A Source Water Assessment (SWA) for

PWSID #270312 - CITY OF HOOPER BAY –WL001, WL002, WL003, WL004, WL005, WL006

Table 1: Public Water System Source Information

PWS Name	**CITY OF HOOPER BAY**					
PWSID Number	270312					
Federal Designation	Community water system (CWS)					
State Assigned ID	WL001	WL002	WL003	WL004	WL005	WL006
Facility Name	WELL #1 (Original Well) OLD TOWN	WELL #2 (W-99-1) OLD TOWN	WELL #3 (W-99-2) OLD TOWN	WELL #4 (W-01-3) OLD TOWN	WELL #5 (W-01-4) OLD TOWN	WELL #6 (W-01-5) OLD TOWN
Source Type	Groundwater (GW)	GW	GW	GW	GW	GW
Total Depth of Well (ft bls*)	125.6	126.5	144.1	151.7	149.3	124.3
Static Water Level (ft bls*)	16.2	13	13.9	8.2	3.1	2
Aquifer Type	Confined	Confined	Confined	Confined	Confined	Confined
Aquifer Formation	Fine Sand	Fine Sand	Fine Sand	Fine Sand	Fine Sand	Fine Sand
Description and Cumulative Thickness of Barrier (ft)	Silt and Clay (0-116)	Silt and Clay (0-115)	Silt and Clay (0-115)	Silt and Clay (2-119)	Silty and Clay (2-135	Silt and Clay (2-103)
Date Well Completed	05/30/1963	08/09/1999	08/16/1999	09/11/2001	10/02/2001	10/08/2001

*"*ft bls*" = feet below land surface

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.

Executive Summary

The public water system (PWS) for CITY OF HOOPER BAY is a Community water system (CWS) consisting of nine (9) wells (5 active wells and 4 inactive wells), at the time of this report, located in Wasilla, Alaska. This report is a combined assessment of wells WL001 (WELL #1 (Original Well) OLD TOWN), WL002 (WELL #2 (W-99-1) OLD TOWN), WL003 WELL #3 (W-99-2) OLD TOWN, WL004 WELL #4 (W-01-3) OLD TOWN, WL005 (WELL #5 (W-01-4) OLD TOWN), and WL006 WELL #6 (W-01-5) OLD TOWN. An assessment of the susceptibility of the wellheads and aquifer to contamination, and the vulnerability of the wells to potential and existing contamination were evaluated as of March 2015. Sources WL001, WL002, WL003, and WL006 wellheads received a susceptibility rating of *Medium*, while WL004 and WL005 wellheads received a susceptibility rating of *Medium*, and the aquifer for all sources received a susceptibility rating of *Low*. Combining the wellhead and aquifer scores produces a *Low* rating for wellheads WL001, WL002, WL003, WL005, WL006 and a *Medium* rating for WL004 for the natural susceptibility of the wells and aquifer. Identified potential and existing sources of contamination for CITY OF

What is a Protection Area?

The most probable area for contamination to reach the drinking water well is within the drinking water protection area (DWPA). The DWPA for a groundwater source is the area around the well (the area influenced by pumping) and also the area upgradient of the well, usually forming a parabola shape. Because releases of contaminants within the DWPA are most likely to impact the well, this area will serve as the focus for voluntary protection efforts.

The DWPAs established for wells by DEC are separated into 2 zones, limited by the watershed. The following is a summary of the two zones for wells and the estimated time-of-travel for each:

Zone	Definition
A	Several months time-of-travel
B	Less than the 2 year time-of-travel

Natural Susceptibility

Susceptibility of a groundwater source is a measure of a water supply's potential to become contaminated based on information gathered on the wellhead and the aquifer.

HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006 include a domestic wastewater treatment plant disposal pond, a Class III municipal landfill, nonresidential heating oil tanks, multiple contaminated sites, a cemetery, a municipal park, petroleum product bulk stations, an electric power generation station, a firehouse, residential areas, and roads. These are considered sources one or more of the following six (6) contaminant risk categories: 1) bacteria and viruses; 2) nitrates and/or nitrites; 3) volatile organic chemicals (VOCs); 4) heavy metals, cyanide, and other inorganic chemicals (inorganic chemicals); 5) synthetic organic chemicals (SOCs); and 6) other organic chemicals (OOCs).

