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REVISION 1

GENERAL WORK PLAN ADDENDUM
DOT&PF Statewide PFAS
Addendum 013-CDB-01
Water Supply Well Sampling
COLD BAY, ALASKA

Submitted To: Alaska Department of Transportation & Public Facilities
2301 Peger Road
Fairbanks, Alaska 99709
Attn: Sammy Cummings

Subject: REVISION 1 GENERAL WORK PLAN ADDENDUM, DOT&PF STATEWIDE
PFAS ADDENDUM 013-CDB-01
WATER SUPPLY WELL SAMPLING, COLD BAY, ALASKA

Shannon & Wilson has prepared this Work Plan Addendum on behalf of the Alaska Department of Transportation & Public Facilities (DOT&PF). This Addendum is a supplement to the *DOT&PF Statewide PFAS General Work Plan (GWP)*, dated July 2020. The services proposed in this GWP Addendum, 013-CDB-01, describes the DOT&PF planned activities for water supply well search and sampling associated with per- and polyfluoroalkyl substances (PFAS) for the Cold Bay Airport (CDB).

The scope of services was specified in the proposal dated June 21, 2022 and authorized on August 26, 2022 by DOT&PF under Professional Services Agreement Number 25-19-013 *Per- and Polyfluorinated Substances (PFAS) Related Environmental & Engineering Services*.

This GWP Addendum was prepared and reviewed by:

Sincerely,

SHANNON & WILSON

On behalf of:
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Senior Environmental Scientist, Site Project Manager

Kristen Freiburger
Associate, Statewide Project Manager

AAG:KRF:DXM/aag

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Important Information

ACRONYMS

AAC	Alaska Administrative Code
AFFF	aqueous film forming foam
bgs	below ground surface
CDB	Cold Bay Airport
COPC	contaminant of potential concern
CSM	Conceptual Site Model
CFR	Code of Federal Regulations
DEC	Alaska Department of Environmental Conservation
DOT&PF	Alaska Department of Transportation & Public Facilities
DVPP	Data-Validation Program Plan
DoD/DoE	Department of Defense/Department of Energy
EPA	U.S. Environmental Protection Agency
GWP	General Work Plan
HFPO	hexafluoropropylene oxide
IDW	investigative-derived waste
LHA	Lifetime Health Advisory
LOD	limit of detection
mg/kg	milligrams per kilogram
ng/L	nanograms per liter
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
POC	point of contact
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QSM	Quality Systems Manual
RL	reporting limit
SSHP	Site Safety and Health Plan
µg/L	micrograms per liter

1 INTRODUCTION

This Addendum, 013-CDB-01, is a supplement to the *DOT&PF Statewide PFAS General Work Plan – Revision 1* (GWP). This Addendum, in collaboration with the GWP provides guidance for per- and polyfluoroalkyl substances (PFAS) water supply well search and sampling activities near the Cold Bay Airport (CDB) in Cold Bay, Alaska (Figure 1, Exhibit 1-1).

Shannon & Wilson has prepared the GWP and this Addendum in accordance with Alaska Department of Environmental Conservation’s (DEC) March 2017 *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites*, with DEC’s January 2022 *Field Sampling Guidance* document. Our Addendum also includes a Site Safety and Health Plan (SSHP). If additional activities are required that are not covered in the GWP or deviations are made to the GWP, they will be described in this Addendum.

Exhibit 1-1: Airport Information

Airport Name:	Cold Bay Airport
Airport Code:	CDB
DEC File No. / Hazard ID:	2538.38.026
Airport Address:	Cold Bay, Alaska 99571
DOT&PF Region:	Southcoast
DOT&PF Regional POC:	Spencer Gates
DOT&PF PFAS POC:	Sammy Cummings
Airport Type:	Current Part 139 Airport, Former DoD
Airport Coordinates (Lat/Long):	55.1987, -162.7214

DoD = Department of Defense, DOT&PF = Department of Transportation and Public Facilities, POC = point of contact

1.1 Background

General background information relating to sites covered under the GWP is included in Section 1.1 of the GWP. Background information specific to the CDB is detailed below.

The CDB is currently owned and operated by the Alaska Department of Transportation and Public Facilities (DOT&PF) under 14 Code of Federal Regulations (CFR) Part 139 certification which mandates various requirements, including training, annual fire apparatus testing, and in rare instances emergency response utilizing Aqueous Film Forming Foam (AFFF), a known PFAS containing firefighting foam. Locations of known AFFF releases are on or near the airport runway and are presented on Figure 2.

Additionally, the “Abandoned Fire Station” on the east side of the CDB has historically been

a location of AFFF storage and equipment cleaning and is designated by the DEC as an active contaminated site (File No. 2538.38.025). This location is shown on Figure 2.

Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are two PFAS commonly found at sites where AFFF were used. Due to their persistence, toxicity, and bioaccumulative potential, these compounds are of increasing concern to environmental and health agencies. In May 2016 the U.S. Environmental Protection Agency (EPA) published a recommended Lifetime Health Advisory (LHA) level of 70 nanograms per liter (ng/L) for the sum of PFOS and PFOA in drinking water. In June 2022 the EPA published Interim LHAs of 0.004 ng/L for PFOA and 0.02 ng/L PFOS, and Final LHAs of 2,000 ng/L for perfluorobutanesulfonic acid (PFBS), and 10 ng/L for hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt (together referred to as “GenX chemicals”).

The DEC Contaminated Sites Program published groundwater-cleanup levels of 400 ng/L for PFOS and PFOA in November 2016. Prior to the publication of these levels, there were no state-level cleanup levels established for PFAS. On October 2, 2019, DEC published a Technical Memorandum amending the April 9, 2019, Technical Memorandum to include additional PFAS analytes to the testing requirements. Per DEC guidance, the current action level remains 70 ng/L for the sum of PFOS and PFOA. A summary of changes to action levels and regulatory requirements is described in Section 1.1 of the GWP.

The City of Cold Bay obtains its drinking water from two wells located near the water treatment plant, within a one-half mile radius of the CDB. The municipal water supply wells and majority of the buildings in Cold Bay are located downgradient of the CDB, to the north and east of the runways. Most commercial and residential buildings in Cold Bay acquire water from the municipal water supply; however, some buildings are connected to private drinking water wells. Groundwater wells in Cold Bay are relatively deep with depths ranging from 72 to 320 feet below the ground surface.

1.1.1 Previous Investigations

1.1.1.1 Water Supply Well Sampling

On April 26, 2022, the DEC conducted sampling of water supply wells in Cold Bay. Samples were collected from two wells which compose the Cold Bay municipal water supply system (a primary well and a supplemental well) and a private water supply well.

