Source Water Assessment

A Hydrogeologic Susceptibility and Vulnerability Assessment for Northway Community Hall, Northway, Alaska PWSID #380735

DRINKING WATER PROTECTION PROGRAM REPORT NO. 908

Alaska Department of Environmental Conservation

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

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

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Source Water Assessment for Northway Community Hall, Northway, Alaska

Drinking Water Protection Program
Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

The public water system for Northway Community Hall is a Class B (transient/non-community) water system consisting of one well. The Northway Community Hall is located in Northway, Alaska. The wellhead received a susceptibility rating of **Very High** and the aquifer received a susceptibility rating of **Medium**. Combining these two ratings produces a **High** rating for the natural susceptibility of the well. Identified potential and current sources of contaminants for Northway Community Hall public drinking water source include domestic wastewater collection systems and treatment plants; aboveground heating oil and diesel tanks; dirt/gravel highways and roads; medical/veterinary facilities (Northway Community Medical Facility); and single-family septic systems. These identified potential and existing sources of contamination are considered sources of bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals. Overall, the public water sources for Northway Community Hall received a vulnerability rating of **High** for bacteria and viruses; **Medium** for nitrates and nitrites; and **High** for volatile organic chemicals.

NORTHWAY COMMUNITY HALL PUBLIC DRINKING WATER SYSTEM

Northway Community Hall public water system is a Class B (transient/non-community) water system. The Northway Community Hall is located in Northway Road, Northway, Alaska (See Map 1 of Appendix A). Northway presently consists of three settlements: Northway Junction, at milepost 1264, Northway, at the airport, and the Native village, 2 miles north. Northway lies within the Tetlin National Wildlife Refuge, 42 miles from the Canadian border. The population of Northway is approximately 350.

Northway averages about 10 inches of precipitation per year, snowfall is 30 inches annually. Over half of the households are not plumbed. Due to high groundwater and deep permafrost, individual water wells and septic systems often freeze. Static water levels in these wells are less than 30 feet below the surface but the producing zone of the sand and gravel aquifer is beneath often thick zones of permafrost.

Northway is located in the Nabesna River valley with the topography characterized by flat floodplain and oxbow lakes. The elevation of Northway is 1,710 feet. The drainages in this area generally flow north.

According to a Sanitary Survey dated April 11, 2000, the existing well was installed in 1990 with 6-inch diameter casing to a depth of 225 feet below ground surface. It is assumed that the length of the well screen is 10 feet. The Survey indicates that the land surface is sloped away from the well, providing adequate surface water drainage. It is assumed that the well is not grouted according to ADEC standards. Proper grouting provides added protection against contaminants traveling along the well casing and into source waters.

This system operates year round and serves approximately 12 residents and 50 non-residents through one service connection.

NORTHWAY COMMUNITY HALL DRINKING WATER PROTECTION AREA

In order to evaluate whether a drinking water source is at risk, we must first evaluate what are the most likely pathways for surface contamination to reach the groundwater. These areas are determined by looking at the characteristics of the soil, groundwater, aquifer, and well.

The most probable area for contamination to reach the drinking water well is the area that contributes water to the well, the groundwater recharge area. This area is designated as the Drinking Water Protection Area (DWPA). Because releases of contaminants within the DWPA are most likely to impact the drinking water well, this area will serve as the focus for voluntary protection efforts.

An analytical calculation was used to determine the size and shape of the DWPA. The input parameters describing the attributes of the aquifer in this calculation were estimated from information contained in the well logs and/or the Sanitary Survey. Additional methods were also used to take into account any uncertainties in groundwater flow and aquifer characteristics to arrive at a meaningful DWPA (Please refer to the Guidance Manual for Class B Public Water Systems for additional information).

The DWPAs established for wells by the ADEC are usually separated into four zones. These zones correspond to differences in the time-of-travel (TOT) of the water moving through the aquifer to the well.

The TOT for contaminants within the water varies and is dependent on the physical and chemical characteristics of each contaminant. The following is a summary of the four protection area zones for wells and the calculated time-of-travel for each:

Table 1. Definition of Zones

Zone	Definition
A	¼ the distance for the 2-yr. time-of-travel
B	Less than the 2 year time-of-travel
C	Less Than the 5 year time-of-travel
D	Less than the 10 year time-of-travel

The DWPA for Northway Community Hall extends several miles south of the well. Development in the vicinity of the well is limited to only Zone A (See Map 1 of Appendix A).

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within the Northway Community Hall DWPA. This inventory was completed through a search of agency records and other publicly-available information. Potential sources of contamination to the drinking water aquifer include a wide range of categories and types. Potential drinking water contaminants are found within agricultural, residential, commercial, and industrial areas, but can also occur within areas that have little or no development.

For the basis of 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

The sources are displayed on Map 2 of Appendix C and summarized in Table 1 of Appendix B.

RANKING OF CONTAMINANT RISKS

Once the potential and existing sources of contamination have been identified, they are assigned a ranking 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. Rankings include:

- Low;
- Medium;
- High; and
- Very High.

The TOT for contaminants within the water varies and is dependent on the physical and chemical characteristics of each contaminant. Bacteria and Viruses are only inventoried in Zones A and B because of their short life span. Only "Very High" and "High" rankings are inventoried within the outer Zone D due to the probability of contaminant dilution by the time the contaminants get to the well.

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.

VULNERABILITY OF NORTHWAY COMMUNITY HALL DRINKING WATER SYSTEM

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

- Natural susceptibility; and
- Contaminant risks.

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 Analyses for nitrates and nitrites and volatile organic chemicals, respectively.

