



# A Source Water Assessment (SWA) for PWSID #331184 North Slope Borough SA 10 - IN001 Sagavanirktok River Reservoir

### What is an SWA?

The Drinking Water Protection group of the Drinking Water Program is producing Source Water Assessments (SWAs) in compliance with the Safe Drinking Water Act (SDWA) Amendments of 1996. Each SWA includes:

- A delineation of the drinking water source area;
- Inventory of potential and existing sources of contamination;
- Risk ranking for the identified contaminants;
- Evaluation of the overall vulnerability to the PWS source.

### What is a Protection Area?

The most probable area for contamination to reach the drinking water intake is within the drinking water protection area (DWPA). The DWPA for a surface water source is determined by the drainage area contributing overland water flow to the surface water source intake. Because releases of contaminants within the DWPA are most likely to impact the intake, this area will serve as the focus for voluntary protection efforts.

The DWPAs established for surface water sources by DEC are separated into 3 zones, limited by the watershed. These zones correspond to the overland-flow distance that water travels to get to the source. The following is a summary of the three protection area zones:

Zone	Definition
A	Areas within 1000-ft of lakes or streams
B	Areas within 1-mile of lakes or streams
C	The watershed boundary

### Natural Susceptibility

The natural susceptibility of a surface water source is a measure of a water supply's potential to become contaminated based on information gathered on the intake structure and conditions contributing to overland flow in the vicinity of the surface water body.

Table 1: Public Water System Source Information

<i>PWS Name</i>	North Slope Borough SA 10
<i>PWS ID Number</i>	331184
<i>State Asgn ID No.</i>	IN001
<i>Facility Name</i>	IN Sagavanirktok River Reservoir
<i>Source Type</i>	Surface Water
<i>Federal Classification</i>	Non-Transient Non-Community River Reservoir
<i>River/Stream Discharge</i>	Sagavanirktok River <20,000 cfs*

\*"cfs" = cubic feet per second

### **Executive Summary**

The public water system (PWS) for North Slope Borough SA 10 is a Community water system that obtains surface water from one intake source, IN001 (IN Sagavanirktok River Reservoir), in Prudhoe Bay, Alaska. This report is for IN001. The drinking water protection area (DWPA) for IN001 is approximately 120 square miles in size and received a susceptibility rating of **Very High**. *A rating of High to Very High is typical for all systems with surface water intakes.* The following potential or existing sources of contamination were identified within the DWPA for North Slope Borough SA10 IN001: Several petroleum production/recovery operations, a reserve pit for petroleum production/recovery operations, Several material sites/quarries, Several DEC identified Contaminated Sites, an airfield, the BP pipeline, and several roads. Potential sources of contamination include those posing a risk of 1) bacteria and viruses; 2) nitrates and/or nitrites (nitrates); 3) volatile organic chemicals (VOCs); 4) heavy metals, cyanide, and other inorganic chemicals (inorganics); 5) synthetic organic chemicals (SOCs); and 6) other organic chemicals (OOCs).

Combining the natural susceptibility of the surface water source with the six (6) contaminant risk categories listed above, North Slope Borough SA10 IN001 received an overall vulnerability rating of **Medium** for bacteria and viruses, **Medium** for nitrates, **Very High** for VOCs, **Very High** for inorganics, **High** for SOCs, and **Very High** for OOCs.

### Introduction

Source Water Assessments (SWA) reports are intended to provide public water system (PWS) operators, owners, communities, and local governments with the best available information that may be used to protect the quality of their drinking water. The SWA report for North Slope Borough SA10 IN001 is a tool to be used as the foundation or “stepping stone” to comprehensive management and protection of its surface water resource. Protecting the quality of your drinking water is a sensible investment.

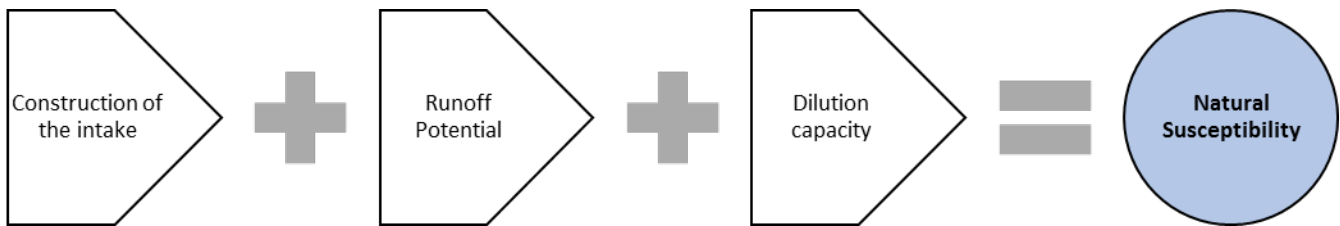
### Drinking Water Protection Area (DWPA)

The size and shape of a DWPA varies with the specific characteristics of the source and the geography of the surrounding landscape. The DWPA is drawn by determining the area contributing water to the surface water source. This area consists of the watershed or basin that it is located in, plus all watersheds drained by tributaries flowing into the surface water source. (See Map1 of the Appendices)

