SUBMITTED TO:
CEM Leasing, Inc.
PO Box 70651
Fairbanks, Alaska 99707

BY:
Shannon & Wilson, Inc.
2355 Hill Road
Fairbanks, Alaska 99709

(907)479-0600
www.shannonwilson.com

FINAL

2019 SUMMARY REPORT

Interior Texaco

DELTA JUNCTION, ALASKA

November 2020

Shannon & Wilson No: 31-1-11809

SHANNON & WILSON

PAGE INTENTIONALLY LEFT BLANK FOR DOUBLE-SIDED PRINTING

Submitted To: CEM Leasing, Inc.
PO Box 70651
Fairbanks, Alaska 99707
Attn: Contact Name

Subject: FINAL 2019 SUMMARY REPORT, INTERIOR TEXACO, DELTA JUNCTION, ALASKA

Shannon & Wilson prepared this report and participated in this project as a consultant to CEM Leasing, Inc. Our scope of services was authorized with the signature of our July 16, 2019 proposal. This report presents a summary of 2019 activities and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Digitally signed
by Valerie Webb
Date: 2020.11.02
13:39:36 -09'00'

Valerie Webb, CPG
Associate

Mark S. Lockwood, CPG
Senior Associate

CONTENTS

CONTENTS

Exhibits

Tables

Figures

CONTENTS

Appendices

ACRONYMS

bgs	below the ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
BIQ	Building Inventory and Indoor Air Sampling Questionnaire
°C	degree centigrade
COC	chain of custody
COPC	contaminant of potential concern
CSM	conceptual site model
CSP	contaminated sites program
CUL	cleanup level
cy	cubic yards
DEC	Alaska Department of Environmental Conservation
DO	dissolved oxygen
DQO	data quality objective
DRO	diesel range organics
Eurofins	Eurofins Air Toxics, Ltd.
GRO	gasoline range organics
HAZWOPER	Hazardous Waste Operations and Emergency Response
HVOC	halogenated volatile organic compounds
IC	institutional control
LDRC	laboratory data review checklist
LUST	leaking underground storage tank
MAC	maximum allowable concentration
mg/kg	milligram per kilogram
mg/L	milligram per liter
mL	milliliter
µg/m^3	micrograms per cubic meter
OSHA	Occupational Safety and Health Administration
PAH	polyaromatic hydrocarbon
PCE	tetrachloroethene
PPE	personal protective equipment
ppm	part per million
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RRO	residual range organics
SGS	SGS North America, Inc.
SSHP	Site Safety and Health Plan
SVE	soil vapor extraction

ACRONYMS

the Property	Interior Texaco (formerly known as Delta Texaco, Alaska Mechanical Fuel Services, and Buffalo Service Center)
TCE	tetrachloroethene
TWP	temporary well point
UST	underground storage tank
VOC	volatile organic compound

1 INTRODUCTION

This report describes our 2019 activities for the Interior Texaco (formerly known as Delta Texaco, Alaska Mechanical Fuel Services, and Buffalo Service Center) contaminated site at 1600 Richardson Highway in Delta Junction, Alaska (the Property) (Figure 1, Vicinity Map). The Alaska Department of Environmental Conservation (DEC) file number for the site is 120.26.001 and the Underground Storage Tank (UST) Facility ID number is 0125.

In June 2019, we submitted our *Interior Texaco 2019 Work Plan Addendum* to CEM Leasing, Inc. and DEC. Our scope of services included:

- Developing and submitting the work plan.
- Conducting another air-sampling event to determine the existence of a vapor intrusion pathway.
- Decommissioning the eight remaining groundwater-monitoring wells.
- Transporting and disposing of the five drums of soil cuttings to OIT Inc. in Moose Creek, Alaska.
- Preparing this report.

2 BACKGROUND AND SITE DESCRIPTION

The property is an active fuel station developed with a two-story office/store building with an attached garage, tire shop, and fuel service islands. An approximately 4-inch-thick layer of asphalt covers part of the site near the building on the south and west sides of the building. The ground surface on the north and east sides of the building is gravel. Prior to 1995, the fueling system consisted of three dispensing islands (at the northwest corner of the lot, and along the west and south sides of the building), a pipe-loading rack (north of the building), and four 12,000-gallon USTs (north of the building). We understand the old UST system was installed in 1971 and operated until 1995. The current, active, regulated USTs and corresponding fuel islands are on the south side of the building.

The store was built in 1966 with a block foundation. The eastern garage addition with a wood frame was built in 1970. The garage's east bay's floor was finished with concrete in 1985. Prior to 1985, only the west stall and tire repair area had concrete floors. The shop has been used for vehicle repair and fuel truck storage in winter months since it was built. There is a door connecting the front store area and the shop. We are not aware of floor drains present in the building.

In 1995, the four USTs, associated piping, and dispensing apparatus described above were taken out of service. Inland Petro Services (formerly Soil Services, Inc., or SSI) of Fairbanks, Alaska performed the UST removal during the summer of 1995. Shannon and Wilson personnel observed the UST removal and excavation, field-screened excavated soils, collected soil samples for analytical results, and prepared a closure report.

2.1 Subsurface Conditions

Subsurface conditions consist of course sand and gravel with cobbles and boulders to about 38 feet below ground surface (bgs), underlain by a dense, low-permeability silt layer to at least 50 feet bgs. Groundwater is perched on the dense layer. The deeper water-supply aquifer is at approximately 90 feet bgs (DNR well log for PWSID 370251 Kelly's Country Inn, September 10, 2003).

The well at Kelly's Country Inn services Interior Texaco. The location of the waterline connection is shown on Figure 2.

2.2 Corrective Action and Site Characterization Timeline

In the 1995 closure report, we reported that subsurface soil contamination still remained in the former southern and western dispensing islands and in the UST-excavation area. Also, in our 1995 report, we stated, "*The 4-inch-thick slab had little to no support along its length. With a significant amount of weight bearing on the outer edge of the slab, the conditions were, in our opinion, unstable and unsafe. Out of concern for the building's integrity and safety for the UST workers, SSI decided to shore up the exposed wall with the stockpiled, contaminated soils at the site.*"

We note only some of the contaminated, stockpiled soil was placed back in the excavation. 150 cubic yards (cy) of contaminated soil from the former southern dispensing island excavation was placed in a landfarm located east of the building and measured 96 feet by 26 feet. We sampled the landfarm in 1997, 1998, 2000, and 2008. In a letter dated January 13, 2009, the DEC stated "no further action is required for the stockpile."

Since the UST removal, CEM Leasing retained Shannon & Wilson to perform a series of targeted site characterization and remedial activities between 1997 and 2018. Our work at the site has included site characterization, installing soil vapor extraction (SVE) wells, monitoring emissions from the passive SVE system, soil-gas sampling between the gas station and Kelly's Country Inn, sampling of a contaminated-soil stockpile, collecting indoor and sub-slab air samples, and sampling the water-supply well at Kelly's Country Inn adjacent to the site. The following subsections describe these activities.

2.2.1 Corrective Action Summary

In 1999, due to the limitations of further excavation presented by the existing infrastructure, after DEC reviewed our March 10, 1998 *Release Investigation* recommendations, and due to the reportedly successful operation of a similar system on a neighboring property, a passive SVE system was selected as the remediation method for this site.

Exhibit 2-1: Wind-driven turbine ventilators mounted on the top of the passive remediation system on the north side of the building.

Details of the system were included in our *Corrective Action Summary Report* (dated November 19, 1999). The system consists of slotted PVC well casing installed vertically in borings to a depth near or below the local water table. The slotted casing extended from the bottom of the boring up to 2-feet bgs. These casings are attached to horizontal underground piping. The horizontal piping was attached to vertical vent stacks extending above the roofline of the building. Wind-driven turbine ventilators are mounted at the top of these stacks. The strong prevailing winds power the turbines. The turbines create a pressure differential between the extraction well and surrounding soil. That pressure difference (vacuum) volatilizes the hydrocarbons and extracts the resulting vapors from the contaminated soils surrounding the wells.

2.2.2 Site Characterization Summary

During the 1995 excavation, soil contamination above DEC 18 AAC 75.340 *Method 2 TableB1 Direct Contact* clean-up level (CUL) was encountered at three general locations:

- the former USTs location north of the building;
- below the former dispensing island and piping west of the building; and
- in the vicinity of the former dispensing island, located south of the building.

In July 1997, we performed a site characterization to assess the vertical and horizontal extent of soil contamination and to assess remediation options. We reported diesel range organics (DRO), gasoline range organics (GRO), and benzene, toluene, ethylbenzene, and xylenes (BTEX) contamination above the CULs in the former western fuel island, the former UST-

area north of the building, and on the west side of the new southern fuel dispenser islands. In the area of the western fuel island, contamination was reported from 5 feet bgs to the base of the boring at 37 feet bgs (Boring B-1). In the former UST area, contamination was reported from 11.5 feet bgs to the base of the borings at 36 feet bgs (B-2 and B-3).

In July 2009, we subcontracted with Hammer Environmental Inc. to drill two borings to assess the extent of contamination after the passive SVE system had been in place for 12 years. We advanced two soil borings: B-0901 to 32 feet bgs (the northern UST-area) and B-0902 to 20 feet bgs in the location of former Boring B-1 (the former western fuel island (Figure 2). Based on the analytical and field-screening sampling results, contamination was concentrated in the shallow subsurface at 0-4 feet bgs (the northern UST-area) and 12 to 16 feet bgs (the former western fuel island).

In September 2016, we met with DEC Program Representative Mr. John Carnahan to discuss the pathway toward site closure. In a letter dated September 12, 2016, in response to our September 2016 *Interior Texaco Revised Work Plan,* Mr. Carnahan emphasized the need for a detailed site characterization. In October 2016, we conducted another site characterization to assess the soil contamination and groundwater quality at the facility. Results of the site assessment are summarized in the *Interior Texaco Site Characterization FINAL Report* (dated July 31, 2017). We reported a data gap in the horizontal extent of contamination on the northern perimeter of the property, where an isolated occurrence of diesel contamination, concentrated at six feet bgs was discovered (Boring B-2).

In October 2017, after submittal and approval of our September 2017 *Interior Texaco FINAL Work Plan,* our field personnel advanced 11 exploratory borings distributed both upgradient and downgradient of the former USTs, to further delineate the vertical and lateral extent of hydrocarbon contamination. Details regarding this work as well as sample analytical results are presented in our March 2018 *Interior Texaco (Buffalo Service Center) Site Characterization Report*.

2.2.2.1 Soil Characterization Summary

Soil contamination is present at concentrations above CULs in the former UST area north of the service station, along the northern property boundary, and at the former fuel dispensing area west of the building.

The former UST-area north of the building:

- Two of 45 samples collected since 1995 contained DRO exceeding the DEC maximum allowable concentration (MAC) of 12,500 milligram per kilogram (mg/kg) at a depth of

4.0 to 5.0 feet bgs. These two samples were collected from soil borings in 2017. GRO, BTEX and several polyaromatic hydrocarbons (PAHs) are also present at concentrations exceeding their respective CULs. The vertical extent of the soil contamination exceeding CULs is from 4 feet in isolated areas to 37 to 40 feet bgs.

- We compared historical results with the most-recent 2016 and 2017 analytical results. For the deeper soils, we compared results from B-3 (later converted to MW-6), B-4-2016, and IT-B11-2. For these three co-located borings, we compared soil samples collected from 30.0, 35.0, and 37.5 feet bgs, respectively.

Exhibit 2-2: Decreasing Soil Contamination at Deeper Depths at the Northern UST Area

	Northern UST-Area – 30.0 to 37.5 feet bgs		
	1997	2016	2017
	B-3 (30.0 feet bgs)	B-4 (35.0 feet bgs)	B11-2 (37.5 feet bgs)
GRO	563 mg/kg	2.77 J mg/kg	<1.49 mg/kg
DRO	2,330 mg/kg	487 mg/kg	7.00 J mg/kg
RRO	—	63.7 JH* mg/kg	<10.3 mg/kg
Benzene	0.156 mg/kg	<0.00840 mg/kg	<0.00745 mg/kg
Ethylbenzene	0.963 mg/kg	<0.0168 mg/kg	<0.0149 mg/kg
o-Xylene	9.15 mg/kg (sum)	0.154 mg/kg	<0.0297 B* mg/kg
P & M -Xylene		0.251 mg/kg	<0.0595 B* mg/kg
Toluene	0.433 mg/kg	0.0134 J mg/kg	<0.0345 B* mg/kg

Notes: = Analysis not requested for this analyte.

JH*= Estimated concentration, biased high.

B*= Result is considered not detected.

- Since 1997, we have collected 19 samples at depths 30.0 feet bgs or deeper in the area of the former USTs. In 2016 and 2017, we collected 16 samples at depths greater than 30.0 feet. With the exception of diesel exceedances in samples from two borings in 2016 (B-4 and 35.0 feet bgs and B-8 at 37.0 feet bgs), the analytes from these deeper depths are below CUL.

The former western fuel island:

- DRO and GRO contamination exists above their respective CULs to depths of approximately 40 feet bgs. Comparing the June 1995 analytical data to the October 2017 data, we find a decreasing trend in shallow surface soil contamination.
- Comparing the 1999 analytical results to the 2017 results for deeper soil at 36.5 to 37.5 feet bgs, we find a decreasing trend in deeper surface soil contamination.

Exhibit 2-3: Decreasing Contamination at Shallow Depths at the Former Western Fuel Island

	Western Fuel Island – 2.5 feet bgs	
	1995	2017
	551-2-05	B6-3
GRO	4,900 m/kg	1,340 JH* mg/kg
DRO	—	1,190 mg/kg
RRO	—	46.7 mg/kg
Benzene	4.4 mg/kg	0.647 mg/kg
Ethylbenzene	5.4 mg/kg	33.9 mg/kg
o-Xylene	700 mg/kg (sum)	213 mg/kg
P & M -Xylene		497 mg/kg
Toluene	28 mg/kg	83.4 mg/kg

Notes: —= Analysis not requested for this analyte.

JH* = Estimated concentration, biased high.

Exhibit 2-4: Decreasing Contamination at Deeper Depths at the Former Western Fuel Island

	Western Fuel Island – 36.5 to 37.5 feet bgs	
	1999	2017
	MW-3 boring	B6-2
GRO	134 mg/kg	<5.46 B* mg/kg
DRO	2,930 mg/kg	1,100 mg/kg
RRO	—	<41.3 mg/kg
Benzene	0.987 mg/kg	0.00721 J mg/kg
Ethylbenzene	2.34 mg/kg	0.00842 J mg/kg
o-Xylene	26.7 mg/kg (sum)	0.106 JH* mg/kg
P & M - Xylene		0.179 JH* mg/kg
Toluene	12.1 mg/kg	<0.120 B* mg/kg

Notes: — = Analysis not requested for this analyte.

JH* = Estimated concentration, biased high.

B* = Result is considered not detected.

Since the installation of **the new southern fuel island** and USTs, additional soil sampling has not been possible due to infrastructure constraints. Analytical results from 1995 indicate the outer (horizontal) limits of excavation sampling were non-detect. Samples collected

from the center of the excavation at 11 feet bgs indicate remaining BTEX contamination at 693 mg/kg (combined BTEX). The horizontal extent was contained within the limits of excavation.

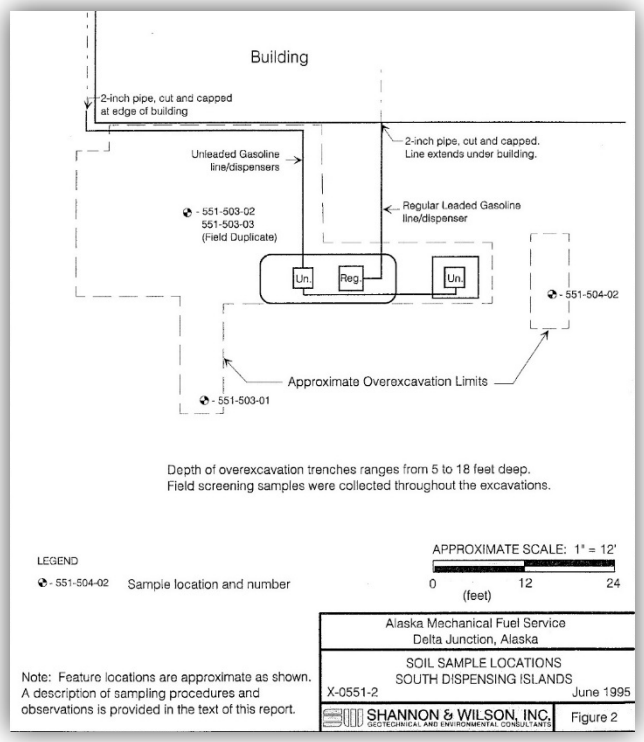


Exhibit 2-5: Figure from our June 1995 Report Depicting the South Dispensing Island Sampling

No contaminants of potential concern (COPCs) have been detected at concentrations above their CUL on the east side of the building. In 2017, samples collected from 5.0 to 6.5 feet bgs and 30.0 to 35.0 feet bgs were less than CUL.

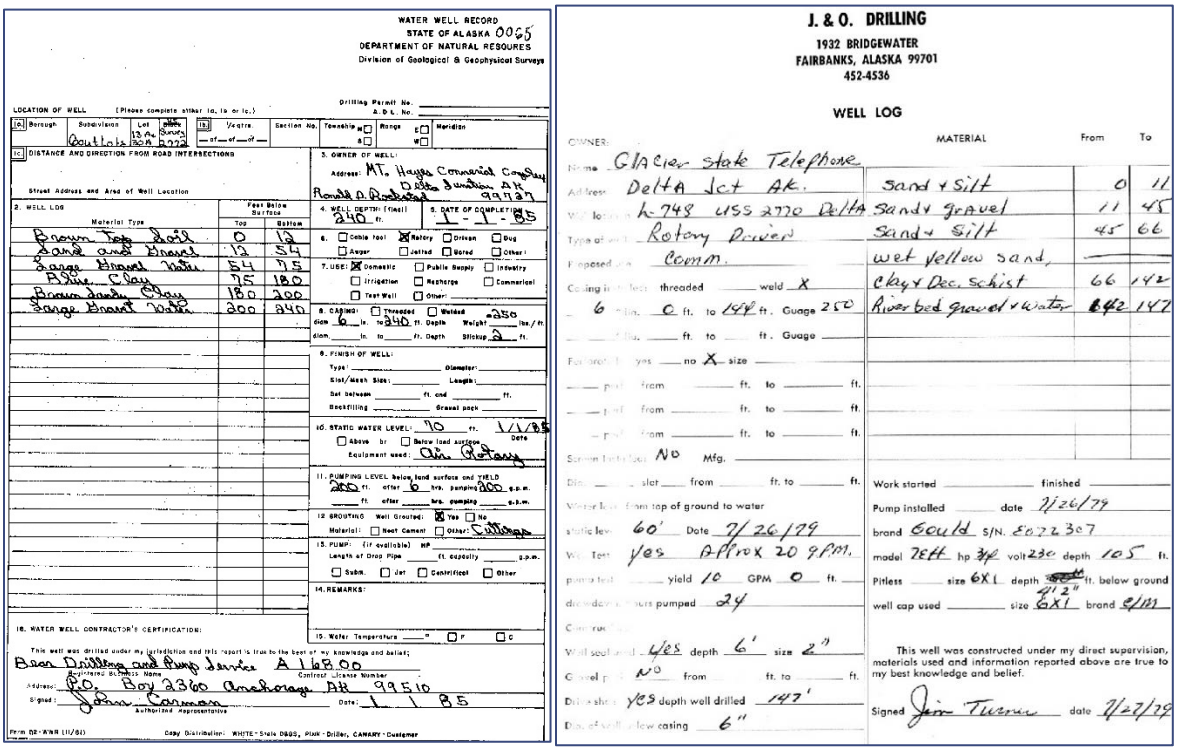
18 AAC 75.340(j)(3) states that "the maximum allowable concentrations for petroleum hydrocarbons described in Table 2B of 18 AAC 75.341(d) must be attained in the surface soil and subsurface soil." The relevant footnote for Table 2B states that MACs are concentrations of petroleum hydrocarbons "in surface and subsurface soil that if exceeded, indicate an increased potential for hazardous substance migration or for risk to human health, safety, or welfare, or to the environment; the level of a petroleum hydrocarbon may not remain at a concentration above the maximum allowable concentration unless a responsible person demonstrates that the petroleum hydrocarbon will not migrate and will not pose a significant risk to human health, safety, or welfare, or to the environment".

In our opinion, the soil has been sufficiently characterized. Vertical migration of soil contamination may be prevented by the dense silt layer observed at approximately 40 feet

bgs. This layer may limit downward migration of contaminates. This potential confining layer has been observed at other Delta Junction sites including:

- the neighboring Inn's well logs,
- the nearby Mt. Hayes Community Complex well log,
- the nearby Glacier State Telephone well log, and
- the July 2006 DEC letter correspondence for the neighboring Jack's Service Station (DEC File Number 120.26.008) contaminated site *No Further Action Required.*

In the July 7, 2006 DEC correspondence letter to Mr. Jack Adams, the hydrogeology is also described by DEC to contain a confining layer. *"Perched water is sometimes present above the confining layer but drinking water wells in the area are competed at depths ranging from 100 to 240 feet…The hydrogeology of the site indicates a minimal risk to groundwater, based on the depth to the aquifer, and the presence of low permeability soil strata…"*



WATER WELL RECORD
STATE OF ALASKA 0065
DEPARTMENT OF NATURAL RESOURCES
Division of Geological & Geophysical Surveys

Material Type	Feet Below Surface Top	Bottom
Brown Top Soil	0	12
Sand and Gravel	12	54
Sage Brush Water	54	75
Blue Clay	75	180
Brown Sandy Clay	180	200
Sage Brush Water	200	240

J. & O. DRILLING
1932 BRIDGEWATER
FAIRBANKS, ALASKA 99701
452-4536

WELL LOG

MATERIAL	From	To
Sand & Silt	0	11
Sandy Gravel	11	45
Sandy Silt	45	66
wet yellow sand,		
Clay & Dec. Schist	66	142
Riverbed gravel & water	142	147

Exhibit 2-6: Well Logs from Neighboring Sites Depicting the Presence of a Shallow, Perched Aquifer over a Confining Layer.

In our opinion, we have demonstrated the petroleum hydrocarbons will not migrate and will not pose a significant risk to human health, safety, welfare, or to the environment.

2.2.2.2 Groundwater

Table 2 summarizes the groundwater analytes historically exceeding regulatory levels. SVE wells MW-3 and MW-8 were sampled in 1999 and 2000. Other attempts to sample the wells were unsuccessful as the wells were reported as dry.

In 2016 we installed temporary well points, and in 2017 we installed five monitoring wells after it was determined that the existing SVE wells were dry.

Results of monitoring-well sampling suggest groundwater quality at the site does not exceed CULs. Groundwater in the shallow aquifer perched on the dense soil layer at approximately 40 feet bgs is not an exposure pathway. We are not aware of water-supply wells on this or adjacent properties within this aquifer.

In the area of the former western fuel island, we compared the 2000 results from MW-3 to the 2017 results from nearly co-located MW-12. In 2000, samples from the shallow aquifer contained DRO at 57.5 milligram per liter (mg/L), GRO at 6.3 mg/L, and benzene at 0.0354 mg/L. In 2017, the sample from MW-12 was not detected for DRO and GRO, and contained benzene at 0.000310 mg/L.

For the former northern UST excavation area, we compared the 2000 MW-8 results to the 2017 nearly collocated MW-11 results. In 2000, a sample from the shallow aquifer contained DRO at 3.38 mg/L. In 2017, a sample from MW-11 was not detected for DRO and contained RRO at 0.195 J mg/L.

Exhibit 2-7: Analytical Data Indicating a Decreasing Trend for DRO Contamination within the Western Fuel Island and the Former UST Area

	Western Fuel Island		Former UST Area	
	2000	2017	2000	2017
	MW-3	MW-12	MW-8	MW-11
DRO	57.5 mg/L	0.294 mg/L	3.38 mg/L	<0.300 mg/L

The drinking water supply well for Kelly's Country Inn, the adjacent property north of the site, has been sampled over the past 20 years and has been consistently found to meet DEC water-quality criteria. Historically, when appropriate, we have used drinking-water, public, and private residential wells during site characterization for select contaminated sites. We

consider the sampling of the Inn's well to be representative of the deeper aquifer present on site.