A score for the Natural Susceptibility is reached by considering the properties of the well and the aquifer.

Susceptibility of the Wellhead (0 – 25 Points)
(Chart 1 of Appendix D)

+

Susceptibility of the Aquifer (0 – 25 Points)
Chart 2 of Appendix D)

=

Natural Susceptibility (Susceptibility of the Well)
(0 – 50 Points)

A ranking is assigned for the Natural Susceptibility according to the point score:

Natural Susceptibility Ratings

40 to 50 pts	Very High
30 to < 40 pts	High
20 to < 30 pts	Medium
< 20 pts	Low

We assume the well for Northway Community Hall is completed in an unconfined aquifer. Because unconfined aquifers are recharged by surface water and precipitation that migrates downward from the surface, contaminants at the surface have the potential to adversely impact this aquifer. Table 2 shows the Susceptibility scores and ratings for Northway Community Hall.

Table 2. Susceptibility

	Score	Rating
Susceptibility of the Wellhead	20	Very High
Susceptibility of the Aquifer	13	Medium
Natural Susceptibility	33	High

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. This score has been derived from an examination of existing and historical contamination that has been detected at the drinking water source through routine sampling. It also evaluates potential sources of contamination. Flow charts are used to assign a point score, and ratings are assigned in the same way as for the natural susceptibility:

Contaminant Risk Ratings

40 to 50 pts	Very High
30 to < 40 pts	High
20 to < 30 pts	Medium
< 20 pts	Low

Table 3 summarizes the Contaminant Risks for each category of drinking water contaminants.

Table 3. Contaminant Risks

Category	Score	Rating
Bacteria and Viruses	35	High
Nitrates and/or Nitrites	25	Medium
Volatile Organic Chemicals	35	High

Finally, an overall vulnerability score is assigned for each water system by combining each of the contaminant risk scores with the natural susceptibility score:

Natural Susceptibility (0 – 50 points)

+

Contaminant Risks (0 – 50 points)

=

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

Again, rankings are assigned according to a point score:

Overall Vulnerability Ratings

80 to 100 pts	Very High
60 to < 80 pts	High
40 to < 60 pts	Medium
< 40 pts	Low

Table 4 contains the overall vulnerability scores (0 - 100) and ratings for each of the three categories of drinking water contaminants. Note: scores are rounded off to the nearest five.

Table 4. Overall Vulnerability

Category	Score	Rating
Bacteria and Viruses	70	High
Nitrates and Nitrites	55	Medium
Volatile Organic Chemicals	65	High

Bacteria and Viruses

The contaminant risk for bacteria and viruses is **High** with domestic wastewater collection systems and treatment plants; dirt/gravel highways and roads; medical/veterinary facilities (Northway Community Medical Facility); and single-family septic systems representing the risks to the drinking water well (See Chart 3 – Contaminant Risks for Bacteria and Viruses in Appendix D).

Only a small amount of bacteria and viruses are required to endanger public health. Recent sampling events indicated no recent positive results were detected for bacteria and viruses. However, after combining the contaminant risks with the overall natural susceptibility of the well, the vulnerability of the well to contamination by bacteria and viruses is **High**.

Nitrates and Nitrites

The contaminant risk for nitrates and nitrites is **Medium** with domestic wastewater collection systems and treatment plants; dirt/gravel highways and roads; medical/veterinary facilities (Northway Community Medical Facility); and single-family septic systems representing the risks to this source of public drinking water (See Chart 5 - Contaminant Risks for Nitrates and/or Nitrites in Appendix D). Due to the high solubility and weak retention by soil, nitrates are very mobile, moving at approximately the same rate as water.

Sampling history for Northway Community Hall indicates that nitrates have not been detected in the water. After combining the contaminant risk for nitrates and nitrites with the natural susceptibility of the well, the overall vulnerability of the well to contamination by nitrates and nitrites is **Medium**.

Volatile Organic Chemicals

The contaminant risk for volatile organic chemicals is **High** with domestic wastewater collection systems and treatment plants; aboveground heating oil and diesel tanks; dirt/gravel highways and roads; medical/veterinary facilities (Northway Community Medical Facility); and single-family septic systems the only known risks for volatile organic chemicals (See Chart 7 – Contaminant Risks for Volatile Organic Chemicals in Appendix D).

Recent sample data for the drinking water at Northway Community Hall indicates that volatile organic chemicals have not been detected in the water. However, after combining the contaminant risk for volatile organic chemicals with the natural susceptibility of the well, the overall vulnerability of the well to contamination by volatile organic chemicals is **High**.

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APPENDIX A

Northway Community Hall
Drinking Water Protection Area Location Map
(Map 1)

Northway Community Hall

Location of Map

Map 1: Northway Community Hall Drinking Water Protection Areas

PWSID: 380735.001

Alaska Department of Environmental Conservation

Alaska Drinking Water Protection Program

0 900 1,800 3,600 5,400 7,200 Feet

1:30,691

Data Sources:

Background image - USGS 1:63,000 mapping

Legend

- Public Drinking Water Systems
- **DWPA Zone A** — Several Months Travel Time
- **DWPA Zone B** — Less than 2 Years Travel Time
- **DWPA Zone C** — Less than 5 Years Travel Time
- **DWPA Zone D** — Less than 10 Years Travel Time

N W E S

0 1.5 3 6 Miles

September 9, 2003

APPENDIX B

Contaminant Source Inventory and Risk Ranking for Northway Community Hall (Tables 1-4)

Table 1 **Contaminant Source Inventory for Northway Community Hall** **PWSID 380735.001**