### Natural Susceptibility (Surface Water Source)

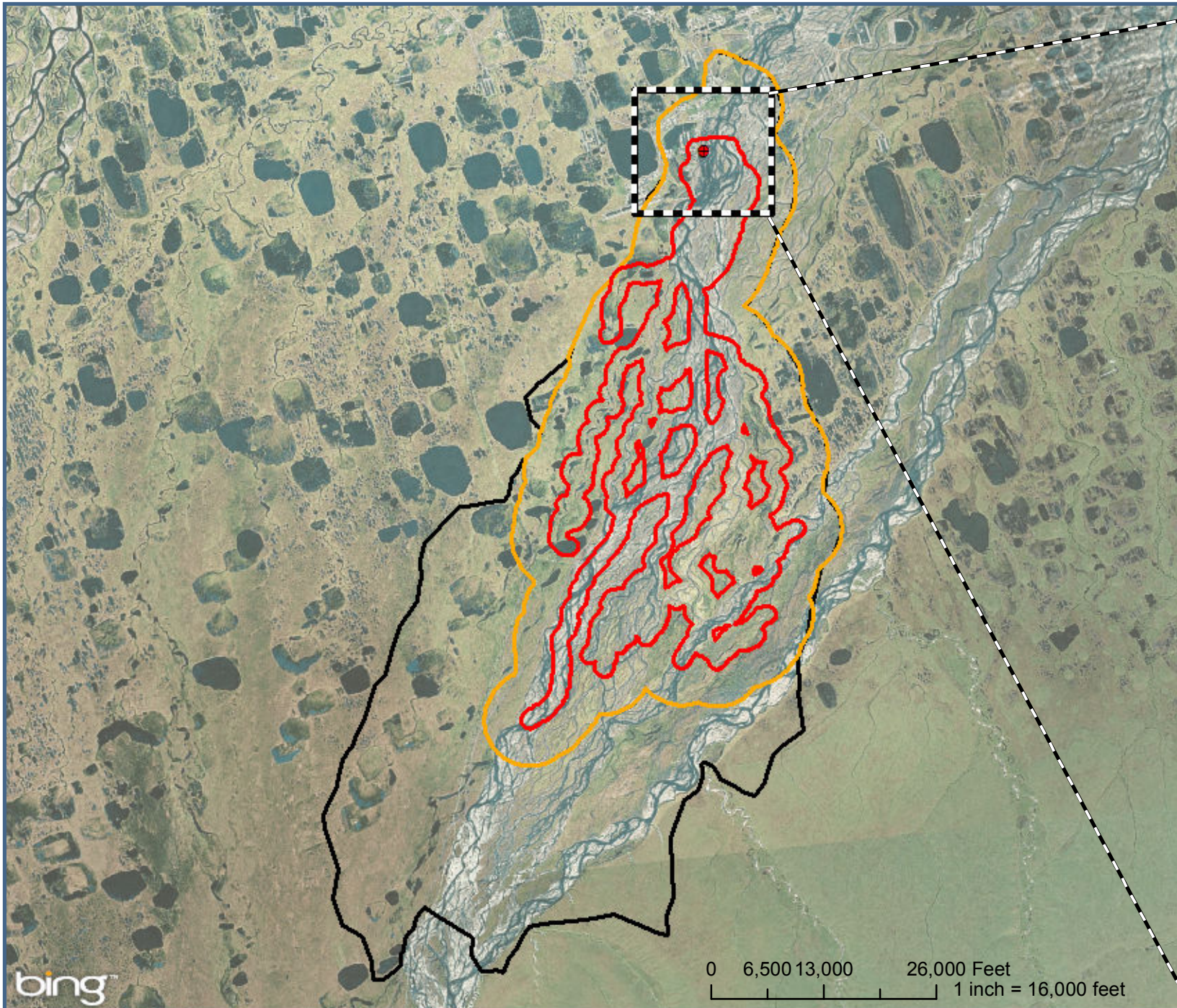
The natural susceptibility of a surface water source to the introduction of contaminants is determined by, but not limited to, the following risk factors: the general adequacy of intake construction, the potential for runoff or flooding, and the capacity of the surface water body to dilute contaminants.

Based on the most recent sanitary surveys (completed August 2013) and properties of the surrounding area, the Natural Susceptibility of the surface water source for North Slope Borough SA10 IN001 received a rating of Very High.



### Inventory of Potential and Existing Sources Contamination

The Drinking Water Protection (DWP) group has completed an inventory of potential and existing sources of contamination within the DWPA for the North Slope Borough SA10 IN001 surface water source. This inventory was completed through a search of agency records and other publicly available information. Potential sources of contamination to the drinking water source include a wide range of categories and types. Potential drinking water contaminants are found within agricultural, residential, commercial, and industrial areas, but can also occur within areas that have little or no development. The identified potential sources of contamination are summarized in Table 2 and are portrayed in Map 2 of the Appendices.



**Source Water Assessment Report**  
**Map #1 - Contaminant Source Inventory**  
 PWSID 331184: North Slope Borough SA 10  
 IN001: Sagavanirktok River Reservoir