Combining the natural susceptibility of the wells and aquifer with the six (6) contaminant risk categories, CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006 received an overall vulnerability rating of ***High*** for bacteria and viruses; ***High*** for nitrates and/or nitrites; ***High*** for VOCs; ***High*** for inorganic chemicals; and a ***High*** for SOCs and ***High*** for OOCs.

Introduction

Source Water Assessments (SWAs) are intended to provide 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 for the CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006 is a tool to be used as the foundation or "stepping stone" to comprehensive management and protection of its groundwater resource. Protecting the quality of your drinking water is a sensible investment.

Drinking Water Protection Area

For groundwater sources, a combination of a numerical flow model and natural factors such as drainage divides, subsurface barriers, and manmade structures are used to determine the size and shape of the Drinking Water Protection Area (DWPA). The orientation of the DWPA is typically drawn using a groundwater surface, or a land surface, elevation map. Because of uncertainties and changing site conditions, a factor of safety is added in calculating the size of the DWPA. (See Map1 of the Appendices)

Natural Susceptibility (Wellhead and Aquifer)

The susceptibility of a wellhead to the introduction of contaminants to the drinking water is determined by, but not limited to, the following risk factors: presence of a sanitary seal, protection from flooding, drainage, and presence of adequate grouting.

The for the WL001, WL002, WL003, and WL006 wellheads received a susceptibility rating of ***Medium*****,** while WL004 and WL005 wellheads received a susceptibility rating of ***Medium***. The most recent sanitary survey (completed September 2012) indicates that the wells are capped with a sanitary seal, the wells are in a floodplain, the land surface is sloped to drain away from all wellheads except for WL004 and WL005, and that a subsurface grout seal was installed to the required depth. A sanitary seal prevents potential contaminants from entering the well while sloping of the land surface and grouting help to prevent potential contaminants from traveling down the outside of the well casing, or through casing seams/cracks to the inside of the well casing, and into the well and/or aquifer.

The susceptibility of an aquifer to the introduction of contaminants is determined by, but not limited to, the following risk factors: whether the aquifer is confined or unconfined, whether the well is completed in unconsolidated or fractured bedrock, whether other nearby wells and bore holes are penetrating the aquifer and if applicable the characteristics of the confining layer(s).

The CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006 draw water from a confined aquifer completed in varying proportions of mainly fine sand. It received a ***Low*** susceptibility rating. A confined aquifer is generally more protected than an unconfined aquifer from the infiltration of surface water potentially carrying contaminants by migrating downward from the surface to the aquifer. However, other wells that penetrate the confining layers create a potential pathway for surface water and contaminants to the aquifer.

The Natural Susceptibility of the wells and aquifer to contamination is ***Low,*** except for WL004 which received a natural susceptibility rating of ***Medium***. Table 2 summarizes the susceptibility ratings for the CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006.

Table 2: Susceptibility Ratings

Susceptibility of the wellheads WL001, WL002, WL003, WL006: WL004 and WL005:	***Medium*** ***High***
+	
Susceptibility of the aquifer (all)	***Low***
=	
Natural susceptibility WL001, WL002, WL003, WL005, WL006: WL004:	***Low*** ***Medium***

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 CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006. This inventory was completed through a search of agency records and other publicly available information. Potential sources of contamination 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 3 and are portrayed in Map 2 of the Appendices.

Table 3: Contaminant Source Inventory

Contaminant Source Type	Contaminant Source ID	Zone	Comments
Domestic wastewater treatment plant disposal ponds/lagoons	D02-01	A	Hooper Bay Sewage Lagoon
Landfills (municipal; Class III)	D51-01	A	Hooper Bay Class III Muni landfill
Residential Areas	R01-01-50	A	Less than 50 acres
Tanks, heating oil, nonresidential (aboveground)	T14-01	A	Unknown
Tanks, heating oil, nonresidential (aboveground)	T14-02	A	ANICA Store
Tanks, heating oil, nonresidential (aboveground)	T14-03	A	Naneng Store
Tanks, heating oil, nonresidential (aboveground)	T14-04	A	LYSD Teachers Housing
Tanks, heating oil, nonresidential (aboveground)	T14-05	A	LYSD Teachers Quarters 2
Tanks, heating oil, nonresidential (aboveground)	T14-06	A	LYSD Teachers Quarters 3
Tanks, heating oil, nonresidential (aboveground)	T14-07	A	Church Complex
Tanks, heating oil, nonresidential (aboveground)	T14-08	A	Covenant Church
Tanks, heating oil, nonresidential (aboveground)	T14-09	A	Firehall/Search and Rescue
Tanks, heating oil, nonresidential (aboveground)	T14-10	A	Substance Abuse Program Offices