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift	D01	D01-1	A	2	Northway Community Wastewater Collection System
Domestic wastewater treatment plants	D05	D05-1	A	2	Northway Community Wastewater Treatment Plant
Tanks, heating oil, residential (above ground)	R08	R08-1	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-10	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-11	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-12	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-13	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-2	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-3	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-4	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-5	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-6	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-7	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-8	A	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-9	A	2	Residence in Northway Community
Tanks, heating oil, nonresidential (aboveground)	T14	T14-1	A	2	Northway Community Hall Heating Oil Tank
Tanks, heating oil, nonresidential (aboveground)	T14	T14-2	A	2	Northway Community Medical Facility Oil Tank
Highways and roads, dirt/gravel	X24	X24-1	A	2	Road from Northway Community
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-1	A	2	Northway Community Medical Facility
Septic systems (serves one single-family home)	R02	R02-1	B	2	Residence South of Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-14	B	2	Residence South of Northway Community
Tanks, diesel (above ground)	T06	T06-1	B	2	Diesel Tank for Radio Towers
Highways and roads, dirt/gravel	X24	X24-2	B	2	Road to Radio Towers

Table 2

Contaminant Source Inventory and Risk Ranking for Northway Community Hall Sources of Bacteria and Viruses

PWSID 380735.001

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D01-1	A	Medium	2	Northway Community Wastewater Collection System
Domestic wastewater treatment plants	D05	D05-1	A	Medium	2	Northway Community Wastewater Treatment Plant
Highways and roads, dirt/gravel	X24	X24-1	A	Low	2	Road from Northway Community
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-1	A	Medium	2	Northway Community Medical Facility
Septic systems (serves one single-family home)	R02	R02-1	B	Low	2	Residence South of Northway Community
Highways and roads, dirt/gravel	X24	X24-2	B	Low	2	Road to Radio Towers

Contaminant Source Inventory and Risk Ranking for

Table 3 **Northway Community Hall** **PWSID 380735.001**

Sources of Nitrates/Nitrites

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D01-1	A	Medium	2	Northway Community Wastewater Collection System
Domestic wastewater treatment plants	D05	D05-1	A	Medium	2	Northway Community Wastewater Treatment Plant
Highways and roads, dirt/gravel	X24	X24-1	A	Low	2	Road from Northway Community
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-1	A	Low	2	Northway Community Medical Facility
Septic systems (serves one single-family home)	R02	R02-1	B	Low	2	Residence South of Northway Community
Highways and roads, dirt/gravel	X24	X24-2	B	Low	2	Road to Radio Towers

Table 4

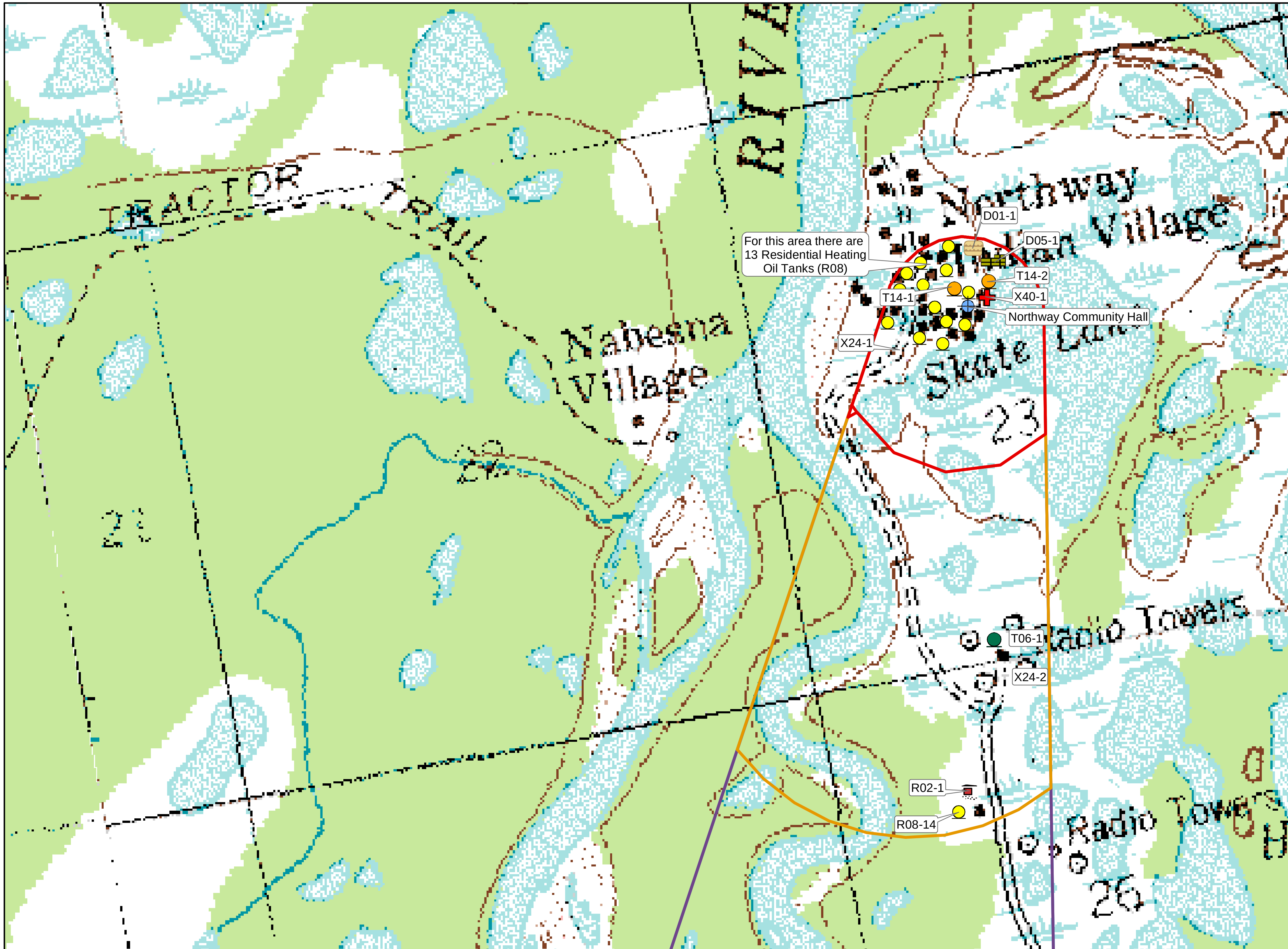
Contaminant Source Inventory and Risk Ranking for Northway Community Hall Sources of Volatile Organic Chemicals

