectrophotometric measurement of the absorbency of a solution). The magnitude is related to the amount or concentration of the determinant (analyte) in that portion.

5.1.5. **Analytical Result**. Denotes a numerical estimate of the concentration of a determinant (analyte) in a sample, and is obtained by carrying out once the procedure specific in an analytical method. Note that a method may specify analysis of more than one portion of a sample to produce one analytical result. The result can also be thought of as the final value reported to the user.

5.1.6. **Analytical System**. Denotes a combination of Chemist, analytical method, equipment, reagents, standards, laboratory facilities, any other components involved in carrying out an analytical procedure.

5.1.7. **Bias**. The inaccuracy of an analytical result caused by systematic error. Bias is indicated by the mean value generated from a data set. For example, the mean value of recovery for a set of laboratory control samples will indicate the bias of the method results above or below the true sample value.

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5.1.8. **Calibration Standards**. Standards(s) of known concentration used in the calibration (standardization) procedure to determine the relationship between instrument response and concentration.

5.1.9. **Certified Reference Material**. Reference material that is supported by a certificate showing that the value and measurement uncertainty are traceable to a National Metrology Institute, such as NIST.

5.1.10. **Check Standard**. A solution of known concentration used to check the precision of analyses (and bias due to calibration). Used in conjunction with a control chart it becomes a control standard.

5.1.11. **Comparability.** An expression of the confidence with which one data set can be compared to another. Comparability is achieved by the use of routine analytical methods, achieving holding times, reporting results in common units, use of consistent detection levels, and consistent rules for reporting data.

5.1.12. **Duplicate (DUP)**. An intra-laboratory split sample documenting the precision of a method in a given sample matrix.

5.1.13. **External Standards**. Independently prepared standards used to determine the relationship between response and concentration. They are run separately from the samples.

5.1.14. **Initial Calibration**. A procedure, using a series of standards of different concentration to define the usable quantitation range of instrument. The initial calibration contains a minimum of three to five standards spanning from ten times the intended detection limit to the upper quantitation limit.

5.1.15. **Instrument Detection Limit (IDL)**. The Instrument Detection Limit (IDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

5.1.16. **Interference**. A systematic error (bias) in the analytical result caused by the presence of a substance in the sample (or added to the sample during analysis).

5.1.17. **Internal Standard Standardization**. A calibration procedure in which the responses of analytes are determined relative to internal standards added to every sample. Used to reduce bias in calibration.

5.1.18. **Laboratory Control Sample (LCS)**. A method blank spiked with the analytes of interest at a concentration generally near the middle of the instrument calibration range. The recovery percent from this analysis is plotted to indicate the bias of the analytical method.

5.1.19. **Laboratory Information Management (LIM) System**. Sample and data management software. ATG Seattle uses Omega™ by Khemia Software, Inc.

5.1.20. **Limit of Detection (LOD).** The minimum concentration of a substance that can be detected at 3x the instrument signal to noise or greater.

5.1.21. **Limit of Quantitation (LOQ)**. The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The LOQ is generally 2 to 10 times the LOD.

5.1.22. **Matrix Spike (MS)**. An aliquot of sample spiked with known concentrations of target analyte(s). Spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

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5.1.23. **Matrix Spike Duplicate (MSD)**. Intra-laboratory samples spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation and analysis. MSDs are used to document the precision and bias of a method in a given sample matrix.

5.1.24. **Method Blank (MB)**. A determination intended to estimate the analytical response attributable to all factors other than the determinant (analyte) in the sample. Blanks are analyzed identically to samples, but do not contain the determinant (analyte) (e.g., in water analyses, pure water is analyzed to determine the blank). Some use the term analytical blank with the same meaning given here for method blank. Not to be confused with the reagent blank.

5.1.25. **Method Detection Limit**. The Method Detection Limit (MDL) is defined as the minimum concentration of a substance that has gone through the preparation process, which can be measured and reported with 99% confidence that the analyte concentration is greater than zero. This limit is equal to or above the Instrument Detection Limit.

5.1.26. **Omega**. Omega is a laboratory information system (LIMS) specifically designed for environmental laboratories. Omega is capable of exporting (and importing) data directly to most PC based database formats or to fixed-field or delimited ASCII formats that are universally applicable across system platforms.

5.1.27. **Percent Recovery (%REC)**. That percent of a known amount of material spiked or added to a sample being analyzed which is recovered at the end of analysis.

5.1.28. **Percent Relative Standard Deviation (%RSD)**. The standard deviation relative to the mean. Also called 'coefficient of variation'.

5.1.29. **Practical Quantitation Limit (PQL)**. Limit to which analytical data is reported. The PQL is typically 3 times the MDL.

5.1.30. **Precision**. A measure of the degree to which two or more measurements are in agreement. Precision is assessed through the calculation of relative percent difference (RPD) and relative standard deviation (RSD) for replicate samples. Precision is assessed through the analysis of a sample/sample duplicate pair and/or Matrix Spike/Matrix Spike Duplicate (MS/MSD) pairs.

5.1.31. **Preparation Batch**. Environmental samples that are prepared and analyzed together with the same process, personnel, and reagents. Batches may have up to 20 environmental samples, unless otherwise specified, and have method-specified quality control samples that ensure preparation and analysis conditions are consistent with the QA program. The maximum amount of time between the start of processing the first and last sample in the batch is 24 hours.

5.1.32. **Quality Assurance (QA).** The total integrated program for assuring the reliability of monitoring and measurement data.

5.1.33. **Quality Control (QC)**. The routine application of statistically based procedures to evaluate and control the accuracy of results from analytical measurements.

5.1.34. **Random Errors**. Errors occurring when repeated analyses of identical portions of a homogeneous sample do not give a series of identical results. The results differ among themselves and are more or less scattered about some value. They are termed random because the sign and magnitude of the error of any particular result vary at random, and cannot be predicted exactly.

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5.1.35. **Reagent Blank**. Reagents used in the analyses that have not been subjected to the sample preparation (extraction) procedure. The reagent blank will generally be prepared in the same manner as the standards used in calibration. A reagent blank is used in Infrared and Atomic Absorption spectrometry to zero instrument readings before calibration or analysis. Also referred to as a zero blank.

5.1.36. **Recovery**. An estimate, usually expressed in percent, of an analytical result in comparison with a true or reference value for the analyte (e.g., an analytical recovery of 95% for compound 'X' means that the result was 95 % of the true or reference value for 'X' in the sample). It is a direct indication of analytical performance.

5.1.37. **Reference Material**. A material or substance one or more properties of which are sufficiently well established are used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials.

5.1.38. **Relative Error.** The absolute value of the percent difference between the measured value relative to its true value. It is generally applied to calibration points, which are required to be under a relative error threshold.

5.1.39. **Relative Percent Difference (RPD)**. The difference between two values determined by dividing the absolute of the difference between the first and second value by the average of the values.

5.1.40. **Representativeness.** An expression of the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. Representativeness is ensured by using the proper analytical procedures, appropriate methods, and meeting sample-holding times.

5.1.41. **Spike**. The addition of known amount of analyte to a sample for the purpose of judging, from the analytical percent recovery, whether there is bias due to interference present in the sample. Also referred to as fortification of the sample.

5.1.42. **Standard**. A solution of known concentration. There are two types of standards: check (or control) and calibration.

5.1.43. **Standard Operating Procedure (SOP)**. A detailed, written description of a procedure designed to systematize the performance of the procedure.

5.1.44. **Surrogate Standard**. A type of check standard. It is added to every sample in a known amount at the start of processing. The surrogate is not one of the target compounds for the analysis, but should have analytical properties similar to those compounds. The surrogate compounds are not expected to be present in environmental samples.

5.1.45. **Systematic Errors**. Errors which are indicated by a tendency of results to be greater or smaller than the true value. Usually bias can be considered to be equivalent to systematic error.

5.1.46. **Target Compound**. A compound expected in an environmental sample or for which the analysis is being conducted.

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Table 1: Abbreviations	
Abbreviation	**Definition**
AB	Accrediting Body
ANSI	American National Standards Institute
ASQC	American Society for Quality Control
ASTM	American Society for Testing and Materials
BLK	Blank
°C	Degrees Celsius
CAL	Calibration
CAS	Chemical Abstract Service
CCV	Continuing Calibration Verification
COC	Chain of Custody
CVAA	Cold Vapor Atomic Absorbance
CVAF	Cold Vapor Atomic Fluorescence
DO	Dissolved Oxygen
DOC	Demonstration of Capability
DoD	Department of Defense

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Table 1: Abbreviations	
Abbreviation	**Definition**
DUP	Duplicate
EPA	Environmental Protection Agency
ATG	Alliance Technical Group
FoPT	Field of Proficiency Testing
g/L	Grams per liter
GC-ECD	Gas Chromatography-Electron Capture Detector
GC-FID	Gas Chromatography –Flame Ionization Detector
GC-FID/PID	Gas Chromatography-Flame Ionization Detector/Photo Ionization Detector
GC-MS	Gas Chromatography-Mass Spectrometry
GC-TCD	Gas Chromatography-Thermal Conductivity Detector
IC	Ion Chromatography
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
ICV	Initial Calibration Verification
IDL	Instrument Detection Limit

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Table 1: Abbreviations	
Abbreviation	**Definition**
ISO/IEC	International Organization for Standardization/International Electrochemical Commission
LCS	Laboratory Control Sample
LFB	Laboratory Fortified Blank
LOD	Limit of Detection
LOQ	Limit of Quantitation
MB	Method Blank
MDL	Method Detection Limit
mg/Kg	Milligrams per kilogram
mg/L	Milligrams per liter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NELAP	National Environmental Laboratory Accreditation Program
NIST	National Institute of Standards and Technology
PAH	Polycyclic Aromatic Hydrocarbon

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Table 1: Abbreviations	
Abbreviation	**Definition**
PCB	Polychlorinated Biphenyl
PQL	Practical Quantitation Limit
PT	Proficiency Test(ing)
PTP	Proficiency Testing Provider
QA	Quality Assurance
QC	Quality Control
QAM	Quality Assurance Manager
QM	Quality Manual
RL	Reporting Level
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
SOPs	Standard Operating Procedures
SPK	Spike
STD	Standard
SVOC	Semi-Volatile Organic Compounds

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Table 1: Abbreviations	
Abbreviation	**Definition**
TNI	The NELAC Institute
TOC	Total Organic Carbon
µg/L	Micrograms per liter
µg/m^3	Micrograms per cubic meter
UV	Ultraviolet
VOC	Volatile Organic Compound

6. ORGANIZATION (TNI V1:M2 – SECTION 4.1)

6.1. The laboratory is a legally identifiable organization. The Tax ID number is available upon request. The laboratory operates at 3600 Fremont Ave. N. Seattle, Washington, 98103.

6.2. The laboratory is responsible for carrying out testing activities that meet the requirements of the TNI Standard, DoD QSM, State Accreditation authorities, and that meet the needs of the client. Through application of the policies and procedures outlined in this section and throughout the Quality Manual, Alliance Technical Group, LLC – Seattle is structured to ensure that the final data package produced for the client meets or exceeds regulatory standards.

6.3. An organization chart for Alliance Technical Group, LLC – Seattle is shown in Appendix A. Additional information regarding responsibilities, authority and interrelationship of personnel who manage, perform or verify testing is included in Section 7 –“Management” and Section 21 – “Personnel”. These Sections also include information on supervision, training, technical management, job descriptions, quality personnel, and appointment of deputies for key managerial personnel.

6.4. The laboratory has the resources and authority to operate a management system that is capable of identifying departures from that system and from procedures during testing, and initiates actions to minimize or prevent departures.

6.5. Management and technical personnel have the authority and resources to carry out their duties and have procedures to identify and correct departures from the laboratory’s management system.

6.6. Personnel understand the relevance and importance of their duties as related to the maintenance of the laboratory’s management system.

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6.7. Ethics and data integrity procedures (see SOP85, Section 7 – "Management" and Section 20 – "Data Integrity Investigations") ensure personnel do not engage in activities that diminish confidence in the laboratory's capabilities.

6.8. Confidentiality is maintained.

6.9. Conflict of Interest and Undue Pressure

6.9.1. The organizational structure indicated above minimizes the potential for conflicting or undue interests that might influence the technical judgment of analytical personnel. In addition, procedures are in place to prevent outside pressures or involvement in activities that may affect competence, impartiality, judgment, operational integrity, or the quality of the work performed at the laboratory.

6.9.2. All parties are required to act with complete integrity. If a conflict of interest issue arises, it is the responsibility of the Laboratory Director to resolve the conflict.

6.9.3. Arrangements, such as policies and procedures to prevent commercial, financial or other influences that may negatively affect the quality of the work or negatively reflect on the competence, impartiality, judgment or operational integrity are described in the Ethics and Data Integrity procedures.

6.9.4. Alliance Technical Group, LLC – Seattle must remain vigilant for conflicts of interest that may arise between the laboratory and clients, vendors, accrediting bodies or its own employees. If conflicts of interest are observed, they must be disclosed to upper management to allow for assessment of bias and potential impact on the laboratory. If a risk is identified, and management deems it a threat to ongoing data integrity, or other areas of concern, the risk will be minimized or eliminated. Each instance will require a case by case review of the details and a plan will be agreed upon by management.

6.9.4.1. Examples of actions that could be taken by the laboratory to eliminate or minimize risk include: changing the role of an employee to avoid ability to act on bias, enacting routine review of affected area by an unbiased party, or termination of relationship between the connected parties to eliminate impartiality.

7. MANAGEMENT (TNI V1:M2 – SECTION 4.2)

7.1. The laboratory maintains a management system that is appropriate to the scope of its activities.

7.2. Management Requirements

7.2.1. Senior management includes the Laboratory Director, Technical Director, and the Quality Assurance Manager (QAM). Management's commitment to good professional practices and to the quality of its products is defined in the Quality Policy in Section 7.4.

7.2.2. Management has overall responsibility for laboratory operations and the authority needed to generate the required quality of laboratory operations.

7.2.3. Management ensures communication within the organization to maintain an effective management system and to communicate the importance of meeting customer, statutory, and regulatory requirements.

7.2.4. Management ensures that the system of documentation is known and available so that appropriate personnel can implement their part. When changes to the management system occur or are planned, managers ensure that the integrity of the system is maintained.

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7.2.5. Management is responsible for carrying out testing activities that meet the requirements of the TNI Standard, the ISO/IEC 17025 Standard, State Accreditation authorities, and that meet the needs of the client.

7.2.6. Managers implement, maintain, and improve the management system, and identify noncompliance with the management system of procedures.

7.2.7. Managers initiate actions to prevent or minimize noncompliance.

7.2.8. Management ensures technical competence of personnel when operating equipment, performing tests, evaluating results, or signing reports and limits authority to perform laboratory functions to those appropriately trained and/or supervised. Hiring is based on education and/or years of work experience.

7.2.9. Management is responsible for defining the minimal level of education, qualifications, experience, and skills necessary for all positions in the laboratory and assuring that technical staff have demonstrated capabilities in their tasks.

7.2.10. Training is kept up to date as described in Section 21 – "Personnel" by periodic review of training records and through employee performance review.

7.2.11. Management bears specific responsibility for maintenance of the management system. This includes defining roles and responsibilities to personnel, approving documents, providing required training, providing a procedure for confidential reporting of data integrity issues, and periodically reviewing data, procedures, and documentation. The assignment of responsibilities, authorities, and interrelationships of the personnel who manage, perform, or verify work affecting the quality of environmental tests is documented in their job descriptions. Management ensures that audit findings and corrective actions are completed within required time frames.

7.2.12. Designated deputies are appointed by management during the absence of the Laboratory Director, Technical Director, or the QAM. This is a requirement if the absence is more than 15 days.

7.2.13. If a member of the Senior Management team is absent for more than 35 days, the accrediting bodies will be notified in writing.

7.3. Management Roles and Responsibilities

7.3.1. Laboratory Director

The Laboratory Director is responsible for the overall quality, safety, financial, technical, human resource, and service performance of the laboratory. The Laboratory Director provides the resources necessary to implement and maintain an effective quality and data integrity program. The Laboratory Director is responsible for:

- Defining the minimal level of experience and skills necessary for all positions in the laboratory;
- Ensuring that the training of its personnel is up-to-date;
- Documenting all analytical and operational activities;
- Overseeing preparation of analytical reports;
- Acts as an approved signatory;
- Supervising all personnel;
- Ensuring that all sample acceptance criteria is verified, and that samples are labeled, stored, and properly logged into the sample tracking system;
- Reviewing an annual Management System Review from the QAM;
- Documenting the quality of data reported by the laboratory;

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- Ensuring that the laboratory has the appropriate resources and facilities to perform requested work;
- Ensuring that personnel are free from any commercial, financial and other undue pressures that might adversely affect the quality of their work. Procedures that do not meet the standards set forth in the Quality Manual, laboratory SOPs or laboratory policies may be temporarily suspended by the Laboratory Director.
- Ensuring that all analysts and supervisors have the appropriate education and training to properly carry out the duties assigned to them and ensures that this training has been documented.
- Ensuring that appropriate corrective actions are taken to address analyses identified as requiring such actions by internal and external performance or procedural audits.
- Works with the Technical Director and QAM in the review and approval of SOPs and policies prior to their implementation and ensures all approved SOPs and policies are provided to laboratory personnel and are adhered to.
- Nominating deputies when the Technical Director or QAM is absent.
- Coordinating laboratory certifications with the QAM.
- In the event the Laboratory Director is absent from the facility, the Technical Director and/or the QAM or other designee will assume those duties.

7.3.2. Technical Director

The Technical Director supervises laboratory operations. The Technical Director's proof of experience in the fields of accreditation may be found in the employees' file. The Technical Director is responsible for:

- Staff Supervision (Laboratory Managers);
- Coordinating laboratory analyses;
- Overseeing data review;
- Acts as an approved signatory;
- Technical training and aptitude of the laboratory personnel, ensuring that all technical laboratory staff have demonstrated initial and ongoing proficiency in the activities for which they are responsible;
- Maintenance of Analytical Systems and other technologies utilized by the laboratory;
- Review of all testing procedures for improved performance and reduced cost;
- New Method Development and all R&D efforts;
- General Technical Assistance and troubleshooting of laboratory instrumentation;
- Reviews and approves SOPs and policies prior to their implementation and ensures all approved SOPs and policies are provided to laboratory personnel and are adhered to;
- Ensuring all analytical and operational activities are documented;
- Ensuring that the laboratory has the appropriate resources and facilities to perform requested work;
- Equipment purchases
- Certifying that personnel with appropriate educational and/or technical background perform all tests for which the laboratory is accredited;
- The Technical Director(s) meet the requirements specified in the Personnel Qualifications, NELAC, Accreditation Process, in Sections 4.1.7.2 and 5.2.6.1 of the TNI Standard - EL-V1M2-2016;

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- When the Technical Director is absent from the facility, the QAM and/or the Laboratory Director will assume the duties of the Technical Director.

7.3.3. Quality Assurance Manager

The QAM is responsible for the oversight and review of quality control data. As shown in Appendix A, the QAM has direct access to the Laboratory Director, to resolve any dispute involving data quality. The QAM's training and proof of experience in QA/QC procedures, knowledge of analytical methods, and the laboratory's management system are available in the employees' file. The QAM is responsible for auditing the implementation of the Quality System. The QAM has sufficient authority to stop work as deemed necessary in the event of serious QA/QC issues. Specific functions and duties include:

- Providing QA technical assistance to project staff;
- Reporting on the adequacy, status, and effectiveness of the Quality System regularly to the Laboratory Director;
- Overseeing laboratory QA;
- Overseeing QA/QC documentation;
- Acts as an approved signatory;
- Implementing and reviewing laboratory corrective actions, if necessary;
- Defining appropriate laboratory QA procedures;
- Reviewing and approving QA plans and procedures;
- Maintain documentation control;
- Maintaining a current QA Manual;
- Approving the title page of the QA Manual;
- Serving as the focal point for QA/QC and being responsible for the oversight and/or Review of quality control data;
- Ensuring that corrective actions relating to findings from the audits (internal/external) are completed;
- Having documented training and/or experience in QA/QC procedures and being knowledgeable in the quality system as defined under NELAC; having a general knowledge of the analytical test methods for which data review is performed;
- Conducting internal audits without outside (e.g., managerial) influence; on the entire technical operation at a minimum annually (this may include a system audit);
- Notifying laboratory management of deficiencies in the quality system and monitoring corrective action;
- Monitoring and maintaining laboratory certifications.
- Documenting all analytical and operational activities;
- Reviews and approves SOPs and policies prior to their implementation and ensures all approved SOPs and policies are provided to laboratory personnel and are adhered to.

7.3.4. Laboratory Manager

A Laboratory Manager is expected to perform the same responsibilities as the Laboratory Analysts (see 21.2). However, a Laboratory Manager is designated to individuals who have obtained and demonstrated thorough knowledge of procedures and are capable of performing managerial duties. The responsibilities of a Laboratory Manager are:

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- Oversee and manage the department to which they are assigned
- Ensure QA and QC measures are being followed by the assigned department
- Assist with technical operations
- Work with Technical Director and QAM to develop modified or new analytical methods
- Approve requests of necessary supplies for the department
- Propose equipment purchases
- Preserve and prepare samples
- Perform analyses
- Report results
- Ensure routine maintenance of equipment is performed
- Ensure laboratory data is delivered on time
- Ensure data backups are occurring on laboratory workstations
- Review analytical data
- Ensure that laboratory spaces are clean and safe
- Laboratory Managers may meet the requirements specified in the Personnel Qualifications, NELAC, Accreditation Process, in Sections 4.1.7.2 and 5.2.6.1 of the TNI Standard - EL-V1M2-2016.

7.3.5. Technical Project Manager

Project Managers are responsible for sending out project reports. They are able to perform the same responsibilities as Project Coordinators. The responsibilities of Project Managers are as follows:

- Acts as an approved signatory for project reports;
- Sends project reports;
- Generate electronic data deliverables (EDDs)
- Able to interpret results to clients;
- Interfacing with clients in a professional and friendly manner to serve as a liaison between them and the laboratory
- Maintaining records and contracts
- Managing client expectations
- Reviewing and interpreting client Sample Analysis Plans (SAP), permits, Quality Assurance Project Plans (QAPP), insurance requirements, and general project needs to ensure that we are able to successfully fulfill their requests
- Assist with company marketing
- Creating project quotes, invoices, and statements
- Accounts receivable
- Sample log in
- Creating bottle orders.

7.3.6. Client Services Manager

The Client Services Manager is expected to perform the same responsibilities as the Project Coordinator while overseeing the department. The responsibilities of the Client Services Manager are as follows:

- Interfacing with clients in a professional and friendly manner to serve as a liaison between them and the laboratory
- Maintaining records and contracts

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- Managing client expectations
- Reviewing and interpreting client Sample Analysis Plans (SAP), Quality Assurance Project Plans (QAPP), permits, insurance requirements, and general project needs to ensure that we are able to and successfully fulfill their requests
- Assist with company marketing
- Creating project quotes, invoices, and statements
- Accounts receivable
- Sample log in
- Creating bottle orders.

7.3.7. The following table defines who assumes the responsibilities of key personnel in their absence:

Table 2: Key Personnel Deputies	
Key Personnel	Deputy
Laboratory Director	QA Manager or Technical Director
QA Manager	Technical Director
Technical Director	QA Manager or Laboratory Director
Laboratory Manager	Laboratory Manager, Analyst, or Technical Director

7.4. Management Systems Quality Policy

7.4.1. The overall QA objectives for Alliance Technical Group, LLC – Seattle are to develop and implement procedures for laboratory analysis, sample management, and data reporting, that will provide results of known and documented quality. The quality of data is assessed for precision, accuracy, representativeness, comparability, completeness, and detection limits based upon data quality objectives detailed in this QA/QC Program. Data quality is assessed by various means, including traceability of standards, instrument performance, spike and duplicate sample analyses, and internal and external performance audits.

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7.4.2. Management's commitment to quality and to the management system is stated in the Quality Policy above, which is upheld through the application of related policies and procedures described in the laboratory's Quality Manual, SOPs and policies. The objectives of the management system and the commitment of management are to consistently provide our customers with data of known and documented quality that meets their requirements. Our policy is to use good professional practices, maintain quality, uphold the highest quality of service, and comply with the TNI Standard, DoD/ELAP and State accreditation authorities. The laboratory ensures that personnel are free from any commercial, financial, and other undue pressures, which might adversely affect the quality of work. This policy is implemented and enforced through the unequivocal commitment of management, at all levels, to the Quality Assurance principles and practices outlined in this manual. However, the primary responsibility for quality rests with each individual within the laboratory organization. Every laboratory employee must ensure that the generation and reporting of quality analytical data is a fundamental priority. Every laboratory employee is required to familiarize themselves with the quality documentation and to implement the policies and procedures in their work. All employees are trained annually on ethical principles and procedures surrounding the data that is generated. The laboratory maintains a strict policy of client confidentiality.

7.5. Ethics and Data Integrity System

The laboratory has an Ethics and Data Integrity policy that is included in SOP85. The laboratory's Ethics and Data Integrity program, training and investigations are discussed in Section 20 – "Data Integrity Investigations".

The management system is defined through the policies and procedures provided in this Quality Manual, written laboratory Standard Operating Procedures (SOPs), and policies.

7.5.1. Quality Manual

The Quality Manual contains or references required elements as defined in the TNI Standard – V1:M2, section 4.2.8.4, as well as the following required items:

- Document title;
- Laboratory's full name and address;
- Name, address (if different from above), and telephone number of individual(s) responsible for the laboratory;
- Identification of all major organizational units which are to be covered by this quality manual and the effective date of the version;
- Identification of the laboratory's approved signatories;
- The signed and dated concurrence (with appropriate names and titles), of all responsible parties including the Quality Assurance Manager, Technical Director, and the agent who is in charge of all laboratory activities, such as the Laboratory Director or Laboratory Manager;
- The objectives of the management system and contain or reference the laboratory's Policies and procedures;
- The laboratory's official quality policy statement, which shall include management system objectives and management's commitment to ethical laboratory practices and to upholding the requirements of this Standard; and
- A table of contents, and applicable lists of references, glossaries and appendices.

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7.5.2. Standard Operating Procedures (SOPs)

Standard operating procedures (SOPs) represent all phases of current laboratory operations. They include an effective date, revision number, and signature of the approving authorities and are available to all personnel. They contain sufficient detail such that someone with similar qualifications could perform the procedures. There are two types of SOPs used in the laboratory: 1) test method SOPs, which have specific requirements as outlined below, and 2) general use SOPs which document general procedures. Details for writing and who approves SOP can be found in SOP56.

Each accredited analyte or method has an SOP. Sometimes an SOP is a copy of a method, and any additions are clearly described. The laboratory's test method SOPs include the following topics, where applicable.

- Identification of the method;
- Applicable matrix or matrices;
- Limits of detection and quantitation;
- Scope and application, including parameters to be analyzed;
- Summary of the method;
- Definitions;
- Interferences;
- Safety;
- Equipment and supplies;
- Reagents and standards;
- Sample collection, preservation, shipment and storage;
- Quality control;
- Calibration and standardization;
- Procedure;
- Data analysis and calculations;
- Method performance;
- Pollution prevention;
- Data assessment and acceptance criteria for quality control measures;
- Corrective actions for out-of-control data;
- Contingencies for handling out-of-control or unacceptable data;
- Waste management;
- References; and
- Any tables, diagrams, flowcharts and validation data.

7.5.3. Order of Precedence

In the event of a conflict or discrepancy between policies, the order of precedence is as follows unless otherwise noted:

1. Quality Manual
2. SOPs and Policies
3. Other (Work Instructions, memos, flow charts, etc.)

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8. DOCUMENT CONTROL (TNI V1:M2 – SECTION 4.3)

8.1. This section describes how the laboratory establishes and maintains a process for document management. The purpose of document management is to preclude the use of invalid and/or obsolete documents. Procedures for document management include controlling, distributing, reviewing, and accepting modifications. A document control system is used to ensure that all staff has access to current policies and procedures at all times.

8.2. Documents can be SOPs, policy statements, specifications, calibration tables, charts, textbooks, posters, notices, memoranda, software, drawings, plans, etc. These may be on various media, whether hard copy or electronic, and they may be digital, analog, photographic or written.

8.3. The system consists of a document review, revision, approval system, document control and distribution. The laboratory manages three types of documents: 1) controlled, 2) approved, and 3) obsolete.

8.4. A controlled document is one that is uniquely identified, issued, tracked, and kept current as part of the management system. Controlled documents may be internal documents or external documents.

8.5. An approved document means it has been reviewed, and either signed and dated, or acknowledged in writing or by secure electronic means by the issuing authority(ies).

8.6. Obsolete documents are documents that have been superseded by more recent versions or are no longer needed.

8.7. Controlled Documents

8.7.1. The QAM controls all laboratory SOPs and the Quality Manual. Documents will be reviewed, revised (as appropriate), and approved by the Laboratory Director and/or Technical Director (or designee) and the QAM (or designee). Documents are reviewed annually (or as needed) to ensure their contents are suitable and in compliance with the current management systems requirements, and accurately describe current operations. The QAM, Technical Director or Laboratory Director may approve SOPs. The QAM has the authority to modify or update the Quality Assurance Manual. The Laboratory Director is responsible for final approval of all changes made to the Quality Assurance Manual. The revised document takes effect when signed and dated by the Laboratory Director.

8.7.2. Approved copies of documents are available to staff at all locations where operations are essential to the effective functions of the laboratory. SOPs are attached to the Documents and SOPs section of the Omega LIM System and are available to all employees. Only the current, un-editable SOP is available for use. All archived and editable versions of SOPs are stored within the SOPs folder on the shared drive. Access to this folder is limited to those parties that have administrative privileges. The documents are approved by the Laboratory Director or QAM, and then loaded into Omega.

8.7.3. If printed, the SOP is considered “uncontrolled.” Uncontrolled documents are not permitted for use. Controlled hard copies may be provided to individuals in the laboratory at the discretion of the QAM. The QAM maintains a distribution list for numbered and dated controlled hard copies and ensures that revisions are distributed appropriately. Outdated revisions issued to the staff are retrieved and destroyed.

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8.7.4. All SOPs and the Quality Assurance Manual have electronic signatures showing the approving party. The electronic signatures are added to the document by the approving manager (QAM, Technical Director or Laboratory Director). These individuals have access to their electronic signatures and the Laboratory Director has access to all electronic signatures. The signatures may be stored in the Omega LIM system and are accessible by those parties that have administrative privileges. Secondary copies of electronic signatures are stored in a SQL Database file and can only be accessed by the Laboratory Director.

8.7.5. When an SOP is no longer valid, the SOP is marked as void or deleted in Omega. The updated SOP is then loaded into Omega. The QAM keeps a list of all SOPs and the date of revision.

8.7.6. Controlled internal documents are uniquely identified with 1) a unique name or number identification, 2) revision identification, 3) page number, 4) the total number of pages (or a mark to indicate the end of the document), and 5) the signatures of the issuing authority when applicable (i.e. management), see SOP56.

8.7.7. A master list of controlled internal documents is maintained that includes location and revision dates. The controlled document list is maintained by QAM and is updated whenever there is a change to any controlled documents.

8.7.8. Controlled copies of the Quality Manual and other SOPs may be issued to clients upon request. Additional issuance of subsequent versions is also by request only. The QAM will maintain a list of documents that go out to clients. Each document issued to clients must have a confidentiality statement disclosing who is authorized to view it.

8.8. Document Changes to Controlled Documents

8.8.1. Document changes are approved by the original approving authority.

8.8.2. All document modifications must be approved; changes that are not process modifications but clarifications may be performed without revision, however approval is required. The modified document is then copied and distributed, and obsolete documents are removed according to the master list of controlled documents.

8.8.3. Amendments/modifications to documents are incorporated into a new revision and reissued when the document is reviewed and updated.

8.8.4. A reason for the modification or change can be provided as historical information in the revised document. See SOP53.

8.9. Obsolete Documents

8.9.1. All invalid or obsolete documents are removed from general distribution, or otherwise prevented from unintended use.

8.9.2. Obsolete documents retained for legal use or historical knowledge preservation are appropriately marked and retained. An electronic copy is stored for a minimum of 5 years.

8.9.3. Obsolete documents are identified as being obsolete by management. All copies of the obsolete document are collected from employees. Electronic copies of obsolete documents are moved to an “Archive” folder within its originating folder. All printed copies are destroyed (unless they contain records in which case, they are filed appropriately). Copies in Omega are marked void or deleted and replaced with the new document.

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9. REVIEW OF REQUESTS, TENDERS, AND CONTRACTS (TNI V1:M2 – SECTION 4.4)

9.1. The review of all new work assures that oversight is provided so that requirements are clearly defined, the laboratory has adequate resources and capability, and the test method is applicable to the customer's needs. This process assures that all work will be given adequate attention without shortcuts that may compromise data quality.

9.1.1. A more detailed procedure is outlined in SOP 7.

9.2. Contracts for new work may be formal bids, signed documents, verbal, or electronic. The client's requirements, including the methods to be used, must be clearly defined, documented and understood. Requirements might include target analyte lists, project specific reporting limits (if any), project specific quality control requirements (if any), turnaround time, and requirements for data deliverables. The review must also cover any work that will be subcontracted to another laboratory.

9.3. Procedure for the Review of Work Requests

9.3.1. The Laboratory Director, Technical Director, or designee, determine if the laboratory has the necessary accreditations, resources, including schedule, equipment, deliverables, and personnel to meet the work request.

9.3.2. Project Manager, Client Services Representation and/or the Laboratory Director obtains the client requirements which may include the following:

- Sample matrices
- Sample volume requirements
- Analytical methods
- Analyte lists
- Reporting limits
- Minimum Detection limits
- Quality Control limits
- Certification/Accreditation
- Turn-around times
- QA/QC data packages
- Final report formatting and electronic deliverable documents
- Payment terms
- Sample storage
- Sample disposal

9.3.3. This information is kept in the Omega LIM system, the ATG Seattle online server, and accounting system.

9.3.4. If there are questions or concerns about meeting the project objectives, the Project Manager and/or Laboratory Director will hold a review meeting to discuss the criteria.

9.3.5. The Laboratory Director, Laboratory Manager and/or Project Manager informs the client of the results of the review if it indicates any potential conflict, deficiency, lack of accreditation, or inability of the lab to the complete the work satisfactorily.

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9.3.6. The client is informed of any deviation from the contract including the test method or sample handling processes. All differences between the request and the final contract are resolved and recorded before any work begins. It is necessary that the agreement be acceptable to both the laboratory and the client. Any modifications are recorded within Alliance Technical Group, LLC - Seattle's LIM and accounting system and distributed in the form of a quote to the client.

9.3.7. The review process is repeated when there are amendments to the original scope of work by the client. Participating personnel are given copies of the amendments. The amendments are maintained within the client's folder on the fa-server Shared drive and accounting system.

9.3.8. For routine projects and other simple tasks, a review by the Project Manager is considered adequate. The Project Manager confirms that the laboratory has any required certifications, that it can meet the client's data quality and reporting requirements, and that the lab has the capacity to meet the clients turnaround needs.

9.3.9. The Project Manager submits the bid and formal quote to the client and maintains copies of any signed agreements or contracts.

9.4. Documentation of Review

9.4.1. Records are maintained for every contract or work request, when appropriate. This includes pertinent discussions with a client relating to the client's requirements or the results of the work during the period of execution of the contract. This information is maintained in the client's folder on the fa-server Shared drive.

9.4.2. Records of all project-related communication with the client (including e-mails, faxes, telephone conversations, etc.) are maintained in the project work order, project folder in the Project Manager's email.

9.4.3. All changes to work orders are maintained in the Omega LIM system.

10. SUBCONTRACTING OF ENVIRONMENTAL TESTS (TNI V1:M2 – SECTION 4.5)

10.1. A subcontract laboratory is defined as a laboratory external to this laboratory, or at a different location than the address indicated on the front cover of this manual, that performs analyses for this laboratory.

10.2. When subcontracting analytical services, the laboratory assures the work requiring accreditation is placed with an appropriately accredited laboratory or one that meets applicable statutory and regulatory requirements for performing the tests.

10.3. The laboratory will ensure that the subcontract laboratory understands the requirements and will meet the same commitments made to the client by the primary laboratory.

10.4. Procedure

10.4.1. The Client Services Manager maintains a database of subcontractors and reference file of their accreditations. The subcontracting laboratory's certificate and analyte list are reviewed by the QAM to ensure it has the appropriate accreditation.

10.4.2. Client Services notifies the client of the intent to subcontract the work in writing and requests written approval.

10.4.3. The laboratory performing the subcontracted work is identified in the final report.

10.4.4. The laboratory assumes responsibility for all subcontracting laboratories' work, except in the case where the client or a regulating authority requested or required a specific subcontracting lab be used.

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10.5. Further information regarding subcontracting of environmental tests is found in SOP 66.

11. PURCHASING SERVICES AND SUPPLIES (TNI V1:M2 – SECTION 4.6)

11.1. The laboratory ensures that purchased supplies and services that affect the quality of environmental tests are of the required or specified quality, by using approved suppliers and products. The laboratory has procedures for purchasing, receiving, and storage of supplies that affect the quality of environmental tests.

11.2. Approval of Suppliers

11.2.1. Management maintains a list of approved suppliers. Evaluation and selection of suppliers and vendors is performed, in part, on the basis of the quality of their products, their ability to meet the demand for their products, the overall quality of their services, their past history, and competitive pricing. This is achieved through the evaluation of objective evidence of quality, furnished by the supplier, which may include certificates of analysis, recommendations, and proof of historical compliance with similar programs to other clients. To ensure that quality critical consumables and equipment conform to specified requirements, all purchases from specific vendors are approved by the Technical Director.

11.2.2. Evaluation of suppliers is accomplished by ensuring the supplier ships the product or material ordered and that the material is of the appropriate quality. This is documented by signing off on the packing slips or other supply receipt documents. The purchasing documents contain data that adequately describes the services and supplies ordered.

11.3. Procedure

11.3.1. The Technical Director, Laboratory Director, or designee reviews and approves the supplier of services and supplies and approves technical content of purchasing documents to the Purchasing Manager prior to ordering.

11.3.2. The supplies received are inspected for breakage, leaks or any other damage. The supplies and chemicals are checked for date of manufacture, expiration date, concentration, grade, storage conditions, etc. (where applicable). Chemicals are then checked into Omega LIM System and labeled with an Omega number. The supplies received are stored according to manufacturer's recommendations, laboratory SOPs, or test method specifications.

11.3.3. Any documents received with the laboratory supplies (such as bottle ware) including specifications, certificates of analysis, warranties, maintenance records, calibration records, etc., are kept on file by the supplier. For items such as chemicals, standards, instrumentation etc. any certificates received are scanned and attached into the Omega record.

11.3.4. Purchased supplies and reagents that affect the quality of the tests are not used until they are inspected or otherwise verified as complying with requirements defined in the test method.

11.4. Purchase of New Equipment

11.4.1. The purchase of new equipment is reviewed by the Laboratory Director, Technical Director, and ATG corporate if necessary. During the review the need for the equipment is discussed as well as budget, technical criteria, and cost effectiveness. Once the new equipment is approved, quotes are requested from the suppliers.

11.5. SOP 5 and SOP 6 contain further information regarding ATG Seattle's procedure for purchasing and order receipt.

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12. SERVICE TO THE CLIENT (TNI V1:M2 – SECTION 4.7, 4.8)

12.1. The laboratory collaborates with clients and/or their representatives in clarifying their requests and in monitoring laboratory performance related to their work. Each request is reviewed to determine the nature of the requirements and the laboratory's ability to comply within the confines of prevailing statutes and/or regulations without risk to the confidentiality of other clients.

12.2. Client Confidentiality

12.2.1. The laboratory's confidentiality policy is not to divulge or release any information to a third party without proper authorization. Third party requests for data and information are referred to the client. Data and records identified as proprietary, privileged, or confidential are exempt from disclosure.

12.2.2. All electronic data (storage or transmissions) are kept confidential, based on technology and laboratory limitations, as required by the client or regulations.

12.2.3. Laboratory results and associated raw data are kept in confidence. Only the client may have access to the files. Access to laboratory records and LIMS data is limited to laboratory personnel except with the permission of the QAM, Technical Director, or the Laboratory Director. Records are made available to authorized accrediting authority personnel during on and off-site audits.

12.2.4. Where clients require transmission of test results by telephone, facsimile, or other electronic means, staff will ensure confidentiality is preserved.

12.3. Client Support

12.3.1. Communication with the client or their representative is maintained to provide proper instruction and modification for testing. Technical staff is available to discuss any technical questions or concerns the client may have.

12.3.2. The client or representative may be provided reasonable access to laboratory areas for witnessing testing, as long as the Laboratory Director and Laboratory Manager has been informed and has approved the request.

12.3.3. Delays or major deviations to the testing are communicated to the client immediately. The client is contacted by a Project Manager (or designee) by phone or email.

12.3.4. The laboratory will provide the client with all requested information pertaining to the analysis of their samples. An additional charge may apply for additional data/information that was not requested prior to the time of sample analysis or previously agreed upon.

12.4. Client Feedback

12.4.1. The laboratory seeks both negative and positive feedback following the completion of projects and periodically for ongoing projects. Feedback provides acknowledgement, and corrective actions when necessary.

12.4.2. Clients may supply feedback via the Alliance Technical Group, LLC - Seattle portal (Called "Flashpoint"). Within the portal the client may select to provide feedback for one of the following sections:

- Technical
- Online Account
- Billing
- Other

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12.4.3. The feedback form will automatically send an email to service@fremontanalytical.com and send an automated courtesy response to the client. This email is then distributed to the Laboratory Directory, QAM, Project Manager and Client Services Manager. For an active project, the Project Manager or Laboratory Director will coordinate the appropriate responses. For all other inquiries, the Laboratory Director (or designee) will coordinate the responses.

12.4.4. Clients may also supply feedback by sending an email directly to service@fremontanaytical.com, info.seattle@alliancetg.com, or to any laboratory staff.

12.5. Complaints

12.5.1. The purpose of this section is to assure that customer complaints are addressed, monitored and corrected. This includes requests to verify results or analytical data. Complaints provide the laboratory an opportunity to improve laboratory operation and client satisfaction.

12.5.2. Complaints by customers or other parties are reviewed by management so that appropriate action will be determined. All customer complaints are documented by the person receiving the complaint and addressed to the responsible manager. Negative customer feedback is documented as a customer complaint.

12.5.3. If it is determined that the complaint has merit, the procedures outlined in Section 15 – Corrective Action are utilized. If it is determined that a complaint is without merit, it is documented, and the client is contacted by the Laboratory Director. The details for handling customer complaints and feedback are in SOP63. In either case, the outcome of the complaint resolution process must be reviewed by an individual not involved in the original activities in question, and the client shall be notified of the end of the review process. Further details for handling customer complaints and feedback are in SOP63.

12.5.4. A complaint such as a concern that data is repeatedly late should be reviewed for preventive action (see Section 17 – “Preventive Action”) to minimize a future occurrence.

13. CONTROL OF NON-CONFORMING ENVIRONMENTAL TESTING WORK (TNI V1:M2 – SECTION 4.9)

13.1. Non-conforming work is work that does not meet acceptance criteria or requirements. Nonconformances can include departures from standard operating procedures or test methods, or unacceptable quality control results (see Section 28 – “Quality Assurance for Environmental Testing”). Identification of non-conforming work can come through customer complaints, quality control, instrument calibration, evaluating consumable materials, staff observation, final report review, management reviews, and internal and external audits.

13.2. Exceptionally Permitting Departures from Documented Policies and Procedures

13.2.1. Requests for departures from laboratory procedures are approved by the Laboratory Director and documented. Planned departures from procedures or policies do not require audits or investigations.

13.2.2. If a client requests a departure from laboratory procedures, the laboratory does not have to consider that departure as a nonconformance that requires corrective action. However, that nonconformance must be documented as a nonconformance that was approved by management. Departures are noted on the sample check-in form or in the case narrative in Omega.

13.2.3. Due to their unique attributes, these requested or planned departures are not allowed for microbiology methods.

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13.2.4. Below are examples of departures:

- Insufficient sample volume for a rerun;
- Holding time has already been exceeded
- Sample data is not affected by the nonconformance

13.3. Non-Conforming Work

13.3.1. Laboratory policy for control of non-conforming work is to identify the nonconformance, determine if it will be permitted, and take appropriate action. All employees are encouraged to report "stop-work" issues to any member of management when any aspect of the process does not conform to laboratory requirements, and have a member of management review the nonconformance.

13.3.2. The procedure for investigating and taking appropriate corrective actions of non-conforming work are described in Section 15 – "Corrective Actions". Section 15.7 describes procedures for Technical Corrective Actions. Formal corrective action procedures must be followed for non-conforming work that could reoccur (beyond expected random QC failures), or where there is doubt about the laboratory's compliance to its own policies and procedures.

13.3.3. The investigation and associated corrective actions of non-conforming work involving alleged violations of the company's Ethics and Data Integrity policies must follow the procedures outlined in Section 20 – "Data Integrity Investigations".

13.3.4. The laboratory evaluates the significance of the non-conforming work and takes corrective action immediately. The customer is notified if their data has been impacted. The laboratory allows the release of non-conforming data only with approval of the Laboratory Director, the QAM or their designee(s) on a case-by-case basis. Non-conforming data is clearly identified in the final report (see Section 29 – "Reporting the Results").

13.3.5. The discovery of a nonconformance for results that have already been reported to the client must be immediately evaluated for significance of the nonconformance, its acceptability to the client, and determination of the appropriate corrective action. Reports must be re-issued within 30 days of discovery.

13.3.6. Corrective action for routine, non-recurring exceedances can be documented on raw data worksheets, logbooks, e-mail, a database or other documents. More serious corrective actions (non-conforming work that could reoccur or where there is doubt that the laboratory is in compliance with its own policies and procedures) will require a more formal corrective action process that usually includes the use of a corrective action report within the Omega LIM system.

13.4. Stop Work Procedures

13.4.1. Laboratory personnel shall notify any member of Management regarding any nonconformance. Management reviews the significance of the nonconformance and immediately develops a course of action. Any member of the management team can issue a "stop work" order as long as the Laboratory Director has been notified. If data is questionable, the Laboratory Director may be involved in the review. The Laboratory Director (or designee) will also coordinate any and all communications with the client.

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13.4.2. When an investigation of nonconformance indicates that the cause of the nonconformance requires that a method be restricted or not used until modifications are implemented, the Laboratory Director and/or Technical Director will immediately notify all personnel of the suspension/restriction. The lab will hold all relevant reports to clients pending review. All members of management must be involved in the resolution of the issue and must verify that the issue is resolved before work may resume. Personnel are notified by the Laboratory Director or Technical Director when resumption of work is authorized. The Laboratory Manager and QAM will document the issue, root cause, and resolution, using the corrective action procedures described in Section 15 – "Corrective Action".

13.4.3. The reporting of non-conforming work involving alleged violations of the company's ethics and data integrity policies must be reported to the Laboratory Director or designee. Procedures described in Section 20 – "Data Integrity Investigations. Resumption of work after work has been stopped for ethics and data integrity is authorized by the Laboratory Director.

14. IMPROVEMENT (TNI V1:M2 – SECTION 4.10)

14.1. Improvement in the overall effectiveness of the laboratory Management System is a result of the implementation of various aspects of the laboratory's management system: quality policy and objectives (Section 7 – "Management"); internal auditing practices (Section 18 – "Audits"); the review and analysis of data (Section 28 – "Quality Assurance for Environmental Testing"); the corrective action, (Section 15 – "Corrective Action") preventive action (Section 16 – "Preventive Action") process; and the annual management review of the quality management system (Section 19 – "Management Reviews") where the various aspects of the management/quality system are summarized, and evaluated and plans for improvement are developed.

14.2. At Alliance Technical Group, LLC - Seattle, additional areas are also monitored, such as on time delivery, PT performance, re-issuing reports, numbers and types of corrective actions, audit performance, complaints, control charting, and customer feedback. The monitoring of all the above parameters allows management to provide feedback to analysts in order to provide the client with the best possible data.

15. CORRECTIVE ACTION (TNI V1:M2 – SECTION 4.11)

15.1. Corrective actions are the actions taken to address occurrences of non-conformity, as well as to eliminate the causes of non-conformity in order to prevent recurrence.

15.2. Occurrences cited in external assessments, internal quality audits, data reviews, customer feedback/complaints, control of non-conforming work, or managerial reviews require corrective action.

15.3. Occurrences of nonconformance and the associated corrective actions may be documented on a Corrective Action Report form in the LIM system. Corrective actions are minimized through the development and implementation of routine internal program controls.

15.4. Corrective actions may be necessary when:

- Client data is negatively impacted by QC data being outside acceptance criteria
- Undesirable trends are detected in spike recoveries or relative percent difference (RPD) between duplicates
- There are unusual changes in detection limits
- The lab receives "Not Acceptable" evaluations of proficiency tests
- Inquiries concerning data quality are received from clients

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- Findings from Internal Audits
- Findings from External Audits
- Proper procedures are not followed
- Incorrect data is distributed to clients

15.5. General Procedure

15.5.1. The laboratory uses Omega to document and track corrective actions. Detailed directions for initiating corrective actions, entering the relevant details into Omega, and completing the Corrective Action Report process are contained in SOP48.

15.5.2. All lab staff members are responsible for reporting occurrences of nonconformance and initiating a Corrective Action Report (CAR) if necessary. The department manager or QAM to whom the nonconformance is reported will initiate the CAR.

15.5.3. CARs include a complete description of the nonconformance, an analysis of why the nonconformance occurred (Root Cause Analysis), a detailed plan for addressing the nonconformance (Corrective Action Required), an outline of actions taken to prevent the nonconformance from occurring again (QA Action Required), and review notes added periodically documenting the implementation of the corrective actions taken.

15.5.3.1. Complete Description of Nonconformance

This section of the CAR includes the circumstances under which the nonconformance occurred and a detailed description of the nonconformance.

15.5.3.2. Root Cause Analysis

This section of the CAR outlines the systematic deficiency or deficiencies that led to the occurrence of nonconformance and includes the results of any investigation into the relevant systems.

If the nonconformance is determined to be an anomaly rather than the result of a systematic deficiency, an investigation into the relevant systems may not be necessary.

15.5.3.3. Corrective Action Required

Appropriate corrective actions can be determined by the lab staff member who caused or identified the nonconformance, the corresponding Laboratory Manager, the QAM, the Technical Director, or the Lab Director. Appropriate corrective actions will address the nonconformance on the proper scale and at the proper level of detail as determined by the initiator of the CAR and as approved by the QAM.

15.5.3.4. QA Action Required

Appropriate QA Actions in response to CARs will address the underlying cause of the nonconformance, whether the nonconformance was determined to have been caused by a systematic deficiency or an anomaly. For an anomalous occurrence of nonconformance, appropriate QA Action may be minimal. For occurrences of nonconformance cause by a systematic deficiency, appropriate QA Action may be extensive and include the revision of SOPs, re-training of lab staff members, or the development and implementation of new standard practices.

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15.5.3.5. Monitoring of Corrective Action

It is the responsibility of each Laboratory Manager to monitor the implementation of corrective actions in their department, to schedule periodic reviews of that implementation, and to document all progress within the originating CAR. The schedule of review is based on guidelines developed by the QAM designed to ensure appropriate follow-up based on the nature and severity of each corrective action required.

The laboratory's internal auditing processes may be used for follow-up monitoring of corrective actions and their effectiveness if a serious issue or risk was identified.

15.6. Additional Audits

15.6.1. Where the identification of occurrences of nonconformance's or departures from normal lab procedures cast doubt on the laboratory's compliance with its own policies and procedures, or on its compliance with the TNI Standard, the laboratory ensures that the appropriate areas of activity are audited in accordance with Section 18.2 – "Internal Audits" as soon as possible.

15.7. Technical Corrective Action

15.7.1. Sample data associated with a failed quality control are evaluated for the need to be reanalyzed or qualified. Re-analysis and re-extractions are recorded in the Omega LIMS system. If a sample is unable to meet a client's quality objectives due to quality control issues and does not have sufficient sample or hold time remaining to perform additional analyses, a corrective action report will be opened to document the occurrence in the Omega LIM system (also see Section 13 – "Control of Nonconforming Environmental Testing Work").

15.7.2. Analysts routinely implement corrective actions for data with unacceptable QC measures. First level correction may include re-analysis without further assessment. If the test method SOP addresses the specific actions to take, they are followed. Otherwise, corrective actions start with assessment of the cause of the problem.

15.7.3. Corrective actions for non-systematic errors or expected random failures are documented in the Omega database. Corrective actions for occurrences of nonconformance beyond random QC failures, or where there is concern that the laboratory is not in compliance with its own policies and procedures, require a CAR.

15.7.4. If the data reported is affected adversely by the nonconformance, it is the responsibility of any analyst working on the data to alert the Laboratory Director and the responsibility of the Laboratory Director to identify the compromised data in the report to the client.