A "new" well was installed in 2003 at Kelly's Country Inn to a depth of 240 feet bgs. Water was reportedly discovered during drilling at 90 feet bgs. The Inn staff are currently preparing an Approval to Construct application for submittal to DEC.

The site-wide 2017 and 2018 groundwater results for the local, perched water table indicate a decrease in the groundwater contaminant concentrations. For the deeper aquifer, analytical results from Kelly's Country Inn indicate there is no open pathway or migration of contaminants.

In our opinion, the groundwater in both the shallow and deeper aquifer is not contaminated with analytes above CULs.

2.2.2.3 Vapor

In a letter dated January 13, 2009, DEC requested a vapor intrusion assessment at Kelly's Country Inn. We addressed the potential for vapor intrusion at the nearby Inn during our 2009 assessment. We collected a soil-gas sample adjacent to the Inn, near the water line running between the Inn and Interior Texaco. No fuel-related analytes were detected in the soil-gas sample, and results were less than the DEC residential target levels for shallow soil-gas. Acetone, 2-butanone, carbon disulfide, trichlorofluoromethane (Freon 11), and dichlorodifluoromethane (Freon 12) were detected in the soil-gas sample at concentrations less than target levels. We reported the 2009 activities in our March 2010 Site Characterization Report.

In November 2017, we installed and sampled three subslab soil-gas ports and five indoor air Radiello® samples. We also collected a duplicate sample from one of the subslab ports. Prior to sampling, we completed the DEC Building Inventory and Indoor Air Sampling Questionnaire (BIQ).

The five indoor-air analytical samples had concentrations above ADEC Target Level for tetrachloroethene (also known as PCE). None of the other analytes had concentrations above the ADEC Target Level.

Four of the subslab soil gas samples had concentrations below ADEC CL. SS-01 had concentrations above ADEC Target Levels for 1,2,4- trimethylbenzene, dichlorodifluoromethane, and PCE.

In the April 22, 2019 DEC correspondence letter, Mr. Carnahan recommended the "analyte suite for the indoor air align with that of the sub-slab sampling so that a relationship to all

potential COPCs can be evaluated". Further, Mr. Carnahan indicated the results of the vapor intrusion assessment were "inconclusive".

2.3 Summary of To-date Environmental Assessments

A summary of completed work is presented in our July 31, 2017 and March 7, 2018 *Interior Texaco (Buffalo Service Center) Site Characterization Final Reports*. We are also including a summary here. The following list summarizes environmental assessments and activities performed to date.

- October 23, 1989 — The leaking underground storage tank (LUST) site was added to the DEC database due to a confirmed petroleum release.
- June 16, 1995 — SSI removed the UST fueling system and we sampled 100-150 cy of contaminated soil being excavated and stockpiled on site.
- July 16–17, 1997 — Shannon & Wilson, Inc. conducted a subsurface drilling investigation, completing four boreholes to a depth of 20 to 36.5 feet bgs. We installed slotted well screen and blank casing in boreholes B-3 and B-4 (Figure 2) for future use as passive SVE wells.
- May 12, 1998 — Shannon & Wilson, Inc. submitted to DEC the *Release Investigation Interior Texaco Delta Junction, Alaska Facility #125 Report*, summarizing the 1997 site activities.
- February 2, 1999 — DEC sent a letter in response to the May 1998 report requesting hydrogeological information on the well at Kelly's Country Inn and subsurface information. They also requested the investigation of petroleum and halogenated volatile organic compounds (HVOCs) at the Class B public water well located at the Inn, and indoor air monitoring in Interior Texaco's storefront, garage, and tire shop.
- June 24, 1999 — Shannon & Wilson, Inc. submitted to DEC the *Corrective Action Plan, Interior Texaco, 1600 Richardson Highway, Delta Junction, Alaska, DEC Facility No. 0125.*
- August 10–12, 1999 — Shannon & Wilson, Inc. installed the passive SVE system with wind turbines. We converted boreholes B-3 and B-4 (see above) to SVE wells and installed an additional six SVE wells. The radius of influence was reported to be about 15 feet.
- October 1, 1999 — Shannon & Wilson, Inc. monitored the turbine vent stack vapors with a PID (300 ppm to 2,000 ppm).
- October 23, 1999 — Shannon & Wilson, Inc. collected turbine vent stack air samples from VS-3 and VS-7.

- November 10, 1999 DEC sent a letter in response to the June 1999 *Corrective Action Plan Interior Texaco, 1600 Richardson Highway, Delta Junction, Alaska, DEC Facility No. 0125* (the CAP) requesting:
  - the elimination of HVOC compounds from consideration as COPC;
  - an evaluation of exposure to volatile hydrocarbon vapors in indoor air; and
  - the periodic measurements of the groundwater level depth in the Class B public well at the Inn.
- November 12, 1999 Susan Kemp of Kelly's Country Inn collected a groundwater sample from the Inn's well that services both the Inn and Interior Texaco.
- December 20, 1999 Shannon & Wilson, Inc. collected indoor air samples from the Interior Texaco storefront, tire shop and turbine vent stack air samples from VS-3 and VS-7. We also measured the depth-to-water (DTW) at the Inn's well to be 97 feet bgs (the total depth of the well is 180 feet).
- January 31, 2000 Shannon & Wilson, Inc. submitted to DEC the *Corrective Action Summary Report, Interior Texaco, 1600 Richardson Highway, Delta Junction, Alaska, DEC Facility No. 0125.* In the report, we recommended discontinuing indoor air sampling and analysis and presented results for the December 20, 1999 indoor air and turbine vent stack air samples.
- March 17, 2000 DEC approved the request to discontinue indoor air monitoring.
- March 29, 2000 Shannon & Wilson, Inc. monitored indoor air inside the Interior Texaco storefront, garage, and tire shop, and collected turbine vent stack air samples from VS-4 and VS-8.
- June 7, 2000 Shannon & Wilson, Inc. collected groundwater samples from the Inn's well.
- June 19, 2000 Shannon & Wilson, Inc. submitted to DEC the *Addendum to Corrective Action Summary Report* detailing the June 7, 2000 groundwater samples from the Inn.
- July 11, 2000 Shannon & Wilson, Inc. collected groundwater from vapor extraction wells MW-3 and MW-8, soil stockpile samples, and turbine vent stack air samples from VS-3 and VS-4. Results are included in the November 9, 2000 *Corrective Action Progress Report.*
- October 4, 2000 Shannon & Wilson, Inc. collected a turbine vent stack air sample from VS-4 and a groundwater sample from the Inn.

- November 9, 2000 Shannon & Wilson, Inc. submitted the *Corrective Action Progress Report, Interior Texaco, 1600 Richardson Highway, Delta Junction, Alaska, DEC Facility No. 0125*. We recommended discontinuing the sampling and analysis of groundwater from the Inn's well and a reduction in frequency of groundwater and turbine vent stack air sampling and analysis to once a year.
- July 21, 2001 Shannon & Wilson, Inc. collected soil stockpile samples and turbine vent stack air samples from VS-3 and VS-4.
- January 4, 2002 Shannon & Wilson, Inc. submitted to DEC the *2001 Corrective Action Progress Report and Request for Approval of Changes to Corrective Action Plan for Interior Texaco in Delta Junction, Alaska, DEC Facility No. 0125* summarizing analytical results from July 2001 to January 2002, and providing logs of soil borings at Interior Texaco and two nearby projects.
- January 23, 2002 DEC sent a letter authorizing the reduction of monitoring the groundwater from the public water well at the Inn to once a year.
- March 15, 2002 DEC sent an e-mail authorizing the discontinuation of turbine vent stack air sampling and the discontinuation of groundwater sampling of the passive SVE wells.
- July 29, 2004 DEC sent a letter requesting additional information on the site.
- October 2005 Shannon & Wilson, Inc. submitted to DEC the *Request for Consideration of No Further Remedial Action Required Interior Texaco, Delta Junction, Alaska, Facility No. 0125.*
- December 9, 2005 DEC sent a letter in response to the October 2005 report identifying data gaps (see Section 2.3, below).
- October 1, 2008 Shannon & Wilson, Inc. collected stockpile samples, groundwater samples, and a soil-gas sample adjacent to the water line from neighboring Inn servicing Interior Texaco.
- January 13, 2009 DEC sent a letter stating no further action is required for the stockpile.
- March 24, 2010 Shannon & Wilson, Inc. submitted to DEC the *Site Characterization Report and Request for Cleanup Complete with Institutional Controls Status, Interior Texaco, Delta Junction, Alaska, DEC File Number 120.26.001.*
- June 30, 2014 DEC sent a letter requesting additional information on the site (see Section 2.3, below).
- December 17, 2015 DEC and Responsible Party coordination meeting to discuss the project status.

- June 3, 2016 — Shannon & Wilson, Inc. submitted to DEC the *Interior Texaco (Buffalo Service Center) Limited Site Characterization DRAFT Work Plan.*
- July 11, 2016 — DEC provided comments on the draft work plan.
- August 12, 2016 — DEC and Responsible Party coordination meeting to discuss the draft work plan.
- September 2016 — Site characterization was completed under the September 2016 *Interior Texaco Limited Site Characterization Revised Work Plan*
- October 2016 — Submittal of *Interior Texaco Site Characterization DRAFT Report*
- July 2017 — DEC and Responsible Party coordination meeting to discuss the DEC Site Closure Checklist and the DEC review of the 2016 assessment.
- July 2017 — Submittal of *Interior Texaco Site Characterization FINAL Report*
- August 2017 — Submittal of *Interior Texaco Limited Site Characterization DRAFT Work Plan*
- August 2017 — DEC and Responsible Party coordination meeting to discuss the draft work plan.
- September 2017 — Submittal of *Interior Texaco Limited Site Characterization FINAL Work Plan*
- December 2017 — Submittal of *Interior Texaco Site Characterization DRAFT Report*
- March 2018 — Submittal of *Interior Texaco Site Characterization FINAL Report*
- June 2018 — Submittal of *Interior Texaco Groundwater Monitoring and Feasibility Study DRAFT Work Plan*
- July 2018 — We conducted a round of groundwater monitoring and completed the SVE feasibility study. We also conducted a well repair visit with GeoTek Alaska. We also secured a subcontract with a surveyor to conduct a vertical and horizontal survey of the monitoring wells.
- September 2018 — We conducted a groundwater monitoring event.
- November 2018 — Submittal of *Interior Texaco Groundwater Monitoring and Feasibility Study DRAFT Report*
- March 2019 — Submittal of *Interior Texaco Groundwater Monitoring and Feasibility Study FINAL Report*
- May 16, 2019 — Agency coordination meeting with DEC and client.
- May 24, 2019 — Submittal of 2019 Work Plan Addendum

2.4 Site Closure

In October 2005, we first presented a *Request for Consideration of No Further Remedial Action Required*. Upon review of our request, DEC requested additional information on the following data gaps:

- The status of the stockpile;
- The potential for lead scavenger compounds (specifically 1,2-dibromoethane [EDB] and 1,2-dichloroethane [EDC]) as contaminants of concern;
- Potential for a complete migration-to-groundwater pathway; and
- The potential for vapor intrusion into the nearby inn.

We addressed the stockpile data gap in our December 2008 report. In a letter dated January 12, 2009, the DEC stated "no further action is required for the stockpile." We addressed the lead scavenger compounds data gap by sampling for volatile organic compounds (VOCs) in both groundwater and soil subsequent sampling starting in 2010.

In a letter dated January 13, 2009, DEC reiterated the need for a vapor intrusion assessment at Kelly's Country Inn. We addressed the potential for vapor intrusion into the nearby inn in our 2009 assessment. We collected a soil-gas sample adjacent to the Inn, near the water line running between the Inn and Interior Texaco. No fuel-related analytes were detected in the soil-gas sample, and results were less than the DEC residential target levels for shallow soil gas. Acetone, 2-butanone, carbon disulfide, Freon 11, and Freon 12 were detected in the soil-gas sample at concentrations less than target levels. We reported the 2009 activities in our March 2010 Site Characterization Report and Request for Cleanup Complete with Institutional Controls Status Interior Texaco.

We did not receive comments from DEC on our March 2010 report. We note the DEC program representative was reassigned four times between 2010 and 2014. In June 2014, the Responsible Party received e-mail correspondence from DEC program representative Ms. Amy Dieffenbacher requesting a work plan for characterization.

On August 30, 2016, DEC released a site closure memorandum summarizing how the contaminated sites program (CSP) will make closure determinations. For CSP to determine *Cleanup Completed with Institutional Controls*, a series of criteria to be met are outlined in the memorandum. Our previous assessments had lacked key components for site closure with institutional controls (ICs). We identified the following data gaps:

- During agency review of the 2017 report, it was determined a thorough building inventory was needed to complete the vapor intrusion assessment.

- Horizontal groundwater characterization. Determine the extent of contamination of the shallow aquifer at MW13. Determine if additional soil cleanup is necessary to facilitate groundwater cleanup. Determine if the plume is steady state or shrinking.

Our 2018 activities were to fill in data gaps and to assist the client in determining the feasibility to request site closure with ICs. We reported the results of both data gaps in our March 2019 final report and recommended site closure with ICs. In the April 22, 2019 DEC response letter to our report, DEC recommended additional air sampling to evaluate the vapor intrusion.

Our 2019 work plan addendum described our methods to assess the potential for vapor intrusion, which we understood to be a data gap that limited DEC's ability to consider site closure. The results of our 2019 site-characterization activities are described in Section 3. When combined with the results of previous site-characterization activities, it is our opinion site closure is appropriate for this site; Section 5 presents our detailed justification for site closure with institutional controls.

3 2019 ACTIVITIES

The 2019 field activities included an updated DEC building inventory, conducting another air-sampling event to determine the contribution source for the existence of a vapor intrusion pathway, decommissioning the eight-remaining groundwater-monitoring wells, and transporting and disposing of the five drums of soil cuttings to OIT Inc. in Moose Creek, Alaska.

We have included a copy of a revised conceptual site model (CSM) in Appendix A.

3.1 Vapor Intrusion Assessment

On August 26 and 27, Dana Fjare of our Fairbanks office traveled to the site to conduct a vapor intrusion assessment. The intent of the air-sampling event was to determine the potential of a vapor intrusion pathway.

Ms. Fjare completed a BIQ prior to collecting samples. The intent of the BIQ is to understand the potential of

Exhibit 3-1: Indoor air sampling in progress (IA-01 sample location inside the store).

the inventory to affect indoor air quality.

Upon completion of the BIQ, Ms. Fjare collected one subslab soil-gas

Exhibit 3-2: Indoor air sampling in progress inside the store closet (IA-02 sample location)

sample plus a duplicate (inside the garage) and two indoor air samples for VOCs (one inside the storefront and one inside the garage).

All samples were collected using summa canisters and were analyzed using the Environmental Protection Agency (EPA) Method TO-15, Selective Ion Monitoring (SIM). We submitted the samples to Eurofins Air Toxics, Ltd. (Eurofins) in California and requested a standard data-turnaround time.

We selected the sample locations based upon the November 2017 sample locations, which were based on the occupancy duration/frequency, preferential pathways, proximity to known soil contamination, and areal coverage of the building footprint.

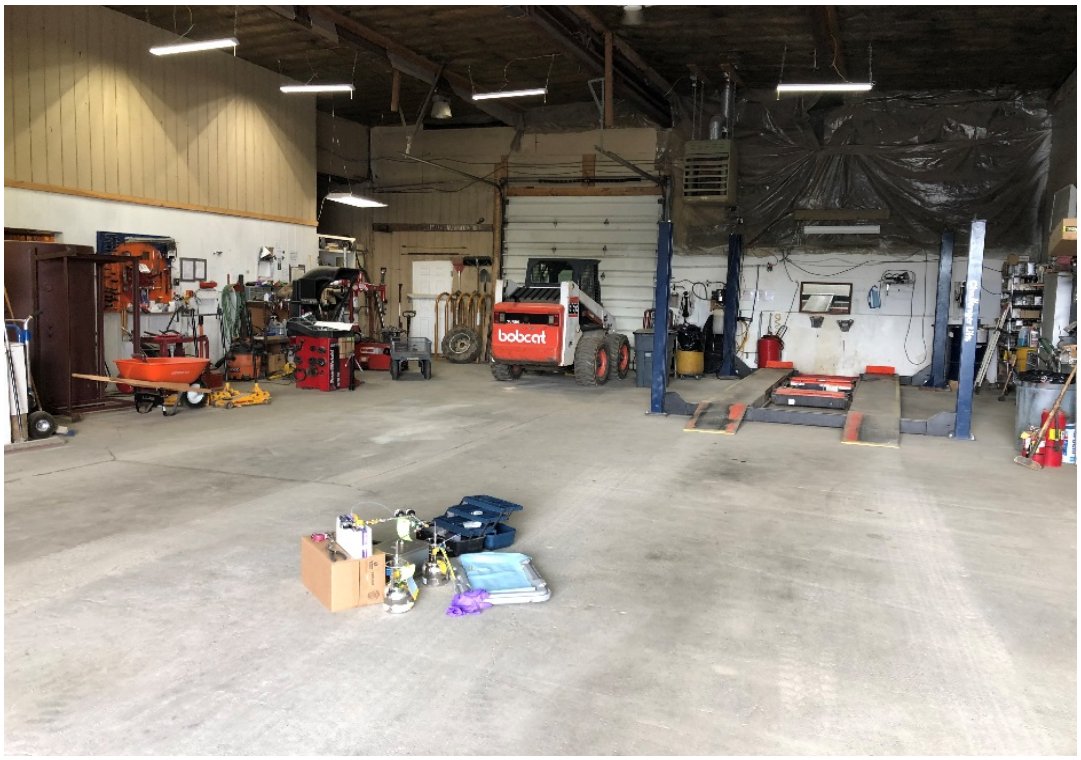


Exhibit 3-3: Subslab soil-gas sampling in progress inside the shop.

Sampling was completed in general accordance with our 2019 DEC-approved work plan and the November 2017 DEC *Vapor Intrusion Guidance*. We collected the samples using 6-liter summa canisters equipped with 24-hour flow controllers.

3.2 Well Decommissioning

On August 13, 2019, Ms. Fjare traveled to the site with the drilling subcontractor GeoTek Alaska, Inc. (GeoTek). Ms. Fjare observed GeoTek decommission the eight-remaining groundwater-monitoring wells.

The wells were completed at depths of 30 to 50 feet below ground surface (bgs). Decommissioning activities were in general

Exhibit 3-4: Decommissioning MW-13 in August 2019

accordance with the September 2013 DEC *Monitoring Well Guidance*. The well casings were removed with the drill rig and the boreholes filled with sand and bentonite and finished at the ground surface with pea gravel.

Prior to 2015, the following wells were destroyed either during paving or unknown activities: MW-3, MW-4, MW-5, MW-6, and MW-7. These five destroyed wells were not decommissioned. We have previously reported their destroyed status to DEC.

Prior to 2019 decommissioning, the following wells were connected to the passive SVE system with a T-joint at approximately 2 feet bgs: MW-8, MW-9, MW-12. To decommission these wells, we removed the vertical PVC with the drill rig and filled the T-joint with spray foam. The vertical void was filled with bentonite and pea gravel. The horizontal PVC was decommissioned in place in the ground approximately 2 feet bgs.

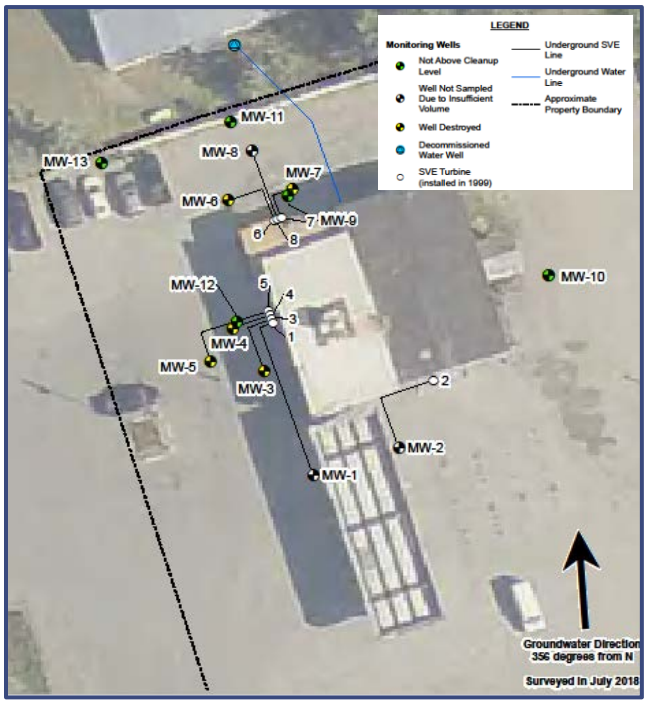


Exhibit 3-5: Monitoring wells

3.3 Transport, Treatment, and Disposal Approval

In June 2019, we submitted to DEC's Program Representative Mr. John Carnahan the *Transport, Treatment, Disposal Approval Form for Contaminated Media.* Upon return of the signed form, CEM Leasing transported five 55-gallon drums of investigative-derived waste (soil cuttings) to OIT Inc. in Moose Creek, for thermal remediation. To our knowledge, there is no remaining regulated waste on site.

4 RESULTS

This section presents the results of the analytical testing and the field activities.

4.1 Indoor Air and Sub-slab Soil Gas Results

The 2019 indoor and sub-slab soil gas sample results are included in Table 1. Based on the analytical results, we did not find evidence of vapor intrusion. While there are exceedances in both the indoor air and the sub-slab sample results, the contamination below the building does not appear to adversely impact the indoor air in the shop or the store.

The sub-slab air results for 1,2,4-trimethylbenzene, Freon 12, and PCE did not exceed DEC Target Levels in corresponding indoor air samples. The detections in indoor air were less than would be expected based on the DEC's estimated attenuation factor for vapor intrusion from sub-slab air to indoor air.

Contamination remaining below the Interior Texaco building does not appear to be adversely impacting indoor air in the shop and the convenience store.

The indoor air exceedances for benzene and chloroform did not exceed DEC Target Levels in the sub-slab sample. The results in the sub-slab sample are less than would be expected if vapors were attenuating from beneath the building into the indoor air we sampled. It appears that these contaminants are not coming from the sub-slab.

4.2 Summary

The field documentation for 2019 activities are included in Appendix B. The laboratory reports are included in Appendix C. The laboratory data review checklists (LDRCs) are included in Appendix D. The BIQ and corresponding photo log are included in Appendix E. A discussion of the data quality is included in Appendix F.

5 JUSTIFICATION FOR SITE CLOSURE

Our overall objective for the site-characterization activities performed at the Interior Texaco site and summarized in this report is to achieve site closure. In this section, we present the site-closure criteria included in the August 2016 *DEC Site Closure/Cleanup Complete Memorandum* and discuss how documented site conditions justify a request for site closure with institutional controls.

5.1 DEC Criteria for Site Closure

5.1.1 For All Contaminated Sites (Check ALL of the following)

✓ ***1. The extent of hazardous substance contamination must be properly characterized (18 AAC 75.335. Site characterization) and/or adequate characterization of the horizontal and vertical extent of petroleum contamination in soil, groundwater, and surface water (18 AAC 78.235. Release investigation);***

5.1.1.1 Soil

Figure 3 depicts a cross-section of the to-date soil characterization. In our opinion, we have demonstrated the petroleum hydrocarbons will not migrate and will not pose a significant risk to human health, safety, welfare, or to the environment.

In our opinion, the site has been sufficiently characterized. Vertical migration of soil contamination is limited by the dense silt layer observed at approximately 40 feet bgs.

5.1.1.2 Water

Prior to 2016 and 2017, there was insufficient information to characterize the groundwater contamination in the shallow aquifer. MW-1 and MW-2, in the area of the former southern dispensing island, were installed in 1997 and have not had sufficient water to sample since their installation. To our knowledge, no water samples have ever been collected from MW-1 or MW-2. In 1999, while drilling the soil boring for the SVE MW-2, DRO and benzene contamination at 36.5 feet bgs of 551 mg/kg and 0.0269 mg/kg, respectively.