In the primary municipal water supply well, PFAS compounds were detected below both the DEC cleanup levels and the EPA final LHA of 70 ng/L for the sum of PFOS and PFOA. In the supplemental municipal water supply well, PFAS compounds were detected above the DEC cleanup levels and the EPA final LHA. PFAS compounds were not detected in the

private water supply well sample. Results for PFOS and PFOA of the DEC sampling event are provided in Exhibit 1-2 below.

Exhibit 1-2: April 2022 PFOS and PFOA Sampling Results

Well	Regulatory Limit ^a (ng/L)	PFOA (ng/L)	PFOS (ng/L)
Primary Municipal Well	400	29.0 ^b	13.0 ^b
Supplemental Municipal Well	400	717	888

Notes:

a. 18 AAC 75 Table C. Groundwater Cleanup Levels.

b. Result is the higher of the primary and duplicate sample.

ng/L = nanogram per liter, PFOA = perfluorooctanoic acid, PFOS = perfluorooctanesulfonic acid

1.1.1.2 DOT&PF Cold Bay Airport Abandoned Fire Station

The DOT&PF Cold Bay Airport Abandoned Fire Station (DEC File No. 2538.38.025, Hazard ID 27198) is listed as an active contaminated site. According to the Limited Site Investigation report dated February 8, 2021, DOT&PF conducted an environmental investigation during September 2020. The investigation intended to characterize the extent of petroleum hydrocarbon and PFAS contamination at the DOT&PF Airport Abandoned Fire Station (a.k.a. the Airport Chemical/SRE Building).

The site is located at the CDB and is at the intersection of North Apron Road and Reeve Avenue (Figure 2). A single-story building existed on the site and was utilized as a fire station since the early 1940s. During a Phase I ESA conducted in 2020, recognized environmental conditions identified for the site included AFFF use, storage, and equipment cleaning.

In September 2020, nine soil borings, two temporary monitoring points, and three monitoring wells were installed. PFOS and/or PFOA were detected above DEC cleanup levels (0.0030 and 0.0017 milligrams per kilogram [mg/kg], respectively) in six of the nine soil samples with a maximum concentration of 0.029 mg/kg for PFOS and up to 0.056 mg/kg for PFOA. The highest concentrations were located in the vicinity of the garage bay doors of the former fire station. PFOS and PFOA concentrations in groundwater were reported below DEC cleanup levels.

1.2 Project Objectives and Scope

The project objectives are to determine potential PFAS impacts to water supply wells in Cold Bay. These objectives will be achieved by performing a well search to identify water supply wells that are present in Cold Bay and conducting sampling of the identified wells for PFAS.

2 SITE AND PROJECT DESCRIPTION

The following sections provide a site and project description.

2.1 Site Location and Boundaries

The CDB is located in Cold Bay, Alaska. Cold Bay is located in the Aleutian East Borough near the southwest tip of the Alaska Peninsula (Figure 1). Figure 2 shows the property boundaries for land owned by the DOT&PF. The geographic coordinates of the CDB terminal are latitude 55.1987, longitude -162.7214.

2.2 Potential Sources of Contamination

General information regarding potential sources of contamination at DOT&PF sites to be covered under the GWP is included in Section 2.1 of the GWP. Specific potential sources of contamination at the CDB to be investigated as a part of this Addendum are listed below.

During training by CDB personnel, AFFF was discharged to the ground surface. Areas with known AFFF releases are identified in Figure 2. Additionally, AFFF was historically stored at the Abandoned Fire Station which is an active DEC contaminated site (File No 2538.383.25) where PFAS has been documented in soil and groundwater (Figure 2).

2.3 Contaminants of Potential Concern and Regulatory Levels

General information regarding contaminants of potential concern (COPCs) and regulatory levels is included in Section 2.2 of the GWP. The primary COPCs for this project are PFAS. The current cleanup levels and analytical reporting limits for these site COPCs are summarized below in Exhibit 2-1.

Groundwater samples will be compared to Alaska's 18 Alaska Administrative Code (AAC) 75.341 *Table C, Groundwater Human Health Cleanup Level* and the EPA LHA. The current cleanup levels and analytical reporting limits for the site COPCs are summarized below in Exhibit 2-1.

Exhibit 2-1: COPCs, Regulatory and Laboratory Reporting Limits

Method	Analyte	Regulatory Limit ^a (ng/L)	EPA LHA (ng/L)	Laboratory RLs ^b (ng/L)
DoD QSM	PFOS	400	70	2.00
Table B-15 ^c	PFOA	400		2.00

Notes:

- a. 18 AAC 75 Table C. Groundwater Cleanup Levels.
- b. Current RLs from Eurofins TestAmerica, Inc. for PFAS analyses.
- c. All available PFAS analytes will be requested for analytical reports. However, only PFOS and PFOA have DEC Cleanup Levels and are reported in this table.

DoD = Department of Defense, EPA = Environmental Protection Agency, ng/L = nanogram per liter, PFAS = per- and polyfluoroalkyl substances, PFOA = perfluorooctanoic acid, PFOS = perfluorooctanesulfonic acid, QSM= Quality Systems Manual, RL = reporting limit

2.4 Conceptual Site Models and Site Safety and Health Plans

A conceptual site model (CSM) describes potential pathways between a contaminant source and possible receptors (i.e., people, animals, and plants) and is used to determine who may be at risk of exposure to those contaminants. A DEC *Human Health Conceptual Site Model Graphic Form and Human Health Conceptual Site Model Scoping Form* was completed based on the preliminary understanding of site conditions. These forms are included in Appendix A of this Addendum and the SSHP is provided in Appendix B.

2.4.1 Potential Exposure Pathways

Discussions of the potential exposure pathways are provided below. The narrative includes descriptions of site-specific considerations that increase or decrease the viability of each pathway at the site. East and north of the CDB is the town of Cold Bay where land use is mixed residential and commercial. West and north of the CDB is undeveloped public land.

Note this CSM is based on limited characterization data and should be revised as warranted if additional site assessment is conducted regarding the nature and/or extent of impacted media.

2.4.2 Site Receptors

Current and/or future potential receptors at the site for each exposure pathway discussed below include residents, commercial or industrial workers, site visitors, trespassers, construction workers, and subsistence harvesters and consumers.

2.4.3 Soil

PFAS-impacted soil is present with 0 to 2 feet below ground surface (bgs). Therefore, the incidental soil ingestion pathway is currently considered complete. In addition, due to the presence of PFAS within the top 15 feet bgs, the dermal absorption exposure pathway is also considered complete.

2.4.4 Groundwater

PFAS has been detected in the municipal water supply wells in Cold Bay at concentrations exceeding the DEC cleanup levels. The ingestion of groundwater is a complete exposure pathway for users of this system. Concentrations of PFAS in private water supply wells are unknown but are considered potentially complete at this time.