16. PREVENTIVE ACTION (TNI V1:M2 – SECTION 4.12)

16.1. Preventive action is a proactive process to identify opportunities for improvement, rather than a reaction to the identification of problems or complaints. Preventive action may include, but is not limited to: review of QC data to identify quality trends, regularly scheduled staff quality meetings to ensure staff is knowledgeable in quality procedures, review of client feedback to look for improvement opportunities, review of proficiency testing data to look for analytes that were nearly missed, annual managerial reviews, and scheduled instrument maintenance.

16.2. When improvement opportunities are identified or if preventive action is required, action plans are developed, implemented and monitored to reduce the likelihood of the occurrence of nonconformities. Procedures for preventive actions include the initiation of such actions and subsequent monitoring to ensure that they are effective.

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16.3. All personnel have the authority to offer suggestions for improvements and to recommend preventive actions; however, Management is responsible for implementing preventive action.

17. CONTROL OF RECORDS (TNI V1:M2 – SECTION 4.13)

17.1. Records are a subset of documents, usually data recordings that include annotations (such as daily refrigerator temperatures posted to a laboratory form), lists, spreadsheets, or analyst notes on a chromatogram. Records may be on any form of media, including electronic and hard copy. Records allow for the historical reconstruction of laboratory activities related to sample-handling and analysis.

17.2. The laboratory maintains a record system appropriate to its needs, records all laboratory activities, and complies with applicable standards or regulations as required. Records of original observations and derived data are retained to establish an audit trail. Records help establish factors affecting the uncertainty of the test and enable test repeatability under conditions as close as possible to the original. Records provide the direct evidence and support for the necessary technical interpretations, judgments, and discussions concerning laboratory results. The records, particularly those that are anticipated to be used as evidentiary data, provide the historical evidence needed for later reviews and analyses. Records should be legible, identifiable, and retrievable, and protected against damage, deterioration, or loss. All records referenced in this section are retained for a minimum of five years.

17.3. Records Maintained

17.3.1. Records of all procedures to which a sample is subjected while in the possession of the laboratory are kept. The laboratory retains all original observations, calculations and derived data (with sufficient information to produce an audit trail), calibration records, personnel records, and a copy of the test report for a minimum of five years from generation of the last entry in the records.

17.3.2. Scanned documents (worksheets, bench sheets, etc.) are considered original records at ATG Seattle. Once the record is scanned and verified, hard copies may be destroyed. Additionally, carbon copies of COCs are not considered originals and may be destroyed unless original observations are written on them, in which case they will be kept for a minimum of five years.

17.3.3. At a minimum, the following records are maintained by the laboratory to provide the information needed for historical reconstruction:

- All raw data, whether hard copy or electronic, for calibrations, samples and quality control measures, including analysts' worksheets and data output records (chromatograms and other instrument response readout records);
- A written description or reference to the specific method(s) used, which includes a description of the specific computational steps used to translate parametric observations into a reportable analytical value (a copy of all pertinent Standard Operating Procedures);
- Laboratory sample ID code;
- Date of analysis;
- Time of analysis is required if the holding time is seventy-two (72) hours or less, or when time critical steps are included in the analysis (e.g., extractions and incubations);
- Instrumentation identification and instrument operating conditions/parameters (or reference to such data);
- All manual calculations (including manual integrations);
- Analyst's or operator's initials/signature or electronic identification;

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- Sample preparation including cleanup, separation protocols, incubation periods or subculture, ID codes, volumes, weights, instrument printouts, meter readings, calculations, and, reagents;
- Test results (including a copy of the final report);
- Standard and reagent origin, receipt, preparation, and use;
- Calibration criteria, frequency and acceptance criteria;
- Data and statistical calculations, review, confirmation, interpretation, assessment and reporting conventions;
- Quality control protocols and assessment;
- Electronic data security, software documentation and verification, software and hardware audits, backups, and records of any changes to automated data entries;
- Method performance criteria including expected quality control requirements;
- Proficiency test results;
- Records of demonstration of capability for each analyst;
- A record of names, initials, and signatures for all individuals who are responsible for signing or initialing any laboratory record;
- Correspondence relating to laboratory activities for a specific project;
- Corrective action reports;
- Preventive action records;
- Copies of internal and external audits including audit responses;
- Copies of all current and historical laboratory SOPs, policies and Quality Manuals;
- Sample receiving records (including information on any inter-laboratory transfers);
- Sample storage records;
- Data review and verification records;
- Personnel qualification, experience and training records;
- Archive records; and
- Management reviews.

17.3.4. Precautions are taken during the reduction and storage of data to prevent introducing errors and losing or misinterpreting data. GC/MS, GC, ICP, and most General Chemistry data are retained on hard copy and in electronic media. Laboratory notebooks, bench records, and standardized forms are also used to retain data. All hard-copy data and electronic media are retained on-site.

17.3.5. If corrections are made to records such as Chains of Custody, technical records, quality records, etc., the individual making the correction must strike through the error with a single line, initial, date, and if not self-explanatory, include a justification for the change.

17.3.6. Laboratory records include the following:

17.3.6.1. Standard Operating Procedures - Any revisions to laboratory procedures are written, dated, and distributed to all appropriate individuals to ensure implementation of changes.

17.3.6.2. Equipment Maintenance Documentation - Documents detailing the receipt and specification of analytical equipment is retained. A history of the maintenance record of each system serves as an indication of the adequacy of maintenance schedules and parts inventory. As appropriate, the maintenance guidelines of the equipment manufacturer are followed. When maintenance is necessary, it is documented on a standard form in LIMS.

17.3.6.3. Calibration Records & Traceability of Standards/Reagents -- The frequency, conditions, standards, and records reflecting the calibration history of a measurement system are recorded.

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17.3.6.4. Sample Management -- A record of all procedures to which a sample is subjected while in the possession of the laboratory is maintained. These include records pertaining to:

- Sample preservation including appropriateness of sample container and compliance with holding time requirement;
- Sample identification, receipt, acceptance or rejection and log-in;
- Sample storage and tracking including shipping receipts, transmittal forms, and internal routing and assignment records; and
- Disposal of hazardous samples including the date of sample or sub-sample disposal and name of the responsible person.

17.3.6.5. Original Data -- The raw data and calculated results for all samples are maintained in laboratory notebooks, logs, bench-sheets, files, or other sample tracking or data entry forms. Instrumental output is stored in a computer file or a hard copy report. These records include:

- Laboratory sample ID code;
- Date of analysis;
- Instrumentation identification and instrument operating conditions/parameters;
- Analysis types and sample preparation information, including sample aliquots processed, cleanup, and separation protocols;
- All manual, automated, or statistical calculations;
- Confirmatory analysis data, when required to be performed;
- Review history of sample data; and
- Analyst's or operator's initials/signature.

17.3.6.6. QC Data -- The raw data and calculated results for all QC samples and standards are maintained in the manner described in the preceding paragraph. Documentation allows correlation of sample results with associated QC data. Documentation also includes the source and lot numbers of standards for traceability. QC samples include, but are not limited to control samples, Method Blanks, Matrix Spikes, and Matrix Spike Duplicates.

17.3.6.7. Correspondence -- Correspondence pertinent to a project is kept and placed in the project files.

17.3.6.8. Deviations -- All deviations from SOPs are reviewed and approved by the QA Manager or Technical Director.

17.3.6.9. Final Report -- A copy of any report issued and any supporting documentation is stored for a period of 5 years.

17.3.6.10. Administrative Records -- The following are maintained:

- Personnel qualifications, experience and training records;
- Initial and continuing demonstration of proficiency for each analyst; and
- A log of names, initials, and signatures for all individuals who are responsible for signing or initialing any laboratory records.

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17.4. Records Management and Storage

17.4.1. The laboratory maintains a record management system for control of laboratory notebooks, instrument logbooks, standards logbooks, and records for data reduction, validation, storage, and reporting. Alliance Technical Group, LLC - Seattle uses a Laboratory Information Management System (LIMS) for record management. Hand written data is recorded immediately and legibly in permanent ink; data generated by automated data collections systems is recorded electronically. Corrections are initialed and dated with the reason noted for corrections other than transcription errors. A single line strikeout is used to make corrections so that the original record is not obliterated. Backups and data storage are covered in SOP1 and SOP3.

17.4.2. Records, including electronic records, are easy to retrieve, legible, and protected from deterioration or damage; held secure and in confidence; and are available to accrediting bodies for a minimum of five years or as required by regulation or contract. Records that are stored only on electronic media are supported by the hardware and software necessary for their retrieval. Access to protected records is limited to laboratory management or their designees to prevent unauthorized access or amendment.

17.4.2.1. To ensure that documents remain free from damage, ATG Seattle will scan most hard copy records and will consider those scans as original records.

17.4.3. Additional information regarding control of data is included in Section 23.5 – “Control of Data”.

17.4.4. Procedures for identification, collection, indexing, access, filing, storage, maintenance, and disposal of quality and technical records are found in SOP1. Quality records shall include reports from internal audits and management reviews as well as records of corrective and preventive actions. The final Omega report is the primary record for analytical results.

17.4.5. Archived information and access logs are protected against fire, theft, loss, environmental deterioration, pests, and in the case of electronic records, electronic or magnetic sources. Archived records have limited access.

17.4.6. In the event of a change of ownership, mergers, or closures of the laboratory, in accordance with section 4.1.8 of the current NELAC Standards, and sections III-15 and IV-8.2 of the Manual for the Certification of Laboratories Analyzing Drinking Water, records shall be maintained and stored in good condition in an easily accessible location for a minimum of five years; a minimum of six years is required for records for on-site laboratory assessments and certification program reviews by the individual states. Clients will be given written notice to request that their records be transmitted to them. If a transfer of data to the client occurs, the client will need to assure the laboratory that regulatory agencies have access to the records for the remaining required period of time so that appropriate regulatory and state legal requirements concerning laboratory records are followed.

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17.5. Legal Chain of Custody Records

17.5.1. Evidentiary sample data is used as legal evidence. ATG Seattle does not handle evidentiary samples. For all other samples, the Chain of Custody is the documented history of any sample. It begins at the project site with the sampling personnel and continues on with the sample through transport to the laboratory where it is received, stored, analyzed, and archived under the custody of the laboratory. Chain of custody records, both hard copy and computer stored, are used to establish an intact, continuous record of the physical possession, storage and disposal of sample containers, collected samples, sample aliquots, and sample extracts or digestates. The COC records account for all time periods associated with the samples. The COC records identify individuals who physically handle the samples from the field to the laboratory. The COC forms remain with the samples during transport or shipment. When shipping containers and/or individual sample containers are submitted with or without sample custody seals, and any seals are not intact, it is recorded in the LIM system. The original COC is retained in the project file and in Omega. The scanned version of the COC is returned to the client with the final report. ATG Seattle views all COCs as legal documents.

17.5.2. It is necessary to have an accurate written record to trace the possession and handling of samples from collection through reporting.

17.5.3. A sample is in someone's "custody" if:

- It is in one's actual physical possession;
- It is in view, after being in one's physical possession;
- It is in one's physical possession and then locked up so that no one can tamper with it; or
- It is kept in a secured area, restricted to authorized personnel only.

18. AUDITS (TNI V1:M2 – SECTION 4.14)

18.1. Audits measure laboratory performance and verify compliance with accreditation/certification and project requirements. Audits specifically provide management with an ongoing assessment of the management system. They are also instrumental in identifying areas where improvement in the management/quality system will increase the reliability of data. Audits are of four main types: internal, external, performance, and system. Section 18.6 discusses the handling of audit findings.

18.2. Internal Audits

18.2.1. At a minimum annually, the laboratory prepares a schedule of internal audits to be performed during the year. These audits verify compliance within the departments regarding the requirements of the management/quality system, including analytical methods, SOPs, the Quality Manual, ethics policies, data integrity, other laboratory policies, the TNI Standard, and the DoD QSM.

18.2.2. It is the responsibility of the QAM to plan and organize audits as required by the schedule and as requested by management. Deficiencies and the corrective action are documented. These audits are carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited.

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18.2.3. The auditor should not be the person responsible for the work being audited or be the supervisor of the person responsible for the work. The auditor should have the necessary qualifications to review the area being audited and use a checklist approved by the QAM. At minimum, auditors should have the same training as Project Managers (SOP59).

18.2.4. The following methods are employed routinely:

- Quality control charts are employed by all applicable analytical sections of the laboratory. QC charts are made for most quality control samples including LCS, surrogate spike recoveries, matrix spikes and matrix spike duplicates (including RPD), and sample/sample duplicate RPD. QC charts are used to monitor laboratory performance, analyze trends, detect out of control situations, explain anomalous results and prepare specialized QA/QC packages upon request by laboratory management or clients.
- Single and/or double blind performance evaluation samples are used to monitor analytical system performance with or without the knowledge of the analyst. The samples for these audits are either purchased from a commercial supplier or prepared in-house by the department manager or QA staff.
- Laboratory logbooks (i.e., instrument logs, maintenance logs, standards logs, etc.) are reviewed for completeness of entries, adherence to preventive maintenance schedules, proper standards preparation and record keeping, and adherence to established laboratory SOPs.
- All audit activity results, external and internal, are used to identify areas where additional training is needed, clarification of procedures is required, and to assess performance of the entire analytical system

18.2.5. Analytical methods will also have their corresponding preparation methods audited.

18.2.6. In addition to the scheduled internal audits, it may sometimes be necessary to conduct special audits as a follow-up to corrective actions, PT results, complaints, regulatory audits or alleged data integrity issues. These audits address specific issues.

18.2.7. The area audited, the audit findings, and corrective actions are recorded. Audits are reviewed after completion to assure that corrective actions were implemented and effective.

18.2.8. A schedule for routine internal audits is created, based on guidelines developed by the QAM, for reviewing the implementation of corrective actions and documenting each periodic review. The relevant department manager or QA analyst may be responsible for creating and adhering to the schedule of review, as well as for documenting the progress/success of the corrective action.

18.2.8.1. For analyses which only have WADOE accreditation, if the technology has been internally audited for an analysis in a given year, other tests utilizing that technology may not need to be internally audited that year.

18.2.8.1.1. The schedule determined by the QAM may reflect this in a rotation.

18.2.8.1.2. All DoD and TNI accredited analyses and procedures will be internally audited annually.

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18.3. External Audits

18.3.1. It is the laboratory's policy to cooperate and assist with all external audits, whether performed by clients or an accrediting body. Management ensures that all areas of the laboratory are accessible to auditors as applicable and that appropriate personnel are available to assist in conducting the audit.

18.3.2. Confidential Business Information (CBI) Considerations

18.3.2.1. During on-site audits, auditors may come into possession of information claimed as business confidential. A business confidentiality claim is defined as "a claim or allegation that business information is entitled to confidential treatment for reasons of business confidentiality or a request for a determination that such information is entitled to such treatment." When information is claimed as business confidential, the laboratory must place on (or attach to) the information at the time it is submitted to the auditor, a cover sheet, a stamped or typed legend, or other suitable form of notice, employing language such as "trade secret", "proprietary" or "company confidential". Confidential portions of documents otherwise non-confidential must be clearly identified. CBI may be purged of references to client identity by the responsible laboratory official at the time of removal from the laboratory. However, sample identifiers may not be obscured from the information.

18.4. Performance Audits

18.4.1. Performance audits may be Proficiency Test Samples, internal single-blind samples, double-blind samples through a provider of client, LOD/LOQ Verifications, or anything that tests the performance of the analyst and method.

18.4.2. Proficiency Test Samples are discussed in Section 28 – "Quality Assurance for Environmental Testing".

18.5. System Audits

18.5.1. The Laboratory's management system is audited though annual management reviews. Refer to Section 19 – "Management Reviews" for further discussion of management reviews.

18.6. Handling Audit Findings

18.6.1. Internal or external audit findings are responded to within the time frame agreed to at the time of the audit. The response may include action plans that could not be completed within the response time frame. A completion date is established by management for each action item and included in the response.

18.6.2. The responsibility for developing and implementing corrective actions to findings is the responsibility of the Laboratory Manager and QAM. Corrective actions are documented through the corrective action process described in Section 15 – "Corrective Actions".

18.6.3. Audit findings that cast doubt on the effectiveness of the laboratory operation to produce data of known and documented quality or that question the correctness or validity of sample results must be investigated. Corrective action procedures described in Section 15 – "Corrective Action" must be followed. Clients must be notified in writing if the investigation shows the laboratory results have been negatively affected and the clients' requirements have not been met. The client must be notified by the Laboratory Director (or designee) within 48 hours after a finding has been made. Laboratory management will ensure that this notification is done within the specified time frame.

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18.6.4. All investigations that result in findings of inappropriate activity are documented and include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients. See Section 20 – "Data Integrity Investigation" for additional procedures for handling inappropriate activity.

19. MANAGEMENT REVIEWS (TNI V1:M2 – SECTION 4.15)

19.1. Top management reviews the management system on an annual basis and maintains records of review findings and actions.

19.2. Management Review Topics

19.2.1. At least once per year, typically during the first quarter of the year, laboratory management conducts a review of the quality system and environmental testing activities to ensure its continuing suitability and effectiveness, and to introduce any necessary changes or improvements. The review takes account of:

a) changes in internal and external issues that are relevant to the laboratory
b) fulfilment of objectives
c) suitability of policies and procedures
d) status of actions from previous management reviews
e) outcome of recent internal audits
f) corrective actions
g) assessments by external bodies
h) changes in the volume and type of the work or in the range of laboratory activities
i) customer and personnel feedback
j) complaints
k) effectiveness of any implemented improvements
l) adequacy of resources
m) results of risk identification
n) outcomes of the assurance of the validity of results
o) other relevant factors, such as monitoring activities and training

19.2.2. The outcome of the review is a written discussion of:

a) the effectiveness of the management system and its processes
b) improvement of the laboratory activities related to the fulfilment of the requirements of this
c) document
d) provision of required resources
e) any need for change

19.2.3. A meeting may be held to discuss the written reviews. Findings and follow-up actions from management reviews are recorded. Management will determine appropriate completion dates for action items and ensure they are completed within the agreed upon time frame.

19.2.4. This is a separate review from the internal audit discussed in section 18.1 and shall be completed by laboratory managerial personnel. However, internal audits and management reviews may be conducted in conjunction with each other.

19.2.5. Findings from management reviews and the actions that arise from them shall be recorded. The management shall ensure that those actions are carried out within an appropriate timescale.

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20. DATA INTEGRITY INVESTIGATIONS (TNI V1:M2 – SECTION 4.16)

20.1. Alliance Technical Group, LLC - Seattle is committed to ensuring the integrity of its data and providing valid data of known and documented quality to its clients. The elements in the ATG Seattle Ethics and Data Integrity program include:

- Documented data integrity procedures signed and dated by top management.
- An Ethics and Data Integrity Policy signed by all management and staff annually – during the annual data integrity training, or at time of employment. (See SOP 85).
- Annual data integrity training.
- Procedures for confidential reporting of alleged data integrity issues.
- An audit program that monitors data integrity (see Section 18 – "Audits") and procedures for handling data integrity investigations and client notifications.

20.2. The ATG Seattle Code of Ethics is signed annually by the Laboratory Director, Technical Director, and Quality Assurance Manager. It states:

- Alliance Technical Group, LLC – Seattle, through its management identified below, is committed to ensuring the integrity of its data and meeting the quality needs of its clients. ATG Seattle pledges to manage its business according to the following principles:
  - To produce results that are technically sound and legally defensible;
  - To present services in a confidential, honest, and forthright manner;
  - To have a clear understanding with the client as to the extent and kind of services to be rendered;
  - To provide employees with guidelines and an understanding of the ethical and quality standards required in this industry;
  - To operate facilities in a manner that protects the environment and the health and safety of employees and the public;
  - To obey all pertinent federal, state, and local laws and regulations;
  - To continually improve product and service quality;
  - To treat employees equitably, acknowledge their scientific contributions, and provide them with opportunities for professional growth and development; and
  - To deal openly, honestly, and fairly in all business and financial matters with employees, clients and the public.

20.3. Ethics and Data Integrity Procedures

20.3.1. The Ethics and Data Integrity Policy provides an overview of the program. Written procedures that are considered part of the Ethics and Data Integrity program include:

- Ethics and Data Integrity Policy (see SOP85)
- Manual integration procedures (SOP85 & SOP52)
- Corrective action procedures (SOP48)
- Procedures for Data Integrity Investigations (Section 20.5)
- Data recall procedures (SOP1)
- Data Integrity training procedures (SOP85)

20.3.2. Management reviews data integrity procedures annually and updates these procedures as needed. The Ethics and Data Integrity Policy Training is SOP85. It includes an example of the form for signatures of the lab personal.

20.3.3. Data integrity training is provided as a formal part of new employee orientation and a refresher is given annually for all employees.

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20.3.4. Employees are required to understand that any infractions of the laboratory data integrity procedures shall result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment or civil/criminal prosecution. This is discussed in the Ethics and Data Integrity Policy that every employee is required to sign annually. Attendance for required training is monitored through a signature attendance sheet.

20.3.5. Data integrity training emphasizes the importance of proper written narration on the part of the analyst with respect to those cases where analytical data may be useful, but are in one sense or another partially deficient. The following topics and activities are covered:

- Organizational mission and its relationship to the critical need for honesty and full disclosure in all analytical reporting;
- How and when to report data integrity issues;
- Record keeping;
- Training, including discussion regarding all data integrity procedures;
- Data integrity training documentation;
- In-depth data monitoring and data integrity procedure documentation; and
- Specific examples of breaches of ethical behavior such as improper data manipulations, adjustments of instrument time clocks, and inappropriate changes in concentrations of standards.

20.3.6. It is the responsibility of each department manager to ensure that each member of his/her staff is trained appropriately, and to document all training and maintain all training records. The training records are maintained by the QAM.

20.3.7. When contracted technical or support personnel are used, the Technical Director or Laboratory Director is responsible for ensuring that they are trained to the laboratory's management system and data integrity procedures, competent to perform the assigned tasks, and appropriately supervised.

20.3.8. Topics covered are provided in writing to all trainees.

- The organizational mission and its relationship to the need for honesty and full disclosure in all analytical reporting;
- How and when to report data integrity issues;
- Recordkeeping;
- Discussion regarding all data integrity procedures;
- Data integrity training documentation;
- In-depth data monitoring;
- Data integrity procedure documentation;
- Improper data manipulations;
- Adjustments of instrument time clocks;
- Inappropriate changes in concentrations of standards;
- The importance of proper written narration on the part of the analyst with respect to those cases where analytical data may be useful, but are in one sense or another partially deficient;
- Written ethics agreements (not all labs can legally sign a written ethics agreement so the commitment is made by attendance at training sessions);
- Examples of improper practices;
- Examples of improper chromatographic manipulations;
- Requirements for external ethics program training;

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- Any external resources available to employees; and
- Consequences for data integrity infractions.
- Computer awareness security training

20.4. Confidential Reporting of Ethics and Data Integrity Issues

20.4.1. The Laboratory Director or Human Resources Manager is the point of contact for assisting employees with questions on ethics related matters and for reporting observations of suspected unethical behavior or business conduct. All inquiries will be acted upon in a prompt manner.

20.4.2. Employees are responsible for reporting ethics violations to the Laboratory Director or Human Resources. Matters of ethical concern that are brought to attention will be kept confidential to the maximum extent possible. The Laboratory Director may consult with management concerning resolution of ethical concerns.

20.5. Investigations

20.5.1. All investigations resulting from data integrity issues are conducted confidentially. They are documented and notifications are made to clients who received any negatively affected data that did not meet the client's data quality requirements.

20.5.2. The laboratory, as part of the overall internal auditing program, ensures that a review is conducted with respect to any evidence of inappropriate actions or vulnerabilities related to data integrity. Discovery of potential issues are handled in a confidential manner until such time as a follow up evaluation, full investigation, or other appropriate actions have been completed and the issues clarified. All investigations that result in finding of inappropriate activity will be documented and will include any disciplinary actions involved, corrective actions taken, and all appropriate notifications of clients. All documentation of these investigation and actions taken will be maintained for at least five years

21. PERSONNEL (TNI V1:M2 – SECTION 5.2)

ATG Seattle employs competent personnel based on education, training, experience and demonstrated skills as required. The laboratory's organization chart can be found in Appendix A.

21.1. Overview

21.1.1. All personnel are responsible for complying with all quality and data integrity policies and procedures that are relevant to their area of responsibility.

21.1.2. All personnel who are involved in activities related to sample analysis, evaluation of results or who sign test reports, must demonstrate competence in their area of responsibility. Appropriate supervision is given to any personnel in training and the trainer is accountable for the quality of the trainees work. Personnel are qualified to perform the tasks they are responsible for based on education, training, experience and demonstrated skills as required for their area of responsibility.

21.1.3. The laboratory provides goals with respect to education, training and skills of laboratory staff. These goals are outlined in the job description. Training needs are identified at the time of employment and when personnel are moved to a new position or new responsibilities are added to their job responsibilities. Ongoing training, as needed, is also provided to personnel in their current jobs. The effectiveness of the training must be evaluated before the training is considered complete.

21.1.4. Contracted personnel, when used, must meet the same competency standards and follow the same policies and procedures that laboratory employees must meet.

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21.2. Job Descriptions

21.2.1. Job descriptions are available for all positions that manage, perform, or verify work affecting data quality. Job descriptions are kept and managed by the Human Resources Manager.

21.2.2. Job descriptions include the specific tasks, minimum education and qualifications, skills, and experience required for each position. An overview of top management's responsibilities is included in Section 7 – "Management".

21.2.3. Laboratory Analyst

- Technical operations
- Developing modified or new analytical methods
- Order requests of supplies for the laboratory
- Proposing equipment purchases
- Sample preservation and preparation
- Performing the analyses
- Reporting the results
- Routine maintenance of equipment

21.2.4. Laboratory Technician II

- Sample preparation and extraction
- Technical operations
- Routine maintenance of equipment
- Assists Laboratory Technician I and Analysts

21.2.5. Laboratory Technician I

- Sample receipt
- Sample preservation and initial preparation
- Technical operations
- Routine maintenance and calibration of support equipment
- Assists Laboratory Technician II and Analysts

21.2.6. Project Coordinator

- Interfacing with clients in a professional and friendly manner to serve as a liaison between them and the laboratory
- Maintaining records and contracts
- Managing client expectations
- Working with Project Managers and Clients to communicate and understand special client requirements
- Creating project quotes, invoices, and statements
- Sample log in
- Creating bottle orders.
- Accounts Receivable

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21.3. Training

21.3.1. All personnel are appropriately trained and competent in their assigned tasks before they contribute to functions that can affect data quality. It is management's responsibility to assure personnel are trained. Training records are used to document management's approval of personnel competency. The date on which authorization and/or competence is confirmed is included. Training records are maintained by the QAM and at the corporate level and include records of both onsite and offsite training. See SOP59 for the forms and complete procedure.

21.3.2. Training for New Staff

21.3.2.1. All new staff members are given introductory training and orientation upon arrival. The training may be documented on a training sheet that outlines what will be covered during the training. The new employee receives Data Integrity training and must sign-off on the Ethics and Data Integrity Policy. The reading of QA manual, the Lab Safety handbook and the ATG Employee Manual is required. After completion of the general training, the new staff member is required to follow the SOP59 for analyst training.

21.3.2.2. The normal training for sample preparation or analyses is comprised of three steps:

- First, the trainee is required to read and understand the method and its SOP, all applicable safety data sheets (SDS).
- Second, the trainee observes the method or procedure in use.
- Third, the trainee performs the method or procedure under close observation by a certified analyst.

21.3.2.3. Once these steps are complete, the trainee must then perform the steps outlined in SOP59.

21.3.2.4. After successful completion of this process, the trainee is certified to perform the method or procedure on client samples. This process may vary due to method or procedure requirements, but is followed as closely as possible by all laboratory departments.

21.3.3. Ongoing Training

21.3.3.1. Staff members are given the following ongoing training:

- The employee attests, through signature, that they have read, understood, and agree to perform the latest version of the Quality Manual and any SOPs or policies they are responsible for following.
- Annually, analysts, laboratory technicians, and technical managers show continued proficiency in each method they perform by completing Continued Demonstration of Capability (CDC) analyses (can be in the form of acceptable PT results).
- Attending training related to job function as applicable.

21.3.3.2. The QAM maintains training documentation in the employees training file.

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22. ACCOMODATIONS AND ENVIRONMENTAL CONDITIONS (TNI V1:M2 – SECTION 5.3)

22.1. Environmental

22.1.1. The laboratory facility is designed and organized to facilitate testing of environmental samples. Environmental conditions are monitored to ensure that conditions do not invalidate results or adversely affect the required quality of any measurement. Such environmental conditions include a separate extraction room with a positive airflow and a separate room for metals analysis. For VOC analysis of a blank sample is continually checked for solvent contamination. Analyses could be stopped if the blank was found to be contaminated. Work would continue after the issues are resolved.

22.2. Work Areas

22.2.1. Testing occurs only within the laboratory. Laboratory space is maintained and monitored to the specifications required for laboratory space and the testing performed. Electronic balances are located away from drafts and doorways in areas where their use is not affected by vibrations. Biological work areas are sterilized between uses. Neighboring test areas of incompatible activities are effectively separated. Specific work areas are defined and access is controlled (only authorized laboratory personnel and escorted visitors may enter the work area). Good housekeeping measures are employed to avoid the possibility of contamination. Smoking, eating, and drinking is prohibited in lab space.

22.2.2. Access to, and use of, areas affecting the quality of the environmental tests is controlled by restriction of areas to authorized personnel only.

22.2.3. The laboratory work spaces are adequate for their use, and appropriately clean to support environmental testing and ensure an unencumbered work area. Work areas include:

- Entries to the laboratory
- Sample receipt area
- Sample storage area
- Sample preparation area
- Laboratory analysis area
- Chemical and waste storage area
- Data handling

22.2.4. The laboratory procedure for good housekeeping includes such measures as:

- Janitorial service either internal or contracted
- Periodic dedicated clean-up days
- Each employee is responsible for straightening up their work area daily

22.2.5. A floor plan can be found in Appendix B

22.3. Building Security

22.3.1. The laboratory is kept secure during off hours with an alarm. Visitors must be accompanied by laboratory personnel when in secure areas and must sign in before entering any functional area of the laboratory. Signs are used to designate secure areas.

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23. ENVIRONMENTAL METHODS AND METHOD VALIDATION (TNI V1:M2 – SECTION 5.4 AND SECTIONS 1.4, 1.5 AND 1.6 OF TECHNICAL MODULES TNI V1:M 3-7)

23.1. Methods and/or procedures are available for all activities associated with the analysis of the sample including preparation and testing. For purposes of this Section, “method” refers to both the sample preparation and determinative methods. The methods used and their SOPs can be found in Appendix C.

23.2. Before being put into use, a test method is confirmed by a demonstration of capability or method validation process (Appendix E).

23.3. All methods are published or documented. Deviations from the methods are allowed only if the deviation is documented, technically justified, authorized by management and accepted by the client (when applicable).

23.3.1. Deviations are not permitted for microbiology methods. See the individual SOPs for details.

23.4. Method Selection

23.4.1. A reference method is a method issued by an organization generally recognized as competent to do so (When ISO refers to a standard method, that term is equivalent to reference method). When a laboratory is required to analyze a parameter by a specified method due to a regulatory requirement, the parameter/method combination is recognized as a reference method.

23.4.2. The laboratory will use methods that meet the needs of the client. Such methods will be based on the latest edition of the method, unless it does not meet the needs of the client. When the regulatory authority mandates or promulgates methods for a specific purpose, only those methods will be used.

23.4.3. If a method proposed by a client is considered to be inappropriate or out-of-date, the client is informed and the issue resolved before proceeding with analysis of any samples (see Section 9 – Review of Requests, Tenders and Contracts).

23.4.4. If a method is not specified by the client, an appropriate method will be selected using the process outlined below. The client will be informed of the selected method and must approve its use before being used to report data.

- If the data are to be submitted to a regulatory authority, the method(s) specified by the regulatory authority will be used.
- For drinking water compliance a method will be selected from those specified in 40 CFR Part 141, or the applicable state regulations.
- For NPDES permits, the method will be selected from those specified in 40 CFR Part 136.

23.4.5. If the end use of the data is not regulatory or if the regulatory authority does not specify a method, the laboratory will determine the client needs in terms of reporting level (e.g., LOD, LOQ), bias (e.g., screening versus quantitative) and the laboratory capabilities and capacity. Based on these criteria, the laboratory will select an appropriate method based on the following hierarchy:

- Resources from published regional, national or international standards
- Methods published by technical organizations such as ASTM, Standard Methods or AOAC

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- Methods developed by the instrument manufacturer

23.4.6. If the client has given the laboratory approval to analyze samples by an unaccredited method, the laboratory will document client approval on the final report.

23.5. Laboratory – Developed Methods

23.5.1. ATG Seattle will perform its services using analytical methodologies with published test methods which are standard of the industry. Should deviations be necessary, they will be from other recognized and appropriate methodologies unless circumstances require less traditional analytical practices. In such cases, these non-traditional methods will be complementary of standard scientific procedures and good laboratory practices.

23.6. Method Validation

23.6.1. Validation is the confirmation, by examination and objective evidence, that the particular requirements for a specific intended use are fulfilled.

23.6.2. At a minimum, reference methods are validated by performing an initial demonstration of capability. Additional requirements are discussed for each technology.

23.6.3. All methods that are not reference methods are validated before use. The validation is designed so that the laboratory can demonstrate that the method is appropriate for its intended use. All records (e.g., planning, method procedure, raw data and data analysis) shall be retained while the method is in use. Based on the validation process, the laboratory will make a statement in the SOP for the method of the intended use requirements and whether or not the validated method meets the use requirements.

23.6.4. Method Validation and Demonstration of Capability procedures can be found in:

- Appendix E – Chemistry

23.7. Control of Data

23.7.1. To ensure that data are protected from inadvertent changes or unintentional destruction, the laboratory uses procedures to check calculations and data transfers (both manual and automated).

23.7.2. Computer and Electronic Data Requirements

23.7.2.1. The laboratory assures that computers, user-developed computer software, automated equipment, or microprocessors used for the acquisition, processing, recording, reporting, storage, or retrieval of environmental test data are:

- Documented in sufficient detail and validated as being adequate for use;
- Protected for integrity and confidentiality of data entry or collection, data storage, data transmission and data processing;
- Maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of environmental test data;
- Held secure including the prevention of unauthorized access to, and the unauthorized amendment of, computer records. Data archive security is addressed in Section 17 – “Control of Records” and building security is addressed in Section 22 – “Accommodations and Environmental Conditions”.

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23.7.2.2. The laboratory controls access to all programs that are used to acquire, process, record, or report data. All computers are password-protected. Each employee is granted access only to those programs that he or she uses. The password is unique to the individual, and cannot be shared. Omega LIM system passwords are required to be updated at a minimum annually, or more frequently as needed.

23.7.2.2.1. Analytical lab computers will have a common user ID and password to prevent instrumentation errors. Lab computers will have limited access to shared folders on the network.

23.7.2.3. The laboratory utilizes the Omega LIM system to calculate final results from the raw data. Prior to implementing new calculations into Omega, the laboratory shall validate the underlying calculations by doing a hand calculation of the data.

23.7.2.4. The laboratory uses spreadsheets to reduce raw data to final results for many of the Wet Chemistry department tests. To ensure that the worksheet formulae are correct, the laboratory tests each set of cells used for input of the data as well all cells used for calculations by comparing the results of the spreadsheet with manually calculated data. All calculation cells are locked to prevent formulas from changing.

23.7.2.5. If any changes are made to the spreadsheet program, the laboratory revalidates the calculations before reporting results.

23.7.2.6. In addition, the algorithms and all spreadsheet calculations or other programs that are used to reduce raw data to a reported value will be verified upon first use.

23.7.2.7. Data from all electronic media are backed up daily to ensure that data are not lost. The backed up copies are stored on the server.

23.7.2.8. Any change in software that occurs that affects electronic data must be documented. If the change affects client electronic data, clients must be notified by the change.

23.7.3. Data Reduction: Manual Calculations

23.7.3.1. As a part of the management system, the laboratory ensures that all manual calculations are checked by another individual. In addition, all data transfers (data entry, transcribing raw or calculated data, etc.) will be checked for accuracy.

23.7.3.2. The analyst calculates final results from raw data or appropriate computer programs provide the results in a reportable format. The test methods provide required concentration units, calculation formulas and any other information required to obtain final analytical results.

23.7.3.3. The laboratory has manual integration procedures that must be followed when integrating peaks during data reduction: SOP52.

23.7.3.4. The laboratory's procedures for use of significant figures may be found in SOP55.

23.7.3.5. All raw data must be retained in the work order folder and it is maintained as described in Section 17 – "Control of Records".

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23.7.4. Data Review Procedures

23.7.4.1. Data review procedures are located in Section 28.13 – “Data Review”.

24. CALIBRATION REQUIREMENTS (TNI V1:M2 – SECT 5.5 AND SECTION 1.7 OF TECHNICAL MODULES TNI V1:M 3-7)

24.1. General Equipment Requirements

24.1.1. The laboratory provides all the necessary equipment required for the correct performance of the scope of environmental testing performed by the laboratory.

24.1.2. All equipment and software used for testing and sampling are capable of achieving the accuracy required for complying with the specifications of the environmental test methods as specified in the laboratory SOPs.

24.1.3. Equipment is operated only by authorized and trained personnel (see Section 21 – “Personnel”).

24.1.4. The laboratory has procedures for the use, maintenance, handling and storage of equipment. These procedures are readily available to laboratory personnel. Manuals provided by the manufacturer of the equipment provide information on use, maintenance, handling and storage of the equipment. The laboratory maintains an equipment table that includes additional information on storage location. This information is also kept in the Omega LIMS along with maintenance records and repairs.

24.1.5. All equipment is calibrated or verified before being placed in use to ensure that it meets laboratory specifications and relevant standard specifications. Calibration dates are kept in Omega.

24.1.6. Test equipment, including hardware and software, are safeguarded from adjustments that would invalidate the test result measurements by limiting access to the equipment and using password protection where possible (see Section 23.7 – “Control of Data”).

24.1.7. Equipment that has been subject to overloading, mishandling, given suspect results, or shown to be defective or outside specifications is taken out of service. The equipment is isolated to prevent its use or clearly labeled as being out of service until it has been shown to function properly. If it is shown that previous tests are affected, then procedures for nonconforming work are followed and results are documented (see Section 13 – “Control of Nonconforming Environmental Testing Work” and Section 15 – “Corrective Action”).

24.1.8. No equipment is used outside of the permanent control of the laboratory.

24.1.9. Each item of equipment and software used for testing and significant to the results is uniquely identified. Records of equipment and software are maintained. This information includes the following:

- Identity of the equipment and its software;
- Manufacturer’s name, type identification, serial number or other unique identifier;
- Checks that equipment complies with specifications of applicable tests;
- Current location;
- Manufacturer’s instructions, if available, or a reference to their location;
- Dates, results and copies of reports and certificates of all calibrations, adjustments, Acceptance criteria, and the due date of next calibration;

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- Maintenance plan where appropriate, and maintenance carried out to date; documentation on all routine and non-routine maintenance activities and reference material verifications;
- Any damage, malfunction, modification or repair to the equipment;
- Date placed in service;
- Condition received (ex: new, used, reconditioned);
- Operations status; and
- Instrument configuration and settings
- Current column serial numbers upon installation

24.2. Support Equipment

24.2.1. Support equipment includes, but is not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, temperature measuring devices, volumetric dispensing devices, and thermal/pressure sample preparation devices. All support equipment is maintained in proper working order. Records are kept for all repair and maintenance activities (which may include service calls), in Omega.

24.2.2. All raw data records are retained to document equipment performance. These records include logbooks, data sheets, or equipment computer files.

24.2.3. If support equipment undergoes catastrophic failure in ways that can negatively impact client samples, the failing piece of support equipment will immediately be taken out of service. Clients will be notified if the lab does not have an immediate resolution.

24.2.4. Support Equipment Maintenance

24.2.4.1. Regular maintenance of support equipment, such as balances, thermometers, and fume hoods, is conducted at least annually.

24.2.4.2. Maintenance on other support equipment, such as ovens, and refrigerators, is conducted on an as needed basis.

24.2.4.3. Records of maintenance to support equipment are documented in Instrument Maintenance Logs. The logs are located in the Omega LIMS.

24.2.4.4. The list of support equipment can be found in Appendix F.

24.2.5. Support Equipment Calibration

24.2.5.1. All applicable support equipment is calibrated or verified annually over the entire range of use using NIST traceable references where available. The results the calibration of support equipment must be within specifications and recorded. If calibrations generate correction factors, all locations where the piece of equipment is referenced must be updated to the new correction factor.

24.2.5.2. Support equipment such as balances, ovens, refrigerators, freezers, and water baths are verified with a NIST traceable reference if available, each day prior to use, to ensure operation is within the expected range for the application for which the equipment is to be used. Acceptance criteria for support equipment is listed in Table 4.

24.2.5.2.1. For sample refrigerators, minimum temperatures below 0°C will require a review of the condition of all water samples in the affected refrigerator. Maximum temperatures above 8°C will require notification of temperature exceedance to the Department Manager and the Stage 1 Manager.

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24.2.5.2.2. Temperature exceedances over two consecutive days requires notification to the Department Manager and Quality Assurance Manager, a recording of all contents of the affected area and a corrective action report.

24.2.5.2.3. If it is determined that the cause of non-compliance is due to deterioration of the support equipment, the Technical Director will be notified and the piece of equipment will be taken out of service and repaired or replaced.

24.2.5.3. Class A glassware and glass microliter syringes will be replaced upon evidence of deterioration.

24.2.5.3.1. If glassware is being used to measure specific volumes, only Class A glassware will be used.

24.2.5.4. External calibration services will be used for annual balance and Eppendorf ® pipette calibrations. Calibration certificates will be stored on the server as well as in LIMS.

24.2.5.4.1. When externally calibrated support equipment's "as found" parameters are documented as "out of tolerance" the lab will first compare the parameters that the external calibrator is following against the in-lab policy.

24.2.5.4.1.1. If the "as found" parameters are passing in accordance to the QA manual, the lab will document that on the calibration certificate and re-scan the document into LIMS.

24.2.5.4.1.2. If the "as found" parameters do not pass in accordance to the QA manual, corrective action will be taken. However, there should not be cases where this occurs because pipettes and balances are verified daily according to Table 3.

24.2.5.4.2. The lab uses an ISO 17025 accredited service for annual balance calibrations.

24.2.5.4.3. The lab is not required to use an ISO 17025 accredited service for annual Eppendorf® pipette calibrations.

24.2.5.5. Volumetric dispensing devices (except Class A glassware and Glass microliter syringes) will be verified according to Table 3.

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Table 3: Calibration Acceptance Criteria for Support Equipment				
Equipment	Type of Calibration/ Number of Standards	Frequency	Acceptance Limits	Corrective Action
Analytical Balance	Accuracy determined using accredited NIST weights. Inspected and calibrated by a 17025 accredited service annually. Weights used for daily balance verification should be calibrated at least every 5 years to obtain a new ISO17025 calibration certificate.	Daily Verification	Top Loading: ±2% or ±0.02g, whichever is greater. Analytical: ±0.1% or ±0.5mg, whichever is greater.	Clean, check level, ensure lack of drafts, ensure unit is warmed up. Recheck if balance fails verification.
Thermometer	Against NIST traceable thermometer	Annually at appropriate temperature range for intended use.	N/A	Apply correction factor determined by annual verification.
Infrared Temperature Guns	Against NIST traceable thermometer	Quarterly at appropriate temperature range for intended use.	N/A	Apply correction factor determined by quarterly verification. Replace upon expiration
Eppendorf® pipettes	Delivery by weight. Using DI water, dispense into tared vessel. Record weight with devices ID number. If a solvent other than DI is measured, the density of that solvent must be accounted for	Daily verification at the volumes used or at volumes that bracket the range of use.	Bias: ± 2% nominal volume. Precision: RSD ≤ 1% of nominal volume based on at least 3 replicates	Adjust/Replace

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Table 3: Calibration Acceptance Criteria for Support Equipment				
Equipment	Type of Calibration/ Number of Standards	Frequency	Acceptance Limits	Corrective Action
Volumetric Dispensing Devices (Automatic dilutor or dispensing devices.	One delivery by weight. Using DI water, dispense into tared vessel. Record weight with devices ID number. If a solvent other than DI is measured, the density of that solvent must be accounted for.	Quarterly in house, Inspected and calibrated by accredited person annually	± 2% Calculate accuracy by dividing weight by stated volume and multiply by 100 for a percentage value.	Adjust/Replace
Non-volumetric Lab ware (Autosampler vials, VOA vials, etc.)	Delivery by weight. Using DI water, dispense into tared vessel. Record weight with device ID number.	By lot before use.	± 3% of nominal value. RSD ≤ 3% of nominal volume based on 10 replicate measurements	Replace

Table 4: Acceptance Criteria for Support Equipment		
Equipment Identification	Use	Acceptance Criteria
REFRIG 1	Samples. Standards are in the freezer	Refrigerator: <6° Freezer: < 0°C
REFRIG 2	Samples. Standards are in the freezer	Refrigerator: <6° Freezer: < 0°C
WALKIN	Sample Storage.	<6°
Ovens	Drying	± 5% set temperature

24.3. Analytical Equipment Maintenance

24.3.1. All equipment is properly maintained, inspected, and cleaned.

24.3.2. Maintenance of analytical instruments and other equipment may include regularly scheduled preventive maintenance or maintenance on an as-needed basis. Instrument malfunction may be documented in Omega maintenance log, which is part of the laboratory's permanent records. A description of what was done to repair the malfunction and proof of return to control are also documented in the log. Proof of return to control can be a statement that a QC sample was run and it passed criteria.

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Table 5: Recommended Analytical Equipment Maintenance		
Instrument	Procedure	Frequency
Cetac Mercury Analyzers	Check tubing for wear Fill rinse tank with 2% HNO3 Clean liquid gas separator Fill reductant bottle with 10% Stannous Chloride	Daily Daily As required Daily
ICP-MS	Check Pump Tubing Check liquid argon supply Check fluid level in waste container Check filters Clean or replace filters Check torch Check sample spray chamber for debris Clean and align nebulizer Replace pump tubing Clean cones	Daily Daily Daily Weekly As required Daily Monthly Monthly Monthly As required
Spectrophotometer	Check/adjust cell alignment	Annually
Mass Spectrometer	Ion gauge tube degassing Pump oil level check Pump oil changing Analyzer bake-out Analyzer cleaning Resolution adjustment	As required Monthly Semi-annually As required As required As required
Gas Chromatograph	Compare standard response to previous day or since last initial calibration Check carrier gas flow rate in column Check temp. of detector, inlet, column oven Septum replacement Glass wool replacement Check system for gas leaks with SNOOP Check for loose/fray wires and insulation Bake injector/column Change/remove sections of guard column Replace connectors/liners Change/replace column(s)	Daily via use of known compound retention Daily As required As required As required As required As required Monthly As required As required As required
Electron Capture Detector (ECD)	Detector wipe test (Ni 63) Detector cleaning	Semi-annually As required
Flame Ionization Detector (FID)	Detector cleaning	As required
Photoionization Detector (PID)	Change O-rings Clean lamp window	As required As required

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Table 5: Recommended Analytical Equipment Maintenance		
Instrument	Procedure	Frequency
HPLC	Change guard columns Change lamps Change pump seals Replace tubing Change fuses in power supply Filter all samples and solvents Change autosampler rotor/stator	As required As required Semi-annually or as required As required As required Daily As required
Balances	Class "1" traceable weight check Clean pan and check if level Field service	Daily, when used Daily At least annually
Conductivity Meter	0.01 M KCl calibration	Daily, when used
Turbidimeter	Check light bulb	Daily, when used
Deionized/Distilled Water	Check conductivity Check deionizer light Monitor for VOCs System cleaning Replace cartridge & large mixed bed resins	Daily Daily Daily As required As required
Drying Ovens	Temperature monitoring Temperature adjustments	Daily As required
Refrigerators/ Freezers	Temperature monitoring Temperature adjustment Defrosting/cleaning	Daily As required As required
Vacuum Pumps/ Air Compressor	Belts/filters checked Lubricated	Monthly, as needed Semiannually, as needed
pH/Specific Ion Meter	Calibration/check slope Clean electrode	Daily As required
Incubators and Water Bath	Temperature monitoring Coil and incubator cleaning	Twice Daily, Separated by 4 hours As required
Centrifuge	Check brushes and bearings	Every 6 months or as needed

24.4. Instrument Calibration

24.4.1. Information on instrument calibration can be found in each method's SOP.

24.4.2. Initial instrument calibration and continuing instrument calibration verification are an important part of ensuring data of known and documented quality. If more stringent calibration requirements are included in a mandated method or by regulation, those calibration requirements override any requirements outlined here and will be documented in laboratory method SOPs.

24.4.3. Instrument calibration consists of two steps. The Initial Calibration is performed to document the instrument range of performance. A Calibration Standard analysis is performed before each day's analysis to reference daily operation to the initial calibration and calibrates the instrument for quantitation of the days' samples. Calibration Check analyses are performed at regular intervals during the analysis to track instrument performance during the analytical batch.

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24.4.4. Initial Calibration (IC)

24.4.4.1. The analyst calibrates each system with external standards. First the performance of each instrument is documented with an initial calibration curve. This curve establishes the operation range for each analyte on each instrument.

24.4.4.2. Typically, a minimum of three to five concentrations of each analyte is prepared. The low calibration standard should be three to five times the method reporting limit. The other concentrations define the linear quantitation range for the analyte and instrument.

24.4.5. Least Squares Analysis

24.4.5.1. The straight line that best fits the data points generated in the IC is determined using a linear regression analysis. The formula for estimation is found in Appendix E.

24.4.5.2. A straight line approximates the relationship between the independent actual concentration (X) and dependent instrument response (Y).

24.4.5.3. The correlation coefficient (r^2) is a determination of how closely the data fit the line. The correlation coefficient ranges from 0 to +1. At r^2=1 the data falls directly on the straight line with a slope.

24.4.5.4. At r^2=0 the relationship cannot be estimated by a straight line. Unless otherwise noted in specific analytical SOPs, an acceptable IC, r^2 must be greater than or equal to 0.990.

24.4.5.5. The correlation coefficient is calculated using the equation found in Appendix E.

24.4.5.6. Many calculators, computer spreadsheet programs, and chromatographic data systems calculate and display the values for slope (A), intercept (B), and correlation (r^2).

24.4.5.7. In gas chromatographic analyses a reagent blank is not considered one of the calibration standards and is not used in the calculation of curve fit. In infrared and atomic absorption analyses the instrument readings are set to zero using a reagent blank prior to calibration.

24.4.6. Standard Deviation of Response

24.4.6.1. Three to five calibration standards are analyzed and the response factors are determined (Appendix E)

24.4.6.2. The standard deviation of the response factors is determined to calculated the percent relative standard deviation (%RSD).

24.4.6.3. If the %RSD is less than 20 percent over the working range, linearity through the origin can be assumed and the continuing calibration response factor is used in place of a calibration curve.

24.4.6.3.1. Please see specific methods for %RSD requirements.

24.4.6.4. The working range for the instrument is defined between the lowest standard and the highest standard in the IC.

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24.4.6.5. A new initial calibration may be performed if the following conditions occur:

- Instrument has major repairs, alterations, or cleaning affecting analytical performance;
- Instrument is shut down for an extended period of time;
- Instrument fails Continuing Calibration Verification (CCV) control limits; or
- Instrument fails Laboratory Control Sample (LCS) control limits.

24.4.7. Relative Error

24.4.7.1. Multi-point calibration curves will have their points evaluated for relative error. The relative error limit for each calibration point is expressed as a percent recovery high and low limit, where the high limit is 100% + the relative error limit and the low limit is 100% - the relative error limit.

24.4.7.1.1. For calibrations points above the point associated with the LOQ, the percent recovery limits are equal to the percent recovery limits for that test's calibration verification.

24.4.7.1.2. For the calibration point associated with the LOQ, which is the highest calibration point that is less than or equal to the LOQ, the percent recovery limits are 50-150%.

24.4.7.2. The Omega LIMS calculates the percent recovery of each calibration point and flag points that do not meet their criteria.

24.4.8. Continuing Calibration Verification (CCV)

24.4.8.1. The Continuing Calibration Verification (CCV) standard refers the instrument continuing performance after a calibration has been run. It is used to check system stability during sample analyses. For details and frequency of Initial and Continuing Calibration check please refer to the SOP for the method.

24.4.8.2. CCVs are typically a single mid-range standard at approximately 20 to 80 percent of the instrument's IC range. This range may vary depending on the analytical method.

24.4.8.3. The results are quantified using the IC. For specific limits please refer to the SOP for the method.

24.4.8.4. If a CCV does not meet the control limit the standard may be re-analyzed. If it still does not meet the control limit the source of the error is determined and corrected before analysis continues.

24.4.8.4.1. DoD requires the analysis of two consecutive passing CCVs following a failing CCV, to confirm batch validity. If both do not pass, the source of the error is determined and corrected before analysis continues.

25. MEASUREMENT TRACEABILITY (TNI V1:M2 – SECTION 5.6)

25.1. Measurement quality assurance comes in part from traceability of standards to certified materials. All equipment used that affect the quality of test results are calibrated prior to being put into service and on a continuing basis (see Section 24 – "Calibration Requirements"). These calibrations are traceable to national standards of measurement where available.

