Hydrogeologic Susceptibility and Vulnerability Assessment for Max's Bar & Grill Public Drinking Water Well, Girdwood, Alaska

DRINKING WATER PROTECTION PROGRAM REPORT 8

September 2000

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By MICHAEL. J. CROTTEAU

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ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION: 2000

CONTENTS

TABLES

ILLUSTRATIONS

APPENDICES

Hydrogeologic Susceptibility and Vulnerability Assessment for Max's Bar & Grill Public Drinking Water Well, Girdwood, Alaska

By Michael J. Crotteau

Drinking Water Protection Program
Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

Max's Bar & Grill Public Water System is a Class B (transient/non-community) water system consisting of one well. Identified potential and existing sources of contaminants for Max's Bar & Grill include a closed contaminated site and residential areas. These identified potential and existing contaminant sources are sources of bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals. Overall, Max's Bar & Grill's public water system received a vulnerability rating of **Low** for bacteria and viruses, and **Medium** for nitrates and/or nitrites and volatile organic chemicals.

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 Max's Bar & Grill's source of public drinking water. This source consists of one well in the Glacier Creek Valley (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 performed as a basis for voluntary local protection efforts and to assist agencies in their efforts to reduce risk to public drinking water supplies.

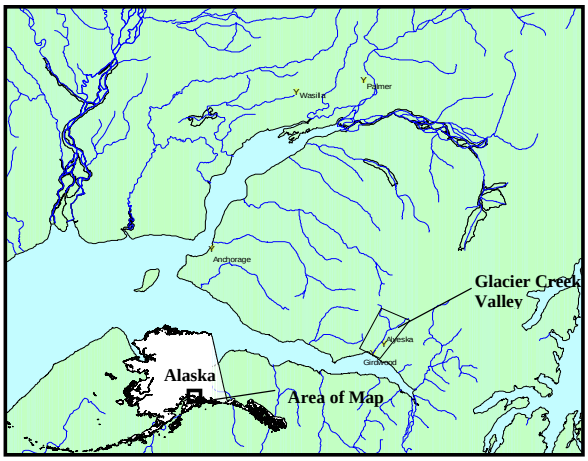


Figure 1. Index map showing the location of the Glacier Creek Valley, Alaska

PHYSIOGRAPHY OF THE GLACIER CREEK VALLEY, ALASKA

Glacier Creek Valley, drained primarily by Glacier Creek, is located near the head of Turnagain Arm of Cook Inlet, approximately 45 miles south of Anchorage, Alaska (see Figure 1). Widened by glaciers and surrounded by steep mountain slopes, the valley is approximately six miles in length and trends northeast-southwest. The valley floor is roughly four miles wide. Elevations within the valley increase inland, from sea level at Turnagain Arm to approximately 6500 feet at the head of the valley. Development comprising the community of Girdwood is present along the lower four miles of the valley.

The floor of the Girdwood Valley is covered primarily by coniferous forests. Bedrock is exposed at the surface and wetlands occur intermittently in the valley floor. Bedrock also crops out at elevation in the mountains. Glacier Creek originates in uplands at the head of the valley, drains an area of approximately 58.2 square miles and is roughly centrally located. A mean annual discharge of 265 cubic feet per second was recorded in Glacier Creek (USGS gaging station near the mouth) from 1965-78. California Creek and Alyeska Creek flow into Glacier Creek. California Creek drains an area of roughly 6.96 square miles. Virgin Creek flows directly into the Turnagain Arm and drains an area of about 3.5 square miles in the valley [*Glass and Brabets*, 1988].

Mean annual precipitation of roughly 40 inches per year was recorded near the mouth of the valley from 1955-66 and 1977-78. At the base of the Alyeska Ski Resort, annual precipitation in excess of 65 inches per year has

been recorded (1985-86) [*Glass and Brabets, 1988*]. Mean daily temperature ranges from 65.1° F during cool rainy summers to 13.9° F in snowy winters, with average total snow depths of 197.4 inches [*Western Regional Climate Center*, 2000].

Groundwater flows from bedrock highlands, including steep valley walls, toward sediments in the center of the valley. Flow through valley sediments, or unconsolidated deposits, is generally to the southwest toward Turnagain Arm.

MAX'S BAR & GRILL PUBLIC WATER SYSTEM

Max's Bar & Grill Public Water System is a Class B (transient/non-community) water system, which is owned by and operated by Max's Bar & Grill. The system consists of one well, which is situated in front of Max's Bar & Grill near mile 0.5 of Crow Creek Road, northwest of the new Girdwood Townsite (see Figure 2). No well log is available for Max's Bar & Grill, however, adjacent wells penetrate gravel, silty gravel, and minor amounts of clay. Total depth of the well is unknown. Adjacent well logs indicate a static water level near forty feet below land surface. This system operates year round and serves approximately two residents and 25 non-residents through a single connection.

ASSESSMENT AND PROTECTION AREA FOR MAX'S BAR & GRILL'S DRINKING WATER SOURCE

The Drinking Water Protection and Assessment Area that has been established for Max's Bar & Grill's public drinking water well 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 to the preservation of the quality of this water system's drinking water.

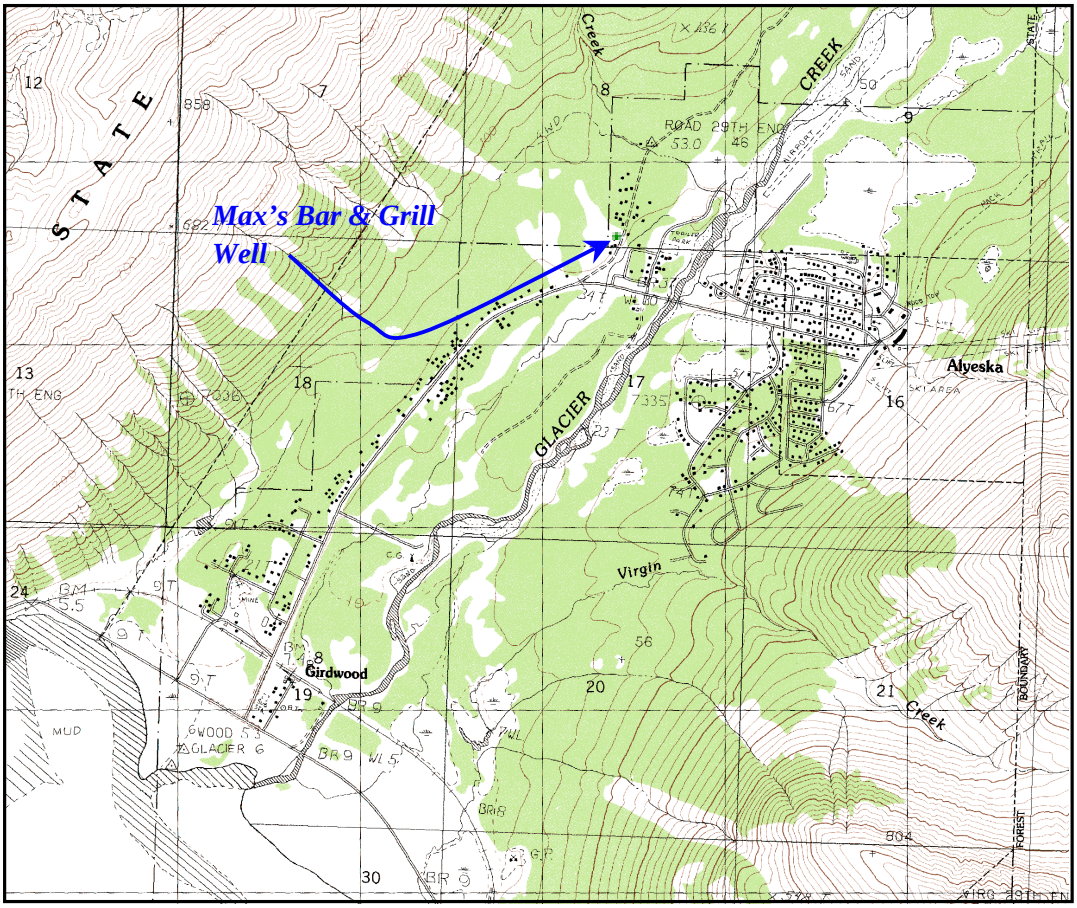


Figure 2. Map showing the location of the drinking water source for Max's Bar & Grill.

Therefore, this area will also serve as the area of focus for voluntary protection efforts.

Conceptually, surface water and groundwater flow is downgradient from steep bedrock slopes toward the unconsolidated stream and glacial deposits in the valley (see Figure 4).

A 2-dimensional groundwater flow model was built to simulate groundwater flow in the saturated valley sediments (water table aquifer). This model was used as a guide in the first step in establishing the protection and assessment area for Max's Bar & Grill's source of public drinking water. Additional methods were further employed to take into account any uncertainties in groundwater flow and aquifer characteristics to arrive at a meaningful and conservative protection and assessment 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 and Assessment 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 and Assessment Area for the Max's Bar & Grill contains two zones, Zone A and (See Map 1 - Map 2 in Appendix B). Zone A corresponds to ¼ of the distance to the 2-year time-of-travel. Depending on where a contaminant source is located, travel time for a contaminant to the well may be on the order of several days to several hours.

The Zone B protection and assessment area for Max's Bar & Grill corresponds to a time-of-travel of less than two years. Zone B extends up-slope to the top of the watershed divide to take into account contaminants that may flow overland or in California Creek and enter valley sediments.

INVENTORY OF CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within Max's Bar & Grill's Drinking Water Assessment and Protection Area. This survey was completed through a search of agency records and other publicly available information. Potential sources of contamination to drinking water supplies cover a wide range of categories and types. Potential drinking water contaminants are found within agricultural, residential, commercial, and industrial areas, but can also occur within areas that have little or no development.

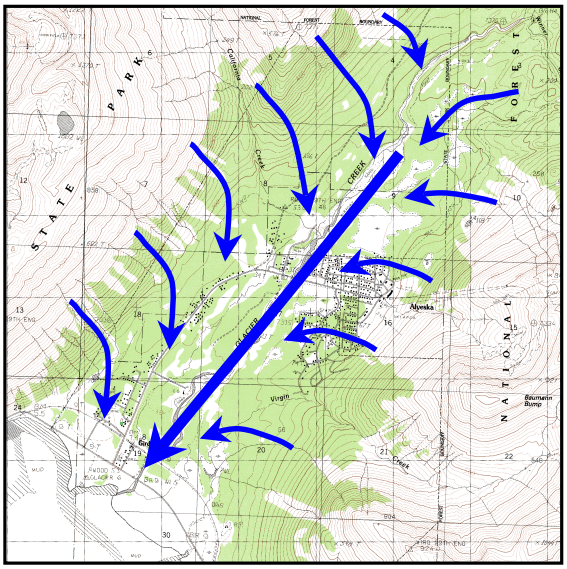


Figure 3. Map showing the conceptual groundwater flow in the Glacier Creek Valley.

For the basis of this assessment and all Class B assessments, three categories of drinking water contaminants were inventoried. They include:

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

Map 3 and Map 4 in Appendix C depict the Contaminant Source Inventory for Max's Bar & Grill. Inventoried potential sources of contamination within Zones A through Zone B were associated with residential type activities (see Table 1 in Appendix A). Below is a summary of the contaminant sources inventoried within Max's Bar & Grill's protection and assessment area:

- An ADEC Contaminated Site; and
- Residential areas;

These potential and existing contaminant sources present risk for all three categories of drinking water contaminants for Max's Bar & Grill's drinking water source (See Page 4 for further discussion of these potential and existing sources of contamination).

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/or density of those types of contaminant sources as well as the proximity of those sources to the well.

VULNERABILITY OF MAX'S BAR & GRILL'S DRINKING WATER SOURCE

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

- natural susceptibility; and
- contaminant risks.

Appendix D contains four charts, which together form the 'Vulnerability Analysis' for a Source Water Assessment. Chart 1 contains the 'Vulnerability Analysis'. Chart 2 analyzes the 'Susceptibility of the Wellhead' to contamination by looking at the construction of the well and its surrounding area. Chart 3 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. Lastly, Chart 4 analyzes 'Contaminant Risks' for the drinking water source with respect to bacteria and viruses. 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. The 'Contaminant Risks' portion of the analysis also considers potential sources of contaminants. Chart 5 through 8 contain the Vulnerability Analysis for nitrates and/or nitrites and volatile organic chemicals, respectively.

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 susceptibility of the aquifer and the well to contamination is achieved by analyzing the properties of the aquifer and the well. The Max's Bar & Grill well, penetrates mostly gravel with only minor discontinuous layers of silty gravel and clay, which provide little if any protective barrier for the movement of contaminants in the subsurface. However, the water table is encountered approximately 40 feet below land surface. The well appears not to be properly grouted, as indicated previously from information obtained from Department records. The absence of well grouting can lead to the transport of contaminants 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 Max's Bar & Grill.

Table 1. Susceptibility of the Wellhead and Aquifer to Contamination

	Score	Rating
Susceptibility	24	Medium

Contaminant risks to a drinking water source depend on the type, number and/or density, and distribution of potential and existing contaminant sources. A closed contaminated sites and residential areas contribute the highest risk for potential contamination to the Max's Bar & Grill's 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 A - Table 1 – Table 4). Table 2 below summarizes the Contaminant Risks for Max's bar & Grill for each category of drinking contaminants.

Table 2. Contaminant Risks

Contaminant Risks	Score	Rating
Bacteria and Viruses	13	Low
Nitrates and/or Nitrites	18	Low
Volatile Organic Chemicals	30	High

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 Max's Bar & Grill Public Drinking Water System to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	35	Low
Nitrates and/or Nitrites	40	Medium
Volatile Organic Chemicals	55	Medium

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

Residential areas rank as the highest sources of bacteria and viruses as well as nitrates and/or nitrites for Max's Bar & Grill. Two of the residential lots within the Drinking Water Protection Area for Max's Bar & Grill are not connected to domestic wastewater sewer lines. All residential areas within the Protection Area rank as low risk for all three categories from potential release from spilled fuel, on-site septic systems, and other activities associated with these areas. A closed contaminated site ranks as the highest sources of volatile organic chemicals for this source of public drinking water.

Nitrates and/or nitrites are found in natural background concentrations at the site, as elsewhere in the Glacier Creek Valley. Sampling history of Max's Bar & Grill's source waters indicate low concentrations of nitrate (See Chart 6 – Contaminant Risks for Nitrates/Nitrites in Appendix D). Existing nitrate contamination is approximately 4% of the allowable limit (MCL) for this contaminant and parallels what is found throughout the valley.

On April 24, 1990 representatives from the Municipality of Anchorage and the Alaska Department of Environmental Conservation responded to a report of a diesel fuel spill on the grounds of Max's Bar & Grill. A 500-gallon fuel tank had been punctured and spilled approximately 200 gallons of diesel on the gravel at the site. To prevent off site migration of volatile organic chemicals, approximately 250 cubic yards of contaminated soils were excavated, stockpiled, covered, and later shipped off site to be incinerated. This site is within the Drinking Water Protection Area Zone A for Max's Bar & Grill. A second spill was discovered further to the west on the same property during the inspection. This spill site was "partially covered by recently placed gravel" [*Golder Associates, Inc., 1990*]. This particular spill site is outside of Max's Bar & Grill's Drinking Water Protection Area. Max's Bar & Grill's drinking water well, in addition to another well down-gradient of the contaminated site, were sampled for volatile organic chemicals on August 8, 1990. These tests yielded no evidence of contamination as a result of this spill. The excavation and shipment of contaminated soils appeared to be successful in recovering "most" of the spilled fuel [*Golder Associates, Inc., 1990*] and no further site (ADEC Contaminated Site 100.34) cleanup was required after September 30, 1991. Volatile organic chemicals may still be present in soil onsite and en route to the water table. This contaminated site was ranked as a medium risk and is the highest-ranking source of volatile organic chemicals for Max's Bar & Grill. However, because of the contaminated site's proximity to the drinking water source, it presents a high risk for Max's Bar & Grill's source of public drinking water (See Table 2 on Page 4). Overall, volatile organic chemicals are the highest-ranking risk of contamination for Max's Bar & Grill. Combining the susceptibility of the well with volatile organic chemical contaminant risks, Max's Bar & Grill received an overall vulnerability rating of medium for this category. Parking of motor vehicles surrounding the Bar & Grill resulting in minor leaks of oil and fuel contributed to the overall contamination of the soils at this site [*Golder Associates, Inc., 1990*]. The parking area continues to be a contaminant risk for volatile organic chemicals.

SUMMARY

A *Source Water Assessment* has been completed for Max's Bar & Grill's source of public drinking water. The overall vulnerability of this source to contamination is **Low** for bacteria and viruses, and **Medium** for nitrates and/or nitrites and volatile organic chemicals. 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 Max's Bar & Grill 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.

REFERENCES CITED

Glass, Roy L. and Brabets, Timothy P., 1988, Summary of water resources data for the Girdwood-Alyeska Area, Alaska: USGS Open-File Report 87-678.

Golder Associates, Inc., 1990, Environmental Assessment Max's Restaurant Property.

Municipality of Anchorage, Management Information Systems Department, 2000, Data layer representing flood hazard zones within specific study areas (after U.S. Army Corps of Engineers FEMA – 1979).

Western Regional Climate Center, 2000, August 24, Web extension to the *Western Regional Climate Center* [WWW document]. URL http://www.wrcc.dri.edu/index.html

APPENDIX A

Contaminant Source Inventory and Risk Ranking for Max's Bar & Grill

Table 1

Contaminant Source Inventory for Max's Bar and Grill Public Water System

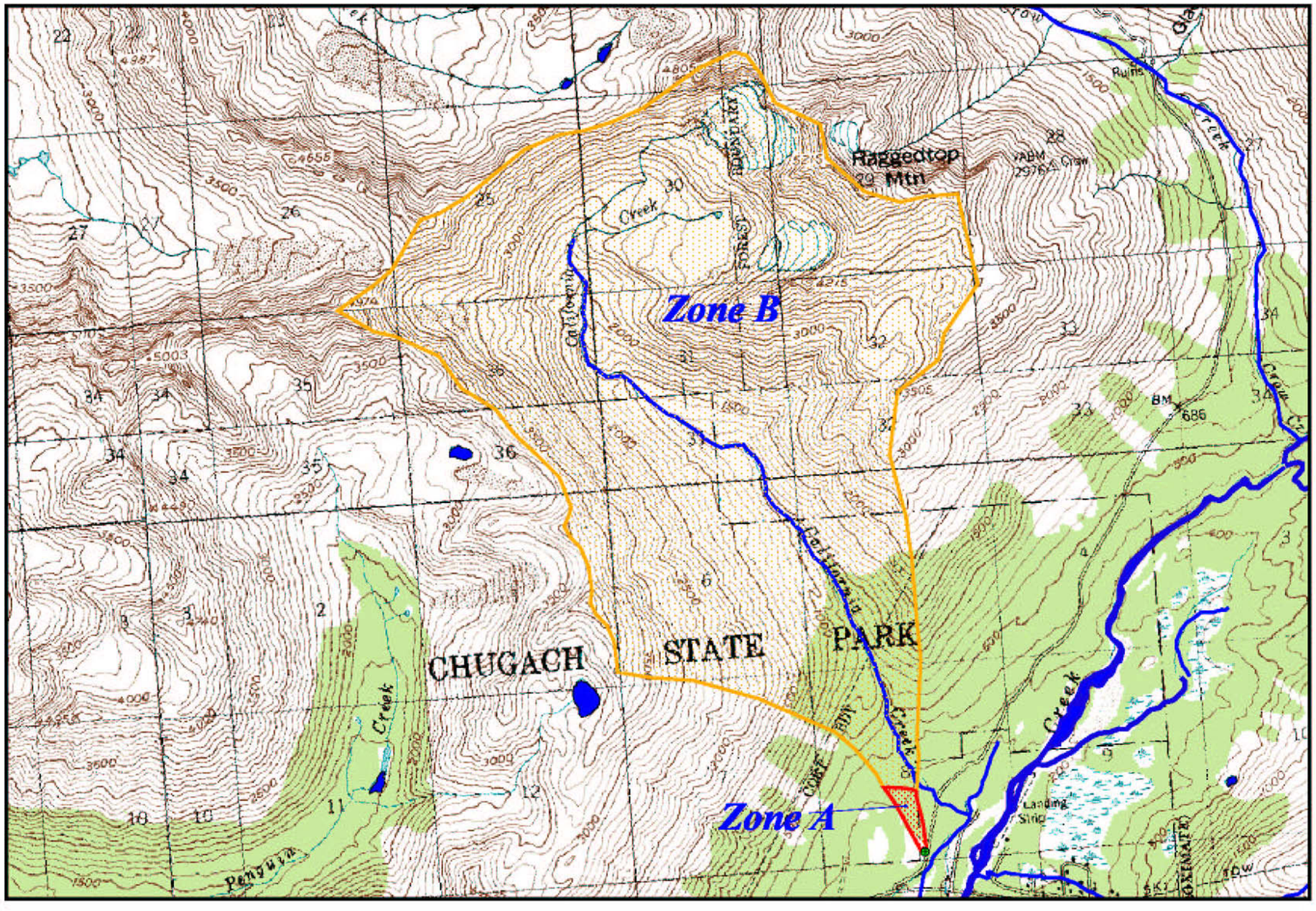
PWSID 212364

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Notes/Comments
Closed tanks, diesel (above ground)	T7	T7-1	A	Northeast corner of Max's Bar & Grill	3 and 4	Tank removed when punctured; 4/90
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U4	U4-1	A	North and west side of Max's Bar & Grill	3 and 4	Diesel spill on 4/90. Site Closed.
Residential Areas	R1	R1-1	A	Along Crow Creek Road	3 and 4	Residential area with sewer connect
Residential Areas	R1	R1-2	A	Along Crow Creek Road	3 and 4	Residential area with sewer connect
Residential Areas	R1	R1-3	A	Along Crow Creek Road	3 and 4	Residential area with sewer connect
Residential Areas	R1	R1-4	A	Along Crow Creek Road	4	Unswered lot
Residential Areas	R1	R1-5	A	Along Crow Creek Road	4	Unswered lot

APPENDIX B

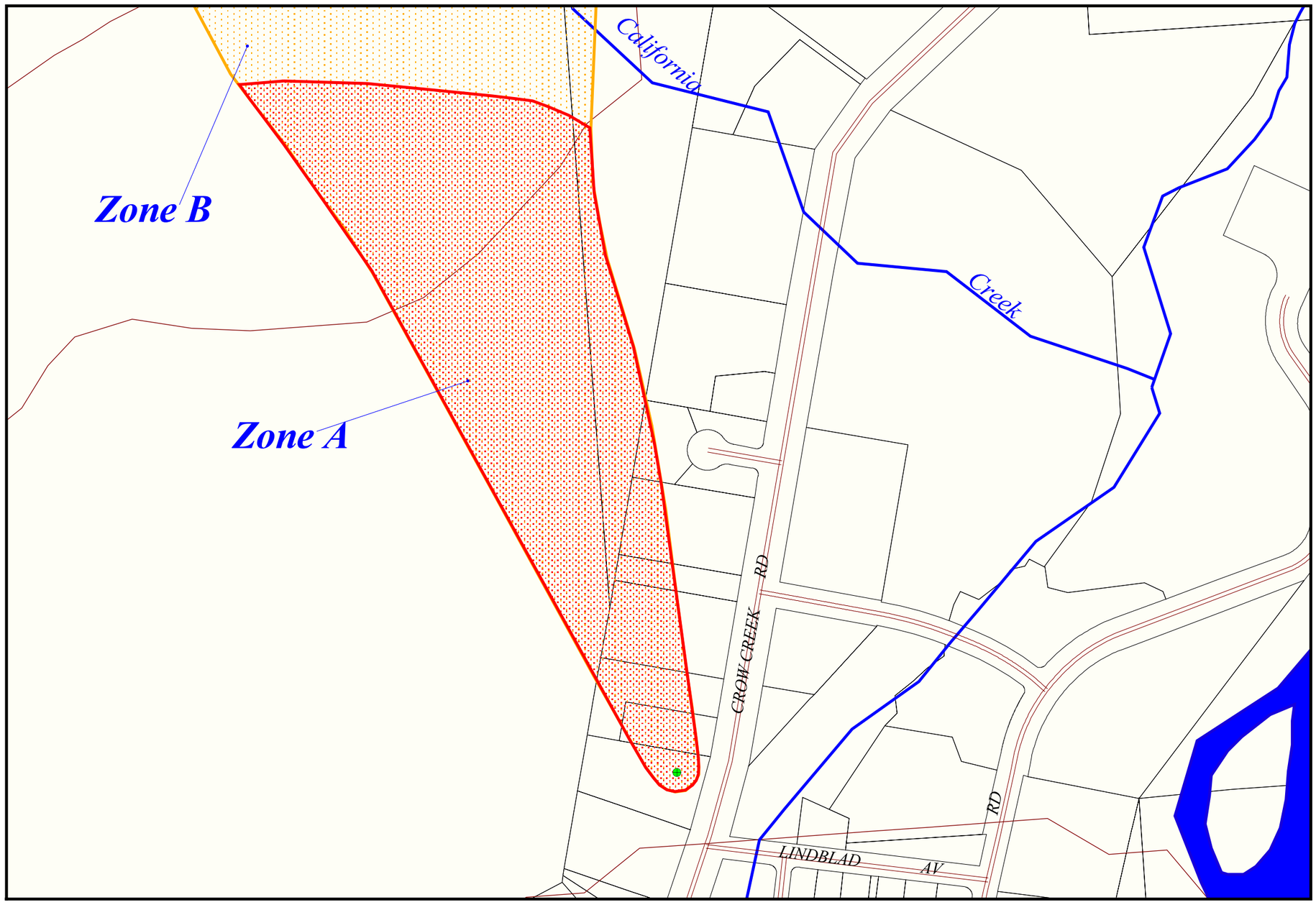
Max's Bar & Grill's
Drinking Water Protection Area

Max's Bar & Grill (PWSID 212364)
Drinking Water Protection Areas



Map 1

Max's Bar & Grill (PWSID 212364)
Drinking Water Protection Areas



- Max's Bar & Grill Well
- Zone A Protection Area
  - Several Months Travel Time
- Zone B Protection Area
  - Less than 2 Years Travel Time
- MOA Roads
- 2nd order streams
- 3rd order streams
- 4th order streams
- Glacier Creek
- Lakes and Ponds
- Elevation Contours = 20 meters
- MOA Land Parcels

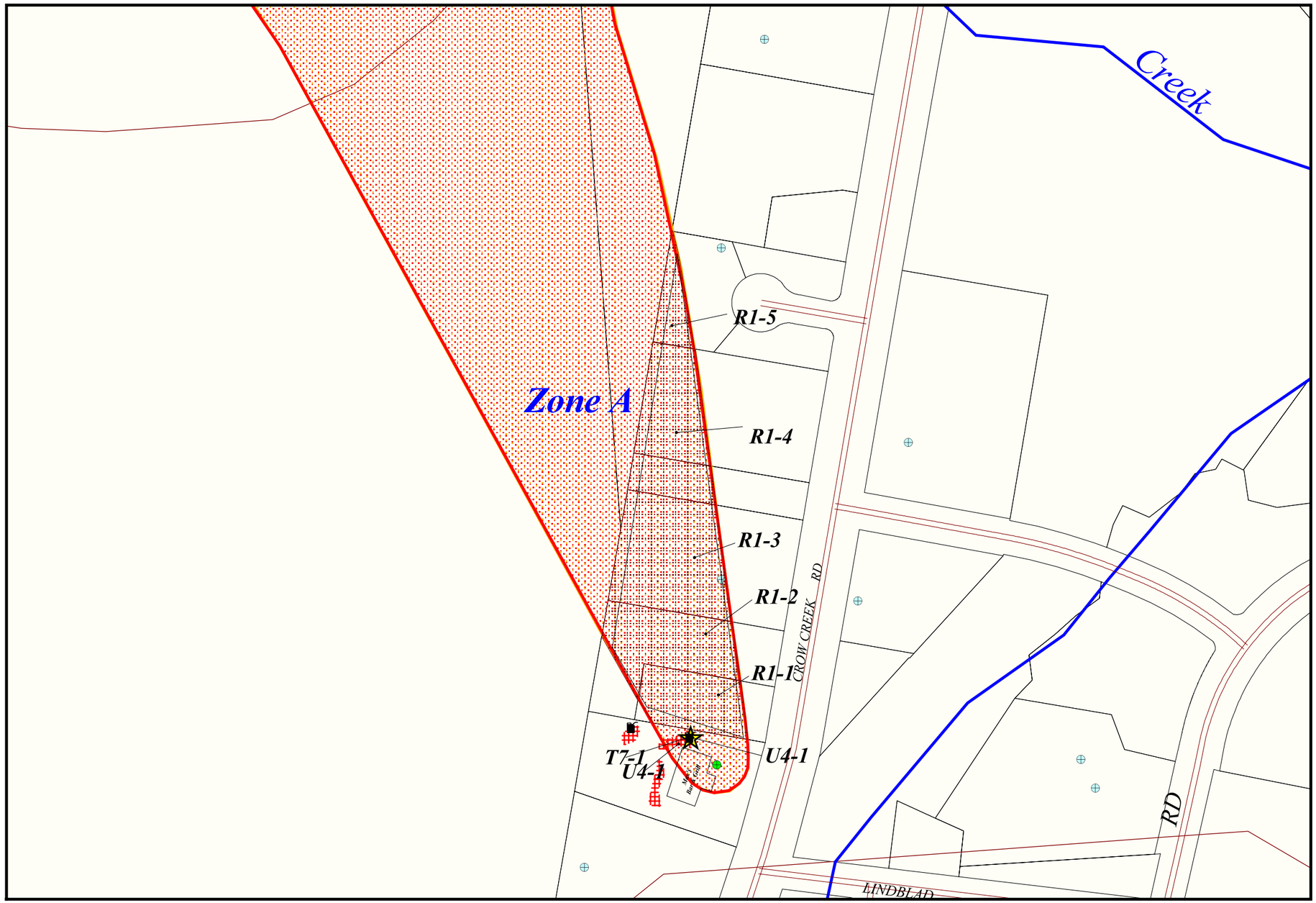
400 0 400 Feet

Map 2

APPENDIX C

Max's Bar & Grill's Drinking Water Protection Area and Potential & Existing Contaminant Sources

Max's Bar & Grill (PWSID 212364) Drinking Water Protection Areas and Existing and Potential Sources of Contamination



Potential and Existing Sources of Contamination
- Closed Tanks, diesel (above ground)
- Contaminated sites, DEC recognized
- Contaminated Soil
- Residential Areas
- Max's Bar & Grill Well
- Private and Public Drinking Water Wells

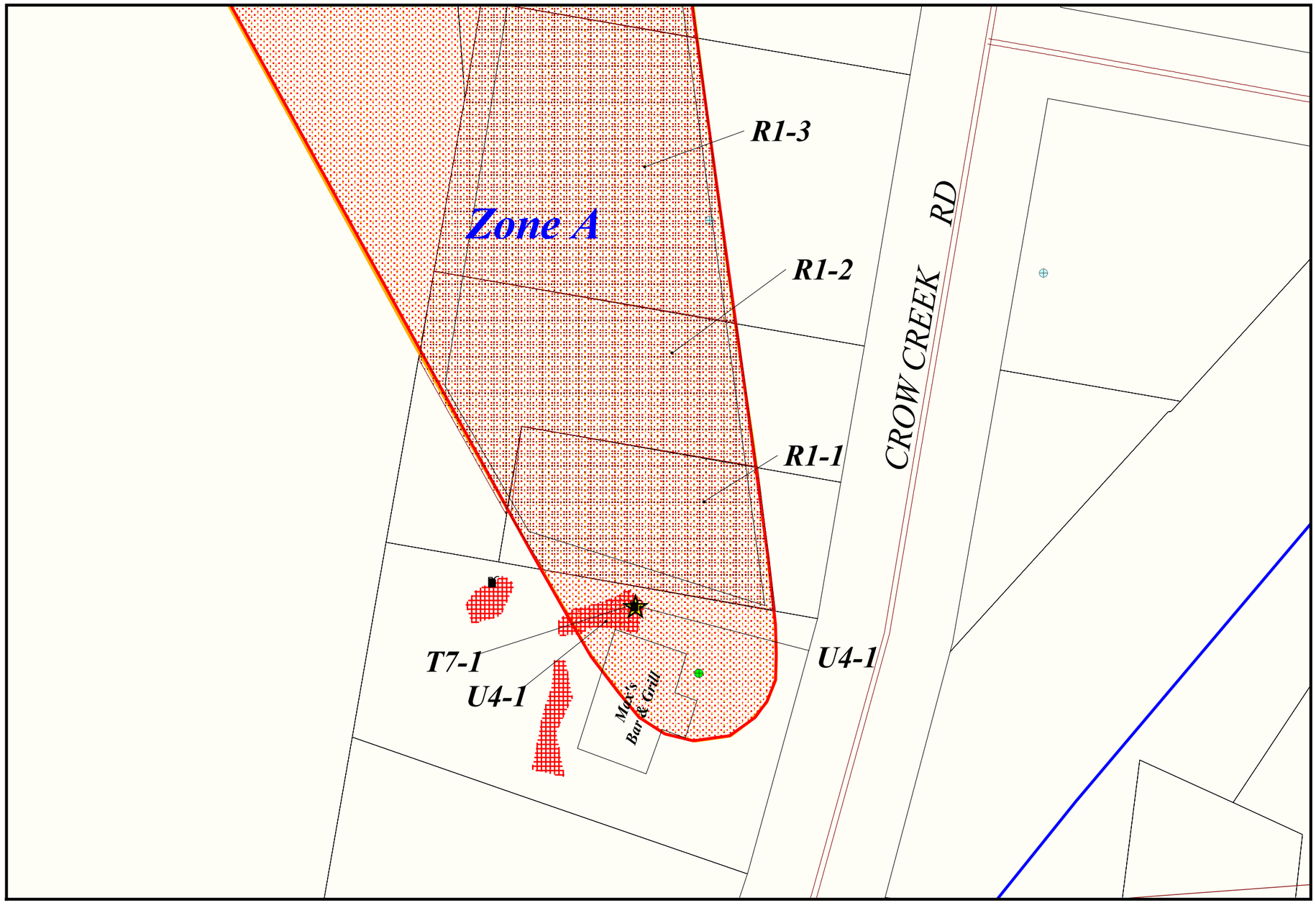
Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2 Years Travel Time
- MOA Roads
- 2nd order streams
- 3rd order streams
- 4th order streams
- Glacier Creek
- Lakes and Ponds
- Elevation Contours = 20 meters
- MOA Land Parcels

200 0 200 Feet

Map 3

Max's Bar & Grill (PWSID 212364) Drinking Water Protection Areas and Existing and Potential Sources of Contamination



Potential and Existing Sources of Contamination
- Closed Tanks, diesel (above ground)
- Contaminated sites, DEC recognized
- Contaminated Soil
- Residential Areas
- Max's Bar & Grill Well
- Private and Public Drinking Water Wells

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2 Years Travel Time
- MOA Roads
- 2nd order streams
- 3rd order streams
- 4th order streams
- Glacier Creek
- Lakes and Ponds
- Elevation Contours = 20 meters
- MOA Land Parcels

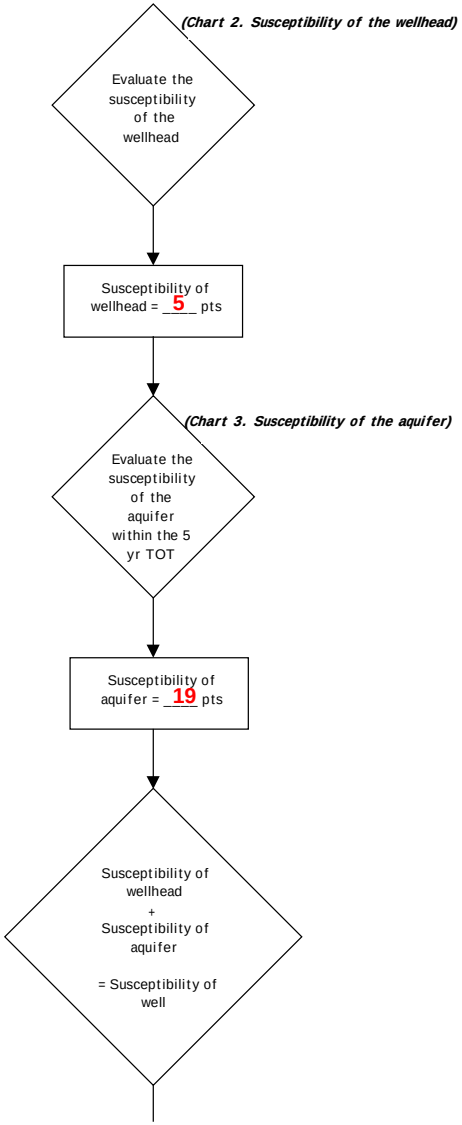
90 0 90 Feet

Map 4

APPENDIX D

Vulnerability Analysis for Max's Bar & Grill Public Drinking Water System

Chart 1. Vulnerability analysis for Bacteria & Viruses –Max's Bar & Grill



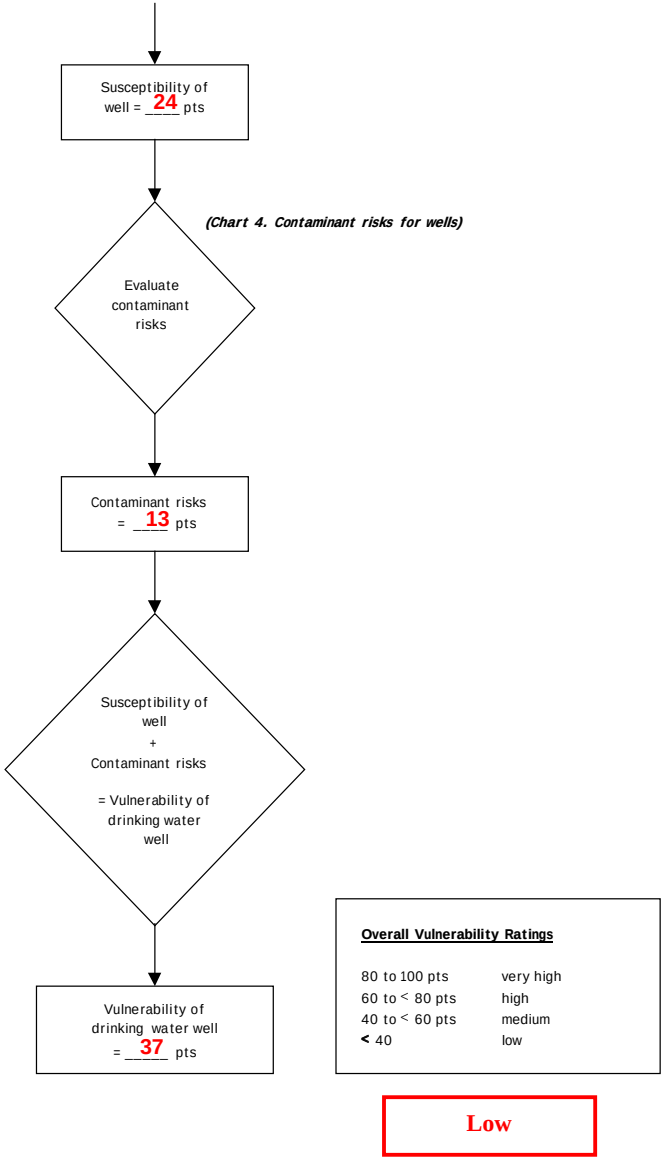
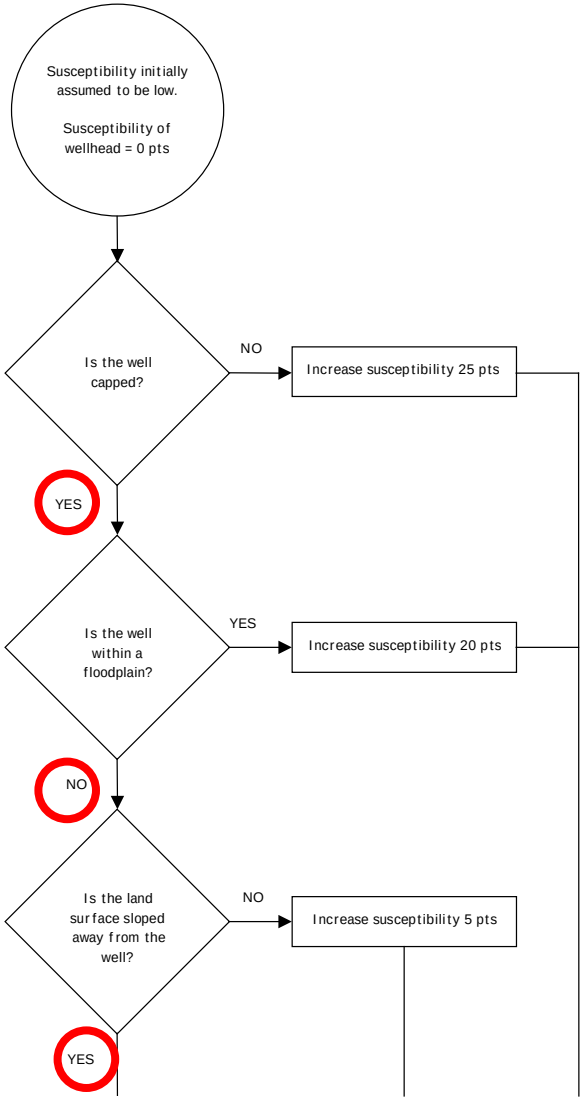
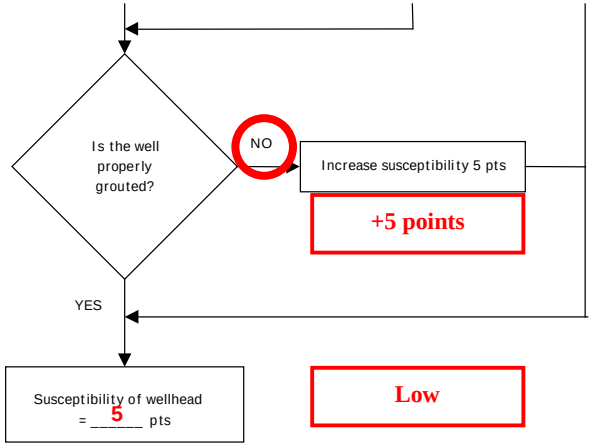


Chart 2. Susceptibility of the wellhead

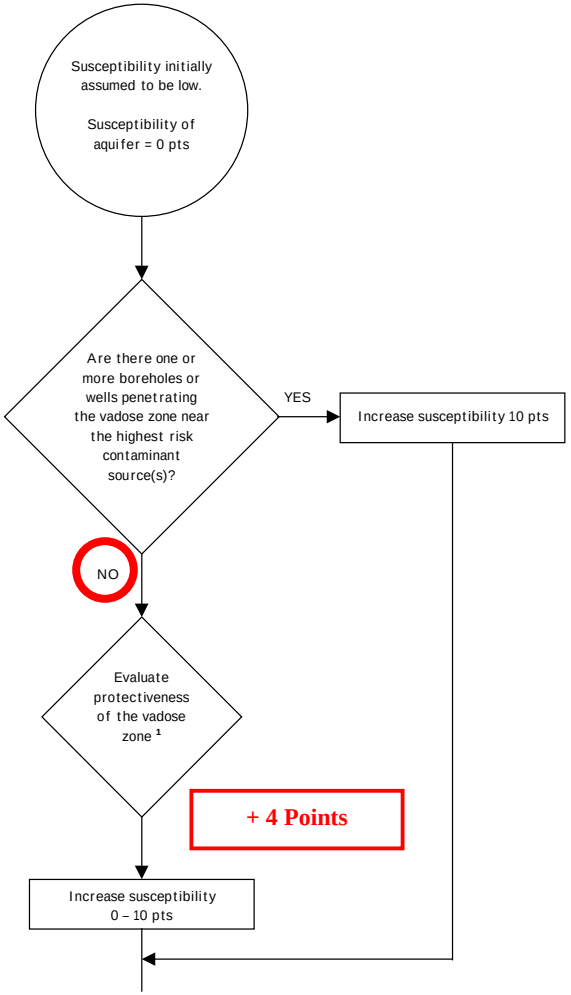


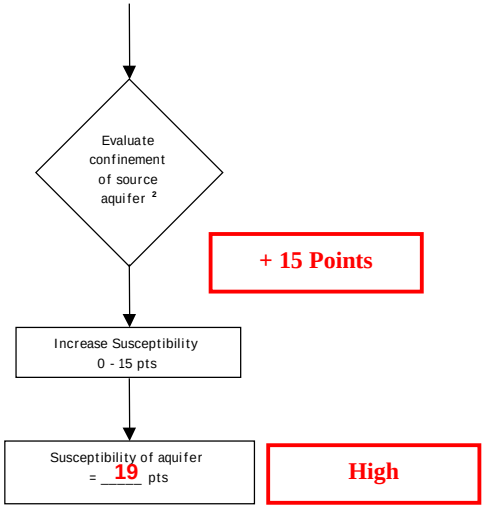


Wellhead Susceptibility Ratings

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

Chart 3. Susceptibility of the aquifer





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]

Recharge 4/10 = 2 Points
Depth to water table 4/10 = 2 Points

Protectiveness of the Vadose Zone Total = **4 Points**

2. Degree of Confinement

- confined verses unconfined aquifer
  [confined: K ≤ 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]

Confinement 15/15 = 9.75 Points
Depth to water table 15/15 = 5.25 Points

Degree of Confinement Total = **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 4. Contaminant risks for Max's Bar & Grill – Bacteria & Viruses

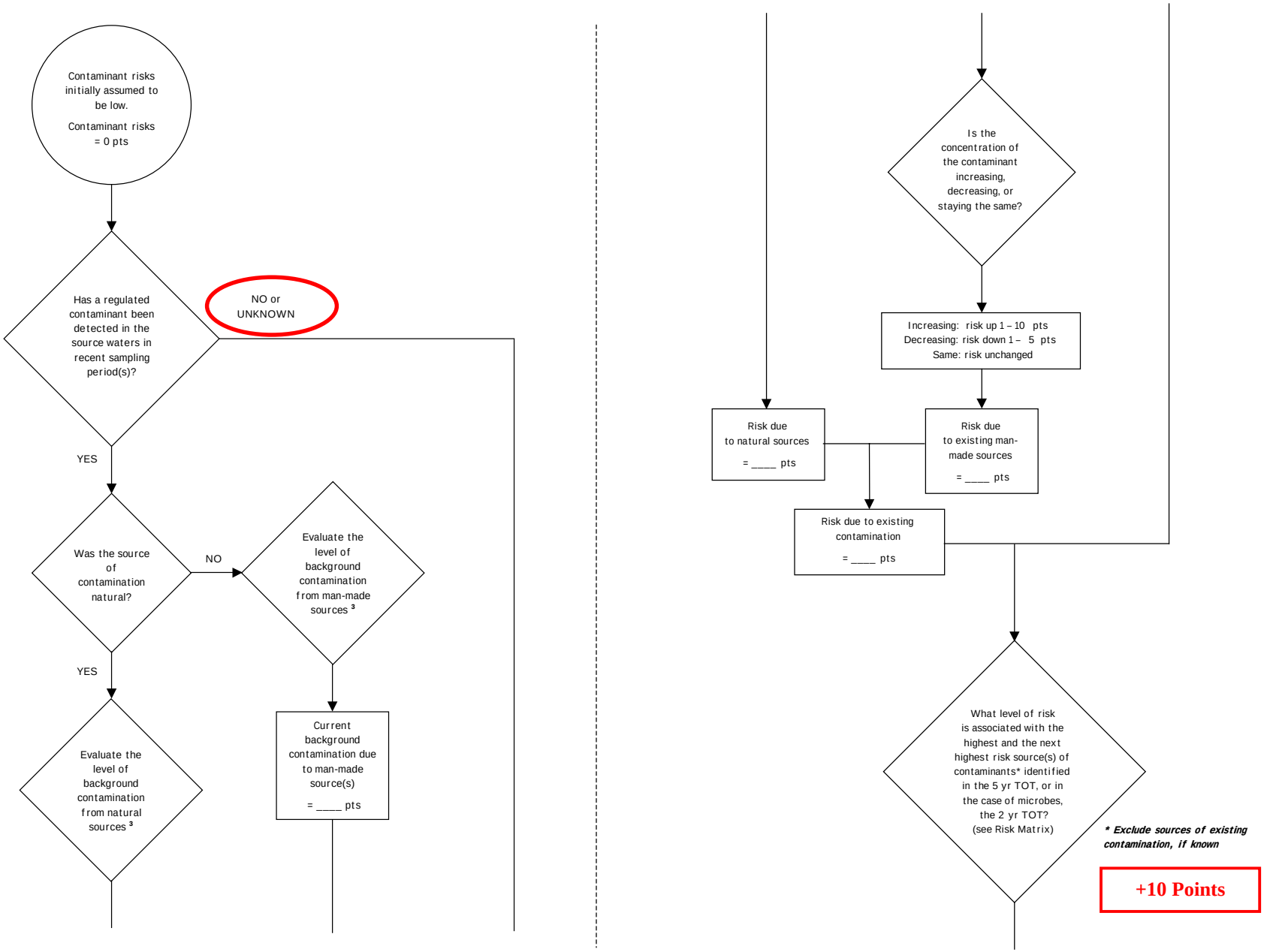
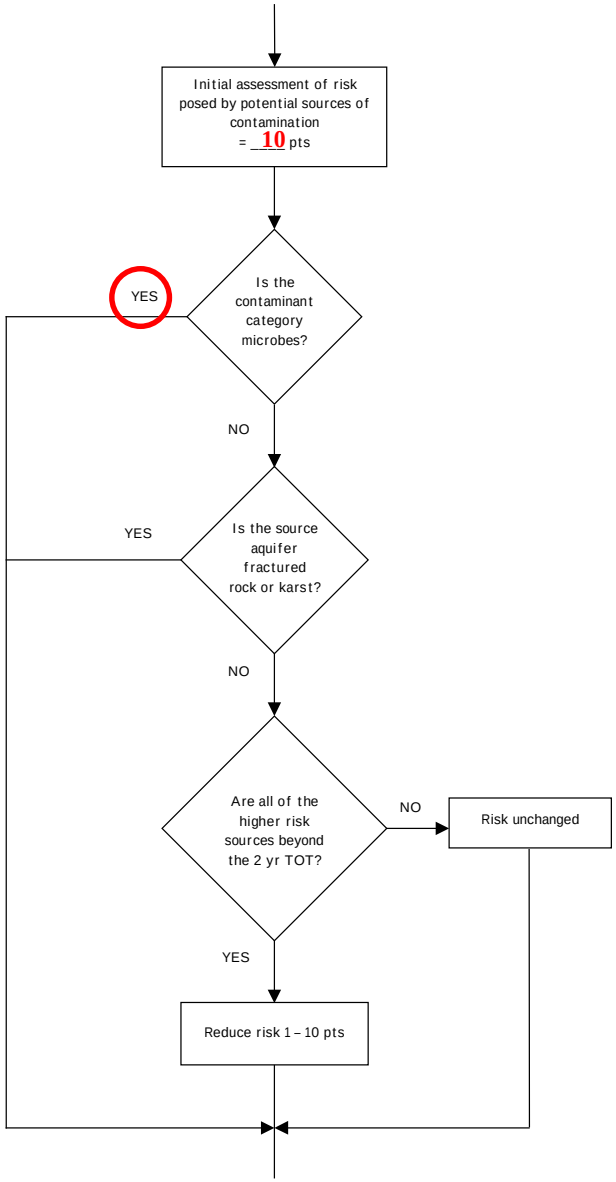


Chart 4. Contaminant risks for Max's Bar & Grill – Bacteria & Viruses (Continued)