While this exposure pathway is complete, it is currently being mitigated by the supply of bottled drinking water to the community of Cold Bay.

2.4.5 Surface Water, Sediment, and Biota

PFAS impacts to surface water and sediment, and biota are not known but are possible based on the release mechanism. The dermal absorption of contaminants in surface water are considered a potentially complete exposure pathway.

In addition, due to the bioaccumulative risk of PFAS, the ingestion of wild or farmed foods through biota is considered a potentially complete pathway for exposure.

These pathways may require additional sampling to assess; however, we note it is not a focus of the groundwater investigation at this time.

2.4.6 Air

PFAS is not volatile, therefore the outdoor and indoor inhalation pathways are incomplete.

2.4.7 CSM Summary

Multiple complete or potentially complete exposure pathways have been identified at the site which include ingestion and/or dermal absorption through soil, groundwater, and surface water. The ingestion of PFAS in groundwater is considered a complete pathway.

2.5 Project Team

Chris Darrah will be Shannon & Wilson's Contract Manager and Kristen Freiburger will serve as the overall Statewide Project Manager. Alex Geilich will serve as the site Project

Manager. Shannon & Wilson’s project team also includes other State of Alaska Qualified Environmental Professionals to support the various field and reporting tasks required to achieve the project objectives. The project team and their associated responsibilities are summarized in Exhibit 2-2 below.

Exhibit 2-2: Project Team

Affiliation	Responsibility	Representative	Contact Number
DOT&PF	Client – Regional POC	Spencer Gates	(907) 465-1787
	Client – Statewide PFAS POC	Sammy Cummings	(907) 888-5671
DEC	Regulatory agency POC	Naomi Mason	(907) 269-7527
Shannon & Wilson	Contract Manager	Christopher Darrah	(907) 458-3143
	Statewide Project Manager	Kristen Freiburger	(907) 458-3146
	Project Manager	Alex Geilich	(907) 433 3217
Eurofins/ TestAmerica, Inc.	PFAS analytical laboratory services	David Alltucker	(916) 374-4383

POC = point of contact

2.6 Project Schedule and Submittals

Section 2.5 of GWP provides general information regarding project schedules (i.e. the general order of occurrence of site characterization activities) and associated submittals.

Once DEC approval is received for the proposed scope of services outlined in this Addendum, Shannon & Wilson will coordinate with DOT&PF staff to collect samples of groundwater from water supply wells. Field activities are anticipated to occur in Fall 2022. Laboratory analysis will be requested on a standard 15-business-day turn-around time. After field work is complete, a Summary Report will be prepared documenting the results of the sampling event. The report will include summarized field observations, analytical results, and discussion of data quality, photo documentation, figure showing sample locations, description of deviations from the approved Addendum, if any, and conclusions and recommendations. The report will also include an updated conceptual site model. In addition to the Summary Report, Results Letters will be prepared and mailed to the sampled water supply well owner/user after analytical results are received, reviewed, and validated. These letters will detail the analytical results, and any other information deemed pertinent to include.

The following is the anticipated schedule:

- Work Plan Implementation (field activities) – Fall 2022
- Draft Report Submittal - within 60 days of receipt of last analytical results

- Final Report Submittal - within 30 days of receiving DEC comments on the Draft Report
- Analytical data table and map reported to DOT&PF and DEC – within 3 business days of data receipt
- Water supply well owner/user notification of results – following DEC delivery of results

3 WATER SUPPLY WELL SEARCH

General information regarding water supply well search activities are described in Section 3.1 of the GWP. Shannon & Wilson will conduct a water supply well search for the search area presented in Figure 2. Shannon & Wilson will contact the City of Cold Bay to determine which parcels are connected to the municipal water services prior to mobilizing to the community. These properties will be compared to well data obtained from the United States Geologic Survey and the Alaska Department of Natural Resources Well Log Tracking System database to determine potential well locations.

After reviewing available utility-connection and property-ownership records, Shannon & Wilson will prepare detailed maps for the well search field effort. Field staff will visit each parcel in the well search area to match utility-connection records with developed structures. Field staff will make a reasonable attempt to contact the owners or occupants of each structure in Cold Bay to inquire about their water source. Site visits or telephone calls will be made to each likely well location to verify the property's water supply. Using a Water Supply Well Inventory Survey Form (Appendix B of the GWP), Shannon & Wilson will verify the presence or absence of a water supply well on the property and obtain pertinent well related information.

Parcels that have been identified to be connected to the municipal water supply system will also be visited to confirm that there is a connection to the municipal system and to inquire about additional water supply used for industrial or non-potable purposes. It is our understanding that DOT&PF received information during the August 2022 public meeting regarding the potential for secondary wells to be present at locations connected to the city water supply. We further understand DOT&PF is interested in collecting samples from these secondary wells for the purpose of site characterization.

4 WATER SUPPLY WELL SAMPLING ACTIVITIES

The following sections describe the water supply well sampling activities to be conducted at and near the CDB. Sampling procedures and analytical methods are described in Section 4. A Quality Assurance Program Plan (QAPP) is included in Section 5.

4.1 Water Supply Well Activities

Activities for this project include sample collection from water supply wells as described in the following sections. General information regarding water supply well activities are described in Section 3.1 of the GWP. Field personnel will document field activities with field notes and photographs as well as applicable field forms (Appendix B of GWP), as detailed in Section 6.2. Analytical laboratories and methods employed as a part of this Addendum are identified in Section 5.3.

4.1.1 Water Supply Well Sampling

The water supply wells identified during the well search will be sampled following the procedures outlined in Section 4.1 of the GWP. The water supply well samples will be submitted for PFAS analysis, as identified in Section 5.3. Special precautions for PFAS sampling will be taken into account as detailed in Section 4.10 of the GWP.

As outlined in Section 3.1.3 of the GWP, after sampling activities are complete Shannon & Wilson will provide the DEC with a data summary within 48 hours (2 business days) and a map and validated table of results within 72 hours (3 business days) of the receipt of well data. In coordination with DOT&PF, Shannon & Wilson will prepare and mail a results letter detailing the analytical results, and other information deemed pertinent to include water supply well owners/users. Water supply well sampling efforts will be described in a Water Supply Well Summary Report.

5 SAMPLING AND ANALYSIS PLAN

This section describes the analytical sampling approach for investigating PFAS contamination associated with the CDB. A DEC-qualified sampler will collect and handle the samples for projects covered under this GWP and collect required quality control (QC) samples in accordance with DEC's *Field Sampling Guidance*. A general Sampling and Analysis Plan is included as Section 4 of the GWP. Sample containers, preservation methods, and holding times are included in Section 5.4. Sample custody, storage, and transport will be followed as described in Section 5.5. Investigative-derived waste (IDW) management is described in Section 5.7.