25.2. If traceability of measurements to SI units is not possible or not relevant, evidence for correlation of results through interlaboratory comparisons, proficiency testing, or independent analysis is provided.

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25.3. Reference Standards

25.3.1. Reference standards are standards of the highest quality available at a given location, from which measurements are derived.

25.3.2. Reference Standards, such as ASTM Class 1 weights, are used for calibration only and for no other purpose.

25.3.3. Reference standards, such as ASTM Class 1 weights, are calibrated by an entity that can provide traceability to national or international standards.

25.4. Reference Materials

25.4.1. Reference materials are substances that have concentrations that are sufficiently well established to use for calibration or as a frame of reference.

25.4.1.1. Technical SOPs may also refer to reference materials as reference standards.

25.4.2. Reference materials, where commercially available, are traceable to national standards of measurement, or to Certified Reference Materials, usually by a Certificate of Analysis.

25.4.3. Purchased reference materials require a Certificate of Analysis where available. If a reference material cannot be purchased with a Certificate of Analysis, it is verified by analysis and comparison to a certified reference material and/or demonstration of capability for characterization.

25.4.4. Internal reference materials, such as working standards or intermediate stock solutions, are checked as far as is technically and economically practical. Working standards or intermediate stock solutions should be checked against a second source at first time of use. When a second source is not available, a vendor certified different lot is accepted as a second source. Working standards and intermediate stock solutions are given expiration dates when they are prepared based on method or regulatory requirements. These standards are used up or disposed of by the expiration date. Each method SOP has details on how often standards are made and how often the checks are required. Dates for standard makeup and expiration are in the Omega LIM system.

25.4.4.1. In the event a standard expires, the lab may choose to recertify the expired standard as described in Appendix E.

25.5. Transport and Storage of Reference Standards and Materials

25.5.1. The laboratory handles and transports reference standards and materials in a manner that protects the integrity of the materials. Reference standard and material integrity is protected by separation from incompatible materials and/or minimizing exposure to degrading environments or materials.

25.5.2. Reference standards and materials are stored according to manufacturer's recommendations, method SOP requirements and separately from samples. Storage locations are tracked in the Omega LIM system.

25.6. Labeling of Reference Standards, Reagents, and Reference Materials

25.6.1. The laboratory has procedures for purchase, receipt and storage of standards, reagents and reference materials. Purchase procedures are described in Section 11 – "Purchasing Services and Supplies" as well as SOPs 5 and 6.

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25.6.2. Expiration dates can be extended if the reference standard or material's integrity is verified. The extended date may not be beyond the expiration date of the referenced standards used to re-verify. A standard expiration date can be extended if they can be verified against a separate source. The verification will be documented in Omega. If the material is not re-verified, the expired material will be marked as expired and will no longer be used for quantitative purposes. See Appendix E for more information.

25.6.3. Reagent quality is verified during routine QC analyses.

25.7. Purchased Stock Standards, Reagents, Reference Materials and Media

25.7.1. Records for all standards, reagents, reference materials, and media include:

- The manufacturer/vendor name (or traceability to purchased stocks or neat compounds)
- The manufacturer's Certificate of Analysis or purity (if supplied)
- The date of receipt
- Recommended storage conditions
- Date of Expiration

25.7.2. This information is recorded in the Omega LIM system.

25.7.3. If the original container does not have an expiration date provided by the manufacturer or vendor it is assigned an arbitrary expiration date of one year from date of receipt, unless the Certificate of Analysis or similar documentation states "no expiration". If an expiration date is provided, it must be labeled with the assigned expiration date.

25.7.4. In methods where the purity of reagents is not specified, analytical reagent grade is used. If the purity is specified, that is the minimum acceptable grade. Purity is verified and documented according to Section 11 – "Purchasing Services and Supplies".

25.8. Prepared Standards, Reagents, Reference Materials and Media

25.8.1. Records for standards, reagents, reference materials, and media preparation include:

- Traceability to purchased stock or neat compounds
- Reference to the method of preparation
- Date of preparation
- An expiration date (that does not exceed the stock standards used) after which the material shall not be used (unless its reliability is verified by the laboratory)
- Preparer's name (if prepared)

25.8.2. All containers of prepared standards, reagents, or materials are labeled with a unique ID and an expiration date. The unique ID is determined by Omega. The Omega label is then placed on all Standards, Reagents, and Reference Materials: See SOP57.

26. COLLECTION OF SAMPLES (TNI V1:M2 – SECTION 5.7)

26.1. ATG Seattle does not provide sampling services. The laboratory's responsibility in the sample collection process lies in supplying the sampler with the necessary coolers, reagent water, sample containers, preservatives, sample labels, custody seals, COC forms, ice, and packing materials required to properly preserve, pack, and ship samples to the laboratory.

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26.2. ATG Seattle is occasionally asked to advise field-sampling personnel on appropriate sampling methodology for a particular analysis. ATG Seattle recommends that the procedures described in SW846, Update III, Chapter 3 for inorganic analytes and Chapter 4 for organic analytes, the Manual for the Certification of Laboratories Analyzing Drinking Water Section 6 and Table IV-6, or 40 CFR part 136 Table II be followed

26.3. Sampling Containers

26.3.1. The laboratory offers sampling containers for use by clients. Sample containers are obtained from an independent supplier. The independent supplier may certify that the sample containers are cleaned following EPA protocols, and that the preservatives added will not lead to contamination. Certificates of cleanliness may be provided with each case of containers, and can be forwarded upon request. In cases where we do not receive certificates from the supplier, the lab tests bottle lots for cleanliness as described in SOP45.

26.4. Preparing Container Orders

26.4.1. Containers (containing any required preservatives) are provided to the client upon request. Details for filling bottle orders can be found in SOP62.

26.5. Sampling Containers, Preservation Requirements, Holding Times

26.5.1. Sampling container, preservation and holding time requirements can be found in the following table.

Table 6: Sampling Containers, Preservation Requirements, Holding Times

Parameter	Method	Container/Preservatives	Holding Time
SOIL			
Alkalinity	SM 2320B Modified	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 14 Days
Anions - Br, Cl, F, SO_4	EPA 300.0	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Anions - NO_2, NO_3, PO_4	EPA 300.0	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 48 Hours
BTEX / Gasoline Range Hydrocarbons	EPA 8260/NWTPH-Gx/EPA 8015	Field Preservation Kit / Cool 4ºC	Analyze within 14 Days if preserved. Must be preserved or analyzed within 48 hours.

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
Cyanide	SM 4500-CN C,E	2-4 oz Glass Jar / Cool 4°C	Extract within 28 Days, analyze within 14 days of extraction.
Diesel Range Organics	NWTPH-Dx/EPA 8015/AK102-103	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days / Analyze within 40 Days of Extraction
Extractable Petroleum Hydrocarbons (EPH)	NWTPH-EPH	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days / Analyze within 40 Days of Extraction
Gasoline Range Organics (GRO	AK 101	2 oz glass jar / BFB surrogated MeOH / Cool 4°C	Extract within 14 days
Herbicides	EPA 8151A	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days / Analyze within 40 Days of Extraction
Hexavalent Chromium	EPA 7196	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Ignitability / Flashpoint	ASTM D93/ EPA 1010	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Langelier Index / Corrosivity	SM 2330B	2-4 oz Glass Jar / Cool 4°C	Analyze immediately
Mercury (Hg)	EPA 7471	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Metals (Except Mercury)	EPA 6020	4 to 8 oz Glass Jar	Analyze within 6 Months
Pesticides	EPA 8081	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days / Analyze within 40

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
			Days of Extraction
pH	EPA 9045D	2-4 oz Glass Jar / Cool 4°C	Analyze immediately
Phosphorus, Total	EPA 6020	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Polychlorinated Biphenyls (PCBs/Aroclor)	EPA 8082	4 to 8 oz Glass Jar / Cool 4°C	Extract within one year
Semi Volatile Organic Compounds (SVOC)	EPA 8270	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days / Analyze within 40 Days of Extraction
Salinity	SM 2520B	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 8 Days
TCLP/SPLP - Metals	1311/1312	4 to 8 oz Glass Jar / Cool 4º°C	Extract within 180 Days (Hg = 28 days)
TCLP/SPLP – Semi-Volatile Organics	1311/1312	4 to 8 oz Glass Jar / Cool 4º°C	Extract within 14 days
TCLP/SPLP - ZHE	1311/1312	4 to 8 oz Glass Jar / Cool 4°C	Extract within 14 Days
Total Organic Carbon	EPA 9060A,	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Volatile Organic Compounds (VOC)	EPA 8260	4 to 8 oz Glass Jar / Field Preservation Kit / Cool 4°C	Analyze within 14 Days if preserved. Must be preserved or analyzed within 48 hours.
Volatile Petroleum Hydrocarbons (VPH)	NWTPH-VPH	Field Preservation Kit / Cool 4°C	Analyze within 14 Days

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
WATER			
Parameter	Method	Container/Preservatives	Holding Time
Alkalinity	SM 2320B	250mL/1L Polyethylene / Cool 4°C	Analyze within 28 Days
Anions – Br, Cl, F, SO_4, Nitrate+Nitrite	EPA 300.0	250 mL Polyethylene / Cool 4°C	Analyze within 28 Days
Anions - NO_2, NO_3, PO_4	EPA 300.0	250 mL Polyethylene / Cool 4°C	Analyze within 48 Hours
Biological Oxygen Demand (BOD)	SM 5210B	500 L Polyethylene / Cool 4°C	Analyze within 48 Hours
BTEX / Gasoline Range Hydrocarbons	EPA 8260/NWTPH-Gx/EPA 8015	40 mL Glass VOA Vial / Cool 4°C, HCl	Analyze within 14 Days/Analyze within 7 days if unpreserved
Chemical Oxygen Demand (COD)	SM 5220D	250 mL Polyethylene / Cool 4°C, H_2SO_4	Analyze within 28 Days
Coliform, Fecal & Total	Colilert-18 / SM 9223B	110 mL Sterile / Cool 4°C, $Na_2S_2O_3$	Analyze within 6 hrs
Cyanide, Total	SM 4500-CN C,E	250 mL Polyethylene / Cool 4°C, NaOH	Analyze within 14 Days
Diesel Range Organics	NWTPH-Dx/ AK102-103	500 mL Amber Glass / Cool 4°C/HCl	Extract within 14 Days / Analyze within 40 Days of Extraction Extract within 7 days if unpreserved

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
Dissolved Organic Carbon	SM 5310B/C	250/500 mL Amber Glass / Cool 4°C, H_2SO_4, Protect from Sunlight	Analyze within 28 Days
Dissolved Oxygen	ASTM D888	BOD Bottle / Cool 4°C	<15 min
Extractable Petroleum Hydrocarbons (EPH)	NWTPH-EPH	500 mL Amber Glass / Cool 4°C/HCl	Extract within 14 Days / Analyze within 40 Days of Extraction Extract within 7 days if unpreserved
Herbicides	EPA 8151A	500 mL Amber Glass / Cool 4°C	Extract within 7 Days / Analyze within 40 Days of Extraction
Hexavalent Chromium	EPA 7196/SM 3500 Cr6 B	250 to 500 mL Polyethylene / Cool 4°C	Analyze within 24 Hours
Ignitability / Flashpoint	ASTM D93/EPA 1010A	250 mL Amber Glass / Cool 4°C	Analyze within 28 Days
Langelier Index / Corrosivity (Alk, Ca, pH, TDS)	SM 2330B	250 mL to 1 L Polyethylene / Cool 4°C	Analyze pH immediately
Mercury (Hg)	245.1/7470	250 to 500 mL Polyethylene / Cool 4°C, HNO_3	Analyze within 28 Days
Metals, Dissolved (Except Mercury)	EPA 6020/200.8	250 to 500 mL Polyethylene (Field Filter) / Cool 4°C, HNO_3	Analyze within 6 Months

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
Metals, Total (Except Mercury)	EPA 6020/200.8	250 to 500 mL Polyethylene / Cool 4°C, HNO_3	Analyze within 6 Months
Methane, Ethane, and Ethene	RSK-175	40 mL Glass VOA Vial / Cool 4°C, HCl	Analyze within 14 Days
Ammonia	SM 4500 NH_3 D	1L Polyethylene / Cool 4°C, H_2SO_4	Analyze within 28 Days
Kjeldahl	SM 4500N	500 mL to 1 L Polyethylene / Cool 4°C, H_2SO_4	Analyze within 28 Days
Oil & Grease	EPA 1664	1 L Amber Glass / Cool 4°C, HCl or H_2SO_4	Analyze within 28 Days
Pesticides	EPA 8081	500 mL Amber Glass / Cool 4°C	Extract within 7 Days / Analyze within 40 Days of Extraction
pH	SM 4500H+B	250 mL Polyethylene / Cool 4°°C	ASAP
Phosphorus, Total	EPA 365.3	4 to 8 oz Glass Jar / Cool 4°C	Analyze within 28 Days
Polychlorinated Biphenyls (PCBs/Aroclor)	EPA 8082	500 L Amber Glass / Cool 4°C	Extract within one year
Residual Chlorine	SM 4500Cl	250 mL Amber Glass / Cool 4°C	<15 min
Salinity	EPA 2520B	250 mL Polyethylene / Cool 4°C	Analyze within 8 Days

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
Semi Volatile Organic Compounds (BNA, PAH)	EPA 8270	500 mL Amber Glass / Cool 4°C	Extract within 7 Days / Analyze within 40 Days of Extraction
Settleable Solids	SM 2540F	1 L Polyethylene / Cool 4°C	Analyze within 48 Hours
Total Solids (TS)	SM 2540B	250 mL Polyethylene / Cool 4°C	Analyze within 7 Days
Total Dissolved (TDS)	SM 2540C	250 mL Polyethylene / Cool 4°C	Analyze within 7 Days
Total Suspended (TSS)	SM 2540D	250 mL Polyethylene / Cool 4°C	Analyze within 7 Days
Total Volatile (TVS)	SM 2540E	250 mL Polyethylene / Cool 4°C	Analyze within 7 Days
Specific Conductance (Conductivity)	SM 2510B	250 mL Polyethylene / Cool 4°C	Analyze within 48 hrs
Sulfide	SM 4500-S^{2-}F	250 mL Polyethylene / Cool 4°C, Zn Acetate, H_2SO_4	Analyze within 7 days
Total Organic Carbons (TOC)	SM 5310B/C	250/500 mL Amber Glass / Cool 4°C, H_2SO_4, Protect from Sunlight	Analyze within 28 Days
Turbidity	EPA 180.1	250 mL Polyethylene / Cool 4°C	Analyze within 48 Hours

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
Volatile Organic Compounds (VOC)	EPA 8260	40 mL Glass VOA Vial / Cool 4°C, HCl	Analyze within 14 Days/Analyze within 7 days if unpreserved
Volatile Petroleum Hydrocarbons (VPH)	NWTPH-VPH	40 mL Glass VOA Vial / Cool 4°C, HCl	Analyze within 14 Days/Analyze within 7 days if unpreserved
1,2-Dibromoethane (EDB) / 1,2-Dibromo-3-chloropropane (DBCP)	EPA 8011	2-40 mL VOA Vials / Cool 4°C, 0.5 mL $Na_2S_2O_3$	Analyze within 14 Days/Analyze within 7 days if unpreserved
DRINKING WATER			
Parameter	Method	Container/Preservatives	Holding Time
11 Regulated Metals	EPA 200.8/245.1	250 mL Polyethylene / Cool 4°C	180 Days (28 Days for Mercury) after lab preservation
Coliform, Fecal	Colilert-18	110 mL Sterile / Cool 4°C, $Na_2S_2O_3$	6 Hours
Coliform, Total	SM 9223B	110 mL Sterile / Cool 4°C, $Na_2S_2O_3$	30 Hours
Dissolved Organic Carbon (DOC)	SM 5310C	250 mL Amber Glass / Cool 4°C	Analyze within 28 Days
Lead and Copper Rule	EPA 200.8	1 L Polyethylene / Cool 4ºC, HNO_3	180 days after lab preservation
Total Organic Carbon (TOC)	SM 5310C	500 mL Amber Glass / Cool 4^0C, H_2SO_4, Protect from Sunlight	Analyze within 28 Days

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Table 6: Sampling Containers, Preservation Requirements, Holding Times			
Parameter	Method	Container/Preservatives	Holding Time
AIR			
Parameter	Method	Container/Preservatives	Holding Time
Volatile Organic Compounds	TO-15	Tedlar® Bag/Canister	Analyze within 72 hours/30 days
Sulfur Compounds	TO-15	Tedlar® Bag / Canister	Analyze within 24 hours
Siloxanes	TO-15	Tedlar® Bag/ Canister	Analyze within 72 hours/30 days
Major Gases	EPA Method 3C	Tedlar® Bag	Analyze within 72 hours

26.5.2. If preservation or holding time requirements are not met, the procedures in Section 13 – "Control of Nonconforming Environmental Testing Work" are followed.

27. HANDLING SAMPLES AND TEST ITEMS (TNI V1:M2 – SECTION 5.8 AND SECTION 1.7 OF TECHNICAL MODULES TNI V1:M 3-7)

27.1. Sample Receipt

27.1.1. When samples are received at the laboratory, the chain-of-custody is reviewed and conditions are documented. The samples are then logged into the Laboratory Information System (LIM) for sample tracking and given unique identifiers.

27.2. Chain of Custody

27.2.1. As described in section 17.5, the Chain of Custody is the documented history of any sample.

27.2.2. At the project site each sample is labeled with:

- Date and time of sampling
- Name of the client
- Name of the sampler
- Sample identification number
- Other pertinent information

27.2.3. At the same time, the Chain of Custody form is filled out in ink with the same information as well as the type of sample, address and phone number of the client, the containers and preservatives used, the analyses requested, the project name and any special handling or analytical requirements.

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27.2.4. When the samples are received at the laboratory, sample receiving checks to ensure that all samples listed on the Chain of Custody are, in fact, present and in satisfactory condition and are properly preserved.

27.3. Sample Acceptance

27.3.1. The condition of samples as the laboratory receives them directly affects the quality of the data that can be produced. Samples that are not properly preserved or handled during shipping will not reliably represent the conditions that exist at the sampling point. The laboratory must check and document the condition of the samples as submitted to verify proper handling of the samples. Any abnormalities or departures from standard conditions are recorded on the sample receipt form/original observation sheet and then input into the Omega LIM system (Sample Receipt form). The container the samples are received in are inspected at time of receipt for condition of the sample, sample label, temperature, preservatives, packaging materials, and sample seals. Information on the sample label is reconciled against information on the Chain of Custody and any discrepancies are noted. All samples are checked for proper chemical preservation, if required. Water samples for volatile organics analysis are not preserved after receipt but are checked for entrapped bubbles. The Laboratory Manager is notified if volatile samples are received without preservatives. The samples are given priority for prompt analysis.

27.3.2. All samples that require thermal preservation are considered acceptable if they are received on ice and sample arrival temperature is received at 4º C, ± 2°C. Samples that are hand delivered to the laboratory immediately after collection may not meet these criteria. In these cases, the samples will be considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice. The temperature of the samples is taken using an infra-red thermometer and recorded.

27.3.3. If these conditions are not met, the client is contacted prior to any further processing. The following may occur:

- The sample is rejected as agreed with the client,
- The decision to proceed is documented and agreed upon with the client,
- The condition is noted on the Chain of Custody form and/or lab receipt documents, and
- The analytical report is noted with the conditions.

27.3.4. The client services representative logs all samples into the LIMS. The login procedure generates a work order and labels for each sample container. Sample containers are stored in a walk-in refrigerator or at the designated location for the analysis requested.

27.3.5. The laboratory has a sample acceptance policy that is made available to sample collection personnel.

27.3.6. Further information on sample acceptance is found in SOP 64.

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27.4. Sample Identification

27.4.1. Each group of samples submitted is assigned a unique work order number indicating the current year followed by a two-digit code for the month. The work order numbers are assigned sequentially throughout each calendar year. Each sample submitted within a work order is numbered sequentially beginning with 001. The samples are labeled in the order listed on the COC. The sample number includes the work order number followed by the sequential number from the COC (e.g., 110101-001A). Each container for a specific sample is assigned a letter suffix. Thus, each sample container received at ATG Seattle is assigned a unique identification number. The sample identification system includes identification for all samples, sub-samples and subsequent extracts and/or digestates. A unique identification (ID) code is placed on each sample container using a durable label.

27.4.2. The status of a work order while at ATG Seattle is tracked through the Omega LIM system which also provides the daily work order schedule.

27.4.3. The client services representative logs all samples into Omega. The login procedure generates a work order and labels for each sample container. Sample containers are stored in a walk-in refrigerator. Samples for certain volatile analyses are stored in separate refrigerators to avoid possible cross contamination.

27.4.4. Sample information is recorded in Omega under the work orders tab upon receipt.

27.4.5. Information required for log-in includes:

- Date received
- Date and time of sampling linked to the date and time of laboratory receipt
- Client
- Work order number
- Project Name
- Project Manager
- Analysis
- Client Sample ID
- Containers
- Lab Sample ID number (generated by Omega)

27.4.6. Once the sample receipt form and login have been completed, the laboratory personnel will attach a label for Omega identification on the sample containers. Sample containers are not marked for identification on the container lid. Laboratory personnel will not place marks on the label that obscures other pertinent information on the label.

27.4.7. All documentation received regarding the sample, such as memos or chain of custody, are retained and scanned into Omega for the correct work order.

27.4.8. Upon login, each employee has the ability to view a backlog of work orders to schedule the daily workload and plan future workloads. It is the responsibility of each Lab Manager to schedule work, ensure that holding times are met and that all data is reported on time.

27.4.9. Further information regarding sample log-into Omega is found in SOP 65.

27.5. USDA, Animal and Plant Health Inspection Service

27.5.1. All samples which are considered foreign and/or regulated domestic soil will be treated in accordance with USDA, APHIS, USDA APHIS PPQ compliance (SOP50). All samples will be stored in a locked container at ATG Seattle.

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27.5.2. All samples will be heat treated according to SOP50 when preparing for disposal.

27.5.3. All disposed samples will be documented.

27.5.4. Shipping container will be decontaminated with approved disinfectants.

27.5.5. All hazardous waste (including foreign and domestic soil) will be disposed of in accordance with Washington State Model Toxics Control Act (MTCA) NOTE: All foreign and/or regulated domestic soil will be noted in Omega as Foreign soil.

27.6. Sample Aliquots / Sub-sampling

27.6.1. In order for analysis results to be representative of the sample collected in the field, soil samples are homogenized, and water samples are taken from the appropriate bottle for each test.

27.6.2. Laboratory employees should take note of any extraneous materials such as rocks and twigs.

27.6.3. Laboratory employees shall not manipulate the sample material in order to obtain their exact target weight because it may produce non-representative subsamples if the sample is highly heterogeneous.

27.7. Preservation Checks

27.7.1. The following preservation checks are performed and documented after samples have been logged in:

27.7.1.1. Chlorine checks:

27.7.1.1.1. Chlorine checks occur when required by the analytical method (such as BOD-5) and upon request.

27.7.1.2. pH checks:

27.7.1.2.1. The pH of samples requiring acid/base preservation is checked upon sample receipt or upon initiation of analysis. VOC waters must be verified after analysis to preserve the integrity of the sample.

27.8. Sample Storage

27.8.1. Samples are not stored with standard reference materials or extracts. Samples with obvious high contamination or product samples are segregated from other samples. To assure that the laboratory will satisfy Chain of Custody protocols, the following laboratory conditions are maintained:

- Samples that require thermal preservation are stored under refrigeration that is ±2° C of the specified preservation temperature. For samples with a specified storage temperature of 4° C storage at a temperature above the freezing point of water to 6° C is considered acceptable.
- Sample storage area, walk-ins, refrigerators and freezers are monitored for correct temperature 7 days a week. The min/max temperature is recorded for each area.
- Samples are stored away from all standards, reagents, food, and other potentially contaminating sources to prevent cross contamination.
- Samples will remain in limited access sample storage until removed for sample preparation or analysis;
- Samples with noxious odors or that require segregation from other samples are stored within coolers.

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27.8.2. The sample storage refrigerators will have a thermometer to register storage temperature. The temperature for all refrigerators and freezers storing samples will be recorded daily.

27.8.2.1. Access to the refrigerators is restricted to designated laboratory staff only.

27.9. Sample Disposal

27.9.1. Samples are retained a minimum of 30 days after the sample has been received unless other arrangements have been made with the client.

27.9.2. Samples in air canisters are retained for 7 days after the final report has been sent to the client.

27.9.3. Samples are disposed of according to Federal, State and local regulations. Procedures are described in SOP61 for the disposal of samples, digestates, leachates, and extracts.

27.10. Sample Transport

27.10.1. Samples that are transported under the responsibility of the laboratory, where necessary, are done so safely and according to storage conditions. This includes moving bottles within the laboratory. Specific safety operations are addressed outside of this document.

27.10.2. Sample shipping procedures are described in SOP62.

28. QUALITY ASSURANCE FOR ENVIRONMENTAL TESTING (TNI V1:M1, V1:M2 – SECTION 5.9 AND SECTION 1.7 OF TECHNICAL MODULES TNI V1:M 3-7)

28.1. ATG Seattle has procedures for monitoring the validity of the testing it performs. The qualities of test results are recorded in such a way that trends are detectable, and where practicable, are statistically evaluated. To evaluate the quality of test results, the laboratory utilizes certified reference materials, control charting, proficiency testing samples, replicate or confirmation analyses comparison to historical data.

28.2. In addition to procedures for calibration, the laboratory monitors quality control measurements such as blanks, laboratory control samples (LCS), matrix spikes (MS), duplicates, surrogates and internal standards to assess precision and accuracy. Proficiency Testing samples are also analyzed to assess laboratory performance.

28.3. Quality control (QC) data are analyzed and, when found to be outside pre-defined criteria, action is taken to correct the problem and to prevent incorrect results from being reported. Data associated with quality control data outside of criteria and still deemed reportable will be qualified so the end user of the data may make a determination of the usability of the data - see Section 29 – “Reporting of Results”.

28.4. Essential Quality Control Procedures

28.4.1. The quality control procedures specified in test methods are followed by laboratory personnel. The most stringent of control procedures is used in cases where multiple controls are offered. If it is not clear which is the most stringent, that mandated by test method or regulation is followed.

28.4.2. For test methods that do not provide acceptance criteria for an essential quality control element or where no regulatory criteria exist, acceptance criteria are developed. The limits are set at +/- 30 percent, until enough data points are available to do a control chart. All control charting is done inside of Omega (See SOP47).

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28.4.3. Written procedures to monitor routine quality controls including acceptance criteria are located in the test method SOPs and include such procedures as:

- use of laboratory control samples and blanks to serve as positive and negative controls for chemistry methods;
- use of laboratory control samples to monitor test variability of laboratory results;
- use of calibrations, continuing calibrations, certified reference materials and/or PT samples to monitor accuracy of the test method;
- measures to monitor test method capability, such as limit of detection, limit of quantitation, and/or range of test applicability, such as linearity;
- use of regression analysis, internal/external standards, or statistical analysis to reduce raw data to final results;
- use of reagents and standards of appropriate quality and use of second source materials as appropriate;
- procedures to ensure the selectivity of the test method for its intended use;
- measures to assure constant and consistent test conditions, such as temperature, humidity, rotation speed, etc., when required by test method;
- use of sterility checks for equipment, media and dilution water for microbiology; and
- use of positive and negative culture controls for microbiology.

28.5. Internal Quality Control Practices

28.5.1. Analytical data generated with QC samples that fall within all prescribed acceptance limits indicate the test method is deemed to be in control.

28.5.2. QC samples that fall outside QC limits indicate the test method are deemed to be out of control (nonconforming) and that corrective action is required and/or that the data are qualified (see Section 13 – “Control of Nonconforming Environmental Testing Work” and Section 15 - “Corrective Actions”).

28.5.3. Detailed QC procedures and QC limits are included in test method SOPs, or where unspecified in the SOPs, are detailed by the use of control charts.

28.5.4. All QC measures are assessed and evaluated on an on-going basis, so that trends are detected.

28.6. General Controls

28.6.1. Positive and Negative Controls such as:

- Blanks (negative)
- Laboratory control sample (positive)
- Sterility checks and control cultures (positive and negative)

28.6.2. Selectivity is assured through:

- Absolute and relative retention times in chromatographic analyses;
- Two-column confirmation when using non-specific detectors;
- Use of acceptance criteria for mass-spectral tuning (found in test method SOPs);
- Use of the correct method according to its scope assessed during method validation; and
- Use of reference cultures (positive and negative) from a recognized manufacturer (where applicable).

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28.6.3. Consistency, Variability, Repeatability, and Accuracy are assured through:

- Recommendations or according to the processes used during method validation;
- Monitoring and controlling environmental conditions (temperature, access, proximity to potential contaminants)
- Selection and use of reagents and standards of appropriate quality; and
- Cleaning glassware appropriate to the level required by the analysis as demonstrated with method blanks (SOP46)
- For microbiology, glassware care includes use of detergents designed for laboratory use and sterilization in the autoclave
- Following SOPs and documenting any deviation, assessing for impact, and treating data appropriately;
- Testing to define the variability and/or repeatability of the laboratory results, such as replicates;
- Use of measures to assure the accuracy of the test method, including calibration and/or continuing calibrations, use of certified reference materials, proficiency test samples, or other measures; and

28.6.4. Test Method Capability (also see Section 23 – “Environmental Methods and Method Validation”) is assured through:

- Establishment of the limit of detection activity if also performing where appropriate (SOP53);
- Establishment of the limit of quantitation or reporting level (SOP53); and/or
- Establishment of the range of applicability such as linearity.

28.6.5. Data reduction is assured to be accurate by:

- selection of appropriate formulae to reduce raw data to final results such as regression;
- following specific procedures for data reduction such as manual integration procedures;
- microbiological calculations, data reduction, and statistical interpretations specified by each test method; and

28.6.6. Sample Specific controls are used to evaluate the effect of sample matrix on the performance of the selected analytical method (not a measure of laboratory performance):

- Matrix Spike and Matrix Spike Duplicate (MS/MSD)
- Surrogate Spikes
- Sample Duplicates

28.7. Essential Quality Control Elements

28.7.1. Table 7 summarizes the key elements of a quality control system for a laboratory performing chemistry and microbiology testing.

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Table 7: Essential Quality Control Elements for Chemistry			
Item	Frequency	Acceptance Criteria	Corrective Action
Negative Control (Method Blank)	1/batch	Method specific or reporting limit	Qualify data and take corrective action
Positive Control (Laboratory Control Sample)	1/batch	Method specific or determined by laboratory	Reprocess, reanalyze, or qualify data.
Matrix Spike; Matrix Spike Duplicates Note: Samples are designed as data quality indicators for a specific sample using the designated method. These controls alone are not used to judge a laboratory's performance.	Per method requirement	Method specific or determined by laboratory	Corrective action or qualify data.
Surrogate spikes See note above.	Per method requirement	Method specific or determined by laboratory	Corrective action or qualify data
Batch Duplicates See note above	Per method requirement	Method specific or determined by laboratory	Corrective action or qualify data
Continuing Calibration Verification	Per method requirement	Method specific or determined by the laboratory	Reanalyze standard immediately; Corrective action
Initial calibration Verification	After initial calibration	Method specific or determined by laboratory	Reanalyze standard immediately; Corrective action

28.8. Method Blanks

28.8.1. Method blanks are processed along with and under the same conditions as the associated samples to include all steps in the method. A method blank must be analyzed at a minimum of one per preparation batch. When no separate preparation method is used the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, matrix spikes and matrix duplicates. The matrix of the method blank must be similar to the associated samples and be free from any analytes of interest.

28.8.2. Method blanks are not required for some analyses such as, settleable solids, flash point, temperature, percent moisture.

28.8.3. Contaminated blanks are identified according to the acceptance limits in the test method SOPs or laboratory documentation.

28.8.4. The laboratory identifies a blank as contaminated when analyte results are greater than the reporting limit. For DoD projects, blanks must be less than ½ the LOQ. Omega flags all data with a B that has a hit above the reporting limit. When a blank is determined to be contaminated, the cause must be investigated and measures taken to minimize or eliminate the problem.

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28.8.5. Data that are unaffected by the blank contamination (non-detects or other analytes) are reported unqualified. Detections in blanks may be deemed acceptable if detections in samples are greater than 10 times the detection in the method blank.

28.8.6. Sample data that are suspect due to the presence of a contaminated blank are reanalyzed, qualified, or voided.

28.9. Laboratory Control Samples

28.9.1. Laboratory Control Samples (LCS) are prepared from analyte free water or other clean matrix, and spiked with verified and known amounts of analytes for the purpose of establishing precision or bias measurements.

28.9.2. Laboratory control samples are analyzed at a frequency mandated by method, regulation, or client request, whichever is more stringent. The standard frequency of LCS preparation and analysis is one per analytical batch or as otherwise stated in a laboratory SOP. Exceptions would be for those analytes where no spiking solution is available, such as: Settleable Solids and Salinity. When no separate preparation method is used the batch is defined as the environmental samples that are analyzed with the same method and personnel, using the same lots of reagents, not to exceed the analysis of twenty environmental samples, not including method blanks, LCS, matrix spikes and matrix duplicates.

28.9.3. The analytes to be spiked in the LCS are specified in the test method SOP.

28.9.4. The results of laboratory control samples (LCS) are calculated in percent recovery (see Appendix G). This is done in Omega and can be tracked in the control chart function.

28.9.5. The individual LCS is compared to the acceptance criteria as published in the mandated test method, or where there are no established criteria, the laboratory may set the LCS limits to 70-130% until there is enough data to run control charts.

28.9.6. Analytes that fail the LCS are flagged in Omega with an “S.” Corresponding samples are flagged with a “*.”

28.9.6.1. If the majority of the analytes in an LCS fail, or if common target analytes fail, a re-extraction of the batch should be initiated.

28.9.6.2. If an analysis is consistently failing LCS recoveries, corrective action should be taken to address the root cause of the failures.

28.9.6.3. Analyte(s) that have high biased failures in the LCS do not need to be flagged if the analyte(s) in the corresponding samples are non-detect (ND).

28.10. Matrix Spikes and Matrix Spike Duplicates

28.10.1. Matrix Spikes and Matrix Spike Duplicates (MS/MSD) are environmental samples fortified with a known amount of analyte to help assess the effect of the matrix on method performance.

28.10.2. The laboratory procedure for MS/MSD includes spiking appropriate analytes at appropriate concentrations, calculating percent recoveries and relative percent difference (RPD), and evaluating and reporting the results. The procedure can be found in each method SOP. Calculations can be found in Appendix G.

28.10.3. Where there are no established criteria, the laboratory may set the percent recovery limits to 70-130% and the RPD limits to 30% until there is enough data to run control charts.

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28.10.4. For MS/MSD results outside established criteria, corrective action may be documented or the data is reported with appropriate data qualifying codes. Only the data from the spiked sample is qualified with an “S.”

28.10.4.1. If an analysis is consistently failing MS/MSD recoveries and it has been determined that sample matrix is not a factor, corrective action should be taken to address the root cause of the failures.

28.11. Batch Duplicates/Replicates

28.11.1. Duplicates and/or replicates (DUP/REP) are analyzed at a frequency mandated by analytical methods. They are prepared in the same way as their parent sample as a way to measure batch precision. Precision is measured as relative percent difference (RPD).

28.11.2. Where there are no established criteria, the laboratory may set the RPD limits to 30%. When there is enough data, the laboratory may choose to run control charts to set RPD limits.

28.11.3. For duplicate RPD results outside established criteria, corrective action may be documented or the data is reported with appropriate data qualifying codes. Only the DUP or REP will be qualified with an “R.”

28.11.3.1. Low level detections of a target analyte may result in high RPD values. In these cases, qualified data may be deemed acceptable.’

28.11.3.2. If an analysis is consistently failing DUP RPDs, and it has been determined that the sample matrix is not a factor, corrective action should be taken to address the root causes of the failures.

28.12. Surrogate Spikes

28.12.1. Surrogate spikes are substances with chemical properties and behaviors similar to the analytes of interest used to assess method performance in individual samples. Surrogates are added to all samples (in test methods where surrogate use is appropriate) prior to sample preparation or extraction, with the exception of VOC and TO-15 analysis where surrogate is added automatically by the autosamplers and preconcentrators, respectively.

28.12.2. Surrogate recovery results are compared to the acceptance criteria as published in the mandated test method. Where there are no established criteria, the laboratory uses 70-130% as surrogate recovery limits until there is enough data to run control charts. Omega flags surrogates with an “S” when they fall outside established acceptance criteria.

28.12.3. For surrogate results outside established criteria, data is evaluated to determine the impact. Corrective actions may include control charting, re-run, re-extraction, or qualifying the data as appropriate.

28.12.3.1. If an analysis is consistently failing surrogate recoveries and it has been determined that sample matrix is not a factor, corrective action should be taken to address the root cause of the failures.

28.13. Proficiency Test Samples

28.13.1. Compliance to Accreditation Requirements

28.13.1.1. The laboratory analyzes at least two TNI-compliant PT samples per calendar year for each analyte-matrix-method for which the laboratory is accredited.

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28.13.1.1.1. For DoD accreditation, if a PT is not available for a specific analyte-matrix-method combination, ATG Seattle will employ an in-lab PT procedure that evaluates performance based on repeatability. The SEA PT procedure is outlined in SOP86.

28.13.1.2. The successive PTs are analyzed at least five months apart and no more than 7 months apart unless the PT is being used for corrective action to maintain or reinstate accreditation, in which case the dates of successive corrective action PT samples for the same accreditation is at least fifteen days apart.

28.13.1.3. For analyses that only have WADOE accreditation, only one PT is required to be run per accreditation year, unless there was a failure in the last year, in which case two PTs are required to be analyzed.

28.13.1.3.1. Generally, ATG Seattle will run two PTs every year for every test besides microbiological tests.

28.13.1.4. An exception is made for analytes where there is no PT available from any PTPA approved PT provider within the year. In these cases, the lab will run the PTs in the minimum time frame the PTs are available and not at all if they are not available (TNI and WADOE only).

28.13.2. PT Sample Handling, Analysis and Reporting

28.13.2.1. The laboratory does not share PT samples with other laboratories, does not communicate with other laboratories regarding current PT sample results, and does not attempt to obtain the assigned value of any PT sample from the PT provider.

28.13.2.2. Proficiency Testing (PT) samples are treated as typical samples in the normal production process where possible, including the same analysts, preparation, calibration, quality control and acceptance criteria, sequence of analytical steps, number of replicates, and sample log-in. PT samples are not analyzed multiple times unless routine environmental samples are analyzed multiple times. Where PT samples present special conditions in the analysis process, they will be treated as laboratory samples where clients have special requests.

28.13.2.3. If PT Samples cannot be included within an analytical batch containing client samples, it is recommended that an LCS/LCSD pair be substituted for a duplicate of the PT, due to PT volume constraints.

28.13.2.4. The type, composition, concentration and frequency of quality control samples analyzed with the PT samples are the same as with typical samples.

28.13.2.5. Prior to the closing date of a study, laboratory personnel do not:

- Subcontract analysis of a PT sample to another laboratory being run for accreditation purposes.
- Knowingly receive and analyze a PT for another laboratory being run for accreditation purposes.
- Communicate with an individual from another laboratory concerning the analysis of the PT sample.
- Attempt to find out the assigned value of a PT from the PT Provider.

28.13.2.6. PT results are imported into Omega and verified. The Omega report is then used to fill out the PT provider's forms.

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28.13.2.6.1. It is important that the correct method and analyte codes that correspond to each scope be reported. If they are not, Accrediting Bodies may consider the PT a deficiency. There may be occasions where PTs must be reported multiple times due to varying method/analyte codes between accreditation scopes.

28.13.2.6.2. PTs will be reported to the Proficiency Test Reporting Limit (PTRL) as given by PT providers. These PTRLs are taken from the Field of Proficiency Test (FoPT) tables developed by TNI. Results will be deemed unacceptable if the lab reports non-detects for PTs with detections below the lab RL but above the PTRL. Project logins for PT may be used in order to ensure the lab reports to the correct PTRL. If project logins are used, it is the QAM's responsibility to maintain the PTRLs listed in each test code.

28.13.2.7. The laboratory institutes corrective action procedures for failed PT samples following the guidelines in Section 15 – "Corrective Action".

28.13.2.8. Retention of PT records is similar to that maintained for regular environmental samples. In addition, the lab maintains a copy of the online data entry summary when the PT results are submitted online.

28.14. Data Review

28.14.1. The laboratory reviews all data generated in the laboratory for compliance with method, laboratory and, where appropriate, client requirements.

28.14.2. An electronic data file is generated by the instrument and saved on computer network. The data file is loaded into LIMS. During data processing the program checks quality control measurements for acceptability. Quality control analyses that do not meet the quality control criteria are flagged. This data is checked by the analyst to ensure that a narrative is provided and the appropriate flag is attached.

28.14.3. Any data that does not meet quality assurance criteria is either re-analyzed or flagged.

28.14.4. When the analyst has finished the primary analysis review they fill out a reporting checklist and turns it in to their laboratory manager who checks for the following items:

- All required information has been recorded on the bench sheet and reporting checklist.
- QC criteria have been met or exceptions are documented in the comments section of the reporting checklist.
- Manual calculations are checked for accuracy.

28.14.5. When these checks have been completed, the reviewer signs and dates the reporting checklist to document that the review has been performed.

28.14.6. Once all analyses for a project have been completed the folder with the raw data is turned into the Project Manager or Lab Director for the final report. Data is reviewed again for completeness and accuracy, then the final report is generated.

28.14.7. The QAM, or designee, reviews a minimum of 10% of all DoD data packages for completeness and accuracy either prior to, or after reporting. Findings from these reviews are recorded and brought to the attention of the management team so appropriate action can be taken.

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29. REPORTING THE RESULTS (TNI V1:M2 – SECTION 5.10)

29.1. The result of each test performed is reported accurately, clearly, unambiguously, and objectively and complies with all specific instructions contained in the test method.

29.2. Laboratory results are reported in a test report that includes all the information requested by the client and necessary for the interpretation of the test results and all information required by the method used.

29.3. Data are reported without qualification if the results are within the working range of the instrument, and without compromised sample or method integrity.

29.4. Test Reports

29.4.1. The report format has been designed to accommodate each type of test performed and to minimize the potential for misunderstanding or misuse.

29.4.2. The laboratory does not issue multiple reports for the same samples where there is different information on each report unless required to meet regulatory needs and approved by the Lab Director.

29.4.3. Each test report generated contains the following information:

- A title, such as Analytical Report
- The name and address of the laboratory
- Unique identification of the test report, such as a Work Order
- A pagination system that ensures that each page is recognized as part of the test report and a clear identification of the end of the report, such as “3 of 10”
- The name and address of the client
- The identification of the method(s) used
- A description, the condition, and unambiguous identification of the sample(s) tested, including the client identification code
- The date of sample receipt when it is critical to the validity and application of the results
- The date and time of sample collection (if not provided, the lab assumes a sample collection time of midnight on the day of sampling)
- The date and time the tests were prepared/analyzed, at minimum for tests with a required holding time of less than 72 hours
- The time of sample preparation (DoD reports only)
- Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results
- Case narrative
- The test results, units of measurement, an indication of when results are reported on any basis other than as received (e.g. dry weight), failures identified
- A list of laboratory qualifiers
- QC report (MB; LCS/MS/MSD/Surrogate %recovery, acceptance criteria, etc.)
- The name, function, and signature or an equivalent electronic identification of the person authorizing the test report, and the date of issue
- Where relevant, a statement to the effect that the results relate only to the samples
- Any non-accredited tests or parameters shall be clearly identified as such to the client when claims of accreditation to this Standard are made in the analytical report or in the supporting electronic or hardcopy deliverables
- The date of issuance
- Chain of Custody

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29.5. Supplemental Test Report Information

29.5.1. When necessary for interpretation of the results or when requested by the client, test reports include the following additional information:

- Deviations from, additions to, or exclusions from the test method, information on specific test conditions, such as environmental conditions, and any non-standard conditions that may have affected the quality of the results, and any information on the use and definitions of data qualifiers
- A statement of compliance/non-compliance when requirements of the management system are not met, including identification of test results that did not meet the laboratory and regulatory sample acceptance requirements, such as holding time, preservation, etc.
- Where applicable and when requested by the client, a statement on the estimated uncertainty of the measurement

29.5.2. Where appropriate and needed, opinions and interpretations may be required. When opinions and interpretations are included, the basis upon which the opinions and interpretations are documented. Opinions and interpretations are clearly marked as such in the test report in the case narrative section

- Opinions and interpretations included in a test report may comprise, but not be limited to, the following:
  - An opinion on the statement of compliance/noncompliance of the results with requirements
  - Fulfillment of contractual requirements
  - Guidance to be used for improvements
    - Additional information which may be required by specific methods or client
    - Qualification of results with values outside the calibration range as appropriate

29.5.3. In addition to the items above, for test reports that contain the results of sampling, the following is provided when necessary for the interpretation of the results:

- The date of sampling
- Unambiguous identification of the material sampled
- The locations of the sampling, including diagrams, sketches, or photographs
- A reference to the sampling plan and procedures used
- Details of any environmental conditions during sampling that may affect the interpretations of the test results
- Any standard or other specification for the sampling method or procedure, and deviations, additions to or exclusions from the specification concerned

29.6. Environmental Testing Obtained from Subcontractors

29.6.1. Test results obtained from tests performed by subcontractors are clearly identified on the test report by subcontractor name and/or accreditation number.

29.6.2. The subcontractors report their results in writing or electronically. A copy of the subcontractors report is made available to the client if requested.

29.6.3. The actual report received from the subcontractor on their letterhead with the test result is provided to the client.

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29.7. Electronic Transmission of Results

29.7.1. All test results transmitted by telephone, fax, telex, e-mail, or other electronic means comply with the requirements of the TNI Standard and associated procedures to protect the confidentiality and proprietary rights of the client (see Section 23- "Environmental Methods and Method Validation").

29.8. Electronic Data Deliverables (EDDs)

29.8.1. The Omega LIMS produces an electronic data file; this file may be produced at the same time as the final report.

29.9. Amendments to Test Reports

29.9.1. Material amendments to a test report after it has been issued are made only in the form of another document or data transfer. All supplemental reports meet all the requirements for the initial report and the requirements of this Quality Manual.

29.9.2. When it is necessary to re-issue a report, the new report is uniquely identified and contains a reference to the original that it replaces. All prior versions are considered "voided".

29.9.3. A revision note must be included in the case narrative describing why the revision occurred.

30. CHANGES SINCE LAST REVISION

30.1. For 3.7 -> 3.8

30.1.1. Updated references to Fremont Analytical to Alliance Technical Group, LLC – Seattle or ATG Seattle.

30.1.2. Removed references to a president, human resources manager, and purchasing manager as personnel specific to the SEA location

30.1.3. Added discussions of relative error requirements for calibrations

30.1.4. Defined a Preparation Batch, with a 24-hour limit between the start of preparation for the first and last sample in the batch

30.1.5. Updated info@fremontanalytical.com references to info.seattle@alliancetg.com

30.1.6. Clarified the corrective action section that QC failures that ultimately result in the need to provide data that doesn't meet the client's quality needs require a corrective action report.

30.1.7. Updated containers to 500 mL ambers for the organics water tests that now use 500 mL ambers

30.1.8. Removed requirement that 5% of calculations must be manually verified.

30.1.9. Added that WADOE-only PTs are generally done twice a year, aside from microbiology. This helps keep our accreditations consistent and reduce the risk of missing a PT that we were supposed to do because of a failure on an earlier one.

30.2. For 3.8 -> 3.81

30.2.1. Added 23.3.1 to say that microbiology methods do not allow for the same degree of method modifications as other methods, and to refer to the individual SOP

30.2.2. Added 13.2.3 noting reporting nonconforming data for micro may not be allowed – check the individual SOPs.

30.2.3. Updated Table 5 for twice-a-day checking of incubators and water baths

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Appendix B

Example Laboratory Certification

The State of Washington Department of Ecology

Alliance Technical Group, LLC-Seattle

Seattle, WA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation.

This certificate is effective 7/9/2025 and shall expire 7/8/2026.

Witnessed under my hand on 7/10/2025.

Laboratory ID
C910

Rebecca Wood
Lab Accreditation Unit Supervisor

WASHINGTON STATE DEPARTMENT OF ECOLOGY

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

SCOPE OF ACCREDITATION

Alliance Technical Group, LLC-Seattle

Seattle, WA

is accredited for the analytes listed below using the methods indicated. Full accreditation is granted unless stated otherwise in a note. EPA is the U.S. Environmental Protection Agency. SM is "Standard Methods for the Examination of Water and Wastewater." SM refers to EPA approved method versions. ASTM is the American Society for Testing and Materials. USGS is the U.S. Geological Survey. AOAC is the Association of Official Analytical Chemists. Other references are described in notes.