To better characterize groundwater, in 2016, we installed temporary well points and in 2017, we installed permanent monitoring wells. Results from this groundwater monitoring indicated groundwater quality in the following three areas did not exceed DEC cleanup levels:

- east of the building;
- the western former dispensing area; and
- the northern former UST area.

In 2017, the presence of GRO, DRO, and BTEX compounds exceeding cleanup levels in MW-13, along the northern property line near the northwest property corner, suggested additional groundwater characterization in this area was needed.

In 2018, results for both monitoring events for all wells were less than DEC cleanup levels.

The drinking-water supply well for Kelly's Country Inn, the adjacent property north of the site, has been sampled repeatedly over the past 20 years and has been consistently found to meet DEC water-quality criteria. A new well was recently installed at Kelly's Country Inn and is currently in the process of an Approval to Construct application with DEC. The Public Water System Identification (PWIS) is 370251 and the depth of the well is at 240 feet bgs. During drilling, the static water level was measured at 90 feet bgs. See Figure 1 for its location. Both sampling events in 2018 indicate the water of this aquifer meets the DEC water quality criteria.

Historically, in cooperation with DEC, we have used both residential private and drinking-water wells for site characterization for select contaminated sites. We believe the sampling of the Inn's well is representative of the deeper aquifer present on site.

✓ ***2. Free product must be recovered to the maximum extent practicable (18 AAC 75.325(f)(l)(B) and 18 AAC 78.240(b));***

We have not identified or observed free product during our site assessments.

✓ ***3. Surface soil staining must be evaluated and cleaned up to the maximum extent practicable (18 AAC 75.325(f)(l)(E));***

We believe the surface staining related to the LUST has been evaluated and surface staining has been cleaned up to the maximum extent practicable.

✓ ***4. The maximum allowable petroleum (GRO, DRO, RRO) cleanup levels for soil must be achieved unless the responsible party has demonstrated the contaminants will not migrate and will not pose an unacceptable risk to human health or the environment; and***

Contamination above the maximum allowable petroleum cleanup levels for soil still exists in the former UST area and the former dispensing islands. Figure 2 and Figure 3 depict the in-place contamination. We have demonstrated the contaminants in the soil will not migrate and will not pose an unacceptable risk. The partial-cover of asphalt and the surface soils provide a suitable cap for mitigating the risk to both workers and visitors on the site. The current use, and future planned use, is a gas station and excavation is not anticipated. However, should future excavation occur, the IC's would control the potential harm to human health.

✓ ***5. There are no unacceptable risks to sensitive subpopulations, if present.***

We are not aware of sensitive subpopulations present at the site. We do not believe there are unacceptable risks to sensitive subpopulations.

5.1.2 Cleanup Complete with ICs

5.1.2.1 Hazardous Substances in Soil (Check ONE of the Following)

1. ***Approved migration to groundwater cleanup levels have been achieved;***

✓ 2. ***CSP has determined that the contaminant plume has achieved a point of steady- state equilibrium and that additional soil cleanup is not necessary to facilitate groundwater cleanup nor to prevent leaching to groundwater, this determination requires EPM II approval and results in a decision that residual contaminants in soil do not pose an unacceptable migration to groundwater risk; or***

3. ***CSP determined that groundwater beneath the site is not a current, nor reasonably expected potential future, source of drinking water (18 AAC 75.350) and that the migration to groundwater cleanup levels are not applicable.***

Figure 3 depicts the soil contamination in cross section. As evidenced by recent groundwater-sample results showing that contamination does not exceed CULs, we believe the contaminant plume has achieved a point of steady-state equilibrium and additional soil cleanup is not necessary to facilitate groundwater cleanup.

5.1.2.2 Check ONE of the Following

1. ***Risk-based (direct contact, ingestion, inhalation) residential use cleanup levels have been achieved to a depth of fifteen (15) below the ground surface, but some other limitation triggers the need for ICs;***

2. ***Site specific risk-based (direct contact, ingestion, inhalation) alternative cleanup levels based on a commercial/industrial or other non-residential land use have been approved under Methods 3 or 4 and have been achieved within fifteen (15) feet below the ground surface and residential use of the site can be prevented through ICs; or***

✓ 3. ***Risk-based (direct contact, ingestion, inhalation) cleanup levels have not been achieved in soil within 15' below the ground surface, but CSP has determined the cleanup has been conducted to the maximum extent practicable or necessary and that potential exposure to remaining subsurface contaminants can be prevented through ICs.***

In 2019, we did not find evidence of vapor intrusion. Exposure to contaminated soil is currently limited by the partial asphalt surface at the site, as well as the concrete floor in the shop and store.

We believe the potential exposure to remaining subsurface contaminants can be prevented through ICs.

5.1.2.3 Check ALL of the following

✓ ***1. If a cleanup level less stringent than a level protective of residential land use is being considered for approval, written consent has been obtained from each affected landowner (18 AAC 75.340(e) and (f));***

We do not believe this criterion is applicable since the land is not residential, and we are not requesting a less-stringent cleanup level than Migration to Groundwater. We understand the applicable cleanup levels for this site are the most stringent, and closure with IC's would require concurrence from the landowner. We have been in close contact with the landowner. It is our understanding the current landowner is in full support of closure with ICs and understands there is remaining contamination in the ground.

✓ ***2. Any potential vapor intrusion risks have been addressed;***

Our 2018 and 2019 vapor intrusion assessment activities were intended to address the risk. With the most recent results, we did not find evidence of vapor intrusion. We believe the future risks are acceptable in a commercial setting.

The abundance of background sources related to the current use in the fueling station has been discussed and reported multiple times by both Shannon & Wilson and DEC program staff. The workers and visitors of the service station are potentially exposed to vapors generated from dispensing gasoline and vehicle repair activities. When comparing the *risk* attributable to contaminants in soil, groundwater, or soil vapors on current and future workers, we conclude worker safety should not be compromised. No matter the *source* of the risk, we believe a ventilation system capable of creating a positive pressure system will further reduce the potential for vapor intrusion. To mitigate the potential risk, we understand CEM Leasing installed a ventilation system in the garage in 2019.

✓ ***3. There are no unacceptable ecological risks; and***

This criterion is not applicable to this site.

✓ ***4. There are no concerns over the potential for contaminant migration from polluted soil to surface water that could result in a violation of the water quality standards or pose an ecological risk.***

We do not believe there is a concern for migration from polluted soil to surface water that could pose an ecological risk.

5.1.2.4 Hazardous Substances In Groundwater (Check ONE of the following)

✓ ***1. Contaminant concentrations in groundwater meet applicable cleanup levels throughout the groundwater beneath the site;***

2. Contaminant concentrations in groundwater meet applicable cleanup levels at alternative points of compliance approved by CSP in accordance with 18 AAC 75.345(e) and ICs can prevent groundwater use as drinking water within the upgradient, impacted area; or

3. CSP determined that groundwater beneath the site is not a current source of drinking water nor a reasonably expected potential future drinking water source (18 AAC 75.350) and that ICs can prevent such use.

Contaminant concentrations in both the shallow and deep aquifer meet the applicable CULs.

5.1.2.5 Check ALL of the following

✓ ***1. The groundwater contaminant plume is shown to be steady state or shrinking (if alternative points of compliance have been approved, this applies to water up-gradient to the points of compliance);***

We compiled results of analytical groundwater data from 1999 to 2018. Results of monitoring-well sampling suggest the groundwater quality across the site are within DEC criteria. Results of previous sampling of the drinking-water supply well for Kelly's Country Inn, downgradient of the site, indicate groundwater contamination is not moving off property into the deeper aquifer.

Groundwater in the shallow aquifer perched on the dense soil layer at approximately 40 feet bgs does not appear to be an exposure pathway. The shallow groundwater contamination within the aquifer is now below CULs.

✓ ***2. Groundwater contaminant concentrations are decreasing (if alternative points of compliance have been approved, this applies to water up-gradient to the points of compliance);***

Contaminant concentrations in both the shallow and deep aquifer are now less than the applicable CULs.

✓ ***3. All other potentially complete human health exposure pathways (e.g., vapor intrusion) have been addressed***

We believe all pathways have been addressed and they do not pose an unacceptable risk in a commercial setting.

✓ ***4. Residual contaminants in groundwater do not currently, and are not expected to, cause a violation of the water quality standards in nearby surface waters, nor pose an unacceptable ecological risk; and***

We have identified no evidence of a violation of water quality standards and it does not appear this is a concern for this site.

✓ ***5. The CSP determined the residual contamination does not pose a current unacceptable risk to human health, safety or welfare, or to the environment and that potential future risk can be mitigated through institutional controls.***

We believe the current risk to human health, safety, welfare, or the environment is not unacceptable, and the future risk can be mitigated through ICs.

5.1.2.6 Cumulative Risk Standards (Check the Following)

✓ ***Cumulative risk standards in 18 AAC 75.325(g) or 18 AAC 78.600(d) have been achieved for the current and intended future land use scenarios, or institutional controls are in place to prevent exposure to contaminants that pose potential risk above the standards.***

Contaminants are present in soil within the former UST and dispensing-island areas at concentrations exceeding CULs. Based on the information we collected and presented in this report, notably that groundwater samples collected from the shallow, perched aquifer did not contain contaminants exceeding their respective CULs, it is our opinion the contaminants in soil are not contributing to groundwater contamination at levels of concern. In our opinion, implementing the ICs presented in our conclusions and recommendations (Section 6) will prevent exposure to contaminants that pose potential risk to human health

5.1.2.7 Landowner Consultation (Check the Following)

✓ ***The CSP has consulted with each 1andowner of the site on the need for and provisions in any institutional controls (note, landowner consent is needed to approve cleanup levels that are not protective of residential land use).***

Since 1971, the site has been operated as a fuel service station in a commercial area of Delta Junction. It is expected to remain a fuel service station. Much of the ground surface near the building is paved with asphalt and surface water drains to the northwest. The nearest residence is the manager/owner of Kelly's Country Inn, approximately 200 feet to the north

of the station. There is no apartment on the premises. The potable water supply well for both Kelly's Country Inn and the site is from an aquifer approximately 90 feet bgs.

In his February 22, 2017 correspondence, Mr. Carnahan indicated he has consulted with the landowner and they are willing to work with all parties to "seek a reasonable resolution". We agree; we have consulted with both the landowner and the tenant and believe they are willing to consent to future ICs.

6 CONCLUSIONS AND RECOMMENDATIONS

We believe this site does not pose an unacceptable risk to human health, safety, welfare, or to the environment. Although soil contamination is present in the subsurface, we do not believe there is an "unacceptable vapor intrusion risk."

We recommend an DEC determination of Cleanup Complete with Institutional Controls.

In summary, we present the following IC management strategy:

1. In accordance with 18 AAC 78.274(b), DEC approval must be obtained prior to transport and/or dispose of soil and groundwater from this site. Any proposed soil excavation in the area of the former USTs and the western fuel dispenser will require DEC approval.
2. DEC may require additional investigation and cleanup if new information is presented that indicates this determination is not protective of human health, safety, welfare, or the environment.
3. If any future change in land use changes the risk to site users, DEC may require additional cleanup and/or ICs.
4. No groundwater supply wells may be installed on the property without the review and approval of DEC.
5. Environmental covenants in accordance with Alaska Statute 46.04.300 shall be recorded with the State's Recording office (www.recorder.alaska.gov). We have included a copy of the environmental covenants for this site for DEC review under separate cover.

7 REFERENCES

Alaska Department of Environmental Conservation, November 2017, 18 AAC 75: *Oil and Other Hazardous Substances Pollution Control*: Juneau, Alaska, available: http://dec.alaska.gov/commish/regulations/.

Alaska Department of Environmental Conservation, November 2016, 18 AAC 75.341 Tables B1 and B2, Method Two – *Soil Cleanup Level for Migration to Groundwater for the "Under 40 Inch Zone"*. Alaska Department of Environmental Conservation, 2002, Method AK101: Juneau, Alaska, available https://dec.alaska.gov/eh/docs/lab/CS/AK101.pdf

Alaska Department of Environmental Conservation (DEC), 2016, 18 AAC 75.345 Table C – *Groundwater Cleanup Levels*.

Alaska Department of Environmental Conservation, October 2019, *Field Sampling Guidance for Contaminated Sites and Leaking Underground Storage Tank Sites*, available: https://dec.alaska.gov/spar/csp/guidance_forms/docs/Field_Sampling_Guidance_August_2017_Final.pdf

Alaska Department of Environmental Conservation, March 2017, *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites*: Juneau, Alaska, DEC Division of Spill Prevention and Response, Contaminated Sites Program, available: https://dec.alaska.gov/spar/csp/guidance_forms/docs/SiteCharacterizationWorkPlanReportingGuidance2017.pdf

Alaska Department of Environmental Conservation, January 2017, *Guidance on Developing Conceptual Site Models*: Juneau, Alaska, DEC Division of Spill Prevention and Response, Contaminated Sites Program, available: https://dec.alaska.gov/spar/csp/documents/DEC_CSM_Guidance_222017.pdf

Alaska Department of Environmental Conservation (DEC), 2014, *Underground Storage Tanks Procedures Manual*: Juneau, Alaska, DEC Division of Spill Prevention and Response, Contaminated Sites Program, available: http://dec.alaska.gov/spar/csp/documents/UST_Procedures_Manual_March_22_2017.pdf

Alaska Department of Environmental Conservation, November 2017, *Vapor Intrusion Guidance for Contaminated Sites*: Juneau, Alaska, DEC Division of Spill Prevention and Response, Contaminated Sites Program, available: http://dec.alaska.gov/spar/csp/guidance_forms/docs/2017_VI_Guidance_Final_Without_Appendix_I.pdf

Table 1 - Interior Texaco Detected Results and Attenuation from Subslab Air to Indoor Air

Analytical Method	Analyte	ADEC Subslab Air Target Level	ADEC Indoor Air Target Level	Units	*SS-01* Shop Subslab Air	*SS-02* Duplicate of SS-01	*IA-02* Shop Indoor Air (ug/m3)	*IA-01* Convenience Store Indoor Air (ug/m3)	Predicted Attenuation from Subslab to Indoor Air*
TO-15	1,2,4-Trimethylbenzene	310	31	µg/m^3	**5,600**	**5,400**	7.4	5.2	560
	1,3,5-Trimethylbenzene	NA	NA	µg/m^3	2,700	2,600	2.2J	2.1J	270
	4-Ethyltoluene	NA	NA	µg/m^3	2,500	2,500	8	5.8	250
	Benzene	160	16	µg/m^3	<33.0	<34.0	**32**	**43**	<3.4
	Carbon disulfide	31,000	3,100	µg/m^3	70J	75.0J	<14	<13	7.5
	Chloroform	53	5.3	µg/m^3	22J*	17.0J*	1.8	**12**	2.2
	Dichlorodifluoromethane	4,400	440	µg/m^3	**7,800**	**8,000**	3.9	4.3	800
	Ethanol	NA	NA	µg/m^3	28J*	<80.0J*	170	480	2.8
	Ethylbenzene	490	49	µg/m^3	<45J*	12.0J*	6.9	4.8	1.2
	Isopropylbenzene	18,000	1,800	µg/m^3	100	100	<4.5	<4.2	10
	n-Propylbenzene	44,000	4,400	µg/m^3	370	360	2.2J	1.9J	37
	o-Xylene	NA	NA	µg/m^3	190	200	7.9	6	20
	P & M -Xylene	NA	NA	µg/m^3	180	190	22	16	19
	Tetrachloroethene	1,800	41	µg/m^3	**12,000**	**12,000**	1.2	0.77J	1,200
	Toluene	220,000	7,500	µg/m^3	7.5J	8.80J	110	73	0.88
	Trichloroethene	84	2.2	µg/m^3	17J*	28.0J*	<0.99	<0.91	2.8
	Trichlorofluoromethane	NA	NA	µg/m^3	910	970	14	24	97

NOTES:

Target Levels obtained from the ADEC's *Vapor Intrusion Guidance:* Appendix D - Target Levels for Soil Gas and Indoor Air (Commercial), dated November 2017.

* Attenuation factor of 0.1 from the November 2017 ADEC *Vapor Intrusion Guidance* .

< Analyte not detected; listed as less than the reporting limit (RL) unless otherwise flagged due to quality-control failures.

J Estimated concentration below the limit of quanitation (LOQ). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson.

Bold RL exceeds the ADEC cleanup level.

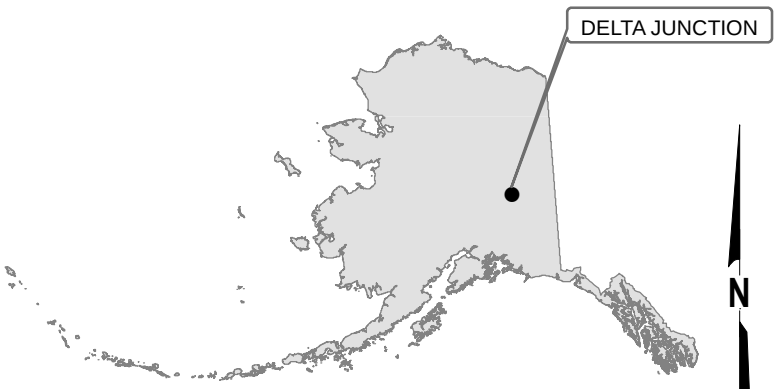
BOLD Detected concentration exceeds Target Levels

ADEC = Alaska Department of Environmental Conservation; µg/m^3 = microgram per cubic meter; NA = not applicable, ADEC Target Level not yet established.

Table 2 - GROUNDWATER ANALYTES HISTORICALLY EXCEEDING REGULATORY LEVELS

Location	Analyte	GRO	DRO	Benzene	Ethyl-benzene	o-Xylene	P&M-Xylene	Toluene
	Units	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
	ADEC Cleanup Level	2.2	1.5	4.6	15	190		1,100
MW-3 †	August 1999	—	—	**3,030**	**1,000**	**8,500**	—	**10,500**
	December 1999 §	—	—	—	—	—	—	—
	March 2000 §	—	—	—	—	—	—	—
	July 2000	**6.3**	**57.5**	**35.4**	**42.9**	**797**	—	206
	October 2000 §	—	—	—	—	—	—	—
MW-8 †	August 1999	—	—	**104**	**50.4**	**1,367**	—	275
	December 1999 §	—	—	—	—	—	—	—
	March 2000 §	—	—	—	—	—	—	—
	July 2000	0.1	**3.38**	0.534	<2.00	13.71	—	3.7
	July 2000 DUP	0.26	—	1.29	<2.00	35.6	—	6.48
	October 2000 §	—	—	—	—	—	—	—
MW-9	October 2017	<0.0500	<0.313	<0.250	<0.500	<0.500	<1.00	<1.00 B*
	October 2017 DUP	<0.0500	<0.302	0.150 J	<0.500	<0.500	<1.00	<1.00 B*
	July 2018	<0.0500J*	<0.294	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2018	<0.0500	<0.288	<0.250	<0.500	<0.500	<1.00	<0.500
MW-10	October 2017	<0.0500	<0.302	0.460 J	<0.500	0.320 J	<1.00	<1.00 B*
	July 2018	<0.0500J*	<0.288	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2018	<0.0500	<0.283	<0.250	<0.500	<0.500	<1.00	<0.500
MW-11	October 2017	<0.0500	<0.300	0.380 J	<0.500	<0.500	<1.00	<1.00 B*
	July 2018	<0.0500J*	<0.294	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2018	<0.0500	<0.288	<0.250	<0.500	<0.500	<1.00	<0.500
B-2 ‡	September 2016	0.0354 J	<1.11 B*	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2016 DUP	0.0315 J	<1.04 B*	<0.250	<0.500	<0.500	<1.00	<0.500
MW-12	October 2017	<0.0500	<0.294	0.310 J	<0.500	<0.500	<1.00	<1.00 B*
	July 2018	<0.0500J*	<0.288	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2018	<0.0500	<0.283	<0.250	<0.500	<0.500	<1.00	<0.500
B-6 ‡	September 2016	<0.0500	<0.688 B*	<0.250	<0.500	<0.500	<1.00	<0.500
MW-13	October 2017	**2.23 JH***	**3.46**	**5.58**	**139**	**172**	**444**	196
	July 2018	<0.0500J*	<0.300	<0.250	<0.500	<0.500	<1.00	<0.500
	July 2018 DUP	<0.0500J*	0.202J	<0.250	<0.500	<0.500	<1.00	<0.500
	September 2018	<0.0500	<0.283	<0.200	<0.500	<0.500	<1.00	<0.500
	September 2018 DUP	<0.0500	<0.283	<0.200	<0.500	<0.500	<1.00	<0.500

NOTES:
† = MW-1 through MW-8 are SVE system wells and not intended for groundwater sampling activities. They are fully screened to the approximate groundwater interface.
‡ = B-2 and B-6 were temporary well points located near MW-11 and MW-12, respectively.
§ = Water not present; sample not collected.
— = Analysis not requested for this analyte.
DUP = field - duplicate sample
< = Analyte not detected above the limit of quantitation (LOQ); reported as less than the LOQ. Flag applied by the laboratory.
J = Estimated result reported at less than the limit of quantitation (LOQ). Flag applied by the laboratory.
J* = Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc.
JH* = Estimated concentration, biased high, due quality control failures. Flag applied by Shannon & Wilson, Inc.
B* = Result is considered not detected due to quality control issues. Flag applied by Shannon & Wilson, Inc.
Bold = Detected concentration exceeds ADEC CUL.
ADEC Cleanup Levels are obtained from ADEC Groundwater-Cleanup Levels 18 AAC 75.345, Table C.
ADEC=Alaska Department of Environmental Conservation; DRO=Diesel Range Organics; GRO=Gasoline Range Organics; µg/L=microgram per liter; mg/L=milligram per liter



0 100 200

Feet

N

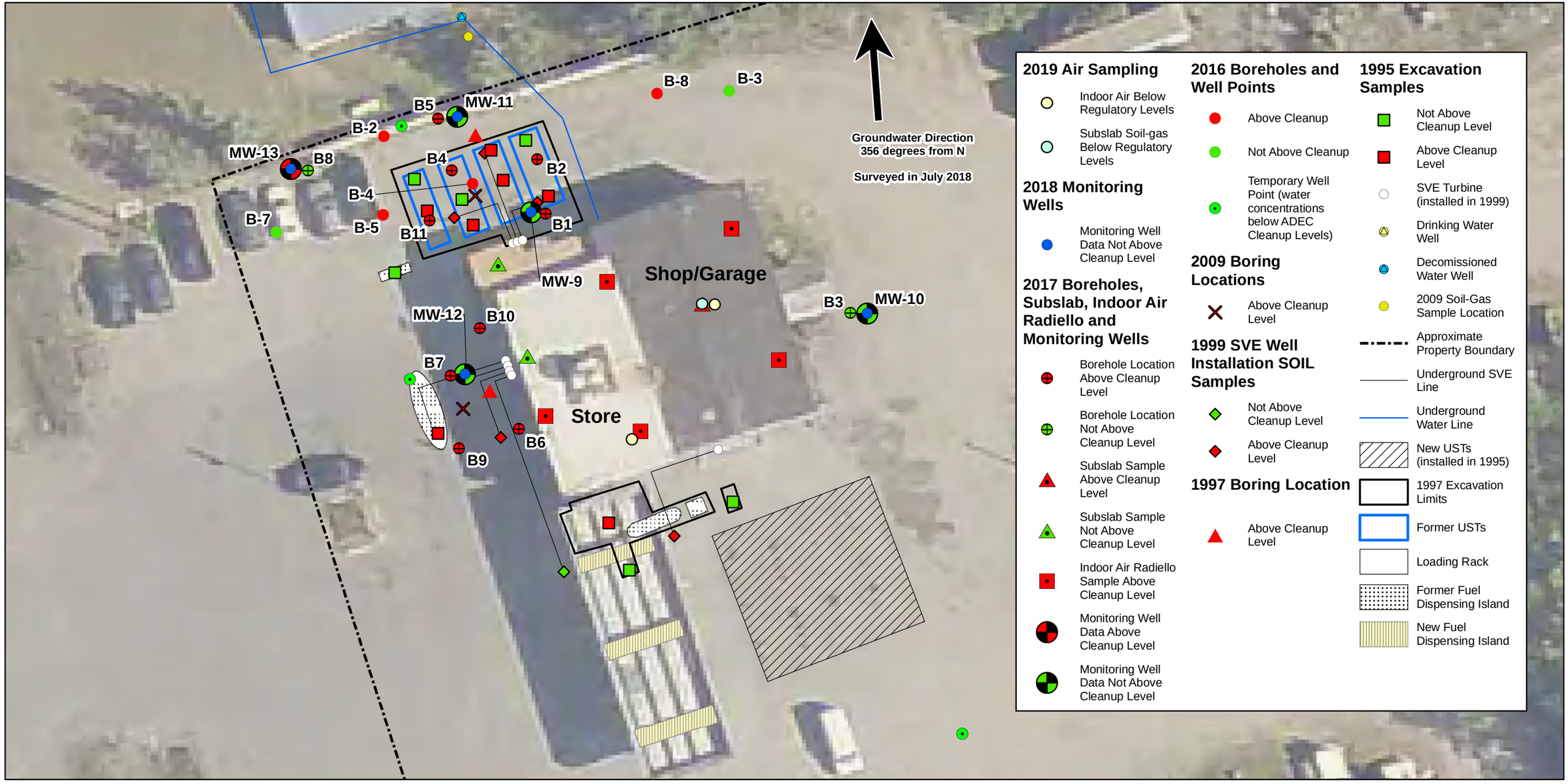
Interior Texaco
Delta Junction, Alaska

SITE VICINITY

November 2020 31-1-11809-019

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1



2019 Air Sampling

- Indoor Air Below Regulatory Levels
- Subslab Soil-gas Below Regulatory Levels

2018 Monitoring Wells

- Monitoring Well Data Not Above Cleanup Level

2017 Boreholes, Subslab, Indoor Air Radiello and Monitoring Wells

- Borehole Location Above Cleanup Level
- Borehole Location Not Above Cleanup Level
- Subslab Sample Above Cleanup Level
- Subslab Sample Not Above Cleanup Level
- Indoor Air Radiello Sample Above Cleanup Level
- Monitoring Well Data Above Cleanup Level
- Monitoring Well Data Not Above Cleanup Level

2016 Boreholes and Well Points

- Above Cleanup
- Not Above Cleanup
- Temporary Well Point (water concentrations below ADEC Cleanup Levels)

2009 Boring Locations

- Above Cleanup Level

1999 SVE Well Installation SOIL Samples

- Not Above Cleanup Level
- Above Cleanup Level

1997 Boring Location

- Above Cleanup Level

1995 Excavation Samples

- Not Above Cleanup Level
- Above Cleanup Level
- SVE Turbine (installed in 1999)
- Drinking Water Well
- Decomissioned Water Well
- 2009 Soil-Gas Sample Location
- Approximate Property Boundary
- Underground SVE Line
- Underground Water Line
- New USTs (installed in 1995)
- 1997 Excavation Limits
- Former USTs
- Loading Rack
- Former Fuel Dispensing Island
- New Fuel Dispensing Island

Imagery Provided by Pictometry International, 2012.