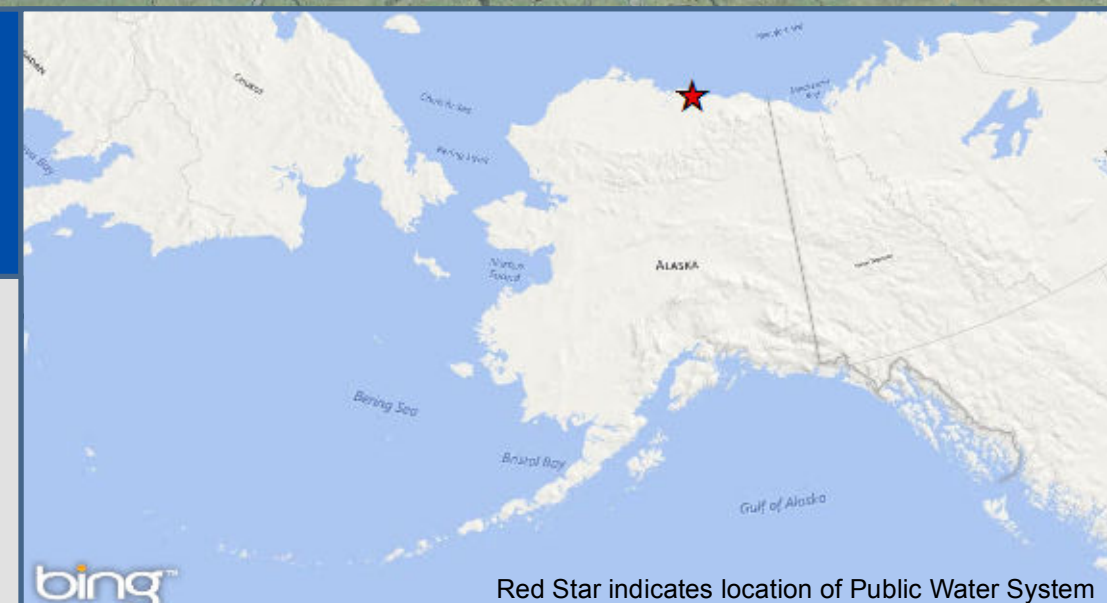
**Legend**

**DWP-Regulated Water System Sources**

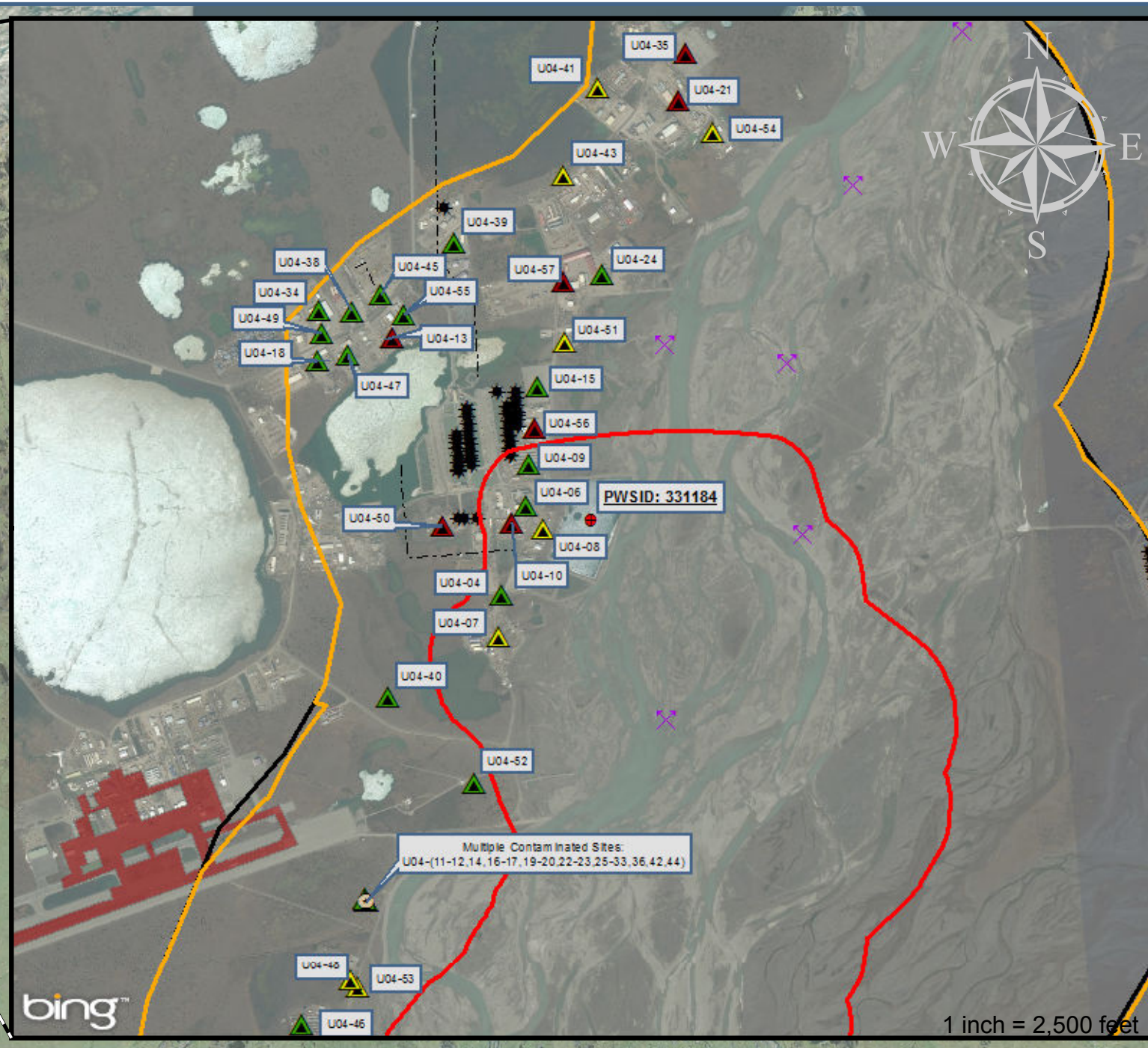
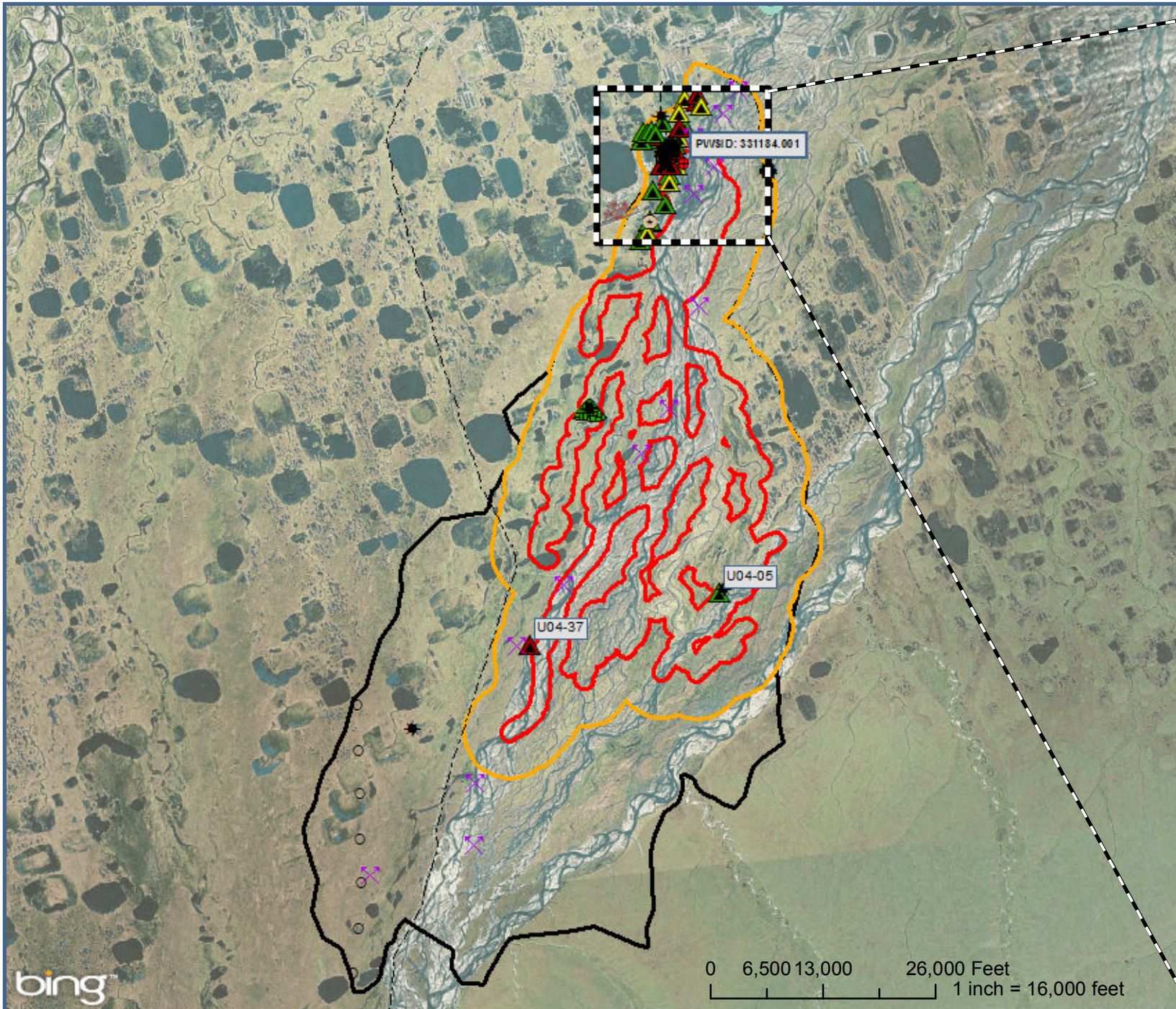
- ⊕ Community Water System (Formerly Class A)
- NonTransient/NonCommunity (Formerly Class A)
- NonCommunity (Formerly Class B)
- ⊕ NonPublic (Class C-State Regulated)