Matrix/ Analyte	Method	Note
Air		
Carbon dioxide	EPA 3C	
Carbon monoxide	EPA 3C	
Hydrogen	EPA 3C	
Methane	EPA 3C	
Nitrogen	EPA 3C	
Oxygen	EPA 3C	
Helium	FAL SOP 11	6
Carbon disulfide	ASTM D5504-08	
Carbonyl sulfide	ASTM D5504-08	
Dimethyl disulfide	ASTM D5504-08	
Dimethyl Sulfide	ASTM D5504-08	
Ethyl Mercaptan	ASTM D5504-08	
Hydrogen sulfide	ASTM D5504-08	
Isobutyl Mercaptan	ASTM D5504-08	
Isopropyl Mercaptan	ASTM D5504-08	
Methyl Mercaptan	ASTM D5504-08	
n-Butyl Mercaptan	ASTM D5504-08	
n-Propyl Mercaptan	ASTM D5504-08	
t-Butyl Mercaptan	ASTM D5504-08	
1,1,1-Trichloroethane	EPA TO-15 Rev. 2 (1999)	5
1,1,2,2-Tetrachloroethane	EPA TO-15 Rev. 2 (1999)	5
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA TO-15 Rev. 2 (1999)	5
1,1,2-Trichloroethane	EPA TO-15 Rev. 2 (1999)	5
1,1-Dichloroethane	EPA TO-15 Rev. 2 (1999)	5
1,1-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	5
1,2,3-Trimethylbenzene	EPA TO-15 Rev. 2 (1999)	5
1,2,4-Trichlorobenzene	EPA TO-15 Rev. 2 (1999)	5
1,2,4-Trimethylbenzene	EPA TO-15 Rev. 2 (1999)	5
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA TO-15 Rev. 2 (1999)	5
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	EPA TO-15 Rev. 2 (1999)	5
1,2-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	5

Matrix/ Analyte	Method	Note
Air		
1,2-Dichloroethane (Ethylene dichloride)	EPA TO-15 Rev. 2 (1999)	5
1,2-Dichloropropane	EPA TO-15 Rev. 2 (1999)	5
1,3,5-Trimethylbenzene	EPA TO-15 Rev. 2 (1999)	5
1,3-Butadiene	EPA TO-15 Rev. 2 (1999)	5
1,3-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	5
1,4-Dichlorobenzene	EPA TO-15 Rev. 2 (1999)	5
1,4-Dioxane (1,4- Diethyleneoxide)	EPA TO-15 Rev. 2 (1999)	5
1-Propene	EPA TO-15 Rev. 2 (1999)	5
2,5-Dimethylthiophene	EPA TO-15 Rev. 2 (1999)	
2-Butanone (Methyl ethyl ketone, MEK)	EPA TO-15 Rev. 2 (1999)	5
2-Ethylthiophene	EPA TO-15 Rev. 2 (1999)	
2-Hexanone	EPA TO-15 Rev. 2 (1999)	5
2-Methylbutane (Isopentane)	EPA TO-15 Rev. 2 (1999)	5
2-Propanol	EPA TO-15 Rev. 2 (1999)	5
3-Methylthiophene	EPA TO-15 Rev. 2 (1999)	
4-Ethyltoluene	EPA TO-15 Rev. 2 (1999)	5
4-Isopropyltoluene (p-Cymene)	EPA TO-15 Rev. 2 (1999)	5
4-Methyl-2-pentanone (MIBK)	EPA TO-15 Rev. 2 (1999)	5
Acetone	EPA TO-15 Rev. 2 (1999)	5
Acrolein (Propenal)	EPA TO-15 Rev. 2 (1999)	5
APH Aliphatics C5-C8	EPA TO-15 Rev. 2 (1999)	5
APH Aliphatics C9-C12	EPA TO-15 Rev. 2 (1999)	5
APH Aromatics C9-C10	EPA TO-15 Rev. 2 (1999)	5
Benzene	EPA TO-15 Rev. 2 (1999)	5
Benzyl chloride	EPA TO-15 Rev. 2 (1999)	5
Bromodichloromethane	EPA TO-15 Rev. 2 (1999)	5
Bromoform	EPA TO-15 Rev. 2 (1999)	5
Carbon disulfide	EPA TO-15 Rev. 2 (1999)	5
Carbon tetrachloride	EPA TO-15 Rev. 2 (1999)	5
Carbonyl sulfide	EPA TO-15 Rev. 2 (1999)	
Chlorobenzene	EPA TO-15 Rev. 2 (1999)	5
Chlorodibromomethane	EPA TO-15 Rev. 2 (1999)	5
Chloroethane	EPA TO-15 Rev. 2 (1999)	5
Chloroform	EPA TO-15 Rev. 2 (1999)	5
cis-1,2-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	5
cis-1,3-Dichloropropene	EPA TO-15 Rev. 2 (1999)	5
Cyclohexane	EPA TO-15 Rev. 2 (1999)	5
Decamethylcyclopentasiloxane (D6)	EPA TO-15 Rev. 2 (1999)	
Decamethyltetrasiloxane-L4 (MD2M)	EPA TO-15 Rev. 2 (1999)	
Dichlorodifluoromethane (Freon-12)	EPA TO-15 Rev. 2 (1999)	5
Diethyl disulfide	EPA TO-15 Rev. 2 (1999)	
Dimethyl disulfide	EPA TO-15 Rev. 2 (1999)	
Dimethyl Sulfide	EPA TO-15 Rev. 2 (1999)	
Dodecamethylpentasiloxane (L5)	EPA TO-15 Rev. 2 (1999)	
Ethanol	EPA TO-15 Rev. 2 (1999)	5
Ethyl acetate	EPA TO-15 Rev. 2 (1999)	5
Ethyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
Ethylbenzene	EPA TO-15 Rev. 2 (1999)	5
Gasoline range organics (GRO)	EPA TO-15 Rev. 2 (1999)	5
Hexachlorobutadiene	EPA TO-15 Rev. 2 (1999)	5

Matrix/ Analyte	Method	Note
Air		
Hexamethylcyclotrisiloxane (D3)	EPA TO-15 Rev. 2 (1999)	5
Hexamethyldisiloxane	EPA TO-15 Rev. 2 (1999)	5
Hexane	EPA TO-15 Rev. 2 (1999)	5
Hydrogen sulfide	EPA TO-15 Rev. 2 (1999)	
Isobutyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
Isopropyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
Isopropylbenzene	EPA TO-15 Rev. 2 (1999)	5
m+p-xylene	EPA TO-15 Rev. 2 (1999)	5
Methyl bromide (Bromomethane)	EPA TO-15 Rev. 2 (1999)	5
Methyl chloride (Chloromethane)	EPA TO-15 Rev. 2 (1999)	5
Methyl ethyl sulfide	EPA TO-15 Rev. 2 (1999)	
Methyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
Methyl tert-butyl ether (MTBE)	EPA TO-15 Rev. 2 (1999)	5
Methylene chloride (Dichloromethane)	EPA TO-15 Rev. 2 (1999)	5
Naphthalene	EPA TO-15 Rev. 2 (1999)	5
n-Butane	EPA TO-15 Rev. 2 (1999)	5
n-Butyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
n-Decane	EPA TO-15 Rev. 2 (1999)	5
n-Dodecane	EPA TO-15 Rev. 2 (1999)	5
n-Heptane	EPA TO-15 Rev. 2 (1999)	5
n-Nonane	EPA TO-15 Rev. 2 (1999)	5
n-Octane	EPA TO-15 Rev. 2 (1999)	5
n-Propyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
n-Undecane	EPA TO-15 Rev. 2 (1999)	5
Octamethylcyclotetrasiloxane (D4)	EPA TO-15 Rev. 2 (1999)	5
Octamethyltrisiloxane-L3 (MDM)	EPA TO-15 Rev. 2 (1999)	5
o-Xylene	EPA TO-15 Rev. 2 (1999)	5
Pentamethyldisiloxane	EPA TO-15 Rev. 2 (1999)	5
Styrene	EPA TO-15 Rev. 2 (1999)	5
t-Butyl Mercaptan	EPA TO-15 Rev. 2 (1999)	
Tetrachloroethylene (Perchloroethylene)	EPA TO-15 Rev. 2 (1999)	5
Tetrahydrofuran (THF)	EPA TO-15 Rev. 2 (1999)	5
Tetrahydrothiophene	EPA TO-15 Rev. 2 (1999)	
Thiophene	EPA TO-15 Rev. 2 (1999)	
Toluene	EPA TO-15 Rev. 2 (1999)	5
trans-1,2-Dichloroethylene	EPA TO-15 Rev. 2 (1999)	5
trans-1,3-Dichloropropylene	EPA TO-15 Rev. 2 (1999)	5
Trichloroethene (Trichloroethylene)	EPA TO-15 Rev. 2 (1999)	5
Trichlorofluoromethane (Freon 11)	EPA TO-15 Rev. 2 (1999)	5
Vinyl acetate	EPA TO-15 Rev. 2 (1999)	5
Vinyl chloride	EPA TO-15 Rev. 2 (1999)	5
APH Aliphatics C5-C8	MADEP APH WSC-CAM-IX July 2010	5
APH Aliphatics C9-C12	MADEP APH WSC-CAM-IX July 2010	5
APH Aromatics C9-C10	MADEP APH WSC-CAM-IX July 2010	5
Drinking Water		
Turbidity	EPA 180.1 2 1993	5
Chloride	EPA 300.0 2.1 1993	5
Nitrate + Nitrite as N	EPA 300.0 2.1 1993	5
Nitrate as N	EPA 300.0 2.1 1993	5

Matrix/ Analyte	Method	Note
Drinking Water		
Nitrite as N	EPA 300.0 2.1 1993	5
Orthophosphate as P	EPA 300.0 2.1 1993	5
Sulfate	EPA 300.0 2.1 1993	5
Solids, Total Dissolved	SM 2540 C-2015	
Dissolved Organic Carbon	SM 5310 C-2014	
Total Organic Carbon	SM 5310 C-2014	
Aluminum	EPA 200.8 5.4 1994	5
Antimony	EPA 200.8 5.4 1994	5
Arsenic	EPA 200.8_5.4_1994	5
Barium	EPA 200.8 5.4 1994	5
Beryllium	EPA 200.8 5.4 1994	5
Cadmium	EPA 200.8 5.4 1994	5
Chromium	EPA 200.8 5.4 1994	5
Copper	EPA 200.8 5.4 1994	5
Lead	EPA 200.8 5.4 1994	5
Manganese	EPA 200.8 5.4 1994	5
Selenium	EPA 200.8 5.4 1994	5
Silver	EPA 200.8 5.4 1994	5
Thallium	EPA 200.8 5.4 1994	5
Zinc	EPA 200.8_5.4_1994	5
Mercury	EPA 245.1 3 1994	
E.coli-count	SM 9223 B Colilert 24 Qtray	9,10
Total coliforms-count	SM 9223 B Colilert 24 Qtray	9,10
Non-Potable Water		
n-Hexane Extractable Material (O&G)	EPA 1664A 1 1999	5
Turbidity	EPA 180.1_2_1993	5
Bromide	EPA 300.0 2.1 1993	5
Chloride	EPA 300.0 2.1 1993	5
Fluoride	EPA 300.0_2.1_1993	5
Nitrate + Nitrite as N	EPA 300.0 2.1 1993	5
Nitrate as N	EPA 300.0 2.1 1993	5
Nitrite as N	EPA 300.0_2.1_1993	5
Orthophosphate as P	EPA 300.0 2.1 1993	1
Sulfate	EPA 300.0_2.1_1993	5
Alkalinity	EPA 310.2 1974	5
Phosphorus, total	EPA 365.3 1978	5
Alkalinity	SM 2320 B-2011	5
Hardness (calc.)	SM 2340 B-2011	5
Specific Conductance	SM 2510 B-2011	5
Salinity	SM 2520 B-2011	5
Solids, Total	SM 2540 B-2015	5,88
Solids, Total Dissolved	SM 2540 C-2015	5,88
Solids, Total Suspended	SM 2540 D-2015	5,88
Solids, Settleable	SM 2540 F-2015	5,88
Chromium, Hexavalent	SM 3500-Cr B-2011	
Cyanide, Total	SM 4500-CN^- E-2016	5,88
Cyanides, Amenable to Chlorination	SM 4500-CN^- G-2021	5,88
Ammonia as N	SM 4500-NH3 E-2011	5
Ammonia as N	SM 4500-NH3 G-2011	5

Matrix/ Analyte	Method	Note
Non-Potable Water		
Biochemical Oxygen Demand (BOD)	SM 5210 B-2016	4
Chemical Oxygen Demand (COD)	SM 5220 D-2011	5
Dissolved Organic Carbon	SM 5310 C-2014	5,88
Total Organic Carbon	SM 5310 C-2014	5,88
Aluminum	EPA 200.8 5.4 1994	5
Antimony	EPA 200.8_5.4_1994	5
Arsenic	EPA 200.8 5.4 1994	5
Barium	EPA 200.8 5.4 1994	5
Beryllium	EPA 200.8_5.4_1994	5
Boron	EPA 200.8 5.4 1994	
Cadmium	EPA 200.8 5.4 1994	5
Calcium	EPA 200.8 5.4 1994	5
Chromium	EPA 200.8 5.4 1994	5
Cobalt	EPA 200.8 5.4 1994	5
Copper	EPA 200.8 5.4 1994	5
Iron	EPA 200.8 5.4 1994	5
Lead	EPA 200.8 5.4 1994	5
Magnesium	EPA 200.8 5.4 1994	5
Manganese	EPA 200.8 5.4 1994	5
Molybdenum	EPA 200.8_5.4_1994	5
Nickel	EPA 200.8 5.4 1994	5
Potassium	EPA 200.8 5.4 1994	5
Selenium	EPA 200.8 5.4 1994	5
Silver	EPA 200.8 5.4 1994	5
Sodium	EPA 200.8 5.4 1994	5
Strontium	EPA 200.8 5.4 1994	5
Thallium	EPA 200.8 5.4 1994	5
Tin	EPA 200.8 5.4 1994	5
Titanium	EPA 200.8 5.4 1994	5
Vanadium	EPA 200.8 5.4 1994	5
Zinc	EPA 200.8_5.4_1994	5
Mercury	EPA 245.1 3 1994	5
Iron, Ferrous	SM 3500-Fe B-2011	5
4,4'-DDD	EPA 608.3	5
4,4'-DDE	EPA 608.3	5
4,4'-DDT	EPA 608.3	5
Aldrin	EPA 608.3	5
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 608.3	5
alpha-Chlordane	EPA 608.3	5
Aroclor-1016 (PCB-1016)	EPA 608.3	5
Aroclor-1221 (PCB-1221)	EPA 608.3	5
Aroclor-1232 (PCB-1232)	EPA 608.3	5
Aroclor-1242 (PCB-1242)	EPA 608.3	5
Aroclor-1248 (PCB-1248)	EPA 608.3	5
Aroclor-1254 (PCB-1254)	EPA 608.3	5
Aroclor-1260 (PCB-1260)	EPA 608.3	5
Aroclor-1262 (PCB-1262)	EPA 608.3	5
Aroclor-1268 (PCB-1268)	EPA 608.3	5
beta-BHC (beta-Hexachlorocyclohexane)	EPA 608.3	5
Chlordane (tech.)	EPA 608.3	5

Matrix/ Analyte	Method	Note
Non-Potable Water		
delta-BHC	EPA 608.3	5
Dieldrin	EPA 608.3	5
Endosulfan I	EPA 608.3	5
Endosulfan II	EPA 608.3	5
Endosulfan sulfate	EPA 608.3	5
Endrin	EPA 608.3	5
Endrin aldehyde	EPA 608.3	5
Endrin ketone	EPA 608.3	5
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 608.3	5
gamma-Chlordane	EPA 608.3	5
Heptachlor	EPA 608.3	5
Heptachlor epoxide	EPA 608.3	5
Methoxychlor	EPA 608.3	5
Toxaphene (Chlorinated camphene)	EPA 608.3	5
Ethane	EPA RSK-175	
Ethene	EPA RSK-175	
Methane	EPA RSK-175	
1,1,1,2-Tetrachloroethane	EPA 624.1	5
1,1,1-Trichloroethane	EPA 624.1	5
1,1,2,2-Tetrachloroethane	EPA 624.1	5
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 624.1	5
1,1,2-Trichloroethane	EPA 624.1	5
1,1-Dichloroethane	EPA 624.1	5
1,1-Dichloroethylene	EPA 624.1	5
1,1-Dichloropropene	EPA 624.1	5
1,2,3-Trichlorobenzene	EPA 624.1	5
1,2,3-Trichloropropane	EPA 624.1	5
1,2,4-Trimethylbenzene	EPA 624.1	5
1,2-Dibromo-3-chloropropane (DBCP)	EPA 624.1	5
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 624.1	5
1,2-Dichlorobenzene	EPA 624.1	5
1,2-Dichloroethane (Ethylene dichloride)	EPA 624.1	5
1,2-Dichloropropane	EPA 624.1	5
1,3,5-Trimethylbenzene	EPA 624.1	5
1,3-Dichlorobenzene	EPA 624.1	5
1,3-Dichloropropane	EPA 624.1	5
1,4-Dichlorobenzene	EPA 624.1	5
2-Butanone (Methyl ethyl ketone, MEK)	EPA 624.1	5
2-Chloroethyl vinyl ether	EPA 624.1	5
2-Chlorotoluene	EPA 624.1	5
2-Hexanone	EPA 624.1	1
4-Chlorotoluene	EPA 624.1	5
4-Isopropyltoluene (p-Cymene)	EPA 624.1	5
4-Methyl-2-pentanone (MIBK)	EPA 624.1	5
Acetone	EPA 624.1	5
Acrolein (Propenal)	EPA 624.1	5
Acrylonitrile	EPA 624.1	5
Allyl chloride (3-Chloropropene)	EPA 624.1	5
Benzene	EPA 624.1	5
Bromobenzene	EPA 624.1	5

Matrix/ Analyte	Method	Note
Non-Potable Water		
Bromochloromethane	EPA 624.1	5
Bromodichloromethane	EPA 624.1	5
Bromoform	EPA 624.1	5
Carbon disulfide	EPA 624.1	5
Carbon tetrachloride	EPA 624.1	5
Chlorobenzene	EPA 624.1	5
Chlorodibromomethane	EPA 624.1	5
Chloroethane (Ethyl chloride)	EPA 624.1	5
Chloroform	EPA 624.1	5
cis-1,2-Dichloroethylene	EPA 624.1	5
cis-1,3-Dichloropropene	EPA 624.1	5
Dibromomethane (Methylene bromide)	EPA 624.1	5
Di-isopropylether (DIPE)	EPA 624.1	5
Ethyl acetate	EPA 624.1	5
Ethyl methacrylate	EPA 624.1	5
Ethylbenzene	EPA 624.1	5
Ethyl-t-butylether (ETBE)	EPA 624.1	5
Iodomethane (Methyl iodide)	EPA 624.1	5
Isopropylbenzene	EPA 624.1	5
m+p-xylene	EPA 624.1	5
Methacrylonitrile	EPA 624.1	5
Methyl acrylate	EPA 624.1	5
Methyl bromide (Bromomethane)	EPA 624.1	5
Methyl chloride (Chloromethane)	EPA 624.1	5
Methyl methacrylate	EPA 624.1	5
Methyl tert-butyl ether (MTBE)	EPA 624.1	5
Methylene chloride (Dichloromethane)	EPA 624.1	5
n-Butylbenzene	EPA 624.1	5
n-Hexane	EPA 624.1	5
n-Propylbenzene	EPA 624.1	5
o-Xylene	EPA 624.1	5
sec-Butylbenzene	EPA 624.1	5
Styrene	EPA 624.1	5
tert-amylmethylether (TAME)	EPA 624.1	5
tert-Butylbenzene	EPA 624.1	5
Tetrachloroethylene (Perchloroethylene)	EPA 624.1	5
Tetrahydrofuran (THF)	EPA 624.1	5
Toluene	EPA 624.1	5
trans-1,2-Dichloroethylene	EPA 624.1	5
trans-1,3-Dichloropropylene	EPA 624.1	5
trans-1,4-Dichloro-2-butene	EPA 624.1	5
Trichloroethene (Trichloroethylene)	EPA 624.1	5
Trichlorofluoromethane (Freon 11)	EPA 624.1	5
Vinyl acetate	EPA 624.1	5
Vinyl chloride	EPA 624.1	5
Xylene (total)	EPA 624.1	5
1,2,4-Trichlorobenzene	EPA 625.1	5
1,2-Dinitrobenzene	EPA 625.1	5
1,3-Dinitrobenzene (1,3-DNB)	EPA 625.1	5
1,4-Dinitrobenzene	EPA 625.1	5

Matrix/ Analyte	Method	Note
Non-Potable Water		
1-Methylnaphthalene	EPA 625.1	5
2,3,4,6-Tetrachlorophenol	EPA 625.1	5
2,3,5,6-Tetrachlorophenol	EPA 625.1	5
2,4,5-Trichlorophenol	EPA 625.1	5
2,4,6-Trichlorophenol	EPA 625.1	5
2,4-Dichlorophenol	EPA 625.1	5
2,4-Dimethylphenol	EPA 625.1	5
2,4-Dinitrophenol	EPA 625.1	5
2,4-Dinitrotoluene (2,4-DNT)	EPA 625.1	5
2,6-Dinitrotoluene (2,6-DNT)	EPA 625.1	5
2-Chloronaphthalene	EPA 625.1	5
2-Chlorophenol	EPA 625.1	5
2-Methylnaphthalene	EPA 625.1	5
2-Methylphenol (o-Cresol)	EPA 625.1	5
2-Nitroaniline	EPA 625.1	5
2-Nitrophenol	EPA 625.1	5
3 & 4-Methylphenol	EPA 625.1	5
3,3'-Dichlorobenzidine	EPA 625.1	5
3-Nitroaniline	EPA 625.1	5
4,6-Dinitro-2-methylphenol	EPA 625.1	5
4-Bromophenyl phenyl ether (BDE-3)	EPA 625.1	5
4-Chloro-3-methylphenol	EPA 625.1	5
4-Chloroaniline	EPA 625.1	5
4-Chlorophenyl phenylether	EPA 625.1	5
4-Nitroaniline	EPA 625.1	5
4-Nitrophenol	EPA 625.1	5
Acenaphthene	EPA 625.1	5
Acenaphthylene	EPA 625.1	5
Aniline	EPA 625.1	5
Anthracene	EPA 625.1	5
Azobenzene	EPA 625.1	5
Benzidine	EPA 625.1	5
Benzo(a)anthracene	EPA 625.1	5
Benzo(a)pyrene	EPA 625.1	5
Benzo(g,h,i)perylene	EPA 625.1	5
Benzo(k)fluoranthene	EPA 625.1	5
Benzo[b]fluoranthene	EPA 625.1	5
Benzoic acid	EPA 625.1	5
Benzyl alcohol	EPA 625.1	5
bis(2-Chloroethoxy)methane	EPA 625.1	5
bis(2-Chloroethyl) ether	EPA 625.1	5
Butyl benzyl phthalate	EPA 625.1	5
Carbazole	EPA 625.1	5
Chrysene	EPA 625.1	5
Di(2-ethylhexyl)adipate	EPA 625.1	5
Dibenz(a,h) anthracene	EPA 625.1	5
Dibenzofuran	EPA 625.1	5
Diethyl phthalate	EPA 625.1	5
Dimethyl phthalate	EPA 625.1	5
Di-n-butyl phthalate	EPA 625.1	5

Matrix/ Analyte	Method	Note
Non-Potable Water		
Di-n-octyl phthalate	EPA 625.1	5
Diphenylamine	EPA 625.1	5
Fluoranthene	EPA 625.1	5
Fluorene	EPA 625.1	5
Hexachlorobenzene	EPA 625.1	5
Hexachlorobutadiene	EPA 625.1	5
Hexachlorocyclopentadiene	EPA 625.1	5
Hexachloroethane	EPA 625.1	5
Indeno(1,2,3-cd) pyrene	EPA 625.1	5
Isophorone	EPA 625.1	5
Naphthalene	EPA 625.1	5
n-Decane	EPA 625.1	9
Nitrobenzene	EPA 625.1	5
N-Nitrosodimethylamine	EPA 625.1	5
N-Nitroso-di-n-propylamine	EPA 625.1	5
N-Nitrosodiphenylamine	EPA 625.1	5
n-Octadecane	EPA 625.1	9
Pentachlorophenol	EPA 625.1	5
Phenanthrene	EPA 625.1	5
Phenol	EPA 625.1	5
Pyrene	EPA 625.1	5
Pyridine	EPA 625.1	5
Fecal coliform-count	SM 9223 B Colilert 18® QTray®	9,10
E.coli-count	SM 9223 B Colilert 24 Qtray	9,10
Total coliforms-count	SM 9223 B Colilert 24 Qtray	9,10,11
Enterococci	SM 9230 D Enterolert	9
Solid and Chemical Materials		
Total Organic Material	ASTM D2974-07A	5
Bromide	EPA 300.0_2.1_1993	1
Chloride	EPA 300.0 2.1 1993	1
Fluoride	EPA 300.0 2.1 1993	1,3
Nitrate + Nitrite as N	EPA 300.0_2.1_1993	1,2
Nitrate as N	EPA 300.0 2.1 1993	1
Nitrite as N	EPA 300.0_2.1_1993	1,2
Orthophosphate as P	EPA 300.0 2.1 1993	1
Sulfate	EPA 300.0 2.1 1993	1
Chromium, Hexavalent	EPA 7196A 1 1992	5
pH	EPA 9045 D 2004	
Total Organic Carbon	EPA 9060A 1 2004	5
Cation Exchange Capacity	EPA 9081	
Cyanide, Total	SM 4500-CN^- E-2016	5,88
Ammonia as N	SM 4500-NH3 E-2011	5
Sulfide	SM 4500-$S2^-$ D-2011	2,9
Aluminum	EPA 6020B (7/14)	5
Antimony	EPA 6020B_(7/14)	5
Arsenic	EPA 6020B (7/14)	5
Barium	EPA 6020B (7/14)	5
Beryllium	EPA 6020B (7/14)	5
Boron	EPA 6020B (7/14)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
Cadmium	EPA 6020B (7/14)	5
Calcium	EPA 6020B (7/14)	5
Chromium	EPA 6020B (7/14)	5
Cobalt	EPA 6020B (7/14)	5
Copper	EPA 6020B (7/14)	5
Iron	EPA 6020B_(7/14)	5
Lead	EPA 6020B (7/14)	5
Magnesium	EPA 6020B (7/14)	5
Manganese	EPA 6020B_(7/14)	5
Mercury	EPA 6020B (7/14)	5
Molybdenum	EPA 6020B (7/14)	5
Nickel	EPA 6020B (7/14)	5
Phosphorus, Total	EPA 6020B (7/14)	5
Potassium	EPA 6020B (7/14)	5
Selenium	EPA 6020B (7/14)	5
Silver	EPA 6020B (7/14)	5
Strontium	EPA 6020B (7/14)	5
Thallium	EPA 6020B (7/14)	5
Tin	EPA 6020B (7/14)	5
Titanium	EPA 6020B_(7/14)	5
Vanadium	EPA 6020B (7/14)	5
Zinc	EPA 6020B (7/14)	5
Mercury, Liquid Waste	EPA 7470A 1 1994	2
Mercury, Solid Waste	EPA 7471B (2/07)	
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8011-92	1,2
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8011-92	2,5
Diesel range organics (DRO)	EPA 8015D 4 (6/03)	9
Gasoline range organics (GRO)	EPA 8015D 4 (6/03)	9
4,4'-DDD	EPA 8081B (2/07)	5
4,4'-DDE	EPA 8081B (2/07)	5
4,4'-DDT	EPA 8081B_(2/07)	5
Aldrin	EPA 8081B (2/07)	5
alpha-BHC (alpha-Hexachlorocyclohexane)	EPA 8081B (2/07)	5
alpha-Chlordane	EPA 8081B_(2/07)	5
beta-BHC (beta-Hexachlorocyclohexane)	EPA 8081B (2/07)	5
Chlordane (tech.)	EPA 8081B (2/07)	5
delta-BHC	EPA 8081B (2/07)	5
Dieldrin	EPA 8081B (2/07)	5
Endosulfan I	EPA 8081B (2/07)	5
Endosulfan II	EPA 8081B (2/07)	5
Endosulfan sulfate	EPA 8081B (2/07)	5
Endrin	EPA 8081B (2/07)	5
Endrin aldehyde	EPA 8081B (2/07)	5
Endrin ketone	EPA 8081B (2/07)	5
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	EPA 8081B_(2/07)	5
gamma-Chlordane	EPA 8081B (2/07)	5
Heptachlor	EPA 8081B (2/07)	5
Heptachlor epoxide	EPA 8081B (2/07)	5
Methoxychlor	EPA 8081B (2/07)	5
Toxaphene (Chlorinated camphene)	EPA 8081B (2/07)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
Aroclor-1016 (PCB-1016)	EPA 8082A (2/07)	5
Aroclor-1221 (PCB-1221)	EPA 8082A (2/07)	5
Aroclor-1232 (PCB-1232)	EPA 8082A (2/07)	5
Aroclor-1242 (PCB-1242)	EPA 8082A (2/07)	5
Aroclor-1248 (PCB-1248)	EPA 8082A (2/07)	5
Aroclor-1254 (PCB-1254)	EPA 8082A_(2/07)	5
Aroclor-1260 (PCB-1260)	EPA 8082A (2/07)	5
Aroclor-1262 (PCB-1262)	EPA 8082A (2/07)	5
Aroclor-1268 (PCB-1268)	EPA 8082A_(2/07)	5
2,4,5-T	EPA 8151A (1/98)	7,8,9
2,4-D	EPA 8151A (1/98)	7,8,9
2,4-DB	EPA 8151A (1/98)	7,8,9
3,5-Dichlorobenzoic acid	EPA 8151A (1/98)	7,8,9
4-Nitrophenol	EPA 8151A (1/98)	7,8,9
Acifluorfen	EPA 8151A (1/98)	7,8,9
Bentazon	EPA 8151A (1/98)	7,8,9
Chloramben	EPA 8151A (1/98)	7,8,9
Dacthal (DCPA)	EPA 8151A (1/98)	7,8,9
Dalapon	EPA 8151A (1/98)	7,8,9
Dicamba	EPA 8151A_(1/98)	7,8,9
Dichloroprop (Dichlorprop)	EPA 8151A (1/98)	7,8,9
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	EPA 8151A (1/98)	7,8,9
MCPA	EPA 8151A (1/98)	7,8,9
MCPP	EPA 8151A (1/98)	7,8,9
Pentachlorophenol	EPA 8151A (1/98)	7,8,9
Picloram	EPA 8151A (1/98)	7,8,9
Silvex (2,4,5-TP)	EPA 8151A (1/98)	7,8,9
>C10-C12 Aliphatic EPH	WDOE EPH (1997)	
>C10-C12 Aromatic EPH	WDOE EPH (1997)	
>C12-C16 Aliphatic EPH	WDOE EPH (1997)	
>C12-C16 Aromatic EPH	WDOE EPH_(1997)	
>C16-C21 Aliphatic EPH	WDOE EPH (1997)	
>C16-C21 Aromatic EPH	WDOE EPH (1997)	
>C21-C34 Alpihatic EPH	WDOE EPH_(1997)	
>C21-C34 Aromatic EPH	WDOE EPH (1997)	
C8-C10 Aliphatic EPH	WDOE EPH (1997)	
C8-C10 Aromatic EPH	WDOE EPH (1997)	
Diesel range organics (DRO)	WDOE NWTPH-Dx (1997)	5
Motor Oil	WDOE NWTPH-Dx (1997)	5
Gasoline range organics (GRO)	WDOE NWTPH-Gx (1997)	3,5
>C10-C12 Aliphatic VPH	WDOE VPH (1997)	
>C10-C12 Aromatic VPH	WDOE VPH (1997)	
>C12-C13 Aromatic VPH	WDOE VPH (1997)	
>C6-C8 Aliphatic VPH	WDOE VPH (1997)	
>C8-C10 Aliphatic VPH	WDOE VPH_(1997)	
C5-C6 Aliphatic VPH	WDOE VPH (1997)	
C8-C10 Aromatic VPH	WDOE VPH (1997)	
1,1,1,2-Tetrachloroethane	EPA 8260D 4 (6/18)	5
1,1,1-Trichloroethane	EPA 8260D 4 (6/18)	5
1,1,2,2-Tetrachloroethane	EPA 8260D 4 (6/18)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	EPA 8260D 4 (6/18)	5
1,1,2-Trichloroethane	EPA 8260D 4 (6/18)	5
1,1-Dichloroethane	EPA 8260D 4 (6/18)	5
1,1-Dichloroethylene	EPA 8260D 4 (6/18)	5
1,1-Dichloropropene	EPA 8260D 4 (6/18)	5
1,2,3-Trichlorobenzene	EPA 8260D_4_(6/18)	5
1,2,3-Trichloropropane	EPA 8260D 4 (6/18)	5
1,2,4-Trichlorobenzene	EPA 8260D 4 (6/18)	5
1,2,4-Trimethylbenzene	EPA 8260D_4_(6/18)	5
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260D 4 (6/18)	5
1,2-Dibromoethane (EDB, Ethylene dibromide)	EPA 8260D 4 (6/18)	5
1,2-Dichlorobenzene	EPA 8260D 4 (6/18)	5
1,2-Dichloroethane (Ethylene dichloride)	EPA 8260D 4 (6/18)	5
1,2-Dichloropropane	EPA 8260D 4 (6/18)	5
1,3,5-Trimethylbenzene	EPA 8260D 4 (6/18)	5
1,3-Dichlorobenzene	EPA 8260D 4 (6/18)	5
1,3-Dichloropropane	EPA 8260D 4 (6/18)	5
1,4-Dichlorobenzene	EPA 8260D 4 (6/18)	5
1,4-Dioxane (1,4- Diethyleneoxide)	EPA 8260D 4 (6/18)	5
2-Butanone (Methyl ethyl ketone, MEK)	EPA 8260D_4_(6/18)	5
2-Chloroethyl vinyl ether	EPA 8260D 4 (6/18)	5
2-Chlorotoluene	EPA 8260D 4 (6/18)	5
2-Hexanone	EPA 8260D 4 (6/18)	5
4-Chlorotoluene	EPA 8260D 4 (6/18)	5
4-Isopropyltoluene (p-Cymene)	EPA 8260D 4 (6/18)	5
4-Methyl-2-pentanone (MIBK)	EPA 8260D 4 (6/18)	5
Acetone	EPA 8260D 4 (6/18)	5
Acrolein (Propenal)	EPA 8260D 4 (6/18)	5
Acrylonitrile	EPA 8260D 4 (6/18)	5
Allyl chloride (3-Chloropropene)	EPA 8260D 4 (6/18)	5
Benzene	EPA 8260D_4_(6/18)	5
Bromobenzene	EPA 8260D 4 (6/18)	5
Bromochloromethane	EPA 8260D 4 (6/18)	5
Bromodichloromethane	EPA 8260D_4_(6/18)	5
Bromoform	EPA 8260D 4 (6/18)	5
Carbon disulfide	EPA 8260D 4 (6/18)	5
Carbon tetrachloride	EPA 8260D 4 (6/18)	5
Chlorobenzene	EPA 8260D 4 (6/18)	5
Chlorodibromomethane	EPA 8260D 4 (6/18)	5
Chloroethane (Ethyl chloride)	EPA 8260D 4 (6/18)	5
Chloroform	EPA 8260D 4 (6/18)	5
cis-1,2-Dichloroethylene	EPA 8260D 4 (6/18)	5
cis-1,3-Dichloropropene	EPA 8260D 4 (6/18)	5
Dibromomethane	EPA 8260D 4 (6/18)	5
Dichlorodifluoromethane (Freon-12)	EPA 8260D_4_(6/18)	5
Di-isopropylether (DIPE)	EPA 8260D 4 (6/18)	5
Ethyl acetate	EPA 8260D 4 (6/18)	5
Ethyl methacrylate	EPA 8260D 4 (6/18)	5
Ethylbenzene	EPA 8260D 4 (6/18)	5
Ethyl-t-butylether (ETBE)	EPA 8260D 4 (6/18)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
Hexachlorobutadiene	EPA 8260D 4 (6/18)	5
Iodomethane (Methyl iodide)	EPA 8260D 4 (6/18)	5
Isopropylbenzene	EPA 8260D 4 (6/18)	5
m+p-xylene	EPA 8260D 4 (6/18)	5
Methacrylonitrile	EPA 8260D 4 (6/18)	5
Methyl acrylate	EPA 8260D_4_(6/18)	5
Methyl bromide (Bromomethane)	EPA 8260D 4 (6/18)	5
Methyl chloride (Chloromethane)	EPA 8260D 4 (6/18)	5
Methyl methacrylate	EPA 8260D_4_(6/18)	5
Methyl tert-butyl ether (MTBE)	EPA 8260D 4 (6/18)	5
Methylene chloride (Dichloromethane)	EPA 8260D 4 (6/18)	5
Naphthalene	EPA 8260D 4 (6/18)	5
n-Butylbenzene	EPA 8260D 4 (6/18)	5
n-Hexane	EPA 8260D 4 (6/18)	5
n-Propylbenzene	EPA 8260D 4 (6/18)	5
o-Xylene	EPA 8260D 4 (6/18)	5
sec-Butylbenzene	EPA 8260D 4 (6/18)	5
Styrene	EPA 8260D 4 (6/18)	5
tert-amylmethylether (TAME)	EPA 8260D 4 (6/18)	5
tert-Butyl alcohol	EPA 8260D_4_(6/18)	5
tert-Butylbenzene	EPA 8260D 4 (6/18)	5
Tetrachloroethylene (Perchloroethylene)	EPA 8260D 4 (6/18)	5
Tetrahydrofuran (THF)	EPA 8260D 4 (6/18)	5
Toluene	EPA 8260D 4 (6/18)	5
trans-1,2-Dichloroethylene	EPA 8260D 4 (6/18)	5
trans-1,3-Dichloropropylene	EPA 8260D 4 (6/18)	5
trans-1,4-Dichloro-2-butene	EPA 8260D 4 (6/18)	5
Trichloroethene (Trichloroethylene)	EPA 8260D 4 (6/18)	5
Trichlorofluoromethane (Freon 11)	EPA 8260D 4 (6/18)	5
Vinyl acetate	EPA 8260D 4 (6/18)	5
Vinyl chloride	EPA 8260D_4_(6/18)	5
Xylene (total)	EPA 8260D 4 (6/18)	5
1,2,4-Trichlorobenzene	EPA 8270E 6 (6/18)	5
1,2-Dichlorobenzene	EPA 8270E_6_(6/18)	5
1,2-Dinitrobenzene	EPA 8270E 6 (6/18)	5
1,3-Dichlorobenzene	EPA 8270E 6 (6/18)	5
1,3-Dinitrobenzene (1,3-DNB)	EPA 8270E 6 (6/18)	5
1,4-Dichlorobenzene	EPA 8270E 6 (6/18)	5
1,4-Dinitrobenzene	EPA 8270E 6 (6/18)	5
1-Methylnaphthalene	EPA 8270E 6 (6/18)	5
2,2'-Oxybis(1-chloropropane)	EPA 8270E 6 (6/18)	5
2,3,4,6-Tetrachlorophenol	EPA 8270E 6 (6/18)	5
2,3,5,6-Tetrachlorophenol	EPA 8270E 6 (6/18)	5
2,4,5-Trichlorophenol	EPA 8270E 6 (6/18)	5
2,4,6-Trichlorophenol	EPA 8270E_6_(6/18)	5
2,4-Dichlorophenol	EPA 8270E 6 (6/18)	5
2,4-Dimethylphenol	EPA 8270E 6 (6/18)	5
2,4-Dinitrophenol	EPA 8270E 6 (6/18)	5
2,4-Dinitrotoluene (2,4-DNT)	EPA 8270E 6 (6/18)	5
2,6-Dinitrotoluene (2,6-DNT)	EPA 8270E 6 (6/18)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
2-Chloronaphthalene	EPA 8270E 6 (6/18)	5
2-Chlorophenol	EPA 8270E 6 (6/18)	5
2-Methylnaphthalene	EPA 8270E 6 (6/18)	5
2-Methylphenol (o-Cresol)	EPA 8270E 6 (6/18)	5
2-Nitroaniline	EPA 8270E 6 (6/18)	5
2-Nitrophenol	EPA 8270E_6_(6/18)	5
3 & 4-Methylphenol	EPA 8270E 6 (6/18)	5
3,3'-Dichlorobenzidine	EPA 8270E 6 (6/18)	5
3-Nitroaniline	EPA 8270E_6_(6/18)	5
4,6-Dinitro-2-methylphenol	EPA 8270E 6 (6/18)	5
4-Bromophenyl phenyl ether (BDE-3)	EPA 8270E 6 (6/18)	5
4-Chloro-3-methylphenol	EPA 8270E 6 (6/18)	5
4-Chloroaniline	EPA 8270E 6 (6/18)	5
4-Chlorophenyl phenylether	EPA 8270E 6 (6/18)	5
4-Nitroaniline	EPA 8270E 6 (6/18)	5
4-Nitrophenol	EPA 8270E 6 (6/18)	5
Acenaphthene	EPA 8270E 6 (6/18)	5
Acenaphthylene	EPA 8270E 6 (6/18)	5
Aniline	EPA 8270E 6 (6/18)	5
Anthracene	EPA 8270E_6_(6/18)	5
Azobenzene	EPA 8270E 6 (6/18)	5
Benzidine	EPA 8270E 6 (6/18)	5
Benzo(a)anthracene	EPA 8270E 6 (6/18)	5
Benzo(a)pyrene	EPA 8270E 6 (6/18)	5
Benzo(g,h,i)perylene	EPA 8270E 6 (6/18)	5
Benzo(k)fluoranthene	EPA 8270E 6 (6/18)	5
Benzo[b]fluoranthene	EPA 8270E 6 (6/18)	5
Benzoic acid	EPA 8270E 6 (6/18)	5
Benzyl alcohol	EPA 8270E 6 (6/18)	5
bis(2-Chloroethoxy)methane	EPA 8270E 6 (6/18)	5
bis(2-Chloroethyl) ether	EPA 8270E_6_(6/18)	5
Butyl benzyl phthalate	EPA 8270E 6 (6/18)	5
Carbazole	EPA 8270E 6 (6/18)	5
Chrysene	EPA 8270E_6_(6/18)	5
Di(2-ethylhexyl)adipate	EPA 8270E 6 (6/18)	5
Di(2-ethylhexyl)phthalate, [Bis(2-ethylhexyl) phthalate], [DEHP]	EPA 8270E_6_(6/18)	5
Dibenz(a,h) anthracene	EPA 8270E 6 (6/18)	5
Dibenzofuran	EPA 8270E 6 (6/18)	5
Diethyl phthalate	EPA 8270E 6 (6/18)	5
Dimethyl phthalate	EPA 8270E 6 (6/18)	5
Di-n-butyl phthalate	EPA 8270E 6 (6/18)	5
Di-n-octyl phthalate	EPA 8270E 6 (6/18)	5
Diphenylamine	EPA 8270E 6 (6/18)	5
Fluoranthene	EPA 8270E 6 (6/18)	5
Fluorene	EPA 8270E_6_(6/18)	5
Hexachlorobenzene	EPA 8270E 6 (6/18)	5
Hexachlorobutadiene	EPA 8270E 6 (6/18)	5
Hexachlorocyclopentadiene	EPA 8270E 6 (6/18)	5
Hexachloroethane	EPA 8270E 6 (6/18)	5

Matrix/ Analyte	Method	Note
Solid and Chemical Materials		
Indeno(1,2,3-cd) pyrene	EPA 8270E 6 (6/18)	5
Isophorone	EPA 8270E 6 (6/18)	5
Naphthalene	EPA 8270E 6 (6/18)	5
Nitrobenzene	EPA 8270E 6 (6/18)	5
n-Nitrosodimethylamine	EPA 8270E 6 (6/18)	5
N-Nitroso-di-n-propylamine	EPA 8270E_6_(6/18)	5
n-Nitrosodiphenylamine	EPA 8270E 6 (6/18)	5
Pentachlorophenol	EPA 8270E 6 (6/18)	5
Phenanthrene	EPA 8270E_6_(6/18)	5
Phenol	EPA 8270E 6 (6/18)	5
Pyrene	EPA 8270E 6 (6/18)	5
Pyridine	EPA 8270E 6 (6/18)	5
Particle Size Distribution	ASTM D422	1
Ignitability	ASTM D93-02	
Ignitability	EPA 1010A - 2002	

Accredited Parameter Note Detail

(1) Accreditation based in part on recognition of Perry Johnson DoD accreditation. (2) Accreditation is limited to liquid matrix only. (3) Provisional accreditation pending submittal of acceptable corrective action report. (4) The Laboratory is permitted to use BOD7 under 40cfr417 for use in monitoring the effluent discharges from soap and detergent manufacturing point sources. (5) Accreditation based in part on recognition of Oregon NELAP accreditation. (6) Modified EPA 3C for helium analysis. (7) Provisional accreditation pending acceptable audit corrective actions. (8) Provisional pending resolution of Technical report findings. (9) Interim accreditation pending the successful completion of an on-site audit to verify method capabilities (WAC 173-50-100). (10) Provisional accreditation pending submittal of acceptable QA/QC and SOP documents. (11) Not approved for total coliform regulatory samples under 40CFR136. (88) Interim Washington accreditation pending receipt of an updated Scope from your ORELAP accreditation. This accreditation is based in part on recognition of your currently held accreditations for previous method versions.



Authentication Signature
Rebecca Wood, Lab Accreditation Unit Supervisor

07/10/2025

Date

Appendix F

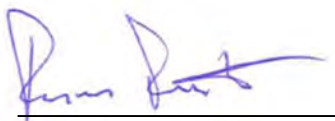
Stantec's Site-specific *Health and Safety Plan*

Health and Safety Plan

DeBocks Main Street Texaco Site
100 West, 101 East, and 101 West Wine Country Road
Grandview, Washington

Revision: June 5, 2025

Emergency Contact Information:



Ryan Pozzuto — June 5, 2025 (Date)

(206) 510-5855
Telephone Number

Stantec Approval:



Laina Cole — June 5, 2025 (Date)
(253) 247-1466
Telephone Number

Amendments or modifications to this plan may be written on a separate page and attached to this plan. Any amendments or modifications must be reviewed and approved by the personnel named above.

Safety Objectives

1. The first and foremost priority during this project is to maintain a safe and healthy work environment.
2. Work will not be performed until every necessary safety precaution has been taken.
3. No project objectives will knowingly be allowed to put at risk human health or the environment.

Document History

Version	Effective Date	Description of Revision	
v13	11/11/2015	Includes 2015 OIMS Upgrades	
		4.5	Chemical Use – Added secondary containment instructions
		9.2.1	Site Security – Updated
		9.2.2	Personal Security – Added undocumented immigrants action
		9.2.6	Limited or No Cell Service – New
		9.3	Neighborhood Impact – New
v14	06/06/2016	9.2.1	Site Security – Added OIMS Risk Assessment
		9.3	Neighborhood Impact – Updated
v15	09/18/2018	Includes 2017 and 2018 OIMS Upgrades	
		1.2	Confined Space Entry – Removed Corporate approval for non-permit required work
		1.3	Life Saving Actions – Replaced Core Safety Expectations with Life Saving Actions
		3.1	Employee and Worker Training – LPS and Work Permit refreshers to 3 years
		3.4	Work Permit System – Removed Subsurface and added LO/TO, replace Critical Lift with Cranes and Lifting
		4.6	Fall Protection – Added ExxonMobil Working from Heights definitions
		6	PPE – Modified goggle requirement to apply to liquids, not anytime we are working with soil
		9.1	Work Zones – New General, Drilling, and HEEZ
		10.3	Possible Explosive Atmospheres – Updated LEL to 5%
		10.5	Heat Stress Program – Revised 8/24/18
		B	ExxonMobil Work Permit Forms – Replaced with new forms
		G	Heat Stress Protocol – Revised 8/24/18
v16	01/10/2020	Emergency telephone numbers and routes to occupational clinic and hospital moved to beginning of document	
		1.3	Life Saving Actions – Updated Life Saving Actions
		6	PPE – Modified minimum PPE requirements including potential downgrades
		7.3	Respirator – Added checks throughout day, increase during hot/humid conditions
		9.1	Works Zones – New Working Near Moving Equipment and Overhead Electrical Lines
V17	03/21/2023	Removed Cardno references and replaced with Stantec. Removed Core Health and replaced with WorkCare.	
		4.4.11	Asbestos – Added wording regarding compliance with all laws and training requirements
		4.4.13	Chloride – Added a chloride section
		6	Fixed Appendix reference
		H	Fixed typo
V17.1	04/27/2023	10.3	Update LEL stop work to 5%
		A	Replaced with updated tailgate form (2023)
		B	Replaced with updated ExxonMobil Work Permit Forms (2021)
		D	Updated Care Management contact number to WorkCare

Emergency Telephone Numbers

On-site Emergency Contact (if available at operating facility) ..... N/A

Fire and Police 911

Local Police Number ..... (509) 882-2000

Local Fire Department Number ..... (509) 882-9224

Stantec Nurse ..... (888) 449-7787

Employees who require first aid/medical treatment which is not life threatening are to use the listed occupational medical clinic during hours of operation. When work is occurring outside operational days and times of the listed occupational clinic, employees are directed to seek medical professional assistance at the hospital's emergency services location as the 24-hour alternative listed below.

Occupational Medical Clinic ..... (509) 837-1500

Sunnyside Community Hospital
1016 Tacoma Avenue
Sunnyside, WA 98944

Hospital ..... (509) 882-1855

Astria Health Center – Grandview
208 N Euclid St
Grandview, Washington 98930

Local Public Utility Service Providers:

Gas – Cascade Natural Gas ..... (888) 522-1130

Electric Utility – Pacific Power ..... (888) 221-7070

Sewer/Water – Grandview City Utilities ..... (509) 882-1895

Cable/TV – CenturyLink ..... (833) 690-5999

Telecommunications – CenturyLink ..... (833) 690-5999

Neighbor Contact Numbers: (Client Approval Required)

Does the project require neighbors contact information to be provided in this plan Y/N? No

Additional Contingency Telephone Numbers

Stantec, Bellevue, Washington ..... (425) 289-7300

ExxonMobil (Christopher Gaul) ..... (908) 350-6348

Washington Occupational Safety and Health Program (WISHA) ..... (360) 902-5580

Chemical Transportation Emergency Center (CHEMTREC) ..... (800) 424-9300

Note: CHEMTREC is a public service of the American Chemistry Council (formerly known as the Chemical Manufacturers Association). CHEMTREC can usually provide hazard information, warnings, and guidance when given the identification number or the name of the product and the nature of the problem. CHEMTREC can also get personnel in contact with the appropriate experts.

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Emergency Route to Occupational Medical Clinic

Google Maps

101 E Wine Country Rd, Grandview, WA 98930 Drive 7.3 miles, 15 min
to 1016 Tacoma Ave, Sunnyside, WA 98944



Map data ©2025 , Map data ©2025 Google 1 mi

101 E Wine Country Rd
Grandview, WA 98930

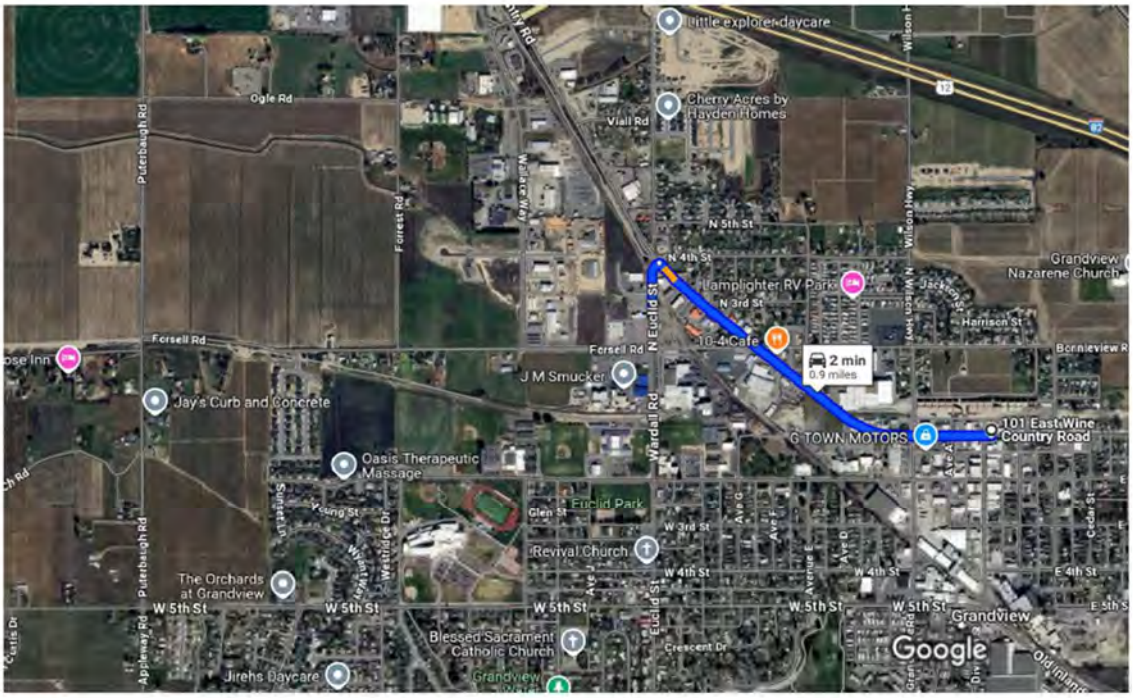
1. Head west on E Wine Country Rd toward Division St — 1.6 mi
2. Continue onto Yakima Valley Hwy — 4.3 mi
3. Turn left onto E Lincoln Ave — 0.9 mi
4. Turn right onto 13th St — 0.2 mi
5. Turn left onto Tacoma Ave — 0.2 mi
6. Turn right — 39 ft
7. Turn left
   Destination will be on the right — 62 ft

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Emergency Route to Hospital

Google Maps

101 E Wine Country Rd, Grandview, WA 98930 Drive 0.9 mile, 2 min to Astria Health Center - Grandview, 208 N Euclid St, Grandview, WA 98930



Imagery ©2025 Airbus, Maxar Technologies, USDA/FPAC/GEO, Map data ©2025 Google 1000 ft

101 E Wine Country Rd
Grandview, WA 98930

1. Head west on E Wine Country Rd toward Division St
   0.8 mi
2. Sharp left onto N Euclid St/Wardall Rd
   Destination will be on the right
   0.1 mi

Astria Health Center - Grandview
208 N Euclid St, Grandview, WA 98930

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Appendix J Care Management Forms

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1 Introduction

101 W. Wine Country Road is located on the northwest corner of Wine Country Road and Division Street (and consists of one parcel (Parcel #230923-12555) totaling 0.24 acres. The Site is developed with two buildings: a 1,474-square-foot wood frame building constructed in 1950 in the south-central portion of the property and a utility building constructed in 1979 in the northern portion of the property. A concrete paved parking area is located west of the main building. The northern half of the Site is partially gravel covered or paved. The property is bounded by Division Street to the east, by a gravel access road and vacant land to the north, by the Grandview Museum and parking lot property to the west and by Wine Country Road to the south. A stormwater infiltration trench is located beneath the roadway adjacent to the southern property boundary.

The historical land uses at this property included automotive service and gasoline fueling operations in the southern portion of the property in the general area of the existing building from approximately the early 1940s through the 1980s and an oil depot with a fuel loading rack located in the northeastern corner of the property. A 2021 geophysical survey identified subsurface anomalies in the northern portion of the property that could potentially be an underground storage tank (UST) or a former tank cavity. Historical records indicate improvements were made to the property that included installation of two 5,000-gallon USTs, one 10,000-gallon UST, and one 15,000-gallon UST. The owner of the property reported that USTs were removed in 1978 at the time of the purchase, but no UST closure documentation was available. Evidence of disturbed soils were noted east of the concrete pad during the geophysical survey which could be associated with a tank cavity.

101 E. Wine Country Road is located on the northeast corner of Wine Country Road and Division Street. The property consists of an 0.11-acre parcel (Parcel #230923-12401) developed with a 1,372- square-foot wood framed building constructed in 1979. Currently, a real estate office (Wine Country Real Estate) occupies the building. The property is bounded to the south by Wine Country Road, to the east by a hardware store, to the west by Division Street, and to the north by the property’s asphalt- paved parking lot and a small storage building built in 1920 (105 N. Division Street; Parcel #230913- 12534). A geophysical survey conducted in April 2021 did not identify potential indicators of an existing or former UST or fuel lines at the property. Provide brief description of known site conditions:

Two stormwater dry wells were identified on the east and west sides of Division Street. The City of Grandview (City) Public Works Department reported that these dry wells are 6-foot deep, 2-foot diameter concrete structures that allow stormwater infiltration to prevent localized ponding.

This health and safety plan (HASP) was created in compliance with the Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120 relevant state regulatory codes to describe the safety and health requirements of each phase of operation including the requirements and procedures for employee protection. The provisions set forth in this plan apply to the employees of Stantec and its subcontractors working to conduct the following tasks: groundwater monitoring and sampling. Subcontractors may elect to modify these provisions or have a separate supplemental health and safety plan, but only to upgrade or increase the safety requirements, and only with the concurrence of Stantec, as designated and accepted in writing.