It is assumed that up to 17 water supply wells are present in Cold Bay. Based on similar water supply well sampling activities, we assumed that 90 percent of the property owners will allow for sampling of their wells. Therefore, we assume that 15 water supply wells will be sampled. The samples will be collected from a tap, spigot, or sampling port, prior to

holding tanks or water filtration systems. The well casing will not be accessed. Details of well construction will be gathered from occupants or owners of the wells, if available.

5.1 Analytical Sample Summary

An analytical sample summary is detailed in Exhibit 5-1 below.

Exhibit 5-1: Analytical Sample Summary

Number of Samples	Matrix	PFAS (DoD QSM 5.3, Table B-15)
	Water	15 + 2 QC

Notes:

QC samples include field duplicates.

DoD = Department of Defense, PFAS = per- and polyfluoroalkyl substances, QSM = Quality Systems Manual

5.2 Special Considerations for PFAS Sampling

Special considerations for PFAS sampling are outlined in Section 4.10 of the GWP.

5.3 Analytical Laboratories and Methods

Shannon & Wilson will ship samples for PFAS analysis via air courier to Eurofins TestAmerica in Sacramento, California. Based on the DEC Technical Memorandum issued on October 2, 2019, PFAS analysis will report all 18 approved PFAS compounds as listed in the EPA Method 537 Modified Method that complies with the Department of Defense/Department of Energy (DoD/DOE) Quality Systems Manual (QSM) Version 5.3 Table B-15. Upon receipt of the samples, authorized laboratory personnel will store and prepare the samples for analysis, taking into consideration sample holding times for the analysis.

A summary of laboratory methods, preservation methods, and holding time is presented in Exhibit 5-2. Analytical deliverables will be provided as described in Section 5.6.

5.4 Sample Containers, Preservation, and Holding Times

General information regarding sample containers, preservation, and holding times is described in Section 4.12 of the GWP. The information provided in Exhibit 5-2, below, is for the analytical methods employed for this project.

Exhibit 5-2: Sample Containers, Preservation, and Holding Time Requirements

Analyte	Method	Media	Container and Sample Volume	Preservation	Holding Time
PFAS	DoD QSM 5.3 Table B-15 ¹	Water	2x 250ml polycarbonate	0-6° C	14 days

NOTES:

DoD = Department of Defense, PFAS = per- and polyfluoroalkyl substances, QSM = Quality Systems Manual

5.5 Sample Custody, Storage, and Transport

Sample custody, storage, and transport procedures are described in Section 4.13 of the GWP.

5.6 Equipment Decontamination

Equipment decontamination procedures are described in Section 4.14 of the GWP. We note that disposable sampling equipment is typically used to collect water supply well samples and equipment decontamination is not likely to be needed for this project. If a submersible pump is required to collect samples from wells not connected to indoor plumbing, an equipment blank will be collected.

5.7 Investigative Derived Waste Management

IDW will consist of purge water generated during water supply well sampling. Purge water will be disposed of to the ground surface or using the septic disposal method utilized at the property, with the following exception. Wells that are no longer connected to indoor plumbing will be sampled using a submersible pump. Purge water generated at these locations will be filtered used granular activated carbon (GAC) prior to disposal on the ground surface. Other IDW will primarily consist of disposable sampling equipment (nitrile gloves, transfer cups, etc.) and will be disposed at the nearest landfill.

5.8 Deviations from the General Work Plan

No deviations to the GWP are planned at this time.

6 QUALITY ASSURANCE PROJECT PLAN

The QAPP is intended to guide activities during assessment and review of resulting data. Shannon & Wilson will be responsible for conducting data reduction, evaluation, and reporting under this QAPP. A general QAPP is provided as Section 5 of the GWP. Additionally, a Data-Validation Program Plan (DVPP) which describes the procedures for qualifying analytical data in a consistent manner, has been prepared, and is included as

Appendix C to the GWP. However, we note an updated DVPP was provided to DEC in June 2022. The following sections describe specific procedures to be followed during sampling at the CDB, assuring sampling and documentation are effective, laboratory data are usable, and the information acquired is of high quality and reliable.

6.1 Quality Assurance Objectives

Data quality objectives are detailed in Section 5.1 of the GWP. Numeric QA objectives for this project are presented in Exhibit 6-1 below.

Exhibit 6-1: Quality Assurance Objectives for Analytical Samples

Analyte	Method	Matrix	Precision	Accuracy	Completeness
PFAS	DoD QSM 5.3 Table B-15	Water	±30%	(analyte dependent)	85%

NOTES:

PFAS = per- and polyfluoroalkyl substances

6.2 Field Documentation

Field documentation is described in Section 5.2 of the GWP. Field forms to be used for this project are included in Appendix B of GWP.

6.3 Field Instrument Calibration

Field instrument calibration is discussed in Section 5.3 of the GWP.

6.4 Field Quality Control Samples

The field quality assurance (QA)/QC program for this project includes the collection of the following QA/QC samples as described below.

6.4.1 Field Duplicate Sample

Field duplicate sample collection procedures are described in Section 5.4.1 of the GWP.

6.4.2 Equipment Blank Samples

Equipment blanks are not planned to be collected during the CDB water supply well sampling. If needed, however, equipment blank sample collection procedures are described in Section 5.4.4 of the GWP.

6.4.3 Temperature Blank Samples

Temperature blanks are described in Section 5.4.6 of the GWP.

6.5 Laboratory Quality Control Samples

Laboratory quality control samples are described in Section 5.5 of the GWP.