0 30 60

Feet

N

Interior Texaco
Delta Junction, Alaska

Completed Site Characterization

November 2020 31-1-11809-019

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2

Depth (feet)

0
5
10
15
20
25
30
35
40
45
50

B-7 (2016)
B8 (2017)
B-2 (2016)
B5 (2017)
B-5 (2016)
B-8 (2016)
B-3 (2016)
B11 (2017)
B-4 (2016)
B4 (2017)
B2 (2017)
B1 (2017)
B10 (2017)
B-6 (2016)
B7 (2017)
B6 (2017)
B9 (2017)

LEGEND

- Analytical Soil Sample Result Exceeds ADEC Cleanup Level
- Analytical Soil Sample Result Below ADEC Cleanup Level
- Approximate Aquitard/Silt Contact
- Approximate Groundwater Contact Observed in Monitoring Wells (surveyed in 2018)
- Approximate Location of Removed USTs (USTs were approximately 2 to 11 feet bgs)
- Boring Advanced Within Removed UST Footprint
- Boring Not Advanced Within Removed UST Footprint

Not to Scale

Interior Texaco
Delta Junction, Alaska

2016 & 2017 SOIL BORINGS ANALYTICAL RESULTS SUMMARY CROSS SECTION

November 2020 31-1-11809-019

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1

APPENDIX A: REVISED CONCEPTUAL SITE MODEL

Appendix A

Revised Conceptual Site Model

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Interior Texaco, Delta Junction, Alaska

File Number: ADEC File No. 120.26.001

Completed by: Shannon & Wilson, Inc.

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☒ USTs
- ☐ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☒ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

1-Methylnaphthalene, 2-methylnaphthalene, and naphthalene were detected in soil borings that spanned the surface interval.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

In a June 26, 2017 agency consultation meeting, we discussed ADEC's determination that the shallow, perched aquifer in the area is a potential potable water source. The potable well currently supplying the site and the northern adjacent property has thus far tested negative for hydrocarbon contamination.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

The site is currently operated as an active gas station and service center. The area is partially paved and could not be reasonably used for hunting, fishing, or harvesting wild or farmed foods.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Various petroleum hydrocarbons including BTEX constituents were detected in soil borings at depths of 5 to 40 feet.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Tetrachloroethene (PCE) was detected in indoor air samples collected on November 02, 2017, from within the on-site service center.
1,2,4-Trimethylbenzene, dichlorodifluoromethane, and TCE were detected in sub-slab soil-gas samples collected on November 02, 2017.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

The mobility of contamination from soil at the site is limited by a number of factors. The soils are very dense, and at some depths, fine-grained; these low-permeability soils reduce vapor migration both horizontally and vertically. Volatilization to outdoor air is further limited by the presence of asphalt pavement over much of the source-area soils. However, volatilization to outdoor air cannot be completely ruled out.

Leaching or subsurface migration downward to the deep (80 feet to 100 feet bgs) groundwater aquifer is limited by a confining layer. Shallow, perched groundwater has been identified in previous site work, in the vapor extraction wells, and samples of the perched groundwater collected in 1999 and 2000 contained fuel contamination above ADEC Table C groundwater cleanup levels. However, we observed perched groundwater only intermittently, often in insufficient quantities to collect samples. There is no evidence that perched groundwater is in contact with the deeper groundwater aquifer; the nearby water-supply well at Kelly's Country Inn has been sampled eight times since 1997, with no fuel-related analytes (including EDB) detected above PQLs. Therefore, while migration or leaching to groundwater is considered a complete transport mechanism (due to perched, shallow groundwater), we do not consider groundwater to be an exposure medium for this site.

A number of exposure pathways to contaminated soil or air (the identified exposure media) remain potentially complete for the site. These exposure pathways are described below. Human receptors are primarily commercial or industrial workers (including fueling-station staff) and site visitors (including customers), or trespassers. Potential future receptors include construction workers. There are currently no residences within 100 feet of the site, and the Inn and the fueling station do not have permanent occupants. Also, there is no farming or subsistence harvesting taking place within at least 500 feet of the site. While exposure to contaminated soil through incidental soil ingestion is currently limited by the asphalt surface at the site, it remains a potentially complete future exposure pathway for commercial, industrial, or construction workers excavating soil at the site (e.g. if the current USTs and pump island were removed or upgraded). PAHs, which can be absorbed dermally, may be present in areas of contaminated soil, representing another potentially complete future exposure pathway to the same receptors.

Potential exposure pathways are visually represented in the CSM graphic. We did not evaluate potential risks to ecological receptors.

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Interior Texaco, ADEC File No. 120.26.001
Delta Junction, Alaska

Completed By: Valerie Webb, CPG
Date Completed: November 11, 2019

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1)
Check the media that could be directly affected by the release.

(2)
For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.

(3)
Check all exposure media identified in (2).

(4)
*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5)
Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.

Current & Future Receptors

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☐ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil — check soil	☑ soil	☑ Incidental Soil Ingestion		C/F		C/F			
	☐ Migration to subsurface — check soil		☑ Dermal Absorption of Contaminants from Soil		C/F		C/F			
	☐ Migration to groundwater — check groundwater		☐ Inhalation of Fugitive Dust							
	☐ Volatilization — check air	☐ groundwater	☐ Ingestion of Groundwater							
	☐ Runoff or erosion — check surface water		☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Uptake by plants or animals — check biota		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Other (list):	☑ air	☑ Inhalation of Outdoor Air		C/F	C/F	C/F			
☑ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil — check soil		☑ Inhalation of Indoor Air		C/F	C/F	C/F			
	☐ Migration to groundwater — check groundwater		☐ Inhalation of Fugitive Dust							
	☑ Volatilization — check air	☐ surface water	☐ Ingestion of Surface Water							
	☐ Uptake by plants or animals — check biota		☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Other (list):		☐ Inhalation of Volatile Compounds in Tap Water							
☐ Ground-water	☐ Direct release to groundwater — check groundwater	☐ sediment	☐ Direct Contact with Sediment							
	☐ Volatilization — check air	☐ biota	☐ Ingestion of Wild or Farmed Foods							
	☐ Flow to surface water body — check surface water									
	☐ Flow to sediment — check sediment									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water — check surface water									
	☐ Volatilization — check air									
	☐ Sedimentation — check sediment									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment — check sediment									
	☐ Resuspension, runoff, or erosion — check surface water									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									

Revised, 10/01/2010

APPENDIX B: FIELD DOCUMENTATION

Appendix B

Field Documentation

CONTENTS

APPENDIX B: FIELD DOCUMENTATION

FIELD ACTIVITY REPORT AUGUST 12, 2019 – MONITORING WELL DECOMMISSIONING

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11809-018
REPORT DATE:	8/13/19
REPORT NO.:	1
SW FIELD REP.:	DHF
PERMIT NO.:	

PROJECT NAME/LOCATION	Interior Texaco – Monitoring Well Decommission

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	72F and sunny
Client	General GeoTek Alaska		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 8:00 to 16:30	
		from to	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Decommission 8 monitoring wells	6:30 Leave the Shannon & Wilson office for travel to Delta Junction. 8:15 Arrive at the Interior Texaco in Delta Junction. Drilling subcontractor GeoTek is on-site. Notify Bob and Eileen about the work we have planned for today and the need to temporarily block part of the fuel island when working on two of the wells. 8:30 Safety meeting with Steve and Tim of GeoTek. Start at MW-13. Bottom of well is at about 44.5 feet bgs and was broken out with the drill rig. The well was filled in with sand to about 34 feet bgs, then bentonite chips to 4 feet bgs, and the remainder was filled with pea gravel. Approximately 15 feet of well casing was removed before it broke. 9:50 Start at MW-9. Bottom of well is at about 45 feet bgs and was broken out with the drill rig. The well was filled in with sand to about 34 feet bgs, then bentonite chips to 2 feet bgs, and the remainder was filled with pea gravel. Approximately 4 feet of well casing was removed. 10:10 Start at MW-8. The well is 4-inches in diameter and the bottom of the well is about 36 feet bgs. The well is connected to the soil-vapor extraction (SVE) system with a T-joint at about 2 feet bgs. The joint end that leads to the SVE system was capped with spray foam before we attempted to remove the well casing. The casing broke off at the T-joint and about 1.5 feet of well casing was removed. The bottom of the well was broken out with the drill rig and the well screen interval was filled with sand to 26 feet bgs, bentonite chips to 4 feet bgs, pea gravel to about 1.5 feet bgs, and finished with an asphalt cold-seal patch at the surface. 11:00 Start at MW-11. Bottom of well is at about 45 feet bgs and was broken out with the drill rig. The well was filled in with sand to about 34 feet bgs, then bentonite chips to 4 feet bgs, and the remainder was filled with pea gravel. Approximately 25 feet of well casing was removed. 12:30 Start at MW-10. Bottom of well is at about 45 feet bgs and was broken out with the drill rig. The well was filled in with sand to about 35 feet bgs, then bentonite chips to 1 feet bgs, and the remainder was filled with pea gravel. Approximately 5 feet of well casing was removed. .	None.

REVIEW BY (PM initial/date)
VEW 08/14/19

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11809-018
REPORT DATE:	8/13/19
REPORT NO.:	1
SW FIELD REP.:	DHF
PERMIT NO.:	

PROJECT NAME/LOCATION	Interior Texaco Monitoring Well Decommission

CONSTRUCTION OBSERVATIONS (continued)

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
2	Decommission 8 monitoring wells	13:15 Start at MW-12. Bottom of well is at about 45 feet bgs and was broken out with the drill rig. The well was filled in with sand to about 35 feet bgs, then bentonite chips to 2 feet bgs, pea gravel to 0.5 feet bgs, and the surface was finished with asphalt cold-patch. Approximately 10 feet of well casing was removed. 14:20 Start at MW-2. The well is 4-inches in diameter and the bottom of the well is about 35 feet bgs. The well is connected to the SVE system with a T-joint at about 1 foot bgs. The joint end that leads to the SVE system was capped with spray foam before we attempted to remove the well casing. The casing broke off at the T-joint and about 1 foot of well casing was removed. The well screen interval was filled with sand to 25 feet bgs, bentonite chips to 4 feet bgs, pea gravel to about 1 foot bgs, and finished with concrete at the surface. 14:54 Start at MW-1. The well is 4-inches in diameter and the bottom of the well is about 35 feet bgs. The well is connected to the SVE system with a T-joint at about 2 feet bgs. The joint end that leads to the SVE system was capped with spray foam before we attempted to remove the well casing. The casing broke off at the T-joint and about 2 feet of well casing was removed. The well screen interval was filled with sand to 25 feet bgs, bentonite chips to 4 feet bgs, pea gravel to about 0.5 feet bgs, and finished with asphalt cold patch at the surface. 16:00 Dispose of monitoring well debris in the on-site dumpster. 16:15 Leave Delta Junction. 18:00 Return to Shannon & Wilson Fairbanks office.  Photo 1. Decommissioning monitoring well MW-1.	None.

REVIEW BY (PM initial/date)

VEW 08/14/19

APPENDIX B: FIELD DOCUMENTATION

FIELD ACTIVITY REPORT AUGUST 27, 2019 – AIR SAMPLING AND VAPOR INTRUSION ASSESSMENT

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11809-017
REPORT DATE:	8/26/19
REPORT NO.:	1
SW FIELD REP.:	DHF
PERMIT NO.:	

PROJECT NAME/LOCATION	Interior Texaco – Indoor and Subslab Air Sampling

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	60F and partly sunny
Client	General	TIMES OF SITE VISITS:	
CC		from 8:00 to 16:30	
		from to	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Air Sampling	7:00 Pack at Shannon & Wilson office. 8:00 Pick up helium detector rental from TTT Environmental in Fairbanks. 9:45 Arrive at Interior Texaco in Delta Junction. Spoke with Bob (store manager) about air sampling activities. Called VEW to confirm the sample locations. 11:00 Deploy indoor air sample in store area near former IA-03 location. 11:30 Client Phil arrive on-site, very concerned about the condition of the shop. There are used-oil bins sitting out, pooled oil on the floor, and duck ponds with dirty sorbents. Conference call with VEW and Eileen to discuss the options in order to proceed with the air sampling as planned. Phil agreed to go-ahead with the sampling if Bob or another Interior Texaco employee cleaned up the concerns he identified in the shop and if the doors were reopened to vent the building until it was cleaned. 12:00 Perform BIQ. 13:30 Set up for sub-slab sample collection in garage. 15:00 Deploy sub-slab sample. Set up for second indoor air sample, collected next to sub-slab sample port. 15:30 Call VEW. 16:00 Depart for Fairbanks.	None.

REVIEW BY (PM initial/date)

VEW 08/27/19

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11809-017
REPORT DATE:	8/27/19
REPORT NO.:	1
SW FIELD REP.:	DHF
PERMIT NO.:	

PROJECT NAME/LOCATION	Interior Texaco Indoor Air Sampling

CONSTRUCTION OBSERVATIONS (continued)

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
2	Retrieving indoor air sample canisters	8:30 Depart Shannon & Wilson office. Return helium detector to TTT Environmental. 10:45 Arrive at Interior Texaco in Delta Junction. Retrieve sample IA-01 and check on status of IA-02. Complete BIQ. 11:45 Leave site. 14:15 Return to site. Call VEW and check on status of air canister. 15:00 Retrieve sample IA-02. Notify Eileen that we are finished with the air sampling. 15:30 Depart for Fairbanks. 17:00 Arrive in Fairbanks. Prepare air sample canisters for shipment to the Eurofins laboratory.	None.

REVIEW BY (PM initial/date)

VEW 08/27/19

APPENDIX C LABORATORY REPORTS

Appendix C

Laboratory Reports

CONTENTS

APPENDIX C LABORATORY REPORTS

TEST AMERICA (EUROFINS) LABORATORY REPORT WORK ORDER 1909075A

eurofins | Air Toxics

9/19/2019
Ms. Sheila Hinckley
Shannon & Wilson, Inc.
2355 Hill Road

Fairbanks AK 99709

Project Name: 2019 Air Sample
Project #: 11809
Workorder #: 1909075A

Dear Ms. Sheila Hinckley

The following report includes the data for the above referenced project for sample(s) received on 9/5/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1909075A

Work Order Summary

CLIENT:	Ms. Sheila Hinckley Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709	**BILL TO:**	Ms. Sheila Hinckley Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709
PHONE:	907-479-0600	**P.O. #**	
FAX:	907-479-5691	**PROJECT #**	11809 2019 Air Sample
DATE RECEIVED:	09/05/2019	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	09/19/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	IA-01	Modified TO-15	6.3 "Hg	5 psi
01B	IA-01	Modified TO-15	6.3 "Hg	5 psi
02A	IA-02	Modified TO-15	8 "Hg	5.2 psi
02B	IA-02	Modified TO-15	8 "Hg	5.2 psi
03A	Lab Blank	Modified TO-15	NA	NA
03B	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
04B	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA
05B	LCS	Modified TO-15	NA	NA
05BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 09/19/19

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Shannon & Wilson, Inc.
Workorder# 1909075A

Two 6 Liter Summa Canister (100% SIM Ambient) samples were received on September 05, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

As per client project requirements, the laboratory has reported estimated values for target compound

hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

The reporting limit for Bromomethane and was raised from 0.5ppbv to 1.0ppbv due to anomalous linearity in the Initial Calibration.

The limit of quantitation (LOQ) for Heptane was raised from 0.1 ppbv to 0.5ppbv as the Method Detection Limit value was greater than the LOQ.

Dilution was performed on samples IA-01 and IA-02 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-01		
Lab ID:	1909075A-01A	**Date/Time Analyzed:**	9/11/19 12:26 PM
Date/Time Collected:	8/27/19 11:05 AM	**Dilution Factor:**	8.50
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091107

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	6.2	19	32	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.95	3.8	4.2	5.2
1,2-Dichlorobenzene	95-50-1	1.8	4.6	5.1	Not Detected
1,2-Dichloropropane	78-87-5	1.9	3.5	3.9	Not Detected
1,3,5-Trimethylbenzene	108-67-8	1.1	3.8	4.2	2.1 J
1,3-Butadiene	106-99-0	0.79	1.7	1.9	Not Detected
1,3-Dichlorobenzene	541-73-1	1.6	4.6	5.1	Not Detected
1,4-Dioxane	123-91-1	2.5	2.8	3.1	Not Detected
2,2,4-Trimethylpentane	540-84-1	9.3	12	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	2.5	7.5	12	3.9 J
2-Hexanone	591-78-6	4.8	10	17	Not Detected
2-Propanol	67-63-0	2.8	6.3	10	7.8 J
3-Chloropropene	107-05-1	4.3	8.0	13	Not Detected
4-Ethyltoluene	622-96-8	1.1	3.8	4.2	5.8
4-Methyl-2-pentanone	108-10-1	1.3	3.1	3.5	Not Detected
Acetone	67-64-1	6.7	6.0	20	58
alpha-Chlorotoluene	100-44-7	1.3	4.0	4.4	Not Detected
Bromodichloromethane	75-27-4	2.9	5.1	5.7	Not Detected
Bromoform	75-25-2	2.9	7.9	8.8	Not Detected
Bromomethane	74-83-9	4.3	9.9	33	Not Detected
Carbon Disulfide	75-15-0	2.2	7.9	13	Not Detected
Chlorobenzene	108-90-7	1.8	3.5	3.9	Not Detected
cis-1,3-Dichloropropene	10061-01-5	1.2	3.5	3.8	Not Detected
Cumene	98-82-8	0.80	3.8	4.2	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-01		
Lab ID:	1909075A-01A	**Date/Time Analyzed:**	9/11/19 12:26 PM
Date/Time Collected:	8/27/19 11:05 AM	**Dilution Factor:**	8.50
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091107

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	1.2	2.6	2.9	32
Dibromochloromethane	124-48-1	2.9	6.5	7.2	Not Detected
Ethanol	64-17-5	1.7	4.8	8.0	480
Freon 11	75-69-4	0.99	4.3	4.8	24
Freon 113	76-13-1	2.7	5.9	6.5	Not Detected
Heptane	142-82-5	3.5	3.1	17	16 J
Hexachlorobutadiene	87-68-3	9.8	27	45	Not Detected
Hexane	110-54-3	2.2	2.7	15	38
Methylene Chloride	75-09-2	4.1	2.6	5.9	Not Detected
Propylbenzene	103-65-1	0.80	3.8	4.2	1.9 J
Styrene	100-42-5	0.97	3.2	3.6	Not Detected
Tetrahydrofuran	109-99-9	3.5	7.5	12	Not Detected
trans-1,3-Dichloropropene	10061-02-6	1.8	3.5	3.8	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-01		
Lab ID:	1909075A-01B	**Date/Time Analyzed:**	9/11/19 12:26 PM
Date/Time Collected:	8/27/19 11:05 AM	**Dilution Factor:**	8.50
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091107sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.11	0.28	0.93	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.29	0.35	1.2	0.32 J
1,1,2-Trichloroethane	79-00-5	0.11	0.28	0.93	Not Detected
1,1-Dichloroethane	75-34-3	0.081	0.21	0.69	Not Detected
1,1-Dichloroethene	75-35-4	0.11	0.20	0.34	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.30	0.39	1.3	Not Detected
1,2-Dichloroethane	107-06-2	0.090	0.21	0.69	0.38 J
1,4-Dichlorobenzene	106-46-7	0.56	0.77	1.0	Not Detected
Benzene	71-43-2	0.096	0.16	1.4	32
Carbon Tetrachloride	56-23-5	0.53	0.80	1.1	0.73 J
Chloroethane	75-00-3	1.0	1.0	1.1	Not Detected
Chloroform	67-66-3	0.15	0.25	0.83	12
Chloromethane	74-87-3	0.15	0.35	8.8	2.8 J
cis-1,2-Dichloroethene	156-59-2	0.12	0.20	0.67	Not Detected
Ethyl Benzene	100-41-4	0.085	0.22	0.74	4.8
Freon 114	76-14-2	0.19	0.36	1.2	Not Detected
Freon 12	75-71-8	0.15	0.25	0.84	4.3
m,p-Xylene	108-38-3	0.11	0.22	1.5	16
Methyl tert-butyl ether	1634-04-4	0.063	0.18	3.1	Not Detected
o-Xylene	95-47-6	0.098	0.22	0.74	6.0
Tetrachloroethene	127-18-4	0.097	0.34	1.2	0.77 J
Toluene	108-88-3	0.16	0.19	1.6	73
trans-1,2-Dichloroethene	156-60-5	0.15	0.20	3.4	Not Detected
Trichloroethene	79-01-6	0.089	0.27	0.91	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-01		
Lab ID:	1909075A-01B	**Date/Time Analyzed:**	9/11/19 12:26 PM
Date/Time Collected:	8/27/19 11:05 AM	**Dilution Factor:**	8.50
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091107sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.055	0.13	0.22	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-02		
Lab ID:	1909075A-02A	**Date/Time Analyzed:**	9/11/19 01:28 PM
Date/Time Collected:	8/27/19 03:05 PM	**Dilution Factor:**	9.20
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091108