This HASP will address the expected potential hazards that may be encountered at the work site for this project. If changes in site or working conditions occur as activities progress, addenda to this plan will be provided by Stantec.

This HASP must be on site anytime employees are present to work at or access the site.

1.1 Authority for Site Safety

The Project Manager and the Site Supervisor are responsible for project safety. The Stantec Health, Safety, Security, and Environment (HSSE) team is responsible for the overall Stantec Health and Safety Program and may choose to audit the site for compliance and take appropriate action to correct deficiencies. The Project Manager is responsible for implementing the provisions of this plan, for providing a copy of this plan to the Site Supervisor, and for advising the Site Supervisor on health and safety matters. The Project Manager and Site Supervisor have the authority to audit site activities for compliance with the provisions of this plan. They may suspend or modify work practices or dismiss subcontractors whose conduct does not meet the requirements specified in this plan.

The Site Supervisor is responsible for communicating the information contained in this plan to Stantec personnel assigned to this project and to the responsible representative of each subcontractor working for Stantec on this project.

The Site Supervisor will be the senior Stantec employee on site and is responsible for addressing the following items:

- Implementing this HASP, company policies, and procedures
- Requiring and maintaining adequate safety supplies and equipment inventory on site
- Conducting daily safety and orientation meetings and advising workers regarding hazards
- Site control, decontamination, and contamination reduction procedures
- Reporting accidents or incidents
- Conducting inspections to determine the effectiveness of the HASP and to report any deficiencies to the Stantec HSSE Representative for correction
- Evaluate presentation of site safety and orientation meeting by Short Service Worker (SSW) if present. An SSW is an employee or subcontractor employee that meets at least one of the follow criteria:
    - » An employee who has not graduated to a Site Safety Mature Person
    - » A worker who has previously worked for ExxonMobil but has not done so for more than 2 years.

The Site Supervisor does not act as the Confined Space Supervisor for subcontractor work.

All personnel working on site have the authority to suspend work at any time that he or she finds the provisions of the plan are inadequate for worker safety. The Site Supervisor will promptly inform the Project Manager and the Stantec HSSE Representative of deficiencies within the plan or individuals or subcontractors whose conduct is not consistent with the requirements of this plan.

1.2 Confined Space Entry

Stantec personnel are not allowed to enter or perform work in an OSHA permit-required confined space without direct authorization from an Officer of Stantec. A separate confined space entry permit will need to be completed

for Stantec personnel to conduct work. This HASP does not cover confined space hazards, protocols, or emergency procedures. Subcontractors who are under contract to conduct confined space entry are required to have their confined space entry site safety plan sent to Stantec prior to commencing with any work. Their site safety plan will be on site and will be the governing document to be followed for specific task(s) involving permit-required confined space entry.

1.3 Life Saving Actions

Stantec personnel are required to ensure our personnel along with any division of Stantec or our subcontractors strictly adhere to ExxonMobil's Life Saving Actions. Intentional failure to comply with the following Life Saving Actions is grounds for immediate dismissal from the project site with additional internal disciplinary or contractual actions being taken depending on the affiliation of the offending party. Immediate reporting of Life Saving Action violations is to be made to your Program Manager or the Stantec HSSE Representative. The eight Life Saving Actions are:



1. **Prevent Falls & Dropped Objects**: Use fall protection; secure tools and materials
2. **Protect from Moving Equipment/Vehicles**: Establish and control red zones and/or traffic
3. **Restrict Access to Suspended Loads**: Establish and control crush and drop zones
4. **Dig with Caution**: Locate underground hazards, prevent collapse
5. **Isolate Energized Systems**: Lock out, tag out, confirm zero energy state
6. **Prevent Hot Work Explosions/Fires**: Remove flammable materials; gas test
7. **Establish/Maintain Safe Confined Space**: Test and monitor atmosphere
8. **Respect Critical Safety Devices**: Follow defeat procedures

2 Medical Surveillance

Stantec personnel and subcontractors engaged in Hazardous Waste Operations and Emergency Response (HAZWOPER) project activities must participate in a medical surveillance program and must be cleared by the examining physician(s) to wear respiratory protection devices and protective clothing for working with hazardous materials. The applicable requirements under applicable state regulatory codes and 29 CFR 1910.120 will be observed.

3 Safety and Orientation Meeting

Stantec field personnel and subcontractors will attend a safety and orientation meeting (meeting) for safety and health issues and will review the project tasks before beginning work. The meeting will review the applicable sections of this HASP and include the completion of the Daily Site Safety Meeting Engagement Form (Appendix A). The meeting will be led by the SSW (if present), Project Manager, or Site Supervisor.

3.1 Employee and Worker Training

During the safety and orientation meeting described in Section 3, the Site Supervisor will confirm all employees and subcontractors working on site have the following current certifications of employee training depending on work being performed and exposure risk.

1. **40-hour HAZWOPER card or certificate:** Initial (with three days of documented supervision) or 8-hour refresher card (renewed annually) for general site workers. These workers engage in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances.

2. **Workers who are engaged in activities which will not expose or potentially expose** workers to hazardous substances over the permissible exposure limits (PELs) are not required to have HAZWOPER certification. Typical activities where this would occur are subcontractors for: land surveying, geophysical surveying, landscaping services, asphalt/concrete work (does not include saw cutting), crane operations, deliveries of equipment or materials, or trucking operations where drivers remain in their cab during loading or unloading operations. Additionally, workers that will not be exposed to impacted vapor, soil, or water (including groundwater) and will not enter remediation compounds.

3. **Current LPS Certification:** Current Loss Prevention System (LPS) certification is required for all workers on site. There are three levels of certification available: Manager/Supervisor, Standard, and Basic (<6 months on site in a calendar year). Stantec will have at least one person trained to the Manager/Supervisor level. Basic training will be allowed based on risk as determined by Stantec and the client Project Manager. Certification is not required for equipment or material delivery services, such as FedEx, UPS, rental equipment, regulatory agency representatives, or property owners.

4. **First Aid/CPR:** At least one employee or subcontractor will be certified in first aid and CPR (cardiopulmonary resuscitation) and be available on site while work is being conducted per 10 employees.

5. **ExxonMobil Work Permit Training:** Work permit issuance requires training for two roles: only personnel trained as the issuer or the recipient are allowed to issue or receive permits, respectively. Refresher training is required every 3 years.

6. **Tools and Equipment:** All personnel operating tools and equipment shall be deemed competent by their employer and shall show proof of training prior to engaging those activities requiring that expertise.

Employees or subcontractors who cannot provide proof of training **are not allowed** on site or within the exclusion zone and **are not permitted to conduct any work**.

3.2 Site Visitors

Any personnel or visitors who wish to gain access to established exclusion zones must obtain the authorization of the Site Supervisor, are required to attend the safety and orientation meeting, and meet all other

requirements listed within this HASP, such as wearing required personal protective equipment (PPE) as established by the JLA(s). Training requirements are addressed in Section 3.1.

Authorized visitors to the exclusion zone are the client and federal, state, or local government agents. Other visitors may be authorized to enter the exclusion zone at the discretion of the Site Supervisor, but work must be stopped before entry. If visitors do not meet the minimum requirements as listed within this HASP, they are not allowed within exclusion zones.

3.3 Emergency Relocation Area

In the event that there is an emergency where a fire, significant release, or safety hazard exists at the site, all personnel will assemble at the location identified during the safety and orientation meeting. Factors to consider are:

- Direction of wind (locate up wind)
- Proximity to traffic (should not be in the way of emergency vehicles or exposed to street vehicle hazards)
- Presence of overhead structures (avoid)

Location of emergency (should be at a sufficient distance from the incident area that personnel won't be affected, and not be downhill where a release could move towards you).

3.4 Work Permit System

Evaluation of site activities requires the issuance and compliance with ExxonMobil's work permit system. A blank work permit is included in Appendix B. A work permit must be issued for any work conducted on site, except for low-risk activities such as:Site visits

- Visual inspection of equipment
- LPS Tasks
- Surveying (i.e., line location)
- Snow removal
- Lower risk commercial site maintenance
- Mowing at a non-operational facility
- Drum pick up
- Equipment delivery only

If any of the activities listed below are preformed, they will need to have the respective High Risk Checklist (HRC) completed along with the work permit:

- Hot Work
- Lock-Out/Tag-Out
- Confined Space / Permit-Required Confined Space Entry
- Working at Heights
- Cranes and Lifting

It is the responsibility of the permit issuer to complete the work permit and any supplemental HRCs if required by work task. Upon completion, the permit issuer and recipient will review and sign off on the permit before work starts. By approving the permit, the issuer and recipient are agreeing that all site conditions are safe to conduct work. It is the permit recipient's responsibility to share the work permit information to all employees and subcontractors working on site and confirm their knowledge of the permit operational and stop work conditions. The permit issuer is responsible for verifying permit conditions, and documenting on the work permit in the Section G (Permit Compliance Inspection) within the first four hours of operations. A compliance inspection is not required for lone workers, or if the work will be less than four hours in duration. Upon completion of the permitted task, the permit issuer and recipient must close out the permit and HRCs (if applicable), confirming the project site is safe and secure.

3.5 Cell Phone Use Policy

Cell phones are allowed on site and in the exclusion zone under the provisions outlined in this section.

No cell phones will be answered inside a work area or exclusion zone, not including the O&M exception.[6]

No cell phones are allowed in environments where there is a possible explosive atmosphere.

Cell Phone Use - Mandatory On-Site Policy:

1. Cell phones are to be put on vibrate.
2. Cell phones can be used as timekeepers.
3. When a call comes in and it is SAFE to do so:
   a. Silence your alarm.
   b. Call stop work when there is a logical break in work process and you are able to get the attention of any employee and/or subcontractors without creating a hazard.
   c. Once work is stopped, leave the exclusion zone and go to a safe location to return the call. A safe location is defined as an area outside the exclusion zone or work area, out of traffic paths, and out of any line-of-fire risks.
4. Follow steps 3(b) and 3(c) if you want to initiate a call; this applies to all on-site personnel.
5. This policy is to be covered during the safety and orientation meeting.
6. O&M personnel are allowed to use cell phones inside a compound to make an emergency call or troubleshoot equipment.

4 Hazard Risk Assessment

4.1 General

The major hazards expected to be encountered on this project are addressed in the task-specific Job Loss Analysis (JLA) sheets included in Appendix C. The JLAs, depending on the task(s), may list additional PPE not identified in this HASP. Wear the highest level of protection prescribed by either document.

The major chemicals expected to be encountered on this project are fuel-related hydrocarbon compounds. Anticipated chemicals and their exposure standards are listed in Table 1 (Section 4.4).

Potential levels of exposure are not anticipated to reach the PEL or threshold limit values (TLV). Inhalation and dermal contact are the most prevalent exposure pathways. Protective clothing will be mandatory for field personnel as specified in Section 6.

Respiratory protective devices are required to be worn by each person on site or to be within easy reach should monitoring of breathing air approach any PELs, irritating odors are detected, or irritation of the respiratory tract occurs.

Hearing conservation program adherence is mandatory to comply with this HASP (Section 8). The anticipated level and duration of noise exposure and which hearing protective devices will be worn will be discussed during the safety and orientation meeting.

4.2 Biological

For the purposes of this HASP, biological hazards presented in this section are for commonplace hazards which can be present at any work site (e.g., biting and stinging insects, blood borne pathogens, or infectious agents). Additional information incorporating geographic specific biological hazards such as venomous snakes, stinging and biting insects, and poisonous flora and fauna are incorporated into Appendix D – Geographic Biological Hazards Information Sheets. It is required that geographic-specific biological hazards that could be encountered are identified and are referenced in Appendix D.

4.2.1 Stinging and Biting Insects

While everyone considers being bitten or stung by an insect unpleasant, we need to be aware of the more serious ramifications of such events. Here are a few tips on how to avoid being bitten or stung:

- Wear gloves, long sleeves, neck covering, and pants.
- Tuck pants into boots or socks.
- Wear white or light colors.
- Do not wear cologne or perfume.
- Use insect repellent.
- Do not swat at insects.
- Do not reach under objects that you have not inspected first.
- Adjust working time to early morning or late afternoon when insects are less active.
- Keep sites maintained by minimizing brush and tall grass

If a nest or excessive number of stinging or biting insects are identified on site, work shall be stopped. The Project Manager shall be notified and options for reducing exposure to the insects, such as avoiding the area or having the nest removed shall be evaluated.

One serious consequence of insect stings is anaphylaxis, a severe life-threatening allergic reaction. Symptoms of anaphylaxis include feeling faint or passing out, difficulty breathing, swelling of the tongue, hives, wheezing, and/or coughing. Symptom onset may occur within seconds and usually within twenty minutes. Individuals who

have had severe reactions to previous stings should keep an anaphylaxis kit (e.g., Ana-Kit or Epi-Pen) nearby if there is any risk of a sting. If stung, epinephrine should be injected into the muscle of the upper outer thigh. Any individual requiring use of an anaphylaxis kit requires a 911 call or facility emergency response number to be placed.

For non-anaphylaxis reaction, application of ice to the sting location can help minimize the effects of the poison as well as taking an over-the-counter antihistamine. If an employee or subcontractor is stung, the care management practices described in Section 13 of this plan shall be followed.

4.2.2 Infectious Agents

Serious illness can occur after exposure to various infectious agents found in some rodent and bird droppings. One situation to be concerned about is a site covered in large amounts of droppings from rodents or pigeons. This situation typically occurs at closed or vacant sites where structures have not been occupied for long periods of time.

When droppings are disturbed, in addition to dust and other materials becoming airborne, various fungi, bacteria, and viruses are also typically put into the air, which can be breathed in by the worker. Prohibited actions include:

- Entering buildings with visible dropping on horizontal surfaces.
- Dry sweeping in locations where bird and rodent dropping are present.

Three human diseases are known to be associated with pigeon droppings: histoplasmosis, cryptococcosis, and psittacosis. Hantavirus Pulmonary Syndrome (HPS), a rodent-related infection, is a potentially deadly respiratory illness caused by certain types of Hantaviruses, which are viruses found in the saliva, urine, and droppings of some rodents.

When large quantities of droppings are present, stop work and have the site evaluated. Have the droppings removed and disposed of by a professional before continuing work.

4.2.3 Blood Borne Pathogens

Treat all human blood and body fluids as if they are infected. Blood and body fluids can be present on surfaces where an injury occurred, discarded clothing, or drug paraphernalia such as needles and glass pipes. Take the following precautions when assisting someone when there is the potential to come into contact with bodily fluids or if impacted materials are present on site:

- Cover cuts, rashes, and broken skin.
- Wash your hands and exposed skin with soap and water or an alcohol-based disinfectant hand rub immediately after exposure to infectious fluids.
- Use a disinfectant solution to clean and decontaminate any area where fluids have spilled.
- Avoid splashes and spills of body fluids.
- Use a pocket mask or other protective device if performing CPR.
- Do not handle soiled clothing or drug paraphernalia found on site, exclude the location the item was found from the work area, and notify the property owner of its presence. In no cases should the employee handle and dispose.

4.3 Assured Grounding Program

At no time is an employee of Stantec or a subcontractor of Stantec to jeopardize themselves or other site workers by using electrical equipment without being tested for ground faults prior to being used. All 120-volt, alternating current, single-phase, 15- and 20-ampere receptacle outlets will have approved ground-fault circuit interrupters (GFCI) for personnel protection. Receptacles on a two-wire, single-phase portable, or vehicle-mounted generator rated not more than 5 kilowatts (kW), where the circuit conductors of the generator are insulated from the generator frame and all their grounded surfaces, will also require ground-fault circuit interruption protection.

This Assured Equipment Grounding Conductor Program (AEGCP) will be used in conjunction with GFCIs for ground-fault protection. The following minimum requirements apply:

- The Site Supervisor and whomever will be operating the electrical equipment must conduct an inspection of the equipment prior to each use.
- The inspection will cover all cord sets, attachment caps, plugs, receptacles, and any equipment connected by a cord and/or plug. If any external damage (e.g., deformed or missing pins, damaged insulation) or internal damage is found, take the equipment out of use until it is repaired.

4.4 Chemical Descriptions/Exposure

This section describes the prevalent chemical compounds found in fuel-related hydrocarbons. It provides the chemical name, a physical description, fire or explosion hazards, incompatible materials, common exposure symptoms, target organs affected, and routes of exposure. Refer to the safety data sheets (SDS) in Appendix E for more information on select chemicals. Exposure limits for anticipated chemicals are summarized in Table 1.

Table 1 Exposure Limits of Anticipated Chemicals

Chemical	PEL[A]	TWA[A]	STEL[A]	OEL[A] TWA	OEL[A] STEL
Benzene[1] [skin] & [carc]	1	0.1	1	---	---
Ethanol [skin]	1,000	1,000	---	---	---
Ethylbenzene [skin]	100	100	125	434[B]	---
Gasoline[2]	300	300	500	100	200
Hydrogen Sulfide	20	10	15	5	10
Methyl Tertiary Butyl Ether [carc]	10	10	15	---	---
Naphthalene	40	40	---	52[B]	---
Tetraethyl lead [skin]	0.075[B]	0.075[B]	---	---	---
Toluene [skin]	50	100	150	75[B]	---
Xylene (m, o, & p isomers) [skin]	100	100	150	---	---

OEL = Occupational exposure limits established by ExxonMobil issuance: 7/13/2012
PEL = Permissible exposure limit: 8-hour, time-weighted average (Occupational Safety and Health Administration [OSHA])
STEL = Short-term exposure limit: time-weighted average (ACGIH)
TWA = Time-weighted average: 8 hour, [same as TLV], American Conference of Governmental Industrial Hygienists [ACGIH])
[carc] = Substance identified as a suspected or confirmed carcinogen
[skin] = Substance may be absorbed through the skin, the mucous membranes, or the eyes.
1 = Federal OSHA benzene limits given for PEL and STEL; STEL has a 50-minute duration limit
2 = Federal OSHA gasoline limit given for PEL; STEL is the same for FED-OSHA and ACGIH
--- = No exposure limits published for the listed chemical
A = All chemical concentrations are in parts of gas or vapor per million parts air (ppmv) unless otherwise noted
B = Milligrams of substance per cubic meter of air (mg/m^3)
C = Measured as fiber per cubic centimeter of air

Brief descriptions of the physical characteristics, incompatibilities, toxic effects, routes of entry, and target organs (Sections 4.4.1 through 4.4.13) were summarized from the *NIOSH Pocket Guide to Chemical Hazards*. This information is used in safety and orientation meeting to alert personnel to the hazards associated with expected contaminants.

4.4.1 Benzene

Benzene is a colorless aromatic liquid that may create an explosion hazard. Benzene is incompatible with strong oxidizers, chlorine, and bromine with iron. Benzene is irritating to the eyes, nose, and respiratory system. Prolonged exposure may result in giddiness, headache, nausea, staggering gait, fatigue, bone marrow depression, or abdominal pain. Routes of entry include inhalation, absorption, ingestion, and skin or eye contact. The target organs are the blood, central nervous system (CNS), skin, bone marrow, eyes, and respiratory system. Benzene is carcinogenic.

4.4.2 Ethylbenzene

Ethylbenzene is a colorless aromatic liquid that may create an explosion hazard. It is incompatible with strong oxidizers. Ethylbenzene is irritating to the eyes and mucous membranes. Prolonged exposure may result in headache, dermatitis, narcosis, or coma. Routes of entry include inhalation, ingestion, and skin or eye contact. The target organs are the eyes, upper respiratory system, skin, and CNS.

4.4.3 Toluene

Toluene is a colorless aromatic liquid that may create an explosion hazard. Toluene is incompatible with strong oxidizers. Prolonged exposure may result in fatigue, confusion, euphoria, dermatitis, or photophobia. Routes of entry are inhalation, absorption, ingestion, and skin or eye contact. The target organs are the CNS, liver, kidneys, and skin.

4.4.4 Xylene Isomers

Xylene is a colorless aromatic liquid that may create an explosion hazard. Xylene is incompatible with strong oxidizers. Xylene is irritating to the eyes, nose, and throat. Prolonged exposure may result in dizziness, excitement, drowsiness, staggering gait, corneal vacuolization, vomiting, abdominal pain, or dermatitis. Routes of entry are inhalation, absorption, ingestion, and skin or eye contact. The target organs are the CNS, eyes, gastrointestinal tract, blood, liver, kidneys, and skin.

4.4.5 Methyl Tertiary Butyl Ether

Methyl tertiary butyl ether (MTBE) is a colorless aromatic liquid that can create an explosion hazard. It is incompatible with strong oxidizers and acids. Inhaling vapors can irritate the respiratory tract and cause CNS defects. Breathing high concentrations in the air can cause lightheadedness, dizziness, weakness, nausea, and headache. Routes of entry are ingestion, skin, and eye contact. MTBE is a potential human carcinogen.

4.4.6 Naphthalene

Naphthalene is a colorless to brown solid with an odor of mothballs. Naphthalene is a flammable solid, which is highly reactive with oxidizing agents. It is very hazardous in case of ingestion. It is hazardous in eye contact, inhalation, and skin contact as an irritant. It is toxic to the blood, kidneys, CNS, liver, mucous membranes, gastrointestinal tract, and upper respiratory tract. Routes of entry are dermal contact, eye contact, inhalation, and ingestion. Naphthalene is a carcinogen.

4.4.7 Ethanol

Ethanol is a colorless liquid with a pleasant alcoholic odor detectable at 49 to 716 parts per million by volume (ppmv). Ethanol is an extremely flammable liquid and vapor. In vapor form, it can flash fire. It is stable under normal ambient conditions. Avoid mixing with strong oxidizing agents. Ethanol is an eye irritant, and contact may cause stinging, watering, redness, and/or swelling. Skin contact may cause redness, itching, burning, and skin damage. There is low to moderate exposure of toxicity through inhalation and ingestion. Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, vomiting, flushing, transient excitement followed by signs of nervous depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation, and fatigue), blurred vision, drunkenness, stupor, tremors, respiratory failure, unconsciousness, convulsions, and death. Target organs are the CNS, stomach, liver, male reproductive system, and heart.

4.4.8 Tetraethyl lead

Tetraethyl lead is a colorless liquid or is dyed red, orange, or blue with a slight musty odor. It is a class two flammable combustible liquid. Vapors may travel back to source and flash back. It is not compatible with oxidizing agents and class three reactive materials, and it may explode in a fire. Symptoms of exposure are irritation to the eyes, with possible loss of vision, and irritation to the nose and throat, causing coughing and wheezing. High exposure can cause headaches, irritability, reduced memory, disturbed sleep, tiredness, personality changes, convulsions, and death. Repeated exposure can lead to lead poisoning. Target organs are the blood cells, brain, and kidneys. Routes of exposure are inhalation, dermal contact, and ingestion.

4.5 Chemical Use and Storage

Pursuant to the hazard communication standard, chemicals being brought on site by Stantec employees or subcontractors must be evaluated for safe use, handling, and storage requirements. Each chemical must have an accompanying SDS. Each SDS shall be reviewed for PPE, correct application, handling, storage, and spill response requirements prior to any chemical(s) being used. For questions and concerns on chemicals being brought on site, contact your HSSE Representative. The SDS information is located in Appendix E for site contaminants and company-purchased chemicals. The SDS information for subcontractor chemicals shall be managed by the subcontractor and available on site.

If secondary containers are used for holding the chemical on site, the container will be compatible with the material and have the following warning chemical information on the label: chemical name, all its physical hazards and health hazards; and PPE requirements in alignment with Stantec's HMIS (hazardous materials identification system) labeling policy.

4.6 Fall Protection

All employees who use ladders (fixed or extension) or work from elevated platforms where the distance to the next level below is greater than 6 feet will implement fall protection and safe work practices described in the following subsections. Fall protection should also be used when:

- Working above 6 feet without guardrails.
- Working over water.
- Working less than 6 feet from an unguarded edge.
- Working on a roof with a grade more than 20% or less if slippery.
- Climbing a ladder above 20 feet.

4.6.1 Ladder Safety

Use of ladders where the operator is higher than 6 feet and working from the ladder will require fall restraint or fall arrest system PPE to be utilized.

- All ladders will be inspected before use, any damage or missing slip resistant shoes, lose or missing rungs, for A frame ladders damaged or missing locks will render the ladder inoperable and be tagged and removed from service.
- Metal/conductive ladders will not be used around electrical work or overhead lines.
- Manufacturer information must be legible and followed in order to use the ladder.
- Extension ladders must maintain the 4:1 ratio, must extend 3 feet above elevated surface and be tied off or secured by a second person.
- A frame warning must be followed and not work above manufacturer recommendations.
- A frame ladders must be completely extended and locked out before use.
- All ladders must be set on firm surfaces, clear of obstructions, and not on slick surfaces.
- Weight limits of ladders must be followed and to include any tools or materials being carried.
- Three points of contact (two hands with one leg or one hand with two legs) must be maintained at all times when climbing up or down the ladder.
- Ladder must be faced at all times.

4.6.2 Elevated Platforms

Elevated platforms for the purposes of this HASP will include work on scaffolds, aerial lifts, man baskets, powered industrial trucks, roofs, ladder jacks, raised platforms, unprotected edges, and openings in floors where workers will be able to fall a distance of 6 feet or greater or a fall into/onto a hazardous location such as a vat, tank, or mechanical operation.

- All workers who will be working where a fall is equal or greater than 6 feet will be trained on how to work on that surface safely (i.e., trained operator of scissor or aerial lifts).
- All workers are required to use, to know how to use, and inspect personal fall arrest and/or restraint systems, except where the lift is not designed or required for using a restraint system.

- Fall protection systems must be used in accordance with manufacture and/or regulatory requirements (e.g., guard rail, safety nets, personal fall arrest, personal fall restraint, and positioning device systems).
- Fall arrest and restraint systems will be anchored to support 5,000 pounds (lbs) and 3,000 lbs per worker, respectively.
- A competent person must install, build, or operate any equipment or structure where workers are at risk of falling. Proof of competency must be provided before work beings in accordance with Federal and State OSHA standards. Typical proof is a wallet card stating worker met the training requirements for that specific area of expertise.

5 General Project Safety Requirements

Project activities will be conducted in accordance with the following minimum safety requirements:

- Eating, drinking, and smoking will be restricted to a designated area.
- Jewelry shall be removed or appropriately secured to prevent being caught in rotating equipment or snagged on a fixed object (e.g., wrist watches, bracelets, rings, chains, necklaces, and open earrings).
- Do not wear loose clothing.
- Shoulder length hair or longer should be tied back.
- All personnel will be required to wash their hands and faces before eating, drinking, smoking, or applying cosmetics in the aforementioned designated areas.
- Gross decontamination and removal of all PPE will be performed before leaving the exclusion zone. Contaminated clothing will be removed and collected in a drum for disposal.
- Shaking or blowing dust or other materials off potentially contaminated clothing or equipment to remove dust or other materials is not permitted.
- The Site Supervisor will be responsible for taking steps to protect employees from physical hazards including:
    - » Falling objects, such as tools or equipment
    - » Falls from elevations
    - » Tripping over hoses, pipes, tools, or equipment
    - » Slipping on wet or oily surfaces
    - » Insufficient or faulty PPE
    - » Insufficient or faulty equipment or tools
- Field personnel will be cautioned to inform each other of the non-visual effects of the presence of atmospheric contaminants, symptoms of exposure can include the following:
    - » Headaches
    - » Dizziness
    - » Nausea
    - » Blurred vision
    - » Cramps
    - » Irritation of eyes, skin, or respiratory tract
    - » Changes in complexion or skin discoloration

- » Changes in apparent motor coordination
- » Changes in personality or demeanor
- » Excessive salivation or changes in pupillary response
- » Changes in speech ability or pattern

6 Protective Equipment Requirements

The PPE mentioned in this HASP is meant to protect employees from the general construction hazards as well as the chemical exposure hazards described in Section 4. Respiratory protection is covered in Section 7, while inspection, donning, and doffing procedures for gloves and Tyvek™ are included in Appendix F.

All PPE shall be maintained and stored in a clean environment. Where the shape of the PPE is critical for use, a hard container shall be used for storage to maintain integrity. No defective or heavily soiled PPE shall be worn while performing work. In the event that PPE becomes torn or damaged during use, it will be replaced immediately upon exiting the exclusion zone and after any required decontamination is completed, as described in Section 11.

Field personnel, subcontractors, and visitors are required to wear the following protective clothing and equipment as a minimum **while in the work area at the job site**:

- Hard hat protection meeting ANSI Z89.1.
- Class II ANSI Rated 107-2004 Traffic safety vest or comparable long-sleeved shirt or jacket.
- Safety glasses meeting ANSI Z87.1.
- Safety goggles meeting ANSI Z87.1 (when working with liquids).
- Safety-shoe footwear, meeting ASTM F-2413. Shoes must be rated I75, C75, EH, and PR.
- Long sleeves or coveralls worn to protect arms.
- Hearing protection (as required in Section 8).

Note: 1 – ANSI is the American National Standards Institute
2 – ASTM formerly known as the American Society for Testing and Materials

Field personnel **engaged** in work are required to wear the following equipment:

- Hard hat protection meeting ANSI Z89.1.*
- High visibility safety vest/clothing (Class II or Class III ANSI rate vest, Standard 107-2004**).
- Safety glasses meeting ANSI Z87.1.
- Safety goggles meeting ANSI Z87.1 (when working with liquids).
- Safety-shoe footwear, meeting ASTM F-2413. Shoes must be rated I75, C75, EH, and PR. Construction and demolition workers must also have Mt75.
- Standard Tyvek™ coveralls (when potential for impacted soil, water, or dust hazard exists or when mandated by the Site Supervisor).
- Respirator with P-100 and organic vapor cartridges (if lowest PEL or TLV is exceeded in the breathing zone or the Site Supervisor decides respirators should be worn).
- Hearing protection (as required in Section 8).

- Hand protection as based on task-specific JLA (Appendix C). At a minimum, level three cut resistant and puncture resistant gloves for all site activities, consideration of impact and chemical resistant properties or layers to address additional hazards.
- Long sleeves or coveralls worn to protect arms.
- Temperature variations are to be considered when wearing PPE. Appendix G “Heat Stress Protocol” and Appendix H “Cold Stress Protocol” shall be reviewed prior beginning work to establish warning signs of exposure and adequacy/hazards of protection.
- Other PPE as specified in the JLA based upon site and task-specific evaluation of potential hazards.

If site-specific conditions warrant, and with program manager prior approval, the minimum PPE requirements may be modified. Once program manager approves, document changes on any applicable JLAs.

*SSW must wear orange colored hard hat to readily identify them to other workers or clients at the work site.
**Class II reflective clothing is to be worn where employees are exposed to vehicle traffic up to 50 miles per hour (mph). Class III reflective clothing is to be worn when employees are exposed to traffic speeds in excess of 50 mph. Safety vests must be tear-away types when working near rotating equipment (i.e., hollow-stem auger drilling).

7 Respiratory Protection Program

This section summarizes the Stantec Respiratory Protection Program. Stantec subcontractors must have company medical surveillance and respiratory protection programs including adequate training of their employees. Subcontractors must provide PPE as required in this HASP for their employees. Stantec will attempt to verify worker training but does not assume the responsibility of the employer. Sections 7.1 through 7.4 outline Stantec’s Respiratory Protection Program.

The HSSE Representative will explain Stantec's Respiratory Protection Program to each new employee who must wear a respirator. The employee will be asked whether he or she understands the information provided. If the company physician has issued a written approval to Stantec for the employee and the HSSE Representative has checked the fit of the respirator, the employee may then be issued a respirator. A written record is signed and dated by the employee and HSSE Representative and kept in the new employee's safety training records file. Topics required during training includes:

- Applicable OSHA regulations 1910.134 and 1910.120 and relevant state regulations.
- Nature of respiratory hazards to be encountered in the work environment and how to select proper respiratory equipment.
- Use of respirators and proper fitting.
- Functions and limitations of respirators.
- Cleaning, disinfection, inspection, maintenance, and storage of respirators.

Respirators are the last line of defense in providing a healthy and safe work environment. Prior to donning a respirator, employees are to consider the availability of engineering and administrative controls. Can equipment or materials be used to reduce or limit the concentration of chemicals present where respirator use is not required? Examples of engineering controls are large industrial fans to remove the vapors from the immediate work area, or use of water or amended water to control vapor emissions. Administrate controls which can be implemented are limiting the amount of time chemicals are available for exposure, e.g., drumming or covering source materials to limit exposure.

7.1 Functions and Limitations of Respirators

Respirators are not intended for and may not be used in atmospheres that are, or may become, immediately dangerous to life or health (IDLH) or in atmospheres where the identity or concentration of the chemical(s) [vapors, mists, fumes, dusts, or particulates] is unknown. Respirators may not be used in atmospheres containing less than 19.5% oxygen.

Cartridges or canisters for respirators are selected and supplied to employees by the HSSE Representative. The failure to choose or use a respirator equipped with cartridges or filters suitable for the chemicals(s) in the atmosphere or likely to be released in the atmosphere may result in the respirator providing little or no protection against the contaminated atmosphere. The HASP specifies the chemicals(s) to be encountered and the type of cartridge or canister appropriate for personal protection.

Assuming that the respirator is properly fitted, in good condition, free from leaks, and has the proper cartridges for the contaminant(s) present, the length of time the respirator will provide protection also depends on the conditions of use.

The conditions of use include, but are not limited to, the following:

- The concentration of chemical(s) in the atmosphere.
- The temperature and humidity of the ambient atmosphere.
- Any previous use of the cartridges and filters.
- The elapsed time since the removal of the cartridges or filters from their protective packaging.
- The emotional state of the wearer.
- The level of physical activity of the wearer.

Cartridges designed and specified to protect the wearer against airborne particles are not appropriate for protection against gases and vapors. Cartridges designed and specified for protection against specific gases and vapors are not appropriate for protection against airborne particles or other gases or vapors beyond the scope of that type of cartridge. If the label is missing or the type of cartridge is inappropriate, the cartridge may not be used under any circumstances; it will provide little or no protection to the wearer.

Cartridge schedule for petroleum-related hydrocarbons require a single shift change out, unless breakthrough indicators require an earlier change out. Do not reuse cartridges after the packaging is removed or the cartridge has been used for respiratory protection. Reuse of cartridges can cause exposure since petroleum hydrocarbons will desorbs off the respirator if left overnight. Respirator breakthrough times are shown on Table 2 for constituents of concern.

Table 2 Respirator Breakthrough Times (minutes)

Name	Constituent Concentration (parts per million by volume [ppmv])				
	50	100	200	500	1,000
Benzene	**Work Shift**	Limited to a maximum concentration of 50 ppm for negative pressure APR			
		See the OSHA Benzene Standard - 29 CFR 1910.1028(g)			
Toluene	1,018	562	307	135	72
Ethylbenzene	1,133	604	319	135	70
m-Xylene	1,143	608	321	136	70

Name	Constituent Concentration (parts per million by volume [ppmv])				
	50	100	200	500	1,000
Ethanol	123	105	85	60	43

1. Cartridge use rates we based on normal breathing rates, increase in activity such as heavy lifting or shoveling will reduce the life span of the cartridge. Be prepared for more frequent cartridge change outs (two per shift).
2. Humidity will reduce the lifespan of the cartridge; decrease the time allotment by a factor of 2 when humidity exceeds 65%.
3. 480 minutes equals an eight-hour work shift time frame.
4. **Work Shift** indicates that the service life for this constituent is limited to a single work shift by the OSHA Standard.

7.2 Danger Signals Indicating Possible Respirator Failure

If any of the danger signals in the following list are experienced while wearing a respirator, immediately return to a fresh air environment. The cartridges or filters may be inappropriate or used up, or abnormal conditions may be creating vapor concentrations which are beyond the limits of the cartridges or filters. Danger is indicated when the individual subject to exposure:

- Smells or tastes chemicals or if eyes, nose, or throat become irritated.
- Has difficulty breathing.
- Notices that the breathing air becomes uncomfortably warm.
- Experiences headaches, dizziness, cramps, nausea, or blurred vision.
- Experiences changes in complexion or skin discoloration.
- Experiences changes in motor coordination, personality, or demeanor.
- Experiences changes in speech ability or pattern.
- Experiences excessive salivation or changes in pupillary response.

7.3 Positive and Negative Respirator Pressure Seal Checks

Qualitative seal check testing of each respirator must be conducted before the respirator may be used to ensure a good fit is obtained. The following steps should be taken in qualitative seal checks of the respirator:

- Don the face piece with cartridge or filters in place. Pull straps together equally to avoid distorting the mask.
- Adjust the face piece. Do not over-tighten it.
- Negative pressure seal check: Close off both inlet connections with palms of hands, inhale slowly, and hold breath momentarily. No leakage should be detected, and the face piece should be drawn slightly to the face.
- Positive pressure seal check: Close opening in the exhalation valve guard by placing palm of one hand over face of guard; exhale slowly maintaining slight positive pressure. No leakage should be detected between the face seal and the face.
- Should any leakage be noted:
    - » Adjust the head straps and face piece slightly; recheck for leakage.
    - » Check condition of exhalation valve and seat. Check that both inlet gaskets are present and in proper condition.
    - » In the event the face piece cannot be adjusted so there is no leakage, **do not enter the area requiring protection**. Due to each individual's facial features, a different style or size face piece may be required to obtain a proper facial fit.

- Perform positive and negative respirator seal checks throughout the day and increase frequency of checks when employee is sweating or when hot/humid conditions exist.

Note: Failure to perform qualitative seal checks of the respirator each time the respirator is donned may result in little or no respiratory protection.

7.4 Inspection, Cleaning, and Storage

The respirator should be inspected, cleaned, and properly stored after use each day. The steps listed in Sections 7.4.1 through 7.4.3 are the basic elements of each procedure.

7.4.1 Inspection

To inspect a respirator:

- Examine face seal for rips, tears, holes, deformation, or stiffness.
- Examine face piece plastic center shell for cracks, missing components, or damaged threads.
- Examine harness for breaks, cuts, frays, tears, and missing or damaged hardware.
- Examine inhalation and exhalation valves and valve seats for cuts, cracks, or foreign matter which may not allow the valve to close completely. Check that valves are properly installed and are not distorted.
- Examine cartridges for signs of abuse or damage. Discard damaged items.

Any respirator malfunction or deficiencies noted must be reported to the HSSE Representative who will issue a new respirator or correct the deficiencies using only approved spare parts from the manufacturer of the specific model in need of repair. Spare parts from any other manufacturer may not be used under any conditions. Instructions in the manual provided by the manufacturer should be followed when the respirator needs repairing or replacing.

7.4.2 Cleaning

To clean a respirator:

- Unthread cartridges or filters.
- Wash the face piece with warm water and a mild detergent after each use.
- Disinfect the face piece if it was used by another person. The mask should routinely (once per month) be disinfected even if the respirator is used solely by one individual. A hypochlorite solution may be used (i.e., 2 tablespoons chlorine bleach per gallon of water for an acceptable solution).
- After cleaning and air-drying, check that the face piece is not damaged and that components removed prior to cleaning have been installed properly.

7.4.3 Storage

To store a respirator:

- Place the respirator in its storage box in a heat-sealed or re-sealable plastic bag. Store the respirator in a flat position to prevent the face seal from taking a permanent “set.”
- Replacement components should be stored in sealed packages in a cool, clean, low-humidity location until ready for use.

8 Hearing Conservation Program

This section summarizes the Stantec Hearing Conservation Program. Stantec employees and subcontractors must have hearing protection available on site for working conditions that can result in hearing damage. Due to the changing working environment, engineering controls are typically not applicable to mitigate noise in the field environment; therefore, hearing protection such as plugs, canal blocks, or muffs are employed. Subcontractors must provide PPE as required in this HASP for their employees. Stantec will attempt to verify worker training but does not assume the responsibility of the employer. Stantec's HSSE Representative will conduct the required training, including these basic topics:

- Applicable OSHA regulation 1910.95 and relevant State regulations.
- Audiometric testing program (initial and annually/biannually thereafter).
- Training on the use of hearing conservation devices and their limitations.
- Nature of noise hazards to be encountered in the work environment.
- Length of time noise exposure can occur which will result in hearing damage.

Anytime during work when the decibel (dB) noise level exceeds 85 over a TWA of 8 hours requires implementation of Stantec's Hearing Conservation Program. For noise measurements greater than 85 dB, the exposure periods are shown on Table 3.

Table 3 Noise Exposure Periods for Measurements Greater Than 85 dB

Daily Duration (Hours)	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115
None acceptable	>140

Table provided from 29 CFR 1910.95, Table G-16

Hearing protection devices are not created equal. Each manufacturer establishes a noise reduction rating (NRR) for their product. The NRR is established by evaluating hearing protectors under laboratory conditions specified by the American National Standards Institute in ANSI S3.19-1974. OSHA's experience and the published scientific literature indicate that laboratory-obtained real ear attenuation for hearing protectors can seldom be achieved in the workplace. Based on the type of noise exposure anticipated (see Appendix I for typical noise ratings on commonly used powered hand tools and heavy equipment), use the following equations to determine if the hearing protection is adequate.

A common method used for **single protection** (either muffs or plugs) is as follows:

- Determine the laboratory-based noise attenuation provided by the hearing protection device (HPD). This is the NRR and is listed on the packaging.

- Subtract seven from the NRR to account for spectral uncertainty divide that number by two and subtract that number from the A-weighted TWA workplace noise level, as follows:

Estimated Exposure (dBA) = TWA (dBC) – [(NRR-7)/2]

For **double protection** (earmuffs and plugs are used simultaneously) use the following:

- Determine the laboratory-based NRR for the **higher** rated protector (NRR).
- Subtract 7 dB from NRR if using A-weighted sound level data.
- Add 5 dB to the field-adjusted NRR to account for the use of the second hearing protector.
- Subtract the remainder from the TWA as follows:

Estimated Exposure (dBA) = TWA (dBA) - [(NRRh- 7) + 5]

If the reduction level is protective of hearing (less than 90 dB for an 8-hour work day), move forward with the work. Appendix I includes typical noise levels for powered hand tools and heavy equipment. Use this Appendix in establishing hearing protection levels if noise documentation is not available on site or has not been determined. In the event that the noise reduction does not provide adequate hearing protection, contact the Project Manager and do not proceed with the work.

It is the responsibility of subcontractors using heavy equipment to provide the dBA noise level measurements for their equipment.

9 Work Zones and Security Measures

This section describes the work zone requirements for keeping the public and employees safe by identifying where the exclusion zone exists. Security measures for the protection of workers on site; and for client, Stantec, and subcontractor materials, equipment, and structures; are described in Section 9.1.

9.1 Work Zones

9.1.1 Work Zone Demarcation

Effective barriers must be used to separate people from equipment. Natural barriers (heavily forested area, shoreline, drainage ditch) may be used if they will effectively prevent individuals from accessing the work zone/Red Zone.

Tables 4 and 5 identify the suitable barriers that must be used when demarcating the **Red**, **Orange**, and **Green Zones**. Zones are defined in Sections 9.1.3 through 9.1.5.

Table 4 Work Zone Demarcation - No Perimeter Fence Present

No Perimeter Fence Present	Demolition	Construction & Excavation	Cranes/Lifting	Drilling	M & R
Construction Panels/Hoarding	✓	✓	✓	✓	✓
Fence and-or mesh panels -6′ to 8′	✓	✓	✓	✓	✓
Fence and/or mesh panels – 4′	X	✓	✓	✓	✓
Barricades	X	+	✓	✓	✓
Jersey Barricades	X	+	✓	✓	✓
Safety Snow Fencing	X	+	✓	✓	✓
Collapsible Barriers	X	X	✓	✓	✓
Delineators/Cones and Tape	X	X	+	✓	✓
Cones	X	X	X	+	X

Table 5 Work Zone Demarcation - Perimeter Fence Present

Perimeter Fence Present	Demolition	Construction & Excavation	Cranes/Lifting	Drilling	M & R
Construction Panels/Hoarding	✓	✓	✓	✓	✓
Fence and-or mesh panels -6′ to 8′	✓	✓	✓	✓	✓
Fence and/or mesh panels – 4′	X	✓	✓	✓	✓
Barricades	X	✓	✓	✓	✓
Jersey Barricades	X	✓	✓	✓	✓
Safety Snow Fencing	X	✓	✓	✓	✓
Collapsible Barriers	X	+	✓	✓	✓
Delineators/Cones and Tape	X	+	+	✓	✓
Cones	X	+	+	+	✓
No Demarcation	X	X	X	X	✓

✓ Suitable demarcation

\+ Lower risk and / or short duration (less than 12 hrs., remote location, low traffic isolated site)

X Not suitable

9.1.2 Traffic Control

A traffic control plan should be developed to manage the safe movement of vehicles and pedestrians through the work zone/site. Traffic control plans must include the location of the work, appropriate buffers, traffic flow, parking areas, existing structures, and required traffic control devices.

Work zones will be established based on traffic control figures created for the site work shown on traffic control plan (Figure 1).

9.1.3 Green Zone

Green Zone (No Work Zone) – Used to address personnel needs, for example a rest area or meeting area.

9.1.4 Orange Zone

Orange Zone (General Work Zone) – General site work zone requiring PPE.

9.1.5 Red Zone

Area where personnel that are non-essential to the Red Zone activity are prohibited while heavy equipment is operating. This includes the Drop Zone, Fall Zone, Predicted Debris Area, Swing Zone, and Tip Zone.

9.1.5.1 Drilling Red Zone

Also known as the Exclusion Zone – Specific geographic area of a facility or site where non-essential personnel and equipment are prohibited while drilling equipment is being operated.

9.1.5.2 Drilling Operations Exclusion Zone

Area that identifies a safe distance for personnel away from drill hole (3 feet or 1 meter) when equipment is operating. Required when cages or interlocks are not in place.

9.1.5.3 Heavy Equipment Red Zone

Specific geographic area of a facility or site where personnel that are not essential to the Red Zone activity and equipment are prohibited while heavy equipment is being operated or demolition activities are being completed. This includes the Buffer Area, Designed Drop, Fall Zone, Plan Area, Predicted Debris Area, Swing Zone, and Tip Zone.

Certain activities may require a spotter, watchperson, or tagman to be in the Red Zone and possibly even the swing zone when the equipment is moving. In these instances, approval is required by the ExxonMobil Area Manager with mitigating action implemented.

9.1.6 General Work Exclusion Zone

Cones, high-visibility fencing, delineators with caution tape, barricades, or a suitable alternative will be used to deny public access to the exclusion zone or the area where work is being performed. Cones and warning signs will also be used to define an exclusion zone which redirects motorists and pedestrians away from the work area. The general public will not be allowed to be close to the work area under any conditions. If for any reason the safety of a member of the public (e.g., motorist or pedestrian) may be endangered, work will cease until the situation is remedied.

For sites where public or workers need to be informed of possible hazards, the site will be posted with any applicable signs. For example:

- Hard hat required
- No Smoking
- Prop 65 (California only)
- OSHA Construction Bill of Rights Notice
- Hearing Protection Required

- Authorized Personnel Only

9.1.7 Drilling Exclusion Zones

The Drilling Exclusion Zone is the area that environmental drilling activities occur, including air knifing, air vacuuming, hydro vacuuming, hand augering, and mechanized drilling equipment.

- Use site layout plan and traffic control plan to control personnel, vehicle, and equipment movement around the site.
- If working near overhead power lines, a sign warning of the hazard(s) must be placed 23 feet (7 meters) on each side of the power line.
- Establish a Drilling Red Zone to keep non-essential personnel clear of the work area. The Red Zone should include the Tip Zone.
- A designated person must be assigned to control access to the Red Zone.
- Only essential machines and personnel are permitted.
- If cages or interlocks are not in place around rotating equipment, a Drill Operations Exclusion Zone must be marked on the ground (e.g., spray paint) to identify a safe distance for personnel away from borehole (3 feet or 1 meter) when equipment is operating.
- Equipment must be stopped with a show of hands by the driller for personnel to enter the Drill Operations Exclusion Zone.

9.1.8 Working Near Moving Equipment – Heavy Equipment Exclusion Zones

Field operations that require the use of heavy equipment (excavators, backhoes, graders, steamrollers, cranes, personnel lifts, etc.) shall comply with the following operational conditions:

- Develop and implement a site layout plan that identifies the spotter location, equipment (including clearance distance), staging locations, intended equipment travel paths (with speed limits), and emergency escape route.
- Establish a Red Zone to keep non-essential personnel clear of the work area of heavy equipment. The Red Zone must be:
    - » Greater than the swing zone of any moving part on the heavy equipment.
    - » Greater than the tip zone of the heavy equipment.
    - » Greater than the fall zone of equipment and their contents.
    - » Greater than the distance that debris/projectiles may travel during demolition activities.
    - » Greater than the footprint of the structure to be demolished.
    - » Greater than the designed drop (for demolition) area (1.5 x the structure height).
- A designated spotter must be assigned to control access to the Red Zone (cannot be conducting other tasks).
    - » Controls entry/exit of exclusion zone – Prevents personnel from entering the Red Zone while equipment is moving or operating.
    - » Ensures no part of the equipment or load enters the minimum clearance area above, below, and/or on either side of an energized electrical line(s) or other structures.

    - » Maintains communication with the operator by using a standard set of signals (hand, verbal, or radio communication). Signals must be developed, documented, and always used (no cell phones allowed in the exclusion zone).
- If the spotter must be in the Red Zone, they must be in a designated area with a physical barrier (vehicle, elevated platform, etc.) If the spotter must enter the swing zone, the operator will be notified and must shutoff the equipment with the boom/arm on the ground (with a show of hands).
- Personnel entering the Red Zone shall only do so with approval from the spotter.
- Setback distance minimum requirements are 2 feet (0.6 meter) for personnel and soil, and 5 feet (1.5 meters) for support equipment.

9.1.9 Working Near Overhead Electrical Lines

When working near overhead electrical lines, the power should be de-energized whenever possible.

- Equipment with booms, lifts, rigging, excavator arms, etc., are set up a minimum clearance of the full height of the equipment plus the distance noted in the Table 6.
- Line voltage is confirmed to determine safe approach distances (contact owner/operator of electrical line to confirm). Use the greater of:
    - » The determined safe approach distance OR
    - » The full height of the equipment plus 23 feet (7 meters)

Table 6 Minimum Clearance between Operating Heavy Equipment and Overhead Electrical Lines

Voltage (kv)	Distance Between Line and any Part of Heavy Equipment	
Up to and including 50	10 feet	3.1 meters
Over 50 to 200	15 feet	4.6 meters
Over 200 to 350	20 feet	6.1 meters
Over 350 to 500	25 feet	7.6 meters
Over 500 to750	35 feet	10.7 meters
Over 750 to 1,000	45 feet	13.7 meters
Over 1,000	As established by the operator of line or registered professional engineer who is a Qualified Person	

When working or traveling within 23 feet (7 meters) of a power line, a spotter must be used to direct movement of any equipment, be clearly visible to the equipment operator, and have a warning device, i.e., air horn, to alert workers of encroachment on the prohibited area. Equipment with booms, lifts, rigging, excavator arms, masts, etc., must be fully lowered to the maximum extent prior to transit. Minimum clearance distances for heavy equipment in transit are shown in Table 7.

Table 7 Minimum Clearance between Heavy Equipment in Transit and Overhead Electrical Lines

Voltage (kv)	Distance Between Line and any Part of Heavy Equipment	
Up to and including 75	4 feet	1.2 meters
Over 0.75 to 50	6 feet	1.8 meters
Over 50 to 345	10 feet	3.1 meters
Over 345 to 750	16 feet	4.9 meters
Over 750 to 1,000	20 feet	6.1 meters
Over 1,000	As established by the operator of line or registered professional engineer who is a Qualified Person	

9.2 Security

Security is an important component of completing field work safely. The security requirements shall identify and address measures to be taken for the site, equipment, personnel safety, and lone workers Site security measures require employees to be aware of their surroundings at all times.

9.2.1 Site Security

This site does not require the use of additional personnel or private security. At least two workers and lighting will be required for any night work unless prior approval is received from the program manager.

Managing equipment on site while working requires employees and subcontractors to keep tools and equipment secured when not being used. This includes locking vehicle and truck doors and truck utility beds.

9.2.2 Personal Security

Personal security is of paramount importance. In any event where a third party threatens personnel for money or assets, personnel should not refuse, but instead provide them with the requested items. Tools, trucks, and money can be replaced. Human life cannot. If the third party attacks, personnel should defend themselves and try to get away. Do not leave the site with an assailant. If the work crew is approached by undocumented immigrants, the work crew shall not engage, shall promptly notify law enforcement or local security, and shall leave the area if deemed a threat.

The project manager has conducted a risk assessment for this site work and has addressed the risk issue(s). If required one or more of the following security strategies will be implemented This site does not require the use of additional personnel or private security. At least two workers and lighting will be required for any night work unless prior approval is received from the program manager. Site security does not require additional personal or private (armed or unarmed) security to conduct the work described in this HASP. Work will not take place at night; therefore, security fencing or additional lighting is not required. Modification of the work time to begin work in early morning with early afternoon departure will not address personal security concerns.