Tanks, heating oil, nonresidential (aboveground)	T14-11	A	Search and Rescue
Tanks, heating oil, nonresidential (aboveground)	T14-12	A	Community Center
Tanks, heating oil, nonresidential (aboveground)	T14-13	A	Armory
Tanks, heating oil, nonresidential (aboveground)	T14-14	A	City Office
Tanks, heating oil, nonresidential (aboveground)	T14-15	A	Substance Abuse Program Office
Tanks, heating oil, nonresidential (aboveground)	T14-16	A	Public Safety
Tanks, heating oil, nonresidential (aboveground)	T14-17	A	LYSD Elementary School
Tanks, heating oil, nonresidential (aboveground)	T14-18	A	LYSD High School
Tanks, heating oil, nonresidential (aboveground)	T14-19	A	AVEC Electric Plant
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-01	A	IHS Hooper Bay; Hazard ID: 3793; Status: Active; Contaminant of Concern: DRO; Groundwater Ingestion: Pathway Incomplete; http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/3793
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-02	A	Sea Lion Corp. Tank Farm #7 Overfill; Hazard ID: 2106; Status: Cleanup Complete; Contaminant of Concern: TPH; Groundwater Ingestion: N/A; http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/2106
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-03	A	Hooper Bay School Fire; Hazard ID: 4687; Status: Active; Contaminant of Concer: DRO; Groundwater Ingestion: High Potential Exposure; http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/4687
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04-04	A	AKARNG Hooper Bay FSA; Hazard ID: 3061; Status: Cleanup Complete; Contaminant of Concern: DRO, GRO; Groundwater Ingestion: Pathway Incomplete; http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/3061
Cemeteries	X01-01	A	
Municipal or city parks (with green areas)	X04-01	A	
Petroleum product bulk station/terminals	X11-01	A	AVEC Fuel Storage

Petroleum product bulk station/terminals	X11-02	A	School Fuel Storage
Petroleum product bulk station/terminals	X11-03	A	Yukon Fuel Co. Fuel Storage
Highways and roads, dirt/gravel	X24-01-20	A	Less than 20 roads (dirt/gravel)
Electric power generation (fossil fuels)	X36-01	A	AVEC Electric Plant
Firehouses	X38-01	A	Firehall/Search and Rescue

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; 3) volatile organic chemicals (VOCs); 4) heavy metals, cyanide, and other inorganic chemicals (inorganic chemicals); 5) synthetic organic chemicals (SOCs); and 6) other organic chemicals (OOCs). The 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 4.

Table 4: Contaminant Risk Rankings

Contaminant Source Type	Contaminant Source ID	Zone	Bacteria & Viruses	Nitrates and/or Nitrites	VOC's	Inorganic Chemicals *	SOC's	OOC's
Domestic wastewater treatment plant disposal ponds/lagoons	D02-01	A	High	High	Low	Low	Low	Low
Landfills (municipal; Class III)	D51-01	A	High	Very High	High	High	Very High	Very High
Residential Areas	R01-01-50	A	Low	Low	Low	Low	Low	Low
Tanks, heating oil, nonresidential (aboveground)	T14-01	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-02	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-03	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-04	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-05	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-06	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-07	A	N/A	N/A	Low	Low	N/A	N/A

