

Source Water Assessment:

Hydrogeologic Susceptibility and Vulnerability Assessment for Big
Lake Lodge Drinking Water Well, Big Lake, Alaska

DRINKING WATER PROTECTION PROGRAM REPORT 68

October 2001

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By Shannon & Wilson, Inc.

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**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION: OCTOBER 2001
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By Shannon & Wilson, Inc.

Drinking Water Protection Program Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

The Big Lake Lodge well is a Class B drinking water source consisting of one well. The well is located in the Meadow Creek watershed, on the east end of Big Lake in Big Lake, Alaska. Identified potential and current sources of contaminants for Big Lake Lodge include: high-capacity septic systems, aboveground fuel storage tank, an airport, vehicle waste disposal septic systems, residential septic systems, roads and approximately 125 acres of residential area. These identified potential and existing sources of contamination are considered sources of bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals. Overall, Big Lake Lodge public water source received a vulnerability rating of **High** for bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals.

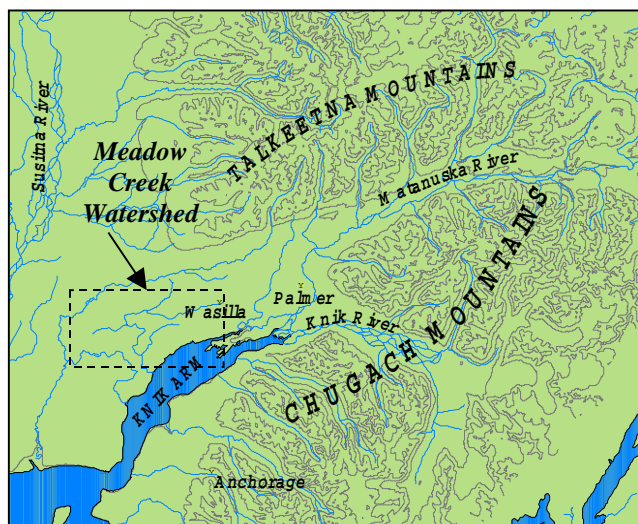


Figure 1. Index Map showing the location of the Matanuska-Susitna Valley and the Meadow Creek Watershed.

INTRODUCTION

The purpose of this environmental assessment is to provide public water system owners/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 Big Lake Lodge source of public drinking water. This source consists of one well in the Meadow Creek Watershed (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 MEADOW CREEK - AREA, ALASKA

Location

The Meadow Creek watershed, located in southcentral Alaska, lies within the Matanuska-Susitna Borough. The Borough encompasses 24,694 square miles and supports a population in 2000 of 59,322. The Borough is contained within the watersheds of the Matanuska and Susitna Rivers which flow from the glacier melt waters in the Alaska Range, Talkeetna Mountains, and the Chugach Mountains to tidewater in the Knik Arm of Upper Cook Inlet (*Jokela, Munter and Evans, 1991*) (Figure 1). The area between the Matanuska and Susitna Valley is commonly referred to as the Mat-Su Valley. The Meadow Creek watershed contains 115 lakes, including Big Lake, and extends from an area northwest of Wasilla to the west end of Big Lake (*Jokela, Munter and Evans, 1991*), as shown in Figure 1.

The Borough's close proximity to Anchorage and its abundance of surface-water resources has helped contribute to rapid growth over the last two decades. The population has tripled since 1980. As of 1998, approximately 9% of the state's population resided in the Matanuska-Susitna Borough. The projected growth rate is expected to be 3.3% per year, three times higher than the state rate. At this rate, the Borough will have approximately 13% of the state's population by 2018 (ADOL, 1999).

Climate

The Meadow Creek-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.

The mean daily temperature ranges from 69.4 degrees Fahrenheit during the summer months to 13.8 degrees Fahrenheit during the winter months. The annual precipitation in the Meadow Creek-area is approximately 20 inches per year and total snow is around 59 inches per year. The average snow depth during snowy months is 6.4 inches (*Western Regional Climate Center, 2000*). Precipitation generally increases inland toward the Talkeetna Mountains where annual precipitation may exceed 60 inches per year (*Brabets, 1997*).

Physiography and Groundwater Conditions

Surface elevations in the Matanuska-Susitna Borough range from sea level where the Knik River and Matanuska River enter the Cook Inlet to well over 6,000 feet in the peaks that bound the area. Glacial moraine and outwash deposits primarily mantle the surface of the Mat-Su Valley.

The regional geology and ground water conditions of the Mat-Su Valley vary greatly depending on location. The terrain is dominated by distinctive landforms created by repeated glacial advances and retreats during the Pleistocene epoch (2 million to 10,000 years before present). The unconsolidated layers, layers of sediment that are not cemented together, are comprised of various mixtures of fine- to coarse-grained particles (clay to boulders). The majority of wells in the Mat-Su Valley are located in unconsolidated layers consisting of relatively well sorted sands and gravels. These unconsolidated layers vary substantially in size and distribution throughout the Valley. In general, the unconsolidated layers increase in thickness as you move towards Cook Inlet. (*Jokela, Munter, Evans, 1991*). Throughout the area numerous confining layers ranging from less than 1- to 60-feet thick separate the unconsolidated layers.



Figure 2. Map showing regional ground-water flow in Matanuska-Susitna Valley. (*Jokela, Munter and Evans, 1991*)

In the Mat-Su Valley, the groundwater is primarily recharged by snowmelt and precipitation infiltrating into the foothill slopes of the Talkeetna or Chugach Mountains and by direct precipitation and snowmelt throughout the study area.

Groundwater flow in the confined aquifer is generally, north to south in the central region of the valley, toward the Matanuska River in the eastern region and the slope is predominantly northeast to northwest in the western region. The direction of groundwater flow in the upper unconfined aquifer's are more variable due to the influence from surficial topography as well as its close connection with surface water bodies. (*Jokela, Munter and Evans, 1991*) (Figure 2).

BIG LAKE LODGE PUBLIC WATER SOURCE

Big Lake Lodge public water source is located in the Meadow Creek watershed. The system is a Class B public drinking water source and is owned and operated by Houston and Terry Snyder. Big Lake Lodge is located at the west end of Big Lake Road on the east end of Big Lake. The Big lake Lodge public water source consists of one well located southeast of the lodge, approximately 90 feet from the lake shore. It is located at an elevation of approximately 150 feet above sea level. According to information obtained during a 1999 Public Water System Sanitary Survey, the well is located approximately 100 feet from the on-site septic system and approximately 60 feet from an aboveground fuel storage tank (type of fuel unknown). The well is inferred to tap the underlying, unconfined aquifer. A well log was not available for review but information indicates the well is 31 feet in depth and is assumed to be completed in sands and gravels. The well is apparently cased to a depth of 31 feet below the land surface. No information regarding the static water level at the site is known but we estimate the static water level at approximately 8 feet below land surface.

This water source operates year round. The Big Lake Lodge drinking water source is assumed to serve 2 residents and approximately 50 non-residents through one service connection.

ASSESSMENT AND PROTECTION AREA FOR BIG LAKE L DRINKING WATER SOURCE

The Drinking Water Protection and Assessment Area that has been established for Big Lake Lodge is the area that is most sensitive to contamination. This area has served as a basis for assessing the risk of the drinking water source to contamination. This zone around the drinking water source is the most critical area for the preservation of the quality of the drinking water for this source. For simplicity, this area will be known as your Drinking Water Protection Area and will serve as the area of focus for voluntary protection efforts.

Groundwater recharge for the Big Lake Lodge water system enters the aquifer system through infiltration of direct precipitation within the area. An analytical calculation was used to calculate 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 well logs from the surrounding area and from past studies (*Jokela, Munter and Evans, 1991*). This analytical calculation was used as a guide as the first step in establishing the protection area for Big Lake Lodge. Additional methods were further employed to take into account any uncertainties in groundwater flow and aquifer characteristics in an attempt to arrive at a meaningful and conservative protection area with respect to public health (please refer to the Guidance Manual for Class B 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 Areas for Big Lake Lodge contain four zones, Zone A, Zone B, Zone C and Zone D (See Map 1 in Appendix A). Zone A corresponds to the area between the well and the distance equal to $\frac{1}{4}$ 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 well may be on the order of several days to several hours. Zone A also extends downgradient from the well to take into account the area of the aquifer that is influenced by pumping of the well.

The Zone B protection area for Big Lake Lodge corresponds to a time-of-travel of less than two years and extends eastward. The Zone C protection area extends from the 2-year time of travel to the 5-year time of travel. Lastly, Zone D extends from Zone C to the end of the protection area, roughly 1.2 miles from the Big Lake Lodge well.

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within Big Lake Lodge's Drinking Water Protection Area. This survey was completed through a search of agency records and other publicly available information, as well as a reconnaissance of the area surrounding the well.

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 B public water system assessments, three categories of drinking water contaminants were inventoried. They include:

- Bacteria and viruses;
- Nitrates and/or nitrites;
- Volatile organic chemicals;

Map 2 and Map 3 in Appendix C depict the Contaminant Source Inventory for Big Lake Lodge. Inventoried potential sources of contamination within Zones A through Zone B were associated with on-site activities, residential, and commercial activities (see Table 1 in Appendix B). Zone C also contains residential and commercial activities and includes a portion of the Big Lake Airport. Only high and very high potential and existing sources of contamination were inventoried within Zone D. None were identified. Below is a summary of the contaminant sources inventoried within the Big Lake Lodge protection area:

- Large-capacity septic systems;
- Approximately 125 acres of residential area;
- Aboveground fuel storage tank;
- Activities associated with roads;
- An airport;
- Vehicle waste disposal systems;
- Residential areas;
- Single-family septic systems;

These potential contaminant sources present risk for all three categories of drinking water contaminants for Big Lake Lodge drinking water source.

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 well.

VULNERABILITY OF BIG LAKE LODGE DRINKING WATER SOURCES

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

- Natural susceptibility; and
- Contaminant risks.

Each of the three categories of drinking water contaminants has been analyzed and an overall vulnerability score of 0 to 100 is 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)

Big Lake Lodge’s well is completed in an unconfined aquifer setting. Therefore, contaminants that enter the subsurface within the vicinity of the well and Drinking Water Protection Area may enter the aquifer uninhibited by the absence of any protective layer. It is unclear whether the well is grouted. For purposes of this study, it is assumed that the well is not grouted. The absence of grouting can allow the transport of contaminants from the surface along the well casing. Combining the susceptibility of the wellhead and the aquifer to contamination leads to a score (0 – 50 points) and rating of overall Susceptibility (See Appendix D). Table 1 shows the overall Susceptibility score and rating for Big Lake Lodge.

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

	Score	Rating
Susceptibility of the Wellhead	5	Low
Susceptibility of the Aquifer	20	Very High
Natural Susceptibility	25	Medium

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. High-capacity septic systems, an airport, vehicle waste disposal septic systems, residential septic systems, aboveground fuel storage tank, roads, residential areas, and approximately 125 acres of residential area contribute the highest risk for

potential contamination to the Big Lake Lodge source of public drinking water.

A score (0 – 50 points) and rating of Contaminant Risks (See Appendix D) is assigned based on the findings of the Contaminant Source Inventory (Appendix B - Table 1 – Table 4). 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

Contaminant Risks	Score	Rating
Bacteria and Viruses	50	Very High
Nitrates and/or Nitrites	50	Very High
Volatile Organic Chemicals	45	Very High

Appendix D contains eight charts, which together form the ‘Vulnerability Analysis’ for a source water assessment for a public drinking water source. 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 8 contain the Contaminant Risks and Vulnerability Analysis for nitrates and nitrites and volatile organic chemicals, respectively.

Vulnerability of the drinking water source 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 three categories of drinking water contaminants (See Appendix D). Note: scores are rounded off to the nearest five.

Table 3. Overall Vulnerability of Big Lake Lodge Public Drinking Water Source to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	75	High
Nitrates and Nitrites	75	High
Volatile Organic		

Tables 2 through 4 in Appendix B contain the ranking of potential and existing sources of contamination with respect to bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals.

Overall, the contaminant risks for bacteria and viruses and nitrate/nitrites category are very high with large capacity septic systems driving the scores. Combining the potential contamination risk for each category with the susceptibility of the well, very high due to the shallow depth, yields an overall vulnerability to these contaminants as high for this source of public drinking water.

Nitrates and/or nitrites are found in natural background concentrations at the site, as elsewhere in Alaska. The sampling history of the Big Lake Lodge source water indicates low concentrations of nitrate have been consistently reported in the well’s source water between March 1996 to July 2000, the most recent results available for review (See Chart 6-Contaminant Risks for Nitrates/Nitrites in Appendix D). The reported nitrate contamination was less than 10% of the allowable limit (MCL) for this contaminant. Due to high solubility and weak retention by soil, nitrates are very mobile in soil, moving approximately the same rate as water. Nevertheless, the nitrate concentration in the Big Lake Lodge water source has been reported at safe levels, with respect to human health.

An aboveground fuel storage tank was reportedly located within 60 feet of the well during a 1999 sanitary survey. The contents of the tank are unknown. It is possible that additional fuel storage tanks are located in the area. Petroleum hydrocarbon fuels are a contaminant risk for volatile organic chemicals (VOCs). The public water system is not required to sample for VOCs, thus it is unknown if any VOCs from the on-site tanks or other potential sources are reaching the source.

SUMMARY

A *Source Water Assessment* has been completed for the Big Lake Lodge source of public drinking water. The overall vulnerability of this source to contamination is **High** for bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals. It is acknowledged that the shape and extent of the protection areas, derived from applying consistent methodologies, may not be accurate due to the proximity of the lake and local groundwater flow patterns. Most notably, the well’s capture zone (protection area) does not likely extend to land areas on the west side of the canal. This assessment of contaminant risks can be used as a foundation for local voluntary protection efforts as well

as a basis for the continuous efforts on the part of the Alaska Department of Environmental Conservation 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 public drinking water source.

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APPENDIX A

Big Lake Lodge Drinking Water Protection Area

APPENDIX B

Contaminant Source Inventory and Risk Ranking for Big Lake Lodge

APPENDIX C

Big Lake Lodge Drinking Water Protection Area and Potential & Existing Contaminant Sources

APPENDIX D

Vulnerability Analysis for Big Lake Lodge Public Drinking Water Source

Table 1

Contaminant Source Inventory for Big Lake Lodge

PWSID 22707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-1</i>	<i>A</i>	<i>North of Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-2</i>	<i>A</i>	<i>Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-3</i>	<i>A</i>	<i>Northeast of Big Lake Lodge</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-1</i>	<i>A</i>	<i>Area next to Big Lake and on Peninsula across canal</i>	<i>2</i>	<i>22 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-1</i>	<i>A</i>	<i>East of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-2</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-3</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-4</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-5</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-6</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-7</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-8</i>	<i>A</i>	<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-9</i>	<i>A</i>	<i>On South Wolverine Drive</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-10</i>	<i>A</i>	<i>On Fox Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-11</i>	<i>A</i>	<i>On 1St Ave</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-12</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

PWSID 22707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-13</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-14</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-15</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-16</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-17</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-18</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-19</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-20</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-21</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-22</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-23</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-24</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-25</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-26</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-27</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-28</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-29</i>	<i>A</i>	<i>On Lake View Loop</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-30</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

PWSID 22707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-31</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-32</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-33</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-34</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-35</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-36</i>	<i>A</i>	<i>On Lois Lane</i>	<i>3</i>	
<i>Aboveground Gasoline Tank</i>	<i>T10</i>	<i>T1--1</i>	<i>A</i>	<i>Big Lake Lodge ~60 ft. from well</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-1</i>	<i>A</i>	<i>Lake View Loop</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-2</i>	<i>A</i>	<i>Lois Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-3</i>	<i>A</i>	<i>Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-4</i>	<i>A</i>	<i>Randall Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-5</i>	<i>A</i>	<i>Big Lake Lodge Road</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-6</i>	<i>A</i>	<i>Gronwaldt St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-7</i>	<i>A</i>	<i>1St Avenue</i>	<i>2</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-4</i>	<i>B</i>	<i>North of Fox Avenue, West of Anderson Street</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-5</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

PWSID 22707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-6</i>	<i>B</i>	<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-7</i>	<i>B</i>	<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-1</i>	<i>B</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-2</i>	<i>B</i>	<i>East of Wolverine Drive</i>	<i>2</i>	<i>76 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-37</i>	<i>B</i>	<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-38</i>	<i>B</i>	<i>Near 1St Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-39</i>	<i>B</i>	<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-40</i>	<i>B</i>	<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-41</i>	<i>B</i>	<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-42</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-43</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-44</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-45</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-46</i>	<i>B</i>	<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-47</i>	<i>B</i>	<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-48</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-49</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-50</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-51</i>	<i>B</i>	<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-52</i>	<i>B</i>	<i>On Beaver Circle</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-53</i>	<i>B</i>	<i>On Beaver Circle</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-54</i>	<i>B</i>	<i>On Beaver Circle</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-55</i>	<i>B</i>	<i>On Beaver Circle</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-56</i>	<i>B</i>	<i>On Beaver Circle</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-57</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-58</i>	<i>B</i>	<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-59</i>	<i>B</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-60</i>	<i>B</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-61</i>	<i>B</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-62</i>	<i>B</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-63</i>	<i>B</i>	<i>On Apryl Ln.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-64</i>	<i>B</i>	<i>On Apryl Ln.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-65</i>	<i>B</i>	<i>On Apryl Ln.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-66</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-67</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-68</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-69</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-70</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-71</i>	<i>B</i>	<i>On Marten Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-72</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-73</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-74</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-75</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-76</i>	<i>B</i>	<i>On Muskrat St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-77</i>	<i>B</i>	<i>On Fox Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-78</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-79</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-80</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-81</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-82</i>	<i>B</i>	<i>On Mink St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-83</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-84</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-85</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	

Table 1

Contaminant Source Inventory for Big Lake Lodge

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-86</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-87</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-88</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-89</i>	<i>B</i>	<i>On Musk Ox St.</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-8</i>	<i>B</i>	<i>Anderson St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-9</i>	<i>B</i>	<i>2ND Avenue</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-10</i>	<i>B</i>	<i>Ermine Pl.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-11</i>	<i>B</i>	<i>Muskrat St</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-12</i>	<i>B</i>	<i>Hollywood Rd</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-13</i>	<i>B</i>	<i>Mink St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-14</i>	<i>B</i>	<i>Musk Ox St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-15</i>	<i>B</i>	<i>Badger St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-16</i>	<i>B</i>	<i>Casey Dr.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-17</i>	<i>B</i>	<i>Apryl Ln.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-18</i>	<i>B</i>	<i>France Ct.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-23</i>	<i>B</i>	<i>Aero Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-24</i>	<i>B</i>	<i>Holly Loop</i>	<i>2</i>	

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Contaminant Source Inventory for Big Lake Lodge

PWSID 22707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-8</i>	<i>C</i>	<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-9</i>	<i>C</i>	<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-2</i>	<i>C</i>	<i>Next to Airport</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-3</i>	<i>C</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-4</i>	<i>C</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-5</i>	<i>C</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-6</i>	<i>C</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-7</i>	<i>C</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-8</i>	<i>C</i>	<i>On Taxi Way</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-90-- R2-106</i>	<i>C</i>	<i>17 Septics within Zone C</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-3</i>	<i>C</i>	<i>Near Airport</i>	<i>2</i>	<i>27 acres</i>
<i>Airports</i>	<i>X14</i>	<i>X14-1</i>	<i>C</i>	<i>Big Lake Airport</i>	<i>3</i>	
<i>Highways and roads, paved (cement or asphalt)</i>	<i>X20</i>	<i>X20-1</i>	<i>C</i>	<i>Big Lake Rd.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-19</i>	<i>C</i>	<i>Beaver Circle</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-20</i>	<i>C</i>	<i>Marten Ave.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-21</i>	<i>C</i>	<i>Taxi Way</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-22</i>	<i>C</i>	<i>Pirolot Circle</i>	<i>2</i>	

Table 2

Potential and Existing Sources of Contamination for Big Lake Lodge
Bacteria and Viruses

PWSID 220707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-1</i>	<i>A</i>	<i>High</i>	<i>1</i>	<i>North of Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-2</i>	<i>A</i>	<i>High</i>	<i>2</i>	<i>Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-3</i>	<i>A</i>	<i>High</i>	<i>3</i>	<i>Northeast of Big Lake Lodge</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-1</i>	<i>A</i>	<i>Low</i>		<i>Area next to Big Lake and on Peninsula across canal</i>	<i>2</i>	<i>22 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-1</i>	<i>A</i>	<i>Very Low</i>		<i>East of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-2</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-3</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-4</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-5</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-6</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-7</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-8</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-9</i>	<i>A</i>	<i>Very Low</i>		<i>On South Wolverine Drive</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-10</i>	<i>A</i>	<i>Very Low</i>		<i>On Fox Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-11</i>	<i>A</i>	<i>Very Low</i>		<i>On 1St Ave</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-12</i>	<i>A</i>	<i>Very Low</i>		<i>On Lake View Loop</i>	<i>3</i>	

Table 2

Potential and Existing Sources of Contamination for Big Lake Lodge
Bacteria and Viruses

PWSID 220707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-13	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-14	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-15	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-16	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-17	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-18	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-19	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-20	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-21	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-22	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-23	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-24	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-25	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-26	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-27	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-28	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-29	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-30	A	Very Low		On Lois Lane	3	

Table 2

Potential and Existing Sources of Contamination for Big Lake Lodge
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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-31</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-32</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-33</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-34</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-35</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-36</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Aboveground Gasoline Tank</i>	<i>T10</i>	<i>T10-1</i>	<i>A</i>	<i>Medium</i>		<i>Big Lake Lodge ~ 60 ft. from well</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-1</i>	<i>A</i>	<i>Very Low</i>		<i>Lake View Loop</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-2</i>	<i>A</i>	<i>Very Low</i>		<i>Lois Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-3</i>	<i>A</i>	<i>Very Low</i>		<i>Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-4</i>	<i>A</i>	<i>Very Low</i>		<i>Randall Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-5</i>	<i>A</i>	<i>Very Low</i>		<i>Big Lake Lodge Road</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-6</i>	<i>A</i>	<i>Very Low</i>		<i>Gronwaldt St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-7</i>	<i>A</i>	<i>Very Low</i>		<i>1St Avenue</i>	<i>2</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-4</i>	<i>B</i>	<i>High</i>	<i>4</i>	<i>North of Fox Avenue, West of Anderson Street</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-5</i>	<i>B</i>	<i>High</i>	<i>5</i>	<i>On Muskrat St.</i>	<i>3</i>	

Table 2

Potential and Existing Sources of Contamination for Big Lake Lodge
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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-6</i>	<i>B</i>	<i>High</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-7</i>	<i>B</i>	<i>High</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-1</i>	<i>B</i>	<i>Low</i>		<i>On Casey Dr.</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-2</i>	<i>B</i>	<i>Low</i>		<i>East of Wolverine Drive</i>	<i>2</i>	<i>76 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-37</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-38</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1St Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-39</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-40</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-41</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-42</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-43</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-44</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-45</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-46</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-47</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-48</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	

Table 2

Potential and Existing Sources of Contamination for Big Lake Lodge
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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		On Ermine Pl.	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		On Wolverine Dr.	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		On Marten Ave.	3	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-76	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-77	B	Very Low		On Fox Ave.	3	
Septic systems (serves one single-family home)	R2	R2-78	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-79	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-80	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-81	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-82	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-83	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-84	B	Very Low		On Musk Ox St.	3	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-85</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-86</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-87</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-88</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-89</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-8</i>	<i>B</i>	<i>Very Low</i>		<i>Anderson St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-9</i>	<i>B</i>	<i>Very Low</i>		<i>2ND Avenue</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-10</i>	<i>B</i>	<i>Very Low</i>		<i>Ermine Pl.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-11</i>	<i>B</i>	<i>Very Low</i>		<i>Muskrat St</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-12</i>	<i>B</i>	<i>Very Low</i>		<i>Hollywood Rd</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-13</i>	<i>B</i>	<i>Very Low</i>		<i>Mink St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-14</i>	<i>B</i>	<i>Very Low</i>		<i>Musk Ox St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-15</i>	<i>B</i>	<i>Very Low</i>		<i>Badger St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-16</i>	<i>B</i>	<i>Very Low</i>		<i>Casey Dr.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-17</i>	<i>B</i>	<i>Very Low</i>		<i>Apryl Ln.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-18</i>	<i>B</i>	<i>Very Low</i>		<i>France Ct.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-23</i>	<i>B</i>	<i>Very Low</i>		<i>Aero Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-24</i>	<i>B</i>	<i>Very Low</i>		<i>Holly Loop</i>	<i>2</i>	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-8</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-9</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-2</i>	<i>C</i>	<i>Low</i>		<i>Next to Airport</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-3</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-4</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-5</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-6</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-7</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-8</i>	<i>C</i>	<i>Low</i>		<i>On Taxi Way</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-90-- R2-106</i>	<i>C</i>	<i>Very Low</i>		<i>17 Septics within Zone C</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-3</i>	<i>C</i>	<i>Low</i>		<i>Near Airport</i>	<i>2</i>	<i>27 acres</i>
<i>Highways and roads, paved (cement or asphalt)</i>	<i>X20</i>	<i>X20-1</i>	<i>C</i>	<i>Very Low</i>		<i>Big Lake Rd.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-19</i>	<i>C</i>	<i>Very Low</i>		<i>Beaver Circle</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-20</i>	<i>C</i>	<i>Very Low</i>		<i>Marten Ave.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-21</i>	<i>C</i>	<i>Very Low</i>		<i>Taxi Way</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-22</i>	<i>C</i>	<i>Very Low</i>		<i>Pilot Circle</i>	<i>2</i>	

Table 3

Potential and Existing Sources of Contamination for Big Lake Lodge
Nitrates and Nitrites

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-1</i>	<i>A</i>	<i>High</i>	<i>1</i>	<i>North of Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-2</i>	<i>A</i>	<i>High</i>	<i>2</i>	<i>Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-3</i>	<i>A</i>	<i>High</i>	<i>3</i>	<i>Northeast of Big Lake Lodge</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-1</i>	<i>A</i>	<i>Low</i>		<i>Area next to Big Lake and on Peninsula across canal</i>	<i>2</i>	<i>22 acres</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-2</i>	<i>A</i>	<i>Medium</i>		<i>Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-1</i>	<i>A</i>	<i>Very Low</i>		<i>East of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-2</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-3</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-4</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-5</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-6</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-7</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-8</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-9</i>	<i>A</i>	<i>Very Low</i>		<i>On South Wolverine Drive</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-10</i>	<i>A</i>	<i>Very Low</i>		<i>On Fox Ave.</i>	<i>3</i>	

Table 3

Potential and Existing Sources of Contamination for Big Lake Lodge
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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-11	A	Very Low		On 1St Ave	3	
Septic systems (serves one single-family home)	R2	R2-12	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-13	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-14	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-15	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-16	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-17	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-18	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-19	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-20	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-21	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-22	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-23	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-24	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-25	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-26	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-27	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-28	A	Very Low		On Lake View Loop	3	

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Septic systems (serves one single-family home)	R2	R2-29	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-30	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-31	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-32	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-33	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-34	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-35	A	Very Low		On Lois Lane	3	
Septic systems (serves one single-family home)	R2	R2-36	A	Very Low		On Lois Lane	3	
Aboveground Gasoline Tank	T10	T10-1	A	Medium		Big Lake Lodge ~ 60 ft. from well	3	
Highways and roads, dirt/gravel	X24	X24-1	A	Very Low		Lake View Loop	2	
Highways and roads, dirt/gravel	X24	X24-2	A	Very Low		Lois Lane	2	
Highways and roads, dirt/gravel	X24	X24-3	A	Very Low		Creek Access	2	
Highways and roads, dirt/gravel	X24	X24-4	A	Very Low		Randall Creek Access	2	
Highways and roads, dirt/gravel	X24	X24-5	A	Very Low		Big Lake Lodge Road	2	
Highways and roads, dirt/gravel	X24	X24-6	A	Very Low		Gronwaldt St.	2	
Highways and roads, dirt/gravel	X24	X24-7	A	Very Low		1St Avenue	2	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-4	B	High	4	North of Fox Avenue, West of Anderson Street	3	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-5</i>	<i>B</i>	<i>High</i>	<i>5</i>	<i>On Muskrat St.</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-6</i>	<i>B</i>	<i>High</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-7</i>	<i>B</i>	<i>High</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-2</i>	<i>B</i>	<i>Low</i>		<i>East of Wolverine Drive</i>	<i>2</i>	<i>76 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-37</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-38</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1St Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-39</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-40</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-41</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-42</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-43</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-44</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-45</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-46</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-47</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-48</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	

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Potential and Existing Sources of Contamination for Big Lake Lodge
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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		On Ermine Pl.	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		On Wolverine Dr.	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		On Marten Ave.	3	

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Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-76	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-77	B	Very Low		On Fox Ave.	3	
Septic systems (serves one single-family home)	R2	R2-78	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-79	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-80	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-81	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-82	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-83	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-84	B	Very Low		On Musk Ox St.	3	

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<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-85</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-86</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-87</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-88</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-89</i>	<i>B</i>	<i>Very Low</i>		<i>On Musk Ox St.</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-8</i>	<i>B</i>	<i>Very Low</i>		<i>Anderson St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-9</i>	<i>B</i>	<i>Very Low</i>		<i>2ND Avenue</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-10</i>	<i>B</i>	<i>Very Low</i>		<i>Ermine Pl.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-11</i>	<i>B</i>	<i>Very Low</i>		<i>Muskrat St</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-12</i>	<i>B</i>	<i>Very Low</i>		<i>Hollywood Rd</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-13</i>	<i>B</i>	<i>Very Low</i>		<i>Mink St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-14</i>	<i>B</i>	<i>Very Low</i>		<i>Musk Ox St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-15</i>	<i>B</i>	<i>Very Low</i>		<i>Badger St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-16</i>	<i>B</i>	<i>Very Low</i>		<i>Casey Dr.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-17</i>	<i>B</i>	<i>Very Low</i>		<i>Apryl Ln.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-18</i>	<i>B</i>	<i>Very Low</i>		<i>France Ct.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-23</i>	<i>B</i>	<i>Very Low</i>		<i>Aero Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-24</i>	<i>B</i>	<i>Very Low</i>		<i>Holly Loop</i>	<i>2</i>	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-8</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-9</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-90-- R2-106</i>	<i>C</i>	<i>Very Low</i>		<i>17 Septics within Zone C</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-3</i>	<i>C</i>	<i>Low</i>		<i>Near Airport</i>	<i>2</i>	<i>27 acres</i>
<i>Residential Areas</i>	<i>R1</i>	<i>R1-3</i>	<i>C</i>	<i>Low</i>		<i>Near Airport</i>	<i>2</i>	<i>27 acres</i>
<i>Airports</i>	<i>X14</i>	<i>X14-1</i>	<i>C</i>	<i>Low</i>		<i>Big Lake Airport</i>	<i>3</i>	
<i>Highways and roads, paved (cement or asphalt)</i>	<i>X20</i>	<i>X20-1</i>	<i>C</i>	<i>Very Low</i>		<i>Big Lake Rd.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-19</i>	<i>C</i>	<i>Very Low</i>		<i>Beaver Circle</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-20</i>	<i>C</i>	<i>Very Low</i>		<i>Marten Ave.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-21</i>	<i>C</i>	<i>Very Low</i>		<i>Taxi Way</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-22</i>	<i>C</i>	<i>Very Low</i>		<i>Pilot Circle</i>	<i>2</i>	

Table 4

Potential and Existing Sources of Contamination for Big Lake Lodge
Volatile Organic Chemicals (VOCs)

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-1</i>	<i>A</i>	<i>Low</i>		<i>North of Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-2</i>	<i>A</i>	<i>Low</i>		<i>Big Lake Lodge</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-3</i>	<i>A</i>	<i>Low</i>		<i>Northeast of Big Lake Lodge</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-1</i>	<i>A</i>	<i>Low</i>		<i>Area next to Big Lake and on Peninsula across canal</i>	<i>2</i>	<i>22 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-1</i>	<i>A</i>	<i>Very Low</i>		<i>East of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-2</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-3</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-4</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-5</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-6</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-7</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-8</i>	<i>A</i>	<i>Very Low</i>		<i>Southeast of Big Lake Lodge</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-9</i>	<i>A</i>	<i>Very Low</i>		<i>On South Wolverine Drive</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-10</i>	<i>A</i>	<i>Very Low</i>		<i>On Fox Ave.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-11</i>	<i>A</i>	<i>Very Low</i>		<i>On 1St Ave</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-12</i>	<i>A</i>	<i>Very Low</i>		<i>On Lake View Loop</i>	<i>3</i>	

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Potential and Existing Sources of Contamination for Big Lake Lodge
Volatile Organic Chemicals (VOCs)

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-13	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-14	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-15	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-16	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-17	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-18	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-19	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-20	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-21	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-22	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-23	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-24	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-25	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-26	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-27	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-28	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-29	A	Very Low		On Lake View Loop	3	
Septic systems (serves one single-family home)	R2	R2-30	A	Very Low		On Lois Lane	3	

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<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-31</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-32</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-33</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-34</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-35</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-36</i>	<i>A</i>	<i>Very Low</i>		<i>On Lois Lane</i>	<i>3</i>	
<i>Aboveground Gasoline Tank</i>	<i>T10</i>	<i>T10-1</i>	<i>A</i>	<i>Medium</i>		<i>~60 feet from well</i>	<i>3</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-1</i>	<i>A</i>	<i>Very Low</i>		<i>Lake View Loop</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-2</i>	<i>A</i>	<i>Very Low</i>		<i>Lois Lane</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-3</i>	<i>A</i>	<i>Very Low</i>		<i>Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-4</i>	<i>A</i>	<i>Very Low</i>		<i>Randall Creek Access</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-5</i>	<i>A</i>	<i>Very Low</i>		<i>Big Lake Lodge Road</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-6</i>	<i>A</i>	<i>Very Low</i>		<i>Gronwaldt St.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-7</i>	<i>A</i>	<i>Very Low</i>		<i>1St Avenue</i>	<i>2</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-1</i>	<i>B</i>	<i>High</i>	<i>1</i>	<i>On Casey Dr.</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-4</i>	<i>B</i>	<i>Low</i>		<i>North of Fox Avenue, West of Anderson Street</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-5</i>	<i>B</i>	<i>Low</i>		<i>On Muskrat St.</i>	<i>3</i>	

Table 4

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-6</i>	<i>B</i>	<i>Low</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-7</i>	<i>B</i>	<i>Low</i>		<i>On Apryl Lane</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-2</i>	<i>B</i>	<i>Low</i>		<i>East of Wolverine Drive</i>	<i>2</i>	<i>76 acres</i>
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-37</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-38</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1St Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-39</i>	<i>B</i>	<i>Very Low</i>		<i>Near 1ST Avenue</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-40</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-41</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-42</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-43</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-44</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-45</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-46</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-47</i>	<i>B</i>	<i>Very Low</i>		<i>On Wolverine Dr.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-48</i>	<i>B</i>	<i>Very Low</i>		<i>On Ermine Pl.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-49</i>	<i>B</i>	<i>Very Low</i>		<i>On Muskrat St.</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-50</i>	<i>B</i>	<i>Very Low</i>		<i>On Muskrat St.</i>	<i>3</i>	

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<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		On Ermine Pl.	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		On Beaver Circle	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		On Wolverine Dr.	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		On Casey Dr.	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		On Apryl Ln.	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		On Marten Ave.	3	

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Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		On Marten Ave.	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-76	B	Very Low		On Muskrat St.	3	
Septic systems (serves one single-family home)	R2	R2-77	B	Very Low		On Fox Ave.	3	
Septic systems (serves one single-family home)	R2	R2-78	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-79	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-80	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-81	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-82	B	Very Low		On Mink St.	3	
Septic systems (serves one single-family home)	R2	R2-83	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-84	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-85	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-86	B	Very Low		On Musk Ox St.	3	

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Septic systems (serves one single-family home)	R2	R2-87	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-88	B	Very Low		On Musk Ox St.	3	
Septic systems (serves one single-family home)	R2	R2-89	B	Very Low		On Musk Ox St.	3	
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low		Anderson St.	2	
Highways and roads, dirt/gravel	X24	X24-9	B	Very Low		2ND Avenue	2	
Highways and roads, dirt/gravel	X24	X24-10	B	Very Low		Ermine Pl.	2	
Highways and roads, dirt/gravel	X24	X24-11	B	Very Low		Muskrat St	2	
Highways and roads, dirt/gravel	X24	X24-12	B	Very Low		Hollywood Rd	2	
Highways and roads, dirt/gravel	X24	X24-13	B	Very Low		Mink St.	2	
Highways and roads, dirt/gravel	X24	X24-14	B	Very Low		Musk Ox St.	2	
Highways and roads, dirt/gravel	X24	X24-15	B	Very Low		Badger St.	2	
Highways and roads, dirt/gravel	X24	X24-16	B	Very Low		Casey Dr.	2	
Highways and roads, dirt/gravel	X24	X24-17	B	Very Low		Apryl Ln.	2	
Highways and roads, dirt/gravel	X24	X24-18	B	Very Low		France Ct.	2	
Highways and roads, dirt/gravel	X24	X24-23	B	Very Low		Aero Lane	2	
Highways and roads, dirt/gravel	X24	X24-24	B	Very Low		Holly Loop	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	C	High	2	Next to Airport	3	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	C	High	3	On Big Lake Rd.	3	

Table 4

Potential and Existing Sources of Contamination for Big Lake Lodge
Volatile Organic Chemicals (VOCs)

PWSID 220707.001

<i>Contaminant Source Category</i>	<i>Contaminant Source ID</i>	<i>CS ID Tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Overall Rank After Analysis</i>	<i>Location</i>	<i>Map</i>	<i>Comments</i>
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-4</i>	<i>C</i>	<i>High</i>	<i>4</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-5</i>	<i>C</i>	<i>High</i>	<i>5</i>	<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-6</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-7</i>	<i>C</i>	<i>High</i>		<i>On Big Lake Rd.</i>	<i>3</i>	
<i>Injection wells (Class V) Motor Vehicle Waste Disposal Well</i>	<i>D42</i>	<i>D42-8</i>	<i>C</i>	<i>High</i>		<i>On Taxi Way</i>	<i>3</i>	
<i>Airports</i>	<i>X14</i>	<i>X14-1</i>	<i>C</i>	<i>High</i>		<i>Big Lake Airport</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-8</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)</i>	<i>D10</i>	<i>D10-9</i>	<i>C</i>	<i>Low</i>		<i>On Big Lake Rd</i>	<i>3</i>	
<i>Septic systems (serves one single-family home)</i>	<i>R2</i>	<i>R2-90-- R2-106</i>	<i>C</i>	<i>Very Low</i>		<i>17 Septics within Zone C</i>	<i>3</i>	
<i>Residential Areas</i>	<i>R1</i>	<i>R1-3</i>	<i>C</i>	<i>Low</i>		<i>Near Airport</i>	<i>2</i>	<i>27 acres</i>
<i>Highways and roads, paved (cement or asphalt)</i>	<i>X20</i>	<i>X20-1</i>	<i>C</i>	<i>Very Low</i>		<i>Big Lake Rd.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-19</i>	<i>C</i>	<i>Very Low</i>		<i>Beaver Circle</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-20</i>	<i>C</i>	<i>Very Low</i>		<i>Marten Ave.</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-21</i>	<i>C</i>	<i>Very Low</i>		<i>Taxi Way</i>	<i>2</i>	
<i>Highways and roads, dirt/gravel</i>	<i>X24</i>	<i>X24-22</i>	<i>C</i>	<i>Very Low</i>		<i>Pilot Circle</i>	<i>2</i>	

Chart 1. Susceptibility of the Wellhead – Big Lake Lodge

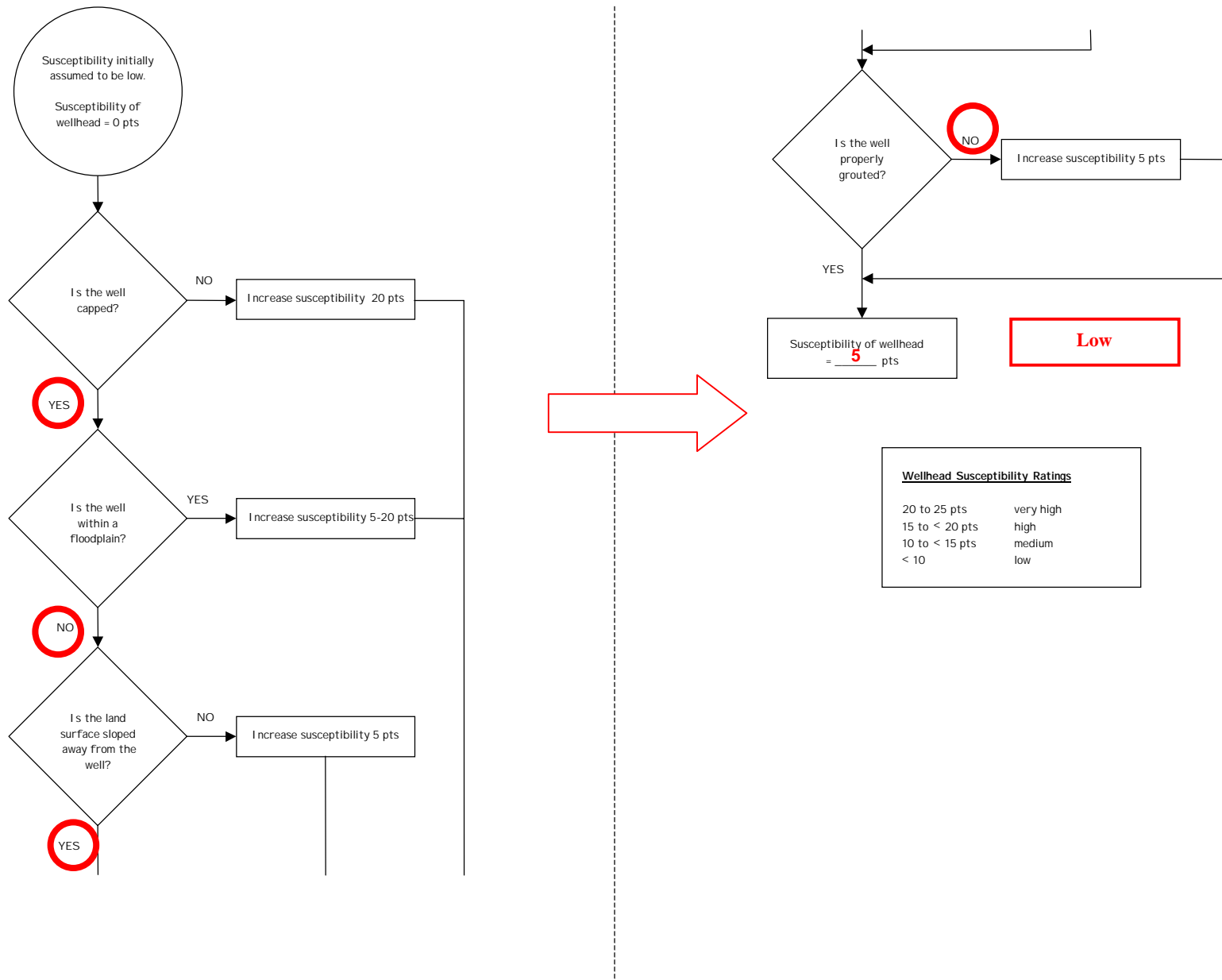
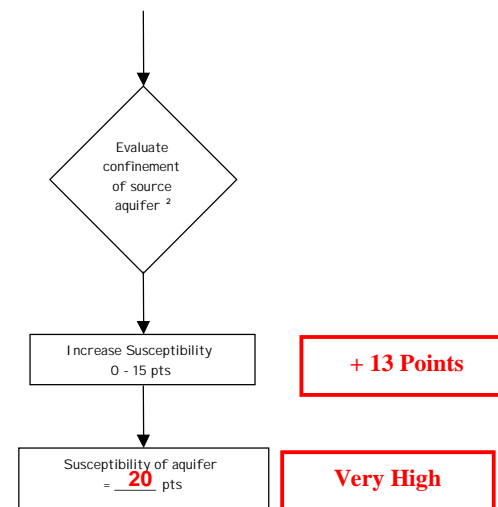
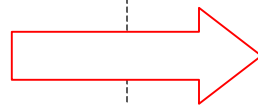
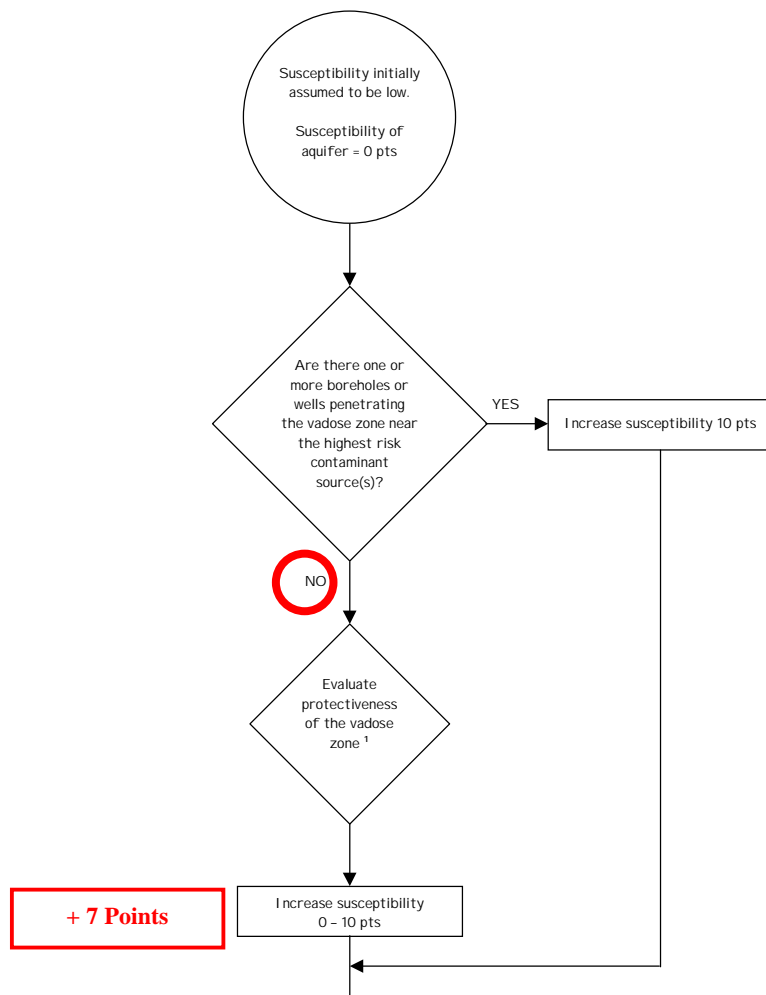


Chart 2. Susceptibility of the Aquifer – Big Lake Lodge



1. Protectiveness of the Vadose Zone

- net recharge (function of precipitation, slope of land surface, & permeability of soils)
[0 - 10 pts; 50% weight]
- depth to water table (unconfined aquifer) or top of confining layer (confined aquifer)
[interpolate linearly: 100' - 20', 0 - 5 pts; 20' - 0', 5 - 10 pts; 50% weight]

Precip. = 20"/Year = 4 pts
Soil = Silt/Loam = 4 pts
Slope = 0-5% = 9 pts
17 pts/ 3 = 5.7 pts.
5.7 pts X 50% = **2.9 pts.**

Depth to water table = 8 feet
Interpolate linearly = 8 pts.
8 pts. X 50% = **4 pts.**

Total = 7 of 10 Points

2. Degree of Confinement

- confined verses unconfined aquifer
[confined: $K \leq 10^{-6}$ cm/s, minimum thickness of at least one layer = 20 ft, interpolate linearly 100' - 20', 0 - 10 pts; unconfined = 15 pts; 65% weight]
- density of boreholes and wells penetrating the confining layer (confined aquifer) or the water table (unconfined aquifer)
[confined: 0 - 15 pts; unconfined = 15 pts; 35% weight]

Unconfined Aquifer

Well depth 31 feet = 15 pts.
Few boreholes/wells in close proximity = 10 pts.

15(65%) + 10(35%) = 13.3 pts

Total = 13 of 15 Points

Aquifer Susceptibility Ratings

20 to 25 pts	very high
15 to < 20 pts	high
10 to < 15 pts	medium
< 10	low

High

Chart 3. Contaminant risks for Big Lake Lodge – Bacteria & Viruses

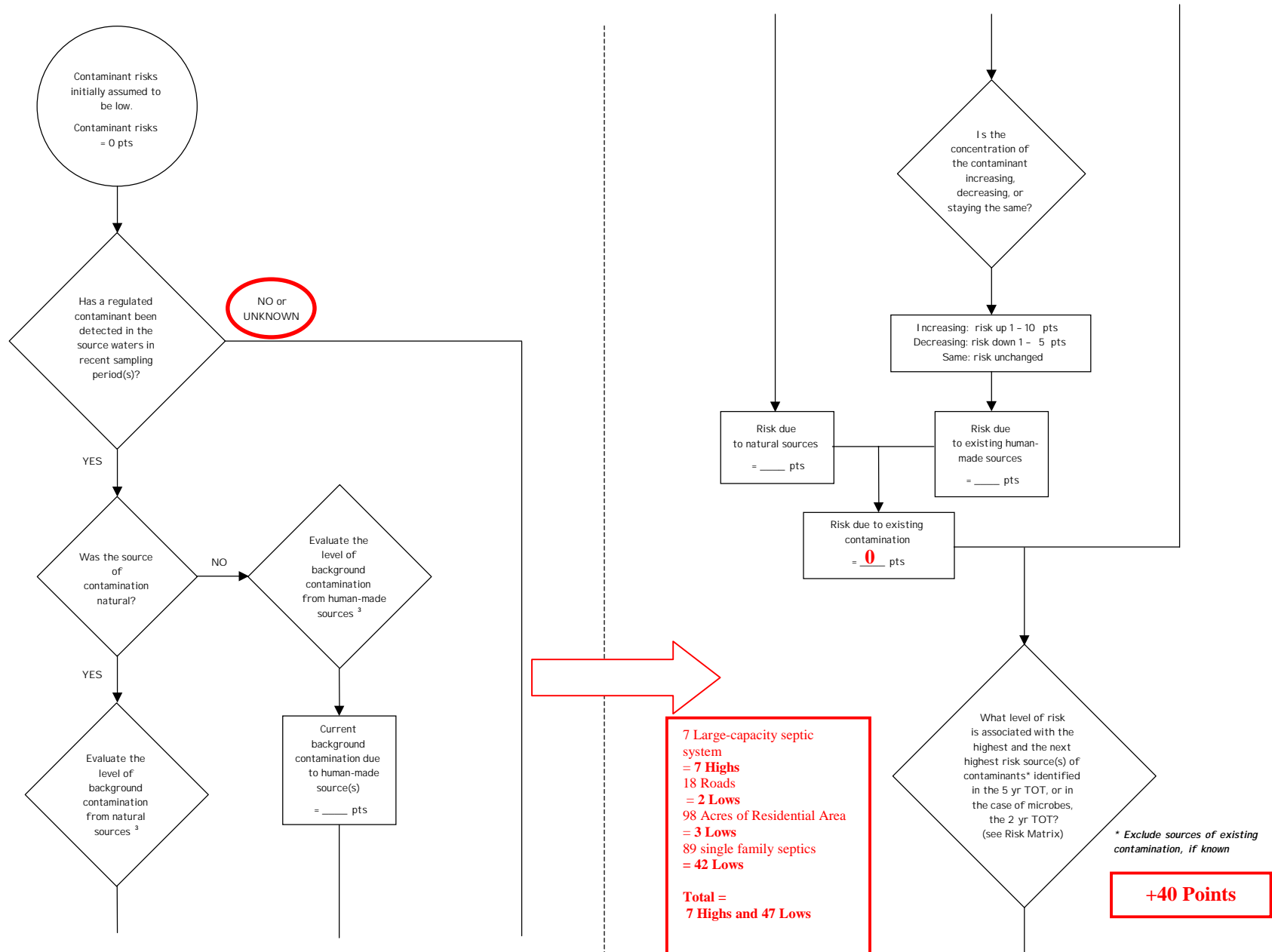


Chart 3. Contaminant risks for Big Lake Lodge– Bacteria & Viruses (Continued)

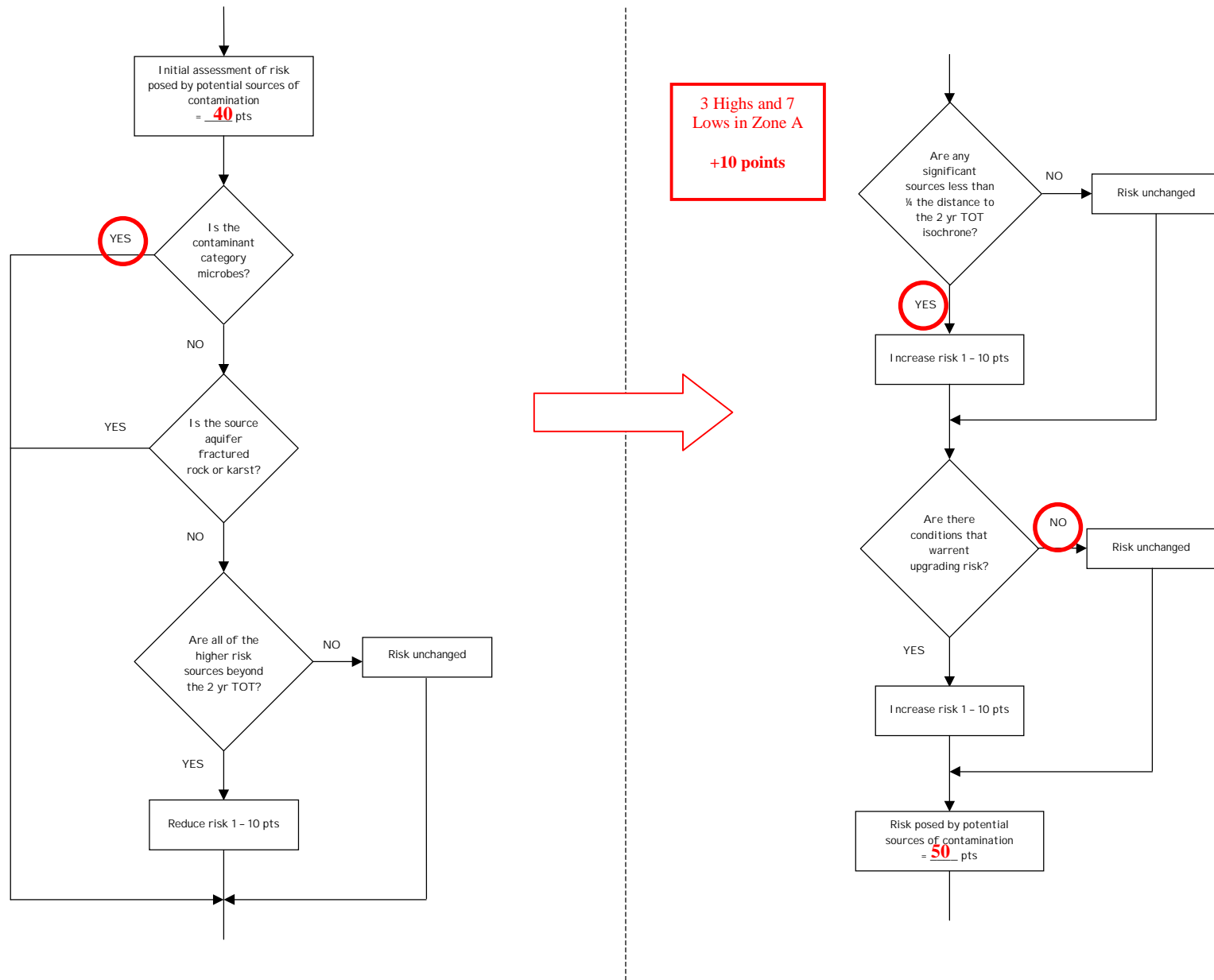


Chart 3. Contaminant risks for Big Lake Lodge– Bacteria & Viruses (Continued)

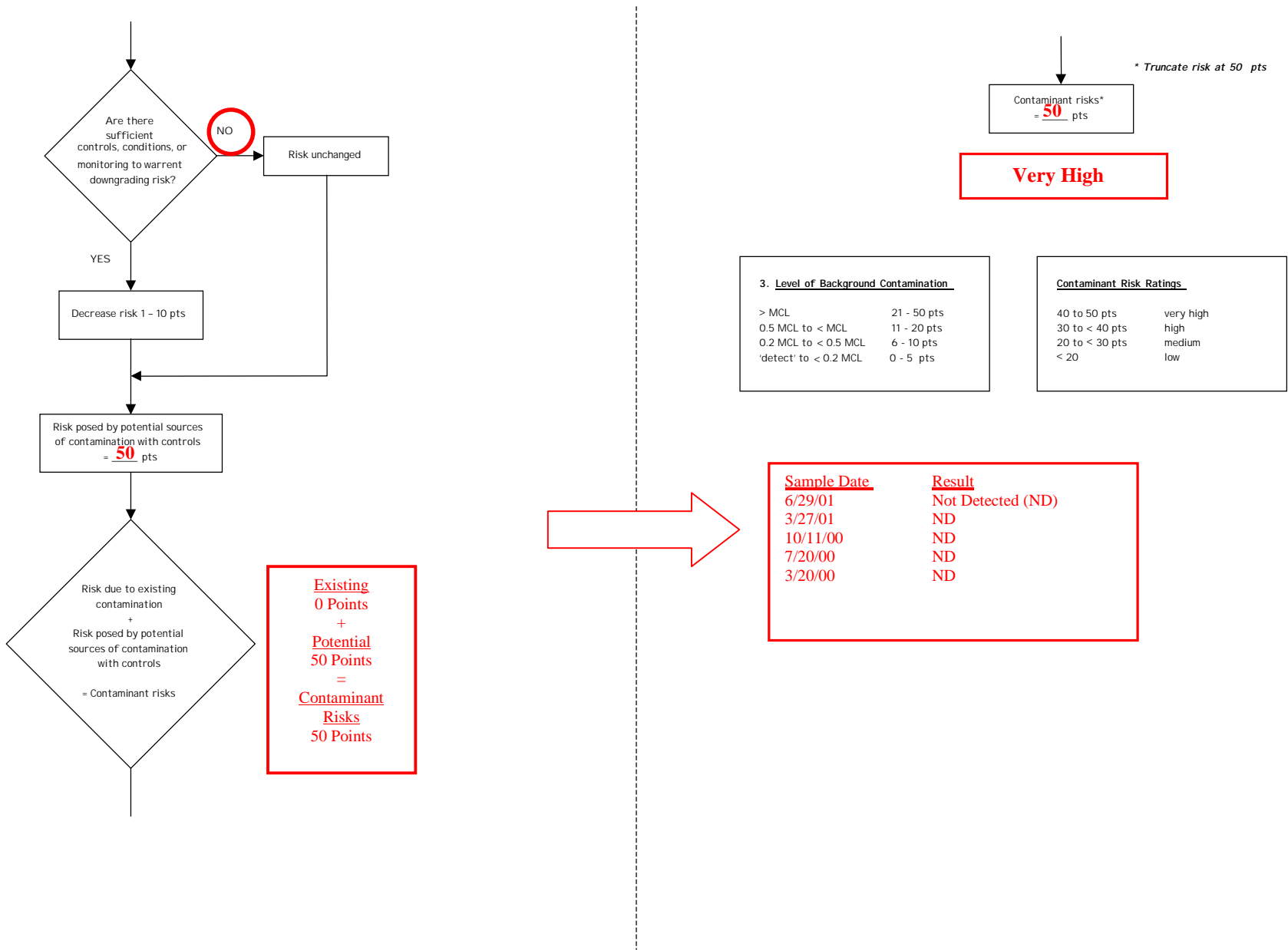


Table 1. Risk Matrix for Contaminant Sources for Big Lake Lodge– Bacteria & Viruses

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Source(s)	Total = 7 Highs and 47 Lows	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

Chart 4. Vulnerability analysis for Big Lake Lodge – Bacteria & Viruses

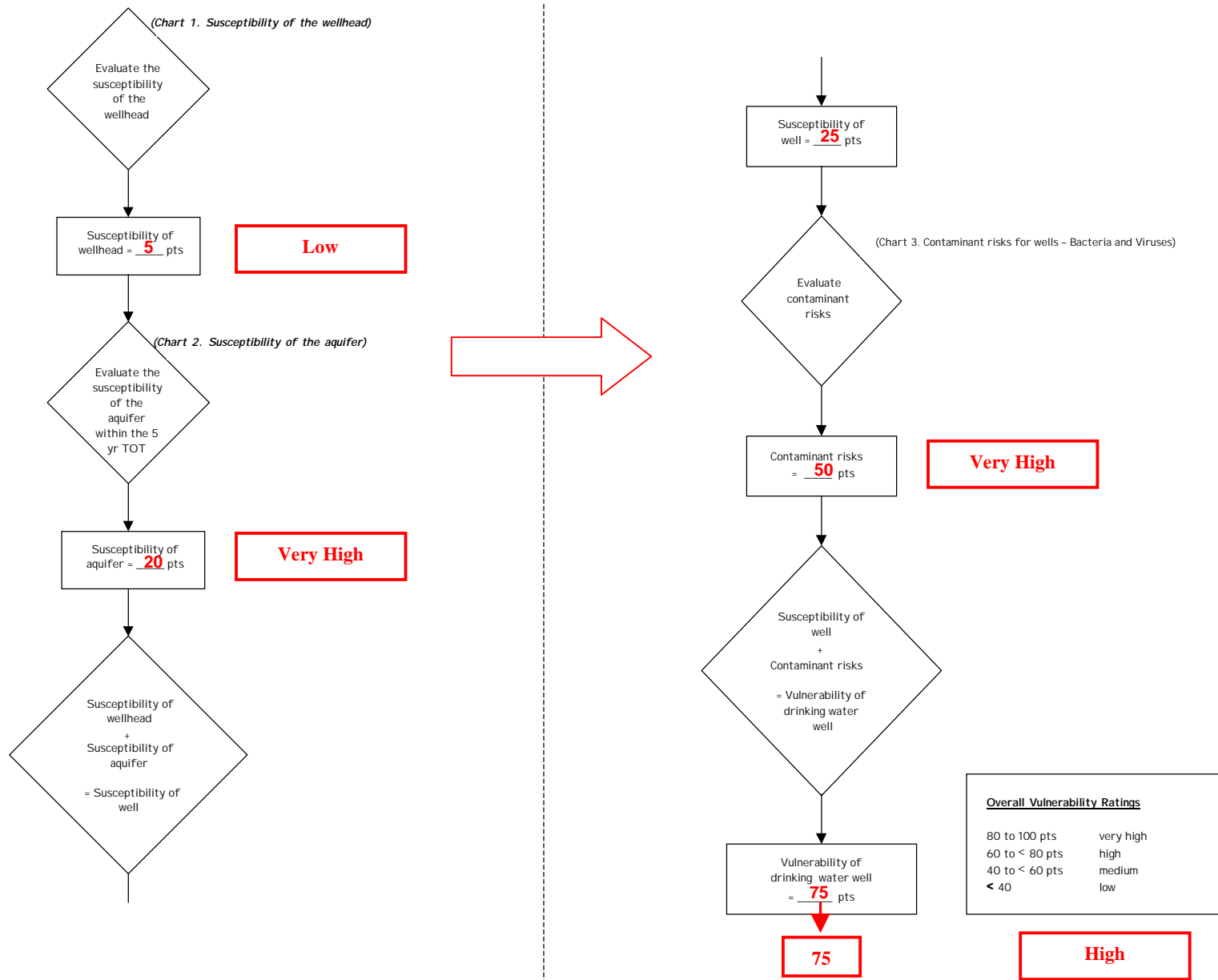


Chart 5. Contaminant risks for Big Lake Lodge – Nitrates and Nitrites

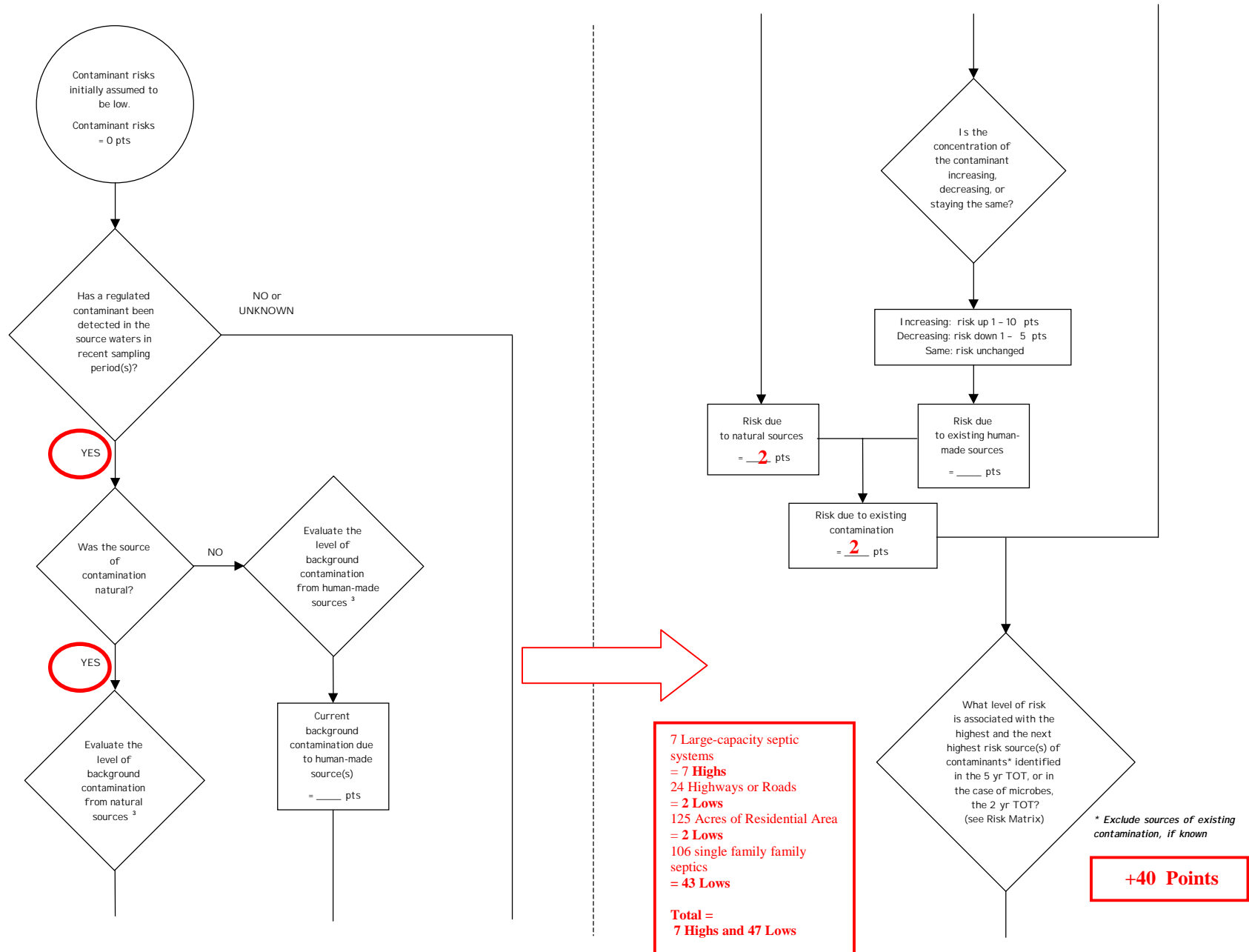


Chart 5. Contaminant risks for Big Lake Lodge– Nitrates and Nitrites (Continued)

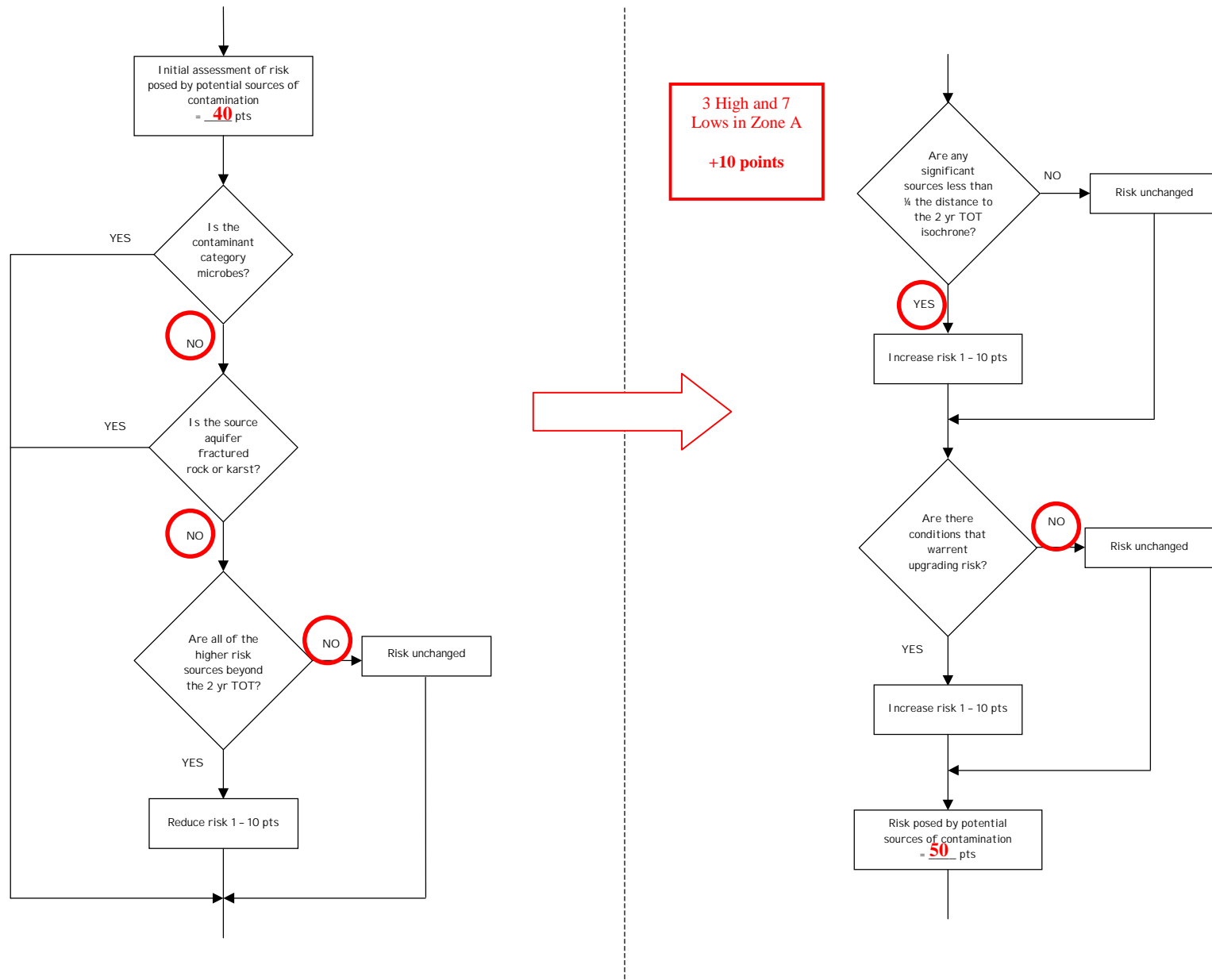


Chart 5. Contaminant risks for Big Lake Lodge– Nitrates and Nitrites (Continued)

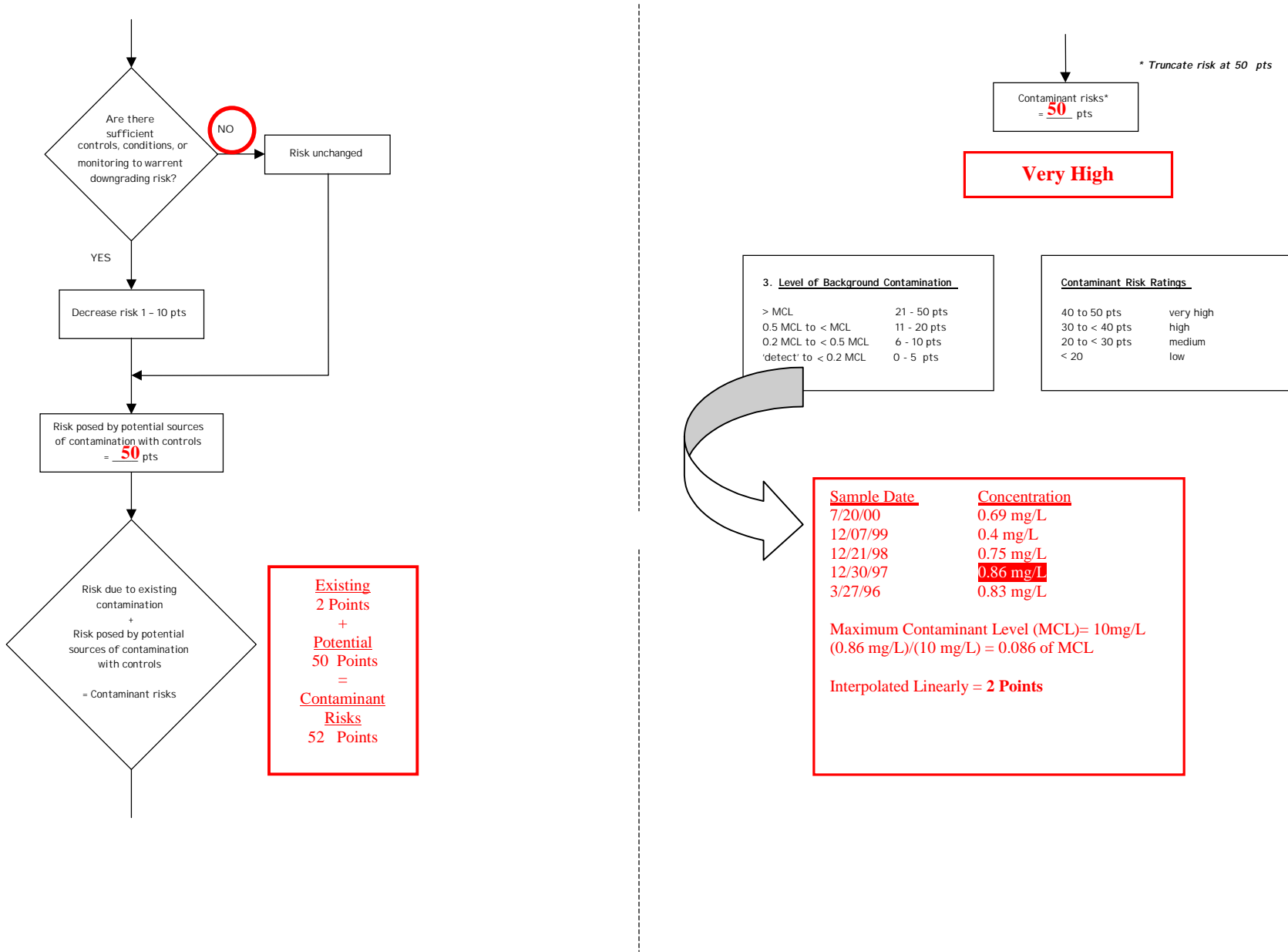


Table 2. Risk Matrix for Contaminant Sources for Big Lake Lodge– Nitrates and Nitrites

Level of Risk Associated with the Highest Risk Sources

Total = 7 Highs and 47 Lows	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

Chart 6. Vulnerability analysis for Big Lake Lodge – Nitrates and Nitrites

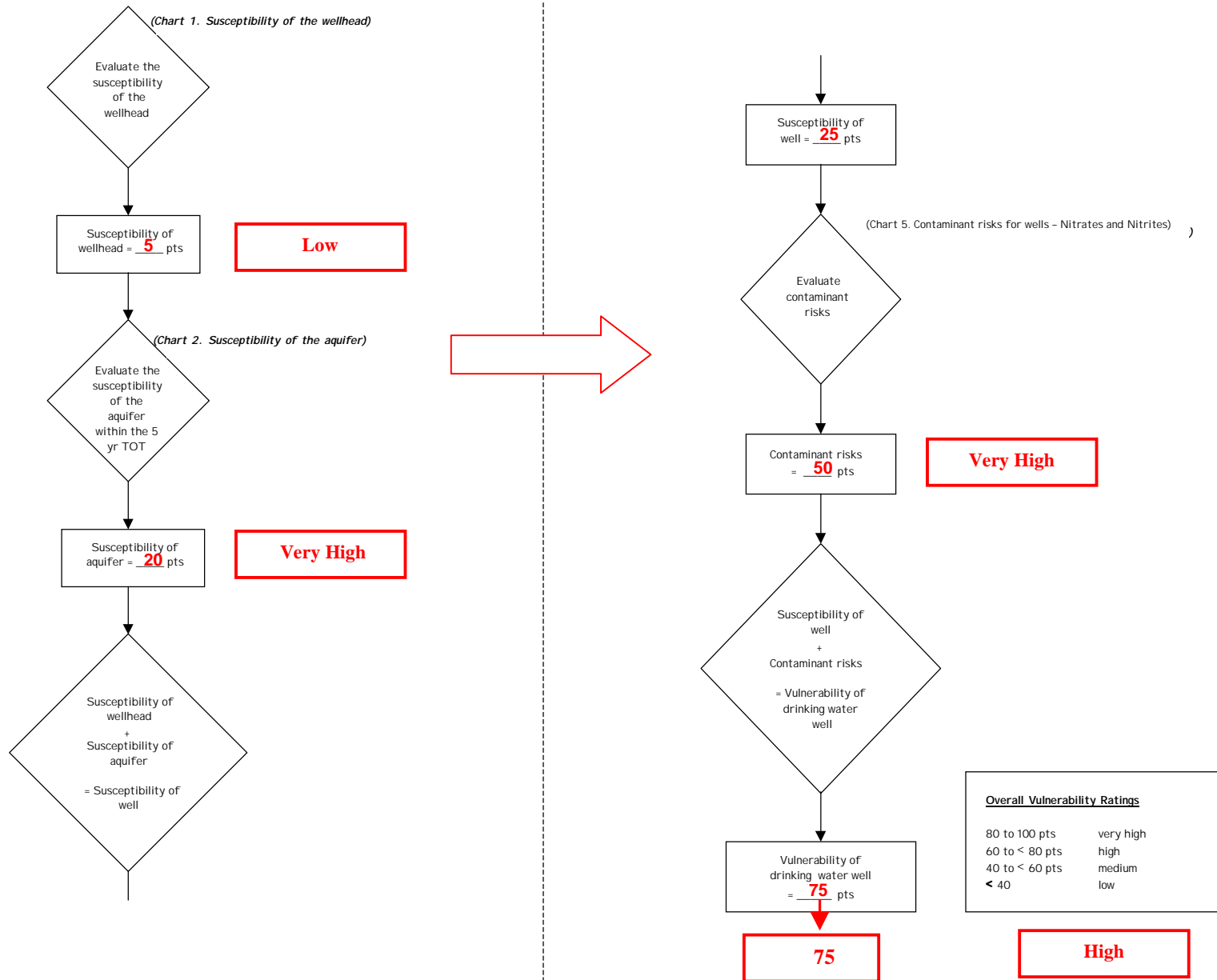


Chart 7. Contaminant risks for Big Lake Lodge – Volatile Organic Chemicals

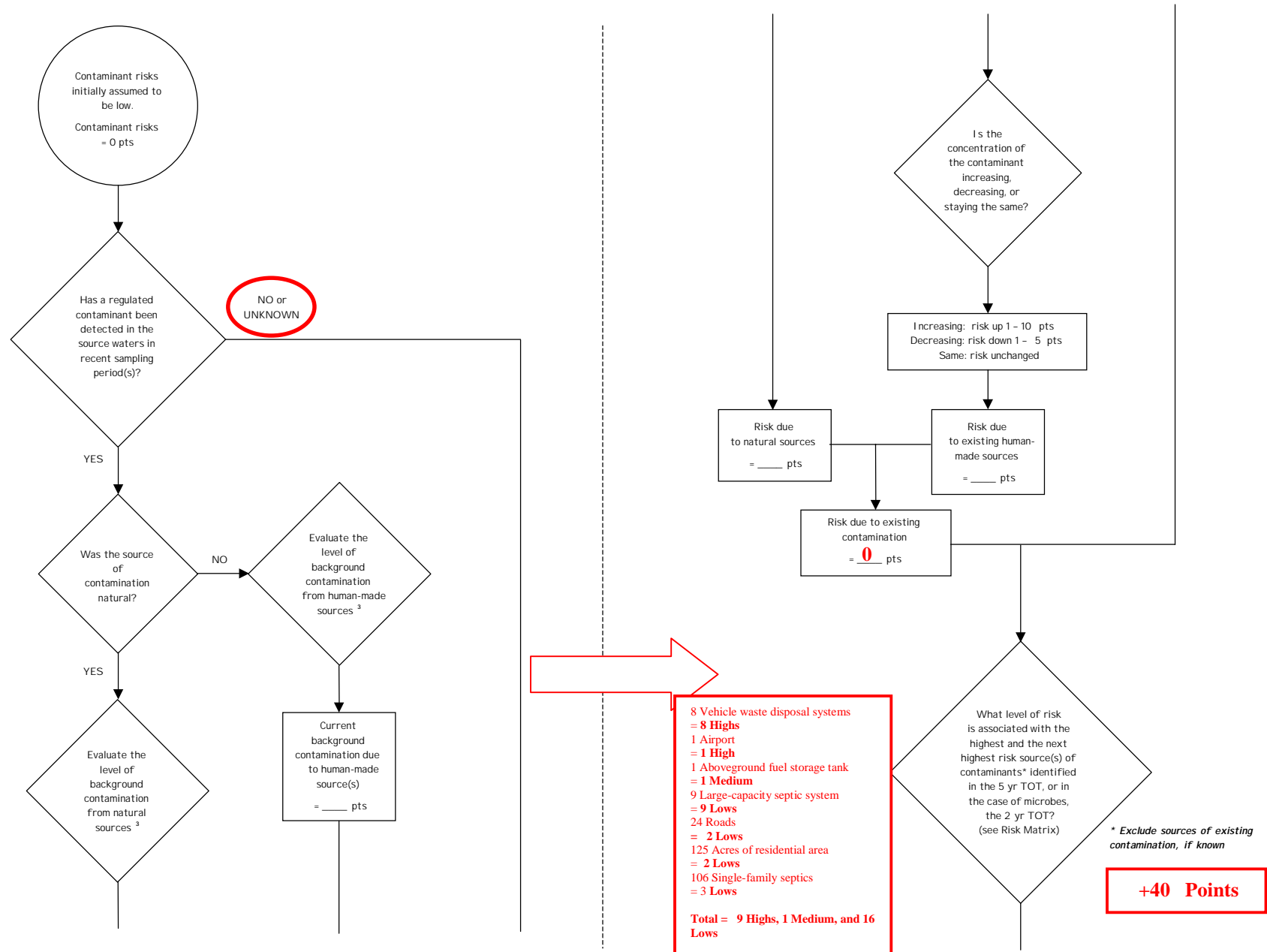


Chart 7. Contaminant risks for Big Lake Lodge– Volatile Organic Chemicals (Continued)

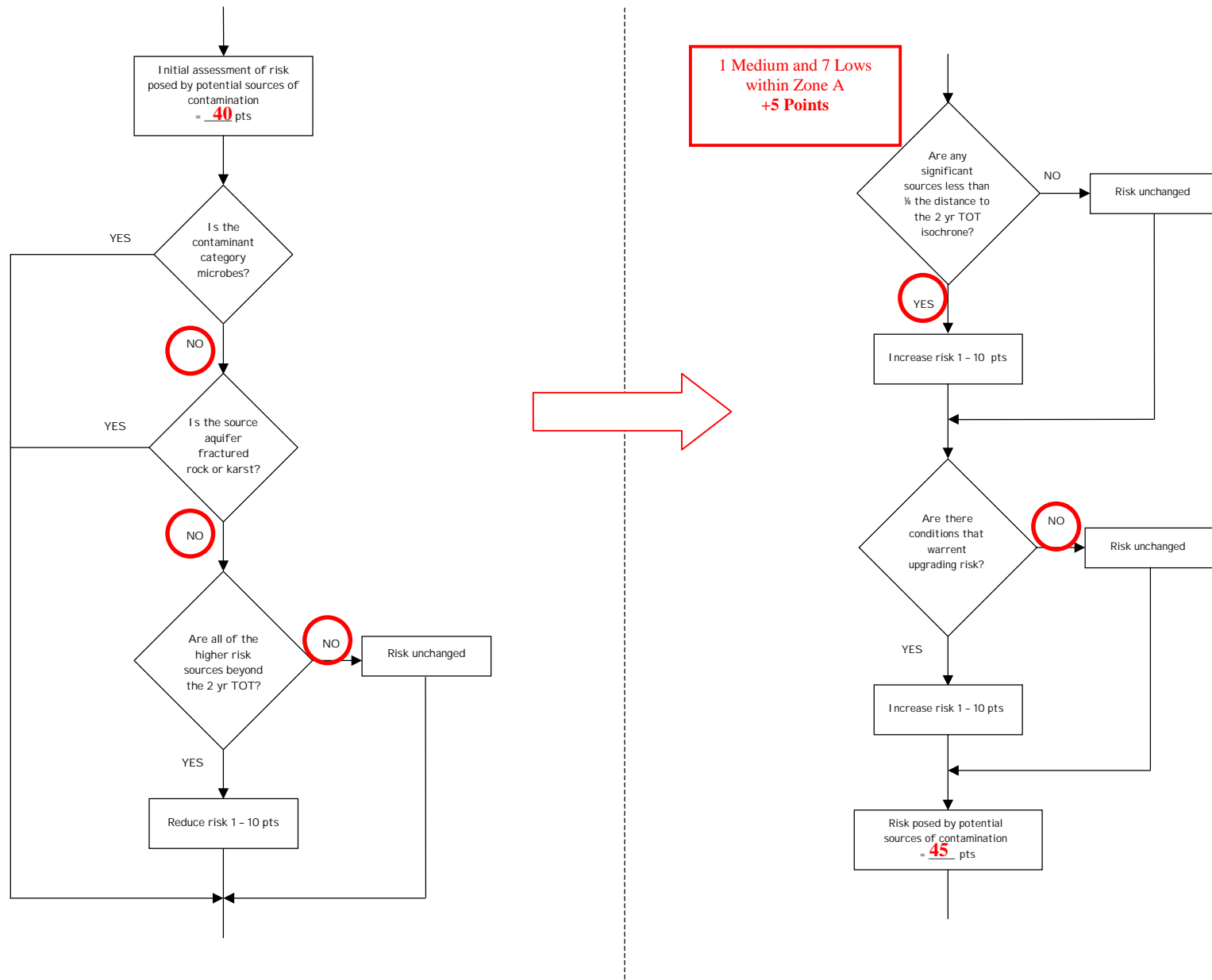


Chart 7. Contaminant risks for Big Lake Lodge– Volatile Organic Chemicals (Continued)

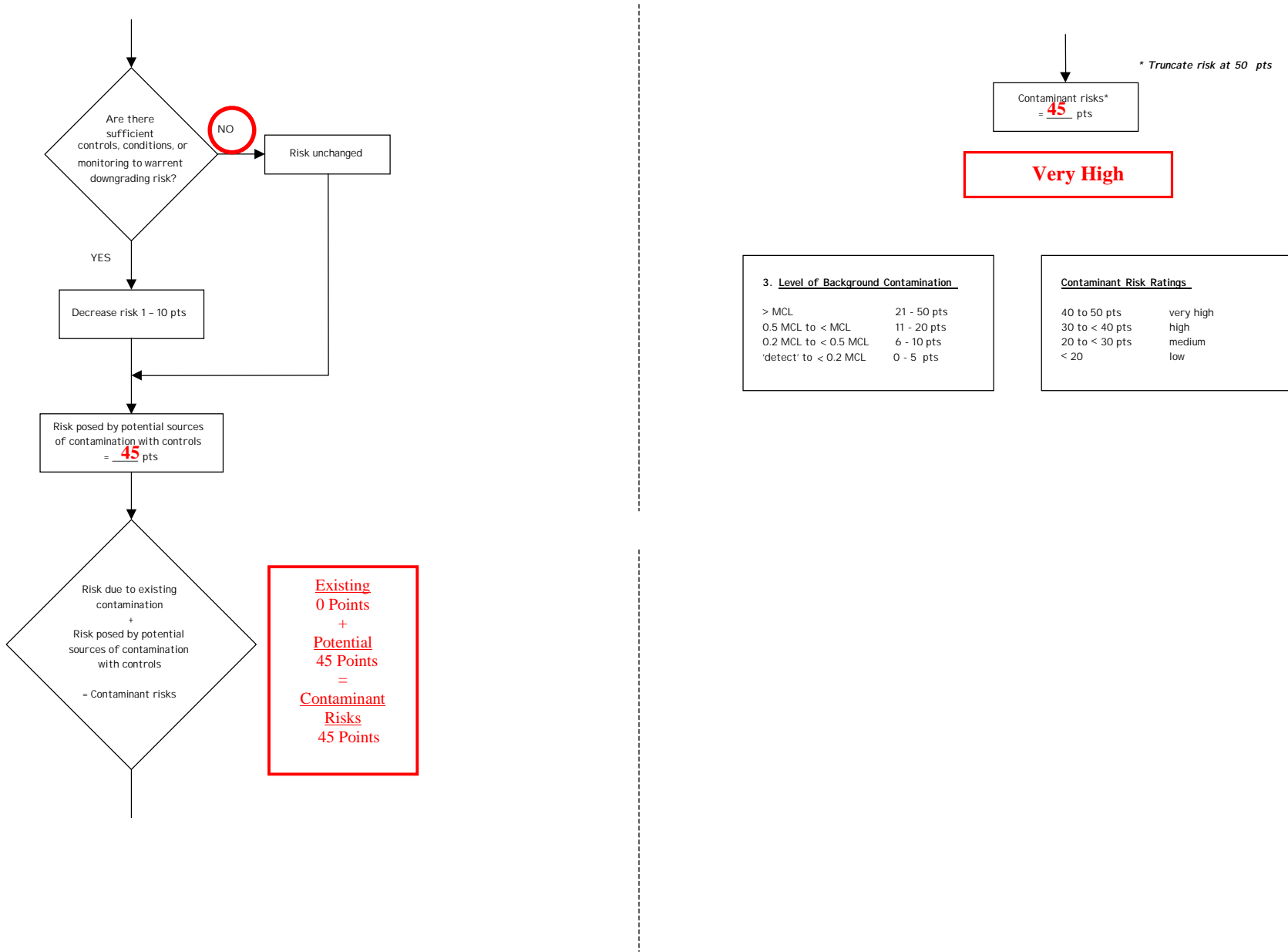
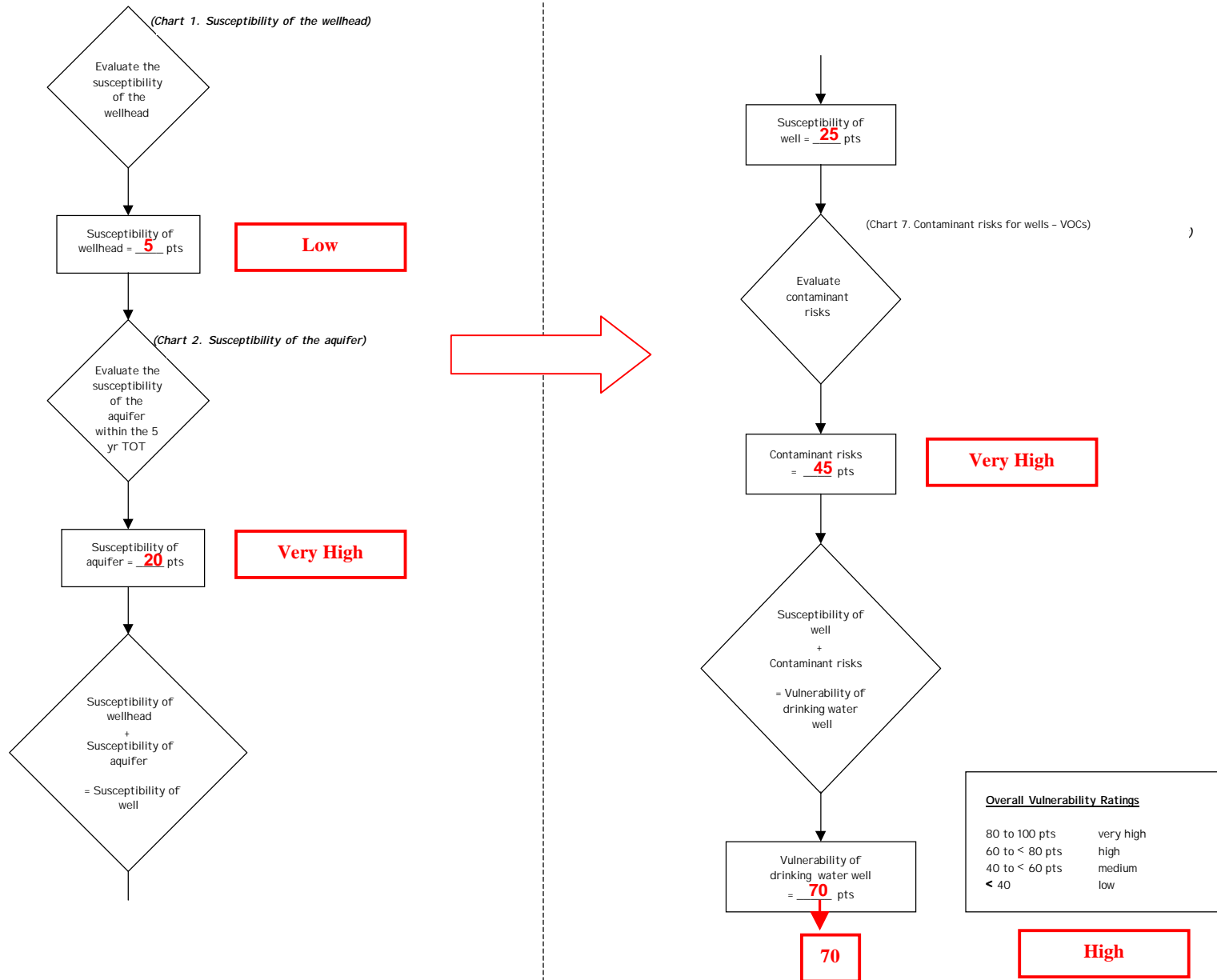


Table 3. Risk Matrix for Contaminant Sources for Big Lake Lodge– Volatile Organic Chemicals

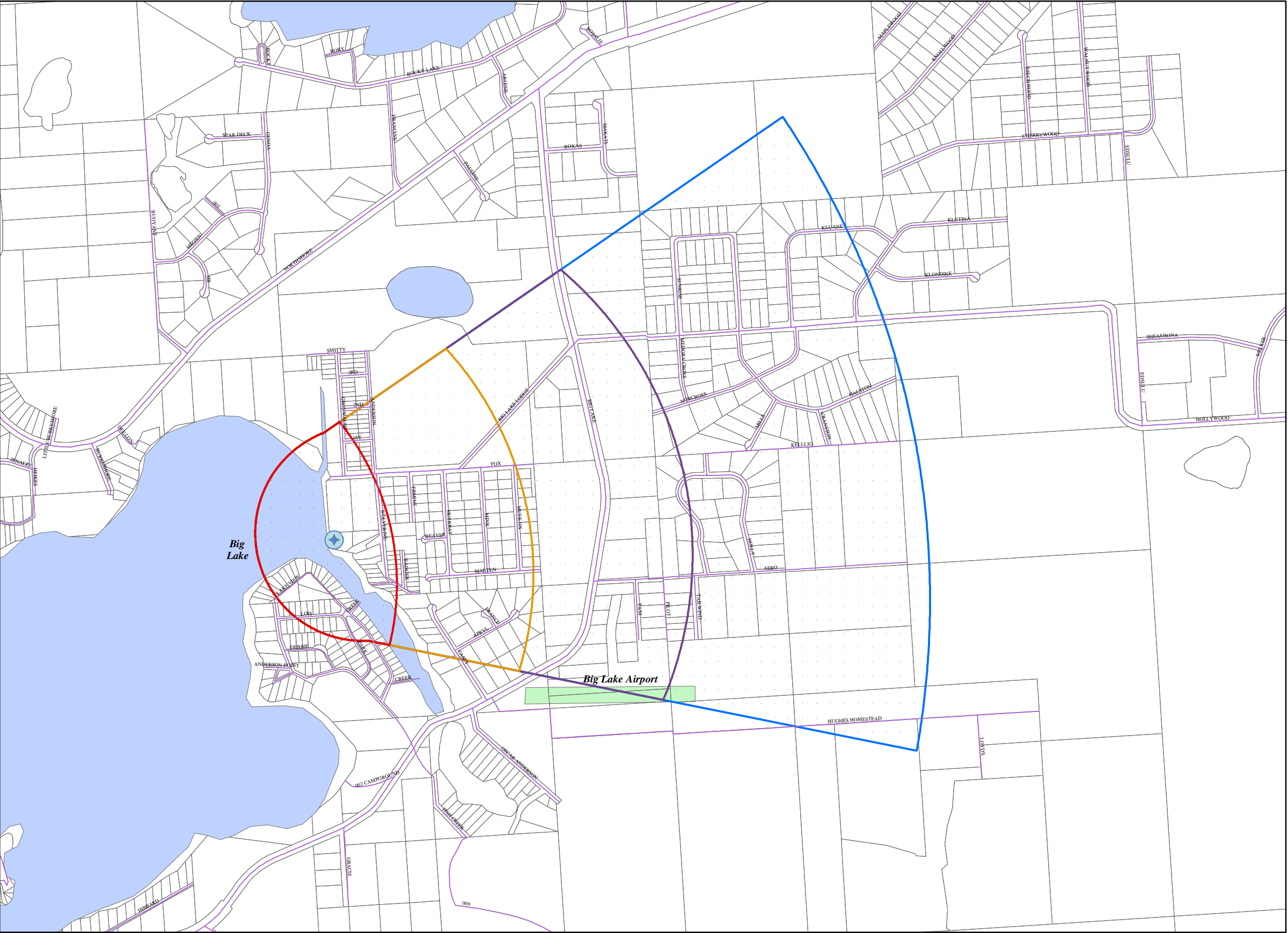
Level of Risk Associated with the Highest Risk Sources

Total = 9 Highs, 1 Medium and 16 Lows	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

Chart 8. Vulnerability analysis for Big Lake Lodge – Volatile Organic Chemicals



*Drinking Water Protection Areas for Big Lake Lodge
and Potential and Existing Sources of Contamination*



Big Lake Lodge Well

MSB roads

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

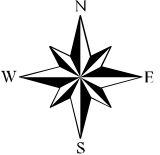
Zone D Protection Area
 Less Than 10-Years Travel Time

MSB parcel core

Lakes

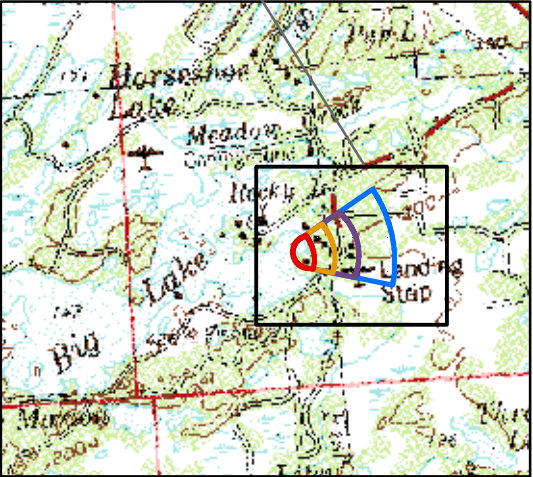
1,250 0 1,250 Feet

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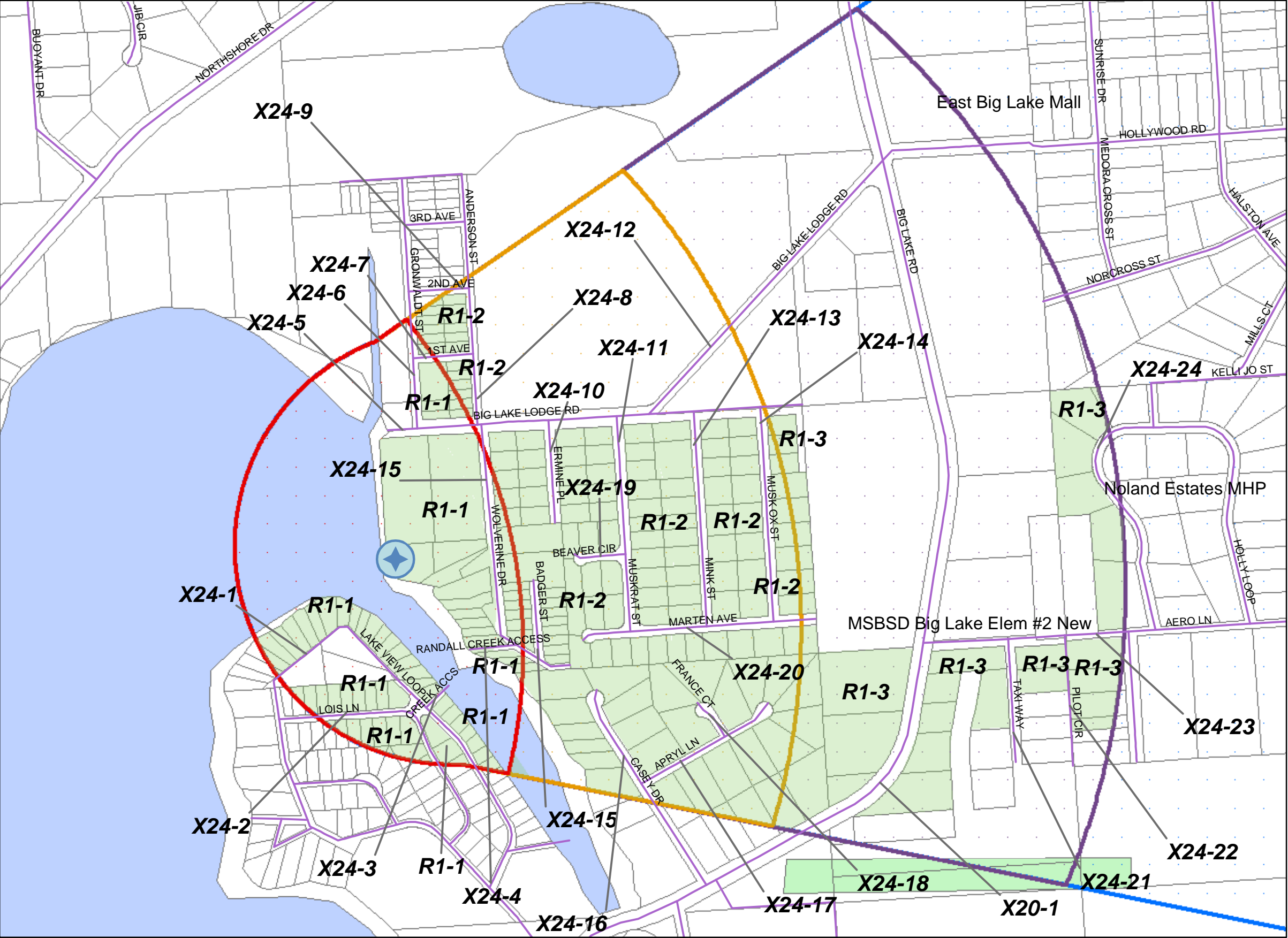


Map 1

Location of Map



Drinking Water Protection Areas for Big Lake Lodge and
Potential and Existing Sources of Contamination



Big Lake Lodge Well

MSB roads

Residential Area

Lakes

MSB parcel core

Zone A Protection Area

Several Months Travel Time

Zone B Protection Area

Less Than 2-Years Travel Time

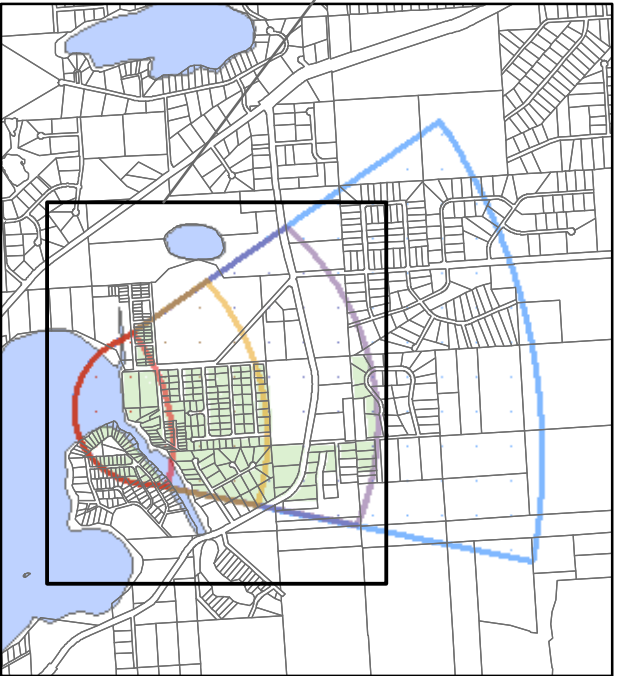
Zone C Protection Area

Less Than 5-Years Travel Time

Zone D Protection Area

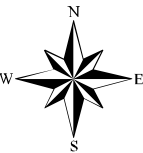
Less Than 10-Years Travel Time

Location of Map



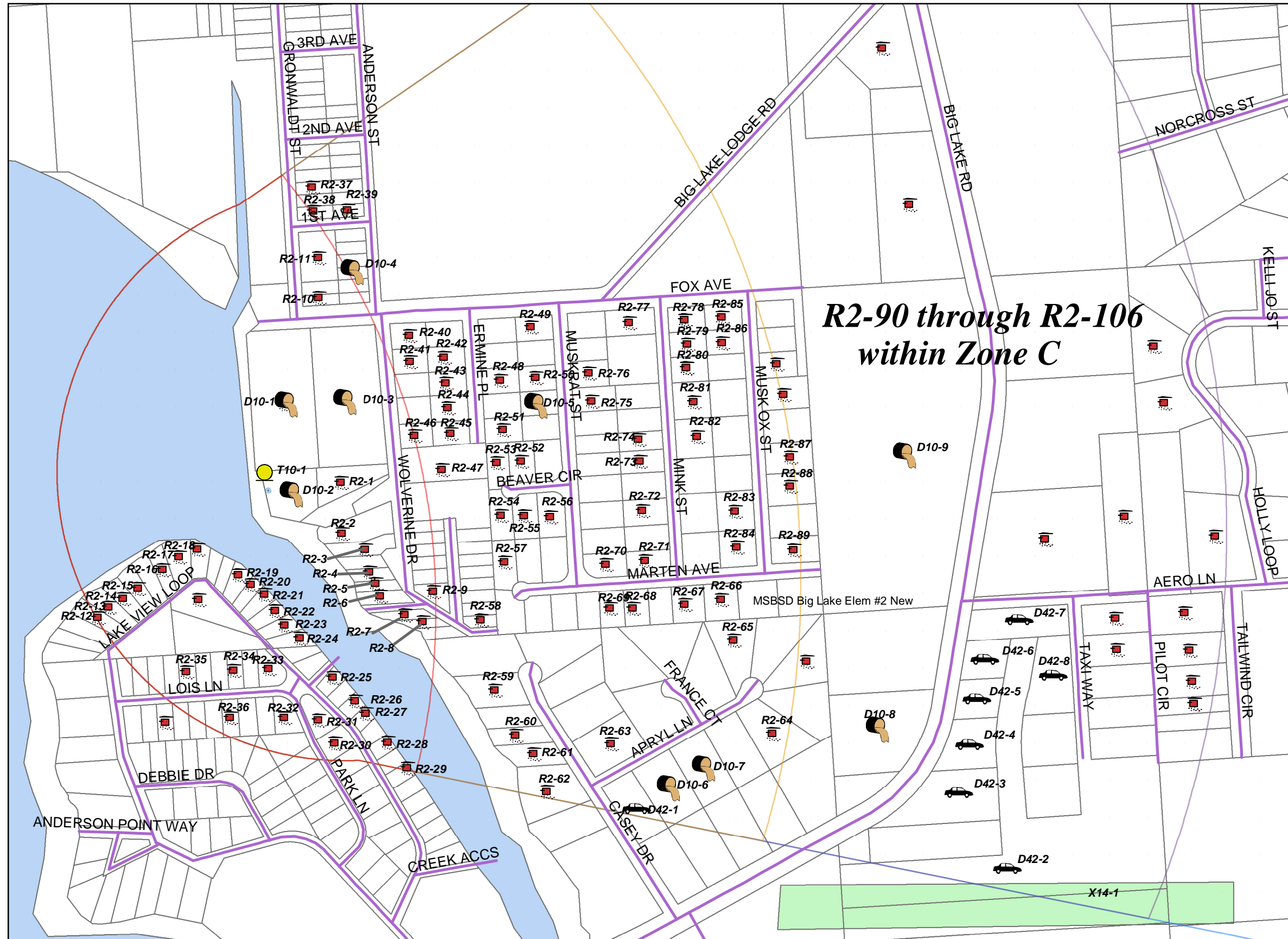
620 0 620 Feet

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Map 2

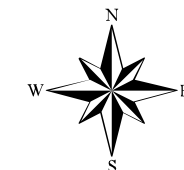
Drinking Water Protection Areas for Big Lake Lodge and Potential and Existing Sources of Contamination



- Big Lake Lodge Well
- Aboveground Gasoline Tank (T10)
- ⦿ Large Capacity Septic Systems (D10)
- ⦿ Motor Vehicle Waste Disposal Systems (D42)
- ⦿ Single Family Septic System (R2)
- MSB roads
- Airports (X14)
- Lakes
- MSB parcel core
- 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

480 0 480 Feet

PWSID 220707.001



Map 3