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	6.7	20	34	Not Detected
1,2,4-Trimethylbenzene	95-63-6	1.0	4.1	4.5	7.4
1,2-Dichlorobenzene	95-50-1	2.0	5.0	5.5	Not Detected
1,2-Dichloropropane	78-87-5	2.0	3.8	4.2	Not Detected
1,3,5-Trimethylbenzene	108-67-8	1.2	4.1	4.5	2.2 J
1,3-Butadiene	106-99-0	0.85	1.8	2.0	Not Detected
1,3-Dichlorobenzene	541-73-1	1.7	5.0	5.5	Not Detected
1,4-Dioxane	123-91-1	2.7	3.0	3.3	Not Detected
2,2,4-Trimethylpentane	540-84-1	10	13	21	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	2.7	8.1	14	4.8 J
2-Hexanone	591-78-6	5.2	11	19	Not Detected
2-Propanol	67-63-0	3.1	6.8	11	9.8 J
3-Chloropropene	107-05-1	4.6	8.6	14	Not Detected
4-Ethyltoluene	622-96-8	1.2	4.1	4.5	8.0
4-Methyl-2-pentanone	108-10-1	1.4	3.4	3.8	4.6
Acetone	67-64-1	7.2	6.6	22	28
alpha-Chlorotoluene	100-44-7	1.4	4.3	4.8	Not Detected
Bromodichloromethane	75-27-4	3.1	5.5	6.2	Not Detected
Bromoform	75-25-2	3.2	8.6	9.5	Not Detected
Bromomethane	74-83-9	4.7	11	36	Not Detected
Carbon Disulfide	75-15-0	2.4	8.6	14	Not Detected
Chlorobenzene	108-90-7	1.9	3.8	4.2	Not Detected
cis-1,3-Dichloropropene	10061-01-5	1.3	3.8	4.2	Not Detected
Cumene	98-82-8	0.86	4.1	4.5	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-02		
Lab ID:	1909075A-02A	**Date/Time Analyzed:**	9/11/19 01:28 PM
Date/Time Collected:	8/27/19 03:05 PM	**Dilution Factor:**	9.20
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091108

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	1.2	2.8	3.2	36
Dibromochloromethane	124-48-1	3.1	7.0	7.8	Not Detected
Ethanol	64-17-5	1.8	5.2	8.7	170
Freon 11	75-69-4	1.1	4.6	5.2	14
Freon 113	76-13-1	2.9	6.3	7.0	Not Detected
Heptane	142-82-5	3.8	3.4	19	16 J
Hexachlorobutadiene	87-68-3	10	29	49	Not Detected
Hexane	110-54-3	2.4	2.9	16	51
Methylene Chloride	75-09-2	4.4	2.9	6.4	Not Detected
Propylbenzene	103-65-1	0.86	4.1	4.5	2.2 J
Styrene	100-42-5	1.0	3.5	3.9	Not Detected
Tetrahydrofuran	109-99-9	3.7	8.1	14	Not Detected
trans-1,3-Dichloropropene	10061-02-6	2.0	3.8	4.2	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	95

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-02		
Lab ID:	1909075A-02B	**Date/Time Analyzed:**	9/11/19 01:28 PM
Date/Time Collected:	8/27/19 03:05 PM	**Dilution Factor:**	9.20
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091108sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.12	0.30	1.0	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.32	0.38	1.3	0.38 J
1,1,2-Trichloroethane	79-00-5	0.12	0.30	1.0	Not Detected
1,1-Dichloroethane	75-34-3	0.088	0.22	0.74	Not Detected
1,1-Dichloroethene	75-35-4	0.12	0.22	0.36	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.33	0.42	1.4	Not Detected
1,2-Dichloroethane	107-06-2	0.097	0.22	0.74	0.21 J
1,4-Dichlorobenzene	106-46-7	0.61	0.83	1.1	Not Detected
Benzene	71-43-2	0.10	0.18	1.5	43
Carbon Tetrachloride	56-23-5	0.57	0.87	1.2	Not Detected
Chloroethane	75-00-3	1.1	1.1	1.2	Not Detected
Chloroform	67-66-3	0.17	0.27	0.90	1.8
Chloromethane	74-87-3	0.16	0.38	9.5	1.4 J
cis-1,2-Dichloroethene	156-59-2	0.13	0.22	0.73	Not Detected
Ethyl Benzene	100-41-4	0.092	0.24	0.80	6.9
Freon 114	76-14-2	0.20	0.38	1.3	Not Detected
Freon 12	75-71-8	0.16	0.27	0.91	3.9
m,p-Xylene	108-38-3	0.12	0.24	1.6	22
Methyl tert-butyl ether	1634-04-4	0.069	0.20	3.3	Not Detected
o-Xylene	95-47-6	0.11	0.24	0.80	7.9
Tetrachloroethene	127-18-4	0.10	0.37	1.2	1.2
Toluene	108-88-3	0.17	0.21	1.7	110
trans-1,2-Dichloroethene	156-60-5	0.16	0.22	3.6	Not Detected
Trichloroethene	79-01-6	0.096	0.30	0.99	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	IA-02		
Lab ID:	1909075A-02B	**Date/Time Analyzed:**	9/11/19 01:28 PM
Date/Time Collected:	8/27/19 03:05 PM	**Dilution Factor:**	9.20
Media:	6 Liter Summa Canister (100% SIM Ambier	**Instrument/Filename:**	msd20.i / 20091108sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.059	0.14	0.24	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	91
Toluene-d8	2037-26-5	70-130	98

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1909075A-03A	**Date/Time Analyzed:**	9/11/19 11:37 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091106a

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	0.73	2.2	3.7	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.11	0.44	0.49	Not Detected
1,2-Dichlorobenzene	95-50-1	0.22	0.54	0.60	Not Detected
1,2-Dichloropropane	78-87-5	0.22	0.42	0.46	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.13	0.44	0.49	Not Detected
1,3-Butadiene	106-99-0	0.092	0.20	0.22	Not Detected
1,3-Dichlorobenzene	541-73-1	0.18	0.54	0.60	Not Detected
1,4-Dioxane	123-91-1	0.29	0.32	0.36	Not Detected
2,2,4-Trimethylpentane	540-84-1	1.1	1.4	2.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.29	0.88	1.5	Not Detected
2-Hexanone	591-78-6	0.56	1.2	2.0	Not Detected
2-Propanol	67-63-0	0.33	0.74	1.2	Not Detected
3-Chloropropene	107-05-1	0.50	0.94	1.6	Not Detected
4-Ethyltoluene	622-96-8	0.13	0.44	0.49	Not Detected
4-Methyl-2-pentanone	108-10-1	0.15	0.37	0.41	Not Detected
Acetone	67-64-1	0.79	0.71	2.4	Not Detected
alpha-Chlorotoluene	100-44-7	0.15	0.46	0.52	0.24 J
Bromodichloromethane	75-27-4	0.34	0.60	0.67	Not Detected
Bromoform	75-25-2	0.34	0.93	1.0	Not Detected
Bromomethane	74-83-9	0.51	1.2	3.9	Not Detected
Carbon Disulfide	75-15-0	0.26	0.93	1.6	Not Detected
Chlorobenzene	108-90-7	0.21	0.41	0.46	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.15	0.41	0.45	Not Detected
Cumene	98-82-8	0.094	0.44	0.49	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	Lab Blank		
Lab ID:	1909075A-03A	**Date/Time Analyzed:**	9/11/19 11:37 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091106a

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.14	0.31	0.34	Not Detected
Dibromochloromethane	124-48-1	0.34	0.77	0.85	Not Detected
Ethanol	64-17-5	0.20	0.56	0.94	Not Detected
Freon 11	75-69-4	0.12	0.50	0.56	Not Detected
Freon 113	76-13-1	0.31	0.69	0.77	Not Detected
Heptane	142-82-5	0.41	0.37	2.0	Not Detected
Hexachlorobutadiene	87-68-3	1.1	3.2	5.3	Not Detected
Hexane	110-54-3	0.26	0.32	1.8	Not Detected
Methylene Chloride	75-09-2	0.48	0.31	0.69	Not Detected
Propylbenzene	103-65-1	0.094	0.44	0.49	Not Detected
Styrene	100-42-5	0.11	0.38	0.42	Not Detected
Tetrahydrofuran	109-99-9	0.41	0.88	1.5	Not Detected
trans-1,3-Dichloropropene	10061-02-6	0.22	0.41	0.45	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	83
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1909075A-03B	**Date/Time Analyzed:**	9/11/19 11:37 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091106simc

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.012	0.033	0.11	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.034	0.041	0.14	0.064 J
1,1,2-Trichloroethane	79-00-5	0.013	0.033	0.11	Not Detected
1,1-Dichloroethane	75-34-3	0.0095	0.024	0.081	Not Detected
1,1-Dichloroethene	75-35-4	0.013	0.024	0.040	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.036	0.046	0.15	0.036 J
1,2-Dichloroethane	107-06-2	0.010	0.024	0.081	0.013 J
1,4-Dichlorobenzene	106-46-7	0.066	0.090	0.12	Not Detected
Benzene	71-43-2	0.011	0.019	0.16	Not Detected
Carbon Tetrachloride	56-23-5	0.062	0.094	0.12	Not Detected
Chloroethane	75-00-3	0.12	0.12	0.13	Not Detected
Chloroform	67-66-3	0.018	0.029	0.098	Not Detected
Chloromethane	74-87-3	0.018	0.041	1.0	Not Detected
cis-1,2-Dichloroethene	156-59-2	0.014	0.024	0.079	Not Detected
Ethyl Benzene	100-41-4	0.010	0.026	0.087	Not Detected
Freon 114	76-14-2	0.022	0.042	0.14	Not Detected
Freon 12	75-71-8	0.018	0.030	0.099	Not Detected
m,p-Xylene	108-38-3	0.013	0.026	0.17	Not Detected
Methyl tert-butyl ether	1634-04-4	0.0075	0.022	0.36	Not Detected
o-Xylene	95-47-6	0.012	0.026	0.087	Not Detected
Tetrachloroethene	127-18-4	0.011	0.041	0.14	Not Detected
Toluene	108-88-3	0.018	0.023	0.19	Not Detected
trans-1,2-Dichloroethene	156-60-5	0.017	0.024	0.40	Not Detected
Trichloroethene	79-01-6	0.010	0.032	0.11	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	Lab Blank		
Lab ID:	1909075A-03B	**Date/Time Analyzed:**	9/11/19 11:37 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091106simc

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	75-01-4	0.0065	0.015	0.026	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	105

Client ID:	CCV		
Lab ID:	1909075A-04A	**Date/Time Analyzed:**	9/11/19 08:02 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091102

Compound	CAS#	%Recovery
1,2,4-Trichlorobenzene	120-82-1	92
1,2,4-Trimethylbenzene	95-63-6	101
1,2-Dichlorobenzene	95-50-1	98
1,2-Dichloropropane	78-87-5	116
1,3,5-Trimethylbenzene	108-67-8	110
1,3-Butadiene	106-99-0	84
1,3-Dichlorobenzene	541-73-1	102
1,4-Dioxane	123-91-1	107
2,2,4-Trimethylpentane	540-84-1	92
2-Butanone (Methyl Ethyl Ketone)	78-93-3	96
2-Hexanone	591-78-6	111
2-Propanol	67-63-0	84
3-Chloropropene	107-05-1	99
4-Ethyltoluene	622-96-8	109
4-Methyl-2-pentanone	108-10-1	105
Acetone	67-64-1	95
alpha-Chlorotoluene	100-44-7	108
Bromodichloromethane	75-27-4	117
Bromoform	75-25-2	112
Bromomethane	74-83-9	105
Carbon Disulfide	75-15-0	109
Chlorobenzene	108-90-7	105
cis-1,3-Dichloropropene	10061-01-5	100
Cumene	98-82-8	108

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	CCV		
Lab ID:	1909075A-04A	**Date/Time Analyzed:**	9/11/19 08:02 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091102

Compound	CAS#	%Recovery
Cyclohexane	110-82-7	95
Dibromochloromethane	124-48-1	116
Ethanol	64-17-5	83
Freon 11	75-69-4	107
Freon 113	76-13-1	93
Heptane	142-82-5	108
Hexachlorobutadiene	87-68-3	96
Hexane	110-54-3	90
Methylene Chloride	75-09-2	90
Propylbenzene	103-65-1	111
Styrene	100-42-5	114
Tetrahydrofuran	109-99-9	94
trans-1,3-Dichloropropene	10061-02-6	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	106

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	CCV		
Lab ID:	1909075A-04B	**Date/Time Analyzed:**	9/11/19 08:02 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091102sim

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	96
1,1,2,2-Tetrachloroethane	79-34-5	102
1,1,2-Trichloroethane	79-00-5	110
1,1-Dichloroethane	75-34-3	103
1,1-Dichloroethene	75-35-4	81
1,2-Dibromoethane (EDB)	106-93-4	106
1,2-Dichloroethane	107-06-2	115
1,4-Dichlorobenzene	106-46-7	92
Benzene	71-43-2	121
Carbon Tetrachloride	56-23-5	139
Chloroethane	75-00-3	107
Chloroform	67-66-3	107
Chloromethane	74-87-3	78
cis-1,2-Dichloroethene	156-59-2	92
Ethyl Benzene	100-41-4	109
Freon 114	76-14-2	96
Freon 12	75-71-8	94
m,p-Xylene	108-38-3	110
Methyl tert-butyl ether	1634-04-4	96
o-Xylene	95-47-6	105
Tetrachloroethene	127-18-4	103
Toluene	108-88-3	111
trans-1,2-Dichloroethene	156-60-5	97
Trichloroethene	79-01-6	102

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	CCV		
Lab ID:	1909075A-04B	**Date/Time Analyzed:**	9/11/19 08:02 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091102sim

Compound	CAS#	%Recovery
Vinyl Chloride	75-01-4	91

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	94
Toluene-d8	2037-26-5	70-130	110

Client ID:	LCS		
Lab ID:	1909075A-05A	**Date/Time Analyzed:**	9/11/19 09:20 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091103

Compound	CAS#	%Recovery
1,2,4-Trichlorobenzene	120-82-1	85
1,2,4-Trimethylbenzene	95-63-6	111
1,2-Dichlorobenzene	95-50-1	105
1,2-Dichloropropane	78-87-5	111
1,3,5-Trimethylbenzene	108-67-8	122
1,3-Butadiene	106-99-0	84
1,3-Dichlorobenzene	541-73-1	109
1,4-Dioxane	123-91-1	88
2,2,4-Trimethylpentane	540-84-1	99
2-Butanone (Methyl Ethyl Ketone)	78-93-3	97
2-Hexanone	591-78-6	92
2-Propanol	67-63-0	83
3-Chloropropene	107-05-1	100
4-Ethyltoluene	622-96-8	121
4-Methyl-2-pentanone	108-10-1	99
Acetone	67-64-1	95
alpha-Chlorotoluene	100-44-7	104
Bromodichloromethane	75-27-4	124
Bromoform	75-25-2	125
Bromomethane	74-83-9	104
Carbon Disulfide	75-15-0	110
Chlorobenzene	108-90-7	116
cis-1,3-Dichloropropene	10061-01-5	108
Cumene	98-82-8	115

* % Recovery is calculated using unrounded analytical results.

Client ID:	LCS		
Lab ID:	1909075A-05A	**Date/Time Analyzed:**	9/11/19 09:20 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091103

Compound	CAS#	%Recovery
Cyclohexane	110-82-7	102
Dibromochloromethane	124-48-1	120
Ethanol	64-17-5	94
Freon 11	75-69-4	108
Freon 113	76-13-1	92
Heptane	142-82-5	111
Hexachlorobutadiene	87-68-3	111
Hexane	110-54-3	96
Methylene Chloride	75-09-2	90
Propylbenzene	103-65-1	118
Styrene	100-42-5	118
Tetrahydrofuran	109-99-9	97
trans-1,3-Dichloropropene	10061-02-6	110

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

eurofins | Air Toxics

Client ID:	LCSD		
Lab ID:	1909075A-05AA	**Date/Time Analyzed:**	9/11/19 09:59 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091104

Compound	CAS#	%Recovery
1,2,4-Trichlorobenzene	120-82-1	96
1,2,4-Trimethylbenzene	95-63-6	108
1,2-Dichlorobenzene	95-50-1	103
1,2-Dichloropropane	78-87-5	111
1,3,5-Trimethylbenzene	108-67-8	115
1,3-Butadiene	106-99-0	86
1,3-Dichlorobenzene	541-73-1	106
1,4-Dioxane	123-91-1	92
2,2,4-Trimethylpentane	540-84-1	96
2-Butanone (Methyl Ethyl Ketone)	78-93-3	96
2-Hexanone	591-78-6	95
2-Propanol	67-63-0	86
3-Chloropropene	107-05-1	100
4-Ethyltoluene	622-96-8	115
4-Methyl-2-pentanone	108-10-1	103
Acetone	67-64-1	95
alpha-Chlorotoluene	100-44-7	106
Bromodichloromethane	75-27-4	115
Bromoform	75-25-2	118
Bromomethane	74-83-9	128
Carbon Disulfide	75-15-0	110
Chlorobenzene	108-90-7	110
cis-1,3-Dichloropropene	10061-01-5	105
Cumene	98-82-8	109

* % Recovery is calculated using unrounded analytical results.

Client ID:	LCSD		
Lab ID:	1909075A-05AA	**Date/Time Analyzed:**	9/11/19 09:59 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091104

Compound	CAS#	%Recovery
Cyclohexane	110-82-7	101
Dibromochloromethane	124-48-1	114
Ethanol	64-17-5	95
Freon 11	75-69-4	109
Freon 113	76-13-1	90
Heptane	142-82-5	108
Hexachlorobutadiene	87-68-3	118
Hexane	110-54-3	94
Methylene Chloride	75-09-2	89
Propylbenzene	103-65-1	114
Styrene	100-42-5	114
Tetrahydrofuran	109-99-9	96
trans-1,3-Dichloropropene	10061-02-6	103

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	103

* % Recovery is calculated using unrounded analytical results.

Client ID:	LCS		
Lab ID:	1909075A-05B	**Date/Time Analyzed:**	9/11/19 09:20 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091103sim

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	95
1,1,2,2-Tetrachloroethane	79-34-5	104
1,1,2-Trichloroethane	79-00-5	113
1,1-Dichloroethane	75-34-3	96
1,1-Dichloroethene	75-35-4	80
1,2-Dibromoethane (EDB)	106-93-4	108
1,2-Dichloroethane	107-06-2	107
1,4-Dichlorobenzene	106-46-7	93
Benzene	71-43-2	115
Carbon Tetrachloride	56-23-5	106
Chloroethane	75-00-3	111
Chloroform	67-66-3	103
Chloromethane	74-87-3	80
cis-1,2-Dichloroethene	156-59-2	80
Ethyl Benzene	100-41-4	112
Freon 114	76-14-2	95
Freon 12	75-71-8	94
m,p-Xylene	108-38-3	111
Methyl tert-butyl ether	1634-04-4	87
o-Xylene	95-47-6	107
Tetrachloroethene	127-18-4	105
Toluene	108-88-3	108
trans-1,2-Dichloroethene	156-60-5	102
Trichloroethene	79-01-6	100

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	LCS		
Lab ID:	1909075A-05B	**Date/Time Analyzed:**	9/11/19 09:20 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091103sim

Compound	CAS#	%Recovery
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	108

* % Recovery is calculated using unrounded analytical results.

Client ID:	LCSD		
Lab ID:	1909075A-05BB	**Date/Time Analyzed:**	9/11/19 09:59 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091104sim

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	94
1,1,2,2-Tetrachloroethane	79-34-5	105
1,1,2-Trichloroethane	79-00-5	111
1,1-Dichloroethane	75-34-3	96
1,1-Dichloroethene	75-35-4	81
1,2-Dibromoethane (EDB)	106-93-4	106
1,2-Dichloroethane	107-06-2	105
1,4-Dichlorobenzene	106-46-7	96
Benzene	71-43-2	113
Carbon Tetrachloride	56-23-5	107
Chloroethane	75-00-3	114
Chloroform	67-66-3	103
Chloromethane	74-87-3	76
cis-1,2-Dichloroethene	156-59-2	81
Ethyl Benzene	100-41-4	112
Freon 114	76-14-2	94
Freon 12	75-71-8	92
m,p-Xylene	108-38-3	112
Methyl tert-butyl ether	1634-04-4	89
o-Xylene	95-47-6	108
Tetrachloroethene	127-18-4	103
Toluene	108-88-3	108
trans-1,2-Dichloroethene	156-60-5	101
Trichloroethene	79-01-6	99

* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
2019 Air Sample

Client ID:	LCSD		
Lab ID:	1909075A-05BB	**Date/Time Analyzed:**	9/11/19 09:59 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd20.i / 20091104sim

Compound	CAS#	%Recovery
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	93
Toluene-d8	2037-26-5	70-130	107

* % Recovery is calculated using unrounded analytical results.