6.6 Laboratory Data Deliverables

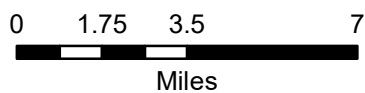
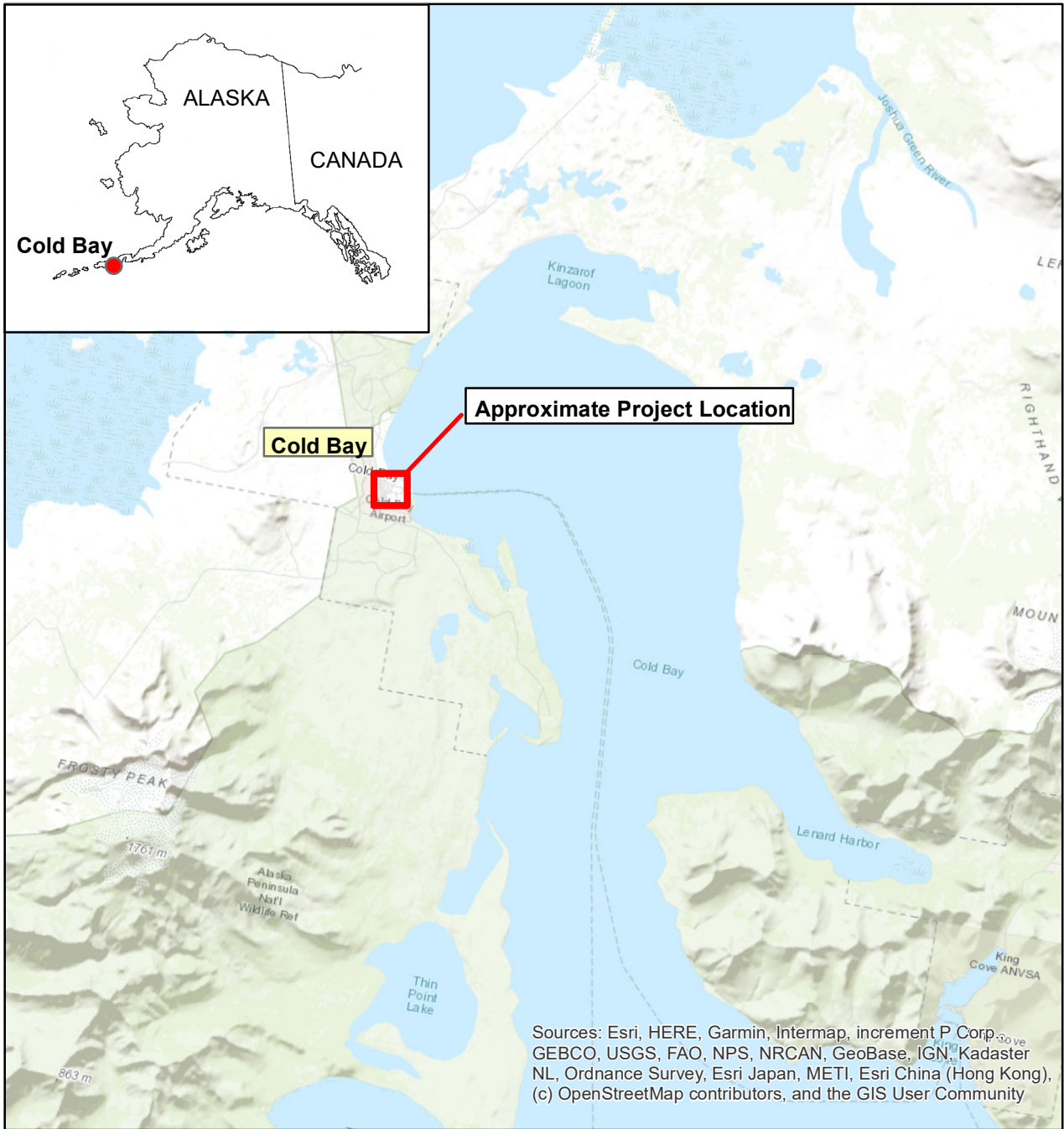
Laboratory data deliverables are described in Section 5.6 of the GWP.

6.7 Data Reduction, Evaluation, and Reporting

Data reduction, evaluation, and reporting are discussed in Section 5.7 of the GWP.

7 REFERENCES

- Alaska Department of Environmental Conservation (DEC), 2021, 18 AAC 75, Oil and Other Hazardous Substances Pollution Control: Juneau, Alaska, Alaska Administrative Code (AAC), Title 18, Chapter 75, November available:
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Cold Bay Airport
Cold Bay, Alaska

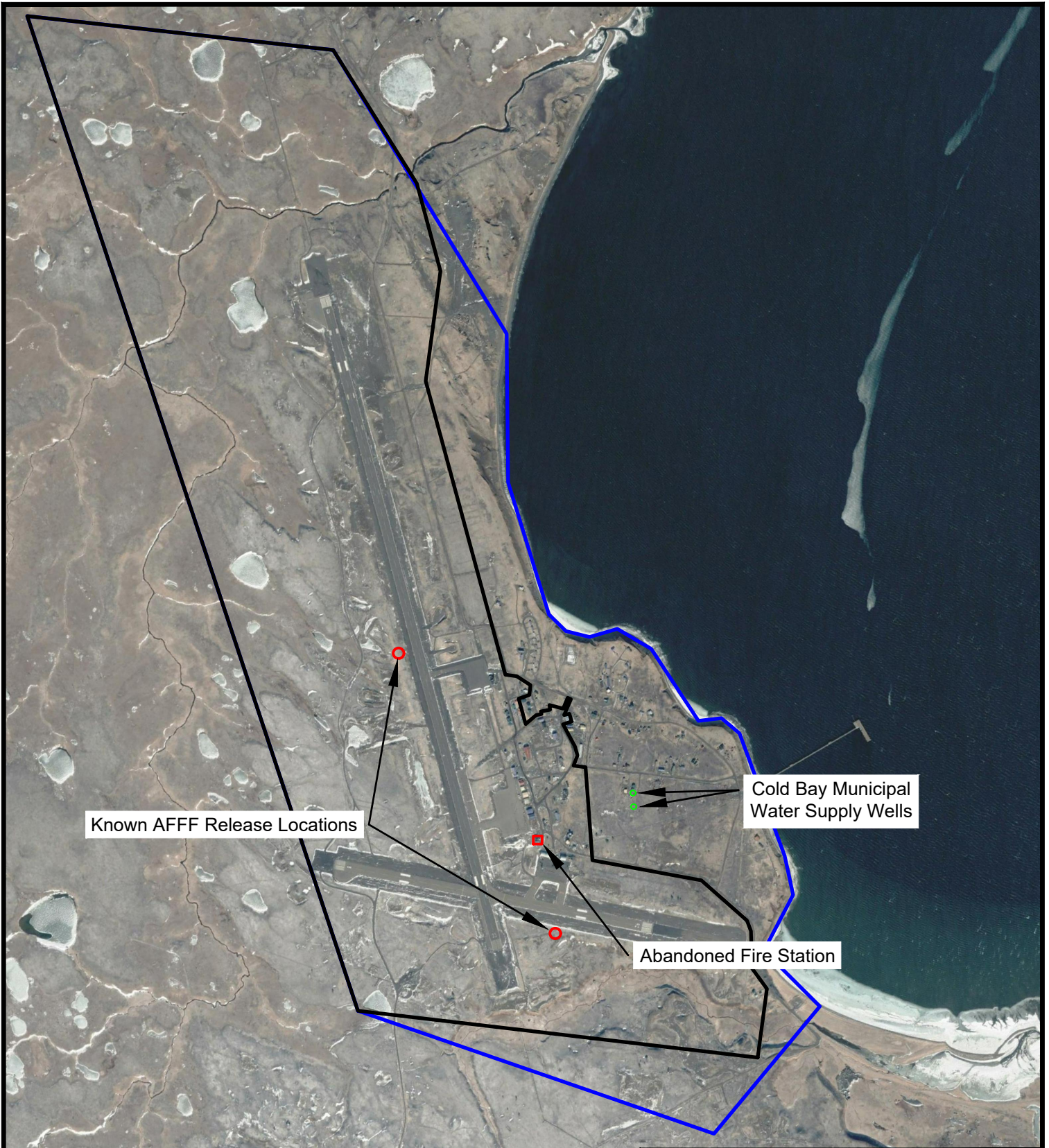
VICINITY MAP

September 2022

109539-002

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

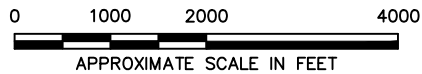
Figure 1



Map adapted from aerial imagery provided by GoogleEarth®, Image date: March 2020

 Cold Bay Airport Property Boundary

 Water Supply Well Search Area



Cold Bay Airport
Cold Bay, Alaska

SITE PLAN

September 2022

109539-002

 SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. 2

Appendix A

Conceptual Site Model

Scoping and Graphics Form

CONTENTS

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

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

Site Name:

File Number:

Completed by:

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)*

- | | |
|--|--|
| <input type="checkbox"/> USTs | <input type="checkbox"/> Vehicles |
| <input type="checkbox"/> ASTs | <input type="checkbox"/> Landfills |
| <input type="checkbox"/> Dispensers/fuel loading racks | <input type="checkbox"/> Transformers |
| <input type="checkbox"/> Drums | <input checked="" type="checkbox"/> Other: <input type="text" value="Firefighting training activities"/> |

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

- | | |
|--|--|
| <input checked="" type="checkbox"/> Spills | <input checked="" type="checkbox"/> Direct discharge |
| <input checked="" type="checkbox"/> Leaks | <input type="checkbox"/> Burning |
| | <input type="checkbox"/> Other: <input type="text"/> |

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

- | | |
|---|--|
| <input checked="" type="checkbox"/> Surface soil (0-2 feet bgs*) | <input checked="" type="checkbox"/> Groundwater |
| <input checked="" type="checkbox"/> Subsurface soil (>2 feet bgs) | <input checked="" type="checkbox"/> Surface water |
| <input type="checkbox"/> Air | <input checked="" type="checkbox"/> Biota |
| <input checked="" type="checkbox"/> Sediment | <input type="checkbox"/> Other: <input type="text"/> |

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

- | | |
|---|---|
| <input checked="" type="checkbox"/> Residents (adult or child) | <input checked="" type="checkbox"/> Site visitor |
| <input checked="" type="checkbox"/> Commercial or industrial worker | <input checked="" type="checkbox"/> Trespasser |
| <input checked="" type="checkbox"/> Construction worker | <input checked="" type="checkbox"/> Recreational user |
| <input checked="" type="checkbox"/> Subsistence harvester (i.e. gathers wild foods) | <input checked="" type="checkbox"/> Farmer |
| <input checked="" type="checkbox"/> Subsistence consumer (i.e. eats wild foods) | <input type="checkbox"/> Other: <input type="text"/> |

* 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:

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:

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:

Complete

Comments:

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:

Incomplete

Comments:

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 contaminated 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:

Incomplete

Comments:

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 - PM₁₀). 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:

Sediment has not been assessed at the site.

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

[Empty rectangular box for providing other comments]

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: ADOT&PF Cold Bay Airport Sitewide PFAS
 File No. 2535.38.026

Completed By: Shannon & Wilson
 Date Completed: September 2022

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.
Media	Transport Mechanisms
<input checked="" type="checkbox"/> Surface Soil (0-2 ft bgs)	<input checked="" type="checkbox"/> Direct release to surface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to subsurface <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input checked="" type="checkbox"/> Runoff or erosion <i>check surface water</i> <input checked="" type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input checked="" type="checkbox"/> Subsurface Soil (2-15 ft bgs)	<input checked="" type="checkbox"/> Direct release to subsurface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input checked="" type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input checked="" type="checkbox"/> Ground-water	<input checked="" type="checkbox"/> Direct release to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input checked="" type="checkbox"/> Flow to surface water body <i>check surface water</i> <input checked="" type="checkbox"/> Flow to sediment <i>check sediment</i> <input checked="" type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input checked="" type="checkbox"/> Surface Water	<input checked="" type="checkbox"/> Direct release to surface water <i>check surface water</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Sedimentation <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input checked="" type="checkbox"/> Sediment	<input checked="" type="checkbox"/> Direct release to sediment <i>check sediment</i> <input checked="" type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i> <input checked="" type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____

(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.						
Exposure Media	Exposure Pathway/Route	Current & Future Receptors						
		Residents (adults or children)	Commercial or Industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or harvesters	Subsistence consumers	Other
<input checked="" type="checkbox"/> soil	<input checked="" type="checkbox"/> Incidental Soil Ingestion <input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil <input checked="" type="checkbox"/> Inhalation of Fugitive Dust	C/F	C/F	C/F	C/F	C/F	C/F	
<input checked="" type="checkbox"/> groundwater	<input checked="" type="checkbox"/> Ingestion of Groundwater <input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Groundwater <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water	C/F	C/F	C/F	C/F	C/F	C/F	
<input type="checkbox"/> air	<input type="checkbox"/> Inhalation of Outdoor Air <input type="checkbox"/> Inhalation of Indoor Air <input type="checkbox"/> Inhalation of Fugitive Dust							
<input checked="" type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water <input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Surface Water <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water	C/F	C/F	C/F	C/F	C/F	C/F	
<input checked="" type="checkbox"/> sediment	<input checked="" type="checkbox"/> Direct Contact with Sediment	C/F	C/F	C/F	C/F	C/F	C/F	
<input checked="" type="checkbox"/> biota	<input checked="" type="checkbox"/> Ingestion of Wild or Farmed Foods	C/F	C/F	C/F	C/F	C/F	C/F	

APPENDIX B: SITE SAFETY AND HEALTH PLAN

Appendix B

Appendix Name

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SITE SAFETY AND HEALTH PLAN

Shannon & Wilson prepared this Site Safety and Health Plan (SSHP) for the water supply well sampling activities at the Cold Bay Airport (CDB). The purpose of this SSHP is to protect the health and safety of field personnel from physical and chemical hazards associated with work at this site.

The provisions of this plan apply to Shannon & Wilson personnel who will potentially be exposed to safety and/or health hazards during this investigation. Shannon & Wilson employees are covered under its Corporate Safety and Health Program. General safety and health requirements described in that program will be met. Each Shannon & Wilson employee on the site will complete the personal acknowledgement form documenting they have read and understand this SSHP and agree to abide by its requirements. A copy of this SSHP will be kept on-site throughout the duration of sampling operations.

B.1. SITE HAZARD ANALYSIS

There are two categories of hazards that may occur during the field work: potential chemical exposure hazards and physical hazards associated with site characterization activities. These hazards are discussed below.

B.1.1 Chemical-Exposure Hazards

Contaminated soil and water may be encountered during site exploration activities. PFAS are believed to be the primary contaminants of potential concern and may be encountered in soils and water at unknown concentrations.

Shannon & Wilson personnel will implement skin protection when they are to contact potentially contaminated soil or water. Field personnel will wear work gloves or nitrile gloves as needed, and personal protective equipment (PPE). Field personnel will not require respiratory protection based on the current understanding of site conditions and scope of services.

B.1.2 Physical Hazards

Primary physical hazards associated with site characterization activities include temperature stress; lifting, slipping, tripping, falling; and risk of eye injuries. In addition, wildlife may be a hazard in forested areas around the airport. The best means of protection against accidents related to physical hazards are careful control of equipment activities in

the planned work area and use of experienced and safety- and health-trained field personnel.

Field personnel will not enter confined spaces for site characterization activities, nor will they enter trenches or excavations greater than four feet in depth.

B.1.2.1 Temperature Stress

Wearing PPE may put a worker at risk of developing heat stress; however, since the water supply sampling activities will be conducted in appropriate PPE the risk of heat stress is considered low. Cold stress or injury due to hypothermia will be guarded against by wearing appropriate clothing, having warm shelter available, scheduling rest periods, adequate hydration, and self-monitoring physical and mental conditions.

B.1.2.2 Lifting Hazards

Moving coolers of water samples or other heavy objects presents a lifting hazard. Personnel will use proper lifting techniques and obtain assistance when lifting objects weighing more than 40 pounds.

B.1.2.3 Slips, Trips, and Falls

The most common hazards on a job site are typically slips, trips, and falls. These hazards will be reduced through the following practices:

- Personnel will stay alert.
- All access-ways will be kept free of materials, supplies, and obstructions at all times.
- Tools and other materials will be located so as not to cause tripping or other hazards.
- Personnel should be aware of potential tripping hazards associated with vegetation, debris, and uneven ground.
- Personnel should be aware of limitations imposed by work clothing and PPE.

The project site may be inherently hazardous due to the potential presence of rain, snow, and ice, which can alter the character of the ground surface. The risk for slips, trips, and falls by site workers is increased due to wet or icy surfaces; therefore, workers will use caution when walking at the site.

B.1.2.4 Insects and Animals

During the summer months in Alaska, mosquitoes and other insects are common in areas predominantly covered with vegetation. Wearing PPE should be sufficient to protect site

workers. Animals such as moose and bears are also commonly seen in Alaska. If a large animal approaches the site, workers should keep their distance or seek shelter in their vehicles.

B.1.2.5 Congested Areas

The site investigation may at times require field personnel to work adjacent to or in roadways. Field personnel will observe the speed and frequency of traffic proximal to the work site. Appropriate cones, barricades, or signs to secure the work area will be used when required.

B.1.3 Other Hazards

Biological, ionizing radiation, and other hazards are not expected to be present. However, be aware of the surroundings and maintain safe work practices in accordance with Shannon & Wilson's Corporate Health & Safety Plan.

B.2. PERSONAL RESPONSIBILITIES, TRAINING, AND MEDICAL SURVEILLANCE

Below is a summary of the assignment of responsibilities, training requirements, and medical surveillance information for Shannon & Wilson personnel.

B.2.1 Assignment of Responsibilities

Shannon & Wilson is responsible for understanding and complying with the requirements of this SSHP. Following is a list of responsibilities of all Shannon & Wilson personnel working on the site:

- Review and follow this SSHP.
- Attend and participate in safety meetings.
- Take appropriate action as described in this SSHP regarding accidents, fires, or other emergency situations.
- Take all reasonable precautions to prevent injury to themselves and their fellow workers.
- Perform only those tasks they believe they can do safely, and immediately report any accidents or unsafe conditions to Shannon & Wilson's Project Manager or Office Health and Safety Manager.
- Halt work, by themselves or by others, when they observe an unsafe act or potentially unsafe working condition.

- Report accidents, illnesses, and near-misses to the local contact and to Shannon & Wilson's Fairbanks office Health and Safety Manager.

B.2.2 Personal Training

Shannon & Wilson personnel performing activities on this site and under this plan have completed the appropriate training requirements specified in 29 CFR 1910.120(e). Each individual has completed an annual eight-hour refresher-training course and/or initial 40-hour training course within the last year.

A personal acknowledgement form will be completed by field personnel prior to commencing field activities. This acknowledgment form will document that they have read and understand this SSHP.

B.2.3 Medical Surveillance Program

All field personnel performing activities on this site covered by this SSHP have undergone baseline and annual physical/medical examinations as part of Shannon & Wilson's Corporate Health and Safety Program. All field personnel are active participants in Shannon & Wilson's Medical Monitoring Program or in a similar program, which complies with 29 CFR 1910.120(f).

B.3. PERSONAL PROTECTIVE EQUIPMENT

PPE will be required during the course of the field work. PPE selection will be based primarily on work-task requirements and potential exposure. Personnel may wear the following, depending on the area of sampling:

- standard work clothes or cotton overalls;
- reflective, high-visibility safety vest;
- safety-toe boots;
- safety glasses;
- hearing protection;
- gloves; and,
- hard hat when overhead protection is necessary.

Disposable nitrile gloves will be worn during any activity that may require dermal contact with potentially contaminated media.

B.4. DECONTAMINATION PROCEDURES

Equipment decontamination procedures are necessary for any reusable equipment that comes into contact with contaminated soil and/or water. Decontamination procedures will consist of a rinse with non-phosphate-based detergent, a second rinse with plain tap water, and a final rinse with distilled water. Sampling equipment and PPE that is expendable will be disposed of at the site or in a landfill off-site.

Shannon & Wilson will conduct all site characterization activities in PPE. For this reason, personnel will not be decontaminated when leaving the work site unless gross visual contamination of protective clothing is present.