**Identified Drinking Water Protection Areas**

- ▭ Zone A (GW-Several Months Time of Travel) or SW 1000 ft buffer)
- ▭ Zone B (GW-2 Yr Time of Travel or SW-1 mile buffer)
- ▭ Zone C Surface Water (Watershed Boundary)



Red Star indicates location of Public Water System



## Source Water Assessment Report

### Map #2 - Contaminant Source Inventory

PWSID 331184: North Slope Borough SA 10  
IN001: Sagavanirktok River Reservoir

#### Legend

- ⊕ Community Water System (Formerly Class A)
- NonTransient/NonCommunity (Formerly Class A)
- NonCommunity (Formerly Class B)
- ⊕ NonPublic (Class C-State Regulated)

#### Identified Drinking Water Protection Areas

- Zone A (GW-Several Months Time of Travel) or SW 1000 ft buffer
- Zone B (GW-2 Yr Time of Travel or SW-1 mile buffer)
- Zone C Surface Water (Watershed Boundary)

#### Existing and Potential Sources of Contamination

- ✕ Quarries (sand, gravel, rock, other) (E10)
- ★ Petroleum production/recovery operations (E09)
- Mineral, Oil and Gas Exploration boreholes (W04)
- ⊙ Closed Leaking Underground Fuel Storage Tank (LUST) Sites (U08)
- Pipelines
- X14--Airports/Airstrips

#### SolidWaste

- Closed

#### Contaminatedsites

- ▲ Active
- ▲ Cleanup Complete
- ▲ Cleanup Complete - Institutional Controls



**Table 2: Contaminant Source Inventory**

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Reserve pits (petroleum production/recovery operations)	D58-01	A	ConocoP+D8:E76hillips Hemi Springs Sag Riv 1 - CLOSED INACTIVE
Petroleum production/recovery operations	E09-01	A	P B U 12-08B
Petroleum production/recovery operations	E09-02	A	P B U 12-08
Petroleum production/recovery operations	E09-03	A	P B U 12-08A
Petroleum production/recovery operations	E09-04	A	HEMI SPGS SAG RIV 1
Petroleum production/recovery operations	E09-05	A	P B U 12-30
Petroleum production/recovery operations	E09-06	A	TOOLIK FED 1
Quarries	E10-01	A	Material site 135-3 - Beechey Point (DNR)
Quarries	E10-02	A	Material Site 136-1 - Beechey Point (DNR)
Quarries	E10-03	A	Material Site 137-1 - Beechey Point (DNR)
Quarries	E10-04	A	Sag River No. 20 Pit - Beechey Point (DNR)
Quarries	E10-05	A	Sagavanirktok River Pit - Beechey Point (DNR)
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-04	A	Udelhoven Mile on Repair Shop; Status : Cleanup Complete; Hazard ID: 2960; Contaminant of Concern: DRO; Surface Water Ingestion: Low Potential Exposure; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2960">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2960</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-05	A	Toolik Federal 1; Status: Cleanup complete; Hazard ID: 4142; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4142">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4142</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-06	A	Baker Oil Tools; Status: Cleanup Complete; Hazard ID: 2673; Contaminant of Concern: GRO, DRO, RRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2673">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2673</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-07	A	Crazy Horse Pad; Status: Cleanup Complete - Institutional Controls; Hazard ID: 586; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=586">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=586</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-08	A	Forward Alaska; Status: Cleanup Complete - Institutional Controls; Hazard ID: 878; Contaminant of Concern: BTEX, DRO, GRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=878">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=878</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-09	A	Crowley Marine Services Inc. Tracts 59 & 60; Status: Cleanup complete; Hazard ID: 890; Contaminant of Concern: DRO; Surface water ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=890">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=890</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-10	A	NSB Deadhorse New Water and Wastewater Treatment Plant; Status: Active; Hazard ID: 26074; Contaminant of Concern: DRO; Surface Water Ingestion: Low Potential Exposure; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=26074">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=26074</a>