Tanks, heating oil, nonresidential (aboveground)	T14-08	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-09	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-10	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-11	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-12	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-13	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-14	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-15	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-16	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-17	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-18	A	N/A	N/A	Low	Low	N/A	N/A
Tanks, heating oil, nonresidential (aboveground)	T14-19	A	N/A	N/A	Low	Low	N/A	N/A
Cemeteries	X01-01	A	N/A	Medium	N/A	Low	Medium	N/A
Municipal or city parks (with green areas)	X04-01	A	Medium	Medium	N/A	Low	Low	N/A
Petroleum product bulk station/terminals	X11-01	A	N/A	N/A	Very High	Low	Low	High
Petroleum product bulk station/terminals	X11-02	A	N/A	N/A	Very High	Low	Low	High
Petroleum product bulk station/terminals	X11-03	A	N/A	N/A	Very High	Low	Low	High
Highways and roads, dirt/gravel	X24-01-20	A	Low	Low	Low	Low	N/A	Low
Electric power generation (fossil fuels)	X36-01	A	N/A	N/A	Medium	Medium	N/A	High
Firehouses	X38-01	A	N/A	N/A	Low	Low	N/A	N/A
Contaminant Category Risk Ranking			***Very High***	***Very High***	***Very High***	***Very High***	***Very High***	***Very High***

** Includes heavy metals, cyanide, and other inorganic chemicals.*
*** Scores based on additional factors, such as sampling history, and number/density of sources.*

The contaminant category risk ranking for Bacteria & Viruses is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, a municipal park, and the density of roads, and residential areas located within the DWPA. A positive Total Coliform (which may include fecal coliform and *E. Coli*, but not a confirmation of the presence of either) has not been detected in recent 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 category risk ranking for Nitrates and/or Nitrites is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, a municipal park, a cemetery, and the density of roads, and residential areas located within the DWPA. Nitrates and/or nitrites have been detected in samples collected in recent years, but an increasing or decreasing trend is not apparent; the most recent sample collected May 2014, showed a total nitrate-nitrite concentration of 0.27 milligrams per liter (mg/L), which is 2% of the maximum contaminant level (MCL) of 10 mg/L for nitrate. 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 category risk ranking for VOCs is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, multiple nonresidential heating oil tanks and petroleum product bulk station/terminals, an electric power generation plant, a firehouse, a municipal park, and the density of roads, and residential areas located within the DWPA. Toluene and Xylene were detected in recent samples. Toluene was detected at a concentration of 0.5 micrograms per liter (/g/L) (0.05% of the MCL of 1 mg/L) in September 2012. Sources of Toluene may include discharge from petroleum factories. Potential health effects from long-term exposure above the MCL may include nervous system, kidney, or liver problems. Xylene was detected at a concentration of 0.56 micrograms per liter (μg/L) (.01% of the MCL of 10 mg/L) September 2011. Sources of Xylene may include discharge from petroleum and/or chemical factories. Potential health effects from long-term exposure above the MCL may include nervous system damage.

The contaminant category risk ranking for Inorganic Chemicals is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, multiple nonresidential heating oil tanks and petroleum product bulk station/terminals, an electric power generation plant, a cemetery, a firehouse, a municipal park, and the density of roads, and residential areas located within the DWPA. Barium, Chromium, Fluoride, and Selenium were detected in recent samples from June 2010. Barium was detected at a concentration of 65.1 micrograms per liter (/g/L) (3.26% of the MCL of 2 mg/L). Sources of Barium may include discharge of drilling wastes, discharge from metal refineries, or erosion of natural deposits. Potential health effects from long-term exposure above the MCL may include an increase in blood pressure. Chromium was detected at a concentration of 2.53 micrograms per liter (μg/L) (2.53% of the MCL of 0.1 mg/L). Sources of Xylene may include discharge from steel and pulp mills or erosion of natural deposits. Potential health effects from long-term exposure above the MCL may include allergic dermatitis. Fluoride was detected at a concentration of 0.468 milligrams per liter (mg/L) (11.70% of the MCL of 4 mg/L). Sources of Fluoride may include erosion of natural deposits or discharge from fertilizer and aluminum factories. Potential health effects from long-term exposure above the MCL may include bone disease (pain and tenderness of the bones), and children may get mottled teeth. Selenium was detected at a concentration of 2.090 micrograms per liter (μg/L) (4.18% of the MCL of 0.05 mg/L). Sources of Selenium may include discharge from petroleum refineries, erosion of natural deposits, or discharge from fines. Potential health effects from long-term exposure above the MCL may include hair or fingernail loss, numbness in fingers or toes, or circulatory problems.

The contaminant category risk ranking for SOCs is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, a cemetery, a municipal park, multiple petroleum product bulk

stations, and the density of residential areas located within the DWPA. This PWS has received an SOC Monitoring Waiver for compliance periods 2011-2013, 2008-2010, and 2005-2007.