9.2.3 Lone Worker

Employees who work alone on site are required to comply with Stantec's Lone Worker Policy. This policy requires employee communication during the workday of his or her status to a designated employee that he or she is safe. The requirement is for the employee to communicate every two hours while working alone. If the check-in is missed, the designed point of contact will attempt to contact the employee person. If after ten minutes the employee is not reached and status is not confirmed, the closest employee will be mobilized out to the site to check on the non-responsive worker, or the on-site business will be contacted. An exception to the two hour requirement is for mobilization and demobilization to and from a site where travel time exceeds two hours. In those cases, notification upon safe arrival is required.

9.2.4 Buddy System

The OSHA HAZWOPER standard defines the buddy system as a way of organizing employees into work groups where each employee of the work group is designated to be observed by at least one other employee in the

work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency. The tasks being performed under this site-specific health and safety plan does not require a buddy system to be implemented. OSHA has interpreted “emergency” as site conditions where the release or situation must pose an emergency, including high levels of exposure to toxic substances, life or injury threatening conditions, mandatory evacuation, IDLH conditions, fire and explosion hazards (exceeds or has potential to exceed 25% of the LEL), situations requiring immediate attention due to danger, or oxygen deficient conditions. Nuisance spills, minor releases, etc., which do not require immediate attention (due to danger to employees), are not considered emergencies and do not require the use of the buddy system.

Use of a buddy system may be required in other situations and should be evaluated as per Sections 9.2.1 through 9.2.3.

9.2.5 Site Departure

Prior to leaving the site, ensure all fences are locked, equipment is secured, and materials are not left out in the open to provide an easy theft opportunity. Ensure status of site is in compliance with the completed site security evaluation.

9.2.6 Limited or No Cellular Telephone Service

In the event the project site is located in a non-existent cellular service area, Stantec or its subcontractor will provide to the employee or work group a satellite telephone to establish communication with the office for project status and contact of emergency response services. For sites with limited cellular signal strength, the project team will consider installing a cellular booster station to provide active communication with the office and to contact emergency response services.

9.3 Neighboring Property Impact

Site is mostly enclosed - fenced lot with a restaurant on the south side of the property. To the North, East, and South there are roads.

Off-Site Hazard Location Based on Direction (N,S,E,W)	Hazard Identified	Mitigation Action Item (Controls will be identified in site-specific JLA)
E – Fence that open to roadway traffic	Being struck by vehicles	Implement Maintenance of Traffic (MOT) and Traffic Control Best Practices, Traffic Control JLA, wear PPE identified in Section 6, and establish exclusion zones pursuant to Section 9.1
N – Barbed/razor fencing	Laceration by fencing	Site Access JLA – Maintain safe working distance and using delineation as needed to remain cognizant of hazard when working in the area.
W – Fencing	Release of toxic chemicals off-site impact causing fatally(ies)	Site Access JLA – Contact property owner to identify alarms and relocation areas

Off-Site Hazard Location Based on Direction (N,S,E,W)	Hazard Identified	Mitigation Action Item (Controls will be identified in site-specific JLA)
Various Well Locations – Open to roadway traffic	Being struck by vehicles	Implement Maintenance of Traffic (MOT) and Traffic Control Best Practices, Traffic Control JLA, wear PPE identified in Section 6, and establish exclusion zones pursuant to Section 9.1

10 Exposure Monitoring

It is not anticipated that project personnel exposure will exceed the TLVs or PELs of the materials; however, in the event that site conditions create the possibility that exposure limits could be exceed in the working area and breathing zones, Stantec will implement engineering and administrative controls prior to donning respirators. In the event these controls are impractical or ineffective in sufficiently lowering the air contaminant levels, respirators will be used within the established protection factors and oxygen levels. Specific monitoring devices are documented in the work permit process. Exposure monitoring is also required for heat and cold working environments. PPE and biological monitoring will be established for these working conditions.

10.1 Lead

If site conditions indicate the possibility of elevated lead levels, air monitoring will be performed to determine whether personnel are exposed to airborne concentrations above the OSHA Action Level (30 micrograms per cubic meter [µg/m^3]) or state action level if lower, for lead. Portable air sampling pumps will be used with 37 millimeter, 0.8 micro (µ) Mixed Cellulose Ester (MCE) filter cassettes. At least one full-shift (seven hour minimum) personal air sample will be taken for each job classification in each work area. Monitoring and analytical techniques will have a confidence limit of 95% of not less than plus or minus 25% for airborne concentrations of lead greater than or equal to 30 µg/m^3.

Air samples will be submitted under Chain-of-Custody protocol to an American Industrial Hygiene Association (AIHA) accredited analytical laboratory for analysis. Sample results will be available five days after submittal and will be provided to monitored employees. If results indicate exposure at or above the action level, additional monitoring at least seven days apart will be performed until at least two consecutive measurements are below the action level (30 µg/m^3). Calibration of air sampling pumps certificates will be obtained from the supplier and be on site for inspection. Trip and field blanks will be submitted per frequency established by a certified industrial hygienist.

10.2 Organic Vapors

If site conditions indicate the possibility of elevated organic compound levels, air monitoring will be performed to determine whether personnel are being exposed to airborne concentrations above the PELs listed in Table 1 (Section 4.4). Since identifying specific compounds will be difficult using current organic vapor or photo-ionization detector (PID) technology the cumulative reading will require action if the gasoline PEL is exceeded, except where a specific known chemical or group of chemicals has been identified, then specific analyzers will be used. All air monitoring equipment will show calibration data within manufacturer specifications and the manufacturer's instruction manual will be on site. Calibration gases include 100 ppmv isobutylene and 100 ppmv hexane. Multi-gas meters will use calibration gases specific to that unit's analyzers and at concentrations that are protective of employee exposure health. Employees are trained to know and understand the response factor

of the calibration gas to the monitoring instrument for the chemicals listed in Table 1 to identify when the real-time instrument reading is approaching the exposure limit.

10.3 Possible Explosive Atmospheres

Gasoline has a flammable range from approximately 1.4 to 7.6 percent by volume in air. One percent in air is equivalent to 10,000 ppmv; thus, the LEL is 14,000 ppmv. Normally explosive levels may be reached in tanks, pits, or other confined spaces. Any area suspected of containing potentially explosive levels of gasoline will be evaluated with an intrinsically safe or explosion-proof combustible gas indicator (CGI). All air monitoring equipment will show data of last calibration within manufacturer specifications and the manufacturer's instruction manual will be on site.

Personnel response will be based on the following action levels from CGI readings. Please note that the crucial number is 5% of the LEL. When using a PID, 700 ppmv corresponds to 5% of the LEL.

- If less than 5% of LEL, then continue activities and monitoring (<700 ppmv on the PID meter).
- If greater than or equal to 5 of LEL, STOP WORK. Contact the Stantec PM or HSSE Representative to consider the implementation of engineering controls (rinsing, degassing, dry ice) to reduce the level before doing any other work. The hazard potential will be evaluated by Stantec's management, and a plan of action will be assessed.

Note: CGI readings are provided in percent of LEL; organic vapor meters (OVMs) or PIDs provide results in ppmv.

10.4 Bump Testing

Bump testing is required to ensure the proper operation of air monitoring equipment. Bump testing is measuring a known concentration of gas against the measured reading provided by the air monitoring instrument. Instrumentation readings that fall within the technical specifications of the instrument are within calibration. This HASP requires bump testing when there exists conditions for hydrogen sulfide gas to be present or an environment where personnel can work in an oxygen deficient or enriched atmosphere.

10.4.1 H_2S Monitors

All H_2S personal gas monitors must be bump tested within the last 24 hours prior to use. The daily bump test prior to use is done to ensure the device is not defective. Any H_2S monitor that fails the initial bump test shall not be used and the employee who was assigned that monitor may not enter the area where monitoring is required.

Note: Records of the bump test results will be documented on the daily field notes, any client-required permits, as well as in the equipment calibration log.

10.4.2 O_2 Monitors

Personnel shall perform a bump test for the O_2 personal monitor every day the meter is in use or at least every six months to ensure that the personal gas monitor is not defective. Any O_2 monitor that fails the initial bump test shall not be used and the work requiring the O_2 monitor will not be conducted until the monitor is repaired or replaced.

Note: Records of the bump test results will be documented on the daily field notes, any client-required permits, as well as in the equipment calibration log.

10.5 Heat Stress Program

This procedure applies to all employees when heat stress conditions exist at project sites. Should heat stress conditions exist, the Site Supervisor or the Project Manager shall complete the Heat Stress Control Checklist and implement the Heat Stress Protocol in Appendix G.

Temperature	Required Actions
Below 80ºF	Have water readily accessible for all site workers (enough for 1 quart per hour of work per employee)
	Provide shade upon request in a timely manner
At 80ºF and above	Shade Up! Erect canopy/shade if not already available
	Encourage frequent rest and water breaks
	Review/verify employee acclimatization
At 95ºF and above	Stop Work to review Heat Stress Protocol:
	A) Verify all site workers ready/alert level(s)
	B) Implement Personal Heat Strain Prevention Plan
	C) Assign worker monitors (close monitoring required)
	D) Ensure reliable communication is in place
	E) Review heat-related emergency response plans
	F) Consider PPE and Direct Sun in Heat Index chart
	G) Discuss the continued Scope of Work
At 105ºF (Heat Index) and above	Contact your HSSE Representative to ensure any continued work is closely monitored and approved

10.5.1 Training

The Site Supervisor will receive training in first aid and CPR, including training in heat-related illnesses. The Site Supervisor will also be trained on the requirement for heat stress monitoring. All workers should be capable of recognizing and treating the signs and symptoms of heat stress. During potential heat stress conditions, ice should be readily available to rapidly cool victims.

10.5.2 Fluid Replacement

Water will be made available at the site for site worker and visitor fluid replacement. When heat stress is determined to be a problem by the Site Supervisor, employees will be provided with balanced, electrolyte solutions to replace fluid and electrolyte loss. Employees will be provided with replacement fluids at a minimum rate of 1 quart per hour per person. When deemed necessary by the Site Supervisor, and in compliance with the Heat Stress Policy, water breaks will be taken a minimum of 15 minutes per hour of work. During the rest brakes, hydration will be mandatory and observed by the Site Supervisor. See the Heat Stress Index in Section 10.5.5 for further details.

10.5.3 Acclimatization

Acclimatization is a gradual physiological adaptation that improves an individual's ability to tolerate heat stress. Full-heat acclimatization requires up to three weeks of continued physical activity under heat-stress conditions similar to those anticipated for the work. Its loss begins when the work activity in the heat stress conditions is discontinued. A noticeable loss usually occurs within three to four days.

10.5.4 Rest Breaks

When heat stress conditions are applicable, rest breaks should be taken out of the exclusion zone in a cooler, shaded, rest area. If these conditions are not available, more frequent rest breaks will be taken.

10.5.5 Heat Stress Monitoring

Heat stress and heat strain are conditions caused by environmental factors including temperature, relative humidity, radiant heat transfer, and air movement. The primary objective of the heat stress management program is to prevent heat stroke, which is life threatening and the most serious of the heat-induced disabilities. Extra caution should be taken for workers who are not acclimated to working in the heat.

The following Heat Stress Index should be used as a guide to evaluate heat stress situations. If the heat stress exceeds 105 degrees Fahrenheit (°F), contact the Stantec HSSE Representative prior to work for detailed guidance.

Heat Stress Index									
Temp.	Relative Humidity								
°F	10%	20%	30%	40%	50%	60%	70%	80%	90%
105	98	104	110	120	132				
102	97	101	108	117	125				
100	95	99	105	110	120	132			
98	93	97	101	106	110	125			
96	91	95	98	104	108	120	128		
94	89	93	95	100	105	111	122		
92	87	90	92	96	100	106	114	122	
90	85	88	90	92	96	100	106	114	122
88	82	86	87	89	93	95	100	106	115
86	80	84	85	87	90	92	96	100	109
84	78	81	83	85	86	89	91	95	99
82	77	79	80	81	84	86	89	91	95
80	75	77	78	79	81	83	85	86	89
78	72	75	77	78	79	80	81	83	85
76	70	72	75	76	77	77	77	78	79
74	68	70	73	74	75	75	75	76	77

Notes: Add 10°F when protective clothing is being used. Add 10°F when in direct sunlight.

HSI Temp	Category	Injury Threat
Above 130°F	Extreme Danger	No work unless emergency exists. Contact the SSHE Program Manager prior to proceeding. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
105° to 130°F	Danger	Contact the SSHE Program Manager prior to proceeding. Requires strict adherence to ACGIH Heat Stress Guidelines, including use of on-site WBGT equipment. Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
90° to 105°F	Extreme Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.

HSI Temp	Category	Injury Threat
80° to 90°F	Caution	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
Below 80°F	Normal Range	Typical conditions for time of year. Little or no danger under normal circumstances. As always, anticipate problems and work safely.

10.6 Cold Stress Program

The Cold Stress Program applies to all employees who perform fieldwork in cold environments at risk of cold stress injury. It is intended to protect workers from the most severe effects of cold stress.

10.6.1 Training

Stantec site employees have been trained in cold stress as part of their HAZWOPER 40-hour initial training. Site workers will receive refresher training by the Site Supervisor in cold stress safety and health procedures. The training program will include, as a minimum, instruction in the following areas:

- Proper first-aid treatment.
- Proper clothing practices.
- Proper eating and drinking habits.
- Recognition of impending frostbite.
- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body when shivering does not occur.
- Safe working practices.

The Site Supervisor will be trained in first aid, CPR, and cold stress conditions.

10.6.2 Environmental Monitoring

Frostbite and hypothermia are two types of cold injury that personnel must be protected against during the performance of field duties. The objective is to prevent the deep body temperature from falling below 96.8°F and to prevent cold injury to body extremities. Two factors influence the development of a cold injury: the ambient temperature and wind velocity.

The Site Supervisor will monitor environmental conditions by recording ambient temperature and estimated wind speed. The information contained in Tables 8 and 9 will be used to evaluate the possibility of hypothermia among workers on site.

10.6.3 Protective Clothing and Rest Breaks

Use appropriate cold weather clothing when temperatures are at or below 40°F, as exposed skin surfaces must be protected. Protective items can include facemask, handwear, and footwear. Workers handling evaporative solvents during cold stress conditions should take special precautions to avoid soaking gloves and clothing because of the added danger of prolonged skin contact and evaporative cooling. Personnel will wear protective

clothing appropriate for the level of cold and planned physical activity. The objective is to protect all parts of the body, with emphasis on the hands and feet. Eye protection against glare and ultraviolet light should be worn in snowy and icy conditions.

The work rate should not be so great as to cause heavy sweating that could result in wet clothing. If heavy work must be done, opportunities for rest breaks will be provided where workers have the opportunity to change into dry clothing. Conversely, plan work activities to minimize time spent sitting or standing still. Rest breaks should be taken in a warm, dry area. Windbreaks can also be used to shield the work area from the cooling effects of wind.

10.6.4 Identification and Treatment of Cold Stress

When frostbite, hypothermia, or other cold stress symptoms are suspected, treat the patient to relieve symptoms or transport them to the medical facility.

Table 8 Threshold Limit Value Work/Warm-up Schedule for Four-Hour Shift

Air-Temperature--Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
˚C (approx.)	˚F (approx.)	Maximum Work Period	No. of Breaks	Maximum Work Period	No. of Breaks	Maximum Work Period	No. of Breaks	Maximum Work Period	No. of Breaks	Maximum Work Period	No. of Breaks
-26˚ to -28˚	-15˚ to -19˚	(Norm. Breaks) 1		(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4
-29˚ to -31˚	-20˚ to -24˚	(Norm. Breaks) 1		75 min	2	55 min	3	40 min	4	30 min	5
-32˚ to -34˚	-25˚ to -29˚	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35˚ to -37˚	-30˚ to -34˚	55 min	3	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease	
-38˚ to -39˚	-35˚ to -39˚	40 min	4	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-40˚ to -42˚	-40˚ to -44˚	30 min	5	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	
-43˚ & below	-45˚ & below	Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease		Non-emergency work should cease	

1. Schedule applies to any four-hour work period with moderate to heavy work activity, with ten minutes in a warm location, and with an extended break (e.g., lunch) at the end of the four-hour work period in a warm location. For light to moderate work (limited physical movement), apply the schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with four breaks in a four-hour period (Step 5).
2. The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 miles per hour (mph): light flag moves; 10 mph: light flag fully extended: 15 mph: raises a newspaper sheet: 20 mph: blowing and drifting snow.
3. If only the wind chill cooling rate is available, special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 watts per square meter (W/m^2) and all non-emergency work should cease at or before a wind chill of 2250 W/m^2. In general, the warm-up schedule provided above slightly undercompensates for the wind at the warmer temperatures, assuming acclimatization, and clothing appropriate for winter work. On the other hand, the chart slightly overcompensates for the actual temperatures in the cooler ranges because windy conditions rarely prevail at extremely low temperatures.
4. TLVs apply only for workers in dry clothing.
5. Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labor.

Table 9 Cooling Power of Wind on Exposed Flesh Expressed as Equivalent Temperature

Estimated Wind Speed (mph)	Actual Temperature Reading (degrees F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill **Temperature** (degrees F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds >40 mph have little additional effect)	**Little Danger** If <1 hour with dry skin. Maximum danger of false sense of security				**Increasing Danger** Danger from freezing of exposed flesh within one minute.				**Great Danger** Flesh may freeze within 30 seconds.			
	Trench foot and immersion foot may occur at any point on this chart.											

Table developed by U.S. Army Research Institute of Environmental Medicine in Natick, Massachusetts.

11 Decontamination Procedures

If warranted, work equipment and PPE will undergo gross decontamination on site. This gross decontamination will include washing contaminated equipment with a trisodium phosphate (TSP), Liqui-Nox® solution, or Simple Green®.

Grossly contaminated or used PPE (Tyvek™, gloves, and P-100 filters) will be disposed of in Department of Transportation (DOT) certified 55-gallon drums that are labeled identifying the contaminant.

At the completion of the project work, the drum will be sealed and disposed of per state and federal regulations. Respirators will be washed and decontaminated per manufacturer's specifications.

Subcontractors are required to comply with containment and decontamination procedure and regulations for asbestos or lead abatement. They will provide compliant decontaminant and waste management protocols and agency permits before conducting lead or asbestos work/decontamination.

12 Spill Containment

All hazardous substances and contaminated soils, liquids, and other residues are to be contained, stored, and labeled in accordance with federal, state, and local regulations. When drumming wastes, ensure the following practices are implemented:

- Ensure waste material is compatible with the container (i.e., do not put highly acidic or alkaline wastes in steel drums).
- Drums shall be inspected before waste is put inside. Ensure drums are not rusted or damaged.
- Ensure proper labeling is applied that identifies the type of waste, date, and contact information on to drum before placing waste.
- Only leave drums open when adding or removing the contents, otherwise drums are to be closed, which means the bung or drum ring is on and securely snug.
- Preferred spacing of drums for on-site storage shall be 36 inches whenever possible. Drums need to be visibility inspected and readily accessible for emergency response.

Spill containment materials shall be on site during management of drums in the event of failure or leak. Locations of drums and bins should minimize the possibility of contents leaving the site in the event of a failure of the containment. For containers containing flammable materials, fire extinguishing equipment shall be present and ready for use to control incipient fires. Drums shall not be used to work from or stand upon.

13 Emergency Response Procedures

If a location does not have a land line phone, or adequate cell phone coverage, personnel must ensure they have equipment available which will boost the signal so that in an event of an emergency, calls can be made. In the event of an emergency, all personnel must immediately STOP WORK. Shut off equipment if possible. Based upon the type of emergency, personnel should evacuate to the meeting location identified as per Section 3.3. Only if deemed safe to do so, personnel should attempt to mitigate the emergency situation (e.g., shutoff the source of a release). Once all personnel have been accounted for and the situation or meeting location has

been deemed safe, the local fire or emergency response agency(ies) should be called, if deemed necessary as per Section 13.5. Once notifications to the local fire, response agency, or on-site client emergency response team are made (if necessary), immediately notify the Stantec Program Manager or HSSE Representative, in accordance with the notifications in Appendix J. Leaving a voicemail, sending a text or email does not qualify for notification; only speaking with a manager is acceptable. Provide details of the event to management at which point they will notify the client of the incident.

Stantec will report to the client as prescribed above for any emergency response incident as detailed in the previous paragraph. Each of these incident/events will be investigated to include a written submittal to the client to prevent reoccurrence.

13.1 Incipient Fire

An incipient fire is defined as a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, class II standpipe, or small hose systems without the need for protective clothing or breathing apparatus. In the event of a small contained fire, trained Stantec or subcontractor personnel may attempt to extinguish the fire provided personnel are not in danger of being trapped and will use the 20-pound fire extinguishers on hand, or other firefighting equipment that has been specified in the JLA and/or Project Plan (e.g., water truck, water hose). If the fire cannot be extinguished call the emergency telephone numbers listed at the beginning of this HASP (p. ii).

13.2 Spills or Releases

Spills or releases can occur in the event a liquid-containing line, vessel or tank is damaged during work. Before beginning work identify the following applicable disconnects or shutoffs at a site: electrical, water, gasoline emergency shut-off, fuel piping, and natural gas. Be prepared to disconnect or shutoff that utility in the event it is damaged during the performance of our work.

In the event of a release, employees are to conduct the following evaluation:

- Am I in imminent danger from explosion, fire, or contamination? If so, leave the area immediately.
- Contact your local office and inform them of the nature and extent of the release.
- If additional help is required, call the emergency numbers in the beginning of this HASP (pp. ii and iii).
- If safe to do so, turn off or close off the source of the leak.
- Dike any openings to storm drains and try to contain spilled materials.
- Based on resources available, begin cleanup of material, place into new tanks or drums, label, and leave drums and tanks secured and closed.

13.3 Overt Personnel Exposure

If overt personnel exposure occurs during the project, typical responses should include the following:

- Personnel should be familiar with the chemical SDS for each project site and the requirements for treating exposure for each chemical handled.
- Skin or eye contact: In general wash and rinse affected area thoroughly with copious amounts of soap and water, and then provide appropriate medical attention. Eyes and skin should be rinsed for a minimum of 15 minutes upon chemical contamination.

- Puncture wound: Decontaminate and apply first aid coverings to the wound area. If the object that created the wound is still in the employee do not attempt to remove.
- Follow the care management practices in Section 13.4.

13.4 Care Management

In the event of an incident resulting in physical injury, first aid will be administered on site. In the event that the severity of the injury requires emergency medical attention, the injured worker will be transported to the nearest hospital or occupational medical clinic for emergency treatment. The injured worker can be self-transported (only if working alone) or transported by a coworker or ambulance depending upon the life-threatening nature of the event.

Employees shall use the care management notification pull-out card (Appendix J) included in the HASP to direct the care management process.

Subcontractors may already have arrangements with a different occupational medical clinic or urgent care facility. Stantec shall allow an injured subcontractor employee to be taken to a location authorized by the subcontractor company and allow the subcontractor company to implement their care management policies and procedures.

Questions concerning the severity of the injury are to be directed to Stantec's nurse care management service (888) 449-7797. The service is available 24 hours per day, 365 days a year. The nurse will provide triage evaluation of the injured employee or subcontractor and advise whether first aid is sufficient or additional medical treatment from a clinic or emergency room is necessary. Employees are strongly encouraged to follow the nurse's instructions. This is for non-life-threatening related injury questions.

If the injured person requires treatment for a life-threatening injury, call 911 and make a request for an ambulance. Attempt to help the injured person only after ensuring the scene is safe. The injury person must be accompanied or followed to the offsite treatment location.

Client-required care management forms and flow chart are included in Appendix J (Care Management).

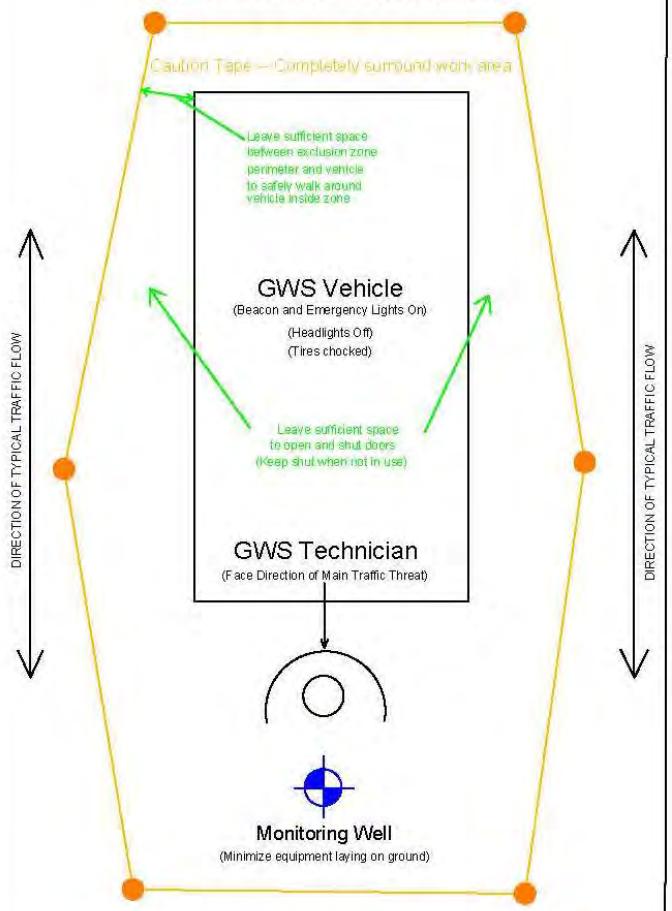
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Figures

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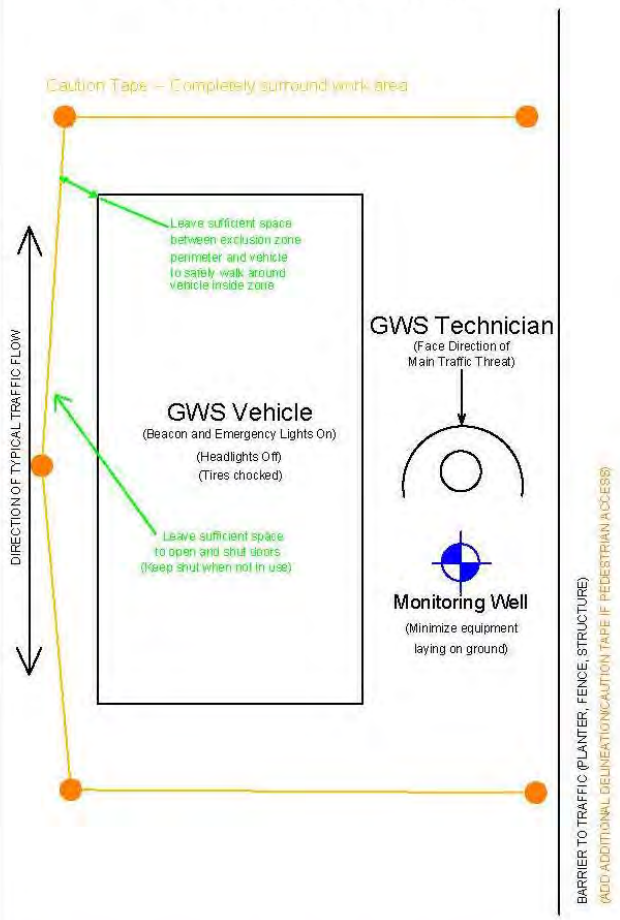
REMEMBER TO ALWAYS STOP AFTER SETTING UP TRAFFIC CONTROL ZONE AND OBSERVE TRAFFIC FLOW.
CONDUCT AN LPSA!!! IF YOU NEED TO ADAPT YOUR SETUP, DO IT! IF YOU CANNOT DO IT SAFELY, STOP IMMEDIATELY.

GENERIC TRAFFIC CONTROL PLAN: NO AVAILABLE BARRIERS



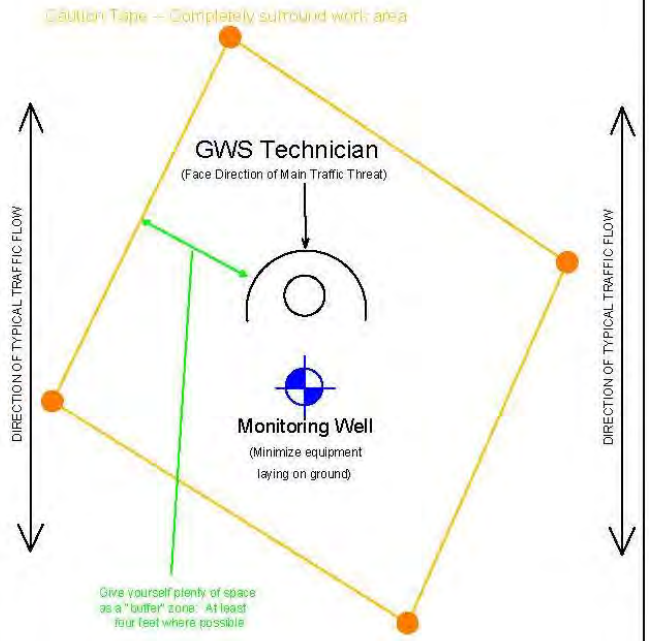
Note: Minimum number of delineation devices shown. Employ more as needed.

GENERIC TRAFFIC CONTROL PLAN: AVAILABLE BARRIER



Note: Minimum number of delineation devices shown. Employ more as needed.

GENERIC TRAFFIC CONTROL PLAN: NO VEHICLE ACCESS



Note: Minimum number of delineation devices shown. Employ more as needed.

EXPLANATION

● Delineation Device (Min. 42 inches tall)

NOT TO SCALE

FN TCP.Generic

Stantec

GENERIC TRAFFIC CONTROL DIAGRAM

PROJECT NO.
VARIOUS

PLATE
1

LEC: 06/13/23

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Appendices

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APPENDIX A
DAILY SITE SAFETY MEETING ENGAGEMENT FORM

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Daily Site Safety Meeting Engagement Form

Client:_____

Manager:_____

Date/Time:_____

Stantec #:_____

Site ID:_____

ExxonMobil Life Saving Rules and Actions

1. Bypassing Safety Controls
2. Breaking Containment / OPE
3. Confined Space Entry
4. Driving
5. Energy Isolation
6. Excavation
7. Hot Work
8. Line of Fire
9. Safe Mechanical Lifting
10. Working Around Moving Equipment
11. Work Authorization
12. Working at Height

The purpose of the form is to provide a structure and documentation for the morning Health and Safety Meeting. The following topics should be included along with any other discussions as deemed appropriate for the daily work; topic details are included in the HASP.

Person conducting meeting initial in the space provided below when topic has been covered

LIST any 3rd party permits for authorization: (ROW, grading, discharge, etc.) Are the permits in hand and available on-site?		**N/A:**
HASP/CASE MANAGEMENT Discuss steps in event of injury, Work Care 888-449-7787, pull out card, clinic location	**Initials:**	
TRAFFIC CONTROL note changes in traffic pattern, volume, visibility, location of daily work, minimum visibility PPE	**Initials:**	**N/A:**
SUBCONTRACTORS H&S training and certifications have been obtained/reviewed for all on site personnel (consultant & contractor)	**Initials:**	**N/A:**
SHORT SERVICE WORKERS are identified in sign-in section of tailgate form. SSW and SSMP must not exceed a one-to-one ratio. SSW are identified by _____	**Initials:**	
LIST stretches (minimum 2 conducted):		
HEAT STRESS PREVENTION Implement Appendix G of HASP if temperature reaches 80° F	**Initials:**	**N/A:**

The undersigned have attended the daily safety meeting and understand all the items discussed as listed above. We further agree that all activities conducted during and for completion of this project will be performed in accordance with the site-specific health and safety plan and with the following common safety objectives:

1. **The first and foremost priority during this project is to maintain a safe and healthy work environment.**
2. **No work will be performed until every necessary safety precaution has been taken.**
3. **No project objectives will knowingly be allowed to put at risk human health and the environment.**

Fit for Duty*	SSW	SSMP	Sup	Print Name	Signature	Date
☐	☐	☐	☐			
☐	☐	☐	☐			
☐	☐	☐	☐			
☐	☐	☐	☐			
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☐	☐	☐	☐			
☐	☐	☐	☐			

SSW = Short Service Worker / SSMP = Site Safety Mature Person / Sup = Supervisor

*FIT FOR DUTY is defined as the employee is physically and mentally capable and prepared to accomplish that day's work tasks. If the employee is not up to the task, he/she is to notify the site supervisor to modify the work for that day.

If at any time during the performance of activities on this project, there is an unsafe condition, then we will immediately take action to alleviate the unsafe condition. If we are unable to cause the cessation of the unsafe condition, then we will immediately contact the client manager listed above.

Stantec

STANTEC'S ENERGY WHEEL AND 12 CRITICAL RISKS





The undersigned have attended the daily safety meeting and understand all the items discussed as listed above. We further agree that all activities conducted during and for completion of this project will be performed in accordance with the site-specific health and safety plan and with the following common safety objectives:

1. **The first and foremost priority during this project is to maintain a safe and healthy work environment.**
2. **No work will be performed until every necessary safety precaution has been taken.**
3. **No project objectives will knowingly be allowed to put at risk human health and the environment.**

Fit for Duty*	SSW	SSMP	Sup	Print Name	Signature	Date
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SSW = Short Service Worker / SSMP = Site Safety Mature Person / Sup = Supervisor

*FIT FOR DUTY is defined as the employee is physically and mentally capable and prepared to accomplish that day's work tasks. If the employee is not up to the task, he/she is to notify the site supervisor to modify the work for that day.

If at any time during the performance of activities on this project, there is an unsafe condition, then we will immediately take action to alleviate the unsafe condition. If we are unable to cause the cessation of the unsafe condition, then we will immediately contact the client manager listed above.

APPENDIX B
EXXONMOBIL WORK PERMIT FORMS

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WORK PERMIT

WORK PERMIT DURATION MAY NOT EXCEED 16 HOURS PER DAY.
WORK PERMIT MAY BE REVALIDATED UP TO 7 DAYS FOR NON-HRC WORK.

A. Location and type of work to be performed:		**Permit #:**	
Issue Date: Time: ❑ AM ❑ PM		Expiration Date: Time: ❑ AM ❑ PM	
Specific Location:		Extension Time: ❑ AM ❑ PM	
Work Description (Specify Work Activities):		Extension Approval: ❑ Verbal Approval Signature: _____	
Supervisor:		Supervisor Phone #:	
Site First Aid / Emergency Phone #:		**# of Workers:**	

Has short service worker(s) (SSW) received orientation? ❑ Yes ❑ No ❑ N/A

Does SSW have a designated mentor? ❑ Yes ❑ No ❑ N/A

B. Complete the Permit and Applicable Higher Risk Checklist(s) HRC, if applicable

❑ Confined Space ❑ Working at Heights ❑ Hot Work ❑ Working Near Moving Equipment
❑ Energy Isolation ❑ Lifting & Rigging ❑ Excavation

C. Pre-Work Checklist (jobsite inspection required):	Yes	N/A
1. Has the impact of this task on neighboring equipment, services and third parties been considered and addressed?		
2. Has the work activity, safety concerns and emergency procedures work been discussed with the local site contact?		
3. Have procedures for working with Hazardous Materials been reviewed and are understood by workers (e.g. Chemical approval/SDS, Asbestos controls, etc.)?		
4. Is emergency equipment available, per plan (e.g. Fire Extinguisher, Radio, Rescue Harness, etc.)?		
5. Are standby personnel trained and understand their responsibilities? ☐ Spotter ☐ Hazard Watch		
6. Has work area been evaluated for hazards (overhead, behind walls, below ground, etc.) with plan to mitigate hazards prior to starting work?		
7. Have you confirmed PPE identified during planning is available and in good condition?		
8. Have SIMOP hazards been identified and discussed with impacted personnel (List SIMOPs at bottom of page)?		

D. If there is a potential hazardous atmosphere or hazardous substance present, complete the Gas Test Supplement

E. Site Setup (work may not begin until these are completed)	Yes	N/A
9. Overhead utility lines and minimum clearance requirements reviewed with site workers?		
10. Appropriate warning signs, temporary lighting and barricades have been considered to protect workers, prevent unauthorized access and establish work zone?		

F. Signatures (sign at work location before beginning work) If issuer/recipient changes, new issuer/recipient reviews and signs.

❑ I have reviewed this checklist and all work arrangements with all workers involved and discussed work scope with local site contact as applicable. I verify I understand the purpose of the permit and applicable higher risk checklists.

Local Site Contact (if applicable):	Contact Phone #:
Issuer Company:	
Issuer / Relief Name:	Issuer Phone #:
Recipient Company:	
Recipient / Relief Name:	Recipient Phone #:

G. Permit Compliance Inspection (required each day) If additional space is needed use bottom/back of form.

Date: Time: ❑ AM ❑ PM	Performed By:	Comments:	
Date: Time: ❑ AM ❑ PM	Performed By:	Comments:	
Date: Time: ❑ AM ❑ PM	Performed By:	Comments:	

H. Post Work / Job Status Permit issuer (or relief) is to sign off at end of work/shift

Has the work site been inspected?	❑ Yes	❑ No	
Discussed work activity status w/ local contact?	❑ Yes	❑ No	❑ N/A
Is anything out of service and has everything been returned to safe condition?	❑ Yes	❑ No	❑ N/A
Higher risk checklist(s) closeout completed?	❑ Yes	❑ No	❑ N/A
Area/equipment/load secured, cleaned and returned to safe condition?	❑ Yes	❑ No	

Permit Issuer (or relief):	Print:	Signature:	Date:
Permit Recipient (or relief):	Print:	Signature:	Date:
Local Site Contact (as applicable):	Print:	Signature:	Date:

Use this space to capture SIMOPS hazards and other site specific hazards and mitigation stragegies:

Prominently display permit at job site, if possible. Retain according to local regulations.

WORK PERMIT SUPPLEMENT

ONLY COMPLETE SECTIONS APPLICABLE TO THE WORK DOCUMENTED ON THE WORK PERMIT

A. Initial Assessment

IMPORTANT: Sections A must be completed prior to the use of a gas dector being used in any job. Prior to use, all gas detectors must pass the bump test using manfuacturer guidance. If a bump test is failed, a full calibration of the gas detector is required. Consider gas detector location placement. Always check the Oxygen value first. Most combustible gas meters are Oxygen dependent and are unreliable if Oxygen is insufficient.

1. Is the work capable of producing an ignition source when flammable or combustable materials are present? ❑ YES (HRC - HOT WORK REQUIRED) ❑ NO
2. Date of last full calibration: _____
   Is this compliant with the manufacturer's recommended calibration frequency? ❑ YES ❑ NO (STOP WORK)
3. Is the gas detector working properly according to the bump test? ❑ YES ❑ NO (STOP WORK)

Chemical (Check in the following order)	Safe Working Range		Stop All Work	
1. Oxygen	> 19.5% & < 23.5%		< 19.5% **OR** > 23.5%	
2. LEL (%)	≤ 5% LEL		> 5% LEL	
3. Toxic Gasses	**No Respirator Required**	**Respirator**	**SCBA or Supplied Air**	**STOP ALL WORK**
Hydrogen Sulfide	≤ 5 ppm	NO RESPIRATOR	>5 ppm	≥ 100 ppm
Carbon Monoxide	≤ 25 ppm	NO RESPIRATOR	>25 ppm	≥ 1200 ppm

B. Gas Test Readings

Location: _____

Continuous Monitoring or Periodic Monitoring (Circle One) Testing/Recording Interval _____ Hours

	Time	Oxygen	LEL	H2S	CO	Other	Other
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Gas Tester's Company:_____

Gas Tester's Signature: _____ Date/Time_____ AM/PM

C. Confined Space Entrant Log

IMPORTANT: This log should always accompany a Work Permit, Confined Space Higher Risk Checklist and any other applicable Procedures or JLAs.

Name of Confined Space_____

	Entrant Name (Print)	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Print Name of Supervisor: _____ Supervisor's Signature: _____ Date/Time_____ AM/PM

D. Revalidation (Multiday Permit)

ALLOWED FOR WORK PERMITS WITHOUT AN HRC IN ONE DAY INCREMENTS UP TO 7 TOTAL DAYS IF SITE PERSONNEL AND CONDITIONS HAVE NOT CHANGED. HRC CHECKLISTS MAY NOT BE REVALIDATED.

COMPLETE INITIAL SITE INSPECTION. IF SITE CONDITIONS OR PERSONNEL HAVE CHANGED, NEW PERMIT REQUIRED

Date	Issue Time	Expiry Time	Recipient Signature	Issuer Signature	Day's Work Complete?	Time	Comments
	AM/PM	AM/PM			❑ Yes	AM/PM	
	AM/PM	AM/PM			❑ Yes	AM/PM	
	AM/PM	AM/PM			❑ Yes	AM/PM	
	AM/PM	AM/PM			❑ Yes	AM/PM	
	AM/PM	AM/PM			❑ Yes	AM/PM	
	AM/PM	AM/PM			❑ Yes	AM/PM	

Supervisor's Signature: _____ Date/Time_____ AM/PM

APPENDIX C
TASK-SPECIFIC JOB LOSS ANALYSIS SHEETS

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Job Loss Analysis

COMPANY/PROJECT NAME or ID/LOCATION (City, State)	DATE	NEW/REVISED
		☐ NEW ☐ REVISION#

WORK ACTIVITY (Description):

EQUIPMENT necessary to mitigate hazards associated with this work activity:

DEVELOPMENT TEAM	POSITION/TITLE	REVIEWED BY	POSITION/TITLE

MINIMUM REQUIRED PERSONAL PROTECTIVE EQUIPMENT (SEE CRITICAL ACTIONS FOR ADDITIONAL STEP-SPECIFIC REQUIREMENTS)

☐ Reflective Vest ☐ Hard Hat ☐ Lifeline/Harness ☐ Safety Glasses	☐ Goggles ☐ Face Shield ☐ Hearing Protection ☒ Safety Shoes— Type: Puncture Resistant, Impact Resistant (75lb), Electrical Hazard Resistant	☐ Air purifying respirator ☐ Supplied respirator ☐ PPE Clothing—Type:	☒ Gloves—Type: Level 3 Cut Resistant ☐ Other—Specify:

REMINDER: Complete an LPSA at start of and continuously throughout job/task to identify additional and/or changing hazards to act on.

[1] JOB STEPS	[2] POTENTIAL HAZARDS	[3] CRITICAL ACTIONS TO MITIGATE HAZARDS

FIELD CHANGE SECTION: Document Job Steps, Potential Hazards, and Critical Actions to Mitigate Hazards seen during operations.		

Life Saving Actions

LSA 1: Prevent Falls and Dropped Objects
LSA 2: Protection from Moving Equipment and Vehicles
LSA 3: Restrict Access to Suspended Loads
LSA 4: Dig with Caution
LSA 5: Isolate Energized Equipment
LSA 6: Prevent Hot Work Explosions/Fires
LSA 7: Establish/Maintain Safe Confined Space
LSA 8: Respect Critical Safety Devices

[1] Each Job or Operation consists of a set of steps. Be sure to list all the steps in the sequence that they are performed. In Column 2, specify the equipment or other details to set the basis for the associated hazards.

[2] A hazard is a potential danger. What can go wrong? How can someone get hurt? Consider, but do not limit, the analysis to: **Contact**—victim is struck by or strikes an object; **Caught**—victim is caught on, caught in or caught between objects; **Fall**—victim falls to ground or lower level (Includes slips and trips); **Exertion**—excessive strain or stress/ergonomics/lifting techniques; **Exposure**—inhalation/skin hazards. Specify the hazards and do not limit the description to a single word such as "Caught."

[3] Aligning with the first two columns, describe what actions or procedures are necessary to eliminate or minimize the hazards. Be clear, concise and specific. Use objective, observable and quantified terms. Avoid subjective general statements such as "Be careful" or "Use as appropriate."

{Task-Specific Job Loss Analysis Sheets}

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APPENDIX D
GEOGRAPHICAL BIOLOGICAL HAZARDS INFORMATION SHEETS

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Geographical Biological Hazards – Outdoor Work Hazard by State

State	Poisonous Plants				Stinging Insects				Venomous Snakes				Venomous Spiders & Scorpions				Vector-Borne Diseases			Infectious Diseases
	Poison Ivy	Poison Oak	Poison Sumac	Stinging Nettles	Bees	Africanized Honey Bees ("Killer Bees")	Paper Wasps Yellow Jackets Hornets	Fire Ants	Copperheads	Coral Snakes	Cottonmouths / Water Moccasins	Rattlesnakes	Black Widow	Brown Recluse Spider	Hobo Spider	Scorpions	Lyme / Oher Tick-Borne Diseases	West Nile Virus	Zika Virus*	Valley Fever
Alabama	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X		
Alaska				X	X		X					X	X				X			
Arizona	X	X		X	X	X	X	X		X		X	X	X		X	X	X		X
Arkansas	X	X			X	X	X	X	X	X	X	X	X	X		X	X	X		
California		X		X	X	X	X	X				X	X			X	X	X		X
Colorado	X	X		X	X		X					X	X			X	X	X		
Connecticut	X	X	X	X	X		X		X		X	X	X				X	X		
Delaware	X	X	X	X	X		X	X	X		X		X				X	X		
Florida	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
Georgia	X	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X		
Hawaii					X		X						X				X			
Idaho	X	X		X	X		X					X	X		X	X	X	X		
Illinois	X	X	X	X	X		X		X		X	X	X	X		X	X	X		
Indiana	X	X	X	X	X		X		X		X	X	X	X			X	X		
Iowa	X	X		X	X		X		X		X	X	X	X			X	X		
Kansas	X	X		X	X		X		X		X	X	X	X		X	X	X		
Kentucky	X	X	X	X	X		X		X		X	X	X	X		X	X	X		
Louisiana	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
Maine	X	X	X	X	X		X						X				X	X		
Maryland	X	X	X	X	X		X	X	X		X	X	X				X	X		
Massachusetts	X	X	X	X	X		X		X		X	X	X				X	X		
Michigan	X	X	X	X	X		X					X	X				X	X		
Minnesota	X	X	X	X	X		X					X	X				X	X		
Mississippi	X	X	X	X	X		X	X		X	X	X	X	X		X	X	X		
Missouri	X	X		X	X		X				X	X	X	X		X	X	X		
Montana	X	X		X	X		X		X			X	X		X	X	X	X		

State	Poisonous Plants				Stinging Insects				Venomous Snakes				Venomous Spiders & Scorpions				Vector-Borne Diseases			Infectious Diseases
	Poison Ivy	Poison Oak	Poison Sumac	Stinging Nettles	Bees	Africanized Honey Bees ("Killer Bees")	Paper Wasps Yellow Jackets Hornets	Fire Ants	Copperheads	Coral Snakes	Cottonmouths / Water Moccasins	Rattlesnakes	Black Widow	Brown Recluse Spider	Hobo Spider	Scorpions	Lyme / Oher Tick-Borne Diseases	West Nile Virus	Zika Virus*	Valley Fever
Nebraska	X	X		X	X		X					X	X	X		X	X	X		
Nevada	X	X		X	X	X	X	X				X	X	X		X	X	X		X
New Hampshire	X	X	X	X	X		X					X	X				X	X		
New Jersey	X	X	X	X	X		X		X		X	X	X				X	X		
New Mexico	X	X		X	X	X	X	X		X		X	X	X		X	X	X		X
New York	X	X	X	X	X		X		X		X	X	X				X	X		
North Carolina	X	X	X	X	X		X	X	X	X	X	X	X			X	X	X		
North Dakota	X	X		X	X		X					X	X			X	X	X		
Ohio	X	X	X	X	X		X		X		X	X	X	X			X	X		
Oklahoma	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X		
Oregon	X	X		X	X		X					X	X		X	X	X	X		
Pennsylvania	X	X	X	X	X		X		X		X	X	X				X	X		
Rhode Island	X	X	X	X	X		X		X		X	X	X				X	X		
South Carolina	X	X	X	X	X		X	X	X	X	X	X	X			X	X	X		
South Dakota	X	X		X	X		X					X	X				X	X		
Tennessee	X	X	X	X	X		X	X	X		X	X	X	X		X	X	X		
Texas	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X
Utah	X	X		X	X		X					X	X		X	X	X	X		X
Vermont	X	X	X	X	X		X					X	X				X	X		
Virginia	X	X	X	X	X		X	X	X		X	X	X			X	X	X		
Washington	X	X		X	X		X					X	X		X	X	X	X		
West Virginia	X	X	X	X	X		X		X		X	X	X				X	X		
Wisconsin	X	X	X	X	X		X					X	X				X	X		
Wyoming	X	X		X	X		X					X	X		X	X	X	X		

Poison Ivy

"Leaves of three, let it be. Berries white, poisonous sight."

Western Poison Ivy Distribution



Eastern Poison Ivy Distribution





Present

Absent/Unreported

Characteristics

> Features clusters of 3 leaflets, two leaves on each side and one leaf in the center.
> Each group of 3 leaflets grows on its own stem, which connects to the main vine.
> Each group of 3 leaflets grows on alternate sides of the stem, not directly across from one another.
> Leaves are almond-shaped, glossy, hairless, have smooth edges (not toothed), and range from 3/4” – 4” long
> Leaves are reddish in spring, green in summer, and yellow, orange, or red in fall.
> Grows as a shrub, climbing vine or trailing vine, often along riverbanks.
> Lacks thorns.
> May have white berries.
> The leaf is not poisonous. Rather, the plant oil found in the sap causes the rash. This poisonous sap covers a poison ivy leaf that is broken, bruised, or damaged.

Symptoms

> Itchy skin.
> Redness or red streaks.
> Small itchy bumps (hives).
> Swelling.
> An outbreak of small or large blisters, often forming streaks or lines.
> Crusting skin (after blisters burst).
> Rash can appear within hours or may take 1-2 weeks to appear after exposure.
> The rash will only occur where the plant oil has touched the skin, so a person with poison ivy cannot spread it on the body by scratching. It may seem like the rash is spreading if it appears over time instead of all at once. However, this is either because the plant oil is absorbed at different rates in different parts of the body or because of repeated exposure to contaminated objects or plant oil trapped under the fingernails. Even if blisters break, the fluid in the blisters is not plant oil and cannot further spread the rash.
> Poison ivy rashes are not contagious and do not spread from person to person. Even if the person touches the rash or the fluids in the blisters, the person cannot get the rash. The person has to touch the plant oil to get the rash.
> It is possible to pick up the rash from plant oil that may have stuck to clothing, pets, garden tools, and other items that have come in contact with these plants. The plant oil lingers (sometimes for years) on virtually any surface until it's washed off with water or rubbing alcohol.

Tips for Prevention

> Learn what poison ivy plants look like so you can avoid them.
> If you think you may work around poison oak, wear gloves, long sleeves, socks, and long pants tucked into boots
> Wash your tools and gloves regularly when working around poisonous plants.
> If you come in contact with poisonous plant, wash your skin in cool water as soon as possible to remove the plant oil and reduce the risk of rash.
> If you know you will come into contact with poison ivy, use "Ivy Block," a topical, over the counter barrier product.

Treatment

- If you come in contact with poison ivy, wash your skin, including under fingernails, in cool water as soon as possible to reduce the risk of a rash and to prevent further spread.
- If rash and blisters appear, avoid scratching the blisters, which can cause infection.
- Relieve the itch with a wet compress or by soaking in cool water.
- Over-the-counter skin medications, such as calamine lotion can also ease the itchiness
- If creams, lotions, or bathing do not stop the itching, antihistamines may be helpful.
- The rash, blisters, and itch normally disappear in several weeks without any treatment.
- Antibiotic ointment prevents broken blisters from becoming infected.
- See a doctor:
  - if you have a temperature over 100 F
  - if there is pus, soft yellow scabs, odor, or tenderness on the rash
  - if the itching gets worse or keeps you awake at night
  - if the rash spreads to your eyes, mouth, genital area, or covers more than one-fourth of your skin area
- **Call 911 or go to an emergency room if:**
  - Someone is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past.
  - Someone has been exposed to the smoke of a burning plant.

Poison Ivy Pictures

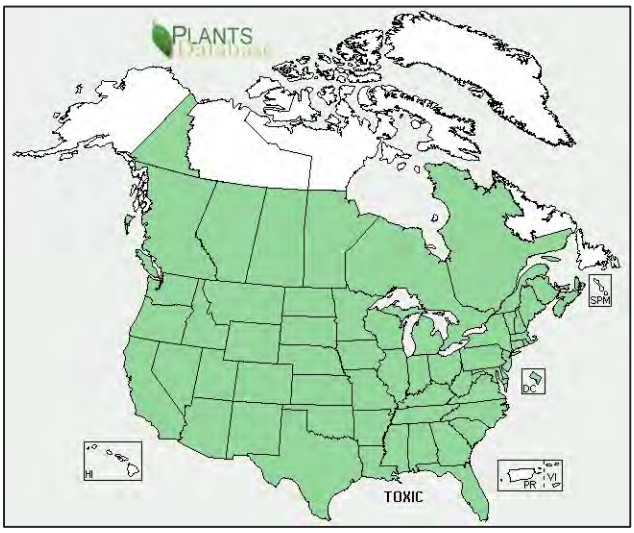


Poison Ivy Rash



Poison Oak

"Leaves of three, let it be. Berries white, poisonous sight."





Present Absent

Characteristics

> Grows as either a shrub (1.6 – 13' tall), a climbing vine into tree canopies, or a trailing vine as ground cover.
> Grows primarily in dry areas at elevations below 5,000 feet.
> Leaves grow in clusters of 3 leaflets, 1 ½ – 4 inches long, with scalloped, toothed, or lobed edges.
> Leaves resemble lobed leaves of a true oak, though Pacific poison oak leaves tend to be more glossy.
> Stems are light brown or gray.
> In spring, leaves are bright green and white flowers may form. In summer, leaves turn yellow-green to reddish and fertilized flowers develop into white/tan berries. In fall, leaves turn bright red or pink. In winter, the stems are leafless and may have occasional black marks where its milky sap may have oozed and dried.

Symptoms

> Itchy skin
> Redness or red streaks
> Small itchy bumps (hives)
> Swelling
> An outbreak of small or large blisters, often forming streaks or lines
> Crusting skin (after blisters burst)
> Rash can appear within hours or may take 1 to 2 weeks to appear after exposure
> The worst symptoms are often seen during days 4 to 7. The rash may last for 1 to 3 weeks.
> The rash will only occur where the plant oil has touched the skin, so a person with poison sumac can't spread it on the body by scratching. It may seem like the rash is spreading if it appears over time instead of all at once. However, this is either because the plant oil is absorbed at different rates in different parts of the body or because of repeated exposure to contaminated objects or plant oil trapped under the fingernails. Even if blisters break, the fluid in the blisters is not plant oil and cannot further spread the rash.
> Poison oak rashes are not contagious and do not spread from person to person. Even if the person touches the rash or the fluids in the blisters, the person cannot get the rash. The person has to touch the plant oil to get rash.
> It is possible to pick up the rash from plant oil that may have stuck to clothing, pets, garden tools, and other items that have come in contact with these plants. The plant oil lingers (sometimes for years) on virtually any surface until it's washed off with water or rubbing alcohol.

Tips for Prevention

> Learn what poison oak plants look like so you can avoid them.
> If you think you may work around poison oak, wear gloves, long sleeves, socks, and long pants tucked into boots.
> Wash clothing, gloves, and shoes with soap and hot water. The plant oils can linger on them.
> Wash tools and other objects with a dilute bleach solution or rubbing alcohol.
> If you come in contact with poisonous plant, wash your skin in cool water as soon as possible to remove the plant oil and reduce the risk of rash.
> Over the counter skin products such as Ivy Block lotion can be applied beforehand to reduce the risk of a rash.

Treatment

- If you come in contact with poison oak, wash your skin, including under fingernails, in cool water as soon as possible to reduce the risk of a rash and to prevent further spread.
- If rash and blisters appear, avoid scratching the blisters, which can cause infection.
- Relieve the itch with a wet compress or by soaking in cool water.
- Over-the-counter skin medications, such as calamine lotion can also ease the itchiness.
- If creams, lotions, or bathing do not stop the itching, antihistamines may be helpful.
- The rash, blisters, and itch normally disappear in several weeks without any treatment.
- Antibiotic ointment prevents broken blisters from becoming infected.
- See a doctor:
  - if you have a temperature over 100 °F
  - if there is pus, soft yellow scabs, odor, or tenderness on the rash
  - if the itching gets worse or keeps you awake at night
  - if the rash spreads to your eyes, mouth, genital area, or covers more than one-fourth of your skin area
- **Call 911 or go to an emergency room if:**
  - Someone is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past.
  - Someone has been exposed to the smoke of a burning plant.

Poison Oak Pictures



Poison Oak Rash



Stinging Nettles





Present Absent/Unreported

Characteristics

> Grows in dense clumps, often forming large colonies.
> Plant typically grows 3 to 7 feet tall in the summer and dies down to the ground in winter.
> Stems are slender, grow 3 to 6 ½ feet tall, and are covered with bristly stinging hairs.
> Leaves are triangular or heart-shaped that decrease in size as they go up the slender stem.
> Leaves are soft, thin, and bright to dark green in color. They are 1 to 6 inches long and 1 to 4 inches wide, with saw-toothed edges and linear bumps.
> Has greenish-white flower clusters and small, oval-shaped seed-like fruit that is yellow to grayish-tan.
> Stinging hairs on the stems and lower leaf surface cause a painful stinging sensation upon contact with skin.

Symptoms

> Reddish swelling
> Itching
> Numbness
> Symptoms are typically brief but can be quite uncomfortable.
> Symptoms last for a few minutes to a few hours, and then resolve on their own.

Tips for Prevention

> Learn what stinging nettle plants look like so you can avoid them.
> If you come into contact with stinging nettles, immediately wash affected area with soap and water.

Treatment

> **Call 911 or go to an emergency room if:**
  - You have a severe allergic reaction evidenced by:
    - Body-wide hives or rash
    - Difficulty breathing
    - Dizziness
    - Swelling of the tongue
  - You have a history of severe allergic reactions to bee venom (since stinging nettle and certain species of bees produce formic acid as a defense mechanism). Left untreated, a severe inflammatory reaction could lead to anaphylaxis, which can be **fatal**.
> Topical remedies include:
  - Hydrocortisone cream or spray
  - Create a paste of baking soda and water
  - Calamine lotion
> Antihistamines may help to counter nettle stings.

Stinging Nettles Pictures









Stinging Nettles Rash





Bees

Characteristics

	Western Honey Bee	Bumblebee
		
Distribution	Bees are found throughout the United States.	
Colors	Amber to brown translucent alternating with black stripes. Pattern and color varies depending on strain/breed.	Yellow with black stripes, sometimes with red tail, to dark.
Coat	Furry (short hair).	Furry (long hair).
Size	1.3 cm (0.51 inch)	2.5 cm (0.98 inch)
Legs	Not generally visible while flying. In contrast, wasps' long legs will dangle below its body when in flight.	
Wings	At rest, bee wings will stick out to the sides. In contast, wasp wings will rest close to its body when at rest.	
Waist	Bee waist will be just as big as the rest of its body. In contast, wasp waist is very slender.	
Behavior	Gentle.	Gentle.
Food	Pollen and Nectar from flowers.	
Sting	Bee stings once and then dies. Barbed stinger continues pumping venom.	Stinger retracts. Can sting multiple times.
Lives in	Large colonies of beeswax honeycombs hang vertically, parallel to each other, and usually have a single entrance. Hives can be found in caves, rock cavities, hollow tree cvities, in trees, under roof eaves.	Small cavities in the soil.
		
Colony Size	Thousands of insects at a time.	
Activity	Bees are most abundant in the warmer months. Bees are most active during daytime, when temperatures are warmer. Bees are least active in late evening or early morning when temperatures are cooler.	

Symptoms

> Bee stings cause redness, swelling, pain, and itching.

Tips for Prevention

> Wear light-colored, smooth-finished clothing. Bees tend to attack dark colors, including clothing, hair, etc.
> Avoid wearing cologne, perfume, or perfumed soaps, shampoos, and deodorants.
> Wear clothing to cover as much of the body as possible.
> Wear clean clothing and bathe daily. (Sweat may anger bees.)
> Avoid flowering plants when possible.
> Be aware of your surroundings, keep an eye out for bees, and learn what bees look like so you can avoid them.
> Examine area for the presence of bees prior to using noisy power equipment which may provoke bees
> **When preparing to inspect worksite for bees or nests, always wear** long-sleeved shirt, long pants tied at the ankles or tucked into socks or boots, socks, and shoes. A hat covered with netting to protect the face and gloves to protect the hands and wrists are recommended.
> Bees are generally very docile and will not sting if left alone. Do not step on, touch, or annoy. If provoked, bee will sting to defend nest or itself.
> Look for bees entering or leaving an area, which may indicate presence of a nest.
  - Aerial nests – in trees or under building eaves
  - Ground nests – holes in the ground
  - Nests within cavities – wall voids, cracks in stone walls, holes in water meter, tree cavities, sheds
> Listen for the hum of an active bee colony.
> Be extra careful when moving junk that has been lying around.
> Be alert for bees that are acting strangely. Bees will warn a potential threat with preliminary defensive behavior before going into a full-fledged attack. For example, they may fly at your face or buzz around over your head.
> **IF YOU LOCATE A BEEHIVE** - Never disturb a swarm or colony of bees. Contact a professional pest control company for assistance.
> **IF YOU SEE A SWARM OF BEES** focusing on one place for 48 hours or more, it is likely they have selected it as their new nest. Call a professional pest control company to have it removed before they become defensive.
> If a single bee is flying around, remain calm and slowly retreat from area. Swatting at the bee may cause it to sting.
> If several bees attack at once:
  - RUN AWAY as fast as possible to get away from them!
    - The average human runs faster than the average bee flies.
    - Bees release a chemical when they sting, which may attract other bees.
    - Do not try to retrieve belongings nearby.
    - Do not flail your arms as it may further anger them.
    - Do not freeze in place or “play possum.”
    - Protect eyes and face by covering your head and face with a towel, coat, or pull your shirt up over your face. Stings on your chest are far less serious than those to facial area.
  - GET INDOORS QUICKLY! Find shelter in a building or car with windows and doors closed.
  - If no shelter, run through bushes or high weeds. A shaded area is better than open area to get away.
  - Although it may be tempting, DO NOT JUMP INTO WATER! Bees will wait for you to come up for air.
> If a bee comes inside your vehicle, stay calm, leave the bee alone, slowly stop car and open all windows and doors.
> Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
> Wear a medical identification bracelet or necklace stating their allergy.

Treatment

If a worker is stung by a bee, wasp, or hornet:

> Have someone stay with the worker to be sure that they do not have an allergic reaction.
> Wash the site of injection with soap and water.
> Remove stinger by raking a credit card or fingernail across stinger. Do not pinch stinger, it will push more venom into wound. Do not scratch the sting as this may increase swelling, itching, and risk of infection.
> If worker exhibits conditions of anaphylactic shock (see below), **CALL 911 IMMEDIATELY!**
  - Dizziness
  - Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face, or neck.
  - Choking sensation, difficulty breathing or wheezing or blueness in the lips and skin
  - Nausea, vomiting, and loss of consciousness
  - Drop in blood pressure
> If no sign of shock, apply alcohol wipe, topical sting relief, and cold pack to reduce swelling.
> OTC pain relievers can manage pain. Antihistamine can reduce itching. Take all medications as directed to avoid potential side effects (stomach irritation or drowsiness). If worker has medical issues, do not take antihistamine.
> Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.

Paper Wasps, Yellow Jackets, Hornets

Characteristics

	Wasp	Yellow Jacket	Hornet
			
Distribution	Widely distributed throughout United States, Canada, southern Europe, tropical Asia, Australia, New Zealand, South Africa, North and South America.	Common worldwide. Particularly abundant in southeastern United States.	Widely distrubuted throughout North America, Asia, Africa, Europe, Russia.
Colors	Black insect with yellow markings.	Most have alternating black and yellow body segments, although some may exhibit white and black coloration.	Body is brown with yellow markings. Wings are reddish-orange. Queens are more reddish than brown.
Coat	No hair.	Very little hair on thorax and abdomen.	Very little hair on thorax and abdomen.
Body	Three distinct body segments (head, thorax, abdomen), very slender waist, hard exoskeleton, 6 jointed legs, 2 antennae. Body is slender, more compact than Yellow Jacket.	Three distinct body segments (head, thorax, abdomen), slender waist (in contrast to bee whose abdomen is rounded), hard exoskeleton, 6 jointed legs, 2 antennae.	Three distinct body segments (head, thorax, abdomen), larger waist than wasp or yellow jacket, hard exoskeleton, 6 jointed legs, 2 antennae.
Size	0.7 to 1.0 inch	0.39 to 0.62 inch	1 to 1.5 inches
Legs	Long hind legs dangle below body when in flight.	Lack the bee's expanded hind leg used for carrying pollen.	Lack the bee's expanded hind leg used for carrying pollen.
Wings	4 transparent wings. At rest, wings will rest at its sides.	Elongated wings are as long as the body and fold laterally when at rest.	Elongated wings are as long as the body and fold laterally when at rest.
Waist	Very slender waist.	Very slender waist.	Slender waist.
Behavior	Most will not sting if left alone. Do not step on, touch, or annoy. If provoked, a wasp will sting in defense of itself or its nest.	Most will not sting if left alone. Do not step on, touch, or annoy. If provoked, a yellow jacket will sting in defense of itself or its nest.	Most will not sting if left alone. Do not step on, touch, or annoy. Hornets rarely sting unless colony is seriously disturbed.
Food	Preys on live insects. Also eats nectar.	Scavenges dead insects, sugars and proteins (meats).	Preys on live insects. Also eats tree sap.
Sting	Capable of inflicting multiple,painful stings.	Capable of inflicting multiple,painful stings.	Capable of inflicting multiple,painful stings.
Lives in	Open, umbrella-shaped paper combs are tan or gray. Nests are typically suspended from eaves, tree branches, and other protected locations, such as wood piles or open pipes. Some species (digger wasps) dig nests in the mud evidenced by multiple ground holes.	Enclosed paper combs are tan or gray. Nests are typically found in underground cavities including rodent burrows, hollow trees, compost piles, wood piles. Sometimes nests are suspended in trees, under building eaves, in attics, sheds, crawl spaces, wall voids, other enclosed areas.	Massive, enclosed paper combs are tan or gray, and resemble a large football. Nests are typically found in hollow trees, shrubs, under eaves in barns, shed, attics, and wall voids of buildings. Nests built in wall voids may emit noticeable stench. Nest entrance is frequently 6 feet or more above ground.
			
			
Colony Size	Usually less than 100.	Between 100 to thousands of insects.	Between 200 to 400 insects.
Activity	Wasps, Yellow Jackets and Hornets are most abundant in the warmer months. Wasps, Yellow Jackets and Hornets are most active during daytime, when temperatures are warmer. Wasps, Yellow Jackets and Hornets are least active in late evening or early morning when temperatures are cooler.		

Symptoms

- Insect stings cause redness, swelling, pain, and itching.
- If worker exhibits any of the conditions listed below, **CALL 911 IMMEDIATELY!**
  - Dizziness
  - Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face, or neck.
  - Choking sensation, difficulty breathing or wheezing
  - Blueness in the lips and skin
  - Nausea, vomiting, and loss of consciousness
  - Drop in blood pressure

Tips for Prevention

- Wear light-colored, smooth-finished clothing. Avoid dark or brightly colored clothing.
- Avoid perfumed soaps, shampoos, and deodorants. Do not wear cologne or perfume.
- Wear clothing to cover as much of the body as possible.
- Avoid flowering plants when possible.
- Keep work areas clean of discarded food, especially meat and sugary substances. Cover all food and dispose of wastes in covered containers.
- Remain calm and still if a single stinging insect is flying around. Swatting an insect may cause it to sting.
- Before using string trimmers, lawn mowers, or other loud, vibrating equipment, care should be taken to check for wasps, yellow jackets, or hornets.
- Most wasps, yellow jackets, and hornets will not sting if left alone. Do not step on, touch, or annoy. If provoked, they will vigorously defend their nest or themselves.
- Learn what wasps, yellow jackets, and hornets and their nests look like so you can avoid them.
- **IF YOU LOCATE A NEST** – Never disturb a swarm or colony of wasps! Contact a professional pest control company for assistance.
  - It is generally not advisable to attempt control of stinging insects during the daytime because adults are active and may attack in defense of the nest.
  - The best time to control stinging insects is after dark when foraging adults have returned to their nests.
  - Late evening or early morning treatments are preferred since these insects are generally less active at cooler temperatures.
- If wasps, yellow jackets, or hornets are disturbed, appear aggravated, or if you disturb a nest:
  - Remain calm
  - Retreat slowly and calmly from the area
  - Walk away with hands covering the face to protect more sensitive body areas.
  - Walk toward dense vegetation or enter a vehicle or building to avoid stinging insects.
  - Do not panic or make sudden movements. Quick movements such as fleeing in terror or swatting at them will only agitate them more and attract more stinging insects.
- If a stinging insect comes inside your vehicle, carefully slow the vehicle and open all windows allowing the insects to escape. If insect does not escape through windows, carefully stop the vehicle on the side of the road and exit, being careful to avoid traffic. Open all doors to allow the insects to exit the vehicle.
- Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
- Wear a medical identification bracelet or necklace stating their allergy

Treatment

If a worker is stung by a wasp, yellow jacket, or hornet:

- Have someone stay with the worker to be sure that they do not have an allergic reaction.
- Wash the site of injection with soap and water.
- Do not scratch the sting as this may increase swelling, itching, and risk of infection.
- If worker exhibits conditions of severe allergic reaction or anaphylactic shock (see below), administer Epi-Pen as soon as symptoms begin. Then **CALL 911 IMMEDIATELY!**
  - Dizziness
  - Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face, or neck.
  - Choking sensation, difficulty breathing or wheezing
  - Blueness in the lips and skin
  - Nausea, vomiting, and loss of consciousness
  - Drop in blood pressure
- If no sign of shock, apply alcohol wipe, topical sting relief, and cold pack to reduce swelling.

- Over-the-counter pain relievers, such as ibuprofen, can manage pain. Antihistamine can reduce itching. Take all medications as directed to avoid potential side effects, such as stomach irritation or drowsiness. If worker has medical issues, do not take antihistamine.
- Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.
- Recovery from most stings is rapid and occurs within several days.

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Rattlesnakes

For the most part, if you leave snakes alone, they will leave you alone





Distribution

Rattlesnakes are found in almost every part of the continental United States, but are especially common in the southwest.

Characteristics

- There are many species of rattlesnakes in the US that vary significantly in size, territory, markings, & temperament.
- They range in size from the 1-foot long ridge-nosed rattlesnake to the 5-8 foot long eastern diamondback.
- Rattlesnakes have:
  - large, relatively heavy bodies
  - triangle-shaped heads with a distinct “neck” between head and body
  - a characteristic “rattle” found at the tip of the tail
  - a "pit" on each side of the head, which is a heat-sensitive organ for locating prey
  - Elliptical pupils (Cat-eyes)
  - Venomous bites which may be fatal if not treated promptly.
- Rattlesnakes may be found in most work habitats including grasslands, scrub brush, rocky hills, deserts, swamplands, meadows, and beaches.
- Rattlesnakes live and hide:
  - Under rocks, boulders, fallen logs, bushes
  - Near rocky outcroppings and ledges
  - Rock piles, wood piles, and fallen structures
  - Fields with lots of small animals
  - Anywhere where there are few people about
  - Sunning themselves on rocks or in the middle of a trail on a warm day
- Rattlesnakes rarely bite unless provoked or threatened, and if treated promptly, the bites are rarely fatal.
- Rattlesnakes tend to avoid wide-open spaces where they cannot hide from predators and will generally avoid humans if they are aware of their approach.
- All snakes will bite when threatened or surprised, but most will usually avoid people if possible and only bite as a last resort.
- Rattlesnakes do not seek people out – generally, people who are bitten have had the misfortune of stumbling upon and startling an unsuspecting rattlesnake or have attempted to handle one.
- When rattlesnakes sense a threat, some species protect themselves with camouflage coloration to blend in with their surroundings and others are good at silent escape.
- Rattlesnakes use their rattles or tails as a warning when they feel threatened.
- If threatening rattle fails to send the threat running, rattlesnakes will strike to defend themselves.
- If startled, the snake may go straight to the attack, but they can only strike from a coiled position.
- They can accurately strike at up to one-third their body length.
- Rattlesnakes are capable swimmers.
- Rattlesnakes are not active in cold weather. Since they are cold-blooded, they rely on their surroundings to provide heat. To keep from freezing, rattlesnakes congregate in dens and form swarming balls with their bodies.
- Snake venom can be fatal if not treated promptly. Transport victim to emergency room immediately.

Symptoms

Rattlesnake bites include a pair of puncture marks. Signs and symptoms listed below usually begin immediately:

- swelling
- pain at site of bite
- weakness
- paralysis
- tingling, numbness
- thirst
- tiredness
- shock
- difficulty breathing
- blurred vision
- eyelid drooping
- nausea, vomiting
- destruction of skin tissue
- skin color changes
- bleeding from wound
- low blood pressure
- weak pulse
- rapid pulse

Tips for Prevention

- Wear over-the-ankle boots, loose-fitting long pants, and snake chaps.
- Do not handle snakes! Respect snakes and leave them alone. Most snakebites occur when someone tries to kill, pick up, tease, or harass a snake. The best way to avoid a bite is to leave snakes alone.
- Never play with or tease snakes! Remain at a safe distance more than two snake body lengths away. Most snakes can strike and hit targets at a distance of half their length.
- Do not handle a “dead” snake. It may only be injured, stunned, or playing dead. A freshly killed snake can inject venom several hours after death.
- Do not step or put your hands where you cannot see, especially in crevices of rocks, woodpiles, and deep grass.
- Tap ahead of you with a walking stick before entering an area where you cannot see your feet. Check crevices of rock or woodpiles using a stick or flashlight first. Snakes will try to avoid you if given enough warning.
- Use a stick to sweep or prod around blind areas at low levels, especially warm areas around vibrating equipment.
- Avoid tall grass, weeds, and heavy underbrush where snakes may hide during the day. Stick to well-used trails.
- Step ON logs and rocks, never next to their ledges. Check out stumps or logs before sitting down.
- Be careful when stepping over doorsteps. Snakes like to crawl along building edges.
- Be aware of peak movement times. Snakes are most active in warmer temperatures regardless of season.
- Install outdoor lighting for work areas if working after dark.
- Always carry a flashlight and wear boots when walking after dark.
- If you see a venomous reptile, it is probably just “passing through.” However, if you are concerned about a dangerous animal, seek professional assistance in removing it.
- Never grab “sticks” or “branches” while swimming in lakes and rivers. Rattlesnakes can swim.
- Be aware that venomous snakes are not confined to rural areas. They have been found near urban areas, in river or lakeside parks, and at golf courses.

Treatment

If a worker is bitten by a venomous snake:

- Keep the victim calm, rested and warm, reassuring him/her that bites can be effectively treated in an emergency room. This will help lower heart rate, slowing the spread of the venom.
- Allow bite to bleed freely for 15–30 seconds before cleansing with soap and water. Wipe with hydrogen peroxide.
- Splint or otherwise immobilize any bitten limbs.
- Keep the affected area below heart level to reduce the flow of venom.
- Remove any rings, watches, or constricting items because the affected area may swell.
- If signs of shock (such as paleness, clammy skin, shallow breathing, sweating), lay the person flat, raise the feet about a foot, and cover victim with blanket.
- **CALL 911** if the person has collapsed or is not breathing,
- **CALL 911** to transport victim by ambulance if nearest Emergency Room is more than 1 hour away,
- **Transport the victim IMMEDIATELY** by private vehicle if nearest Emergency Room is less than 1 hour away
- If (and only if) the victim is more than 1 hour away from a medical facility, place a lightly constricting band (that admits one finger beneath it) 2-4 inches above the bite to prevent the systemic spread of the venom.
- If possible, call ahead to the emergency room so antivenin can be ready when the person arrives.
- If possible, get a description of the snake. Do NOT waste time hunting for the snake. Do NOT risk another bite by getting too close. Identification is helpful, but not necessary.
- Do NOT attempt to catch the snake.
- Do NOT allow the person to become over-exerted. If necessary, carry the person to safety.
- Do NOT raise the site of the bite above the level of the person's heart.
- Do NOT apply a tourniquet.
- Do NOT apply cold compresses to a snakebite.
- Do NOT cut into a snakebite with a knife or razor.
- Do NOT try to suck out the venom by mouth.
- Do NOT give the person anything by mouth, including stimulants or pain meds, unless a doctor tells you to do so.
- Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information

Black Widows





Distribution

Black widow spiders are found throughout North America, but are most common in the southern and western areas of the United States.

Characteristics

- Adult female black widow spiders have a shiny black body, slender black legs, and a red or orange mark in the shape of an hourglass on the underside of the large, round abdomen. The hourglass color may range from yellowish to various shades of orange or red.
- Adult females are about 1/2-inch long, not including the legs (about 1-1/2 inches when legs are spread).
- Only adult and larger juvenile female spiders are able to bite through a person's skin and inject enough venom to cause a painful reaction.
- Adult males do possess venom, but their fangs are too small to break human skin.
- Adult males are about half the female's size, with smaller bodies and longer legs. The male's abdomen usually has red spots along the upper midline and white lines or bars radiating out to the sides.
- Newly hatched spiderlings are predominately white or yellowish-white, gradually acquiring more black and varying amounts of red and white with each molt.
- Juveniles of both sexes resemble the male and are harmless.
- Black widow spiders and their associated webs usually are found in dark, dry, sheltered, relatively undisturbed places such as:
  - piles of wood, rubbish, or stones
  - garages, sheds, barns
  - hollow stumps
  - old animal burrows
  - culverts and water drain pipes
  - cluttered areas in basements and crawl spaces
  - utility meter boxes
  - outhouses
  - sometimes among plants
- People are most likely to be bitten when they disturb spiders while cleaning out or picking up items in such places.
- Spiders are usually not aggressive. Most bites occur when spider is trapped or unintentionally contacted or when humans come into direct contact with their webs that they build between objects.

Symptoms

- Initially, the bite from a black widow spider may go unnoticed, but some people report a short stabbing pain.
- There may be slight local swelling and two faint red spots, which are puncture points from the fangs.
- Pain soon begins and usually progresses from the bite site to the abdomen and back. Severe cramping or rigidity may occur in the abdominal muscles. Other symptoms may include:
  - Nausea
  - Profuse perspiration
  - Tremors
  - Difficulty breathing and speaking
  - Restlessness
  - Increased blood pressure
  - Fever
- The severity of a person's reaction to a black widow spider bite depends on the area of the body bitten, amount of venom injected, and individual's sensitivity to the venom.
- Typically, symptoms often diminish after a day or so and gradually subside over the next 2 to 3 days.
- **CALL 911 IMMEDIATELY** or go to an emergency room if worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past

Tips for Prevention

- Always wear Gloves, Long-sleeved shirt, Long pants, and Boots when:
  - working in areas that have been undisturbed for a period of time
  - there are good hiding places for spiders
  - handling stacked or undisturbed piles of materials such as cardboard boxes, firewood, lumber, or rocks
- Inspect and shake out clothing and shoes before getting dressed.
- Inspect and shake out towels or equipment before use
- INDOOR work areas:
  - Discard of boxes, lumber, and other unwanted items in basements, crawl spaces, garages, and sheds to eliminate potential hiding places
  - Store apparel and outdoor equipment in tightly closed plastic bags
  - Store any items off the floor and away from walls
  - Minimize the empty spaces between stacked materials
- OUTDOOR work areas:
  - Remove and reduce debris and rubble
  - Trim or eliminate tall grasses
- Keep your tetanus boosters up-to-date (every 10 years). Spider bites can become infected with tetanus spores.
- Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
- Wear a medical identification bracelet or necklace stating their allergy.

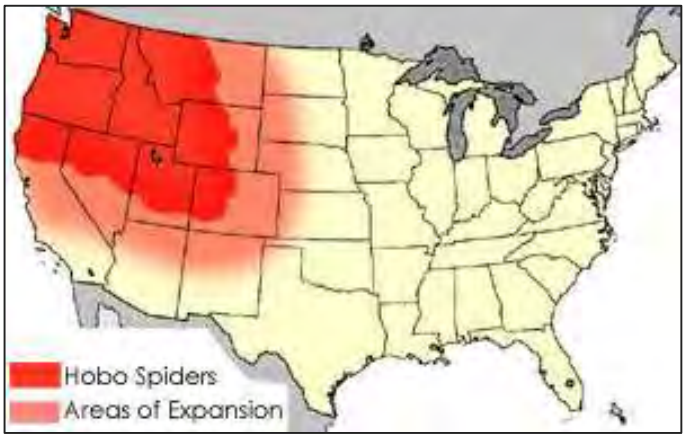
Treatment

If a worker is bitten by a black widow spider:

- Remain calm.
- Have someone stay with the worker to be sure that they do not have an allergic reaction. If worker exhibits conditions of anaphylactic shock (see below), **CALL 911 IMMEDIATELY!**
  - Dizziness
  - Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face, or neck.
  - Choking sensation, difficulty breathing or wheezing
  - Blueness in the lips and skin
  - Nausea, vomiting, and loss of consciousness
  - Drop in blood pressure
- If no sign of shock:
  - Wash the bite area with soap and water.
  - Apply an ice pack directly to the bite area to relieve swelling and pain.
  - **Seek medical attention immediately.**
  - Most people who are bitten spend a few hours under observation by a physician but do not develop symptoms severe enough to require treatment. Serious long-term complications or death are very rare
  - A hospital stay may be recommended, particularly for small children, the elderly, or those with a heart condition or health problems.
- Identify the type of spider if able to do so safely. Identification will aid in medical treatment.
- Elevate bite area if possible.
- Do not attempt to remove venom.
- Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.

Hobo Spider





Distribution

Hobo spiders are found throughout the Pacific Northwest. They can be found in Washington, Oregon, Northern California, Idaho, Northern Nevada, Montana, Wyoming, Utah, Colorado, and Southern British Columbia.

Characteristics

- Without a microscope you may not be able to identify hobo spiders. You may have to settle for determining that your spider is NOT a hobo spider.
- A hobo spider is brown in color and about 1/4 to 5/8 inch in body length, not including its long legs.
- Abdomen has a pattern of yellow markings on a greyish background. Spiders with two very distinct longitudinal dark stripes on the top side of the cephalothorax (part of body where legs connect) are NOT hobo spiders.
- Hobo spiders have uniformly colored legs. Spiders with dark rings around the legs are NOT hobo spiders.
- Hobo spider legs have fine hairs. Spiders with legs that are shiny and lacking fine hairs are NOT hobo spiders.
- Hobo spiders are fast runners, but unlike most spiders, are poor climbers and are rarely seen above ground level.
- Hobo spiders construct a snare referred to as a funnel web. This trampoline-like, horizontal web that constricts back into a funnel or hole is typically found in a crack between bricks or under wood, stones, or vegetation. The spider waits in the mouth of the funnel for prey to fall onto the horizontal surface, and then it rushes out, grabs the prey, and takes it back into funnel to consume. Many other spider species build funnel webs besides hobo spiders, so this is NOT a definitive identification for a hobo spider.
- Hobo spiders prefer habitats that have holes, cracks, or recesses to support their funnel-like webs. Although they prefer to build funnel-like webs, some will occasionally produce flat webs in less-suitable habitats.
- Common OUTDOOR habitats include:
  - rock retaining walls
  - cracks in soil or concrete
  - around foundations, especially those with tall grass adjacent
  - window wells
  - stacks of lumber, firewood, bricks, or other materials or items
  - underneath objects on the ground surface, such as rocks, boards, debris
- INDOORS, the hobo spider is usually found in basement or ground-floor levels of dwellings since it is a poor climber. Suitable nesting areas include:
  - spaces between boxes or other items in storage
  - window sills
  - under baseboard heaters or radiators
  - behind furniture
  - closets
- Wandering males may occasionally become trapped in clothing, shoes, tarps, bathtubs, or other locations from which they cannot escape.
- Hobo spiders are most commonly encountered in June through September when males wander in search of females. For this reason, most bites occur during July through September. Females tend to stay in their webs.
- The supposed aggressiveness of the hobo spider is debatable and may be a myth. They seem to be no more aggressive than other similar spiders. When trapped, their main interest seems to be escape, not fighting back

Symptoms

- The bite of a hobo spider is relatively painless and is reported to feel like a pin prick.
- Within 15 minutes of the bite, numbing sensations may occur at the bite site or other areas of the body (such as the tongue), and dizziness may occur.
- After about 1 hour, reddening around the bite begins and enlarges in area.
- The bite site becomes hardened and swollen within about 18 hours.
- Blistering at the bite site, severe headache, visual or auditory disturbances, weakness, and joint pains may occur within the first 36 hours. During this period, blood platelet counts will be low.
- Within 24 to 36 hours, a discharge of fluids and blistering may occur.
- After 2 or 3 days, the area around the wound may blacken.
- After 7 to 10 days, the necrotic area will usually take on a characteristic elliptical shape and blood platelet counts will return to normal. Spells of nausea and sweating often persist through this time period, and headaches may persist even longer.
- A cycle of sloughing and crusting at the ulcerated site (with the discharge of blood and serum) may continue for some time, often requiring six months or more for complete healing to occur. Reconstructive surgery may be required in serious cases.
- **CALL 911 IMMEDIATELY** or go to an emergency room if worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past.

Tips for Prevention

- Always wear protective clothing (gloves, long-sleeved shirt, long pants, and boots) when:
  - working in storage rooms, garages, or areas that have been undisturbed for a period of time
  - handling stacked or undisturbed piles of materials such as cardboard boxes, firewood, lumber, or rocks
  - when working in the yard around tall grasses
  - there are good hiding places for spiders
- Inspect and shake out gloves, boots, and clothing before getting dressed.
- Inspect and shake out tarps or equipment before use.
- Be careful when moving things out of storage areas, in particular, cardboard boxes. Hobo spiders like to hang out in the space under folded cardboard flaps. Be careful when carrying boxes as you might place your fingers on a hobo spider when you pick up the box or press a hobo spider against your body when you carry it. Remove any spiders inside boxes using a vacuum cleaner and dispose of the bag. Reseal all open edges of cardboard boxes with tape before restoring.
- Clean up clutter and junk that is lying around. Hobo spiders love clutter and prefer to live under and between items, such as plywood, tarps and cardboard on the ground.
- In basements or ground level floors, avoid storing clothing, shoes, tarps, and other such items on or near floor level where hobo spiders could get entangled or trapped in them.
- When storing things in the garage, basement or attic, put them in plastic bags that close with a plastic zipper lock or twist-tie. This is especially important for things that you stick your hands and feet into, such as gloves, boots, or raingear. Tape up the edges of cardboard boxes so there is no way a spider can squeeze inside.
- Do not stack wood against buildings. Hobo spiders like woodpiles and if they take up residence inside wood stacked next to a building, there is increased chance they will wander indoors. Move woodpiles as far from building as possible, stack it off the ground and cover it with a tarp, making the firewood less attractive to insects and the spiders that feed upon them.
- Keep your tetanus boosters up-to-date (every 10 years). Spider bites can become infected with tetanus spores.
- Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
  - Wear a medical identification bracelet or necklace stating their allergy.

Treatment

If a worker is bitten by a hobo spider:

- Remain calm.
- Have someone stay with the worker to be sure that they do not have an allergic reaction. If worker exhibits conditions of anaphylactic shock (see below), **CALL 911 IMMEDIATELY!**
- Dizziness
- Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face or neck.
- Choking sensation, difficulty breathing or wheezing
- Blueness in the lips and skin

> Nausea, vomiting, and loss of consciousness
> Drop in blood pressure
> If no sign of shock:
> Wash the bite area with soap and water.
> Apply ice pack directly to bite area to relieve swelling and pain. Leave it on for 10 minutes and then off for 10 minutes. Repeat this process. Reduce ice contact time for individuals with circulatory problems.
> **Transport worker to emergency room immediately**. The venom of a hobo spider can cause a severe skin lesion requiring professional medical attention. Treatment is important to reduce complications.
> If possible, place the spider in a secure container and bring to emergency room for identification.
> Most people who are bitten spend a few hours under observation by a physician but do not develop symptoms severe enough to require treatment. Serious long-term complications or death are very rare.
> Elevate bite area if possible.
> Do not attempt to remove venom.
> Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.

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Scorpions

Distribution

Nearly 100 species of scorpions inhabit nearly every state of the United States, except the northeast region, including: WA, OR, CA, NV, UT, AZ, ID, MT, WY, CO, NM, TX, ND, NE, KS, OK, MO, IL, AR, LA, KY, TN, MS, AL, VA, NC, SC, GA, FL.

The most widespread species, the Striped Bark Scorpion, is venomous but not considered deadly to humans. It is found most heavily concentrated in Texas radiating out to Arizona, Arkansas, Colorado, Illinois, Kansas, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, Oklahoma, and Tennessee. Average length is 2.5 inches. Color is yellowish tan to brown with dark lengthwise bands.



Distribution of Striped Bark Scorpion



Striped Bark Scorpion

Out of nearly 100 scorpion species found in the United States, only the Arizona Bark Scorpion possesses venom that is toxic enough to cause human fatalities. Especially widespread in most parts of Arizona, small populations inhabit southeastern California, Nevada, western New Mexico and southern Utah. Average size is 1-2 inches long. Color is golden yellow or very light brown with dark lengthwise bands. Pincers are elongated and thin, unlike other scorpions that have thick, lobster-like pedipalps.





The Arizona Bark Scorpion is the only species in the United States whose sting may be fatal to humans. At particular risk are people with a history of allergic reactions to stings, young children, the elderly, or people in poor health. Antivenins are available.

Characteristics

> There are many species of rattlesnakes in the US that vary significantly in size, territory, markings, temperament.
> They range in size from the 1-foot long ridge-nosed rattlesnake to the 5-8 foot long eastern diamondback.
> Rattlesnakes have:
> large, relatively heavy bodies
> triangle-shaped heads with a distinct “neck” between head and body
> a characteristic “rattle” found at the tip of the tail
> a "pit" on each side of the head, which is a heat-sensitive organ for locating prey
> Elliptical pupils (Cat-eyes)
> Venomous bites which may be fatal if not treated promptly.
> Rattlesnakes may be found in most work habitats including grasslands, scrub brush, rocky hills, deserts, swamplands, meadows, and beaches.
> Rattlesnakes live and hide:
> Under rocks, boulders, fallen logs, bushes
> Near rocky outcroppings and ledges
> Rock piles, wood piles, and fallen structures
> Fields with lots of small animals
> Anywhere where there are few people about
> Sunning themselves on rocks or in the middle of a trail on a warm day
> Rattlesnakes rarely bite unless provoked or threatened, and if treated promptly, the bites are rarely fatal.
> Rattlesnakes tend to avoid wide-open spaces where they cannot hide from predators and will generally avoid humans if they are aware of their approach.
> All snakes will bite when threatened or surprised, but most will usually avoid people if possible and only bite as a last resort.

Symptoms

Onset of symptoms from scorpion sting is usually quite rapid and can last between 24-48 hours. Symptoms may include:

- Stinging or burning sensation at injection site
- Positive "tap test" (extreme pain when sting site is tapped with finger)
- Restlessness
- Convulsions
- Roving eyes
- Staggering gait
- Thick tongue sensation
- Slurred speech
- Drooling
- Muscle twitches
- Abdominal pain / cramps
- Breathing difficulties
- Cardiac Irregularities

- Symptoms usually subside within 48 hours, although stings from a Bark Scorpion can be life-threatening.
- **CALL 911 IMMEDIATELY** or go to an emergency room if worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past.

Tips for Prevention

- Avoid sticking your hands or feet into places that may act as potential hiding spots for scorpions.
- Always wear Boots, Gloves, Long-sleeved shirt, and Long pants when:
  - working in geographic regions where scorpions are known to inhabit (see distribution map on page 1)
  - working in areas that have been undisturbed for a period of time
  - there are good hiding places for scorpions
  - handling stacked or undisturbed piles of materials such as boxes, firewood, lumber, or rocks
- Inspect and shake out clothing and shoes before getting dressed.
- Inspect and shake out tarps, towels or equipment before use
- Indoor work areas:
  - Discard of boxes, lumber, and other unwanted items in basements, crawl spaces, garages, and sheds to eliminate potential hiding places
  - Store apparel and outdoor equipment in tightly closed plastic bags
  - Store any items off the floor and away from walls
  - Minimize the empty spaces between stacked materials
- Outdoor work areas:
  - Remove trash, logs, boards, stones, bricks, debris, and rubble from around building structures.
  - Keep grass closely mowed near the structure.
  - Prune bushes and overhanging tree branches away from the structure. Tree branches give scorpions a path to the roof.
  - Rest garbage containers on bricks or other items that push them up above ground level.
- Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
  - Wear a medical identification bracelet or necklace stating their allergy.

Treatment

If a worker is bitten by a scorpion:

- Get out of harm's way to avoid another sting.
- If able to do so safely, identify the scorpion color and description. Identification will aid in medical treatment.
- Do NOT try to capture the scorpion as you might get stung a second time.
- Remain calm.
- Have someone stay with the worker to be sure that they do not have an allergic reaction. If worker exhibits conditions of anaphylactic shock (see below), **CALL 911 IMMEDIATELY** or transport to an emergency room.
  - Dizziness
  - Swelling (hives) moves to other parts of the body, especially the tongue, breathing tubes, face or neck.
  - Difficulty breathing, choking sensation, or wheezing
  - Blueness in the lips and skin
  - Nausea, vomiting, and loss of consciousness
  - Drop in blood pressure
- If no sign of shock:
  - Wash the bite area with soap and water.
  - Do not attempt to remove venom.
  - Apply ice pack directly to the bite area 10 minutes on, 10 minutes off, to relieve swelling and pain. Repeat as necessary.
  - If stung on a limb (arm or leg) elevate the limb to heart level.
- Call (888) 449-7787 for a Care Management Nurse who will assess symptoms to determine the course of action.

Lyme Disease & Other Tick-Borne Diseases

Distribution

Maps below indicate the general expected distribution of ticks that cause disease in the contiguous United States.





Western blacklegged tick (*Ixodes pacificus*)

- > Distribution: This tick is distributed along the Pacific coast of the United States.
- > Associated Diseases: Lyme disease and Anaplasmosis





Blacklegged tick or "Deer Tick" (*Ixodes scapularis*)

- > Distribution: Widely distributed in the northeastern and upper midwestern United States.
- > Associated Diseases: Lyme disease, Aanaplasmosis, and Babesiosis





Gulf Coast tick (*Amblyomma maculatum*)

- > Distribution: Coastal areas of the United States along the Atlantic coast and the Gulf of Mexico.
- > Associated Diseases: *Rickettsia parkeri*, a form of Spotted Fever





Lone star tick (*Amblyomma americanum*)

- > Distribution: Primarily found in the southeastern and eastern United States.
- > Associated Diseases: Eehrlichiosis, Tularemia, and Southern Tick-Associated Rash Illness (STARI)





Brown dog tick (*Rhipicephalus sanguineus*)

- > Distribution: Brown dog ticks are found throughout the contiguous U.S., Hawaii, and the world.
- > Associated Diseases: Rocky Mountain Spotted Fever (southwestern U.S. and along the U.S-Mexico border)





American dog tick (*Dermacentor variabilis*)

- > Distribution: Widely distributed east of the Rocky Mountains. Also occurs in limited areas on Pacific Coast.
- > Associated Diseases: Rocky Mountain spotted fever, Tularemia





Rocky Mountain wood tick (*Dermacentor andersoni*)

- > Distribution: Rocky Mountain states.
- > Associated Diseases: Rocky Mountain Spotted Fever and Tularemia




Characteristics

> Ticks live in wooded areas, in tall brush / grass, under leaves, or on host animals themselves.
> Ticks are related to mites and spiders. They have four stages of development — egg, larval, nymph, and adult stages.
> From the larval to the adult stages, ticks attach to a living host and feed on the host's blood. In doing so, they may transmit germs that cause diseases, some that can have serious consequences for humans.
> After hatching from the egg, the tick must take a blood meal to complete each stage in its life cycle. Each stage of the tick usually takes a blood meal from a different host. For most ticks, each meal is taken from a different type of host.
> Ticks are usually active in the spring, summer, and fall; however, the adults of some species are active in the winter.
> When seeking a blood meal, ticks move from leaf litter, from a crack or crevice along a building foundation or from another secluded place to grass or shrubs where they attach themselves to an animal as it passes.
> Once it is on a host, a tick crawls upward in search of a place on the skin where it can attach to take a blood meal.
> The tick's mouthparts are barbed, making it difficult to remove the tick from the skin. In addition, the tick manufactures a glue to hold the mouthparts in place.
> Of the many different tick species found throughout the world, only a select few bite and transmit disease to humans.
> Lyme disease is the most commonly reported tick-borne disease in the United States. Other tick-borne diseases in the U.S. include: Babesiosis, Ehrlichiosis, Rocky Mountain Spotted Fever, Southern Tick-Associated Rash Illness (STARI), Tick-Borne Relapsing Fever, Tularemia, Anaplasmosis, Colorado tick fever, Powassan encephalitis, Q fever.

Symptoms

Many tick-borne diseases have similar signs and symptoms. If you have been bitten by a tick and develop any of the symptoms below within a few weeks, months or even longer, see your doctor immediately. Tick-borne diseases can result in mild symptoms treatable at home to severe infections requiring hospitalization. Although easily treated with antibiotics, these diseases can be difficult for physicians to diagnose. Early recognition and treatment of the infection decreases the risk of serious complications. The most common symptoms of tick-related illnesses are:

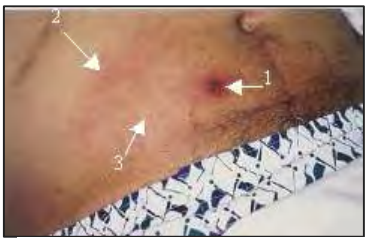
1. **Fever / chills:** With all tick-borne diseases, patients can experience fever at varying degrees and time of onset.
2. **Aches and pains:** Tick-borne disease symptoms include headache, fatigue, body/muscle aches, stiff neck, and facial paralysis. With Lyme disease you may also experience joint pain. The severity and time of onset of these symptoms can depend on the disease and the patient's personal tolerance level.
3. **Rash:** Different tick species carry different diseases, each which can result in distinctive rashes:
   - The rash of Lyme disease may appear within 3-30 days, typically before the onset of fever. The Lyme disease rash is the first sign of infection and is usually a circular rash. This rash occurs in approximately 70-80% of infected persons and begins at the site of a tick bite. It may be warm, but is not usually painful. Some patients develop additional lesions in other areas of the body several days later.
   - The rash of Southern Tick-Associated Rash Illness (STARI) is nearly identical to that of Lyme disease, with a red, expanding "bulls-eye" lesion that develops around the site of a lone star tick bite. Unlike Lyme disease, STARI has not been linked to any arthritic or neurologic symptoms.
   - The rash of Rocky Mountain Spotted Fever (RMSF) varies greatly from person to person in appearance, location, and time of onset. About 10% of people with RMSF never develop a rash. Most often, the rash begins

2-5 days after the onset of fever as small, flat, pink, non-itchy spots on the wrists, forearms, and ankles and spreads to the trunk. It sometimes involves the palms and soles. The red to purple, spotted rash of RMSF is usually not seen until the 6th day or later after onset of symptoms and occurs in 35-60% of patients.

- In the most common form of Tularemia, a skin ulcer appears at the site where the tick entered the body. The ulcer is accompanied by swelling of regional lymph glands, usually in the armpit or groin.
- Ehrlichiosis can cause a rash in about 30% of patients and up to 60% of children. Rash appearance ranges from small, flat red spots to small, raised red bumps to small red or purple spots on the skin, and may appear after the onset of fever.



"Target" lesion on a patient with Lyme disease.



Patient with STARI.
1. Site of tick bite.
2. Red, radial, expanding edge of rash.
3. Central clearing.



Rash on hand and forearm of patient with Rocky Spotted Mountain Fever.



Ulcer caused by tularemia.

Treatment / Tick Removal

If you find a tick attached to your skin, remove the tick as quickly as possible:

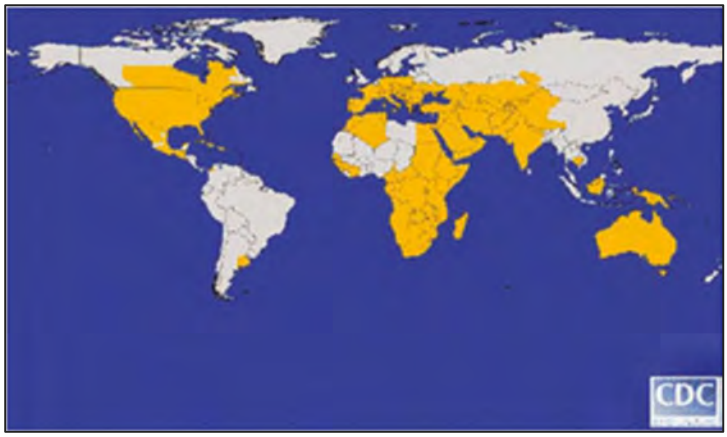
1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward gently but firmly with steady, even pressure. Do not twist or jerk the tick; this can cause the mouthparts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick,
   > Thoroughly clean the bite area and your hands with soap and water
   > Apply an antibiotic to the bite area.
4. Follow-Up – If you develop fever / chills, aches and pains, flu-like symptoms, or a rash within several weeks of removing a tick, see your doctor immediately. Be sure to tell the doctor about your recent tick bite, when the bite occurred, and where you most likely acquired the tick.

Never use gasoline, kerosene, petroleum jelly, fingernail polish, or matches to kill or drive a tick out once it has become embedded.

Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.

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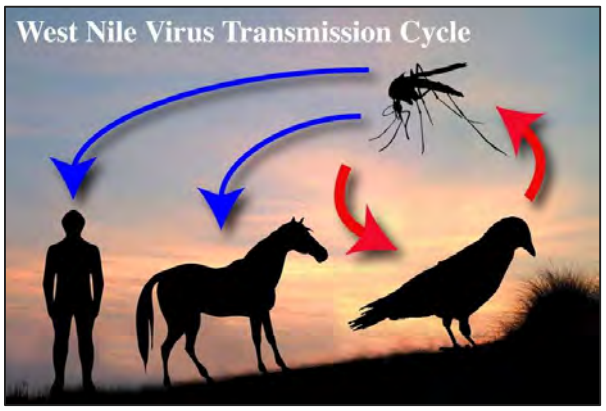
West Nile Virus





Distribution

In the United States, West Nile Virus has been detected in all lower 48 lower states (not in Hawaii or Alaska).



What is West Nile Virus?

> West Nile Virus is a mosquito-borne disease that can cause encephalitis or meningitis, inflammation of the brain or surrounding tissues.

Who is at risk for infection?

> Anyone living in an area where West Nile Virus is present in mosquitoes can be infected.
> The risk of infection is highest for people who work outside or participate in outdoor activities because of greater exposure to mosquitoes.
> People with certain medical conditions (such as cancer, diabetes, hypertension, and kidney disease), elderly, young children, and pregnant moms are at greater risk for serious illness resulting from West Nile Virus.

How do people get infected with West Nile Virus?

> Most people are infected with West Nile Virus by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread the virus to humans and other animals.
> In a very small number of cases, West Nile Virus has been spread through blood transfusions, organ transplants, and from mother to baby during pregnancy, delivery, or breastfeeding.

When do most cases of West Nile Virus disease occur?

> Most people are infected from June through September.

Symptoms

> Most people (70-80%) who become infected with West Nile Virus do not develop any symptoms.
> About 1 in 5 people who are infected will develop mild disease, generally called West Nile fever, which may cause some or all of the following symptoms within 2 to 14 days after becoming infected:

- Abdominal pain
- Diarrhea
- Fever
- Headache
- Lack of appetite
- Muscle aches
- Joint pains
- Nausea
- Rash
- Sore throat
- Swollen lymph nodes
- Vomiting

These symptoms usually last for 3 – 6 days, but may last a month. Most people with this type of West Nile Virus disease recover completely, but fatigue and weakness can last for weeks or months.

> Less than 1% of people who are infected will develop serious neurologic illness such as West Nile encephalitis or West Nile meningitis (inflammation of the brain or surrounding tissues). The following symptoms can occur, and need prompt medical attention:

- Headache
- High Fever
- Confusion or change in ability to think clearly
- Loss of consciousness or coma
- Stiff neck
- Muscle weakness
- Weakness of one arm or leg
- Tremors
- Seizures
- Paralysis

> In rare situations, some people may experience anaphylaxis after being bitten by mosquitoes.
> **CALL 911 IMMEDIATELY** or go to an emergency room if worker is suffering a severe allergic reaction, such as swelling or difficulty breathing, or has had any type of severe allergic reaction in the past.

Tips for Prevention

The most effective way to avoid West Nile Virus disease is to prevent mosquito bites:

> Use insect repellents when you go outdoors. Repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-mentane-diol products provide longer-lasting protection. To optimize safety and effectiveness, repellents should be used according to the label instructions.
  - Do not apply repellents containing permethrin directly to skin.
> Wear long sleeves, long pants, and socks from dusk through dawn when mosquitoes are most active.
  - Mosquitoes may bite through thin clothing, so spraying clothes with repellent containing permethrin or another EPA-registered repellent will give extra protection.
> Empty standing water from containers such as trash bins, buckets, plastic tarps, and wheelbarrows on a regular basis to help reduce the number of mosquitoes around your work area.
> Report dead birds to local authorities. Dead birds may be a sign that West Nile Virus is circulating between birds and the mosquitoes in an area. By reporting dead birds to state and local health departments, you can play an important role in monitoring West Nile Virus.
> Workers with a history of severe allergic reactions to insect bites or stings should:
  - Carry an epinephrine auto injector (EpiPen)
  - Wear a medical identification bracelet or necklace stating their allergy.

