A Source Water Assessment (SWA) for

PWS ID #121510 – South Tongass Water Utility IN001 (Intake – Whitman Lake)

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

Table 1: Public Water System Source Information

PWS Name	South Tongass Water Utility
PWS ID Number	121510
State Asgn ID No.	IN001
Facility Name	IN001 – Intake Whitman Lake
Source Type	Surface Water
Federal Classification	Community Water System
River/Stream Discharge	Unknown

*"cfs" = cubic feet per second

Executive Summary

The public water system for South Tongass Water Utility is a Community Water System that obtains water from Whitman Lake near Ketchikan, Alaska. The South Tongass Water Utility protection area is approximately 5.5 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.* There were no identified potential and existing sources of contamination for the South Tongass Water Utility public drinking water system.

Combining the natural susceptibility of the surface water source with the six (6) contaminant risk categories, the public water system for South Tongass Water Utility received an overall vulnerability rating of **Medium** for bacteria and viruses, nitrates, heavy metals (and other inorganic chemicals), volatile organic chemicals (VOCs), other organic chemicals (OOCs) , and synthetic organic chemicals (SOCs).

Introduction

Source Water Assessments (SWAs) are intended to provide public water system operators, owners, communities, and local governments with the best available information that may be used to protect the quality of their drinking water. South Tongass Water Utility's SWA 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 South Tongass Water Utility's DWPA on Map 1 of the Appendices.)

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.

Natural Susceptibility (Surface Water Source)

The **Natural Susceptibility of a surface water source** to the introduction of contaminants to the drinking water 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.

Susceptibility of the Surface Water Source
(Always considered High)
+
Adequate Construction of the Intake
+
Runoff Potential
+
Dilution Capacity of the Surface Water
=
Natural Susceptibility

Based on the most recent sanitary survey (completed in December 10, 2012) and properties of the surrounding area, the **Natural Susceptibility** of the surface water source for South Tongass Water Utility 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 South Tongass Water Utility 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. There were no existing or potential identified sources of contamination for South Tongass Water Utility.

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; 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 degree of risk posed to human health based on the volume, toxicity, persistence, and the mobility of the contaminants involved.

The contaminant risk ranking for Bacteria and Viruses is **Low**. Bacteria and viruses have not been detected in source water.

The contaminant risk ranking for nitrates and nitrites is **Low.** Nitrates have not been detected in source water.

The contaminant risk ranking for volatile organic chemicals is **Low**. VOCs have not been detected in the source water.

The contaminant risk ranking for heavy metals, cyanide and other inorganic chemicals is **Low.** Barium and Chromium have been detected in the source water in recent years. All samples were well below the MCL for these contaminants.

The contaminant risk ranking for synthetic organic chemicals is **Low**. The water system has not sampled for SOCs and currently has a monitoring waiver that covers SOCs.

The contaminant risk ranking for other organic chemicals is **Low.** The water system has not sampled for OOCs and currently has a monitoring waiver that covers OOCs.

Overall Vulnerability of the Drinking Water Source to Contamination

An overall vulnerability is determined for each water system by combining each of the contaminant risk scores 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) categories of drinking water contaminants.

Table 4: Overall Vulnerability

Category	*Rating*
Bacteria and Viruses	**Medium**
Nitrates and/or Nitrites	**Medium**
Volatile Organic Chemicals	**Medium**
Heavy Metals, Cyanide, and Other Inorganic Chemicals	**Medium**
Synthetic Organic Chemicals	**Medium**
Other Organic Chemicals	**Medium**

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 South Tongass Water Utility 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.

South Tongass Water Utility 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 South Tongass Water Utility 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/source_water.html
EPA, Drinking Water Protection - http://cfpub.epa.gov/safewater/sourcewater/index.cfm
ARWA (Alaska Rural Water Association) - http://www.arwa.org

Appendices

- South Tongass Water Utility Drinking Water Protection Area Location Map (Map 1)
- South Tongass Water Utility 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

Source Water Assessment Report

Map 1 - *Contaminant Source Inventory*

PWSID 121510: South Tongass Water Utility

IN001: Intake - Whitman Lake

Legend

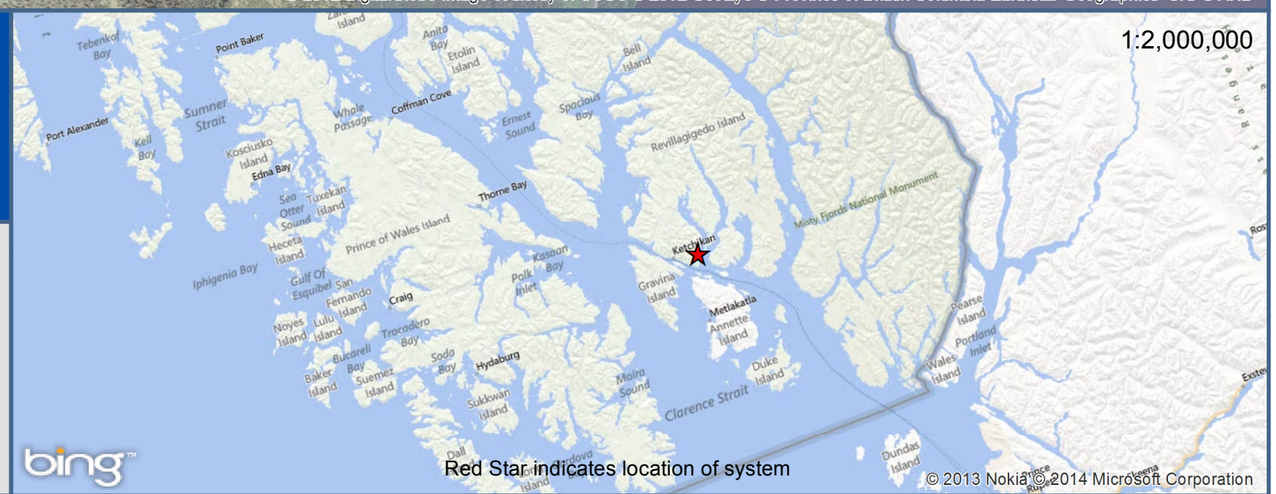
- Community Water System (Formerly Class A)
- NonTransient/NonCommunity (Formerly Class A)
- NonCommunity (Formerly Class B)
- NonPublic (Class C-State Regulated)

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)

0 0.3 0.6 1.2 Miles

1 inch = 2,500 feet



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: 1/27/2014; Author: rmbaril

Source Water Assessment Report

Map 1 - Contaminant Source Inventory

PWSID 121510: South Tongass Water Utility

IN001: Intake - Whitman Lake

Legend

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

- 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)

1 inch = 2,500 feet

0 0.25 0.5 1 Miles

1:12,000

© 2012 DigitalGlobe Image courtesy of USGS © 2012 GeoEye © Province of British Columbia Earthstar Geographics SIO © AND

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: 1/28/2014; Author: rmbaril