APPENDIX C LABORATORY REPORTS

TEST AMERICA (EUROFINS) LABORATORY REPORT WORK ORDER 1909075B

eurofins | Air Toxics

9/19/2019
Ms. Sheila Hinckley
Shannon & Wilson, Inc.
2355 Hill Road

Fairbanks AK 99709

Project Name: 2019 Air Sample
Project #: 11809
Workorder #: 1909075B

Dear Ms. Sheila Hinckley

The following report includes the data for the above referenced project for sample(s) received on 9/5/2019 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1909075B

Work Order Summary

CLIENT:	Ms. Sheila Hinckley Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709	**BILL TO:**	Ms. Sheila Hinckley Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709
PHONE:	907-479-0600	**P.O. #**	
FAX:	907-479-5691	**PROJECT #**	11809 2019 Air Sample
DATE RECEIVED:	09/05/2019	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	09/19/2019		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
03A	SS-02	Modified TO-15	0.6 "Hg	15.8 psi
04A	SS-01	Modified TO-15	0.6 "Hg	15.1 psi
05A	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 09/19/19

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209218, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-18-13, UT NELAP – CA009332019-11, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-011, Effective date: 10/18/2018, Expiration date: 10/17/2019.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Shannon & Wilson, Inc.
Workorder# 1909075B

Two 1 Liter Summa Canister (100% Certified) samples were received on September 05, 2019. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified may be false positives.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Samples SS-02 and SS-01 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples SS-02 and SS-01 due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-02		
Lab ID:	1909075B-03A	**Date/Time Analyzed:**	9/12/19 12:04 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.12
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	9.9	35	58	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	11	44	73	Not Detected
1,1,2-Trichloroethane	79-00-5	21	35	58	Not Detected
1,1-Dichloroethane	75-34-3	12	26	43	Not Detected
1,1-Dichloroethene	75-35-4	5.7	25	42	Not Detected
1,2,4-Trichlorobenzene	120-82-1	130	240	310	Not Detected
1,2,4-Trimethylbenzene	95-63-6	9.9	31	52	5400
1,2-Dibromoethane (EDB)	106-93-4	14	49	81	Not Detected
1,2-Dichlorobenzene	95-50-1	15	38	64	Not Detected
1,2-Dichloroethane	107-06-2	8.3	26	43	Not Detected
1,2-Dichloropropane	78-87-5	13	29	49	Not Detected
1,3,5-Trimethylbenzene	108-67-8	8.6	31	52	2600
1,3-Butadiene	106-99-0	7.4	14	23	Not Detected
1,3-Dichlorobenzene	541-73-1	9.8	38	64	Not Detected
1,4-Dichlorobenzene	106-46-7	11	38	64	Not Detected
1,4-Dioxane	123-91-1	42	110	150	Not Detected
2,2,4-Trimethylpentane	540-84-1	11	30	50	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	30	94	120	Not Detected
2-Hexanone	591-78-6	65	130	170	Not Detected
2-Propanol	67-63-0	13	78	100	Not Detected
3-Chloropropene	107-05-1	28	100	130	Not Detected
4-Ethyltoluene	622-96-8	16	31	52	2500
4-Methyl-2-pentanone	108-10-1	21	26	43	Not Detected
Acetone	67-64-1	15	76	100	87 J

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-02		
Lab ID:	1909075B-03A	**Date/Time Analyzed:**	9/12/19 12:04 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.12
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
alpha-Chlorotoluene	100-44-7	13	33	55	Not Detected
Benzene	71-43-2	4.7	20	34	Not Detected
Bromodichloromethane	75-27-4	7.1	43	71	Not Detected
Bromoform	75-25-2	15	66	110	Not Detected
Bromomethane	74-83-9	74	120	160	Not Detected UJ
Carbon Disulfide	75-15-0	20	99	130	75 J
Carbon Tetrachloride	56-23-5	16	40	67	Not Detected
Chlorobenzene	108-90-7	13	29	49	Not Detected
Chloroethane	75-00-3	32	84	110	Not Detected
Chloroform	67-66-3	8.9	31	52	17 J
Chloromethane	74-87-3	18	66	88	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	25	42	Not Detected
cis-1,3-Dichloropropene	10061-01-5	8.5	29	48	Not Detected
Cumene	98-82-8	3.6	31	52	100
Cyclohexane	110-82-7	8.1	22	36	Not Detected
Dibromochloromethane	124-48-1	19	54	90	Not Detected
Ethanol	64-17-5	17	60	80	Not Detected
Ethyl Benzene	100-41-4	9.2	28	46	12 J
Freon 11	75-69-4	8.8	36	60	970
Freon 113	76-13-1	14	49	81	Not Detected
Freon 114	76-14-2	20	44	74	Not Detected
Freon 12	75-71-8	12	31	52	8000
Heptane	142-82-5	15	26	43	Not Detected
Hexachlorobutadiene	87-68-3	280	340	450	Not Detected

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-02		
Lab ID:	1909075B-03A	**Date/Time Analyzed:**	9/12/19 12:04 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.12
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091209

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	110-54-3	9.2	22	37	Not Detected
m,p-Xylene	108-38-3	8.6	28	46	190
Methyl tert-butyl ether	1634-04-4	3.9	23	38	Not Detected
Methylene Chloride	75-09-2	23	110	150	Not Detected
o-Xylene	95-47-6	12	28	46	200
Propylbenzene	103-65-1	6.4	31	52	360
Styrene	100-42-5	8.6	27	45	Not Detected
Tetrachloroethene	127-18-4	25	43	72	12000
Tetrahydrofuran	109-99-9	11	19	31	Not Detected
Toluene	108-88-3	7.2	24	40	8.8 J
trans-1,2-Dichloroethene	156-60-5	16	25	42	Not Detected
trans-1,3-Dichloropropene	10061-02-6	5.4	29	48	Not Detected
Trichloroethene	79-01-6	17	34	57	28 J
Vinyl Chloride	75-01-4	9.4	16	27	Not Detected

UJ = Analyte associated with low bias in the CCV.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-01		
Lab ID:	1909075B-04A	**Date/Time Analyzed:**	9/12/19 12:44 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.07
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091210

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	9.7	34	56	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	11	43	71	Not Detected
1,1,2-Trichloroethane	79-00-5	20	34	56	Not Detected
1,1-Dichloroethane	75-34-3	12	25	42	Not Detected
1,1-Dichloroethene	75-35-4	5.6	25	41	Not Detected
1,2,4-Trichlorobenzene	120-82-1	120	230	310	Not Detected
1,2,4-Trimethylbenzene	95-63-6	9.7	30	51	5600
1,2-Dibromoethane (EDB)	106-93-4	14	48	80	Not Detected
1,2-Dichlorobenzene	95-50-1	15	37	62	Not Detected
1,2-Dichloroethane	107-06-2	8.1	25	42	Not Detected
1,2-Dichloropropane	78-87-5	13	29	48	Not Detected
1,3,5-Trimethylbenzene	108-67-8	8.4	30	51	2700
1,3-Butadiene	106-99-0	7.2	14	23	Not Detected
1,3-Dichlorobenzene	541-73-1	9.6	37	62	Not Detected
1,4-Dichlorobenzene	106-46-7	10	37	62	Not Detected
1,4-Dioxane	123-91-1	41	110	150	Not Detected
2,2,4-Trimethylpentane	540-84-1	11	29	48	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	30	92	120	Not Detected
2-Hexanone	591-78-6	63	130	170	Not Detected
2-Propanol	67-63-0	13	76	100	Not Detected
3-Chloropropene	107-05-1	28	97	130	Not Detected
4-Ethyltoluene	622-96-8	15	30	51	2500
4-Methyl-2-pentanone	108-10-1	21	25	42	27 J
Acetone	67-64-1	14	74	98	55 J

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-01		
Lab ID:	1909075B-04A	**Date/Time Analyzed:**	9/12/19 12:44 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.07
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091210

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
alpha-Chlorotoluene	100-44-7	12	32	54	Not Detected
Benzene	71-43-2	4.6	20	33	Not Detected
Bromodichloromethane	75-27-4	6.9	42	69	Not Detected
Bromoform	75-25-2	15	64	110	Not Detected
Bromomethane	74-83-9	72	120	160	Not Detected UJ
Carbon Disulfide	75-15-0	20	97	130	70 J
Carbon Tetrachloride	56-23-5	15	39	65	Not Detected
Chlorobenzene	108-90-7	13	28	48	Not Detected
Chloroethane	75-00-3	31	82	110	Not Detected
Chloroform	67-66-3	8.7	30	50	22 J
Chloromethane	74-87-3	18	64	85	Not Detected
cis-1,2-Dichloroethene	156-59-2	13	25	41	Not Detected
cis-1,3-Dichloropropene	10061-01-5	8.3	28	47	Not Detected
Cumene	98-82-8	3.6	30	51	100
Cyclohexane	110-82-7	7.9	21	36	Not Detected
Dibromochloromethane	124-48-1	18	53	88	Not Detected
Ethanol	64-17-5	17	58	78	28 J
Ethyl Benzene	100-41-4	9.0	27	45	Not Detected
Freon 11	75-69-4	8.6	35	58	910
Freon 113	76-13-1	14	48	79	Not Detected
Freon 114	76-14-2	19	43	72	Not Detected
Freon 12	75-71-8	11	31	51	7800
Heptane	142-82-5	14	25	42	Not Detected
Hexachlorobutadiene	87-68-3	270	330	440	Not Detected

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	SS-01		
Lab ID:	1909075B-04A	**Date/Time Analyzed:**	9/12/19 12:44 PM
Date/Time Collected:	8/26/19 03:30 PM	**Dilution Factor:**	2.07
Media:	1 Liter Summa Canister (100% Certified)	**Instrument/Filename:**	msd14.i / 14091210

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	110-54-3	9.0	22	36	Not Detected
m,p-Xylene	108-38-3	8.4	27	45	180
Methyl tert-butyl ether	1634-04-4	3.8	22	37	Not Detected
Methylene Chloride	75-09-2	22	110	140	Not Detected
o-Xylene	95-47-6	12	27	45	190
Propylbenzene	103-65-1	6.2	30	51	370
Styrene	100-42-5	8.4	26	44	Not Detected
Tetrachloroethene	127-18-4	25	42	70	12000
Tetrahydrofuran	109-99-9	11	18	30	Not Detected
Toluene	108-88-3	7.0	23	39	7.5 J
trans-1,2-Dichloroethene	156-60-5	16	25	41	Not Detected
trans-1,3-Dichloropropene	10061-02-6	5.3	28	47	Not Detected
Trichloroethene	79-01-6	16	33	56	17 J
Vinyl Chloride	75-01-4	9.2	16	26	Not Detected

UJ = Analyte associated with low bias in the CCV.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1909075B-05A	**Date/Time Analyzed:**	9/12/19 10:23 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091206d

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	4.7	16	27	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	5.4	20	34	Not Detected
1,1,2-Trichloroethane	79-00-5	9.9	16	27	Not Detected
1,1-Dichloroethane	75-34-3	5.6	12	20	Not Detected
1,1-Dichloroethene	75-35-4	2.7	12	20	Not Detected
1,2,4-Trichlorobenzene	120-82-1	60	110	150	Not Detected
1,2,4-Trimethylbenzene	95-63-6	4.7	15	24	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	6.8	23	38	Not Detected
1,2-Dichlorobenzene	95-50-1	7.3	18	30	Not Detected
1,2-Dichloroethane	107-06-2	3.9	12	20	Not Detected
1,2-Dichloropropane	78-87-5	6.1	14	23	Not Detected
1,3,5-Trimethylbenzene	108-67-8	4.1	15	24	Not Detected
1,3-Butadiene	106-99-0	3.5	6.6	11	Not Detected
1,3-Dichlorobenzene	541-73-1	4.6	18	30	Not Detected
1,4-Dichlorobenzene	106-46-7	5.1	18	30	Not Detected
1,4-Dioxane	123-91-1	20	54	72	Not Detected
2,2,4-Trimethylpentane	540-84-1	5.3	14	23	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	14	44	59	Not Detected
2-Hexanone	591-78-6	31	61	82	Not Detected
2-Propanol	67-63-0	6.3	37	49	Not Detected
3-Chloropropene	107-05-1	13	47	63	Not Detected
4-Ethyltoluene	622-96-8	7.4	15	24	Not Detected
4-Methyl-2-pentanone	108-10-1	10	12	20	Not Detected
Acetone	67-64-1	6.9	36	48	Not Detected

eurofins | Air Toxics

Client ID:	Lab Blank		
Lab ID:	1909075B-05A	**Date/Time Analyzed:**	9/12/19 10:23 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091206d

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
alpha-Chlorotoluene	100-44-7	6.0	16	26	Not Detected
Benzene	71-43-2	2.2	9.6	16	Not Detected
Bromodichloromethane	75-27-4	3.4	20	34	Not Detected
Bromoform	75-25-2	7.1	31	52	Not Detected
Bromomethane	74-83-9	35	58	78	Not Detected UJ
Carbon Disulfide	75-15-0	9.5	47	62	Not Detected
Carbon Tetrachloride	56-23-5	7.5	19	31	Not Detected
Chlorobenzene	108-90-7	6.3	14	23	Not Detected
Chloroethane	75-00-3	15	40	53	Not Detected
Chloroform	67-66-3	4.2	15	24	Not Detected
Chloromethane	74-87-3	8.7	31	41	Not Detected
cis-1,2-Dichloroethene	156-59-2	6.1	12	20	Not Detected
cis-1,3-Dichloropropene	10061-01-5	4.0	14	23	Not Detected
Cumene	98-82-8	1.7	15	24	Not Detected
Cyclohexane	110-82-7	3.8	10	17	Not Detected
Dibromochloromethane	124-48-1	8.8	26	42	Not Detected
Ethanol	64-17-5	8.2	28	38	Not Detected
Ethyl Benzene	100-41-4	4.3	13	22	Not Detected
Freon 11	75-69-4	4.2	17	28	Not Detected
Freon 113	76-13-1	6.8	23	38	Not Detected
Freon 114	76-14-2	9.2	21	35	Not Detected
Freon 12	75-71-8	5.5	15	25	Not Detected
Heptane	142-82-5	6.9	12	20	Not Detected
Hexachlorobutadiene	87-68-3	130	160	210	Not Detected

EPA METHOD TO-15 GC/MS
2019 Air Sample

Client ID:	Lab Blank		
Lab ID:	1909075B-05A	**Date/Time Analyzed:**	9/12/19 10:23 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091206d

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	110-54-3	4.3	10	18	Not Detected
m,p-Xylene	108-38-3	4.1	13	22	Not Detected
Methyl tert-butyl ether	1634-04-4	1.8	11	18	Not Detected
Methylene Chloride	75-09-2	11	52	69	Not Detected
o-Xylene	95-47-6	5.9	13	22	Not Detected
Propylbenzene	103-65-1	3.0	15	24	Not Detected
Styrene	100-42-5	4.0	13	21	Not Detected
Tetrachloroethene	127-18-4	12	20	34	Not Detected
Tetrahydrofuran	109-99-9	5.2	8.8	15	Not Detected
Toluene	108-88-3	3.4	11	19	Not Detected
trans-1,2-Dichloroethene	156-60-5	7.6	12	20	Not Detected
trans-1,3-Dichloropropene	10061-02-6	2.5	14	23	Not Detected
Trichloroethene	79-01-6	8.0	16	27	Not Detected
Vinyl Chloride	75-01-4	4.4	7.7	13	Not Detected

UJ = Analyte associated with low bias in the CCV.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	98

eurofins | Air Toxics

Client ID:	CCV		
Lab ID:	1909075B-06A	**Date/Time Analyzed:**	9/12/19 08:08 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091202

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	98
1,1,2,2-Tetrachloroethane	79-34-5	87
1,1,2-Trichloroethane	79-00-5	91
1,1-Dichloroethane	75-34-3	96
1,1-Dichloroethene	75-35-4	103
1,2,4-Trichlorobenzene	120-82-1	73
1,2,4-Trimethylbenzene	95-63-6	85
1,2-Dibromoethane (EDB)	106-93-4	92
1,2-Dichlorobenzene	95-50-1	94
1,2-Dichloroethane	107-06-2	100
1,2-Dichloropropane	78-87-5	96
1,3,5-Trimethylbenzene	108-67-8	98
1,3-Butadiene	106-99-0	92
1,3-Dichlorobenzene	541-73-1	92
1,4-Dichlorobenzene	106-46-7	92
1,4-Dioxane	123-91-1	93
2,2,4-Trimethylpentane	540-84-1	97
2-Butanone (Methyl Ethyl Ketone)	78-93-3	90
2-Hexanone	591-78-6	96
2-Propanol	67-63-0	104
3-Chloropropene	107-05-1	78
4-Ethyltoluene	622-96-8	90
4-Methyl-2-pentanone	108-10-1	81
Acetone	67-64-1	107

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	CCV		
Lab ID:	1909075B-06A	**Date/Time Analyzed:**	9/12/19 08:08 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091202

Compound	CAS#	%Recovery
alpha-Chlorotoluene	100-44-7	89
Benzene	71-43-2	96
Bromodichloromethane	75-27-4	96
Bromoform	75-25-2	94
Bromomethane	74-83-9	69 Q
Carbon Disulfide	75-15-0	90
Carbon Tetrachloride	56-23-5	100
Chlorobenzene	108-90-7	88
Chloroethane	75-00-3	85
Chloroform	67-66-3	96
Chloromethane	74-87-3	89
cis-1,2-Dichloroethene	156-59-2	101
cis-1,3-Dichloropropene	10061-01-5	91
Cumene	98-82-8	91
Cyclohexane	110-82-7	95
Dibromochloromethane	124-48-1	90
Ethanol	64-17-5	103
Ethyl Benzene	100-41-4	90
Freon 11	75-69-4	103
Freon 113	76-13-1	100
Freon 114	76-14-2	96
Freon 12	75-71-8	88
Heptane	142-82-5	84
Hexachlorobutadiene	87-68-3	79

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	CCV		
Lab ID:	1909075B-06A	**Date/Time Analyzed:**	9/12/19 08:08 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091202

Compound	CAS#	%Recovery
Hexane	110-54-3	97
m,p-Xylene	108-38-3	91
Methyl tert-butyl ether	1634-04-4	89
Methylene Chloride	75-09-2	100
o-Xylene	95-47-6	91
Propylbenzene	103-65-1	88
Styrene	100-42-5	95
Tetrachloroethene	127-18-4	93
Tetrahydrofuran	109-99-9	92
Toluene	108-88-3	93
trans-1,2-Dichloroethene	156-60-5	92
trans-1,3-Dichloropropene	10061-02-6	88
Trichloroethene	79-01-6	97
Vinyl Chloride	75-01-4	93

Q = Exceeds Quality Control limits.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	100
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

Client ID:	LCS		
Lab ID:	1909075B-07A	**Date/Time Analyzed:**	9/12/19 08:41 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091203

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	96
1,1,2,2-Tetrachloroethane	79-34-5	89
1,1,2-Trichloroethane	79-00-5	90
1,1-Dichloroethane	75-34-3	94
1,1-Dichloroethene	75-35-4	98
1,2,4-Trichlorobenzene	120-82-1	92
1,2,4-Trimethylbenzene	95-63-6	90
1,2-Dibromoethane (EDB)	106-93-4	90
1,2-Dichlorobenzene	95-50-1	94
1,2-Dichloroethane	107-06-2	96
1,2-Dichloropropane	78-87-5	96
1,3,5-Trimethylbenzene	108-67-8	95
1,3-Butadiene	106-99-0	88
1,3-Dichlorobenzene	541-73-1	93
1,4-Dichlorobenzene	106-46-7	96
1,4-Dioxane	123-91-1	91
2,2,4-Trimethylpentane	540-84-1	96
2-Butanone (Methyl Ethyl Ketone)	78-93-3	89
2-Hexanone	591-78-6	78
2-Propanol	67-63-0	90
3-Chloropropene	107-05-1	101
4-Ethyltoluene	622-96-8	91
4-Methyl-2-pentanone	108-10-1	79
Acetone	67-64-1	114

* % Recovery is calculated using unrounded analytical results.

eurofins | Air Toxics

Client ID:	LCS		
Lab ID:	1909075B-07A	**Date/Time Analyzed:**	9/12/19 08:41 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091203

Compound	CAS#	%Recovery
alpha-Chlorotoluene	100-44-7	89
Benzene	71-43-2	96
Bromodichloromethane	75-27-4	96
Bromoform	75-25-2	93
Bromomethane	74-83-9	99
Carbon Disulfide	75-15-0	90
Carbon Tetrachloride	56-23-5	99
Chlorobenzene	108-90-7	89
Chloroethane	75-00-3	97
Chloroform	67-66-3	93
Chloromethane	74-87-3	95
cis-1,2-Dichloroethene	156-59-2	90
cis-1,3-Dichloropropene	10061-01-5	96
Cumene	98-82-8	89
Cyclohexane	110-82-7	91
Dibromochloromethane	124-48-1	90
Ethanol	64-17-5	106
Ethyl Benzene	100-41-4	93
Freon 11	75-69-4	101
Freon 113	76-13-1	96
Freon 114	76-14-2	94
Freon 12	75-71-8	95
Heptane	142-82-5	93
Hexachlorobutadiene	87-68-3	90

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
2019 Air Sample

Client ID:	LCS		
Lab ID:	1909075B-07A	**Date/Time Analyzed:**	9/12/19 08:41 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091203

Compound	CAS#	%Recovery
Hexane	110-54-3	96
m,p-Xylene	108-38-3	88
Methyl tert-butyl ether	1634-04-4	96
Methylene Chloride	75-09-2	99
o-Xylene	95-47-6	92
Propylbenzene	103-65-1	90
Styrene	100-42-5	94
Tetrachloroethene	127-18-4	92
Tetrahydrofuran	109-99-9	87
Toluene	108-88-3	93
trans-1,2-Dichloroethene	156-60-5	100
trans-1,3-Dichloropropene	10061-02-6	88
Trichloroethene	79-01-6	95
Vinyl Chloride	75-01-4	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
2019 Air Sample

eurofins | Air Toxics

Client ID:	LCSD		
Lab ID:	1909075B-07AA	**Date/Time Analyzed:**	9/12/19 09:13 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091204

Compound	CAS#	%Recovery
1,1,1-Trichloroethane	71-55-6	96
1,1,2,2-Tetrachloroethane	79-34-5	89
1,1,2-Trichloroethane	79-00-5	91
1,1-Dichloroethane	75-34-3	94
1,1-Dichloroethene	75-35-4	99
1,2,4-Trichlorobenzene	120-82-1	100
1,2,4-Trimethylbenzene	95-63-6	92
1,2-Dibromoethane (EDB)	106-93-4	91
1,2-Dichlorobenzene	95-50-1	94
1,2-Dichloroethane	107-06-2	96
1,2-Dichloropropane	78-87-5	97
1,3,5-Trimethylbenzene	108-67-8	98
1,3-Butadiene	106-99-0	90
1,3-Dichlorobenzene	541-73-1	92
1,4-Dichlorobenzene	106-46-7	98
1,4-Dioxane	123-91-1	90
2,2,4-Trimethylpentane	540-84-1	96
2-Butanone (Methyl Ethyl Ketone)	78-93-3	87
2-Hexanone	591-78-6	79
2-Propanol	67-63-0	90
3-Chloropropene	107-05-1	100
4-Ethyltoluene	622-96-8	93
4-Methyl-2-pentanone	108-10-1	80
Acetone	67-64-1	118

* % Recovery is calculated using unrounded analytical results.

eurofins | Air Toxics

Client ID:	LCSD		
Lab ID:	1909075B-07AA	**Date/Time Analyzed:**	9/12/19 09:13 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091204

Compound	CAS#	%Recovery
alpha-Chlorotoluene	100-44-7	89
Benzene	71-43-2	96
Bromodichloromethane	75-27-4	100
Bromoform	75-25-2	93
Bromomethane	74-83-9	104
Carbon Disulfide	75-15-0	92
Carbon Tetrachloride	56-23-5	101
Chlorobenzene	108-90-7	90
Chloroethane	75-00-3	94
Chloroform	67-66-3	92
Chloromethane	74-87-3	96
cis-1,2-Dichloroethene	156-59-2	90
cis-1,3-Dichloropropene	10061-01-5	96
Cumene	98-82-8	92
Cyclohexane	110-82-7	93
Dibromochloromethane	124-48-1	91
Ethanol	64-17-5	101
Ethyl Benzene	100-41-4	93
Freon 11	75-69-4	101
Freon 113	76-13-1	98
Freon 114	76-14-2	96
Freon 12	75-71-8	95
Heptane	142-82-5	92
Hexachlorobutadiene	87-68-3	98

* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS
2019 Air Sample

Client ID:	LCSD		
Lab ID:	1909075B-07AA	**Date/Time Analyzed:**	9/12/19 09:13 AM
Date/Time Collected:	NA - Not Applicable	**Dilution Factor:**	1.00
Media:	NA - Not Applicable	**Instrument/Filename:**	msd14.i / 14091204

Compound	CAS#	%Recovery
Hexane	110-54-3	95
m,p-Xylene	108-38-3	89
Methyl tert-butyl ether	1634-04-4	95
Methylene Chloride	75-09-2	100
o-Xylene	95-47-6	90
Propylbenzene	103-65-1	90
Styrene	100-42-5	93
Tetrachloroethene	127-18-4	94
Tetrahydrofuran	109-99-9	87
Toluene	108-88-3	91
trans-1,2-Dichloroethene	156-60-5	100
trans-1,3-Dichloropropene	10061-02-6	90
Trichloroethene	79-01-6	98
Vinyl Chloride	75-01-4	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	99

* % Recovery is calculated using unrounded analytical results.

D: LABORATORY DATA REVIEW CHECKLISTS

Appendix D

Laboratory Data Review Checklists

CONTENTS

D: LABORATORY DATA REVIEW CHECKLISTS

LDRC FOR WORK ORDER 1909075A

Laboratory Data Review Checklist for Air Samples

Completed by:	Dana Fjare		
Title:	Environmental Scientist	Date:	Sep 20, 2019
CS Report Name:	2019 Air Sample	Report Date:	Sep 19, 2019
Consultant Firm:	Shannon & Wilson, Inc.		
Laboratory Name:	Eurofins Air Toxics	Laboratory Report Number:	1909075A
ADEC File Number:	120.26.001	ADEC Haz ID:	

1. Laboratory

a. Did a NELAP certified laboratory receive and perform all of the submitted sample analyses?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

( ) Yes ( ) No (•) NA (Please explain.) Comments:

Analyses were performed by Eurofins Air Toxics in Folsom, CA.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

b. Correct analyses requested?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample condition documented -Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. If there were any discrepancies, were they documented? For example, incorrect sample containers/ preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum etc.?

○ Yes ○ No ◉ NA (Please explain) Comments:

There were no sample handling discrepancies documented by the laboratory.

c. Data quality or usability affected? (Please explain.)

○ Yes ◉ No ○ NA (Please explain) Comments:

Data quality and usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

◉ Yes ○ No ○ NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

◉ Yes ◉ No ○ NA (Please explain) Comments:

The reporting limit for bromomethane was raised from 0.5 ppbv to 1.0 ppbv due to anomalous linearity in the initial calibration.