Treatment

If a worker is bitten by a mosquito:

> Swat mosquito away to reduce further risk of infection.
> If worker has had any type of severe allergic reaction to insect bites or stings, have someone stay with the worker to be sure that they do not have an allergic reaction.
> **CALL 911 IMMEDIATELY** or go to emergency room if worker exhibits severe allergic reaction or signs of shock:
  - Swelling (hives) moves to other body parts, especially tongue, breathing tubes, face or neck.
  - Difficulty breathing, wheezing or choking sensation
  - Chest pain or tightness in chest
  - Nausea / Vomiting
  - Loss of consciousness
  - Severe sweating
  - Slurred speech
  - Dizziness
  - Blueness in the lips and skin
> If no sign of shock, apply alcohol wipe, topical sting relief, and cold pack to reduce swelling.
> Over-the-counter pain relievers can be used to reduce fever and manage pain. Follow directions on packaging.
> Antihistamines may reduce itching.
  - Follow directions on packaging to avoid potential side effects.
  - Drowsiness or stomach irritation may occur.
  - Do not take antihistamine if worker has medical issues.
> Call your health care provider if you develop symptoms of West Nile Virus infection.
> **CALL 911 IMMEDIATELY** or go to an emergency room if you develop any of the following symptoms:
  - Headache
  - High Fever
  - Confusion or change in ability to think clearly
  - Loss of consciousness or coma
  - Muscle weakness
  - Weakness of one arm or leg
  - Stiff neck
  - Tremors
  - Seizures
  - Paralysis
> Though people with milder symptoms typically recover on their own, in more severe cases, patients often need to be hospitalized to receive supportive treatment, such as intravenous fluids, pain medication, and nursing care.
> Call (888) 449-7787 for a Care Management Nurse who will provide further guidance and injury information.

APPENDIX E

SAFETY DATA SHEETS
(FORMERLY MATERIAL SAFETY DATA SHEETS)

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APPENDIX F
PERSONAL PROTECTIVE CLOTHING/GLOVES INSPECTION, DONNING, AND DOFFING PROCEDURES

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Personal Protection Clothing, Glove Inspection, and Donning and Doffing Procedures

Donning Non-Encapsulating Garments

1. Conduct a visual inspection of the garment before you begin donning: -garment should be free of discoloration, alterations or physical damage -inner gloves should be fully inserted into outer gloves
2. Remove all jewelry and personal items (pens, key rings, badges, pagers, knife cases, etc.) that might damage the garment.
3. Check function of respirator and place nearby donning location.
4. Visually check size and condition of outer boots and place nearby.
5. Open the garment closure completely.
6. Read the garment size label to assure proper fit.
7. Apply anti-fog to inside of visor, if present.
8. Remove your shoes. If the garment has attached socks, these socks are worn inside outer chemical boots. These socks do not have adequate durability or slip resistance to be worn as the outer footwear covering.
9. While sitting, insert your feet into the garment legs and down into socks, if so equipped. Stretch your legs out to maximum extension while pulling garment up around hips.
10. If the garment has outer boot top covers, pull the boot top covers up, and don outer boots. Then pull boot top cover down over boots as far as possible. If the garment does not have socks, pull the garment cuff up before donning the boot, then pull the cuff down over the outside of the boot.
11. Place one hand in the sleeve and pull the garment sleeve to your shoulder. Make sure your hand is securely inside the glove, if attached.
12. Place your other hand in the sleeve and glove, if attached, and pull the garment over that shoulder.
13. If gloves are not attached to the garment, don the gloves. Pull the sleeves of the garment over the gauntlet of the gloves. Do not rely upon taping to provide a liquid-tight seal. Taping should only be used to hold the sleeve in position over the glove gauntlet. If a leak-proof seal between the glove and sleeve is required, then you should wear a garment with attached gloves.
14. Don your respirator facepiece and check its function. If using an SCBA, disconnect the air supply from the facepiece, if possible, to save air supply.
15. Don protective headgear, if it is worn underneath the garment hood, and communication equipment.
16. Place the attached hood, if present, over your head and close the zipper.
17. After checking that the zipper is completely closed, fold and secure the flaps over the closure.
18. In the case of an air-line breathing system, complete all connections and adjustments.
19. Connect your respirator facepiece to the air supply and make sure the respirator is functioning properly.
20. If applicable, place the separate hood over your head and attach the underarm straps.

Doffing Non-Encapsulating Garments

Gross decontamination and removal of all personal protective equipment will be performed before leaving the site. Contaminated clothing will be carefully removed to minimize the dislodgment of particulate and collected in a drum for disposal. Respiratory protection will be kept on until the removal of contaminated clothing has been completed.

Shaking or blowing dust or other materials off potentially contaminated clothing or equipment to remove dust or other materials is not permitted. If dust removal is required, a vacuum cleaner designed for the removal of toxic materials and outfitted with high efficiency particulate filtration (HEPA) that is 99.97 percent efficient again particles of 0.3 micron size or larger.

1. If your garment has been contaminated or is suspected of being contaminated, you must first undergo field decontamination.
2. After field decontamination, if the garment has been contaminated or is suspected of being contaminated, you should continue to use your respirator until the garment has been doffed and removed.
3. An assistant should help you doff the garment after field decontamination. If your garment has been contaminated, your assistant should wear protective clothing and respiratory equipment.

4. Remove and discard the separate outer hood if present.
5. If you are wearing an SCBA or PAPR, your assistant should help you remove the backpack or filter unit without disconnecting the facepiece. The tank or filter unit should either be held by another person or placed in a dry, secure position. While you stand, your assistant should partially open the closure of your garment, pull down the hood, open the closure completely, and peel the garment down and away from your shoulders. The assistant should help you remove your arms from the sleeves.
6. Your assistant should lower the garment below your the hips without touching the inside of the garment.
7. While sitting, your assistant should help you remove your boots, pull the garment off your legs, and take the garment away.
8. Once the garment has been removed, you can disconnect and remove the respiratory facepiece.

Doffing Chemical Resistant Gloves

Using the Personal Protective Equipment (PPE) correctly is another link in the chain of keeping a person safe. If the PPE is not worn or used correctly then it may not offer the expected protection to the user. Below are guidelines for putting on (donning) and removing gloves (doffing).

Donning Gloves

1. Wash hand before putting gloves on.
2. Remove all jewelry from hands.
3. Pick up one glove with the right hand
4. Line the thumb side of the glove up with the thumb side of the left hand
5. Slip the open end of the glove over the left hand and thumb
6. Stretch the palm side of the glove with the right hand, pulling the glove on to finger level.
7. Position the fingers of the glove in line with the fingers of the left hand.
8. Pull the remainder of the glove onto the left hand.
9. Pick up the second glove with the gloved left hand.
10. Line the thumb side of the glove up with the thumb side of the right hand.
11. Slip the open end of the glove over the right hand and thumb.
12. Stretch the palm side of the glove with the left hand; pull the glove on to finger level.
13. Position the fingers of the glove in line with fingers of the right hand.
14. Pull the remainder of the glove onto the right hand.
15. Proceed with activity requiring gloves.



Doffing Gloves

There are two standard methods to taking off gloves. Method One for glove removal is recommended, because it is harder for a person to become contaminated. However, if Method Two can be done without causing contamination, use the easiest method. Below are both methods.



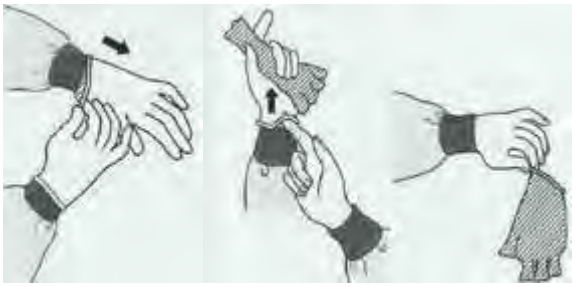
Method One:

1. Grasp one of the gloves and cuff and pull it partway off. The glove will turn inside out. It is important to keep the first glove partially on your hand before removing the second glove. This protects you from touching the outside of either glove with your bare hands.
2. Leaving the first glove over your fingers, grasp the second glove near the cuff and pull it part of the way off. The glove will turn inside out. It is important to keep the second glove partially on your hand to protect you from touching the outside surface of the first glove with your bare hand.
3. Pull off the two gloves at the same time, being careful to touch only the inside surfaces of the gloves with your bare hands.
4. Dispose of the gloves properly in accordance with waste disposal regulations.
5. Wash hands thoroughly



Method Two:

1. Grasp outside edge near wrist.
2. Peel away from hand turning glove inside out.
3. Hold in opposite gloved hand.
4. Slide ungloved finger under the wrist of the remaining glove, be careful not to touch the outside of the glove.
5. Peel off from inside, creating a bag for both gloves
6. Discard
7. Wash hands thoroughly



Do's and Don'ts of Glove Use

1. Work from clean to dirty—this will help prevent contamination
2. Don't touch your face or adjust PPE with contaminated gloves
3. Change gloves when heavily soiled or if they are torn.
4. Discard gloves after use, never wash or reuse disposable gloves.

References

Donning and Doffing non-encapsulating garments instructions obtained from DuPont Personal Protective Equipment, June 2007

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APPENDIX G
HEAT STRESS PROTOCOL AND PREVENTION PLANS

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Heat Stress Protocol

If the ambient air temperature is above 80 degrees F, the need for heat stress and heat exhaustion monitoring will be evaluated. Heat stress and heat exhaustion monitoring will be required if the temperatures exceed 90 degrees F. Heat stroke is a life-threatening situation in which the victim's temperature control system, which produces sweating to cool the body, stops working. Body temperature can rise quickly to elevations causing brain damage and death. Heat exhaustion is less dangerous and results from the loss of body fluids. This fluid loss causes blood flow to decrease in vital organs resulting in a form of shock. High humidity (>70% relative humidity) may retard evaporation resulting in inadequate cooling of the body. Heat cramps are muscular spasms due to heavy exertion. These cramps usually involve the abdominal and leg muscles and are due to the loss of water and salt from heavy sweating.

Severity	Signs/Symptoms	First Aid
Heat Fatigue	> Early warning sign of heat stress > Too tired and week to concentrate on doing work	> Move to cool place > Drink water every 15 minutes
Heat Cramps	> Develops when a person sweats out more salt than the body take in and the muscles cramp	> Move to cool place > Drink water every 15 minutes > Gatorade can help replace necessary salt
Heat Exhaustion	> Cool, pale, moist skin > Heavy sweating > Normal body temperature > Dilated (large) pupils > Headache and nausea > Dizziness and vomiting	> Move to cool area > Have victim lie down > Slightly elevate feet > Loosen clothing > Apply wet towels > Give a glass of water every 15 minutes
Heat Stroke	> Hot, red skin > Constricted pupils > High body temperature > Little or no perspiration > Chills, confusion, and strong rapid pulse	> Call EMS (911) > Check ABCs (airway, breathing, circulation) > Immerse in cool water > Wrap in wet towels > Give nothing by mouth

Be sure there is adequate shade at or near the site for employees to rest. Have two gallons of water (or electrolyte solution/Gatorade) per employee at the site. Encourage employees to drink plenty of fluids and implement the following break schedule:

- Work for 1 to 1.5 hours.
- Break for 15 minutes.
- Count the radial pulse of all personnel for 30 seconds (and multiply by 2 to get beats per minute) at the beginning of the break period.
- If the heart rate exceeds 110 beats per minute (BPM), shorten the next work cycle by 1/3 and keep the rest periods at 15 minutes.
- If the heart rate exceeds 110 BPM at the next rest period, shorten the next work cycle by 1/3 again, keeping the 15-minute breaks.
- If the heart rate ever exceeds 120 BPM, the employee will be required to rest for 30-45 minutes to allow the heart rate to decrease.

The Site Supervisor will institute these procedures and monitor employees for signs of heat stress. Preventing heat stress is particularly important because once someone suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat injuries.

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Personal Heat Strain Prevention Plan

Name: _____ **Date: _____**

Today's Forecast: Temp _____ RH% _____ WBGT _____ Direct Sun? _____ Radiant Source? _____

Scheduled cool breaks required today? Yes _____ No _____

Cool breaks to occur every: ___ Hour for ___ Minutes

Am I acclimatized to hot work? Yes _____ No _____

Acclimatized means you have had at least four to seven days of progressive exposure to work in a hot environment (e.g., 50% exposure on day one, 60% on day two, 70% on day three, 80% on day four, 90% on day five, and 100% on day six). Acclimatization can be sharply reduced with as little as three days away from hot work and must be built up again. A "No" answer means you are at higher risk for heat strain and must be extra vigilant in managing your heat exposure, risk factors, fluid replacement, and cool breaks. Be alert and take action at the first sign of muscle cramps, dizziness, lightheadedness, headache, weakness, confusion, upset stomach, vomiting, or decreased or dark colored urine.

Other risk factors present? Age; obesity; use of alcohol, caffeine, medications, or recreational drugs; blood donation or menstruation; use of dark or tight clothing; PPE; hot meals or drinks; heavy physical labor; and extended work shifts are risk factors for heat strain. With each additional risk factor you are at higher risk for heat strain. Avoid personal choices that increase risk and be extra vigilant when risk factors are present.

Goal -- Drink about 1 cup (8 oz.) of cool water every 15 to 20 minutes. Start drinking 1 to 2 hours before hot work begins. Track progress to goal and cool breaks here.

Time	Fluid Type	Cups Consumed	Cool Break Time (minutes)	Time	Fluid Type	Cups Consumed	Cool Break Time (minutes)
6:00 AM				1:00 PM			
6:20 AM				1:20 PM			
6:40 AM				1:40 PM			
7:00 AM				2:00 PM			
7:20 AM				2:20 PM			
7:40 AM				2:40 PM			
8:00 AM				3:00 PM			
8:20 AM				3:20 PM			
8:40 AM				3:40 PM			
9:00 AM				4:00 PM			
9:20 AM				4:20 PM			
9:40 AM				4:40 PM			
10:00 AM				5:00 PM			
10:20 AM				5:40 PM			
10:40 AM				5:40 PM			
11:00 AM				6:00 PM			
11:20 AM				6:20 PM			
11:40 AM				6:40 PM			
12:00 PM				7:00 PM			
12:20 PM				7:20 PM			
12:40 PM				7:40 PM			

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Project High Heat Illness Prevention Plan

To be completed when the HSI Temp is expected to reach the "Extreme Caution" level (see Heat Stress Index Table in Section 10.5.5 of the HASP).

Project Name: _____ Location: _____ Date:_____

Temperature at Tailgate Meeting: _____ºF Forecasted High Temperature: _____ºF

Work should be scheduled to avoid high heat conditions including heat waves, work in typically hot areas during summer months, or work in especially hot environments or times of day whenever possible.

Prior to work commencing, verify that employees are knowledgeable in recognizing heat-related illnesses (review Appendix G, Heat Stress Protocol), understand emergency protocols, have ample supplies of water and shade canopies, and understand the requirements outlined in the following table.

Temperature	Required Actions	Completed	N/A
Below 80ºF	Have water readily accessible for all site workers (enough for 1 quart per hour of work per employee)		
	Provide Shade upon request		
At 80ºF and above	Shade Up! Erect canopy/shade if not already available		
	Encourage frequent rest and water breaks		
	Review/verify employee acclimatization		
At 95ºF and above	Stop Work to review Heat Stress Protocol:		
	A) Verify all site workers ready/alert level(s)		
	B) Implement Personal Heat Strain Prevention Plan		
	C) Assign worker monitors (close monitoring required)		
	D) Ensure reliable communication is in place		
	E) Review heat-related emergency response plans		
	F) Consider PPE and Direct Sun in Heat Index chart		
	G) Discuss the continued Scope of Work		
At 105ºF (Heat Index) and above	Contact your Corporate Health and Safety Coordinator to ensure any continued work is closely monitored and approved		

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APPENDIX H
COLD STRESS PROTOCOL

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Cold Stress Protocol

If the ambient air temperature is below 50 degrees F in wet conditions, or if the field employee feels cold, the need for cold stress monitoring will be evaluated. Cold stress, hypothermia and frostbite monitoring will be required if the temperatures fall below 50 degrees in wet conditions. Cold stress is a life-threatening situation in which the victim's temperature control system, which regulates blood flow and inner core body temperature, makes adjustments to protect vital organs when exposed to prolonged cold and/or wet conditions. Body temperature can fall quickly to elevations causing hypothermia, frostbite, and death.

LAYERED CLOTHING SYSTEM

Select the proper type and amount of clothing. Regulate your clothing according to your activity rate. This is the most effective way to ensure comfort. Pay attention to your bodies' signals. Do not wait until you are cold to put on more clothing. Act when you first begin to feel cooler.

Clothing Layers	
> Long, thermal underwear > Polypropylene shirt or inner layer > Sweater, light jacket > Wind or rain gear > Long, thermal underwear > Polypropylene, wool, or wool blend inner pants > Wind or rain pants > Gloves and mittens	> Wicking inner socks polypropylene > Insulating socks wool or wool blend > Boot liners insulated insoles > Footwear, steel-toe boots waterproofed > Head coverings >

TYPES OF COLD

Percent Deficiency	Symptoms
Wet cold: 50º F to 14º F	This is the most dangerous range. Wide temperature variations from melting during the day to freezing at night makes proper dressing difficult, and important. Damp conditions from melting snow or rain makes keeping dry difficult.
Dry cold: 14º F to -20º F	The ground is frozen and snow is dry and crystallized. Strong winds cause the most concern with keeping warm. Extra clothing layers and wind-proof outer garments should be added.
Arctic cold: below -20º F	This range requires the most insulation and wind proofing. Many materials change physical properties, becoming brittle. Do not work in these conditions.

LOSS OF BODY HEAT

HOMEOSTASIS

This is the body's process for maintaining an even temperature. The arms and legs are used as a radiator to remove excess heat from the body. This process dilates the blood vessels, allowing more blood to flow to the skin surfaces. When the body temperature drops, these blood vessels constrict, decreasing blood flow, and thereby, heat loss. This is why hands and feet get numb when cold, and why they are particularly vulnerable to frostbite. Since your brain needs oxygen to function, your body cannot cut off the flow of blood to your head in order to conserve heat. Consequently, much of your body heat can be lost through an uncovered head and neck.

Radiation is the reason for up to 55% reduction of heat loss. Heat is lost directly from exposed skin and the head. The head may lose up to one-half of the body's total heat production at 40 degrees F, and up to three-quarters at 5 degrees F.

Evaporation is the reason for up to 21% reduction of heat loss. This loss is caused by evaporation of sweat and moisture from the skin. Lung exhalation also produces substantial heat loss. There is little that can be done about this. We need to allow for this by using breathable fabrics to allow this moisture to pass out freely.

Conduction (along with convection) is the reason for up to 15% reduction of heat loss. This is caused by skin contact with cold objects, primarily the hands, and wet or tight clothing. Handling gasoline, and other super-cooled liquids, at low temperatures is especially dangerous.

Convection is the heat loss caused by the wind carrying away heat from the surface of the skin. This includes wind-chill effects. Respiration causes 2-9% of heat loss. This is caused from inhaling cold air and exhaling warm air.

COLD WEATHER FIRST AID

DEHYDRATION

Excessive loss of body water impairs the ability to reason, so the victim may not react properly.

Prevention:

- Drink at least 2 quarts of water a day.
- Increase fluid intake at first signs of darker yellow urine
- Avoid dehydrating foods (high protein) and fluids (coffee, caffeine)

Symptoms:

Percent Deficiency	Symptoms
1 to 5 %	> Increased pulse rate > Nausea and loss of appetite > Dark urine or constipation > Irritability, fatigue > Thirst
6 to 10 %	> Headache / dizziness > Labored breathing > Tingling > Absence of salivation > Inability to walk > Cyanosis (bluish or grayish skin color)
11 to 20 %	> Swollen tongue, inability to swallow > Blurred vision, deafness > Shriveled, numb skin > Painful urination > Delirium, unconsciousness, and death

Treatment:

- Mild cases - drink liquids and keep warm.
- More severe cases require professional medical treatment.

HYPOTHERMIA

This is the lowering of the inner core temperature of the body. This can and usually does happen above freezing. The victim may not recognize the symptoms and may not be able to think clearly enough to react. Injury or death may result.

Hypothermia	
Predisposing Conditions	> Poor physical condition > Inadequate nutrition and water intake > Thin build > Non-protective clothing > Getting wet > Inadequate protection from wind, rain and snow > Exhaustion
Symptoms	> Loss of ability to reason > Shivering > Slowing, drowsiness, fatigue > Stumbling > Thickness of speech > Amnesia > Irrationality, poor judgment > Hallucinations > Cyanosis (blueness of skin) > Dilation of pupils of eyes > Stupor > Decreased heart/respiration rate
Treatment	> Shelter the victim from wind and weather > Insulate the victim from the ground > Change wet clothing > Put on windproof, waterproof gear > Increase exercise, if possible > Wrap in blanket > Give hot drinks > Follow with candy or other high-sugar foods > Apply external heat > Huddle for body heat from others > Place victim in a tub of 105º F water, never above 110º F
Prevention	> Keep rested, maintain good nutrition > Consume plenty of high-energy food > Use proper clothing > Discontinue working if tired > Get plenty of exercise. Do not sit around much > Watch each other for signs > Take immediate corrective action for any signs

FROSTBITE

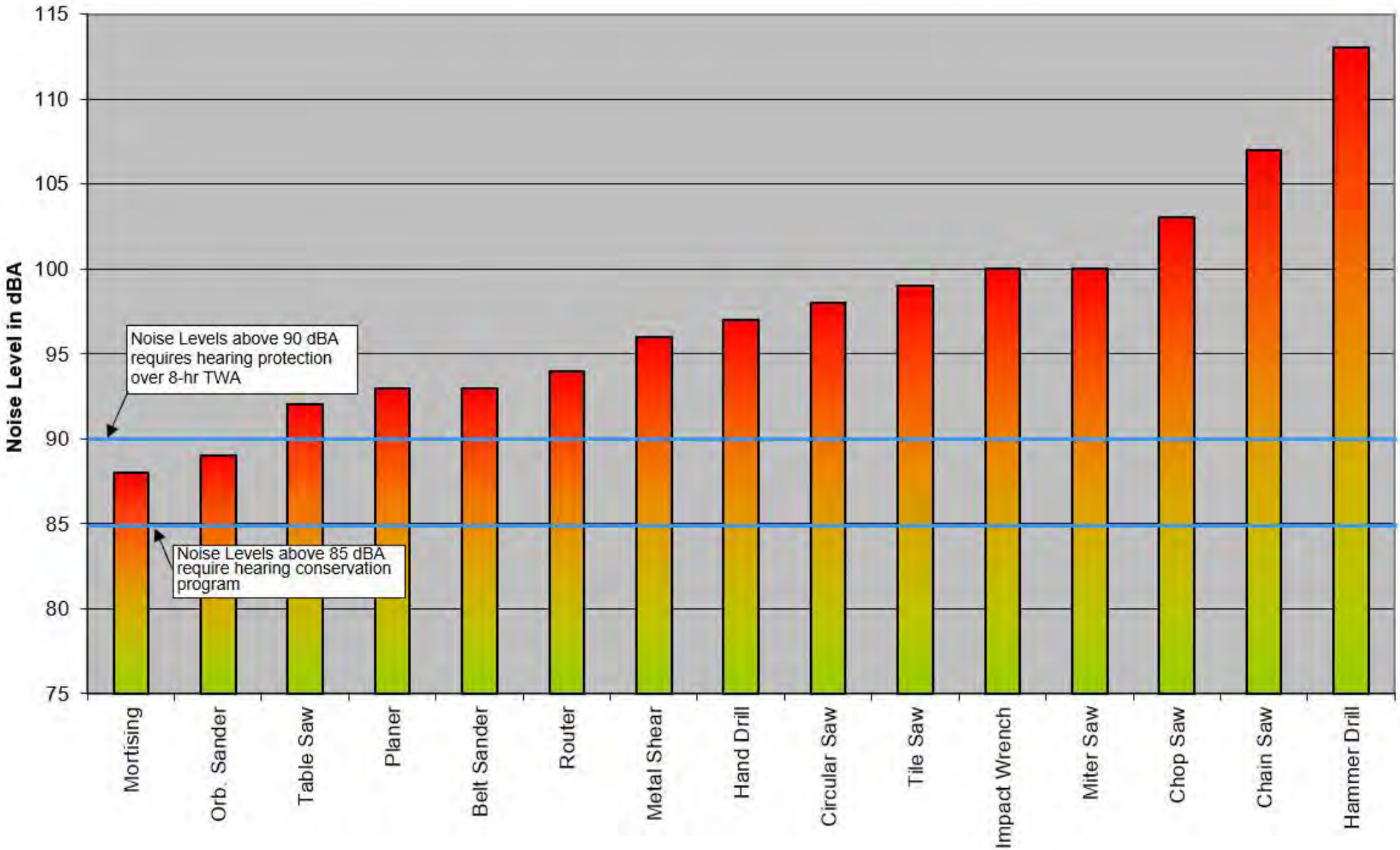
This is tissue injury involving the actual freezing of the skin and underlying tissues. Recovery is slow, severe frostbite can lead to gangrene. Once exposed, the victim will be predisposed to frostbite in the future.

Hypothermia	
Predisposing Conditions	> Prolonged exposure to temperatures 32º F or below > Brief exposure at extremely low temperatures, -25º F and below > Exposed body parts > Restriction of circulation > Fatigue, poor nutrition, low liquid intake, poor physical condition > Previous case of frostbite or other cold injury
Symptoms	First Degree (Frostnip) > Redness, pain, burning, stinging or prickly sensation. > Pain disappears and there is a sudden blanching of the skin. > The skin may look mottled. > Skin is firm to the touch, but resilient underneath. > On thawing, there is aching pain or brownness. Skin may peel off, and the part may remain cold for some time. Second Degree (Superficial Frostbite, Frostbite) > No pain, the part may feel dead > Numbness, hard to move the part > Tissue and layers underneath are hard to the touch > After thawing (takes 3 to 20 days) pain, large blisters, sweating > Black or discolored skin sloughs off, leaving tender new skin Third degree (Severe Frostbite) > Full thickness of the skin is involved > After thawing, pain continues for 2 to 5 weeks Fourth degree (Severe Frostbite) > Skin and bone are frozen > Swelling and sweating occur > Gangrene may develop, amputation may be necessary.
Treatment	> Do not rub affected area with snow. Hold it over fire, or use cold water to thaw it. > Exercise the affected area to promote blood circulation > Use any warmth available to thaw area > Do not attempt to thaw frostbitten limbs in the field. It is less harmful for the victim to walk out on a frostbitten limb than to thaw it in the field. Thawing only risks additional injury and the victim will be in too much pain to walk > Check for hypothermia > For more severe cases refer to instructions that are more complete
Prevention	> Proper clothing > Good nutrition, drink water, maintain core temperature > Use buddy system to check face, nose, and ears > Immediate treatment of minor symptoms > Do not work in cold conditions, if it can be avoided

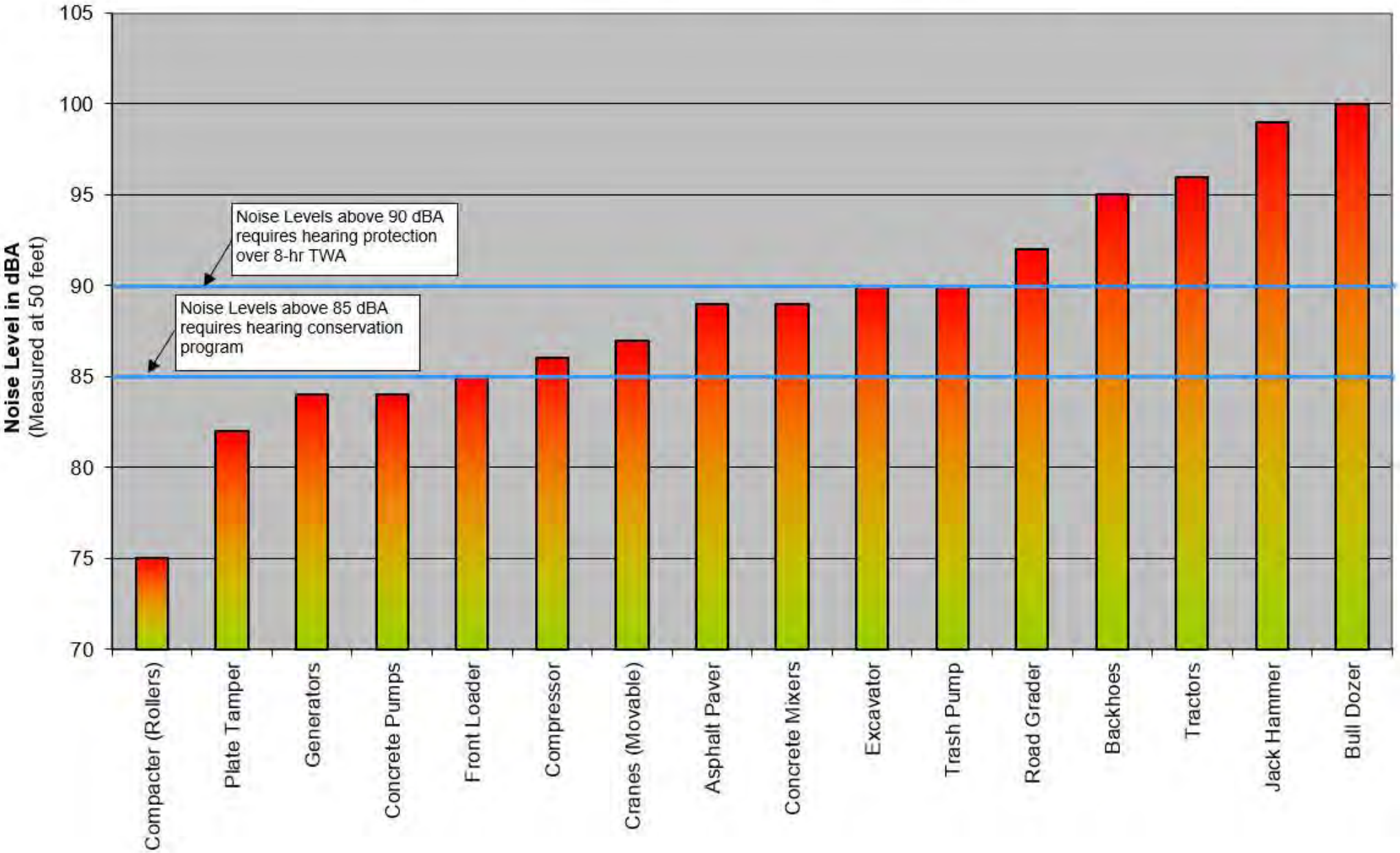
APPENDIX I
TYPICAL NOISE LEVEL MEASUREMENTS FROM CONSTRUCTION-RELATED EQUIPMENT

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Noise Levels From Typical Construction Hand Tools



Noise Levels From Typical Construction Heavy Equipment



APPENDIX J
CARE MANAGEMENT FORMS

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Incident Go Book

Overview

This GREF EMES Incident Go Book is a collection of standards and guidelines to provide effective and immediate Case Management.

The overall objective of this document is to provide a quick reference to contractor companies in identifying the most important information and forms to be used during the Case Management process.

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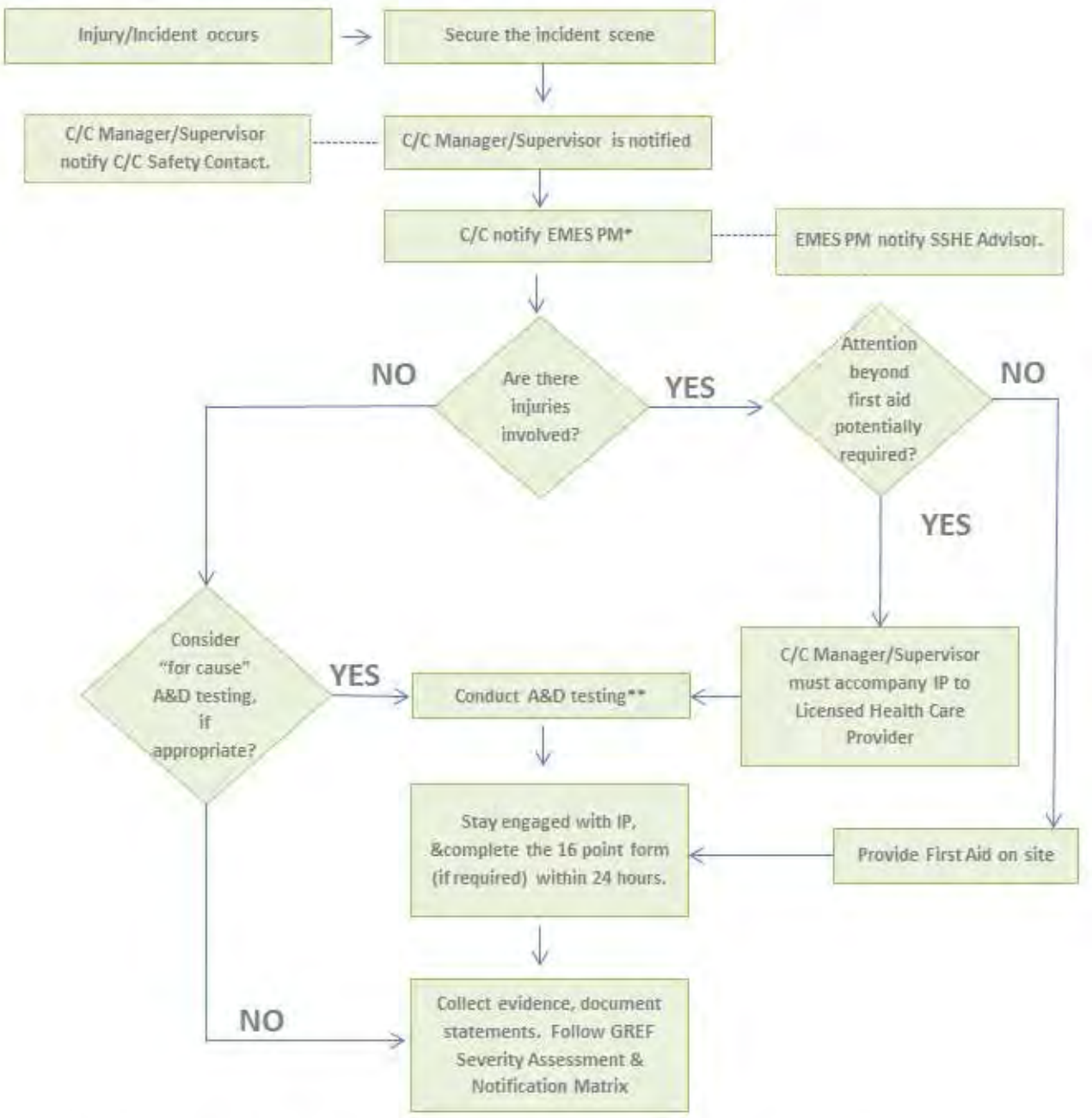
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INCIDENT RESPONSE FLOWCHART



* PM will determine additional management requirements for notification, investigation, reporting and request resources if required.

** See Alcohol and Drug Use Policy Guidelines.

Supervisor Case Management Checklist

This checklist can be used to provide guidance during a safety incident **requiring an injured person to be taken to a medical clinic.**

Supervisor Care Management Checklist	
1	Investigate ***all*** reports of injuries and illnesses (including ergonomics, pain or discomfort, sprains, muscle strains/pulls).
2	Ensure site environment is safe and secure.
3	Get ***prompt***, ***adequate*** and ***appropriate*** medical care for the injured person (IP).
4	Accompany the IP to a medicine and occupational health's (MOH's) or contractor's designated medical facility (contractor supervisors to accompany their workers).
5	Support the worker during this stressful and confusing time.
5a	Does IP have any known pre-existing conditions or allergies identified or likely?
5b	Reinforce the availability of restricted work opportunities.
5c	When at the clinic (with consent of the injured person) document medical provider instructions, ask clarifying questions and make the doctor aware of the availability of restricted work options
5d	Follow all medical information privacy laws.
5e	Remain with the IP until released and with your manager's approval.
5f	Test for alcohol and drugs, if appropriate and consistent with local laws, human resources (HR) and management procedures
6	Contact SSH&E advisor by phone, as soon as possible.
7	Contact functional manager. Follow unit's incident notification matrix based on incident severity.
8	Contractor's supervisors to inform ExxonMobil managers of incidents on ExxonMobil premises.
9	All contact should be via phone and follow-up with email (if available); escalate as required to make certain verbal ExxonMobil contact has occurred (no voice mail message).
10	If the IP is treated at an urgent care facility, contact MOH or contractor's designated medical facility as soon as possible to schedule a follow-up exam.
11	Inform IPs that if they need/want further medical assessments they are to keep the supervisor and MOH informed. Contractor IPs should know to keep their company management informed and be engaged with that company's occupation medical clinic.
12	Conduct incident investigation and root cause analysis per site behavior-based safety system and take photographs of the site and equipment if appropriate.
13	Report the incident in IMPACT.
14	Maintain ongoing communications with the IP and management.

Return to Work	
1	A "return to work" evaluation by MOH or contractor's equivalent medical facility needs to be completed BEFORE return-to-work (if applicable).
2	Outline work activities per any medical recommendations.
3	Monitor worker compliance of follow-up medical treatments and work restrictions.
4	Document completion of medical treatments and/or removal of restrictions.

IIHL 14 First Aids

The following is a complete list of all treatments considered first aid.

	First Aid Treatments
1.	Using a nonprescription medication at nonprescription strength (for medications available in both prescription and non-prescription strengths, a recommendation by a physician or other licensed health care professional to use the non-prescription medication at prescription strength is considered medical treatment for record keeping purposes)
2.	Administering tetanus immunizations (Other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment)
3.	Cleaning, flushing or soaking wounds on the surface of the skin
4.	Using wound coverings such as bandages, Band-Aids™, gauze pads, etc., or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, tapes/glues, etc., are considered medical treatment)
5.	Using hot or cold therapy (e.g., compresses, soaking, whirlpools)
6.	Using any non-rigid means of support, such elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for record keeping purposes)
7.	Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.)
8.	Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister
9.	Using eye patches
10.	Removing foreign bodies from the eye using only irrigation or a cotton swab
11.	Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means (procedures involving the excision of the outer layer of the skin are considered medical treatment)
12.	Using finger guards
13.	Using massages (physical therapy or chiropractic treatment is considered medical treatment)
14.	Drinking fluids for relief of heat stress

These are ***NOT*** Recordable Injuries

GREF Recordability IIHL

Effective 1 Jan 2012 - 31 Dec 2015 (Rev 3.A)

First Aids and Medical Treatments (Prescription Medications)

PRESCRIPTION MEDICATION

In the case of prescription medications, medical treatment occurs when a prescription is issued (even if the employee does not fill the prescription or take the medication).

- The single dosages that are considered prescription strength for four common over-the-counter drugs are:
  - Ibuprofen (such as Advil™) - Greater than 467 mg
  - Diphenhydramine (such as Benadryl™) - Greater than 50 mg
  - Naproxen Sodium (such as Aleve™) - Greater than 220 mg
  - Ketoprofen (such as Orudus KT™) - Greater than 25mg
- To determine the prescription-strength dosages for other drugs that are available in prescription and non-prescription formulations, consult the U. S. Food and Drug Administration website at: http://www.accessdata.fda.gov/scripts/cder/drugsatfda/index.cfm
- If a LHCP provides prescription samples in lieu of prescription recommendation or script, the samples are to be recorded as a prescription.

Medical Treatment Includes: (RECORDABLE)

- All work-related ***needle stick injuries*** and cuts from shard objects that are contaminated with another person's blood or other potentially infectious material must be recorded.
- Cases involving work-related ***hearing loss.***
- Occupational exposure to anyone with a known case of active followed by a tuberculosis infection as evidenced by a positive skin test or diagnosis by a physician or other LHCP.
- Other incidents as defined under medical treatment (such as employee performing Heimlich maneuver, CPR or using AED.
- Vaccines: Hepatitis B, Rabies.
- Wound closing devices: sutures, stables, tapes/ glue.
- Rigid devices used to immobilize / support parts of the body.
- Procedures used to remove the outer layer of skin.
- Physical therapy.
- Chiropractic treatment.

Medical Treatment DOES NOT include: (Not recordable)

- Visits to a physician or other LHCP solely for observation or counseling.
- The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils.)
- Delivery of Oxygen when it is administered solely as a precautionary measure to an employee that did not exhibit signs or symptoms of illness or injury.

Questionnaire for Alcohol and Drug (A&D) Testing

Test for alcohol and drugs, if appropriate and consistent with local laws, human resources (HR) and management procedures. This questionnaire should be used to document and confirm whether a Contractor should have a post-incident alcohol and drug test.

1. Immediately after a work-related incident occurs, the responsible Contractor supervisor should confirm whether the performance of one or more contract personnel contributed to the incident.
2. The responsible Contractor supervisor should complete the Contractor Alcohol and Drug Post-Incident Form (**Attachment 1**) to determine whether the Contractor(s) should be A&D tested.
3. The Contractor Alcohol and Drug Post-Incident Form (Attachment **1**), if properly filled out, leads the supervisor to the proper actions as follows:
    a. Questions 1, 2, and 3 determine if this is a significant incident.
        i. If it is not significant ("No" is answered to Questions 1, 2, and 3), NO alcohol and drug test is required. The form does not need to be completed.
        ii. If it is significant, go to Question 4.
    b. Question 4 asks if a Contractor was directly or indirectly involved.
        i. If "No," then alcohol and drug testing is NOT required. No further action is required.
        ii. If "Yes," then Alcohol and Drug testing is required.
    c. The responsible Contractor supervisor is required to perform the following five steps **PRIOR TO RELEASING** an individual for A&D testing:
        1. Identify all Contractors involved in the incident.
        2. Each Contractor involved should be informed by his or her Contractor supervisor that a drug and alcohol test is required by ExxonMobil.
        3. Any individual(s) sent for testing must sign the alcohol and drug testing consent form. Each Contractor firm should have a consent form available and printed on company letterhead available.
        4. Remove individual's badge and deliver to site/facility security or an ExxonMobil contact.
        5. Send individual to testing facility per Contractor firm's Alcohol and Drug testing procedure.
    d. Sign the form and send to the ExxonMobil EMES Project Manager for review.

Attachment 1

Contractor Alcohol and Drug Post-Incident Form

Incident Date Click here to enter text.

Contractor Company Click here to enter text.

Site/Facility Click here to enter text.

IMPACT Incident Number (if known) Click here to enter text.

Please answer the following questions regarding the incident.

1. Did this incident require medical treatment beyond first aid? ○ Yes ○ No
2. Did this incident result in property damage greater than $5,000? ○ Yes ○ No
3. Was this incident considered a potential serious injury or fatality (SIF, an incident that had the potential for serious personal injury, significant property damage and/or environmental damage)? ○ Yes ○ No

If "No" is answered to ALL of the above three questions, then STOP. Do not complete Question 4.
NO alcohol and drug testing required.

NOTE: *If "Yes" is answered to Questions 1, 2* **or** *3, proceed to Question 4.*

4. Did the performance of a contractor directly or indirectly contribute to this incident? ○ Yes ○ No

If "No" is answered to Question 4, then ***no alcohol and drug testing required.***

NOTE: *If "Yes" is answered to Question 4, a contractor Alcohol and Drug test* ***IS REQUIRED*** *by the Company. Contractor(s) contributing to the incident must sign a consent form. Badge(s) must be removed and delivered to Security and Contractor(s) must be escorted out of the facility.*

Date badges(s) taken, pending alcohol and drug test results.

Date Click here to enter text. Temporary Custodian of badge(s) Click here to enter text.

If badges were not taken, explain why Click here to enter text.

Originated by Contract Supervisor or equivalent		Reviewed by EMES PM or equivalent	
Name (Please Print)	Click here to enter text.	Name (Please Print)	Click here to enter text.
Signature/Date	Click here to enter text.	Signature/Date	Click here to enter text.

4 Post Incident/Return to Work

The SSH&E Supervisor or equivalent personnel of the contractor company is responsible for completing the **Initial Incident Notification Form** (16-point form). The information should be emailed to the EMES Project Manager. The **Initial Incident Notification Form** is only required for corporate reportable incidents.

Use the following guidelines for employees or contractors returning to work:

If the healthcare provider indicates restrictions, supervisor must make sure the healthcare provider is aware of available light duty.

A clear understanding of limitations is obtained before returning the injured or ill person to the workplace to make certain the person is not placed at risk for additional injury or complications.

Contract company medical provider will provide assistance in understanding the extent of injuries and physical limitations relative to work responsibilities.

For ExxonMobil employees only:

ExxonMobil MOH, with input from the healthcare provider as applicable, will provide information regarding appropriate treatment for the injured or ill person.

Initial Incident Notification Form (16-Point Form)

		Notification distributed to:	Click here to enter text.
Business Unit:	Click here to enter text.	Regional Business Unit:	Click here to enter text.
		Regional SSH&E Contact:	Click here to enter text.
Country:	Click here to enter text.	Regional Public Affairs Contact:	Click here to enter text.

1	Date of Incident:	Click here to enter text.		Time of Incident:	Click here to enter text.
2	Location of Incident:	Click here to enter text.			
3	Brief Account of Incident/Type of Incident:	Click here to enter text.			
4	Damage Control Measures Initiated:	Click here to enter text.			
5	Treatment Provided:	Click here to enter text.			
6	Drug and Alcohol testing for cause initiated:	Click here to enter text.			
		Number of Injuries	Number of Fatalities	Click here to enter text.	
7a	ExxonMobil:	Number.	Number.	Click here to enter text.	
7b	Contractor:	Number.	Number.	Click here to enter text.	
7c	Third Party:	Number.	Number.	Click here to enter text.	
8	Business impact/damage/loss company facilities:	Click here to enter text.			
9	Business impact/damage/loss contractor facilities:	Click here to enter text.			
10	Business impact/damage/loss third party facilities:	Click here to enter text.			
11	Effect on Company Operations:	Click here to enter text.			
12	External agencies involved/contacted:	Click here to enter text.			
13	Media coverage:	Click here to enter text.			
14	Equipment checks performed:	Click here to enter text.			
15	Affiliate investigation initiated:	Click here to enter text.			
16	Preliminary conclusions regarding the cause of the incident/corrective measures being implemented:	Click here to enter text.			
	Exxon Mobil person in charge of response/investigation:	Click here to enter text.			
	What assistance has been requested:	Click here to enter text.			
	Additional comments:	Click here to enter text.			
	Date:	Click here to enter text.		Time:	Click here to enter text.
	Prepared by:	Click here to enter text.		Reviewed by:	Click here to enter text.
	Contact number for Notifier:	Click here to enter text.			

Work Limitations/Return to Work Form

Name Click here to enter text.

Company Click here to enter text.

Location Click here to enter text.

Work Phone Click here to enter text. Cell Phone Click here to enter text.

Supervisor Click here to enter text. Today's Date Click here to enter text.

☐ Return to Work (Note: If checked skip to signature line.)

The limitations checked below are: ☐ Permanent ☐ Temporary

☐ Bending
☐ Climbing Stairs
☐ Climbing Structures/Ladders
☐ Drive/Operate Heavy Equipment
☐ Driving Company Vehicle
☐ Exposure to Temperature Extremes
☐ Kneeling/Crawling
☐ Lift/Push/Pull/Carry over Click to enter text
☐ Overhead Work
☐ Overtime
☐ Prolonged Walking or Standing
☐ Shift Work
☐ Use of: Click to enter text
☐ Work above Ground Level
☐ Work around Moving Machinery
☐ Work Alone

☐ Other: Click here to enter text.

(Please, do not include any medical information)

COMMENTS:

Click here to enter text.

Name of contract company supervisor: Click here to enter text.

Signature Click here to enter text. Date Click here to enter text.

Name of ExxonMobil contact supervisor: Click here to enter text.

Signature Click here to enter text. Date Click here to enter text.

CRITICAL or

LIFE THREATENING EMERGENCY

1. **STOP WORK!** Assess scene for hazards to self and others. Make sure the scene is safe.
2. Provide immediate medical care to injured / ill worker.
   a. Administer first aid.
   b. Call 911.
3. Secure the incident scene for investigation.
4. Assign a worker to direct Emergency Medical Services (EMS) onto jobsite > evaluate if worker can be safely relocated or should remain at site.
5. Call management in the following order until you speak with a manager:
   a. Ryan Pozzuto (cell) (206) 550-6681
   b. James Anderson (cell) (805) 701-1420
   c. Jim Chappell (cell) (707) 338-6991
   d. Sean Guiltinan (cell) (949) 468-9542
   e. Gretchen Thach (cell) (508) 579-7522
   f. Peter Petro (cell) (707) 338-3386
   g. Land Line (night work) (800) 499-8950
6. Assist EMS personnel as needed.
7. If worker is transported, ask EMS for destination. The senior person onsite should follow EMS to the medical facility.
8. Take Employee Medical Treatment form to medical facility.
9. Complete Medical Treatment form (Appendix J).
10. Provide medical facility with completed form.
11. Ask doctor for full duty release, OTC treatment options, or, at minimum, a restricted duty release.

Senior Management will address active care management for IP & client notification.

ALL INJURIES or ILLNESS

EXCEPT LIFE THEATENING

1. **STOP WORK!** Assess scene for hazards and make sure the scene is safe.
2. Provide immediate first aid to injured / ill worker (IP).
3. Secure the incident scene for investigation.
4. Review Care Management appendix / Incident Go Book in HASP.
5. Call management in the following order until you **SPEAK** with a manager, and ask whom will be primary to provide support:
   a. Ryan Pozzuto (cell) (206) 550-6681
   b. James Anderson (cell) (805) 701-1420
   c. Jim Chappell (cell) (707) 338-6991
   d. Sean Guiltinan (cell) (949) 468-9542
   e. Gretchen Thach (cell) (508) 579-7522
   f. Peter Petro (cell) (707) 338-3386
   g. Land Line (night work) (800) 499-8950
6. Participate with IP and manager in call to WorkCare at (888) 449-7787. A nurse will provide information, options, and guidance.
7. If additional treatment is directed, senior person onsite must transport worker to occupational health clinic.
8. Ask doctor for OTC treatment options, full duty release or, at minimum, a restricted duty release.

Senior Management will address active care management for IP & client notification.

Appendix G

Stantec's *Inadvertent Discovery Plan*

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Grandview Location: 101 East and 101 West Wine Country Rd, Grandview, WA 98930

Project Lead/Organization: Stantec Consulting Services Inc. County: Yakima

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Ryan Pozzuto	Name:	Laina Cole
Organization:	Stantec Consulting Servic	Organization:	Stantec Consulting Services
Phone:	(206) 550-6681	Phone:	(253) 247-1466
Email:	ryan.pozzuto@stantec.com	Email:	laina.cole@stantec.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	Chelsea Wisotzkey	Name:	
Program:	Toxics Cleanup Program	Program:	
Phone:	(509) 571-4708	Phone:	
Email:	wisc461@ecy.wa.gov	Email:	

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Wanapum Tribe	Tribe:	Confederated Tribes and Bands of the Yakama Nation
Name:	Clayton Buck	Name:	Rose Ferri
Title:	Wanapum Liaison	Title:	Interim THPO
Phone:	(509) 766-3461	Phone:	(509) 307-2009
Email:	cbuck@gcpud.org	Email:	Rose_Ferri@yakama.com
Tribe:		Tribe:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: Jim Curtice, County Coroner, 509-574-1610
   - Local Law Enforcement main name and phone: Grandview PD dispatch: (509) 882-2000
   - Local Non-Emergency phone number (911 if without a non-emergency number): Grandview PD dispatch: (509) 882-2000
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Project Archaeology Contacts:
Primary: Gilbert Browning
Senior Archaeologist
Stantec Consulting Services Inc.
Phone: 707-779-2618
Email: gilbert.browning@stantec.com

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.



Stone artifacts from Oregon.



Stone artifacts from Washington.



Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.



Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.



Artifacts from unknown locations (left and right images).



Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.









Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*



Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.











Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).



Shell Midden pocket in modern fill discovered in sewer trench.



Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.





Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.





Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*





Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.



Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*





Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*





Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.



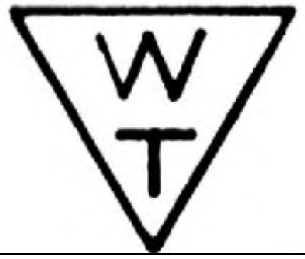


Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*







Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).



Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.









Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

Potential human remains.

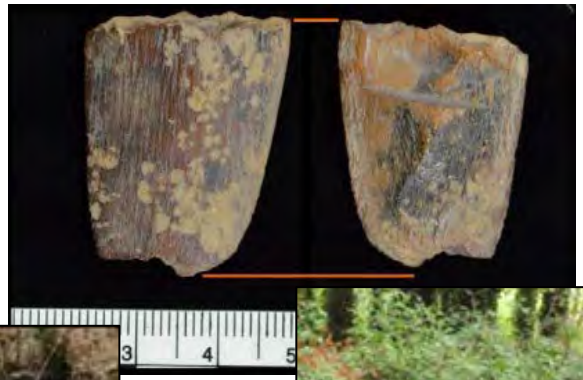
Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.



Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.









Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*