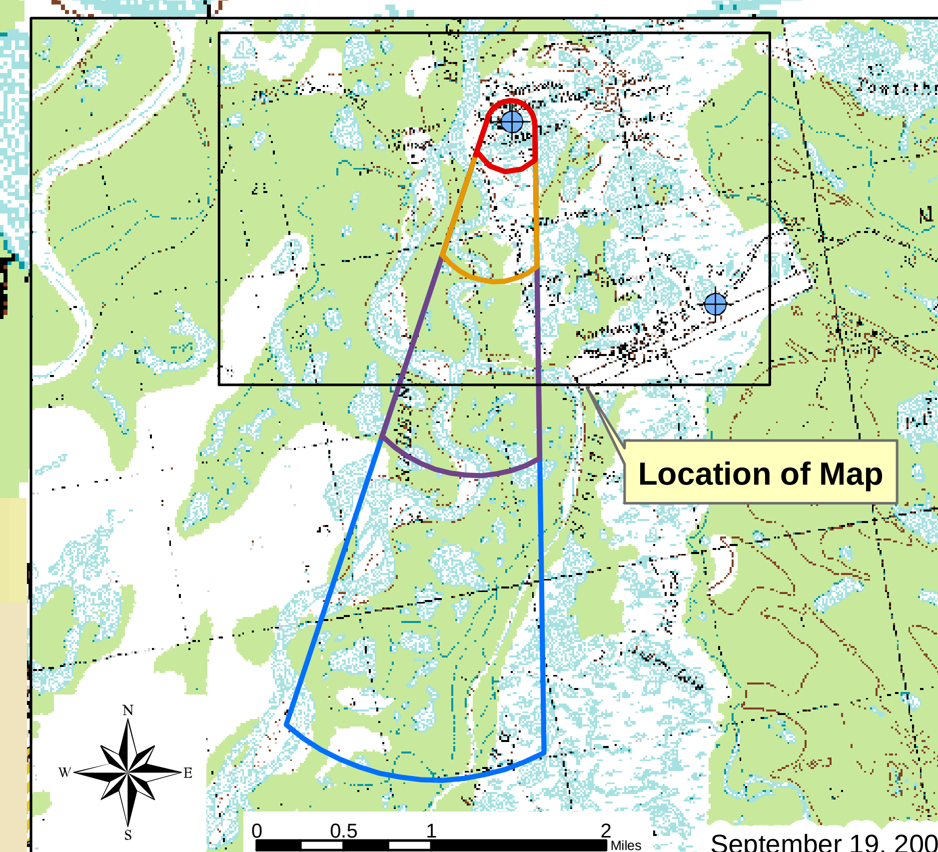
PWSID 380735.001

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Map Number	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D01-1	A	Low	2	Northway Community Wastewater Collection System
Domestic wastewater treatment plants	D05	D05-1	A	Low	2	Northway Community Wastewater Treatment Plant
Tanks, heating oil, residential (above ground)	R08	R08-1	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-10	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-11	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-12	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-13	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-2	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-3	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-4	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-5	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-6	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-7	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-8	A	Medium	2	Residence in Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-9	A	Medium	2	Residence in Northway Community
Tanks, heating oil, nonresidential (aboveground)	T14	T14-1	A	Low	2	Northway Community Hall Heating Oil Tank
Tanks, heating oil, nonresidential (aboveground)	T14	T14-2	A	Low	2	Northway Community Medical Facility Oil Tank
Highways and roads, dirt/gravel	X24	X24-1	A	Low	2	Road from Northway Community
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-1	A	Low	2	Northway Community Medical Facility
Septic systems (serves one single-family home)	R02	R02-1	B	Low	2	Residence South of Northway Community
Tanks, heating oil, residential (above ground)	R08	R08-14	B	Medium	2	Residence South of Northway Community
Tanks, diesel (above ground)	T06	T06-1	B	Medium	2	Diesel Tank for Radio Towers
Highways and roads, dirt/gravel	X24	X24-2	B	Low	2	Road to Radio Towers

APPENDIX C

Northway Community Hall
Drinking Water Protection Area
and Potential and Existing Contaminant Sources
(Map 2)





Map 2: Drinking Water Protection Areas for Northway Community Hall and Potential and Existing Sources of Contamination

PWSID: 380735.001

Alaska Department of Environmental Conservation

Alaska Drinking Water Protection Program

0 485 970 1,940 2,910 3,880 Feet

1:11,959

Data Sources:

Background image - USGS 1:63,000 mapping

Legend

- Public Drinking Water Systems
- Domestic Wastewater Collection System (D01)
- Domestic Wastewater Treatment Plant (D05)
- Single Family Septic System (R02)
- Residential Heating Oil Tank (R08)
- Above Ground Diesel Storage Tank (T06)
- Nonresidential Heating Oil Tank (T14)
- Medical Facility (X40)

DWPA Zone A
Several Months Travel Time
DWPA Zone B
Less than 2 Years Travel Time
DWPA Zone C
Less than 5 Years Travel Time
DWPA Zone D
Less than 10 Years Travel Time

September 19, 2003

APPENDIX D

Vulnerability Analysis for Northway Community Hall Public Drinking Water Source (Charts 1-8)

Chart 1. Susceptibility of the wellhead - Northway Community Hall

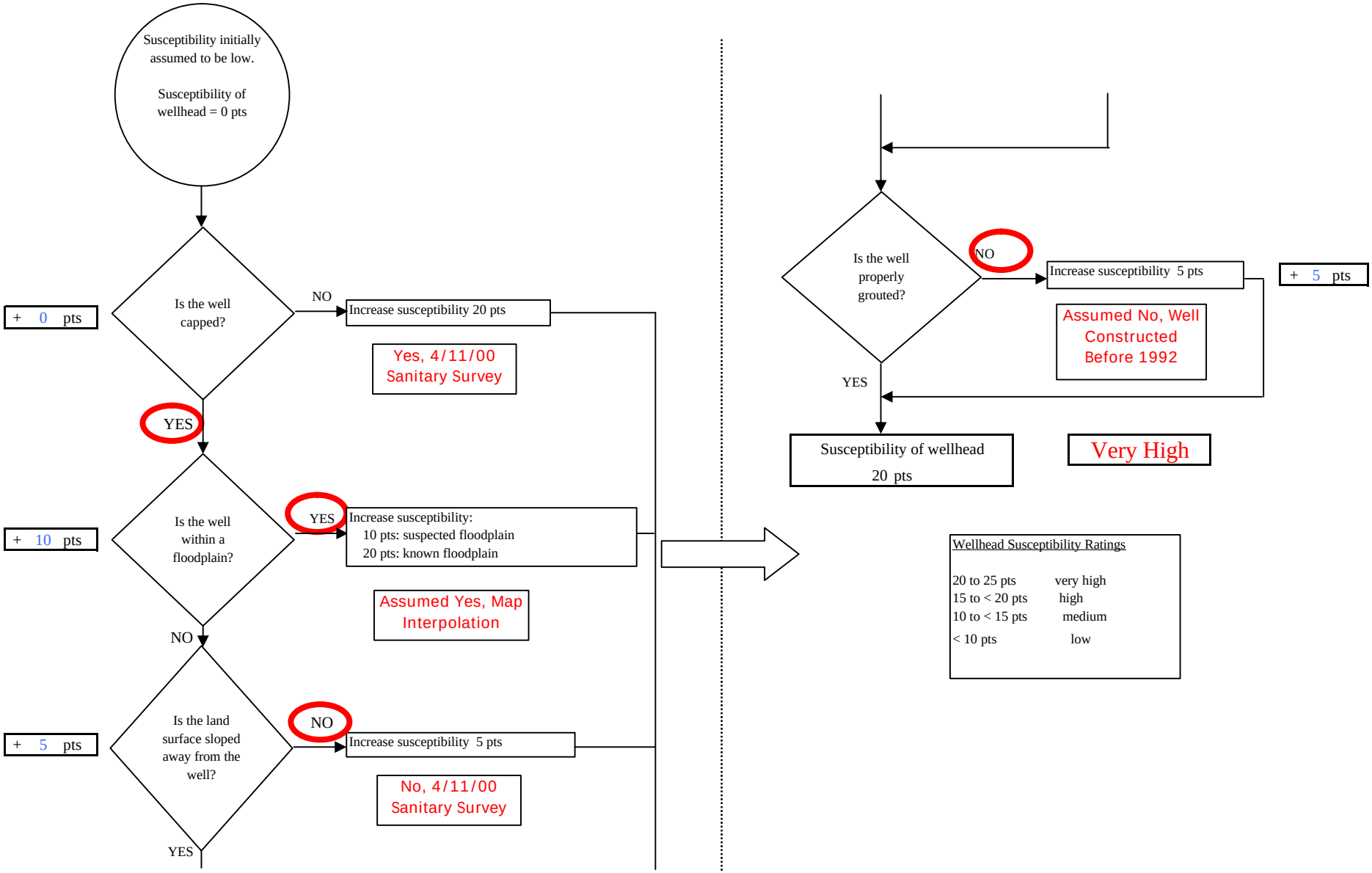


Chart 2. Susceptibility of the aquifer - Northway Community Hall

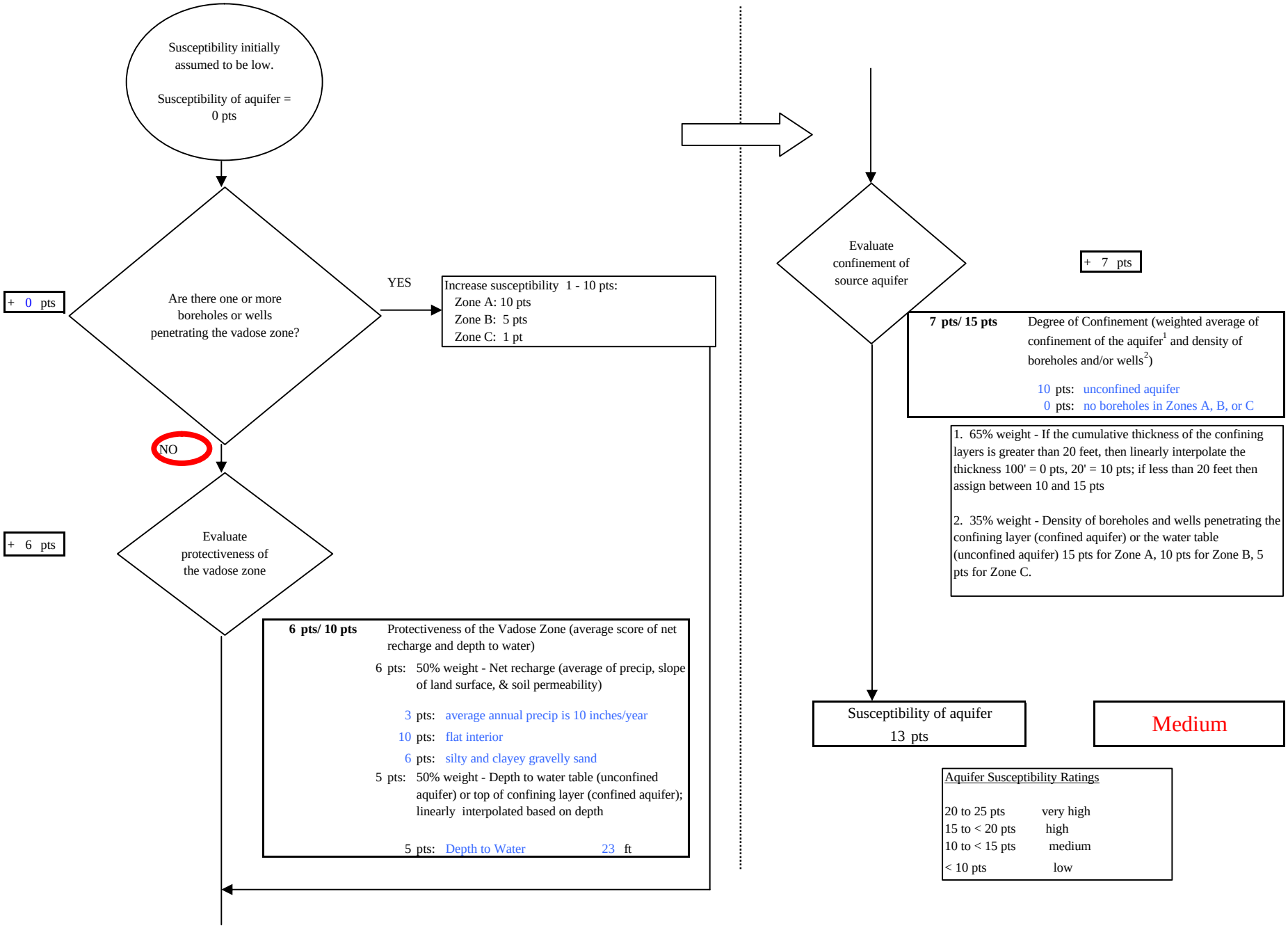
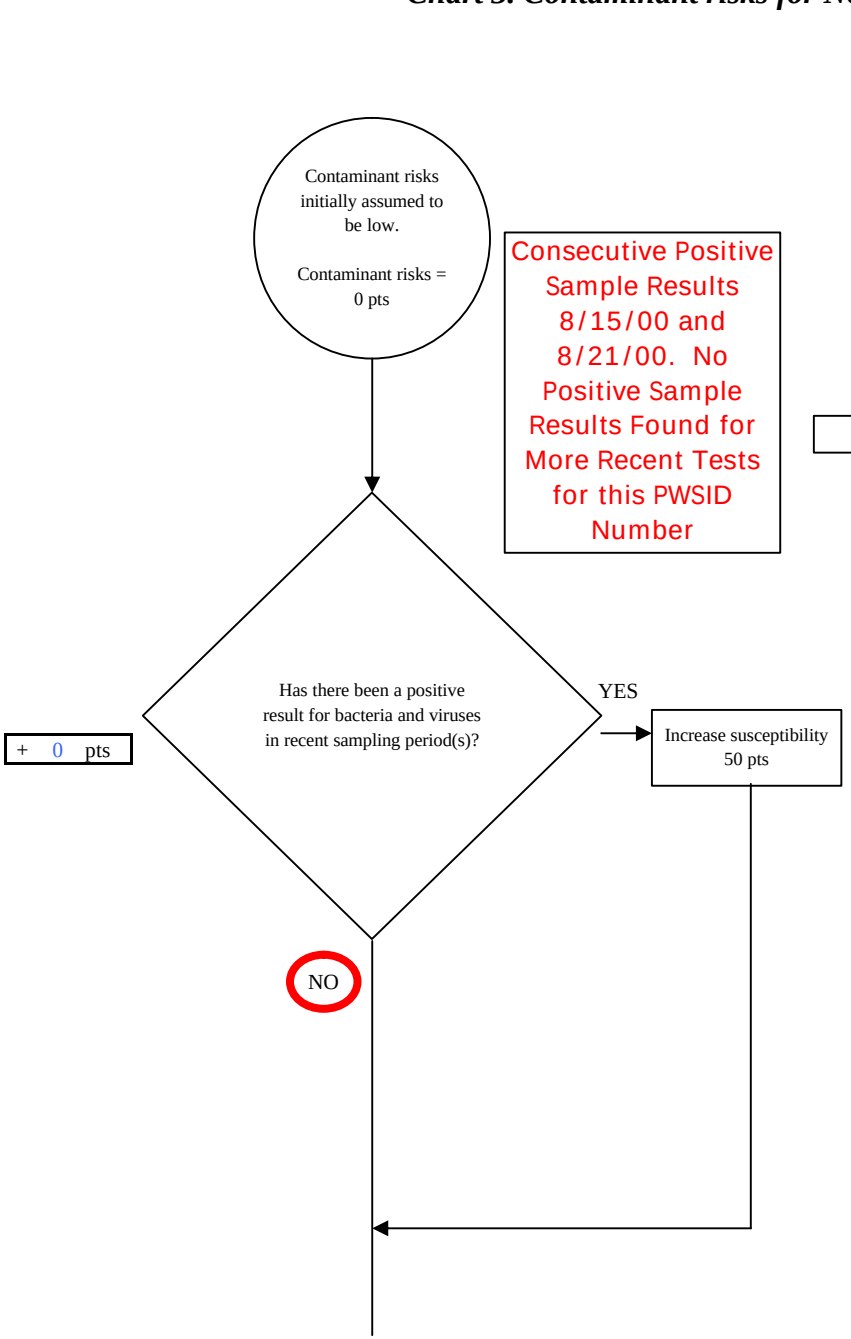
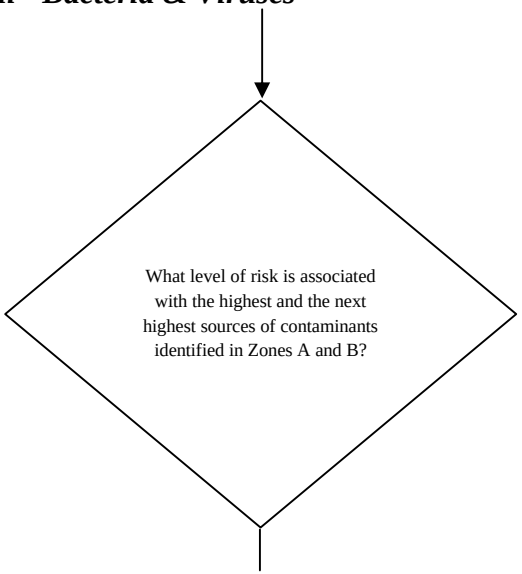