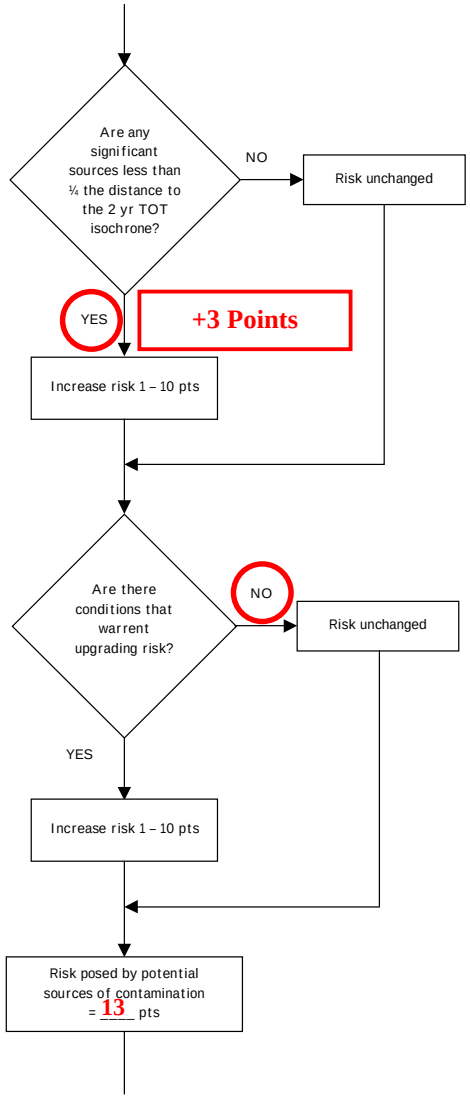
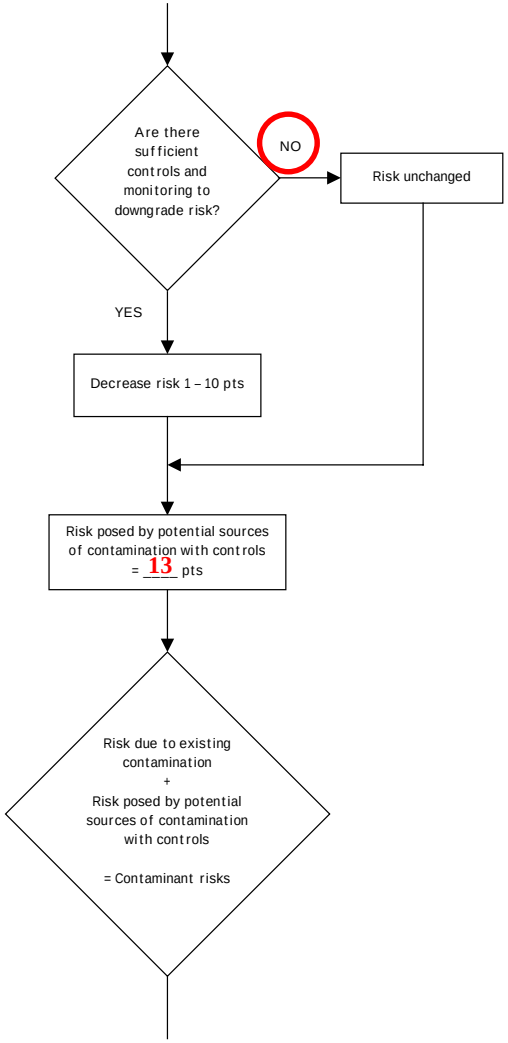
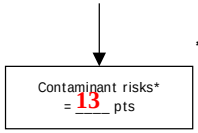


Chart 4. Contaminant risks Max's Bar & Grill – Bacteria & Viruses (Continued)





**** Truncate risk at 50 pts***

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

40 to 50 pts	very high
30 to < 40 pts	high
20 to < 30 pts	medium
< 20	low

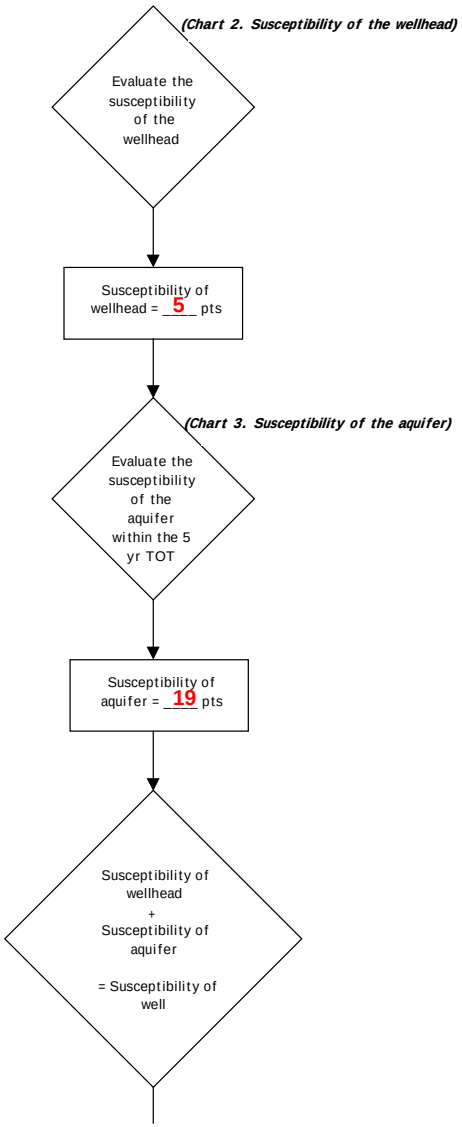
Low

Table 1. Risk Matrix for Contaminant Sources for Bacteria & Viruses – Max's Bar & Grill

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	**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 5. Vulnerability analysis for Bacteria & Viruses –Max's Bar & Grill



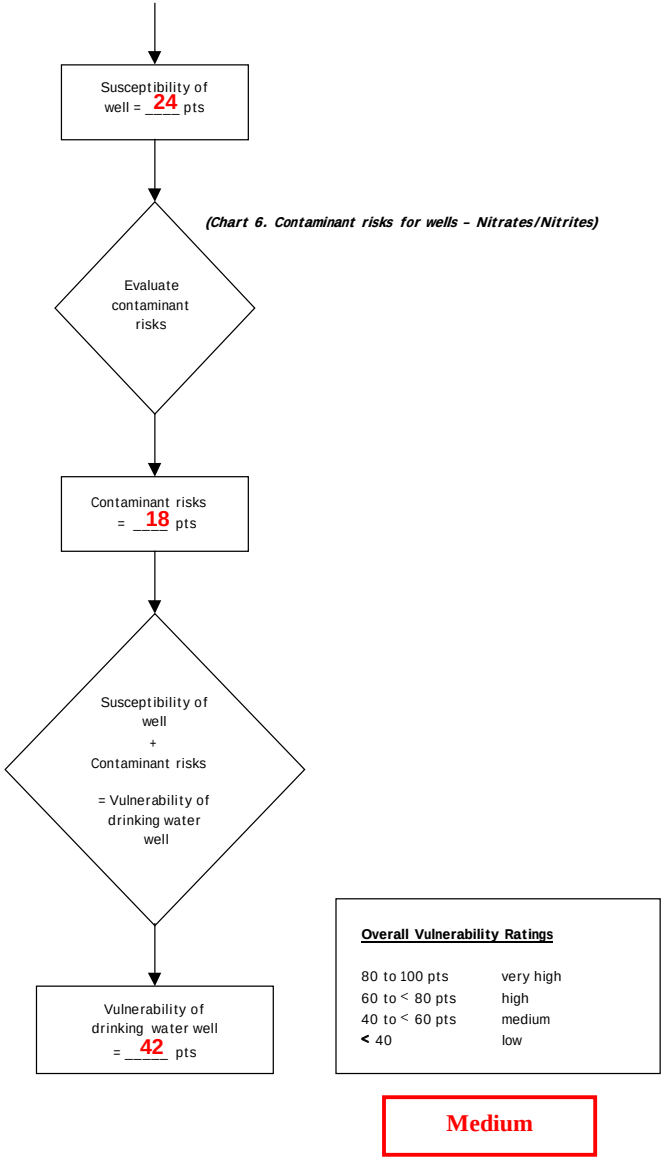


Chart 6. Contaminant risks for Max's Bar & Grill – Nitrates/Nitrites

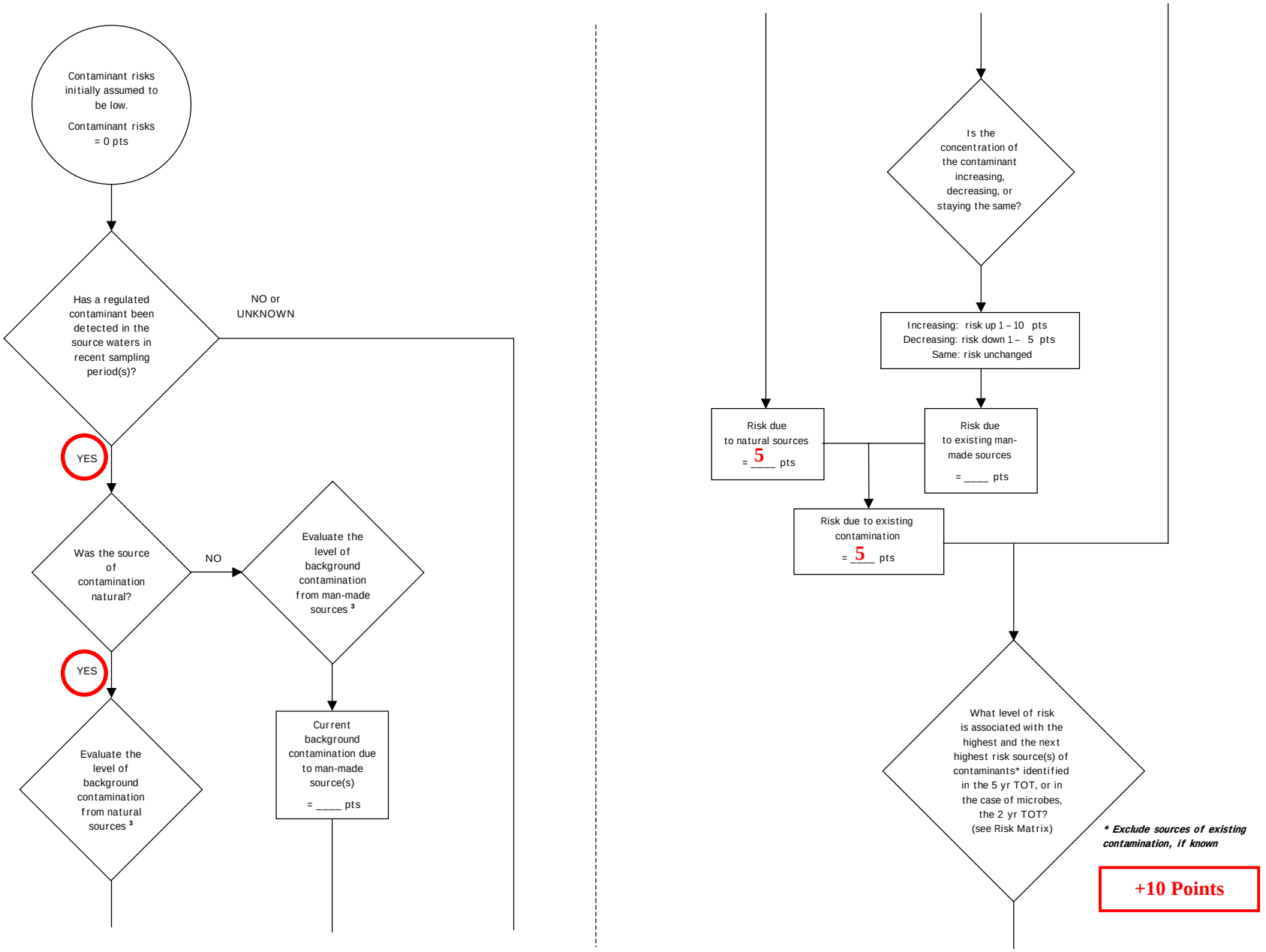
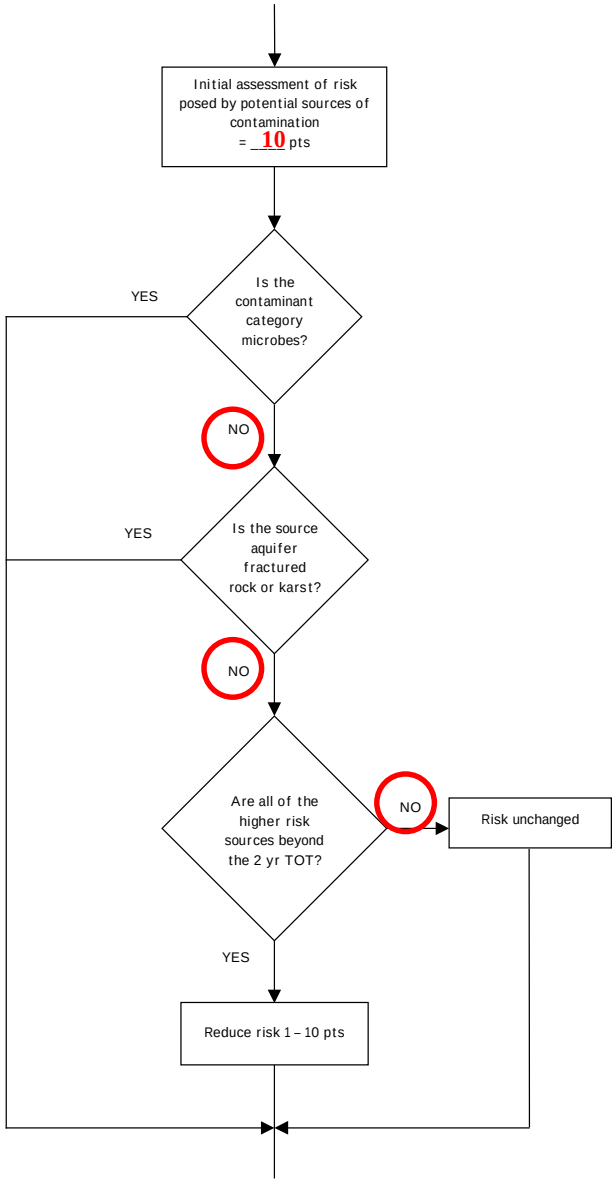


Chart 6. Contaminant risks for Max's Bar & Grill – Nitrates/Nitrites (Continued)



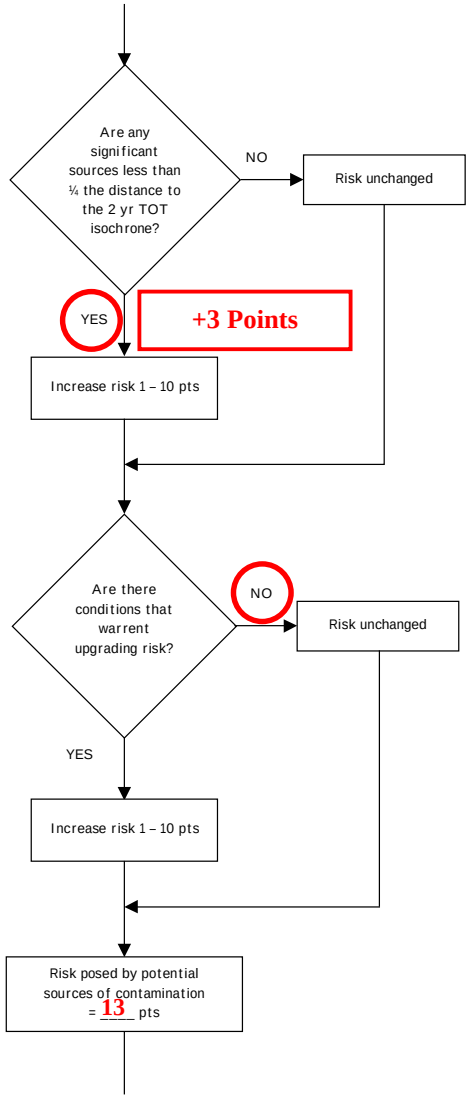
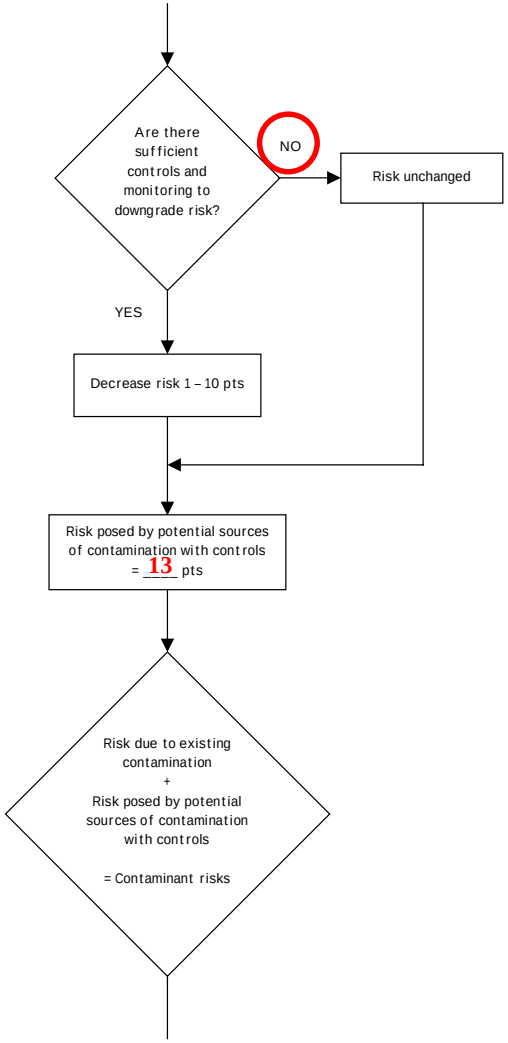
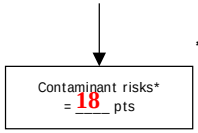


Chart 6. Contaminant risks Max's Bar & Grill – Nitrates/Nitrites (Continued)





**** Truncate risk at 50 pts***

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

40 to 50 pts	very high
30 to < 40 pts	high
20 to < 30 pts	medium
< 20	low

350 µg/L on 8/10/00

Maximum Contaminant Level (MCL) = 10,000 µg/L

350/10,000 = 0.035 of MCL

+5 Points

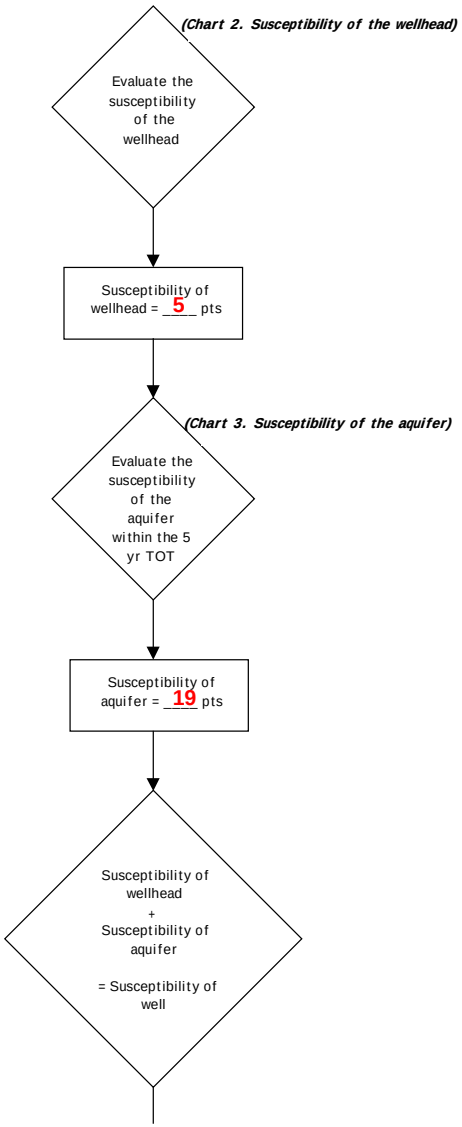
Low

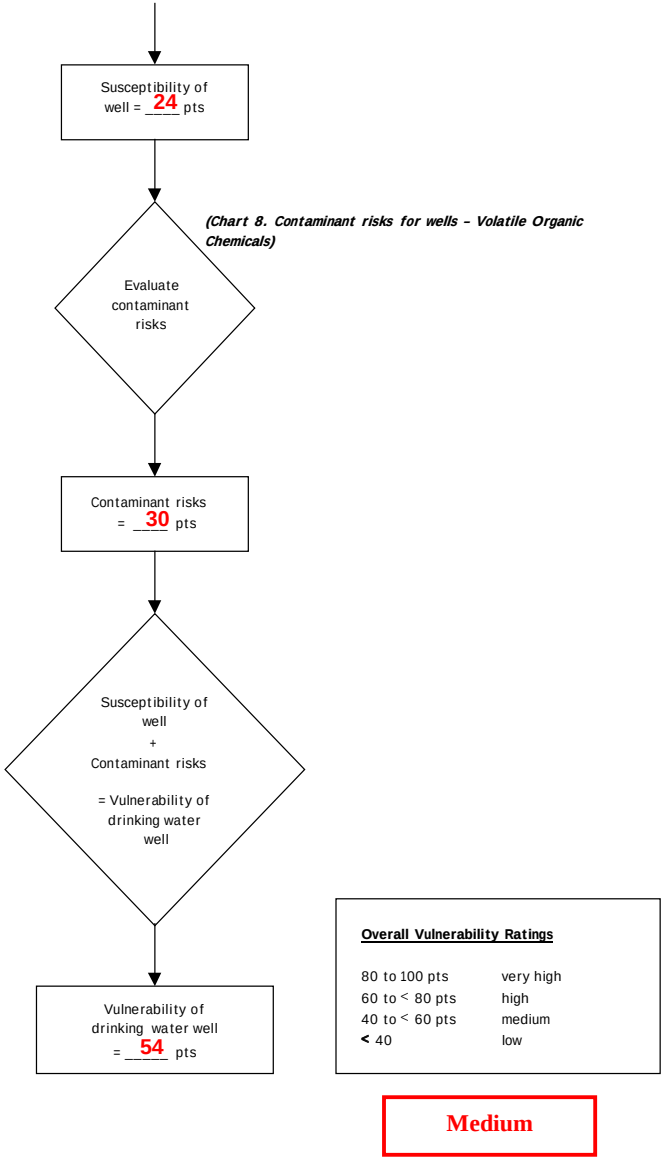
Table 2. Risk Matrix for Contaminant Sources for Nitrates/Nitrites – Max's Bar & Grill

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	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 7. Vulnerability analysis for Volatile Organic Chemicals – Max's Bar & Grill





Medium

Chart 8. Contaminant risks for Max's Bar & Grill – Volatile Organic Chemicals

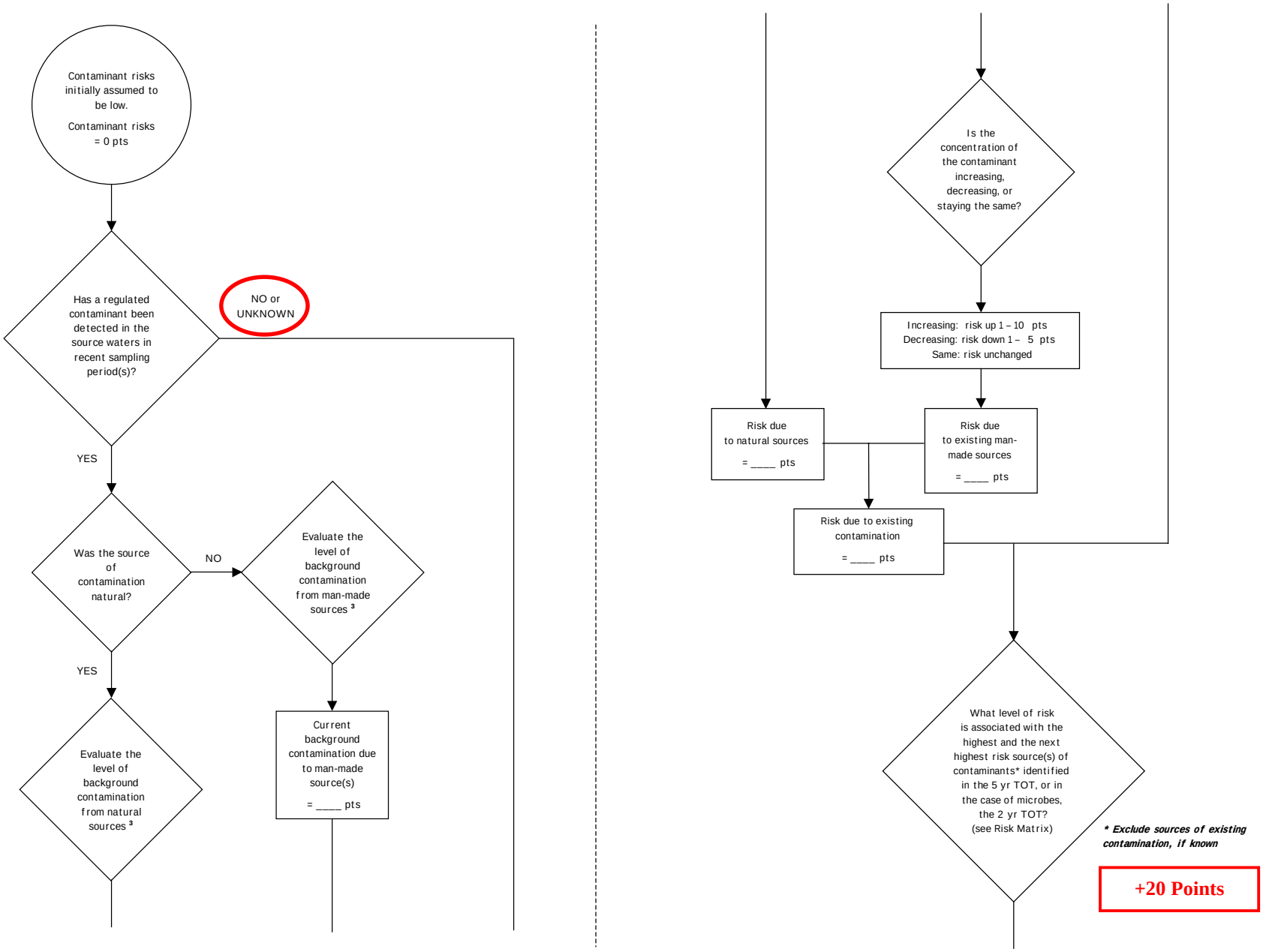
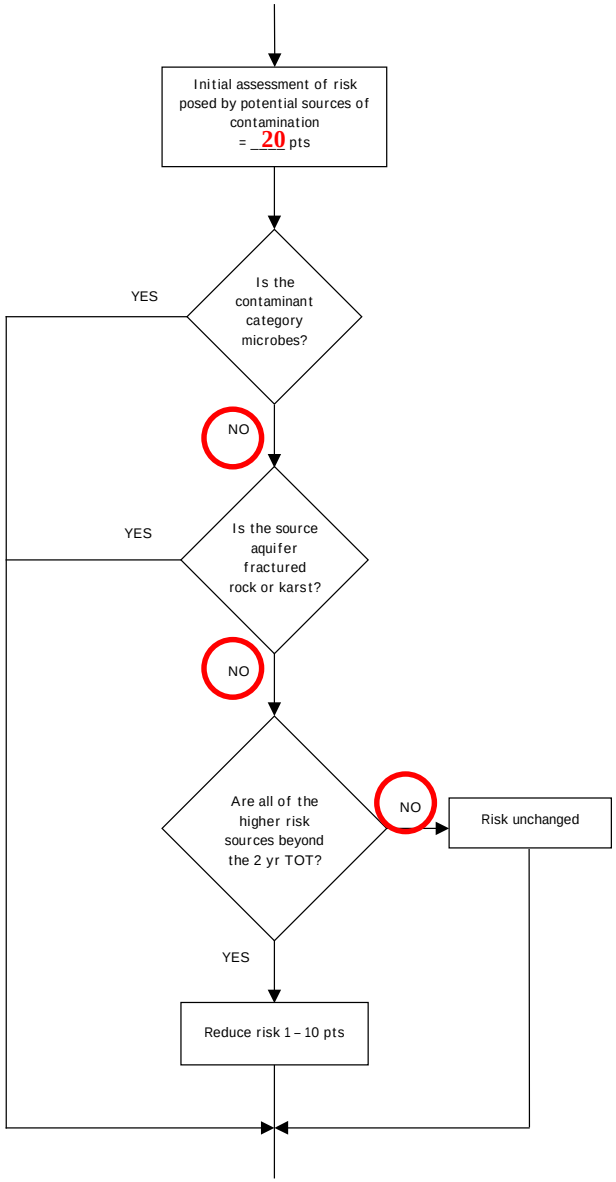


Chart 8. Contaminant risks for Max's Bar & Grill – Volatile Organic Chemicals (Continued)



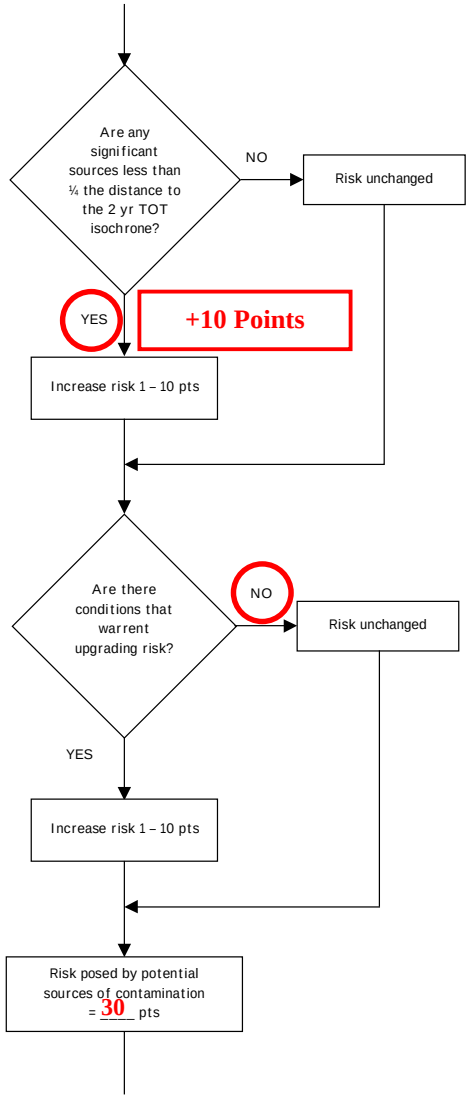
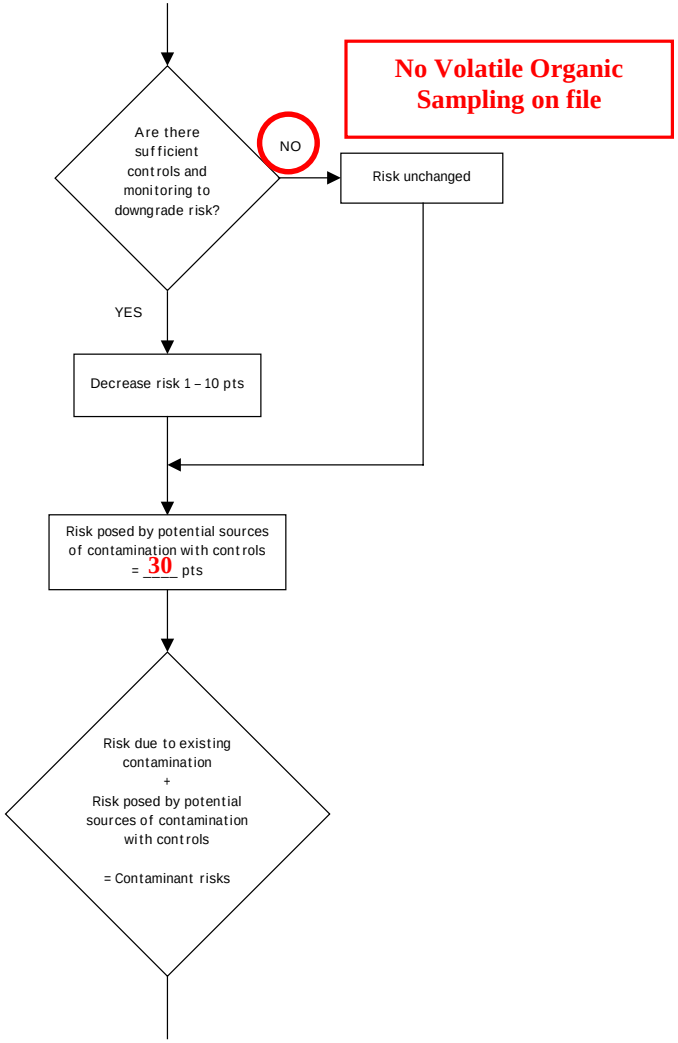
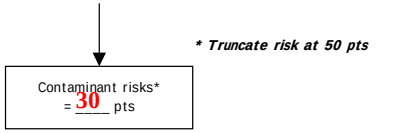


Chart 8. Contaminant risks Max's Bar & Grill – Volatile Organic Chemicals (Continued)





Truncate risk at 50 pts

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

40 to 50 pts	very high
30 to < 40 pts	high
20 to < 30 pts	medium
< 20	low

High

Table 3. Risk Matrix for Contaminant Sources for Volatile Organic Chemicals – Max's Bar & Grill

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	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