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Airports	X14-01	A	Deadhorse Airfield
Highways and roads, dirt/gravel	X24-01-20	A	Gravel highways and roads. Assumed less than 20.
Pipelines (oil and gas)	X28-01	A	BP Pipeline
Petroleum production/recovery operations	E09-07	B	P B U 12-06A
Petroleum production/recovery operations	E09-08	B	P B U 17-20
Petroleum production/recovery operations	E09-09	B	P B U 17-21
Petroleum production/recovery operations	E09-10	B	P B U 12-16A
Petroleum production/recovery operations	E09-11	B	P B U 12-13A
Petroleum production/recovery operations	E09-12	B	P B U 12-34
Petroleum production/recovery operations	E09-13	B	P B U 12-35
Petroleum production/recovery operations	E09-14	B	P B U 12-36
Petroleum production/recovery operations	E09-15	B	P B U 12-13B
Petroleum production/recovery operations	E09-16	B	P B U 12-34
Petroleum production/recovery operations	E09-17	B	P B U 12-35
Petroleum production/recovery operations	E09-20	B	P B U 12-14
Petroleum production/recovery operations	E09-22	B	P B U 12-07A
Petroleum production/recovery operations	E09-23	B	P B U 12-04A
Petroleum production/recovery operations	E09-24	B	P B U 17-03A
Petroleum production/recovery operations	E09-25	B	P B U 12-14A
Petroleum production/recovery operations	E09-26	B	P B U 12-14B
Petroleum production/recovery operations	E09-27	B	P B U 12-28A
Petroleum production/recovery operations	E09-28	B	P B U 12-27A
Petroleum production/recovery operations	E09-29	B	P B U 12-06
Petroleum production/recovery operations	E09-30	B	P B U 12-07
Petroleum production/recovery operations	E09-33	B	P B U 17-01
Petroleum production/recovery operations	E09-34	B	P B U 17-02
Petroleum production/recovery operations	E09-35	B	P B U 17-03
Petroleum production/recovery operations	E09-36	B	P B U 17-04
Petroleum production/recovery operations	E09-37	B	P B U 17-05
Petroleum production/recovery operations	E09-38	B	P B U 17-06
Petroleum production/recovery operations	E09-39	B	P B U 12-09
Petroleum production/recovery operations	E09-40	B	P B U 12-10
Petroleum production/recovery operations	E09-41	B	P B U 12-11
Petroleum production/recovery operations	E09-42	B	P B U 12-12
Petroleum production/recovery operations	E09-43	B	P B U 12-20
Petroleum production/recovery operations	E09-44	B	P B U 12-19
Petroleum production/recovery operations	E09-45	B	P B U 12-18
Petroleum production/recovery operations	E09-46	B	P B U 12-17
Petroleum production/recovery operations	E09-47	B	P B U 12-16
Petroleum production/recovery operations	E09-48	B	P B U 12-15
Petroleum production/recovery operations	E09-49	B	HEMI SPGS SA RIV 1
Petroleum production/recovery operations	E09-50	B	P B U 12-25
Petroleum production/recovery operations	E09-51	B	P B U 12-26
Petroleum production/recovery operations	E09-52	B	P B U 12-27
Petroleum production/recovery operations	E09-53	B	P B U 12-28
Petroleum production/recovery operations	E09-54	B	P B U 12-29

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Petroleum production/recovery operations	E09-55	B	P B U 12-21
Petroleum production/recovery operations	E09-56	B	P B U 12-23
Petroleum production/recovery operations	E09-57	B	P B U 12-22
Petroleum production/recovery operations	E09-58	B	P B U 12-30
Petroleum production/recovery operations	E09-59	B	P B U 12-31
Petroleum production/recovery operations	E09-60	B	P B U 12-33
Petroleum production/recovery operations	E09-61	B	P B U 12-32
Petroleum production/recovery operations	E09-62	B	P B U 12-01
Petroleum production/recovery operations	E09-63	B	P B U 12-02
Petroleum production/recovery operations	E09-64	B	P B U 12-03
Petroleum production/recovery operations	E09-65	B	P B U 12-04
Petroleum production/recovery operations	E09-66	B	P B U 12-05
Petroleum production/recovery operations	E09-68	B	P B U 19-10-15
Petroleum production/recovery operations	E09-69	B	PUT RIV 17-10-15
Petroleum production/recovery operations	E09-70	B	P B U 18-10-15
Quarries	E10-06	B	Crusher operation no. 7050 - Beechey Point (DNR)
Quarries	E10-07	B	Material Site 135-2 - Beechey Point (DNR)
Quarries	E10-08	B	Material Site 135-3 - Beechey Point (DNR)
Quarries	E10-09	B	Material Site 136-1 - Beechey Point (DNR)
Quarries	E10-10	B	Material Site 137-1 - Beechey Point (DNR)
Quarries	E10-11	B	Material Site 137-2 - Beechey Point (DNR)
Quarries	E10-12	B	NANA Reservoir Site Pit - Beechey Point (DNR)
Quarries	E10-13	B	SAG RIVER NO. 10 PIT
Quarries	E10-14	B	SAG RIVER NO. 20 PIT
Quarries	E10-15	B	SA RIVER PIT JOB 717
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-11	B	Haliburton Geophysical - Deadhorse; Status: Cleanup Complete; Hazard ID: 399; Contaminant of Concern: Benzene, BTEX, RRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=399">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=399</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-12	B	Dowell Shlumberger Lease Tracts 32 & 33; Status: Cleanup Complete - Institutional Controls; Hazard ID: 585; Benzene, DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=585">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=585</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-13	B	VECO Drilling Pad Tracts 22, 23, and 24; Status: Active; Hazard ID: 587; Contaminant of Concern: DRO; Surface Water Ingestion: High Potential Exposure; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=587">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=587</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-14	B	Aleasco/Deadhorse Lease Tract 69; Status: Cleanup Complete; Hazard ID: 876; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=876">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=876</a>