The limit of quantitation (LOQ) for heptane was raised from 0.1 ppbv to 0.5 ppbv, because the method detection limit (MDL) value was greater than the LOQ.

Dilution was performed on samples IA-01 and IA-02 due to the presence of high level non-target species.

c. Were all corrective actions documented?

○ Yes ○ No ◉ NA (Please explain) Comments:

No corrective actions were documented in the case narrative.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The laboratory did not specify an effect on data quality and/or usability.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

◉ Yes ○ No ○ NA (Please explain) Comments:

b. Samples analyzed within 30 days of collection or within the time required by the method?

◉ Yes ○ No ○ NA (Please explain) Comments:

c. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

○ Yes ◉ No ○ NA (Please explain) Comments:

The PQL is greater than the Target Level for 1,2,4-trichlorobenzene, 1,2-dibromoethane, bromodichloromethane, bromomethane, and hexachlorobutadiene.

d. Data quality or usability affected?

Comments:

We cannot be certain if the analytes listed above are present in the sample below the PQL, but above the regulatory Target Level.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. All method blank results less than PQL?

◉ Yes ○ No ○ NA (Please explain) Comments:

However, alpha-chlorotoluene was detected below the LOQ in method blank 1909075A-03A and the analytes 1,1,2,2-tetrachloroethane, 1,2-dibromoethane, and 1,2-dichloroethane were detected below the LOQ in method blank 1909075A-03B.

iii. If above PQL, what samples are affected?

Comments:

The method blanks 1909075A-03A and 1909075A-03B are associated with project samples IA-01and IA-02.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

◉ Yes ○ No ○ NA (Please explain) Comments:

The analytes alpha-chlorotoluene and 1,2-dibromoethane were not detected in the associated project samples, so these results are not affected.

1,2-dichloroethane was detected in the associated project samples at concentrations greater than 10 times the concentration detected in the method blank sample. The 1,2-dichloroethane results are therefore considered unaffected.

1,1,2,2-tetrachloroethane was detected in the associated project samples at concentrations within 10 times the concentration detected in the method blank. The data are considered estimated with a high bias, and are flagged 'JH' in the analytical results table.

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability are affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

(●) Yes ( ) No ( ) NA (Please explain) Comments:

iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

(●) Yes ( ) No ( ) NA (Please explain) Comments:

The laboratory did not calculate an RPD for the the LCS/LCSD samples. However, Shannon & Wilson calculated these limits using the LCS and LCSD recoveries and compared the RPDs to project-specified DQOs defined in the work plan. The RPDs were within specified DQOs.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

( ) Yes ( ) No (●) NA (Please explain) Comments:

The analytical accuracy and precision were demonstrated to be within laboratory control limits.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

( ) Yes ( ) No (●) NA (Please explain) Comments:

There were no analytical accuracy and/or precision failures associated with this work order.

vi. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

c. Surrogates

i. Are surrogate recoveries reported for field, QC and laboratory samples?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

(●) Yes ( ) No ( ) NA (Please explain) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

○ Yes ○ No ◉ NA (Please explain) Comments:

Surrogate recoveries were within laboratory control limits.

iv. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 type (soil gas, indoor air etc.) samples?

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Submitted blind to lab?

○ Yes ○ No ◉ NA (Please explain) Comments:

A field duplicate pair was not submitted with this work order; however, field duplicate samples have been submitted at the frequency required for the overall project.

iii. Precision - All relative percent differences (RPD) less than specified DQOs? (Recommended: 25 %)

$$\text{RPD (\%)} = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

○ Yes ○ No ◉ NA (Please explain) Comments:

A field duplicate sample was not submitted with this work order.

iv. Data quality or usability affected? (Please explain.)

Comments:

Data quality and/or usability are not affected; see above.

e. Field Blank (If not used explain why).

○ Yes ○ No ◉ NA (Please explain) Comments:

A field blank was not required for this analysis.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

A field blank was not required with this analysis.

ii. If above PQL, what samples are affected?

Comments:

N/A; a field blank was not required with this analysis.

iii. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

○ Yes ○ No ◉ NA (Please explain) Comments:

Other data flags/qualifiers were not necessary.

Reset Form

Updated: 2/2015

D: LABORATORY DATA REVIEW CHECKLISTS

LDRC FOR WORK ORDER 1909075B

Laboratory Data Review Checklist for Air Samples

Completed by:	Dana Fjare		
Title:	Environmental Scientist	Date:	Sep 20, 2019
CS Report Name:	2019 Air Sample	Report Date:	Sep 19, 2019
Consultant Firm:	Shannon & Wilson, Inc.		
Laboratory Name:	Eurofins Air Toxics	Laboratory Report Number:	1909075B
ADEC File Number:	120.26.001	ADEC Haz ID:	

1. Laboratory

a. Did a NELAP certified laboratory receive and perform all of the submitted sample analyses?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

( ) Yes ( ) No (•) NA (Please explain.) Comments:

Analyses were performed by Eurofins Air Toxics in Folsom, CA.

2. Chain of Custody (COC)

a. COC information completed, signed, and dated (including released/received by)?

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

b. Correct analyses requested?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample condition documented -Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. If there were any discrepancies, were they documented? For example, incorrect sample containers/ preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum etc.?

○ Yes ○ No ◉ NA (Please explain) Comments:

No sample handling discrepancies were reported by the laboratory.

c. Data quality or usability affected? (Please explain.)

○ Yes ◉ No ○ NA (Please explain) Comments:

Data quality and usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

◉ Yes ○ No ○ NA (Please explain) Comments:

b. Discrepancies, errors or QC failures identified by the lab?

◉ Yes ◉ No ○ NA (Please explain) Comments:

Samples SS-02 and SS-01 were transferred from Low Level analysis to full scan TO-15 due to high levels of target compounds.

Dilution was performed on samples SS-02 and SS-01 due to the presence of high level target species.

c. Were all corrective actions documented?

○ Yes ○ No ◉ NA (Please explain) Comments:

No corrective actions were documented in the case narrative.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The laboratory did not specify an effect on data quality or usability.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

◉ Yes ○ No ○ NA (Please explain) Comments:

b. Samples analyzed within 30 days of collection or within the time required by the method?

◉ Yes ○ No ○ NA (Please explain) Comments:

c. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

○ Yes ◉ No ○ NA (Please explain) Comments:

The PQL is greater than the Target Levels for analytes 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,4-trichlorobenzene, EDB, bromodichloromethane, and hexachlorobutadiene.

d. Data quality or usability affected?

Comments:

We cannot be certain if the analytes listed above are present in the sample below the PQL, but above the regulatory Target Level.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. All method blank results less than PQL?

◉ Yes ○ No ○ NA (Please explain) Comments:

iii. If above PQL, what samples are affected?

Comments:

Target analytes were not detected in the method blank sample associated with this work order. However, bromomethane is reported as an estimated non-detection due to low recovery of this analyte in the continuing calibration verification (CCV) sample associated with this preparatory batch.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

○ Yes ○ No ◉ NA (Please explain) Comments:

No samples are affected; project analytes were not detected in the method blank.

v. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

◉ Yes ○ No ○ NA (Please explain) Comments:

iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

(•) Yes ( ) No ( ) NA (Please explain) Comments:

The laboratory did not calculate an RPD for the the LCS/LCSD pair. However, Shannon & Wilson calculated these limits using the LCS and LCSD recoveries and compared the RPDs to project-specified DQOs defined in the work plan. The RPDs were within specified DQOs.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

( ) Yes ( ) No (•) NA (Please explain) Comments:

The analytical accuracy and precision were within laboratory control limits.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There were no analytical accuracy and/or precision failures associated with this work order.

vi. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

c. Surrogates

i. Are surrogate recoveries reported for field, QC and laboratory samples?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

(•) Yes ( ) No ( ) NA (Please explain) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There are no surrogate recovery failures associated with this work order.

iv. Data quality or usability affected? (Please explain.)

Comments:

The data quality and/or usability are not affected; see above.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 type (soil gas, indoor air etc.) samples?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. Submitted blind to lab?

◉ Yes ◉ No ○ NA (Please explain) Comments:

The field duplicate pair SS-01 and SS-02 were submitted to the laboratory.

iii. Precision - All relative percent differences (RPD) less than specified DQOs? (Recommended: 25 %)

$$RPD\ (\%) = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

○ Yes ◉ No ○ NA (Please explain) Comments:

Field duplicate RPDs were outside the DQO of 25% for the analytes trichloroethylene, chloroform, and acetone. In addition, the analytes ethanol, 4-methyl-2-pentanone, and ethylbenzene were detected at estimated concentrations in one sample but not detected in the other.

iv. Data quality or usability affected? (Please explain.)

Comments:

The trichloroethylene, chloroform, and acetone results of the samples SS-01 and SS-02 are considered estimated and are flagged 'J' to identify the imprecision.

e. Field Blank (If not used explain why).

○ Yes ○ No ◉ NA (Please explain) Comments:

A field blank was not required with this analysis.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

A field blank was not required with this analysis.

ii. If above PQL, what samples are affected?

Comments:

N/A; a field blank was not required with this analysis.

iii. Data quality or usability affected? (Please explain.)

Comments:

The data quality and usability were not affected; see above.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

◉ Yes ○ No ○ NA (Please explain) Comments:

The recovery of bromomethane was below the lower control limit in the CCV sample associated with this preparatory batch. The laboratory qualified the non-detect bromomethane results of the project samples in response to this low recovery.

APPENDIX E: BIQ

Appendix E

Revised Building Survey and Indoor Air Sampling Questionnaire (BIQ) and BIQ Photo Log

CONTENTS

APPENDIX E: BIQ

BIQ

ALASKA DEPARTMENT OF ENVIRONMENAL CONSERVATION
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building where interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during workplan development. Section II should be used to assist in identification of complicating factors during a presampling building walk-through.

Preparer's Name Dana Fjare Date/Time Prepared 8/26/19 1120

Preparer's Affiliation Shannon & Wilson, Inc. Phone No. 907-[redacted]479-0600

Purpose of Investigation Indoor air sampling

SECTION I: BUILDING INVENTORY

1. **OCCUPANT OR BUILDING PERSONNEL:**

   Interviewed: Y / N

   Last Name_____ First Name_____

   Address_____

   City_____

   Phone No._____

   Number of Occupants/people at this location_____ Age of Occupants_____

2. **OWNER or LANDLORD:** (Check if same as occupant ____.)

   Interviewed: Y / N

   Last Name_____ First Name_____

   Address_____

   City_____

   Phone No._____

3. **BUILDING CHARACTERISTICS**

   Type of Building: (Circle appropriate response.)

   Residential School (Commercial/Multi-use)
   Industrial Church Other_____

If the property is residential, what type? (Circle appropriate response.)

~~Ranch~~	2-Family	3-Family
Raised Ranch	~~Split Level~~	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	~~Townhouse/Condo~~
Modular	Log Home	Other_____

If multiple units, how many?_____

If the property is commercial, what type?

Business types(s) Gas station and automotive service station

Does it include residences (i.e., multi-use)? Y / (N) If yes, how many? —

Other characteristics:

Number of floors two Building age ~1969 - 1980

Is the building insulated? (Y) / N How airtight? Tight / Average / ~~Not Tight~~

Have occupants noticed chemical odors in the building? (Y) / N

If yes, please describe: petroleum products used daily

4. **AIRFLOW**

Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:

Airflow between floors

open stairwell leads to second floor

Airflow in building near suspected source

average

Outdoor air infiltration

average. Shop doors in garage are often open

Infiltration into air ducts

N/A

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS** (Circle all that apply.)

a. Above-grade construction:	wood frame	log	concrete	brick
	constructed on pilings with enclosed air space		constructed on pilings with open air space	
b. Basement type:	full	crawlspace	slab-on-grade	other_____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	unsealed	sealed	sealed with_____	
e. Foundation walls:	poured	block	stone	other _____
f. Foundation walls:	unsealed	sealed	sealed with _____	
g. The basement is:	wet	damp	dry	
h. The basement is:	finished	unfinished	partially finished	
i. Sump present?	Y / N			
j. Water in sump?	Y / N / not applicable			

Basement or lowest level depth below grade Slab-on-grade (feet).

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, and drains).

floor cracks inside garage/tire shop about 0.5-inch wide, cracks along seam where wall meets slab on north and east shop walls

6. **HEATING, VENTING, and AIR CONDITIONING** (Circle all that apply.)

Type of heating system(s) used in this building: (Circle all that apply – not just primary.)

Hot air circulation	Heat pump	Hot water baseboard	
Space heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other_____

The primary type of fuel used is:

Natural gas	Fuel oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank is fueled by: electric

Boiler/furnace is located in: Basement Outdoors Main floor Other_____

Do any of the heating appliances have cold-air intakes? Y / N

Type of air conditioning or ventilation used in this building:

Central air	Window units 2 upstairs	Open windows	None
Commercial HVAC	Heat-recovery system	Passive air system	

Are there air distribution ducts present? Y / N

Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the location of air supply and exhaust points on the floor plan.

Open doors & windows

Is there a radon mitigation system for the building/structure? Y / N Date of Installation_____

Is the system active or passive? Active/Passive N/A

7. **OCCUPANCY**

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost never

Level	**General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, or storage).**
ground floor Basement	gas station, bathrooms, automotive service station
2nd Floor	2 office areas, one storage area, one bathroom
~~2nd Floor~~	—
~~3rd Floor~~	—

8. **WATER AND SEWAGE**

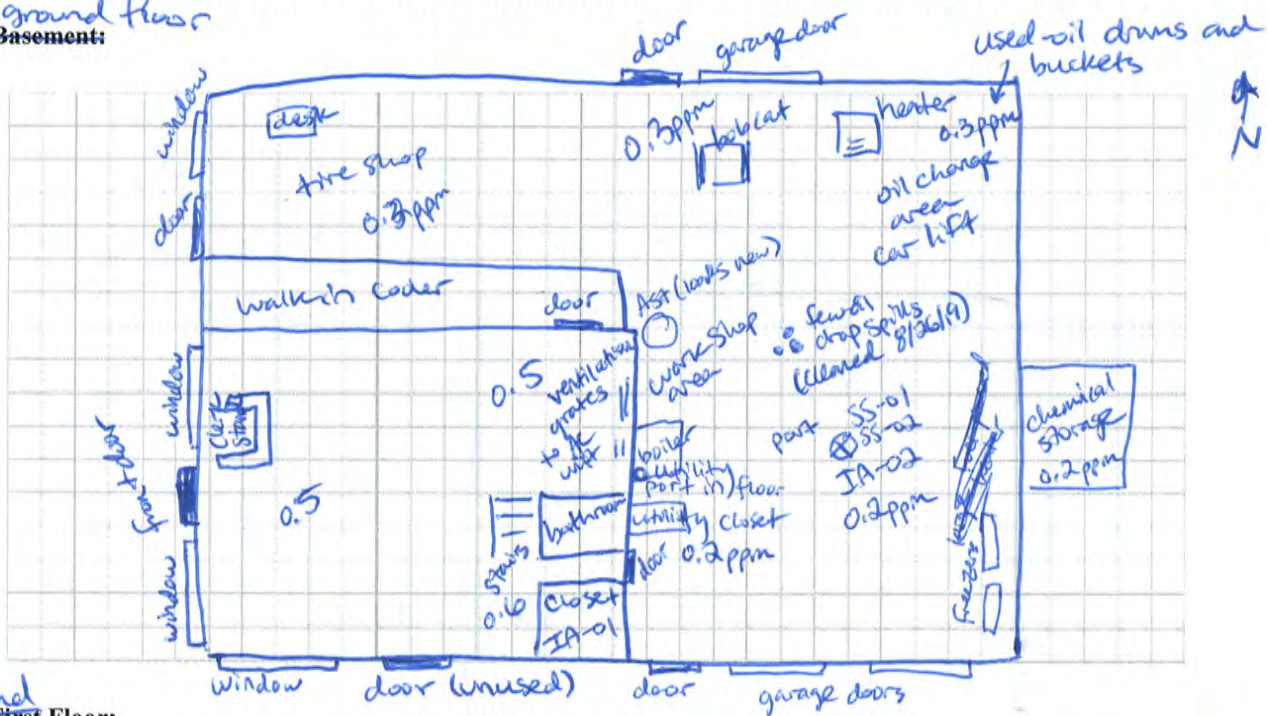
Water supply: Public water Drilled well Driven well Dug well Other_____

Sewage disposal: Public sewer Septic tank Leach field Dry well Other_____

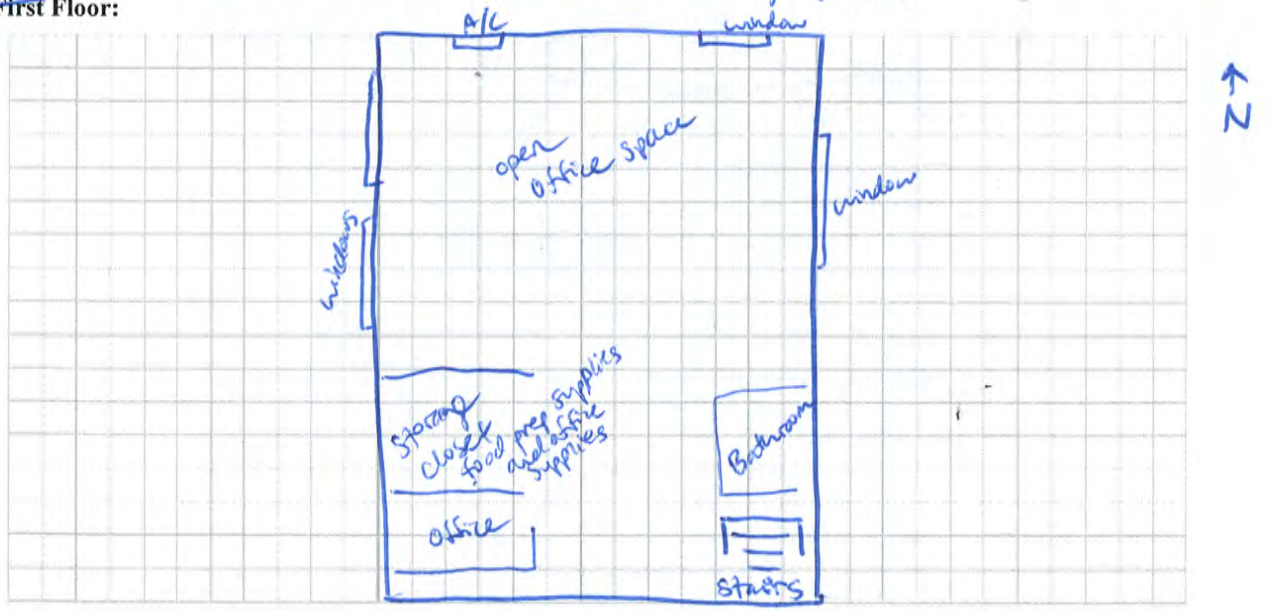
9. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note that.

~~Basement:~~ ground floor



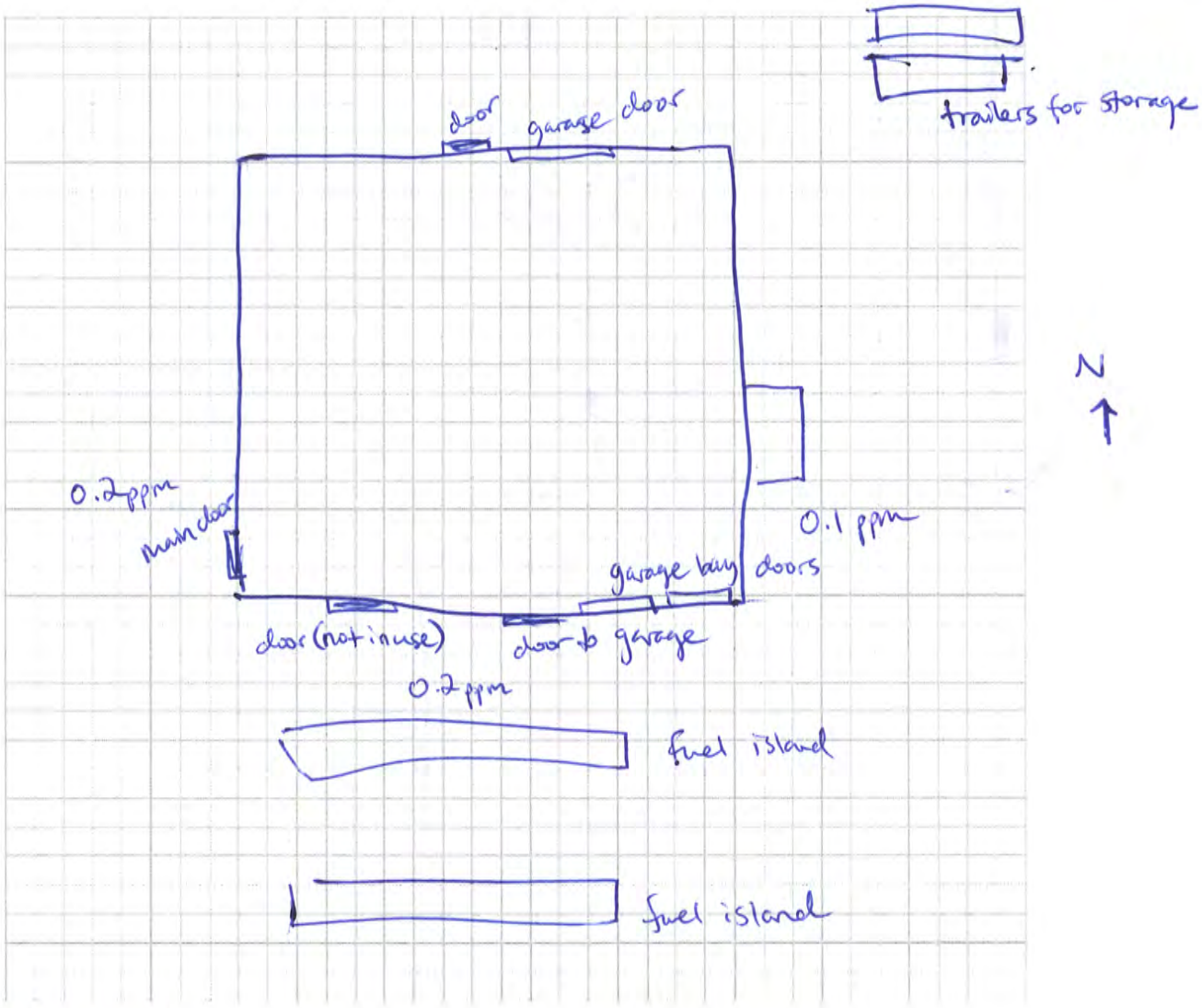
Second ~~First~~ Floor:



10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (e.g., industries, gas stations, repair shops, landfills, etc.), outdoor air sampling locations and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the location of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



wind is calm

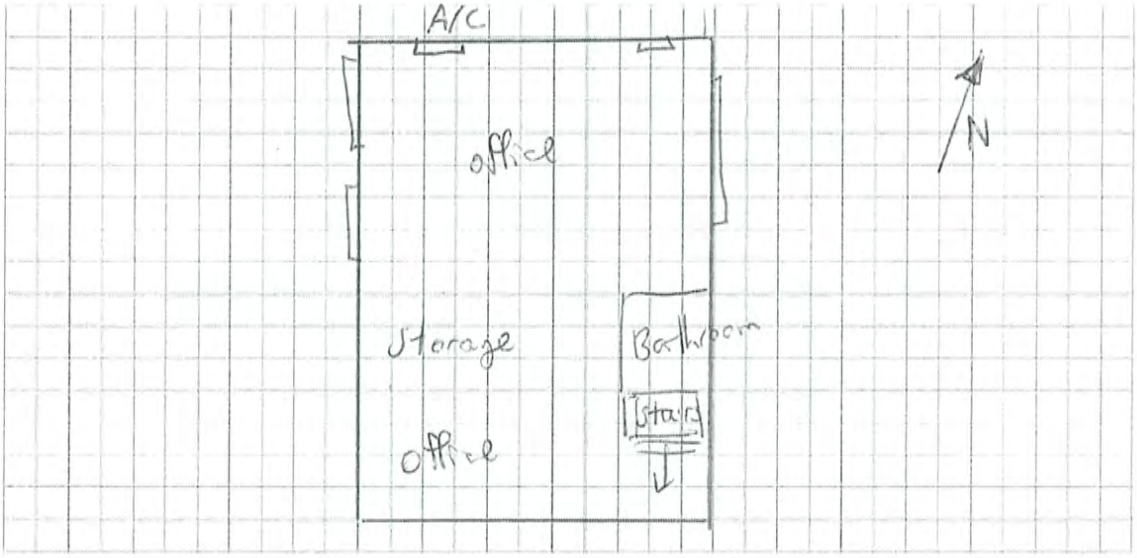
9. **FLOOR PLANS**

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

See next page

First Floor:

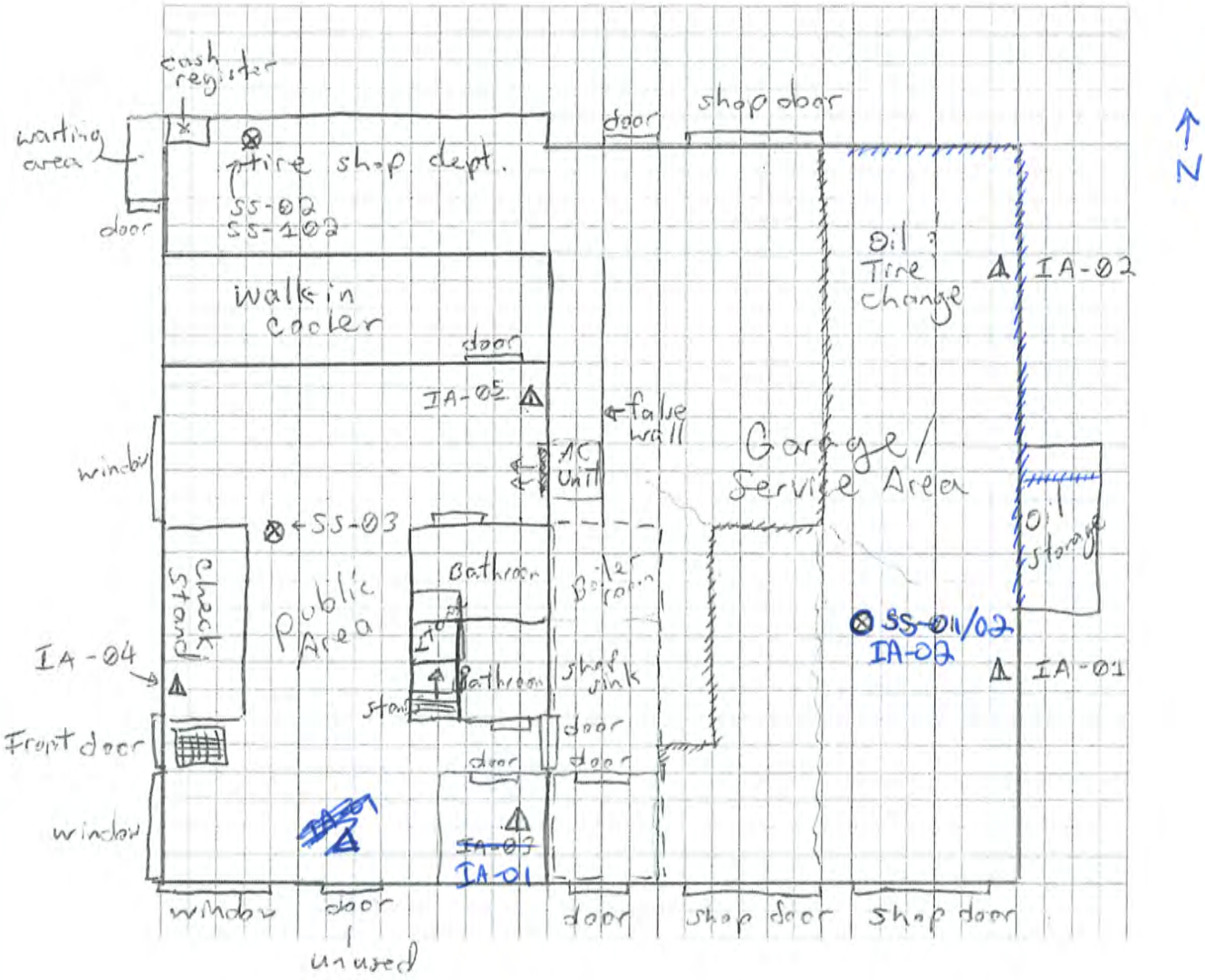


see report figure for outdoor plot

10. ~~OUTDOOR~~ PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



Notes:

⊗ = sub-slab sample port locations (with sample #)

⚠ = Indoor-air passive sample locations (with sample #)

▦ = floor grate

⬚ = second story storage area

≋ = floor cracks

SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE

This section should be completed during a presampling walk-through. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

a) 1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Is there an attached garage? (Y) / N

Does the garage have a separate heating unit? Y / (N) / NA

Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, or car) (Y) / N /NA

Please specify bobcat, trucks and automobiles

Has the building ever had a fire? Y / (N) When?_____

Is a kerosene or unvented gas space heater present? Y / (N) Where?_____

Is there a workshop or hobby/craft area? (Y) / N Where and type tools and equipment at west side of shop

Is there smoking in the building? Y / (N) How frequently?_____

Has painting/staining been done in the last six months? Y / (N) Where and when?_____

Is there new carpet, drapes or other textiles? Y / (N) Where and when?_____

Is there a kitchen exhaust fan? Y / (N) If yes, where is it vented?_____

Is there a bathroom exhaust fan? (Y) / N If yes, where is it vented? outside roof

Is there a clothes dryer? Y / (N) If yes, is it vented outside? Y / N

Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling? (Y) / N

If yes, please describe utility closet in garage has lots of various cleaning products

Do any of the building occupants use solvents at work? (Y) / N

(For example, is the building used for chemical manufacturing or a laboratory, auto mechanic or auto body shop, painting shop, fuel oil delivery area, or do any of the occupants work as a boiler mechanic, pesticide applicator, or cosmetologist?)

If yes, what types of solvents are used? auto mechanic

If yes, are his/her/their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry cleaning regularly (weekly) (No)

Yes, use dry cleaning infrequently (monthly or less) Unknown

Yes, work at a dry cleaning services

2. **PRODUCT INVENTORY FORM** (For use during building walk-through.)

Make and model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality:

Location	Product Description	Site (units)	Condition[1]	Chemical Ingredients	Field Instrument Reading (units)	Photo[2] Y / N
In storage closet on east side of garage:	See attached photos					
	11 cases of windshield washer fluid					
	20 cases of Heet					
	26 cases of various types motor oil					
	4 cases of antifreeze/coolant					
	9 cases of DEF					
	3 cases of diesel fuel additives					
	one case gear oil					
	2 cases Mac's Starter Fluid					
	1 case Snowmachine oil					
	2 cases Power Steering fluid					
	2 5-gal drums mineral spirits					
	3 5-gal buckets motor oil					
	1 55-gal drum (full, no label) presumed used oil					
	1 canister propane					

[1] Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D).**

[2] Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form was modified from:

ITRC (Interstate Technology and Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. VI-1. Washington, D.C.: Interstate Technology and Regulatory Council, Vapor Intrusion Team. Available at: www.itrcweb.org.

APPENDIX E: BIQ

BIQ PHOTO LOG

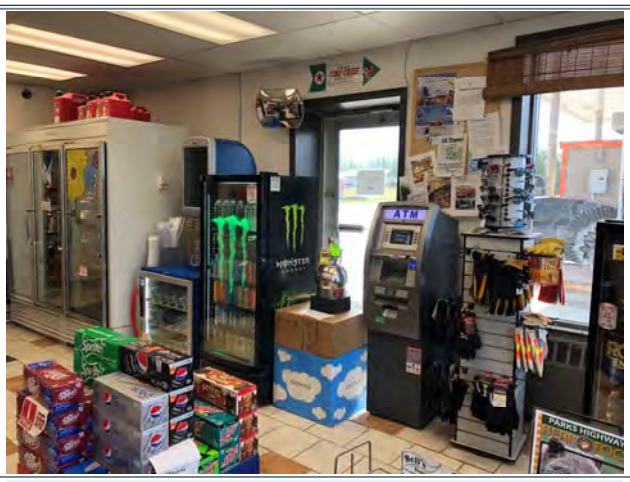


Photo 1: Indoor Air in Progress Inside the Storefront (8/27/19_

Photo 2: Iodophor Sanitizer Inside the Storefront Closet

Photo 3: Simple Green Squirt Bottle Inside the Storefront Closet

Photo 4: Febreze Air Freshner Inside the Storefront Closet

Photo 5: Heavy Duty Degreaser Inside the Storefront Closet

Photo 6: Twinkle Stainless Steel Cleaner & Polish Inside the Storefront Closet

Photo 7: Storage Shelves with Cleaners and Paper Products Inside the Shop Garage

Photo 8: All Season Windshield Washer Fluid Inside the Shop Garage

Photo 9: Clorox Cleaner & Bleach Inside the Shop Garage

Photo 10: Prime Source Germicidal Ultra Bleach Inside the Shop Garage

Photo 11: Simple Green Industrial Cleaner & Degreaser Inside the Shop Garage

Photo 12: Windex Glass Cleaner Inside the Shop Garage

Photo 13: Fabuloso Lavendar Scented Multi Purpose Cleaner Inside the Shop Garage

Photo 14: Drano Max Gel and Lysol Toilet Bowl Cleaner Inside the Shop Garage

Photo 15: Paint Stripper & Paint Inside the Shop Garage

Photo 16: Citristrip Paint and Varnish Stripping Gel Inside the Shop Garage

Photo 17: Clean Shower Daily Shower Cleaner Inside the Shop Garage

Photo 18: Premium Capture Professional Steam Clean Detergent Inside the Shop Garage

Photo 19: Infinity Paint & Primer Inside the Shop Garage

Photo 20: Duramax Paint & Primer Inside the Shop Garage

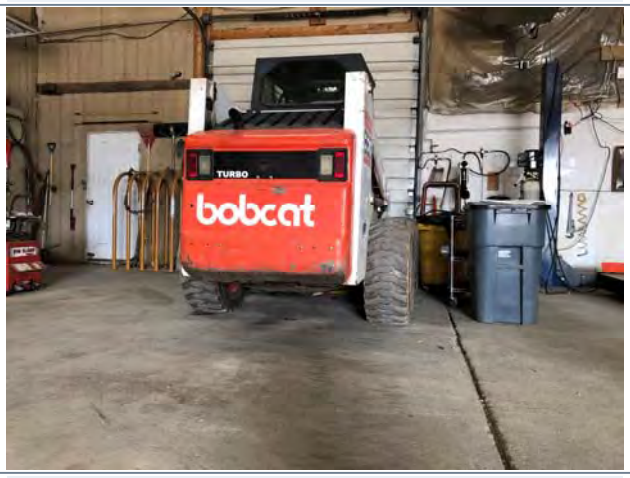


Photo 21: Bobcat Inside the Shop Garage, Looking West

Photo 22: Rim Clamp Inside the Shop Garage, Looking South

Photo 23: Tire Alignment Tool Inside the Shop Garage

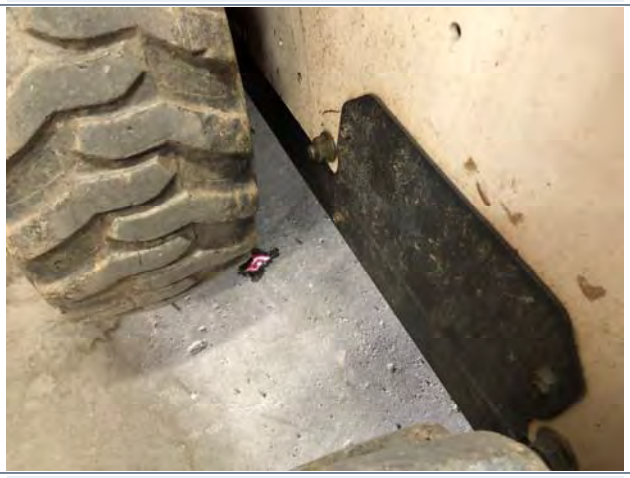


Photo 24: Bobcat Tire with Surface Staining Inside the Shop Garage

Photo 25: Shell Rotella Synthetic Engine OilInside the Shop Garage

Photo 26: Murphy's Tire and Tube Mounting Compound Inside the Shop Garage

Photo 27: Napa Hydraulic Jack Oil Inside the Shop Garage

Photo 28: Napa Hydraulic Jack Oil Inside the Shop Garage

Photo 29: Super Clean Tough Task Cleaner-Degreaser Inside the Shop Garage

Photo 30: Shell Rotella Synthetic Engine Oil Inside the Shop Garage

Photo 31: Power Service Diesel Kleen + Cetane Boost Inside the Shop Garage

Photo 32: Used Oil Container Inside the Shop Garage

Photo 33: Used Oil Container with Apparent Surface Staining Inside the Shop Garage

Photo 34: Blaster Penetrating Catalyst Inside the Shop Garage

Photo 35: WD-40 Multi-Use Product Inside the Shop Garage

Photo 36: Napa Air Tool Lubricant Inside the Shop Garage

Photo 37: CRC Freeze-Off Super Penetrant Inside the Shop Garage

Photo 38: Elmer's Multi-Purpose Spray Adhesive Inside the Shop Garage

Photo 39: Vehicle Lift for Chaning Tires Inside the Shop Garage

Photo 40: Used Oil Drum Inside the Shop Garage

Photo 41: SW20 Synthetic Oil Drum and Filters Inside the Shop Garage

Photo 42: Napa Orange Antifreeze & Coolant Inside the Shop Garage

Photo 43: Krylon Super Maxx Gloss Spray Paint Inside the Shop Garage

Photo 44: Krylon Rust Tough Enamel Rust Eliminator Inside the Shop Garage

Photo 45: Napa Brake Fluid Inside the Shop Garage

Photo 46 Napa Premium Performance Motor Oil Inside the Shop Garage

Photo 48: Clear Plastic Polish Inside the Shop Garage

Photo 48: Napa Full Synthetic Motor Oil Inside the Shop Garage

Photo 49: Shell Rotella T Heavy Duty Diesel Engine Oil Inside the Shop Garage

Photo 50: Shell Roella T Motor Oil Inside the Shop Garage

Photo 51: Heet & Mobil Motor Oil Inside the Shop Garage

Photo 52: Napa Brakleen Brake Parts Cleaner Inside the Shop Garage

Photo 53: Valvoline Full Synthetic Gear Oil & Mobil Transmission Fluid Inside the Shop Garage

Photo 54: Wynn's X-Tend Radiator Treatment Inside the Shop Garage

Photo 55: Nautilus Premium Outboard Oil, Johnsen's Premium Starting Fluid & Napa Battery Terminal Protector Inside the Shop Garage

Photo 56: Mac's Inside the Shop Garage

Photo 57: Air Brake System Inside the Shop Garage

Photo 58: Shelves with Various Motor Oils Inside the Shop Garage

Photo 59: Mobil Synthetic Motor Oil & Pwer Service Diesel 911 Inside the Shop Garage

Photo 60: power Service Diesel Fiel Supplement + Cetane Boost Inside the Shop Garage

Photo 61: Mobil Advanced Fuel Economy Synthetic Motor Oil & Mobil High Mileage Synthetic Motor Oil Inside the Shop Garage

Photo 62: Peak Blue Def Diesel Exhaust Fluid Inside the Shop Garage

Photo 63: Various Vehicle Fluids Inside the Shop Garage

Photo 64: Napa Green Antifreeze & Coolant Inside the Shop Garage

Photo 65: Shelves with Fluids Inside the Closet of the Shop Garage

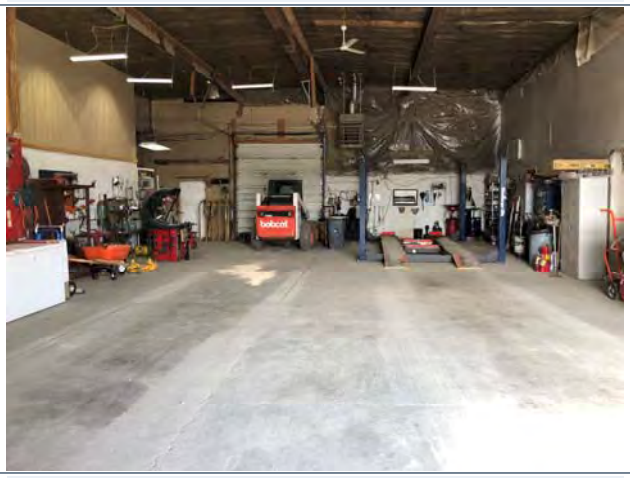


Photo 66: View of the Shop, Facing West

Photo 67: Fisher Spray Acrylic Lacquer Inside the Shop Garage

Photo 68: Green Stuff Sealant Inside the Shop Garage

Photo 69: Master Appliance Ultratane Butane Fuel Inside the Shop Garage

Photo 70: Gunk Foamy Engine Brite Engine Cleaner & Master Appliance Ultratane Butane Fuel Inside the Shop Garage

Photo 71: Tools Inside the Shop Garage

Photo 72: Storage Cabinet Inside the Shop Garage

Photo 73: Napa Green Antifreeze & Coolant Inside the Shop Garage

Photo 74: Tire Mounting Tool Inside the Shop Garage

Photo 75: Used Oil and Fresh Oil Inside the Shop Garage

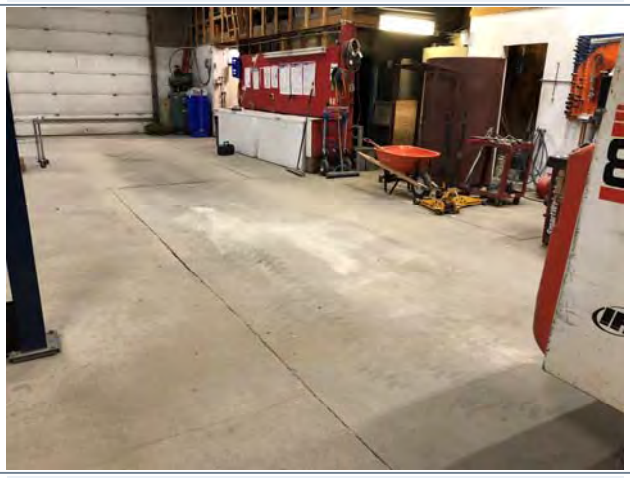


Photo 76: Shop View with Freezers, Facing Southeast

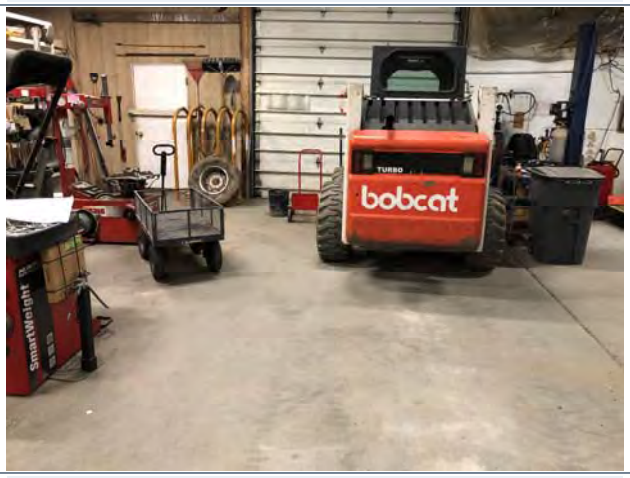


Photo 77: Bobcat & Other Shop Tools, Facing West

Photo 78: Tires & Tire Rims with Surface Staining

Photo 79: Black Barrel, Tractor Hydraulic & Transmission Fluid & Propane Tank Inside the Shop Garage

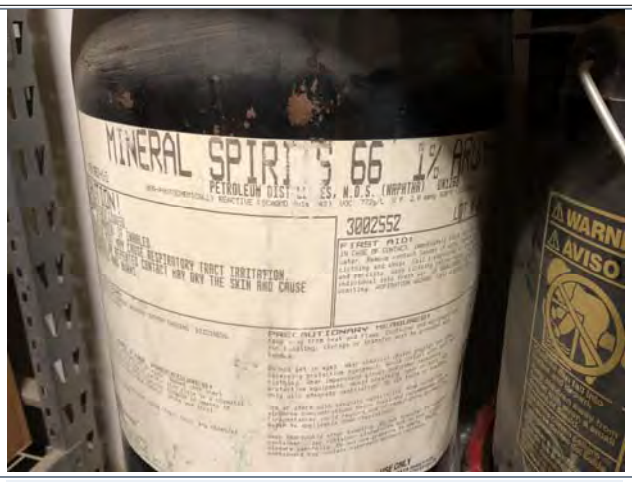


Photo 80: Mineral Spirits Inside the Shop Garage

APPENDIX F: QA/QC SUMMARY

Appendix F

QA/QC Summary

APPENDIX F: QA/QC SUMMARY

F.1 OVERVIEW

QC/QA procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples and conducted our own QA assessment for this project. We reviewed the chain of custody (COC) records and laboratory receipt forms to check that custody was not breached, sample-holding times were met, and the samples were kept chilled (between 0 degrees Celsius [°C] and 6 °C) during shipping. Our QA-review procedures allowed us to document the accuracy and precision of the analytical data, as well as check that the analyses were sufficiently sensitive to meet project-specific DQOs.

QC procedures in the field included using single-use equipment to reduce the potential for sample cross-contamination. The laboratory report contains a case narrative and forms documenting sample-receipt conditions. Details regarding the results of our QA review are presented below. Additional information is presented in the laboratory reports and corresponding DEC LDRCs. The Eurofins reports 1909075a and 1909075b have the August 2019 air sample results. The corresponding LDRCs are presented in Appendix D.

F.2 SAMPLE HANDLING

The SVE air sample was shipped to Eurofins of Folsom, California via FedEx. We completed and signed the COC form and secured the COC to the inside of the sample container prior to shipment. The Eurofins laboratory noted that the samples were received in good condition and within the acceptable vacuum pressure.

The Sample Receipt Checklist noted that the project samples were received in good condition properly preserved. There were no sample handling discrepancies noted by the laboratory; refer to the DEC laboratory data review checklist for details (Appendix D).

F.3 ACCURACY

Accuracy refers to determining the correct analyte concentration and is a comparison between the measured value and a known or expected value. Laboratory analytical accuracy may be assessed through the analyte recoveries from LCS/LCSD analyses and MS/MSD analyses, and the recovery of analyte surrogates (for organic analytes) added to project samples. The LCS/LCSDs are spikes of known analyte concentrations added to a clean matrix; the MS/MSDs are spikes of known analyte concentrations in a matrix similar to field samples. The laboratories' LCS and LCSD were within laboratory acceptance criteria, with a few exceptions that did not affect the sample results. Refer to the LDRCs for details.

F.4 PRECISION

To evaluate the precision of the data, we calculated the relative percent difference (RPD; difference between the sample and its duplicate divided by the mean of the two). RPDs can be evaluated only if the results of the analyses for both the sample and its duplicate are reported above the DL. The data quality objective for water samples' RPD is 30 percent. Where concentrations were reported in both samples, we calculated the RPDs. The RPDs were within acceptance criteria.

The laboratory LCS/LCSD and laboratory-duplicate sample RPDs were within laboratory acceptance criteria.

Refer to the LDRCs for details.

F.5 DATA QUALITY SUMMARY

By conducting our field activities in general accordance with our standard QC/QA procedures, the samples we collected are considered representative of site conditions at the locations and times they were obtained. Based on our QA review, no datum was rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In our opinion, the data produced by the laboratories for this project are suitable for characterizing surface-water quality at the locations sampled, with the applied qualifications.

IMPORTANT INFORMATION

Important Information

About Your Environmental Report

IMPORTANT INFO

IMPORTANT INFORMATION

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests

IMPORTANT INFORMATION

are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

IMPORTANT INFORMATION

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland.