Source Water Assessment for Abbott Loop Community Chapel Anchorage, Alaska

A Hydrogeologic Susceptibility and Vulnerability Analysis

DRINKING WATER PROTECTION PROGRAM REPORT 439 PWSID 212380.001

Source Water Assessment for Abbott Loop Community Chapel Anchorage, Alaska

By HEATHER A. HAMMOND

DRINKING WATER PROTECTION PROGRAM REPORT 439 PWSID 212380.001

The Drinking Water Protection Program is producing Source Water Assessments in compliance with the Safe Drinking Water Act Amendments of 1996. Each assessment includes a delineation of the source water area, an inventory of potential and existing contaminant sources that may impact the water, a risk ranking for each of these contaminants, and an evaluation of the potential vulnerability of these drinking water sources.

These assessments are intended to provide public water systems owners/operators, communities, and local governments with the best available information that may be used to protect the quality of their drinking water. The assessments combine information obtained from various sources, including the U.S. Environmental Protection Agency, Alaska Department of Environmental Conservation (ADEC), public water system owners/operators, and other public information sources. The results of this assessment are subject to change if additional data becomes available. If you have any additional information that may affect the results of this assessment, please contact the Program Coordinator of DWPP, (907) 269-7521.

CONTENTS

Abbott Loop Co System	ne Ar mmu	nchorage area, Alaska nity Chapel's Public Water n Area for Abbott Loop	Page 1 1 1 1 3 4 4	Inventory of Potential and Existing Contaminant Sources Ranking of Contaminant Risks Vulnerability of Abbott Loop Community Chapel Summary References Cited	Page 4 5 5 8 9
			TABI	LES	
TABLE	1. 2. 3.	Natural Susceptibility - Susc and Aquifer to Contami Contaminant Risks Overall Vulnerability		of the Wellhead	5 6 6
		ILL	USTR	ATIONS	
FIGURE 1. Index map showing the location of Anchorage, Alaska 2. Generalized hydrologic cycle in the Anchorage area 3. Map showing the location of the drinking water source 4. Motor vehicle waste disposal system APPENDICES			Page 1 2 3 7		
		Al	PPENI	DICES	
APPENDIX	В.	Contaminant Source Inventor Contaminant Source Inventor Bacteria and Viruses (Tontaminant Source Inventor Nitrates and/or Nitrites Contaminant Source Inventor Volatile organic chemic Contaminant Source Inventor Heavy metals, cyanide a Contaminant Source Inventor Synthetic organic chemic Contaminant Source Inventor Other synthetic organic Drinking Water Protection A for Abbott Loop Comm	ory for Abory and Reable 2) ory and Reable 3) ory and Reable 3) ory and Reable (Table 3)	isk Ranking for Abbott Loop Community Chapel — le 4) isk Ranking for Abbott Loop Community Chapel — inorganic chemicals (Table 5) isk Ranking for Abbott Loop Community Chapel — ble 6) isk Ranking for Abbott Loop Community Chapel —	

Source Water Assessment for Abbott Loop Community Chapel, Anchorage, Alaska

A Hydrogeologic Susceptibility and Vulnerability Analysis

By Heather A. Hammond

Drinking Water Protection Program Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

Abbott Loop Community Chapel is a Class A (nontransient/non-community) water system consisting of one well in the Anchorage Area. Identified potential and existing sources of contaminants that present the most significant risk to Abbott Loop Community Chapel's drinking water source includes approximately 258 acres of residential area, sewer lines, Class V motor vehicle waste disposal wells, dry cleaners, gasoline stations, under and above ground fuel storage tanks, motor vehicle repair shops, lawn and garden supply storage, heavy equipment storage areas (See Table 1 in Appendix B for a comprehensive list of identified potential and existing contaminant sources within the protection area). These identified potential and existing sources of contamination are considered sources of bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other organic chemicals. Overall, the public drinking water source for Abbott Loop Community Chapel received a vulnerability rating of medium for synthetic organic chemicals; and high for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, and other organic chemicals.

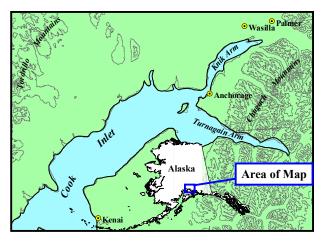


Figure 1. Index map showing the location of Anchorage, Alaska

INTRODUCTION

The purpose of this environmental assessment is to provide public water system owners and/or operators, communities, and local governments with information they can use to preserve the quality of Alaska's public drinking water supplies. This assessment was completed for the source of public drinking water serving Abbott Loop Community Chapel. This water system consists of one well in the Anchorage area (see Figure 1). This assessment, known under the Alaska Drinking Water Protection Program as the Source Water Assessment, has combined a review of the natural hydrogeologic sensitivity with potential and existing contaminant risks to arrive at an overall vulnerability of the drinking water source to contamination. This assessment has been completed as a basis for local voluntary protection efforts and to assist agencies in their efforts to reduce risk to this public drinking water supply.

DESCRIPTION OF THE ANCHORAGE AREA, ALASKA

Location

Anchorage, located in southcentral Alaska, encompasses 1,698 square miles of land and 264 square miles of water. The area containing a majority of the urban development, commonly referred to as the Anchorage Bowl, encompasses approximately 180 square miles [Partick, Brabets, and Glass, 1989] and envelopes the low lands of the area. This area is bounded on the east by the Chugach Mountains and the north, west, and south by the Knik and Turnagain Arm of Cook Inlet (Figure 1). In recent times, urban development has extended eastward along the flanks of the Chugach Mountains. This area, known locally as the Anchorage Hillside, contains development at elevations exceeding 3,700 feet in elevation above sea level.

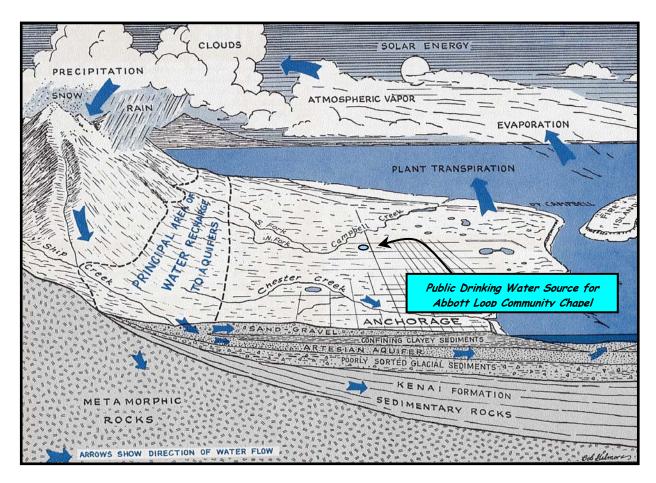


Figure 2. Generalized hydrologic cycle in the Anchorage area [Barnwell, George, Dearborn, Weeks, and Zenone, 1972].

Climate

The Anchorage area climate is somewhat transitional in that it does not experience large daily and annual temperature fluctuations like those experienced in the interior of Alaska nor does it experience high amounts of precipitation typified by gulf coast regions. Mean annual precipitation at the Anchorage International Airport is approximately 16 inches per year. On average, Anchorage receives a total snow accumulation of 69 inches per year. Precipitation generally increases inland toward the Chugach Mountains where annual precipitation may exceed 160 inches per year [Barnwell, George, Dearborn, Weeks, and Zenone, 1972]. Mean daily temperature ranges from 65° F during July to 8° F in January [Western Regional Climate Center, 2000].

Physiography and Groundwater Conditions

Surface elevations in the Anchorage area range from sea level at Knik and Turnagain Arms to well over 5,000 feet in the peaks that bound the area. Glacial moraine and outwash deposits primarily mantle the surface of the Anchorage Bowl.

The backbone of the Chugach Mountains is composed

primarily of metamorphic marine and volcanic rocks (bedrock). These high peaks that bound Anchorage's east side are flanked with colluvium or slope deposits. These slope deposits eventually grade into the glacial and stream deposits at lower elevations in the Anchorage Bowl.

In the Anchorage area, two principal groundwater flow systems or aquifers exist (see Figure 2). The upper unconfined aquifer or water-table aquifer is separated from a lower confined aquifer system by layers of silty, clayey glacially derived sediments (confining layer) [Ulery and Updike, 1983]. The lower confined aquifer system consists of a series of hydrologically interconnected layers and lenses of gravel, sand and silt that, collectively, form the confined aquifer. The confining layer ranges from 0 to 270 feet thick throughout the Anchorage area and generally thins with increasing distance from Cook Inlet, thus pinching out at the mountain front [Patrick, Brabets, and Glass, 1989].

Water enters or recharges these two aquifer systems in several different ways. Along the front of the Chugach Mountains, groundwater seeps from fractures in bedrock into the sediments. At these higher elevations, rain and snowmelt also enters the sediments. This area along the mountain front is considered the principal recharge area for wells in the Anchorage area. Precipitation in the low lands may also percolate directly into the ground. Lastly, aquifers may also be recharged by streams where surface water percolates into surrounding permeable sediments (losing reaches of streams). Groundwater flow in the confined aquifer is generally east to west from the mountain front toward Cook Inlet and Turnagain Arm, except in areas where the direction of flow is influenced by large municipal or industrial production wells. The direction of groundwater flow in the upper unconfined aquifer is more variable due to the influence from surfacial topography as well as its close connection with surface water bodies.

ABBOTT LOOP COMMUNITY CHAPEL'S PUBLIC DRINKING WATER SYSTEM

Abbott Loop Community Chapel's Public Drinking Water System is a Class A (non-transient/non-

community) water system consisting of one well in the Anchorage area. The well is located off of Lake Otis Parkway and Abbott Road, in the parking lot of Abbott Loop Community Chapel. The well site is approximately 250 feet above sea level (see Figure 3).

Installation of the well occurred September 25, 1973 to a total depth of 225 feet below ground surface and was completed in a 6-inch well casing. There is no indication on the well log that the well was screened at the time of drilling. According to the most recent Sanitary Survey (09/11/96), the well site is properly graded so that surface water and foreign matter are diverted away from the well. The Sanitary Survey indicates that the well is not grouted. Proper grouting provides added protection against contaminants traveling along the well casing and into source waters.

According to a Synthetic Organic Chemical and Other Organic Chemical Monitoring Waiver Application (10/21/97) there is an abandoned well located near

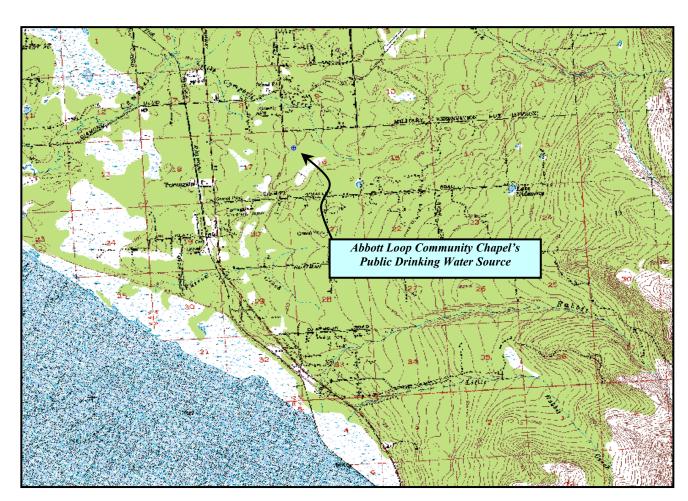


Figure 3. Map showing the location of the drinking water source for Abbott Loop Community Chapel [Base: USGS Anchorage A8].

Abbott Loop Community Chapel's existing well. There is not enough information available on the abandoned well site to determine whether the well was decommissioned properly (according to ADEC regulations 18 AAC 80.015e). The presence of an abandoned well near an active public drinking water source increases the vulnerability and susceptibility of the well to contamination.

This system operates year round and serves approximately 2 residents and 900 non-residents through 4 service connections.

ASSESSMENT AND PROTECTION AREA FOR ABBOTT LOOP COMMUNITY CHAPEL

The Drinking Water Protection and Assessment Area that has been established for Abbott Loop Community Chapel is the area that is most sensitive to contamination. This area serves as a basis for assessing the risk of the drinking water source to contamination. The zones around the drinking water source outline the most critical area for the preservation of the quality of the drinking water for this system. For simplicity, this area will be known as your Drinking Water Protection Area and will serve as the focus for voluntary protection efforts.

Conceptually, groundwater enters the aquifer systems along the front range of the Chugach Mountains (Figure 2) and flows toward Cook Inlet. An analytical calculation was used to determine the size and shape of the area that contributes water to the well. The input parameters describing the attributes of the aquifer in this calculation were adopted from the U.S. Geological Survey [Patrick, Brabets, and Glass, 1989]. This analytical calculation was used as a guide as the first step in establishing the protection area for each public drinking water source in Anchorage. Additional methods were further employed to take into account any uncertainties in groundwater flow and aquifer characteristics to arrive at meaningful and conservative protection areas with respect to public health (Please refer to the Guidance Manual for Class A Public Water Systems for additional information).

The Drinking Water Protection Areas established for wells by the Alaska Department of Environmental Conservation are separated into zones. These zones correspond to a time-of-travel. Time-of-travel is the time required for water to move in the saturated zone of the ground from a specific point to the well. The Drinking Water Protection Area for Abbott Loop Community Chapel contains four zones, Zone A through Zone D (See Map 1 in Appendix A). Zone A corresponds to the area between the wells and the distance equal to ½ of the distance of the 2-year time-of-travel. Depending on where a contaminant source is located within Zone A,

travel time for a contaminant to the wells may be on the order of several days to several hours. Zone A also extends downgradient from the wells to take into account the area of the aquifer that is influenced by pumping of the wells. Zone B corresponds to a time-of-travel of less than two years. Zones C and D correspond to those areas between 5 years and 10 years time-of-travel, respectively.

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within the Drinking Water Protection Area for Abbott Loop Community Chapel. This survey was completed through a search of agency records and other publicly available information. Potential sources of contamination to drinking water supplies cover 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.

For the basis of this assessment and all Class A public water system assessments, six categories of drinking water contaminants were inventoried. They include:

- Bacteria and viruses
- Nitrates and/or nitrites
- Volatile organic chemicals
- Heavy metals, cyanide, and other inorganic chemicals
- Synthetic organic chemicals
- Other organic chemicals

Maps 2 through 9 in Appendix C depict the Contaminant Source Inventory for Abbott Loop Community Chapel. Table 1 in Appendix B lists the inventoried potential sources of contamination within Zones A through D. Below is a summary of the contaminant sources that present the most significant risk to Abbott Loop Community Chapel's source of public drinking water for all six categories of regulated drinking water contaminants, respectively:

- Approximately 258 acres of residential area;
- sewer lines;
- Class V motor vehicle waste disposal wells;
- dry cleaners;
- gasoline stations;

- above and underground fuel storage tanks;
- motor vehicle repair shops;
- solvent storage areas;
- lawn and garden supply storage area;
- heavy equipment storage area.

RANKING OF CONTAMINANT RISKS

Potential and existing sources of contamination have been identified, sorted, and ranked according to what type and level of risk they represent. Ranking of contaminant risks for a "potential" or "existing" source of contamination is a function of toxicity and volumes of specific contaminants associated with that source. Contaminant risks are further a function of the number and density of those types of contaminant sources as well as the proximity of those sources to the public drinking water wells.

VULNERABILITY OF ABBOTT LOOP COMMUNITY CHAPEL

Vulnerability of a drinking water source to contamination is a combination of two factors:

- natural susceptibility; and
- contaminant risks.

Each of the six categories of drinking water contaminants have been analyzed and an overall vulnerability score of 0 to 100 ultimately assigned:

Natural Susceptibility (0 - 50 points)

+

Contaminant Risks (0 - 50 points)

=

Vulnerability of the Drinking Water Source to Contamination (0 - 100).

A score for the Natural Susceptibility is achieved by analyzing the properties of the well and the aquifer.

Susceptibility of the Wellhead (0 - 25 Points)+
Susceptibility of the Aquifer (0 - 25 Points)

= Natural Susceptibility (Susceptibility of the Well) (0-50 Points)

It is suspected that the source of public drinking water

serving Abbott Loop Community Chapel was completed in a confined aquifer. The well log was not detailed enough to determine the geological characteristics and vertical extent of a confining layer. Therefore, geologic information was gathered from wells within a 1/4 mile radius of Abbott Loop Community Chapel's drinking water source. Surrounding well logs suggest that a confining layer exists from approximately 50 to 73 feet below ground surface and consists of hardpan material. However, the confining layer is discontinuous and occurs at varying depths throughout the area. Near the base of the Chugach Mountains, these layers tend to thin out toward the mountains. Therefore, contaminants that enter the subsurface near the base of the mountains may enter the confined aguifer uninhibited by the absence of any protective layer.

Combining the susceptibility of the wellhead and the aquifer to contamination leads to a score (0-50 points) and rating of overall Susceptibility of the well to contamination (See Appendix D). Table 1 depicts the overall Susceptibility score and rating for Abbott Loop Community Chapel's drinking water source.

Table 1. Natural Susceptibility - Susceptibility of the Wellhead and Aquifer to Contamination

	Score	Rating
Susceptibility of the		
Wellhead	5	Low
Susceptibility of the		
Aquifer	17	High
Natural Susceptibility	22	Medium

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. A score (0 – 50 points) and rating of Contaminant Risks (See Appendix D) is assigned based on the findings of the Contaminant Source Inventory (See Appendix B - Table 1 – Table 7). This portion of the analysis examines any existing or historical contamination that has been detected at the drinking water source through routine sampling. It also reviews contamination that has or may have occurred but has not arrived or been detected at the well. Table 2 summarizes the Contaminant Risks for each category of drinking water contaminants.

Table 2. Contaminant Risks to Abbott Loop Community Chapel

Contaminant Risks	Score	Rating
Bacteria and Viruses	40	Very High
Nitrates and/or Nitrites	42	Very High
Volatile Organic		
Chemicals	50	Very High
Heavy Metals, Cyanide,		
And Other Inorganic		
Chemicals	50	Very High
Synthetic Organic		
Chemicals	35	High
Other Organic		
Chemicals	50	Very High

Appendix D contains fourteen charts, which together form the 'Vulnerability Analysis' for a Class A public drinking water system. Chart 1 analyzes the 'Susceptibility of the Wellhead' to contamination by looking at the construction of the well and its surrounding area. Chart 2 analyzes the 'Susceptibility of the Aquifer' to contamination by looking at the naturally occurring attributes of the water source and influences on the groundwater system that might lead to contamination. Chart 3 analyzes 'Contaminant Risks' for the drinking water source with respect to bacteria and viruses. The 'Contaminant Risks' portion of the analysis considers potential sources of contaminants as well as a review of contamination that has or may have occurred but has not arrived or been detected at the well. Lastly, Chart 4 contains the 'Vulnerability Analysis for Bacteria and Viruses'. Charts 5 through 14 contain the Contaminant Risks and Vulnerability Analysis for nitrates and nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other organic chemicals, respectively.

Vulnerability of drinking water sources to contamination is the combination of susceptibility of the aquifer and the well with contaminant risks. Table 3 contains the overall vulnerability scores (0-100) and ratings for each of the six categories of drinking water contaminants (See Appendix D). Note: scores are rounded off to the nearest five.

Table 3. Overall Vulnerability of Abbott Loop Community Chapel to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	60	High
Nitrates and Nitrites	65	High
Volatile Organic Chemicals Heavy Metals, Cyanide, and Other Inorganic	70	High
Chemicals	70	High
Synthetic Organic Chemicals	55	Medium
Other Organic Chemicals	70	High

Tables 2 through 7 in Appendix B contain the ranking of potential and existing sources of contamination with respect to bacteria and viruses, nitrates and/or nitrites, heavy metals, synthetic organic chemicals, and other organic chemicals, respectively.

The contaminant risk for bacteria and viruses is very high with residential areas, and sewer lines within Zone A presenting the most significant risk to the drinking water well. After combining the contaminant risk for bacteria and viruses with the natural susceptibility of the well, the overall vulnerability of the well to contamination is high from bacteria and viruses.

Review of the historical sampling data indicate that no bacteria and viruses have been detected in Abbott Loop Community Chapel's drinking water within the past 5 years (See Chart 3 — Contaminant Risks for Bacteria and Viruses in Appendix D).

Nitrates and/or nitrites are found in natural background concentration at this site, as elsewhere throughout Alaska

Nitrate concentrations in uncontaminanted groundwater are typically less than 2 milligrams per liter (mg/L) and are derived primarily from the decomposition of organic matter in soils [Wang, Strelakos, Jokela, 2000].

Sampling history for Abbott Loop Community Chapel indicates that low concentrations of nitrates have been detected in source waters (See Chart 5 – Contaminant Risks for Nitrates and/or Nitrites in Appendix D). The most recent nitrate detection occurred December 9, 1998 with a concentration of approximately 3% of the Maximum Contaminant Level or MCL. The MCL is the maximum level of contaminant that is allowed to exist in drinking water and still be consumed by humans without harmful health effects. Due to the high solubility and weak retention by soil, nitrates are very mobile, moving at approximately the same rate as water. Though existing

nitrate contamination was detected at the site, concentrations remain at safe levels with respect to human health.

The contaminant risk for nitrates and/or nitrites is very high with residential areas, and sewer lines within Zone A presenting the most significant risk to the drinking water source. After combining the contaminant risk with the natural susceptibility of the well, the overall vulnerability of the well to contamination is high from nitrates and/or nitrates.

The contaminant risk for volatile organic chemicals is very high with Class V motor vehicle waste disposal wells, a dry cleaners, gasoline stations, above and underground fuel storage tanks, and motor vehicle repair shops presenting the most significant risk to the drinking water well. The overall vulnerability of the well to contamination is high from volatile organic chemicals after combining the contaminant risk with the natural susceptibility of the well.

There are two Class V motor vehicle waste disposal wells located within the Zone A protection area. According to the United States Environmental Protection Agency's (USEPA) Office on Water, a motor vehicle waste disposal well is a type of Class V injection well which is typically a shallow disposal system that receives or has received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shops, new and used car dealerships, specialty repair shop (e.g., transmission and muffler repair shop),

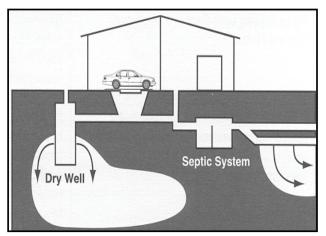


Figure 4. Motor vehicle waste disposal system

or any area where vehicular repair work is performed.

The USEPA's Office on Water describes motor vehicle waste disposal wells as floor drains or sinks in service bays that are tied into a shallow disposal system (see Figure 4). Most commonly, these shallow systems are

septic systems or drywells, but any underground system that receives motor vehicle waste would be considered a motor vehicle waste disposal well. A variety of names are used to describe shallow disposal systems including: cesspools, catchbasins, sink holes, underground vaults, or drain tanks.

Review of the historical sampling data indicates that no volatile organic chemical contamination has been detected in Abbott Loop Community Chapel's drinking water (See Chart 7 – Contaminant Risks for Volatile Organic Chemicals in Appendix D).

The contaminant risk for heavy metals and other inorganic chemicals is very high with Class V motor vehicle waste disposal wells, motor vehicle repair shops, and above and underground fuel storage tanks presenting the most significant risk to the drinking water well. The overall vulnerability of the well to contamination is high from heavy metals and other inorganic chemicals after combining the contaminant risk with the natural susceptibility of the well.

Review if recent sampling history revealed that low concentrations of inorganic chemicals have been detected in Abbott Loop Community Chapel's source waters. Sampling done on December 9, 1998 detected arsenic at 0.008mg/L or 80% of the MCL for arsenic. The most recent water sample was taken on June 19, 2001 and lab analysis revealed that arsenic was not detected (See Chart 9 – Contaminant Risks for Heavy Metals and Other Inorganic Chemicals in Appendix D). Combining the contaminant risk with the natural susceptibility of the well leads to an overall vulnerability to heavy metals and other inorganic chemical contamination of high.

According to the EPA "Arsenic occurs naturally in rocks and soil, water, air, and plants and animals. It can be further released into the environment through natural activities such as volcanic action, erosion of rocks, and forest fires, or through human actions. Approximately 90 percent of industrial arsenic in the U.S. is currently used as a wood preservative, but arsenic is also used in paints, dyes, metals, drugs, soaps, and semi-conductors. Agricultural applications, mining, and smelting also contribute to arsenic releases in the environment." (EPA, 2001).

Studies have linked long-term exposure to arsenic in drinking water to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate. Non-cancer effects of ingesting arsenic include cardiovascular, pulmonary, immunological, neurological, and endocrine (e.g., diabetes) effects. Short-term exposure to high doses of arsenic can cause other adverse health effects, but such effects are unlikely to occur from U.S. public water supplies that are in compliance with the previous arsenic standard of 50 ppb. (EPA, 2001)

The contaminant risk for synthetic organic chemicals is high with residential areas, lawn and garden supply storage, and sewer lines presenting the most significant risk to the drinking water well. After combining the contaminant risk for synthetic organic chemicals with the natural susceptibility of the well, the overall vulnerability of the well to contamination from synthetic organic chemicals is medium.

The contaminant risk for other organic chemicals is very high with a solvent storage area, Class V motor vehicle waste disposal wells, gasoline stations, heavy equipment storage areas, motor vehicle repair shops, and residential areas presenting the most significant risk to the drinking water well. After combining the contaminant risk for other organic chemicals the natural susceptibility of the well, the overall vulnerability of the well to contaminant on from other organic chemicals is high.

A Synthetic Organic Chemical and Other Organic Chemical Monitoring Waiver Application was submitted to ADEC October 21, 1997. Historical sampling data for both contaminant categories does not exist at this time (See Charts 11 and 13 – Contaminant Risks for Synthetic Organic Chemicals and Other Organic Chemicals in Appendix D, respectively).

SUMMARY

A Source Water Assessment has been completed for Abbott Loop Community Chapel. The overall vulnerability of this water source to contamination is **medium** for synthetic organic chemicals; and **high** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, and other organic chemicals. This assessment of contaminant risks can be used as a foundation for local voluntary protection efforts as well as a basis for continuous efforts on the part of Abbott Loop Community Chapel to protect public health. It is anticipated that Source Water Assessments will be updated every five years to reflect any changes in the vulnerability and/or susceptibility of the drinking water source.

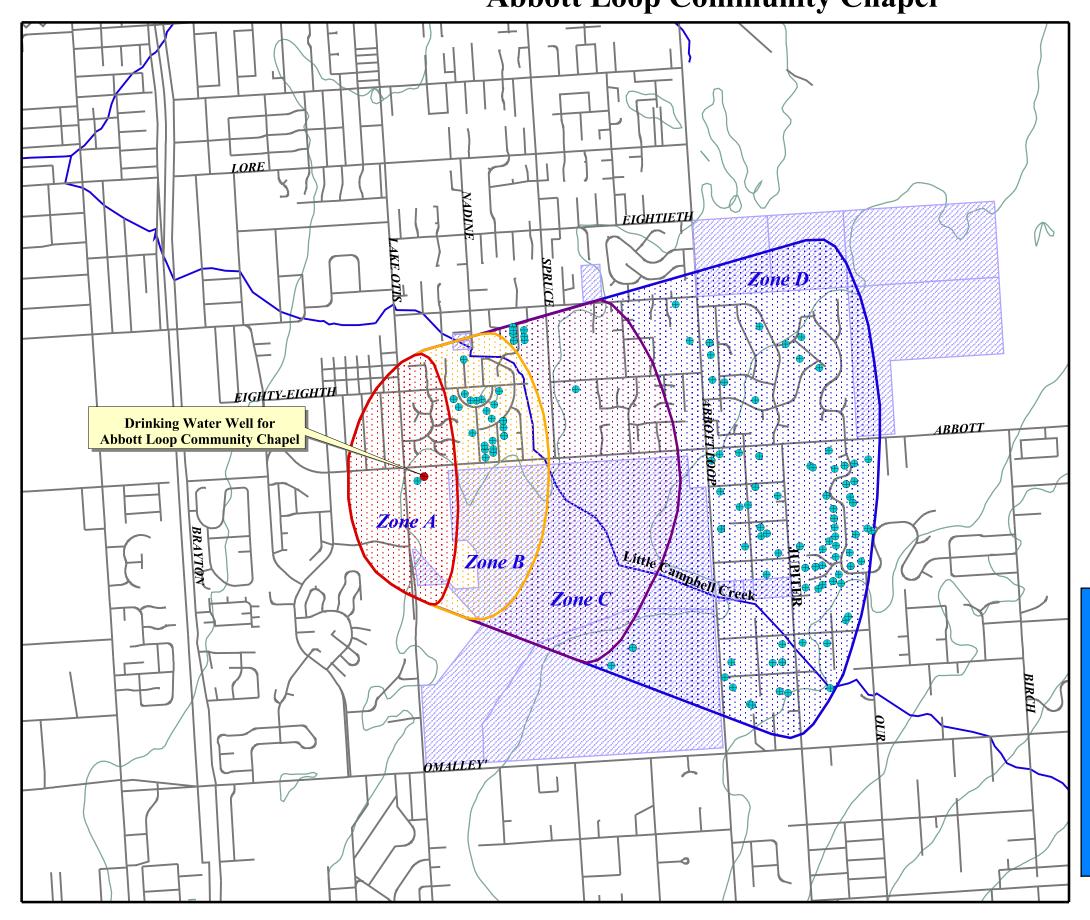
REFERENCES CITED

- Barnwell, W.W., George, R.S., Dearborn, L.L., Weeks, J.B., and Zenone, C., 1972, Water for Anchorage: an atlas of the water resources of the Anchorage area, Alaska: U.S. Geological Survey Open-File Report, 76 p.
- Patrick, L.D., Brabets, T.P., and Glass, R.L., 1989, Simulation of ground-water flow at Anchorage, Alaska: U.S. Geological Survey Water-Resources Investigations Report 88-4139, 41p.
- Ulery, C.A. and Updike, R.G, 1983, Subsurface structure of the cohesive facies of the Bootlegger Cove Formation, Southwest Anchorage, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 84, 5 p.
- United States Environmental Protection Agency, 2002. Region 10: What Should I Know About Motor Vehicle Waste
 - Disposal Wells? Retrieved April 10 2002. [WWW.document] URL http://www.epa.gov/safewater/uic/cl5oper/motorveh.html
- United States Environmental Protection Agency (EPA, Office of Water). 2001, July 23.Retrieved February 2002 [WWW document]. URL http://www.epa.gov/safewater/ars/ars_rule_factsheet.html
- United States Environmental Protection Agency, 2001, Office of Water. Retrieved March 2002. [WWW document] URL http://www.epa.gov/safewater/dwh/c-ioc/nickel.html
- Wang, B., Strelakos, P.M., and Jokela, B., 2000, Nitrate Source Indicators In Groundwater of the Scimitar Subdivision, Peters Creek Area, Anchorage Alaska: U.S. Geological Survey Water-Resources Investigations Report 00-4137, 25p.
- Western Regional Climate Center, 2000, August 24, Web extension to the *Western Regional Climate Center* [WWW document]. URL http://www.wrcc.dri.edu/index.html

APPENDIX A

Drinking Water Protection Area for Abbott Loop Community Chapel

Drinking Water Protection Area for Abbott Loop Community Chapel



- Abbott Loop Community Chapel Well
- Private and Public Wells

Zone A Protection Area

Several Months Travel Time

Zone B Protection Area

Less Than 2 Years Travel Time

Zone C Protection Area

Less Than 5 Years Travel Time

Zone D Protection Area

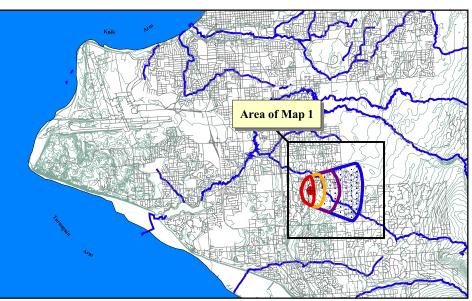
Less Than 10 Years Travel Time

Anchorage Parks (X4)

Anchorage Roads

Anchorage Streams

Elevation Contours



Map 1

30<u>00</u> 0 3000 6000 Feet

PWSID 212380.001

APPENDIX B

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Table 1

Contaminant Source Inventory for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Comments
Aircraft maintenance shops	C01	C01-1	A	Off of Golovin Street	4	
Dry cleaners	C10	C10-1	A	Off of Lake Otis Parkway	4	
Gasoline stations (without repair shop)	C15	C15-1	A	Off of Lake Otis Parkway	4	
Gasoline stations (with repair shop)	C16	C16-1	A	Off of Lake Otis Parkway	4	
Heavy equipment rental/storage	C18	C18-1	A	Off of Arlon Street	4	
Lawn and garden supplies/services	C23	C23-1	A	Abbott Loop Community Chapel's property	4	Located in the fienced in equipment storage area.
Motor /motor vehicle repair shops	C31	C31-1	A	Off of Arlon Street	4	
Motor /motor vehicle repair shops	C31	C31-2	A	Off of Eighty-eighth Ave.	4	
Motor /motor vehicle repair shops	C31	C31-3	A	Off of Eighty-eighth Ave.	4	
Pest extermination services/pesticide sales	C33	C33-1	A	Off of Golovin Street	4	
Construction trade areas and materials	C09	C9-1	A	Off of Golovin Street	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Along Snug Harbor Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Along Beluga Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Along Seal Point Circle	3	

Ontaminant Source Type Contaminant CS ID tag Zone Location Source ID		Map Number	Comments			
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Extending from Sentry Drive	Extending from Sentry Drive 3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Along Abbott Loop Road 3		
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Along Bell Place	3	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Off of Golovin Street 4		
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	Off of Lake Otis Parkway 4		
Residential Areas	R01	R1-1	A	Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Fuel drums (above ground)	Т01	T1-1	A	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property

Contaminant Source Type	Source ID		Map Number	Comments		
Tanks, gasoline (above ground)			3			
Tanks, gasoline (above ground)	T10	T10-2	A	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-3	A	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-4	A	Off of Eighty-eighth Ave.	3	
Tanks, gasoline (underground)	T12	T12-1	A	Off of Lake Otis Parkway	4	
Tanks, gasoline (underground)	T12	T12-2	A	Off of Lake Otis Parkway	4	
Tanks, diesel (above ground)	Т06	T6-1	A	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	Т06	T6-1	A	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Tanks, diesel (above ground)	T06	T6-2	A	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	Т06	T6-3	A	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	Т06	T6-4	A	Off of Abbott Loop Road near Sentry Drive	3	
Tanks, diesel (underground)	Т08	T8-1	A	Abbott Loop Community Chapel's property	4	Diesel stored in underground fuel tank in generator building.
Closed Leaking Underground Fuel Storage Tank (LUST) (lubicants or other petroleum products)	U08	U8-1	A	Off of Lake Otis Parkway	4	A petroleum release was discovered from an emergency generator UST. The tanks and contaminated soils were removed and the site was closed 1/18/97.
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U08	U8-2	A	Off of Lake Otis Parkway	4	Gasoline contaminated soil was discovered during a UST upgrade.
Asbestos, disposed or stockpiled	X05	X05-1	A	Main Building on Abbott Loop Community Chapel's property	4	Dry asbestos stored onsite until enough accumulates for disposal.
Solvents (storage)	X13	X13-1	A	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Bell Place	2	

Highways and roads, paved (cement or asphalt) X20 Highways and roads, paved (cement or asphalt) X20	X20-13 X20-14 X20-15 X20-16	A A A	Bell Circle Eighty-seventh Ave. Arlon Street	2 2	
Highways and roads, paved (cement or asphalt) X20 Highways and roads, paved (cement or asphalt) X20	X20-15 X20-16	A		2	
Highways and roads, paved (cement or asphalt) X20	X20-16		Arlon Street		
		A		2	
Highways and roads, paved (cement or asphalt) X20	*****		Arlon Street	2	
	X20-17	A	Golovin Street	2	
Highways and roads, paved (cement or asphalt) X20	X20-18	A	Sentry Drive	2	
Highways and roads, paved (cement or asphalt) X20	X20-2	A	Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt) X20	X20-3	A	Seal Point Circle	2	
Highways and roads, paved (cement or asphalt) X20	X20-4	A	Shady Bay Circle	2	
Highways and roads, paved (cement or asphalt) X20	X20-5	A	Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt) X20	X20-6	A	Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt) X20	X20-7	A	Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt) X20	X20-8	A	Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt) X20	X20-9	A	Boulder Bay Circle	2	
Motor vehicle/general storage yards/facilities X27	X27-1	A	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Road/highway maintenance depots (including salt/sand X32 storage areas)	X32-1	A	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Municipal or city parks (with green areas) X04	X4-1	A	Anchorage parks located within Zone A and throughout Zone B	3	
Dog walking areas/foot trails X46	X46-1	A	Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails X46	X46-2	A	Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails X46	X46-3	A	Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails X46	X46-4	A	Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails X46	X46-5	A	Trail to the east of Lake Otis Parkway	2	
Dog walking areas/foot trails X46	X46-6	A	Trail the to east of Lake Otis Parkway	2	
Dog walking areas/foot trails X46	X46-7	A	Trail to the north of Abbott Loop	2	
Dog walking areas/foot trails X46	X46-8	A	Trail to the south of eighty-eighth Ave.	2	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Comments
Construction trade areas and materials	C09	C9-2	В	Off of Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Along Young Meadows Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Near Nadine Street	Near Nadine Street 6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Along South Circle 6		
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Little Creek Drive 6		
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Uno Circle 6		

Contaminant Source Type	Contaminant CS ID tag Zone Location Source ID		Map Number	Comments		
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Dos Circle	6	
Residential Areas	R01	R1-2	В	Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-1	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Young Meadows Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Roaslind Loop	5	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Uno Circle 5		
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Gordon Circle	5	
Municipal or city parks (with green areas)	X04	X4-2	В	Anchorage parks located within Zone C	5	
Dog walking areas/foot trails	X46	X46-9	В	Trail intersecting Zone B	5	
Livestock stables/corrals	A09	A9-1	С	Off of Abbott Loop Road	8	
Construction trade areas and materials	C09	C9-3	С	Along Raintree Circle	8	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	C	Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	C	Septic systems located within Zone C	7	
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	C	Roads located within Zone C 7		
Dog walking areas/foot trails	X46	X46-10	C	Trail located within Zone C	7	

Table 2

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Residential Areas	R01	R1-1	A	Low	1	Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Medium	2	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Medium	3	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Medium	4	Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Medium	5	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Medium	6	Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Medium	7	Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Medium	8	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Medium	9	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Medium	10	Along Bell Place	3	
Dry cleaners	C10	C10-1	A	Low		Off of Lake Otis Parkway	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Medium		Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Medium		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Medium		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Medium		Along Snug Harbor Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Medium		Along Beluga Bay Circle	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Medium		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Medium		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Medium		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Medium		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Medium		Extending from Sentry Drive	3	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Low		Off of Golovin Street	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	Low		Off of Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		Bell Place	2	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Low		Bell Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Low		Eighty-seventh Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Low		Golovin Street	2	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Low		Sentry Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		Seal Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		Shady Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		Boulder Bay Circle	2	
Municipal or city parks (with green areas)	X04	X4-1	A	Medium		Anchorage parks located within Zone A and throughout Zone B	3	
Dog walking areas/foot trails	X46	X46-1	A	Low		Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-2	A	Low		Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-3	A	Low		Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-4	A	Low		Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-5	A	Low		Trail to the east of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-6	A	Low		Trail the to east of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-7	A	Low		Trail to the north of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-8	A	Low		Trail to the south of eighty-eighth Ave.	2	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Medium		Along Young Meadows Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Medium		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Medium		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Medium		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Medium		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Medium		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Medium		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Medium		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Medium		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Medium		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Medium		Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Medium		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Medium		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Medium		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Medium		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Medium		Little Creek Drive	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Medium		Uno Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Medium		Dos Circle	6	
Residential Areas	R01	R1-2	В	Low		Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Low		Young Meadows Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Low		Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Low		Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Low		Roaslind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Low		Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Low		Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Low		Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	Low		North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Low		Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	Low		South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Low		Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Low		Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Low		Uno Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Low		Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Low		Gordon Circle	5	
Municipal or city parks (with green areas)	X04	X4-2	В	Medium		Anchorage parks located within Zone C	5	
Dog walking areas/foot trails	X46	X46-9	В	Low		Trail intersecting Zone B	5	
Livestock stables/corrals	A09	A9-1	C	Medium		Off of Abbott Loop Road	8	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	C	Medium		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	C	Low		Septic systems located within Zone C	7	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	С	Low		Roads located within Zone C	7	
Dog walking areas/foot trails	X46	X46-10	С	Low		Trail located within Zone C	7	

Table 3

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Residential Areas	R01	R1-1	A	Low	1	Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Medium	2	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Medium	3	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Medium	4	Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Medium	5	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Medium	6	Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Medium	7	Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Medium	8	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Medium	9	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Medium	10	Along Bell Place	3	
Dry cleaners	C10	C10-1	A	Low		Off of Lake Otis Parkway	4	
Lawn and garden supplies/services	C23	C23-1	A	Medium		Abbott Loop Community Chapel's property	4	Located in the fienced in equipment storage area.
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Medium		Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Medium		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Medium		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Medium		Along Snug Harbor Circle	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Medium		Along Beluga Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Medium		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Medium		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Medium		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Medium		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Medium		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Medium		Extending from Sentry Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		Bell Place	2	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Low		Bell Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Low		Eighty-seventh Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Low		Golovin Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Low		Sentry Drive	2	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		Seal Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		Shady Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		Boulder Bay Circle	2	
Municipal or city parks (with green areas)	X04	X4-1	A	Medium		Anchorage parks located within Zone A and throughout Zone B	3	
Dog walking areas/foot trails	X46	X46-1	A	Low		Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-2	A	Low		Trail to the south of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-3	A	Low		Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-4	A	Low		Trail to the west of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-5	A	Low		Trail to the east of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-6	A	Low		Trail the to east of Lake Otis Parkway	2	
Dog walking areas/foot trails	X46	X46-7	A	Low		Trail to the north of Abbott Loop	2	
Dog walking areas/foot trails	X46	X46-8	A	Low		Trail to the south of eighty-eighth Ave.	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Medium		Along Young Meadows Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Medium		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Medium		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Medium		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Medium		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Medium		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Medium		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Medium		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Medium		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Medium		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Medium		Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Medium		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Medium		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Medium		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Medium		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Medium		Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Medium		Uno Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Medium		Dos Circle	6	
Residential Areas	R01	R1-2	В	Low		Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Low		Young Meadows Circle	5	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Low		Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Low		Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Low		Roaslind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Low		Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Low		Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Low		Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	Low		North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Low		Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	Low		South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Low		Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Low		Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Low		Uno Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Low		Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Low		Gordon Circle	5	
Municipal or city parks (with green areas)	X04	X4-2	В	Medium		Anchorage parks located within Zone C	5	
Dog walking areas/foot trails	X46	X46-9	В	Low		Trail intersecting Zone B	5	
Livestock stables/corrals	A09	A9-1	C	Medium		Off of Abbott Loop Road	8	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Medium		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	С	Low		Septic systems located within Zone C	7	
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	С	Low		Roads located within Zone C	7	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel Sources of Nitrates/Nitrites

PWSID 212380.001

Contaminant Source Type	Contaminant Source ID	CS ID tag			Overall Rank after Analysis	Location	Map Number	Comments
Dog walking areas/foot trails	X46	X46-10	С	Low		Trail located within Zone C	7	

Table 4

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	High	1	Off of Golovin Street	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	High	2	Off of Lake Otis Parkway	4	
Dry cleaners	C10	C10-1	A	High	3	Off of Lake Otis Parkway	4	
Gasoline stations (without repair shop)	C15	C15-1	A	High	4	Off of Lake Otis Parkway	4	
Gasoline stations (with repair shop)	C16	C16-1	A	High	5	Off of Lake Otis Parkway	4	
Tanks, diesel (underground)	Т08	T8-1	A	High	6	Abbott Loop Community Chapel's property	4	Diesel stored in underground fuel tank in generator building.
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	7	Off of Arlon Street	4	
Motor /motor vehicle repair shops	C31	C31-2	A	Medium	8	Off of Eighty-eighth Ave.	4	
Motor /motor vehicle repair shops	C31	C31-3	A	Medium	9	Off of Eighty-eighth Ave.	4	
Solvents (storage)	X13	X13-1	A	High	10	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Aircraft maintenance shops	C01	C01-1	A	Low		Off of Golovin Street	4	
Heavy equipment rental/storage	C18	C18-1	A	Medium		Off of Arlon Street	4	
Pest extermination services/pesticide sales	C33	C33-1	A	Low		Off of Golovin Street	4	
Construction trade areas and materials	C09	C9-1	A	Low		Off of Golovin Street	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Low		Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Low		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Low		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Low		Along Snug Harbor Circle	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Low		Along Beluga Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Low		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Low		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Low		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Low		Extending from Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low		Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Low		Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Low		Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Low		Along Lake Otis Parkway	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Low		Along Bell Place	3	
Residential Areas	R01	R1-1	A	Low		Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Fuel drums (above ground)	T01	T1-1	A	Medium		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Tanks, gasoline (above ground)	T10	T10-1	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-2	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-3	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-4	A	Medium		Off of Eighty-eighth Ave.	3	
Tanks, gasoline (underground)	T12	T12-1	A	High		Off of Lake Otis Parkway	4	
Tanks, gasoline (underground)	T12	T12-2	A	High		Off of Lake Otis Parkway	4	
Tanks, diesel (above ground)	T06	T6-1	A	Medium		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Tanks, diesel (above ground)	T06	T6-1	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	T06	T6-2	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	T06	T6-3	A	Medium		Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, diesel (above ground)	T06	T6-4	A	Medium		Off of Abbott Loop Road near Sentry Drive	3	
Closed Leaking Underground Fuel Storage Tank (LUST) (lubicants or other petroleum products)	U08	U8-1	A	High		Off of Lake Otis Parkway	4	A petroleum release was discovered from an emergency generator UST. The tanks and contaminated soils were removed and the site was closed 1/18/97.
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U08	U8-2	A	High		Off of Lake Otis Parkway	4	Gasoline contaminated soil was discovered during a UST upgrade.

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		Bell Place	2	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Low		Bell Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Low		Eighty-seventh Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Low		Golovin Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Low		Sentry Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		Seal Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		Shady Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		Boulder Bay Circle	2	
Motor vehicle/general storage yards/facilities	X27	X27-1	A	Low		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Road/highway maintenance depots (including salt/sand storage areas)	X32	X32-1	A	Low		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Construction trade areas and materials	C09	C9-2	В	Low		Off of Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Low		Along Young Meadows Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Low		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Low		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Low		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Low		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Low		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Low		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Low		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Low		Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Low		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Low		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Low		Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Low		Uno Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Low		Dos Circle	6	
Residential Areas	R01	R1-2	В	Low		Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Low		Young Meadows Circle	5	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Low		Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Low		Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Low		Roaslind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Low		Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Low		Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Low		Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	Low		North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Low		Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	Low		South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Low		Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Low		Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Low		Uno Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Low		Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Low		Gordon Circle	5	
Construction trade areas and materials	C09	C9-3	С	Low		Along Raintree Circle	8	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Low		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	С	Low		Septic systems located within Zone C	7	
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	С	Low		Roads located within Zone C	7	

Table 5

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	High	1	Off of Golovin Street	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	High	2	Off of Lake Otis Parkway	4	
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	3	Off of Arlon Street	4	
Motor /motor vehicle repair shops	C31	C31-2	A	Medium	4	Off of Eighty-eighth Ave.	4	
Motor /motor vehicle repair shops	C31	C31-3	A	Medium	5	Off of Eighty-eighth Ave.	4	
Tanks, gasoline (underground)	T12	T12-1	A	Medium	6	Off of Lake Otis Parkway	4	
Tanks, gasoline (underground)	T12	T12-2	A	Medium	7	Off of Lake Otis Parkway	4	
Tanks, gasoline (above ground)	T10	T10-1	A	Medium	8	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-2	A	Medium	9	Off of Abbott Loop Road and Lake Otis Parkway	3	
Tanks, gasoline (above ground)	T10	T10-3	A	Medium	10	Off of Abbott Loop Road and Lake Otis Parkway	3	
Aircraft maintenance shops	C01	C01-1	A	Low		Off of Golovin Street	4	
Gasoline stations (without repair shop)	C15	C15-1	A	Low		Off of Lake Otis Parkway	4	
Gasoline stations (with repair shop)	C16	C16-1	A	Low		Off of Lake Otis Parkway	4	
Heavy equipment rental/storage	C18	C18-1	A	Low		Off of Arlon Street	4	
Lawn and garden supplies/services	C23	C23-1	A	Low		Abbott Loop Community Chapel's property	4	Located in the fienced in equipment storage area.
Pest extermination services/pesticide sales	C33	C33-1	A	Low		Off of Golovin Street	4	
Construction trade areas and materials	C09	C9-1	A	Low		Off of Golovin Street	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Low		Along Puffin Point Circle	3	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Low		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Low		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Low		Along Snug Harbor Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Low		Along Beluga Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Low		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Low		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Low		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Low		Extending from Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low		Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Low		Along Golovin Street	3	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Low		Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Low		Along Bell Place	3	
Residential Areas	R01	R1-1	A	Low		Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Tanks, gasoline (above ground)	T10	T10-4	A	Medium		Off of Eighty-eighth Ave.	3	
Asbestos, disposed or stockpiled	X05	X05-1	A	Low		Main Building on Abbott Loop Community Chapel's property	4	Dry asbestos stored onsite until enough accumulates for disposal.
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		Bell Place	2	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Low		Bell Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Low		Eighty-seventh Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Low		Golovin Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Low		Sentry Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		Seal Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		Shady Bay Circle	2	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		Boulder Bay Circle	2	
Road/highway maintenance depots (including salt/sand storage areas)	X32	X32-1	A	Low		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Construction trade areas and materials	C09	C9-2	В	Low		Off of Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Low		Along Young Meadows Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Low		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Low		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Low		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Low		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Low		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Low		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Low		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Low		Along North Cirlce	6	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Low		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Low		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Low		Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Low		Uno Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Low		Dos Circle	6	
Residential Areas	R01	R1-2	В	Low		Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Low		Young Meadows Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Low		Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Low		Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Low		Roaslind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Low		Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Low		Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Low		Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	Low		North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Low		Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	Low		South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Low		Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Low		Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Low		Uno Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Low		Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Low		Gordon Circle	5	
Construction trade areas and materials	C09	C9-3	С	Low		Along Raintree Circle	8	
-								

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel

PWSID 212380.001

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Low		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	С	Low		Septic systems located within Zone C	7	
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	С	Low		Roads located within Zone C	7	

Table 6

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Residential Areas	R01	R1-1	A	Low	1	Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Residential Areas	R01	R1-2	В	Low	2	Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Lawn and garden supplies/services	C23	C23-1	A	Medium	3	Abbott Loop Community Chapel's property	4	Located in the fienced in equipment storage area.
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low	4	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low	5	Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low	6	Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Low	7	Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Low	8	Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Low	9	Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Low	10	Along Arlon Street	3	
Pest extermination services/pesticide sales	C33	C33-1	A	Low		Off of Golovin Street	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Low		Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Low		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Low		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Low		Along Snug Harbor Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Low		Along Beluga Bay Circle	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Low		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Low		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Low		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Low		Extending from Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Low		Along Bell Place	3	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Low		Off of Golovin Street	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	Low		Off of Lake Otis Parkway	4	
Road/highway maintenance depots (including salt/sand storage areas)	X32	X32-1	A	Low		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Municipal or city parks (with green areas)	X04	X4-1	A	Low		Anchorage parks located within Zone A and throughout Zone B	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Low		Along Young Meadows Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Low		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Low		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Low		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Low		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Low		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Low		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Low		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Low		Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Low		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Low		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Low		Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Low		Uno Circle	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Low		Dos Circle	6	
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Municipal or city parks (with green areas)	X04	X4-2	В	Low		Anchorage parks located within Zone C	5	
Livestock stables/corrals	A09	A9-1	С	Low		Off of Abbott Loop Road	8	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel Sources of Synthetic Organic Chemicals

PWSID 212380.001

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	U	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Low		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	С	Low		Septic systems located within Zone C	7	

Table 7

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Solvents (storage)	X13	X13-1	A	High	1	Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Medium	2	Off of Golovin Street	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	A	Medium	3	Off of Lake Otis Parkway	4	
Gasoline stations (with repair shop)	C16	C16-1	A	Medium	4	Off of Lake Otis Parkway	4	
Heavy equipment rental/storage	C18	C18-1	A	Medium	5	Off of Arlon Street	4	
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	6	Off of Arlon Street	4	
Motor /motor vehicle repair shops	C31	C31-2	A	Medium	7	Off of Eighty-eighth Ave.	4	
Motor /motor vehicle repair shops	C31	C31-3	A	Medium	8	Off of Eighty-eighth Ave.	4	
Residential Areas	R01	R1-1	A	Low	9	Residential areas located within Zone A	3	Approximately 59 acres of residential area.
Residential Areas	R01	R1-2	В	Low	10	Residential areas located within Zone B	6	Approximately 76 acres of residential area.
Aircraft maintenance shops	C01	C01-1	A	Low		Off of Golovin Street	4	
Gasoline stations (without repair shop)	C15	C15-1	A	Low		Off of Lake Otis Parkway	4	
Construction trade areas and materials	C09	C9-1	A	Low		Off of Golovin Street	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	A	Low		Along Puffin Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	A	Low		Along Boulder Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	A	Low		Along Crystal Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	A	Low		Along Snug Harbor Circle	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-14	A	Low		Along Beluga Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-15	A	Low		Along Shady Bay Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-16	A	Low		Along Seal Point Circle	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-17	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-18	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-19	A	Low		Perpendicular to Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-20	A	Low		Along Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-21	A	Low		Along Lake Otis Parkway	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-22	A	Low		Extending from Sentry Drive	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low		Along Abbott Loop Road	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	A	Low		Along Golovin Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	A	Low		Along Eighty-seventh Ave.	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	A	Low		Along Arlon Street	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	A	Low		Along Lake Otis Parkway	3	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	A	Low		Along Bell Place	3	
Closed Leaking Underground Fuel Storage Tank (LUST) (lubicants or other petroleum products)	U08	U8-1	A	Low		Off of Lake Otis Parkway	4	A petroleum release was discovered from an emergency generator UST. The tanks and contaminated soils were removed and the site was closed 1/18/97.
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U08	U8-2	A	Low		Off of Lake Otis Parkway	4	Gasoline contaminated soil was discovered during a UST upgrade.
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Abbott Loop	2	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		Puffin Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		Eighty-eighth Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		Bell Place	2	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Low		Bell Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Low		Eighty-seventh Ave.	2	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Low		Arlon Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Low		Golovin Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Low		Sentry Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		Lake Otis Parkway	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		Seal Point Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		Shady Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		Beluga Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		Snug Harbor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		Crystal Bay Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		Rocky Cove Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		Boulder Bay Circle	2	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Motor vehicle/general storage yards/facilities	X27	X27-1	A	Low		Abbott Loop Community Chapel's property	4	Abbott Loop Community Chapel's property
Construction trade areas and materials	C09	C9-2	В	Low		Off of Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-23	В	Low		Along Young Meadows Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-24	В	Low		Along North Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-25	В	Low		Along Swiss Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-26	В	Low		Line Linking Swiss Cirlce with Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-27	В	Low		Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-28	В	Low		Gordon Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-29	В	Low		Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-30	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-31	В	Low		Along Rosalind Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-32	В	Low		Along Carter Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-33	В	Low		Along North Cirlce	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-34	В	Low		Along Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-35	В	Low		Near Nadine Street	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-36	В	Low		Near Nadine Street	6	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-37	В	Low		Along South Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-38	В	Low		Little Creek Drive	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-39	В	Low		Uno Circle	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-40	В	Low		Dos Circle	6	
Septic systems (serves one single-family home)	R02	R2-1	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-10	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-11	В	Low		Off of Nadine Street	5	
Septic systems (serves one single-family home)	R02	R2-12	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-13	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-14	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-15	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-16	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-17	В	Low		Off of South Circle	5	
Septic systems (serves one single-family home)	R02	R2-18	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-19	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-2	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-20	В	Low		Off of Granite Place	5	
Septic systems (serves one single-family home)	R02	R2-3	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-4	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-5	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-6	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-7	В	Low		Off of North Circle	5	

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map Number	Comments
Septic systems (serves one single-family home)	R02	R2-8	В	Low		Off of North Circle	5	
Septic systems (serves one single-family home)	R02	R2-9	В	Low		Off of North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	В	Low		Young Meadows Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	В	Low		Swiss Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	В	Low		Rosalind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	В	Low		Roaslind Loop	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	В	Low		Carter Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	В	Low		Rosaline Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	В	Low		Gordon Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	В	Low		North Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-27	В	Low		Nadine Street	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	В	Low		South Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	В	Low		Granite Place	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	В	Low		Little Creek Drive	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	В	Low		Uno Circle	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	В	Low		Dos Cirlce	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	В	Low		Gordon Circle	5	
Construction trade areas and materials	C09	C9-3	С	Low		Along Raintree Circle	8	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-41-60	С	Low		Sewer lines located within Zone C	8	
Residential Areas	R01	R1-3	С	Low		Residential areas located within Zone C	7	Approximately 123 acres of residential area.
Septic systems (serves one single-family home)	R02	R2-21-27	С	Low		Septic systems located within Zone C	7	
Highways and roads, paved (cement or asphalt)	X20	X20-34-52	C	Low		Roads located within Zone C	7	

Contaminant Source Inventory and Risk Ranking for Abbott Loop Community Chapel Sources of Other Organic Chemicals

PWSID 212380.001

Contaminant Source Type

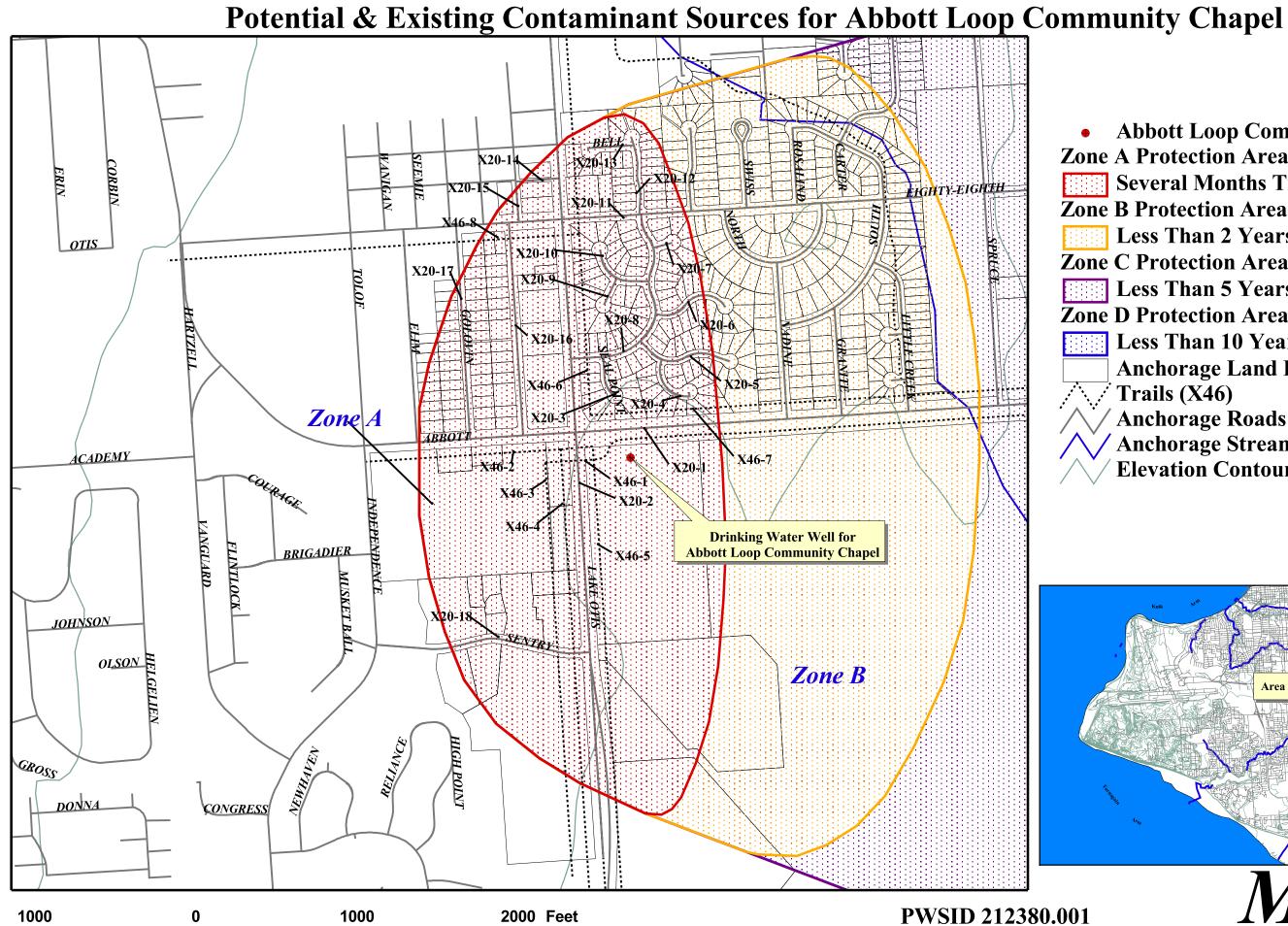
Contaminant Source ID

Contaminant Source I

APPENDIX C

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel

Drinking Water Protection Area and



Abbott Loop Community Chapel Well

Zone A Protection Area

Several Months Travel Time

Zone B Protection Area

Less Than 2 Years Travel Time

Zone C Protection Area

Less Than 5 Years Travel Time

Zone D Protection Area

Less Than 10 Years Travel Time

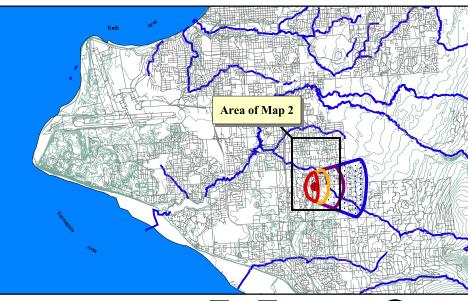
Anchorage Land Parcels

Trails (X46)

Anchorage Roads (X20)

Anchorage Streams

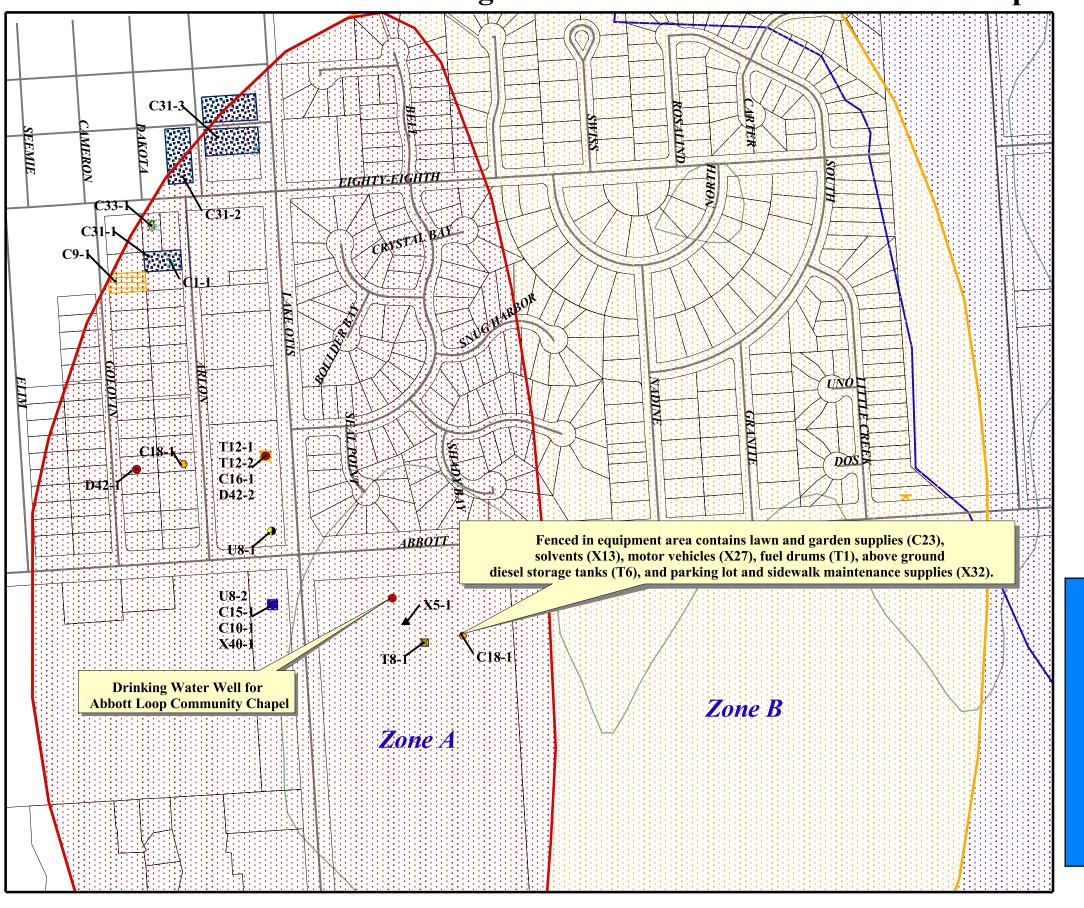
Elevation Contours



Map 2

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel **Abbott Loop Community Chapel Well** EIGHTY-SIXTH **Zone A Protection Area Several Months Travel Time Zone** B Protection Area **Less Than 2 Years Travel Time Zone** C Protection Area **Less Than 5 Years Travel Time Zone** D Protection Area **Less Than 10 Years Travel Time** Above Ground Storage Tanks BELUGA BAY **Anchorage Parks (X4)** Lawns and Gardens (R1) Zone A Sewer Lines (D1) T6-1 **Anchorage Roads (X20)** T6-2 **Anchorage Streams** ACADEMY T10-1 **Elevation Contours** D1-1 **Drinking Water Well for** BRIGADIER **Abbott Loop Community Chapel** D1-**JOHNSON** D1-20 Zone B D1-21 **CONGRESS** PWSID 212380.001 1000 1000 2000 Feet

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Church

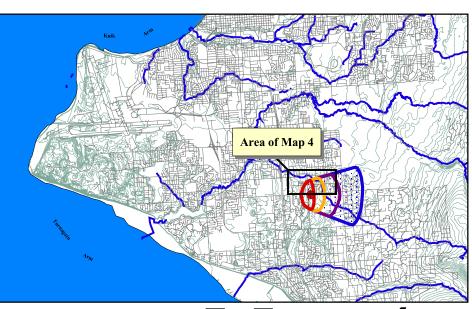


500

500

1000 Feet

Abbott Loop Community Chapel Well **Zone A Protection Area** Several Months Travel Time **Zone** B Protection Area Less Than 2 Years Travel Time **Zone** C Protection Area Less Than 5 Years Travel Time **Zone** D Protection Area Less Than 10 Years Travel Time **Potential Contaminant Sources Livestock Stables/Corrals (A9) Aircraft Maintenance Shops (C1)** Dry Cleaners (C10) **Gasoline Stations - Without Repair Shops (C15) Gasoline Stations - With Repair Shops (C16) Heavy Equipment Storage Area (C18)** Pest Extermination Services/Sales (C33) Photography Supplies/Photo Processing (C36) **Car Washes With Engine Cleaning (C8) Construction Trade Areas and Materials (C9) Class V Injection Well - Motor Vehicle Waste (D42) Gasoline Tanks - Underground (T12) Leaking Underground Fuel Storage Tank - Closed (U8)** Asbestos storage **Diesel Tanks - Underground (T8) Construction Trade Areas and Materials (C9)** Motor/Motor Vehicle Repair Shops (C31) **Anchorage Land Parcels Anchorage Roads (X20)**



// Anchorage Streams

/ Elevation Contours

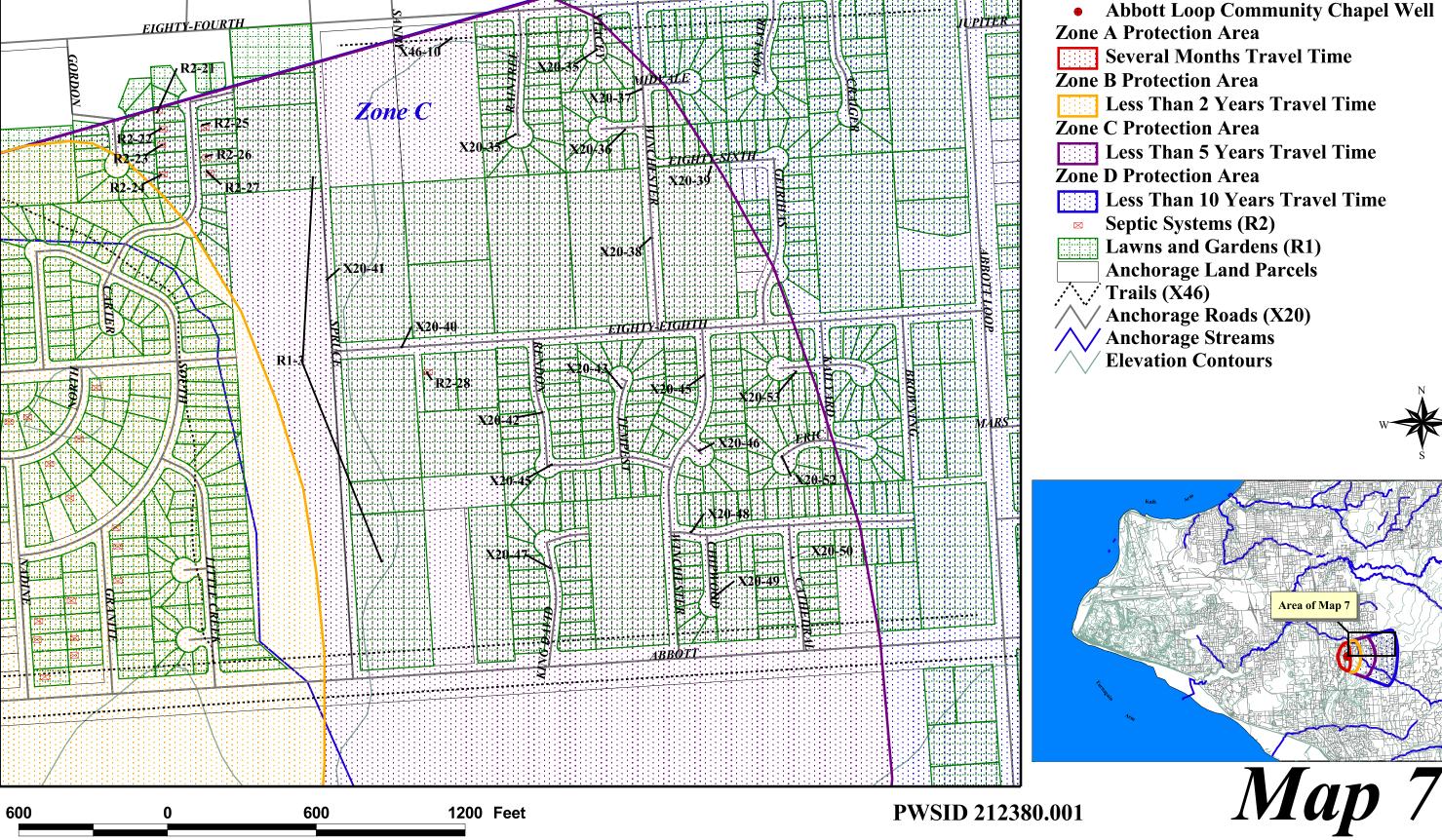
Map 4

PWSID 212380.001

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel **Abbott Loop Community Chapel Well Zone A Protection Area Several Months Travel Time Zone** B Protection Area **Less Than 2 Years Travel Time Zone** C Protection Area Zone B **Less Than 5 Years Travel Time Zone** D Protection Area **Less Than 10 Years Travel Time** Septic Systems (R2) Lawns and Gardens (R1) **Anchorage Land Parcels** Trails (X46) **Anchorage Roads (X20) Anchorage Streams Elevation Contours** PWSID 212380.001 600 600 1200 Feet

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel Abbott Loop Community Chapel Well **Zone A Protection Area Several Months Travel Time** Zone B **Zone B Protection Area Less Than 2 Years Travel Time Zone C Protection Area** Less Than 5 Years Travel Time **Zone** D Protection Area Less Than 10 Years Travel Time **Potential Contaminant Sources ★ Livestock Stables/Corrals (A9) Aircraft Maintenance Shops (C1)** D1-25 **Dry Cleaners (C10) Gasoline Stations - Without Repair Shops (C15) Gasoline Stations - With Repair Shops (C16) Heavy Equipment Rental/Storage (C18)** EIGHTY-EIGHTH **Pest Extermination Services/Sales (C33)** Photography Supplies/Photo Processing (C36) **Car Washes With Engine Cleaning (C8) Construction Trade Areas and Materials (C9) Class V Injection Well - Motor Vehicle Waste (D42) Gasoline Tanks - Underground (T12) Leaking Underground Fuel Storage Tank - Closed (U8) Anchorage Land Parcels** Lawns and Gardens (R1) Sewer Lines (D1) Anchorage Roads (X20) Anchorage Streams Elevation Contours PWSID 212380.001 500 500 1000 Feet

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel Abbott Loop Community Zone A Protection Area Several Months Travel Tip



Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel Abbott Loop Community Chapel Well **Zone A Protection Area** Several Months Travel Time D1-59-**Zone** B Protection Area EIGHTY-FOURTH Less Than 2 Years Travel Time **Zone C Protection Area** Less Than 5 Years Travel Time **Zone D Protection Area** Less Than 10 Years Travel Time **Potential Contaminant Sources** GARY COOPER **Livestock Stables/Corrals (A9) Aircraft Maintenance Shops (C1)** Dry Cleaners (C10) D1-55 **Gasoline Stations - Without Repair Shops (C15) Gasoline Stations - With Repair Shops (C16)** Zone C Heavy Equipment Rental/Storage (C18) Paint Sales/Service (C32) Pest Extermination Services/Sales (C33) Photography Supplies/Photo Processing (C36) Car Washes With Engine Cleaning (C8) **Construction Trade Areas and Materials (C9) Class V Injection Well - Motor Vehicle Waste (D42)** EIGHTY-EIGHTH **Gasoline Tanks - Underground (T12) Leaking Underground Fuel Storage Tank - Closed (U8) Anchorage Land Parcels** Sewer Lines (D1) Anchorage Roads (X20) **//** Anchorage Streams / Elevation Contours D1-41 D1-50 A9-1 PWSID 212380.001 600 600 **1200 Feet**

Drinking Water Protection Area and Potential & Existing Contaminant Sources for Abbott Loop Community Chapel **Abbott Loop Community Chapel Well Zone A Protection Area Several Months Travel Time** DANE **Zone B Protection Area** EIGHTY-FOURTH **Less Than 2 Years Travel Time Zone** C Protection Area Zone D **Less Than 5 Years Travel Time Zone** D Protection Area EIGHTY EIGHT **Less Than 10 Years Travel Time Anchorage Parks (X4) Anchorage Roads (X20) Anchorage Streams** BIRCH RUN CHISANA **Elevation Contours** NICKELL YUKON LILLESTON BARR OLYMPIA NINETY-SEVENTH **Drinking Water Well for** NINETY-EIGHTH **Abbott Loop Community Chapel** NINETY-EIGHTH Little Campbell Creek NINETY-NINTH MILROB ONE-HUNDRED-FIRST ONE-HUNDRED-FOURTH RIVES RIDGEMONT PWSID 212380.001 2000 2000 4000 Feet

APPENDIX D

Vulnerability Analysis for Abbott Loop Community Chapel

Chart 1. Susceptibility of the wellhead - Abbott Loop Community Chapel

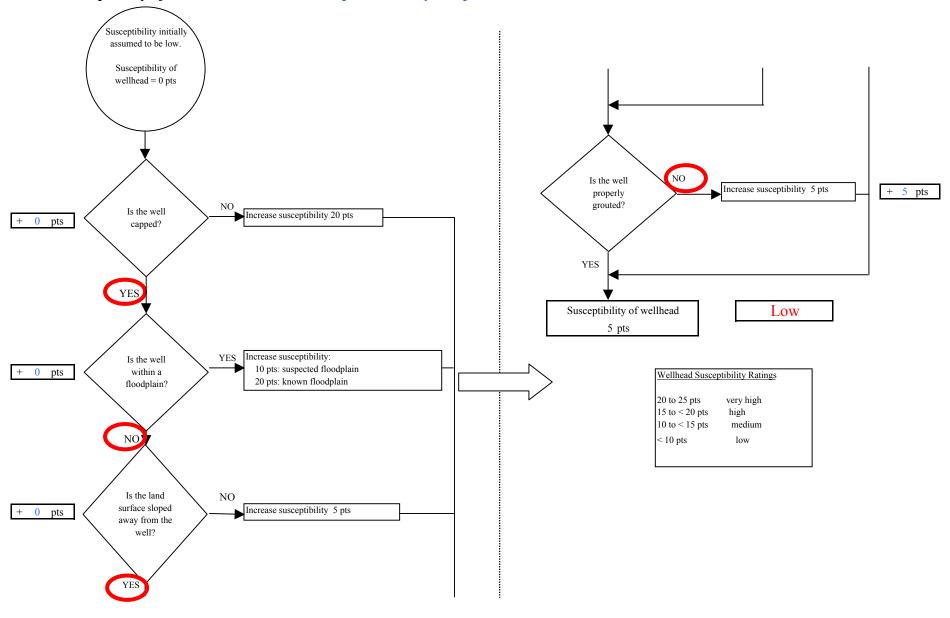
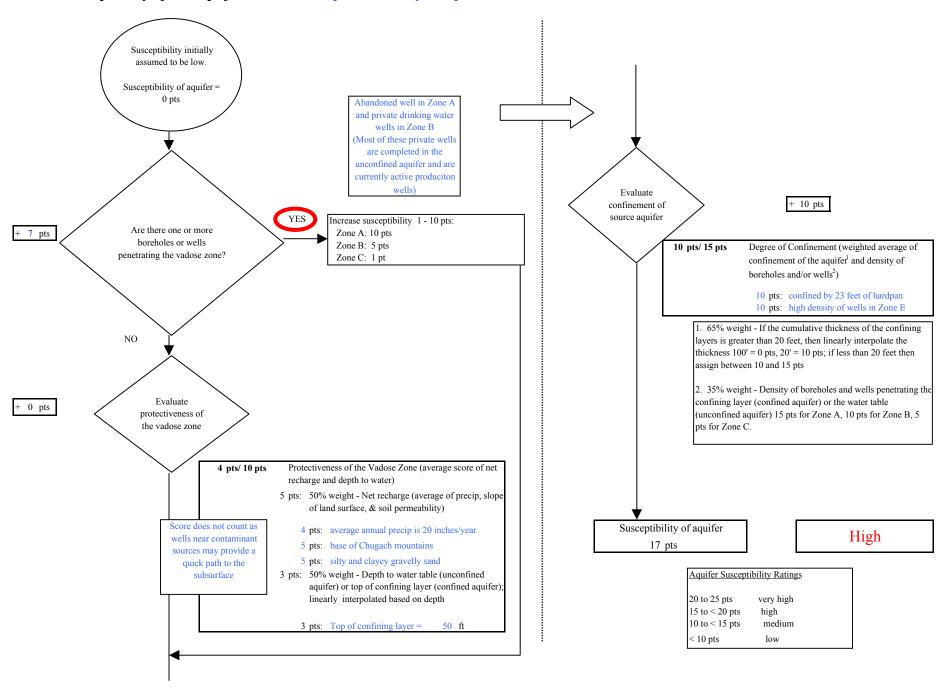
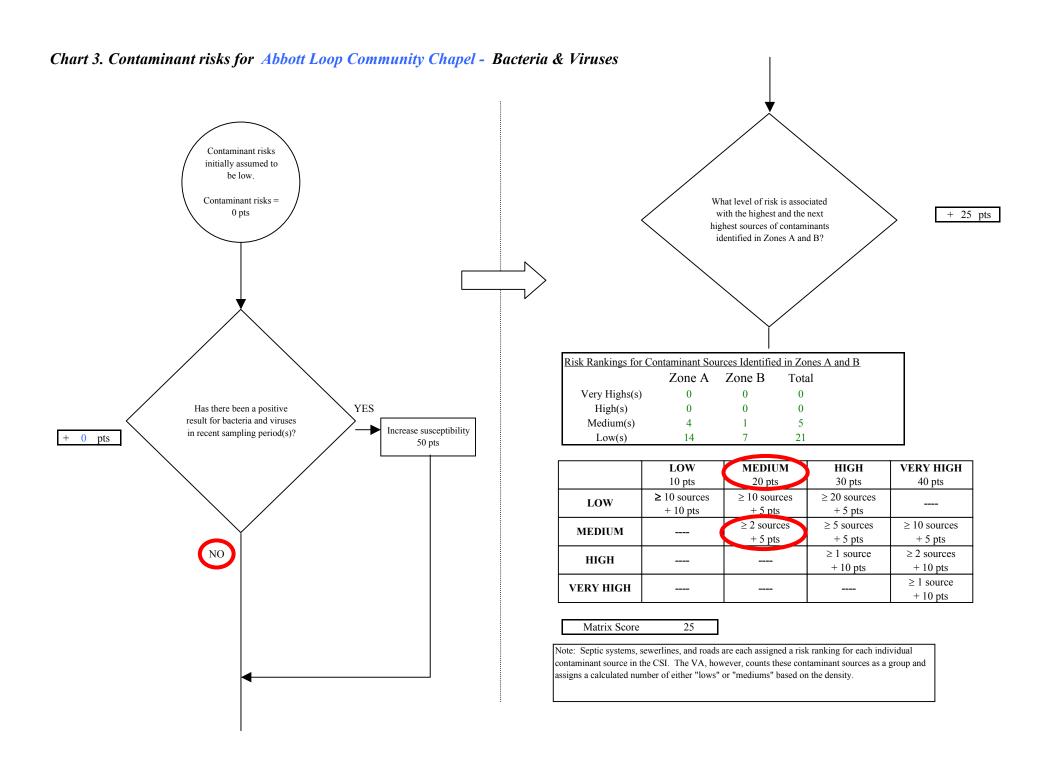
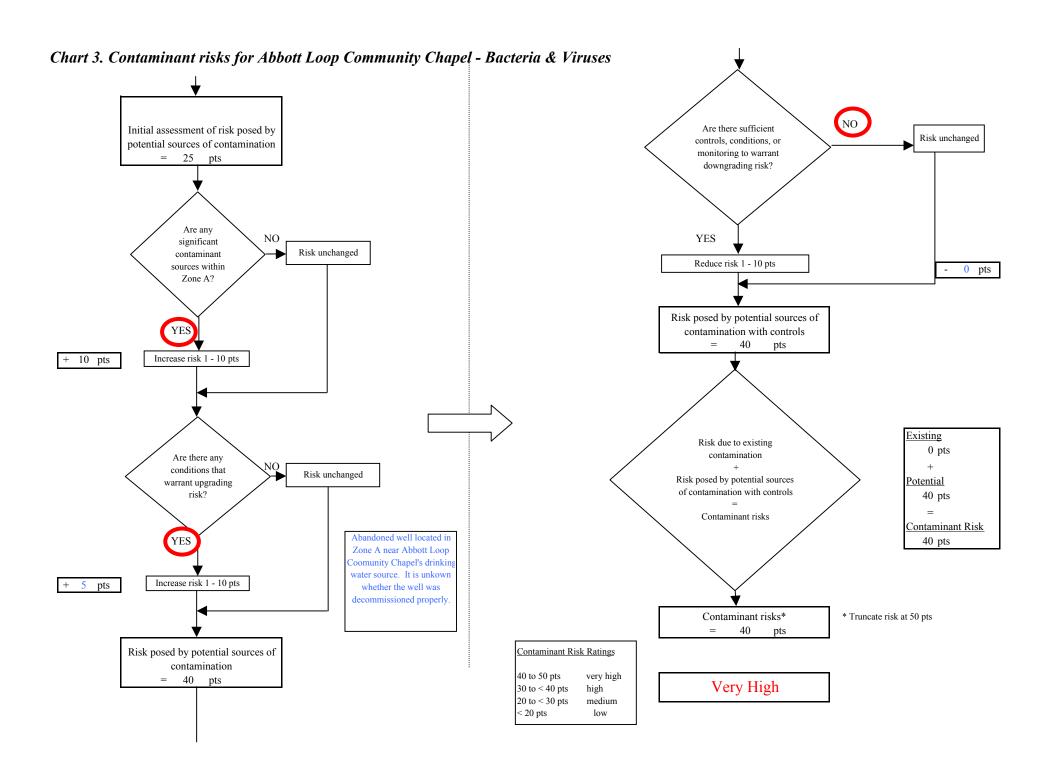


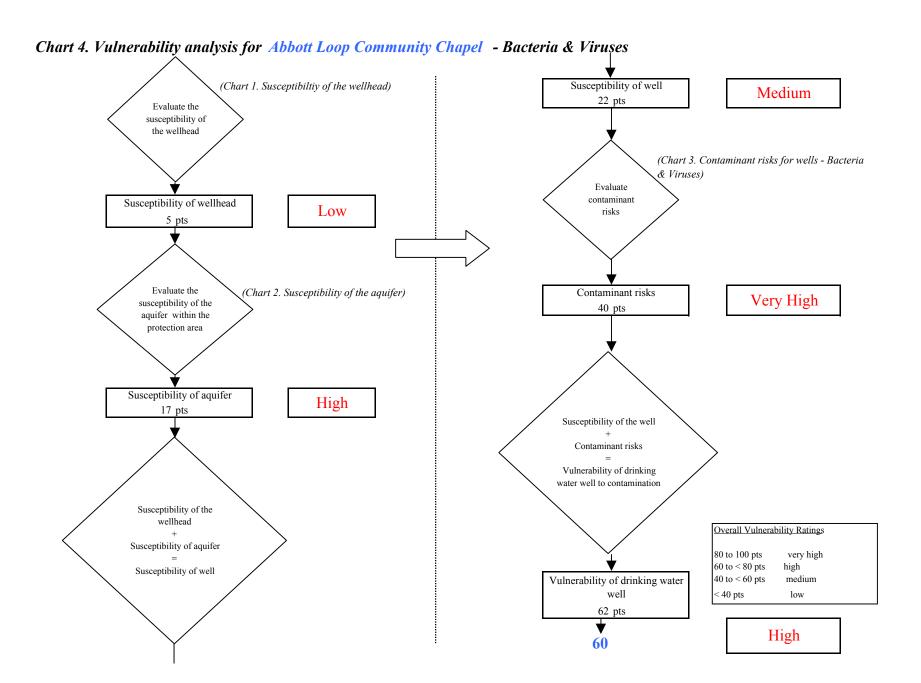
Chart 2. Susceptibility of the aquifer - Abbott Loop Community Chapel

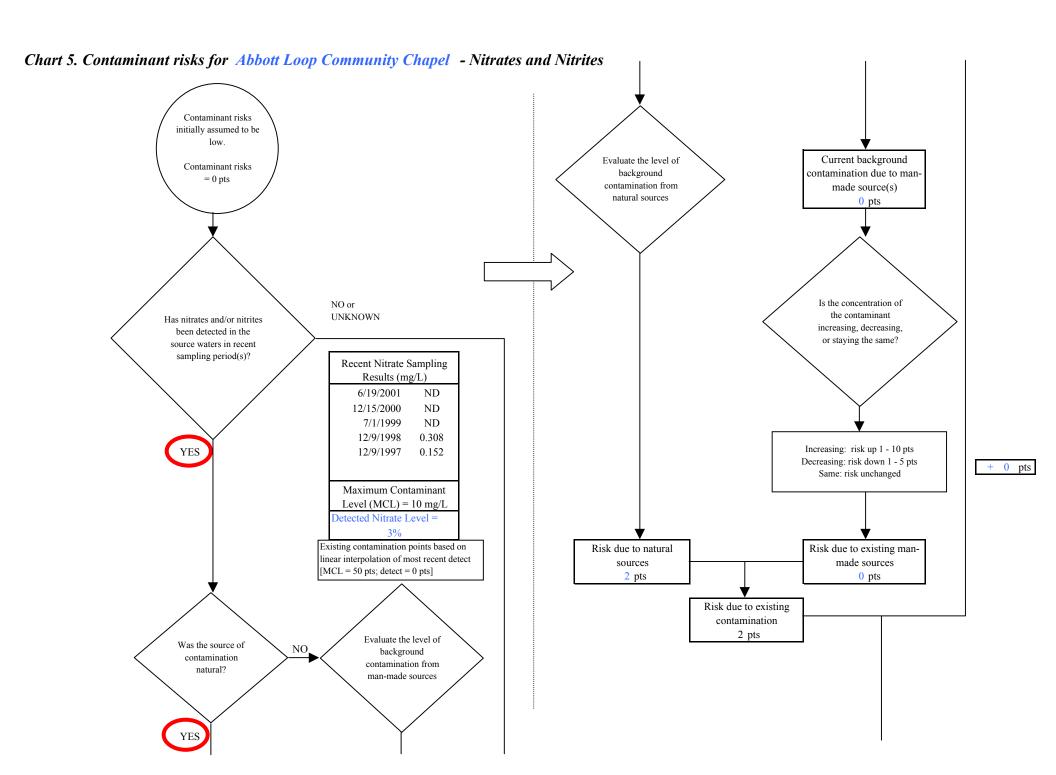






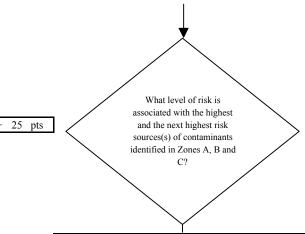
Page 2 of 2





Page 1 of 3

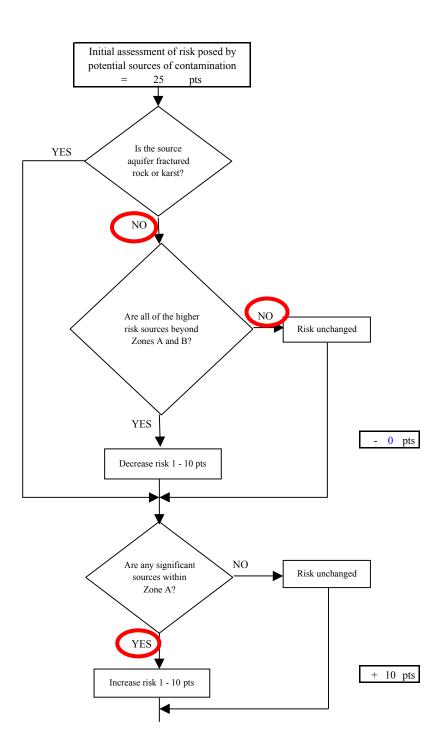
Chart 5. Contaminant risks for Abbott Loop Community Chapel - Nitrates and Nitrites

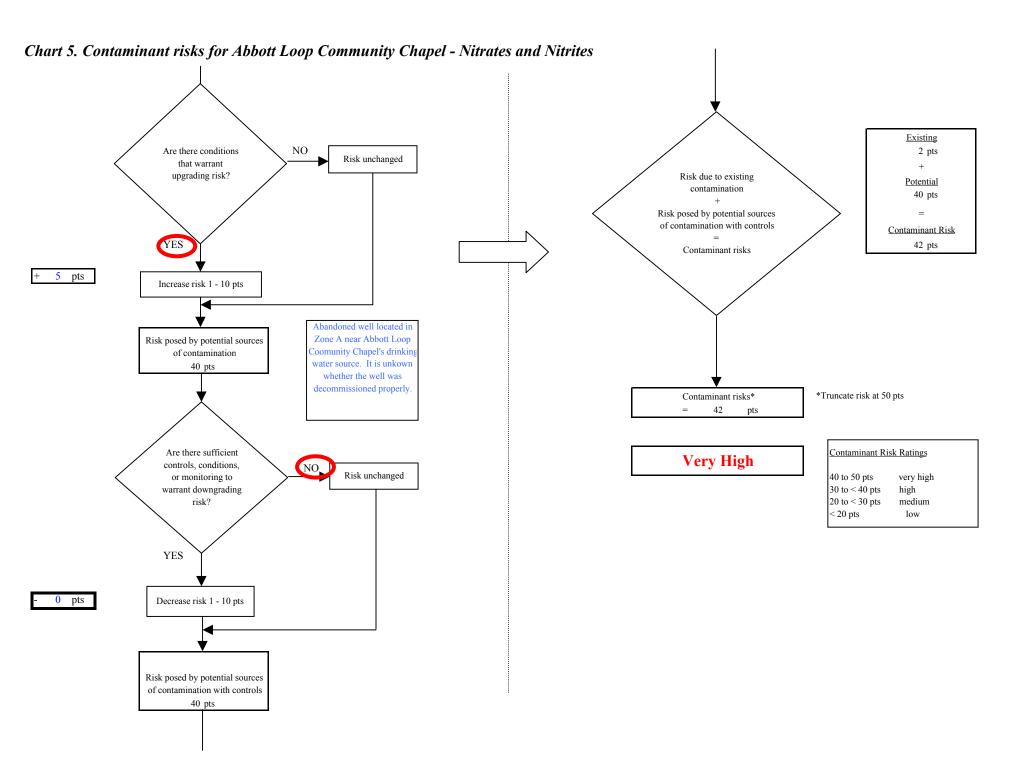


Risk Levels for Contaminant Sources identified in Zones A, B and C					
	Zone A	Zones B&C	Total		
Very Highs(s)	0	0	0		
High(s)	0	0	0		
Medium(s)	5	2	7		
Low(s)	12	12	24		

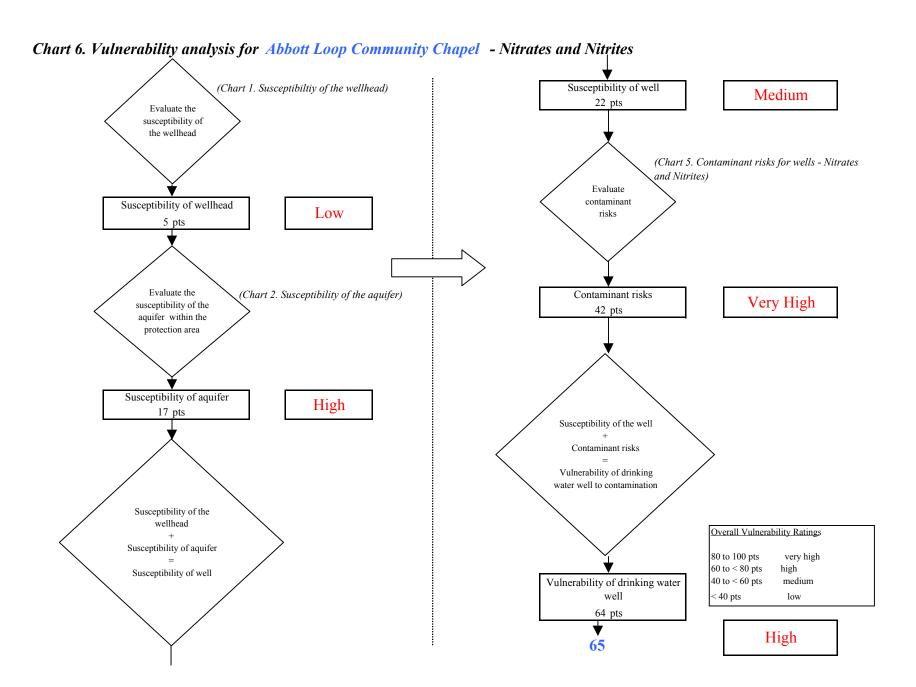
	LOW 10 pts	MEDIUM 20 pts	HIGH 30 pts	VERY HIGH 40 pts
LOW	≥ 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	
MEDIUM		≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH			≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH				≥ 1 source + 10 pts

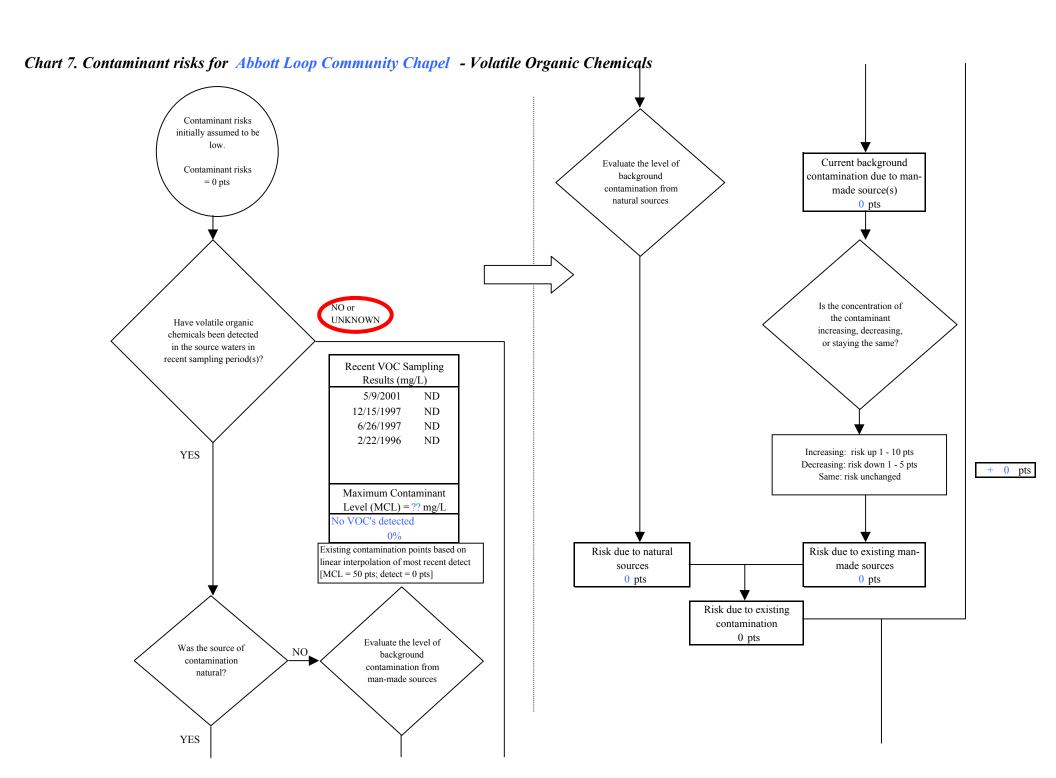
Matrix Score 25





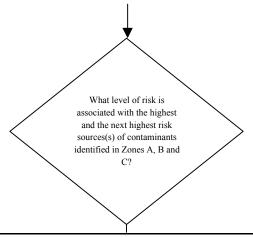
Page 3 of 3





Page 1 of 3



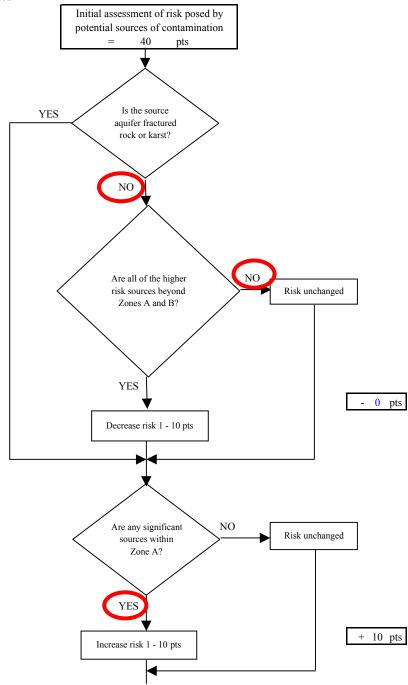


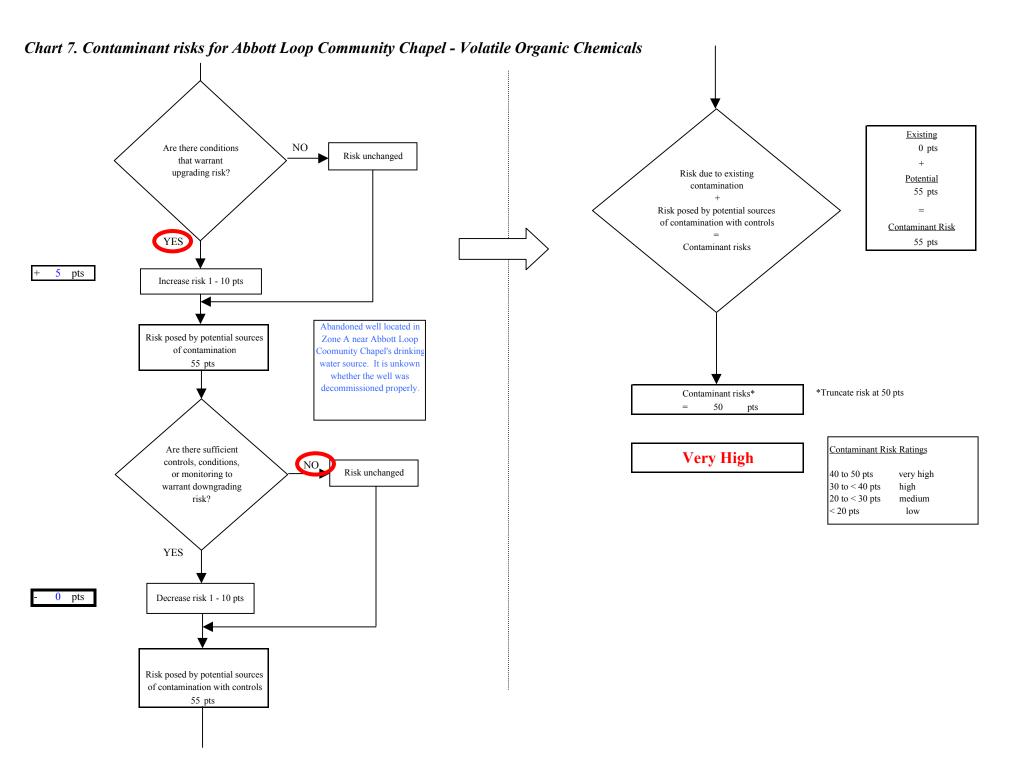
40 pts

Risk Levels for Contami	k Levels for Contaminant Sources identified in Zones A, B and C				
	Zone A	Zones B&C	Total		
Very Highs(s)	0	0	0		
High(s)	11	0	11		
Medium(s)	14	0	14		
Low(s)	11	7	18		

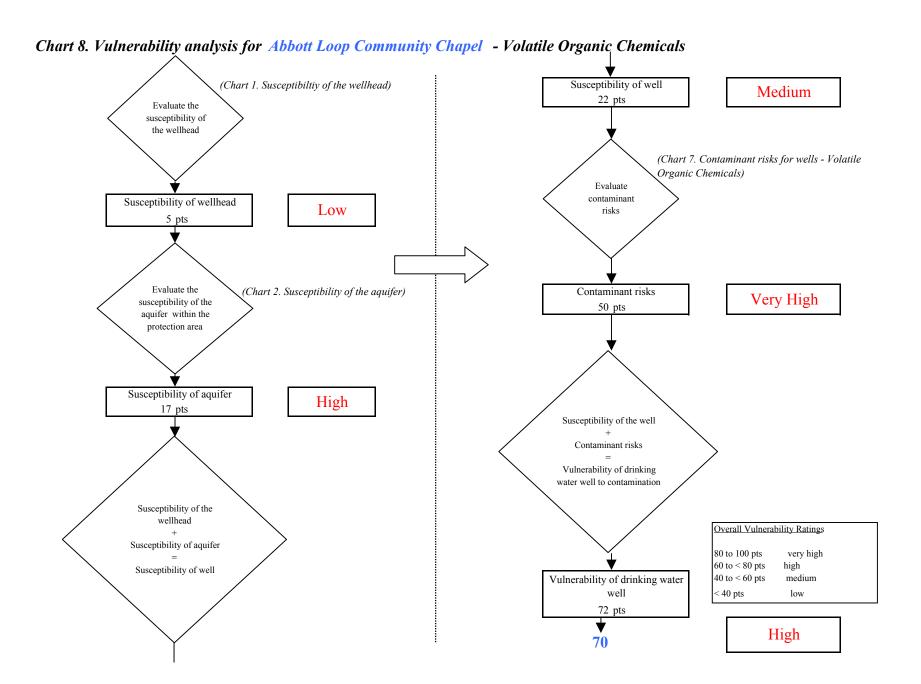
	LOW 10 pts	MEDIUM 20 pts	HIGH 30 pts	VERY HIGH 40 pts	
LOW	≥ 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts		
MEDIUM		≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts	
HIGH			≥ 1 source + 10 pts	≥ 2 sources + 10 pts	
VERY HIGH				≥ 1 source + 10 pts	

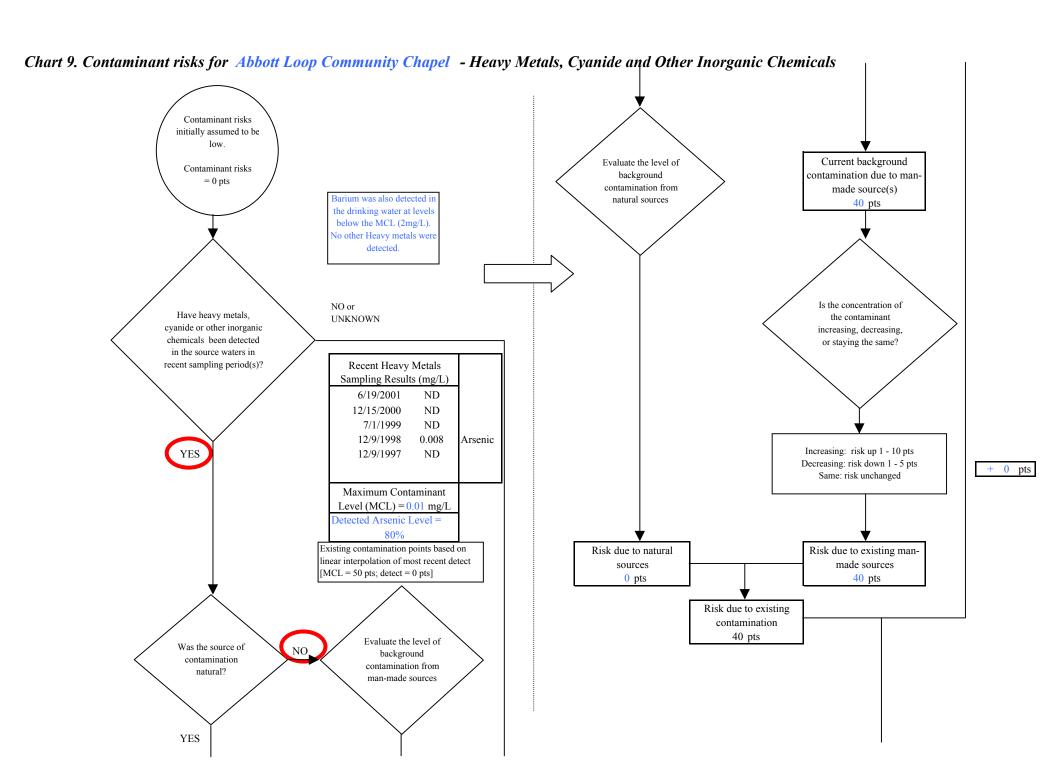
Matrix Score 40





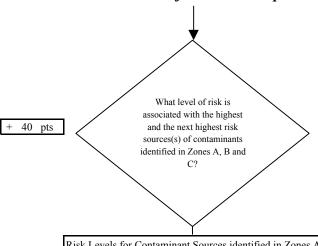
Page 3 of 3





Page 1 of 3

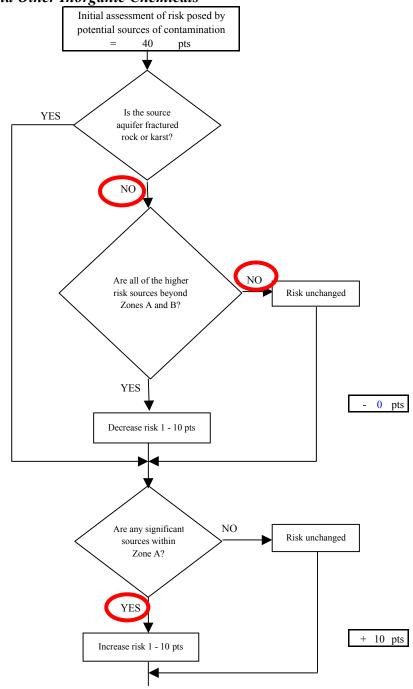
Chart 9. Contaminant risks for Abbott Loop Community Chapel - Heavy Metals, Cyanide and Other Inorganic Chemicals

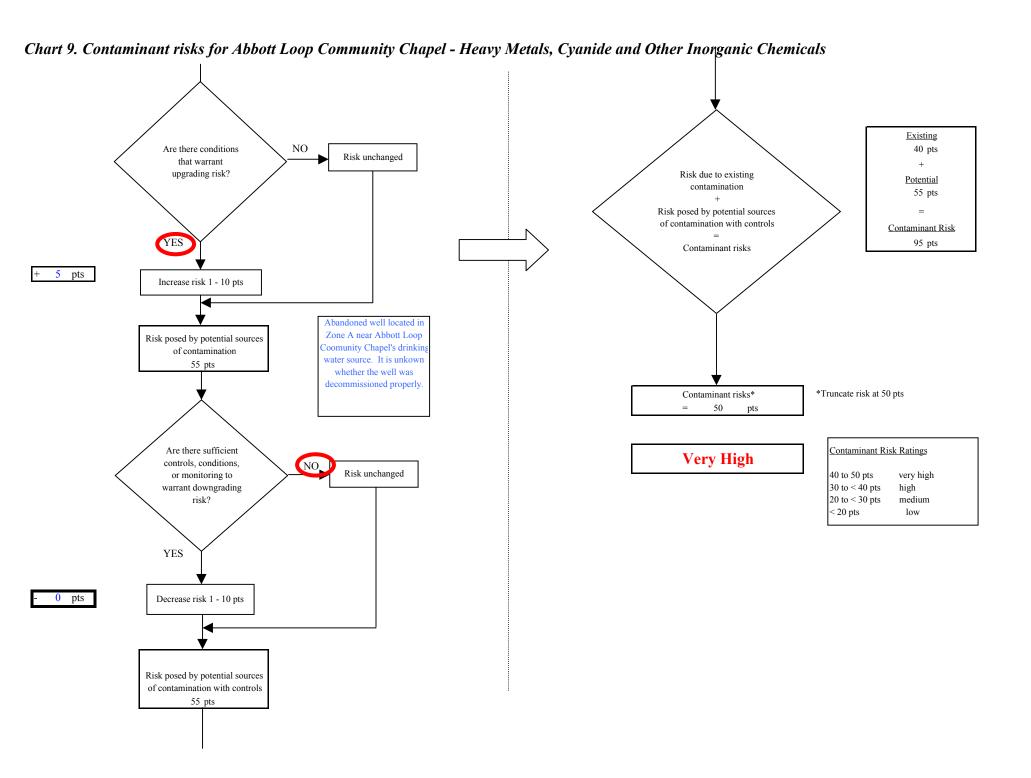


Risk Levels for Contaminant Sources identified in Zones A, B and C					
Zone A Zones B&C Total					
Very Highs(s)	0	0	0		
High(s)	2	0	2		
Medium(s)	9	0	9		
Low(s)	12	6	18		

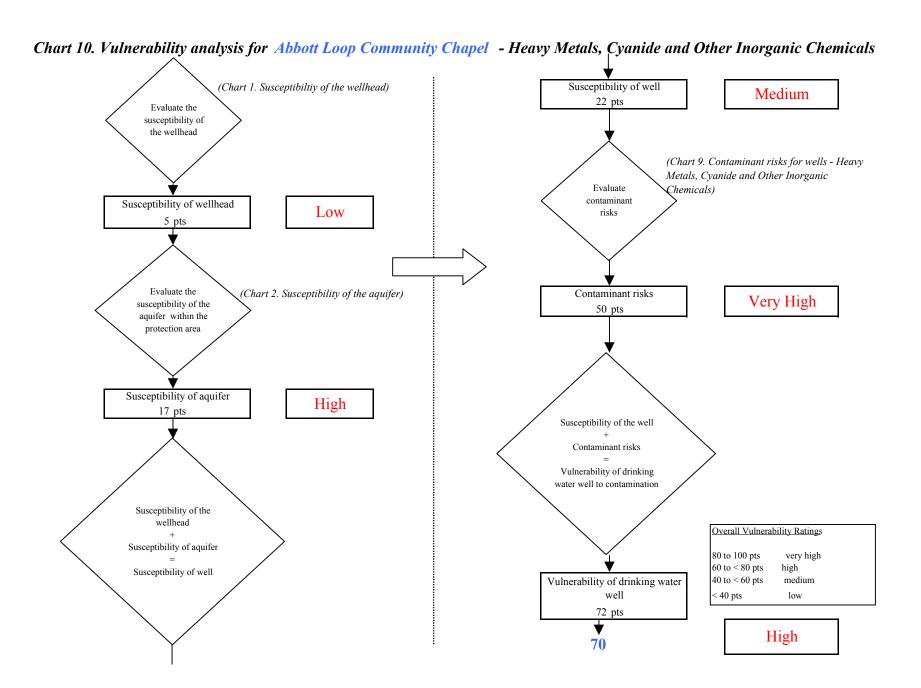
	LOW 10 pts	MEDIUM 20 pts	HIGH 30 pts	VERY HIGH 40 pts
LOW	≥ 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	
MEDIUM		≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH			≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH				≥ 1 source + 10 pts

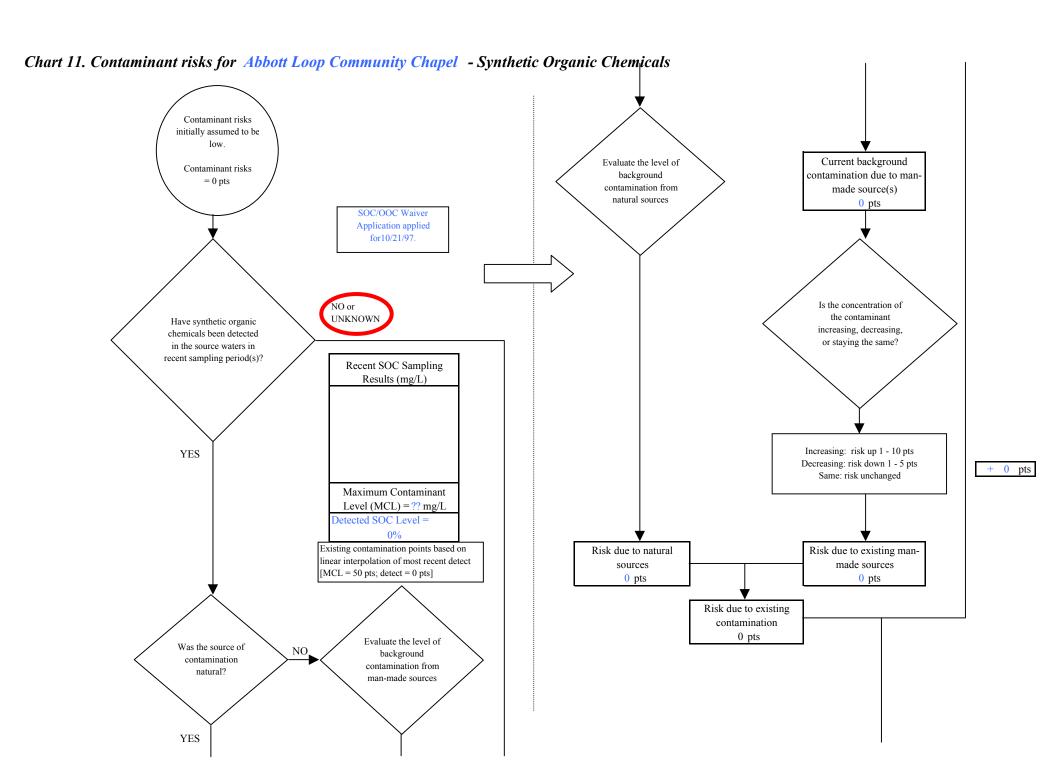
Matrix Score 40





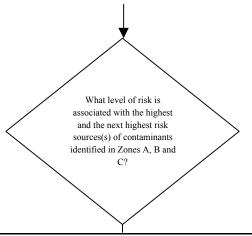
Page 3 of 3





Page 1 of 3



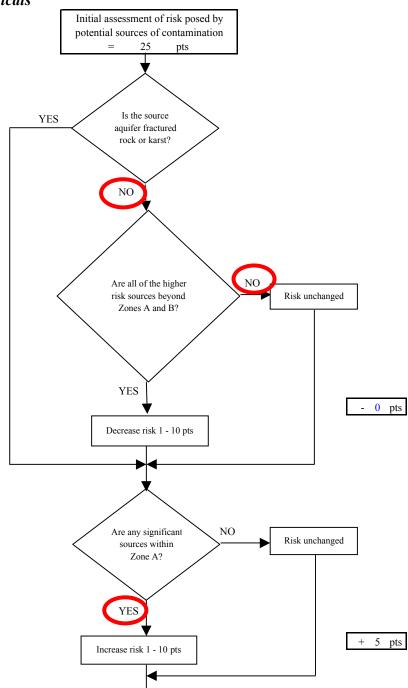


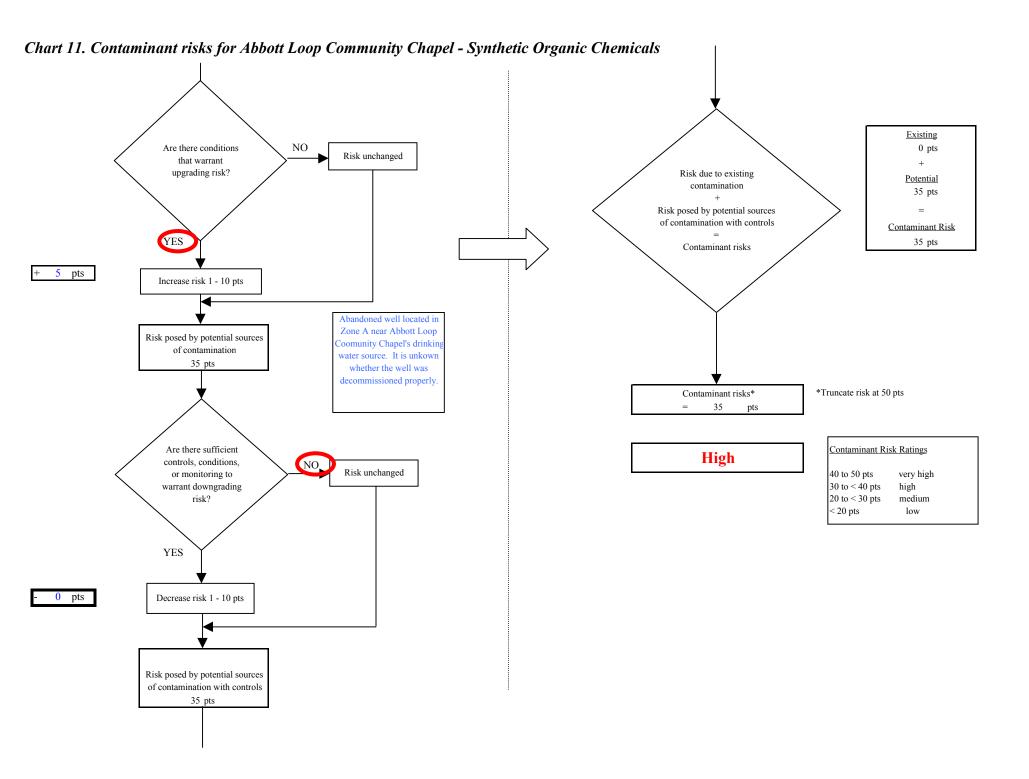
25 pts

isk Levels for Contaminant Sources identified in Zones A, B and C				
	Zone A	Zones B&C	Total	
Very Highs(s)	0	0	0	
High(s)	0	0	0	
Medium(s)	1	0	1	
Low(s)	7	5	12	

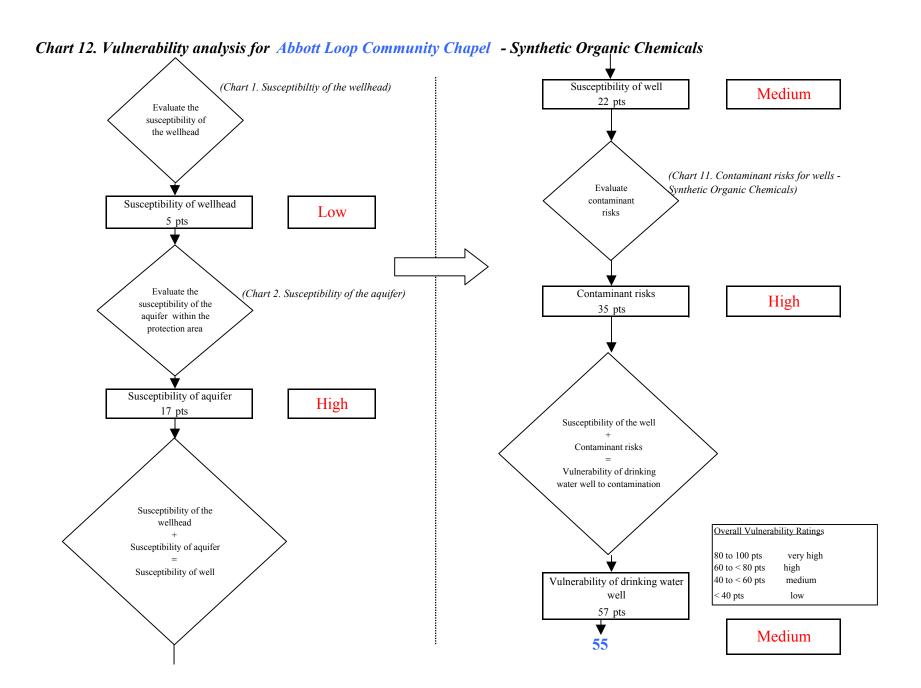
	LOW 10 pts	MEDIUM 20 pts	HIGH 30 pts	VERY HIGH 40 pts
LOW	≥ 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	
MEDIUM		≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH			≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH				≥ 1 source + 10 pts

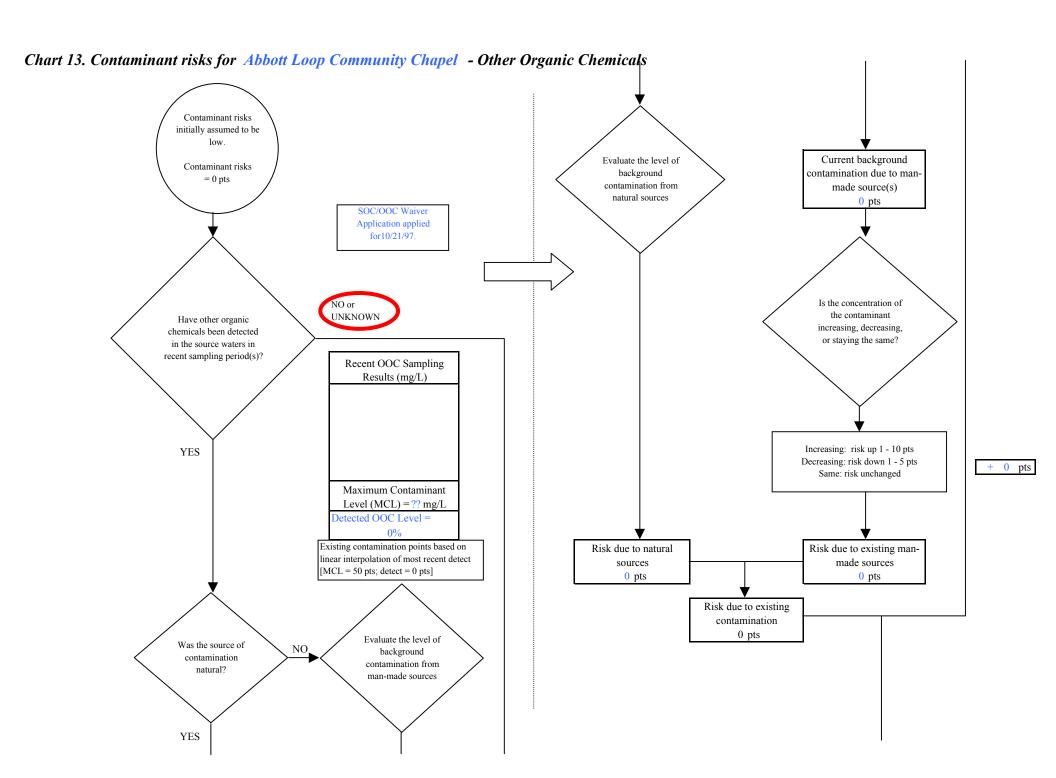
Matrix Score 25





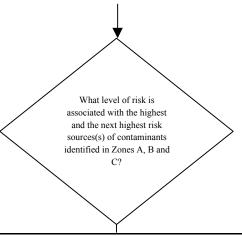
Page 3 of 3





Page 1 of 3



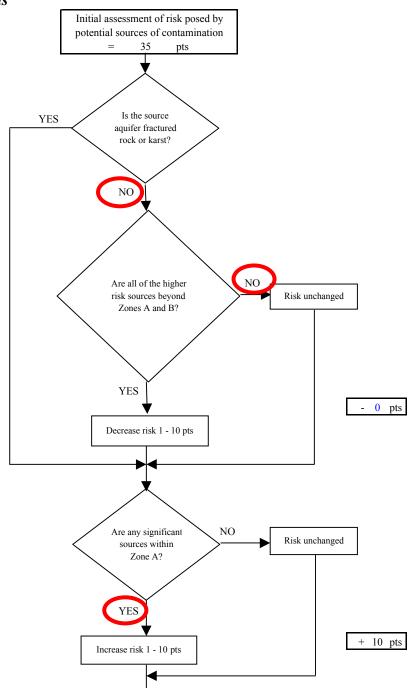


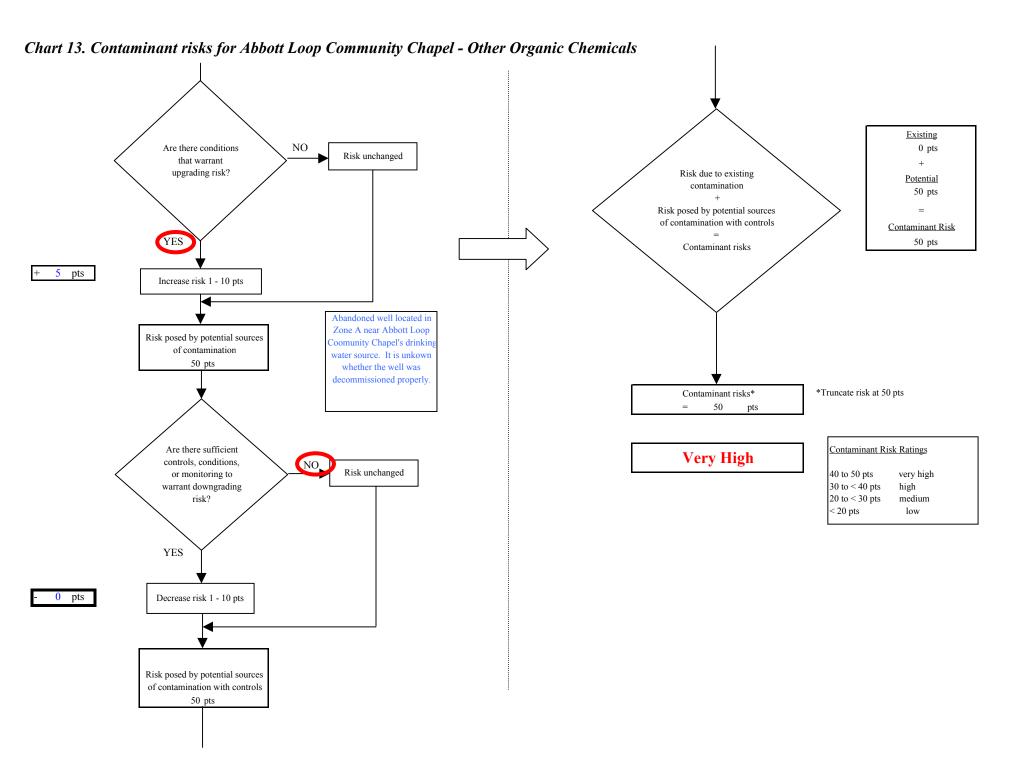
35 pts

Risk Levels for Contaminant Sources identified in Zones A, B and C				
	Zone A	Zones B&C	Total	
Very Highs(s)	0	0	0	
High(s)	1	0	1	
Medium(s)	7	0	7	
Low(s)	9	5	14	

	LOW 10 pts	MEDIUM 20 pts	HIGH 30 pts	VERY HIGH 40 pts
LOW	≥ 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	
MEDIUM		≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH			≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH				≥ 1 source + 10 pts

Matrix Score 35





Page 3 of 3