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-15	B	Childs Pad; Status: Cleanup Complete; Hazard ID: 879; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=879">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=879</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-16	B	Mukluk Dump; Status: Non-Qualifying; Hazard ID: 882; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=882">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=882</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-17	B	Deadhorse Hotel Pad; Status: Cleanup Complete; Hazard ID: 885; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=885">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=885</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-18	B	Camco/Schlumberger Lease Tract 21; Status: Cleanup Complete; Hazard ID: 886; Contaminant of Concern: DRO, Lead - Total, RRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=886">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=886</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-19	B	Dresser Industries; Status: Cleanup Complete; Hazard ID 887; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=887">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=887</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-20	B	BJ Titan Deadhorse Lease Tract 72A; Status: Cleanup Complete; Hazard ID: 889; Contaminant of Concern: BTEX, DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=889">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=889</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-21	B	Peak Oilfield Service Lease Tracts 34, 39; Status: Active; Hazard ID: 891; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=891">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=891</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-22	B	Schlumberger Offshores; Status: Unconfirmed; Hazard ID: 892; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=892">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=892</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-23	B	Nabors Alaska Drilling; Status: Unconfirmed; Hazard ID: 893; Contaminant of Concern: None; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=893">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=893</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-24	B	Green Construction Co.; Status: Cleanup Complete; Hazard ID: 894; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=894">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=894</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-25	B	Colville Inc. (AKA Newco); Status: Cleanup Complete; Hazard ID: 896; Contaminant of Concern: Aresenic - Total, Benzene, DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=896">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=896</a>



Contaminant Source Type	Contaminant Source ID	Zone	Comments
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-26	B	Oilfield Services; Status: Non-Qualifying; Hazard ID: 897; Contaminant of Concern: None; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=897">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=897</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-27	B	Cold Weather Contr., B70 L5A; Status: Cleanup Complete; Hazard ID: 1171; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1171">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1171</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-28	B	Arctic Coiled Tubing; Status: Cleanup Complete; Hazard ID: 1172; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1171">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1171</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-29	B	DNR Lease Tracts 64, 65, & 66B; Status: Cleanup Complete; Hazard ID: 1443; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1443">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1443</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-30	B	Parker Drilling; Status: Cleanup Complete; Hazard ID: 1444; Contaminant of Concern: DR, Xylenes (total); <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1444">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1444</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-31	B	Sea Air Motive Pad (former); Status: Cleanup Complete; Hazard ID: 1447; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1447">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1447</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-32	B	Welex Pad; Status: Cleanup Complete; Hazard ID: 1745; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1745">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1745</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-33	B	ARCO Geofoam Pad; Status: Cleanup Complete; Hazard ID: 1747; Contaminant of Concern: BTEX, DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1747">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1747</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-34	B	Milpark Drilling Fluids; Status: Cleanup Complete; Hazard ID: 1750; Contaminant of Concern: Ethylene Glycol; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1750">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1750</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-35	B	Exxon North Slope Ops Center; Status: Active; Hazard ID: 1751; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1751">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1751</a>

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-36	B	Crowley all Terrain Pad Tr. 59 & 60; Status: Non-Qualifying; Hazard ID: 1752; Contaminant of Concern: None; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1752">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1752</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-37	B	Alyeska OMS135-2; Status: Active; Hazard ID: 1971; Contaminant of Concern: DRO; Surface Water Ingestion: Low Potential Exposure; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1971">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1971</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-38	B	Little Red Services Pad; Status: Cleanup Complete; Hazard ID: 1974; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1974">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1974</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-39	B	Halliburton Otis Engineering Fac.; Status: Cleanup Complete; Hazard ID: 1977; Contaminant of Concern: DRO, GRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1977">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=1977</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-40	B	Conam Construction Pad; Status: Cleanup Complete; Hazard ID: 2372; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2372">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2372</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-41	B	VECO Tract 2 Dalton Pad; Status: Cleanup Complete - Institutional Controls; Hazard ID: 2684; Contaminant of Concern: DRO, GRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2684">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2684</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-42	B	Brooks Range Supply Store; Status: Cleanup Complete - Institutional Controls; Hazard ID: 2958; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2958">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2958</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-43	B	M-I Drilling Fluids Inc.; Status: Cleanup Complete - Institutional Controls; Hazard ID: 2959; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2959">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2959</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-44	B	Mark Air - Deadhorse; Status: Cleanup Complete; Hazard ID: 2967; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2967">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2967</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-45	B	Halliburton Energy Services - Spine; Status: Cleanup Complete; Hazard ID: 2969; Contaminant of Concern: DRO, RRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2969">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=2969</a>

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-46	B	Halliburton Energy Services - Dalton; Status: Cleanup Complete; Hazard ID: 3259; Contaminant of Concern: DRO, RRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3259">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3259</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-47	B	Schlumberger REW Pad; Status: Cleanup Complete; Hazard ID: 3847; Contaminant of Concern: DRO; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3847">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3847</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-48	B	Caribou Construction; Status: Cleanup Complete - Institutional Controls; Hazard ID: 3850; Contaminant of Concern: DRO, GRO, RRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3850">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=3850</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-49	B	Baker Oil Tools - Machine Shop; Status: Cleanup Complete; Hazard ID: 4244; Contaminant of Concern: Benzene, DRO, GRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4244">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4244</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-50	B	BPX Put River 19-10-15; Status: Active; Hazard ID: 4422; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4422">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4422</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-51	B	Rowan Deadhorse Yard Tract 52; Status: Cleanup Complete - Institutional Controls; Hazard ID: 4454; Contaminants of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4454">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=4454</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-52	B	FAA - Deadhorse UST#7-9-1; Status: Cleanup Complete; Hazard ID: 22892; Contaminant of Concern: None; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=22892">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=22892</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-53	B	ADOTPF - Sag River Maintenance and Operations Station; Status: Cleanup Complete - Institutional Controls; Hazard ID: 23185; Contaminant of Concern: Benzene, Tetrachloroethene, Trichloroethene; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=23185">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=23185</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-54	B	CATCO Lease Tracts 40, 41, 42; Status: Cleanup Complete; Hazard ID: 25766; Contaminant of Concern: DRO, Xylenes (total); Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25766">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25766</a>

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-55	B	Alaska Clean Seas Deadhorse Base Facility; Status: Cleanup Complete; Hazard ID: 25879; Contaminant of Concern: DRO; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25879">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25879</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-56	B	Colville Tank Farm; Status: Active; Hazard ID: 25928; Contaminant of Concern: Benzene, DRO, GRO, Xylenes (total); Surface Water Ingestion: Low Potential Exposure; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25928">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=25928</a>
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-57	B	CH2M Hill Base Operations Facility; Status: Active; Hazard ID: 26248; Contaminant of Concern: DRO, Naphthalene; Surface Water Ingestion: Pathway Incomplete; <a href="http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=26248">http://dec.alaska.gov/Applications/SPAR/CCReports/IC_Closure_Report.aspx?Hazard_ID=26248</a>
Highways and roads, dirt/gravel	X24-21-70	B	Gravel highways and roads. Assumed less than 50.
Petroleum production/recovery operations	E09-71	C	N Franklin Bluffs (DNR)
Quarries	E10-16	C	Material Site 134-1 - Sagavanirktok (DNR)
Quarries	E10-17	C	Material Site 134-3 - Sagavanirktok (DNR)
Quarries	E10-18	C	Material Site 135-1 - Beechey Point (DNR)

### Contaminant Risks

Inventoried contaminant sources are sorted by the Drinking Water Protection (DWP) group according to the six (6) major categories of contaminants regulated for drinking water: 1) bacteria and viruses; 2) nitrates and/or nitrites (nitrates); 3) volatile organic chemicals (VOCs); 4) heavy metals, cyanide, and other inorganic chemicals (inorganics); 5) synthetic organic chemicals (SOCs); and 6) other organic chemicals (OOCs). The potential contaminant sources are then given a ranking (within each category) according to the density of sources within the DWPA, the PWS sampling history, as well as the degree of risk posed to human health based on the volume, toxicity, persistence, and the mobility of the contaminants involved. The contaminant risk rankings are summarized in Table 3.

**Table 3: Contaminant Risk Rankings**

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Reserve pits (petroleum production/recovery operations)	D58-01	A	N/A	N/A	Low	High	N/A	High
Petroleum production/recovery operations	E09-01	A	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-02	A	N/A	N/A	Low	Low	N/A	Medium

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Petroleum production/recovery operations	E09-03	A	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-04	A	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-05	A	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-06	A	N/A	N/A	Low	Low	N/A	Medium
Quarries	E10-01	A	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-02	A	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-03	A	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-04	A	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-05	A	N/A	Low	Low	N/A	N/A	Low
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-04	A	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-05	A	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-06	A	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-07	A	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-08	A	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-10	A	N/A	N/A	Medium	N/A	N/A	N/A
Airports	X14-01	A	N/A	Low	Medium	Low	Medium	Medium
Highways and roads, dirt/gravel	X24-01-20	A	Low	Low	Low	Low	N/A	Low
Pipelines (oil and gas)	X28-01	A	N/A	N/A	Medium	Low	N/A	High
Petroleum production/recovery operations	E09-07	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-08	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-09	B	N/A	N/A	Low	Low	N/A	Medium

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Petroleum production/recovery operations	E09-10	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-11	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-12	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-13	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-14	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-15	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-16	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-17	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-20	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-22	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-23	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-24	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-25	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-26	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-27	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-28	B	N/A	N/A	Low	Low	N/A	Medium

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Petroleum production/recovery operations	E09-29	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-30	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-33	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-34	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-35	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-36	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-37	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-38	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-39	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-40	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-41	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-42	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-43	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-44	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-45	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-46	B	N/A	N/A	Low	Low	N/A	Medium

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Petroleum production/recovery operations	E09-47	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-48	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-49	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-50	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-51	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-52	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-53	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-54	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-55	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-56	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-57	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-58	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-59	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-60	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-61	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-62	B	N/A	N/A	Low	Low	N/A	Medium



Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Petroleum production/recovery operations	E09-63	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-64	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-65	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-66	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-68	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-69	B	N/A	N/A	Low	Low	N/A	Medium
Petroleum production/recovery operations	E09-70	B	N/A	N/A	Low	Low	N/A	Medium
Quarries	E10-06	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-07	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-08	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-09	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-10	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-11	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-12	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-13	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-14	B	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-15	B	N/A	Low	Low	N/A	N/A	Low
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-11	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-12	B	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-13	B	N/A	N/A	Very High	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-14	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-16	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-17	B	N/A	N/A	Low	N/A	N/A	N/A

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-19	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-20	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-22	B	N/A	N/A	High	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-24	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-27	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-28	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-29	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-30	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-31	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-32	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-33	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-34	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-37	B	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-40	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-42	B	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-43	B	N/A	N/A	Medium	N/A	N/A	N/A

Contaminant Source Type	Contaminant	Zone	Bacteria	Nitrates	VOC	Metals	SOC	OOC
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-44	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-45	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-46	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-47	B	N/A	N/A	Low	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-53	B	N/A	N/A	Medium	N/A	N/A	N/A
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-56	B	N/A	N/A	Medium	N/A	N/A	N/A
Highways and roads, dirt/gravel	X24-21-70	B	Low	Low	Low	Low	N/A	Low
Petroleum production/recovery operations	E09-71	C	N/A	N/A	Low	Low	N/A	Medium
Quarries	E10-16	C	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-17	C	N/A	Low	Low	N/A	N/A	Low
Quarries	E10-18	C	N/A	Low	Low	N/A	N/A	Low
<b>Contaminant Category Risk Ranking*</b>			<b>Low</b>	<b>Low</b>	<b>Very High</b>	<b>Very High</b>	<b>Medium</b>	<b>Very High</b>

\* Scores based on additional factors, such as sampling history, and number/density of sources.

The contaminant risk ranking for Bacteria and Viruses is **Low**. The ranking for this contaminant is primarily driven by the presence of roads in the DWPA. There have been no positive Total Coliform (which may include fecal coliform and *E. Coli*, but not a confirmation of the presence of either) sampling results in the past five years. Coliforms are naturally present in the environment, as well as feces; fecal coliforms and *E. Coli* only come from human and animal fecal waste. Total Coliforms is not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present.

The contaminant risk ranking for Nitrates is **Low**. This risk ranking is driven primarily by an airport, multiple quarries, and roads in the DWPA. Nitrates have been detected at .53% of the maximum contaminant level (MCL; 10 milligrams per liter (mg/L)). An increasing or decreasing trend is not apparent. Sources of nitrate and/or nitrite may include runoff from fertilizer use, leaking from septic tanks, sewage, and/or erosion from natural deposits. A relatively low concentration and absence of a clear trend implies that the source is natural, rather than anthropogenic. Potential health effects include serious illness and, if untreated, death for infants below the age of six months; symptoms include a shortness of breath and blue-baby syndrome.

The contaminant risk ranking for VOCs is **Very High**. This ranking is driven primarily by a reserve pit, an airport, the BP Pipeline, multiple DEC recognized contaminated sites, petroleum production/recovery operations, quarries, and roads located within the DWPA. Dichloropropane was detected at a concentration of 1.1 microgram per liter (µg/L) (22% of the MCL of 5 µg/L) in June 2011. Sources of Dichloropropane may include discharge from industrial chemical factories, discharge from historical use as a soil fumigant, or leachate from municipal landfills. A potential health effect from long term exposure above the MCL is an increased risk of cancer.

The contaminant risk ranking for Inorganics is **Very High**. This ranking is driven primarily by reserve pits, petroleum production/recovery operations, an airport, and multiple quarries and roads located within the DWPA. Barium was detected at a concentration of 130 micrograms per liter (µg/L) (6.5% of the MCL of 2000µg/L) in April 2010. Fluoride was detected at a concentration of .251 milligrams per liter (mg/L) (6.3% of the MCL 4 mg/L) in April 2010. Sources of barium may include discharge of drilling wastes, discharge from metal refineries, and erosion of natural deposits. A potential health effect from long-term exposure above the MCL may include increased blood pressure. Sources of Fluoride may include discharge from fertilizer or aluminum factories, or from erosion of natural deposits. A potential health effect from long-term exposure above the MCL may include increased likelihood of bone fractures in adults, and may result in effects on bone leading to pain and tenderness. Children aged 8 years and younger exposed to excessive amount of fluoride have an increased chance of developing pits in the tooth enamel, along with a range of cosmetic effects to the teeth.

The contaminant risk ranking for SOCs is **Medium**. This ranking is driven primarily by the airport located within the DWPA. The PWS has not sampled for SOCs and received a monitoring waiver for the 2005-2007, 2008-2010, and 2011-2013 compliance periods.

The contaminant risk ranking for OOCs is **Very High**. This ranking is driven primarily by a reserve pit, an airport, the BP pipeline, and multiple petroleum production/recovery operations, quarries and roads located within the DWPA. The PWS has not sampled for SOCs and received a monitoring waiver for the 2005-2007, 2008-2010, and 2011-2013 compliance periods.

**Overall Vulnerability of the Drinking Water Source to Contamination**

An overall vulnerability is determined by combining each of the contaminant risk scores with the natural susceptibility score:

**Overall Vulnerability = Natural Susceptibility + Contaminant Risks**

Table 4 summarizes the overall vulnerability ratings for each of the six (6) categories of drinking water contaminants.

<b>Category</b>	<b>Rating</b>
Bacteria and Viruses	Medium
Nitrates and/or Nitrites	Medium
Volatile Organic Chemicals	Very High
Heavy Metals, Cyanide, and Other Inorganic Chemicals	Very High
Synthetic Organic Chemicals	High
Other Organic Chemicals	Very High

**Using the Source Water Assessment**

This assessment of contaminant risks and source vulnerability can be used as a foundation for local voluntary protection efforts as well as a basis for the continuous efforts on the part of the North Slope Borough to protect public health. Communities can use the Source Water Assessment (SWA) to create a drinking water protection plan to manage the identified potential and existing sources of regulated drinking water contaminants and to prevent or minimize new contaminant threats in the drinking water protection area.

The North Slope Borough can use a number of different drinking water protection methods to limit or prevent contamination of its drinking water source.

*Non-Regulatory Options include:*

- Public education about where drinking water comes from and the effects of contaminants is probably the most effective and least costly method of protection;
- Household hazardous waste collection - household hazardous wastes are usually generated in small amounts but can have a big impact on the environment;
- The source water assessment report is a tool that can be used to prioritize protection strategies identified in a drinking water protection plan;
- Taking proactive measures towards proper waste storage and disposal can help eliminate the need to find an alternative drinking water source by preventing source water contamination;
- Conservation easements - easements can assist in protecting the area by limiting development;
- Make a written plan on what you will do if an accidental spill happens that could contaminate your source of drinking water; and
- Local drinking water protection plan (an example or template is available from DEC).

*Regulatory Options include:*

- Source protection regulations prohibiting the presence or use of all or specific chemicals within the drinking water protection area;
- Zoning ordinances to control development within the protection areas around the source;
- Subdivision ordinance; and
- Operating standards for industrial and other activities within the protection areas around the source.

Source Water Assessments can be updated to reflect any changes in the vulnerability and/or susceptibility of the North Slope Borough SA10 IN001 drinking water source. The data that is used to generate the Source Water Assessment is updated on an on-going basis as identified in the field or if changes are identified and brought to the attention of the Drinking Water Program.

### **Where to go from here?**

The Source Water Assessment (SWA) is a comprehensive evaluation of the potential risk of contamination to the public water system and the source(s) of drinking water used by the system. Identifying potential sources of contamination and the vulnerability of the public water system is an important first step in protecting the drinking water source from contamination. However, in order to prevent contamination from occurring, action must be taken by the water system owner and/or operator. The SWA can be used by the public water system to educate the local community and to prioritize community-driven protection strategies. Inviting community members, council members, and local government officials to help develop a Drinking Water Protection Plan is one essential component towards successful drinking water protection efforts. For questions regarding, or assistance to begin, the process of developing a Drinking Water Protection Plan, please contact the Drinking Water Protection group at #1-866-956-7656.

### **Other Resources**

The Drinking Water Protection group, the EPA, and local organizations are available to help you build on this Source Water Assessment report as you continue to improve drinking water protection in your community.

DEC, Drinking Water Protection - [http://dec.alaska.gov/eh/dw/DWP/DWP\\_main.html](http://dec.alaska.gov/eh/dw/DWP/DWP_main.html)

EPA, Drinking Water Protection - <http://water.epa.gov/infrastructure/drinkingwater/sourcewater/protection/>

ARWA (Alaska Rural Water Association) - <http://www.arwa.org>

### **Appendices**

- North Slope Borough SA10 IN001 Drinking Water Protection Area Location Map (Map 1)
- North Slope Borough SA10 IN001 Drinking Water Protection Area with Potential and Existing Contaminant Sources (Map 2)
- Best Management Strategies for Potential Contaminants Identified within a Drinking Water Source Protection Area