The contaminant category risk ranking for OOCs is ***Very High***. This ranking is driven primarily by a domestic wastewater treatment plant pond, a Class III municipal landfill, multiple petroleum product bulk stations, and the density of roads and residential areas located within the DWPA. This PWS has received an SOC Monitoring Waiver for compliance periods 2011-2013, 2008-2010, and 2005-2007.

Overall Vulnerability of the Drinking Water Source to Contamination

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

Overall Vulnerability of the Drinking Water Source to Contamination = Natural Susceptibility + Contaminant Risks

Table 5 summarizes the overall vulnerability ratings for each of the six (6) contaminant categories.

Table 5: Overall Vulnerability

Category	*Rating*
Bacteria and Viruses	***High***
Nitrates and/or Nitrites	***High***
Volatile Organic Chemicals	***High***
Heavy Metals, Cyanide, and Other Inorganic Chemicals	***High***
Synthetic Organic Chemicals	***High***
Other Organic Chemicals	***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 CITY OF HOOPER BAY PWS 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 CITY OF HOOPER BAY PWS 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 different protection areas around the source;
  - Subdivision ordinance; and
  - Operating standards for industrial and other activities within the different protection areas around the source.

Source Water Assessments can be updated to reflect any changes in the vulnerability and/or susceptibility of the CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006. The data that is used to generate the SWA 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 SWA is a comprehensive evaluation of the potential risk of contamination to the PWS and the source(s) of drinking water used by the system. Identifying potential sources of contamination and the vulnerability of the PWS 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 PWS owner and/or operator. The SWA can be used by the PWS 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 toll-free at #1-866-956-7656 (within Alaska only), or direct at #907-269-7656.

Other Resources

The Drinking Water Protection group, the Environmental Protection Agency (EPA), and local organizations are available to help you build on this SWA 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
- EPA, Drinking Water Protection - http://cfpub.epa.gov/safewater/sourcewater/index.cfm
- Groundwater Foundation - http://www.groundwater.org
- Groundwater Protection Council- http://www.gwpc.org
- National Ground Water Association: http://www.ngwa.org/Pages/default.aspx

Appendices

- CITY OF HOOPER BAY WL001, WL002, WL003, WL004, WL005, and WL006 Drinking Water Protection Area Location Map (Map 1);
- CITY OF HOOPER BAY WL002, WL003, WL004, WL005, and WL006 Drinking Water Protection Area with Potential and Existing Contaminant Sources (Map 2);
- Example Best Management Strategies for Potential Contaminants Identified within a Drinking Water Protection Area.

Source Water Assessment Report

Map 1 - *Contaminant Source Inventory*

PWSID 270312: City of Hooper Bay

WL001 (Well #1 Original Well Old Town), WL002 (Well #2 W-99-1), WL003 (Well #3 W-99-2), WL004 (Well #4 W-01-3), WL005 (Well #5 W-01-4), WL006 (Well #6 W-01-5)

Legend

- Community Water System (Active)
- Community Water System (Inactive)
- NonCommunity Water System (Active)
- NonCommunity Water System (Inactive)
- NonPublic Water System (Active)
- NonPublic Water System (Inactive)
- NonTransient/NonCommunity Water System (Active)
- NonTransient/NonCommunity Water System (Inactive)

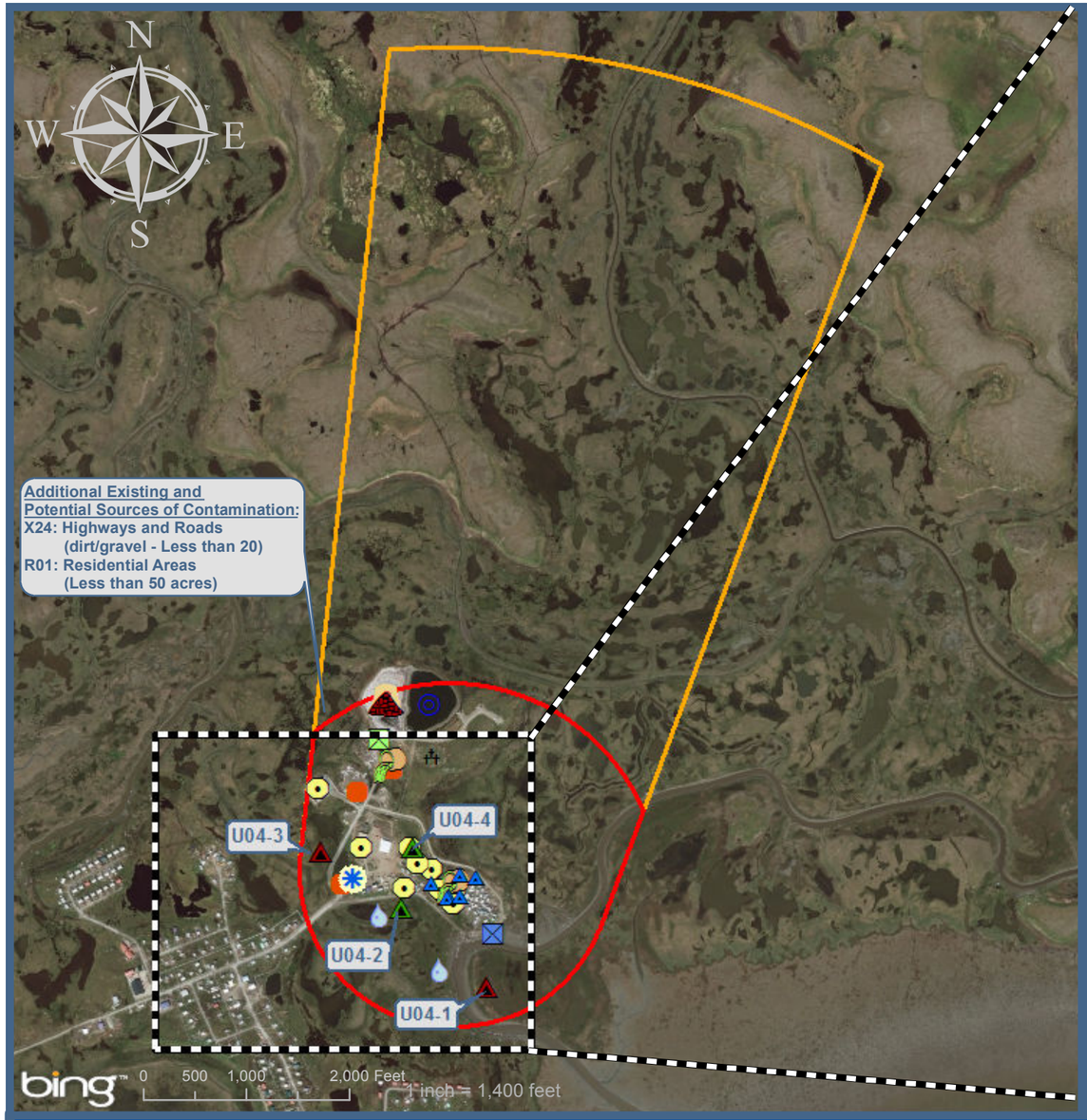
Identified Drinking Water Protection Areas (DWPAs)

- 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)

DEPARTMENT OF ENVIRONMENTAL CONSERVATION · STATE OF ALASKA

Data sources: Alaska DEC: Public Water System sources and Drinking Water Protection Areas; Alaska Mapped Best Data Layer Web Map Service: Aerial imagery.

Date Saved: 9/30/2015; Author: rmbaril



Source Water Assessment Report

Map 2 - Contaminant Source Inventory

PWSID 270312: City of Hooper Bay

WL001 (Well #1 Original Well Old Town), WL002 (Well #2 W-99-1), WL003 (Well #3 W-99-2), WL004 (Well #4 W-01-3), WL005 (Well #5 W-01-4), WL006 (Well #6 W-01-5)

Legend

- Community Water System (Active)
- Community Water System (Inactive)
- NonCommunity Water System (Active)
- NonCommunity Water System (Inactive)
- NonPublic Water System (Active)
- NonPublic Water System (Inactive)
- NonTransient/NonCommunity Water System (Active)
- NonTransient/NonCommunity Water System (Inactive)

Identified Drinking Water Protection Areas (DWPAs)

- 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)

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
STATE OF ALASKA

Data sources: Alaska DEC: Public Water System sources and Drinking Water Protection Areas; Alaska Mapped Best Data Layer Web Map Service: Aerial imagery.

Date Saved: 10/1/2015; Author: rmbaril