When decontamination is necessary, it will consist of the following:

- A decontamination station, just outside the work site, will be placed where personnel routinely enter/exit the work site. When exiting the work site, personnel will remove overboots, chemical resistant boots, coveralls, and outer gloves at the specified decontamination area.
- Personnel shall be instructed in proper decontamination technique. This entails removal of protective equipment in an “inside-out” manner. Removal of contaminants from protective clothing or equipment by blowing, shaking, or other means that may disperse material into the air is prohibited.
- Personnel protective clothing that has been removed shall remain at the decontamination station pending personnel redonning the clothing. At the conclusion of site work each day, PPE will be placed in trash bags for off-site disposal.
- Personnel will not exit the work site until contaminated clothing and equipment have been removed and employees have washed their hands and face with soap and water. A washtub with soap and water will be available to personnel as they exit the work site.
- Employees will wash their hands and face with soap and water before eating, drinking, smoking, or applying cosmetics. These activities will be restricted to designated rest area(s).
- Decontaminated items will be visually inspected for residual contamination to determine if decontamination procedures are effective.

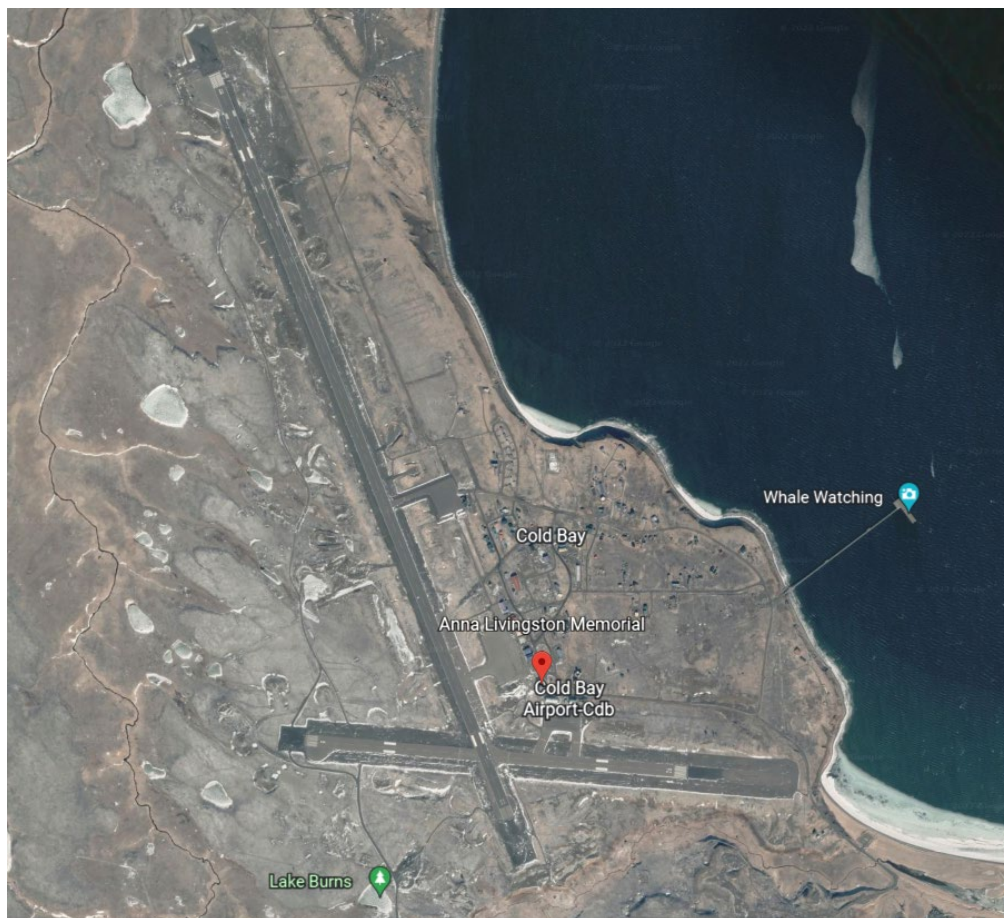
B.5. ACCIDENTS AND EMERGENCIES

Shannon & Wilson field personnel are current in first aid and cardiopulmonary resuscitation (CPR) training. At a minimum, the following site safety equipment and first aid supplies shall be available in the field:

- PPE and clothing specialized for known site hazards;
- first aid kit, including first aid booklet;
- portable eye wash;
- clean water in portable containers; and
- other decontamination supplies.

The primary emphasis of any health and safety plan is accident prevention. If an injury or illness occurs during the course of field work, the severity of the problem will dictate the level of response. Minor injuries or illness will be addressed with basic first aid measures as recommended by a registered nurse through Shannon & Wilson's corporate Medcor service (1-800-775-5866). More serious injuries will require assistance from the medical staff at the Anna Livingston Memorial Clinic, located on Flying Tiger Way near the intersection of Reeve Ave. The telephone number for the clinic is (907) 532-2000. Field phones will be kept easily accessible in the case of an emergency.

Exhibit B-1: Map Showing Anna Livingston Memorial Clinic



Shannon & Wilson's Corporate Health and Safety Program requires accident reporting when there is a site-related accident, near-miss incident, or medical emergency. If an employee is treated by medical personnel, the medical attendant will complete an Incident Medical Treatment Documentation form. Completion of an Alaska Department of Labor Report of Occupational Injury or Illness is also required within 10 days for any work-related injury or illness.

B.6. GENERAL SITE SAFETY REQUIREMENTS

The following measures are designed to augment the specific health and safety guidelines provided in this plan:

- Field personnel should avoid contact with potentially contaminated surfaces such as: walking through puddles or pools of liquid; kneeling on the ground; or leaning, sitting, or placing equipment on contaminated soil or containers.
- Field personnel will be familiar with procedures for initiating an emergency response.
- Hazard assessment is a continual process; personnel must be aware of their surroundings and any chemical/physical hazards present.
- Personnel in the exclusion area shall be the minimum number necessary to perform work tasks in a safe and efficient manner.
- The use of contact lenses is prohibited; soft lenses may absorb irritants, and all lenses concentrate irritants.
- Equipment contacting potentially contaminated soil or water must be decontaminated or properly discarded before leaving the site.

Field personnel will be familiar with the physical characteristics of the work site including wind direction, site access, and location of communication devices and safety equipment.

SITE SAFETY AND HEALTH PLAN PERSONAL ACKNOWLEDGEMENT FORM

DOT&PF STATEWIDE GENERAL WORK PLAN
ADDENDUM 013-CDB-01: COLD BAY WATER SUPPLY WELL SAMPLING

I have reviewed this document and understand its contents and requirements. A copy of the above-referenced document has been made available to me. I agree to abide by the requirements of this Site Safety and Health Plan.

Signature

Name (printed)

Date

Representing

IMPORTANT INFORMATION

Important Information

About Your Geotechnical/Environmental Report

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 that 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 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.

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

IMPORTANT INFORMATION