Chart 3. Contaminant risks for Northway Community Hall - Bacteria & Viruses



Consecutive Positive Sample Results 8/15/00 and 8/21/00. No Positive Sample Results Found for More Recent Tests for this PWSID Number



+ 25 pts

Risk Rankings for Contaminant Sources Identified in Zones A and B

	Zone A	Zone B	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	3	0	3
Low(s)	1	2	3

	LOW 10 pts	**MEDIUM** 20 pts	**HIGH** 30 pts	**VERY HIGH** 40 pts
LOW	[3] 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	----
MEDIUM	----	≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH	----	----	≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH	----	----	----	≥ 1 source + 10 pts

Matrix Score 25

Note: Septic systems, sewerlines, and roads are each assigned a risk ranking for each individual contaminant source in the CSI. The VA, however, counts these contaminant sources as a group and assigns a calculated number of either "lows" or "mediums" based on the density.

Chart 3. Contaminant risks for Northway Community Hall - Bacteria & Viruses

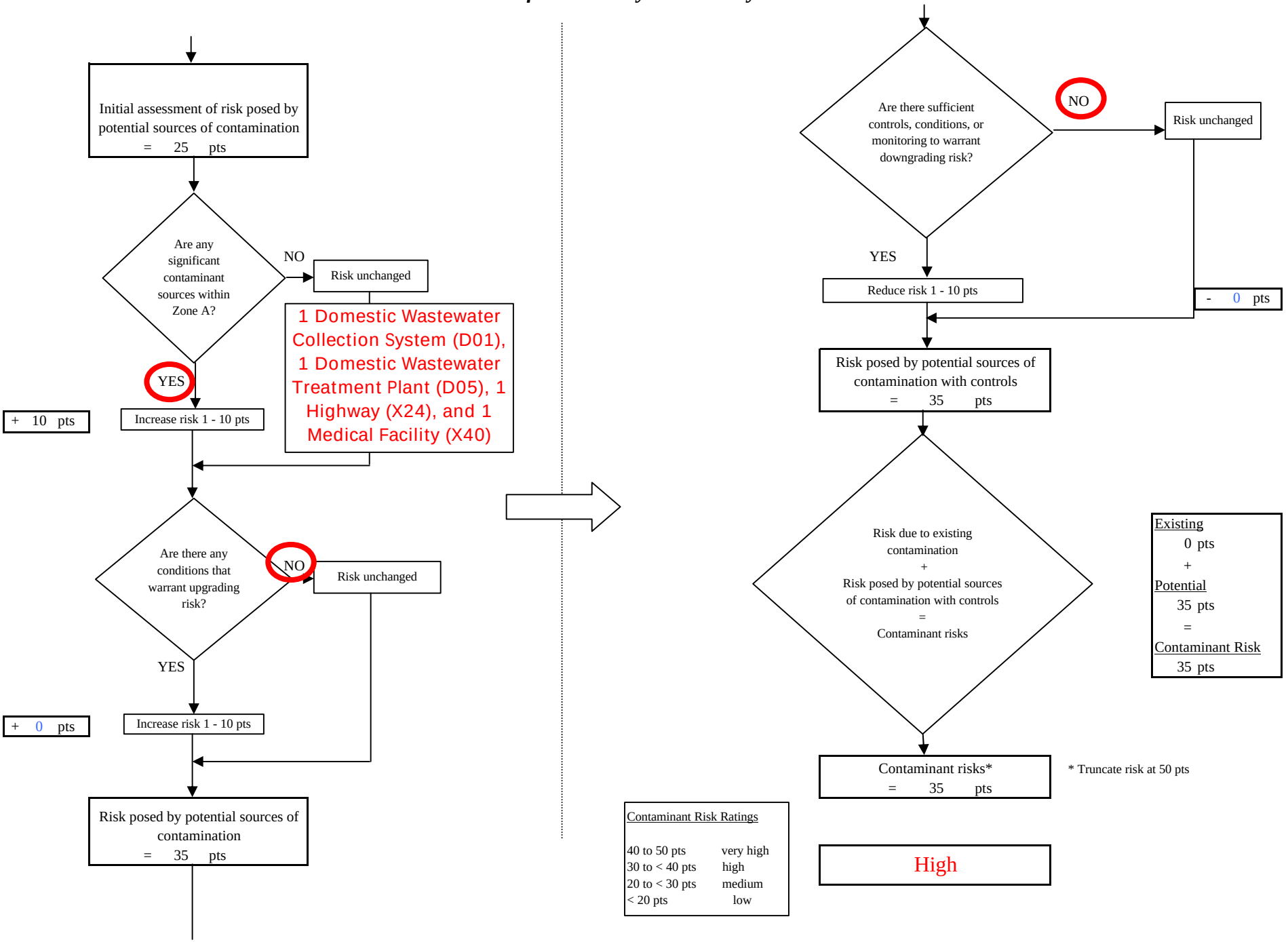


Chart 4. Vulnerability analysis for Northway Community Hall - Bacteria & Viruses

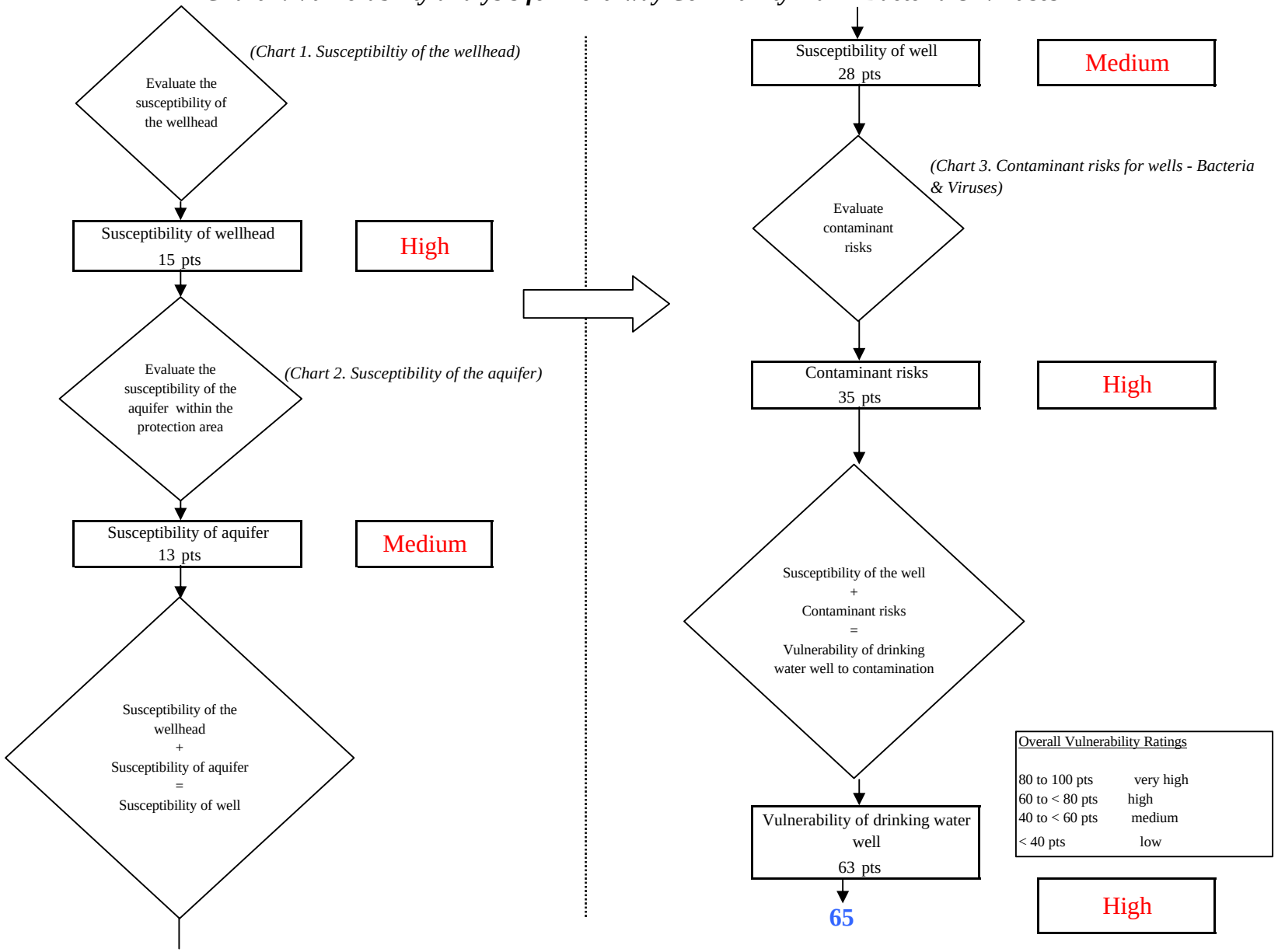


Chart 5. Contaminant risks for Northway Community Hall - Nitrates and Nitrites

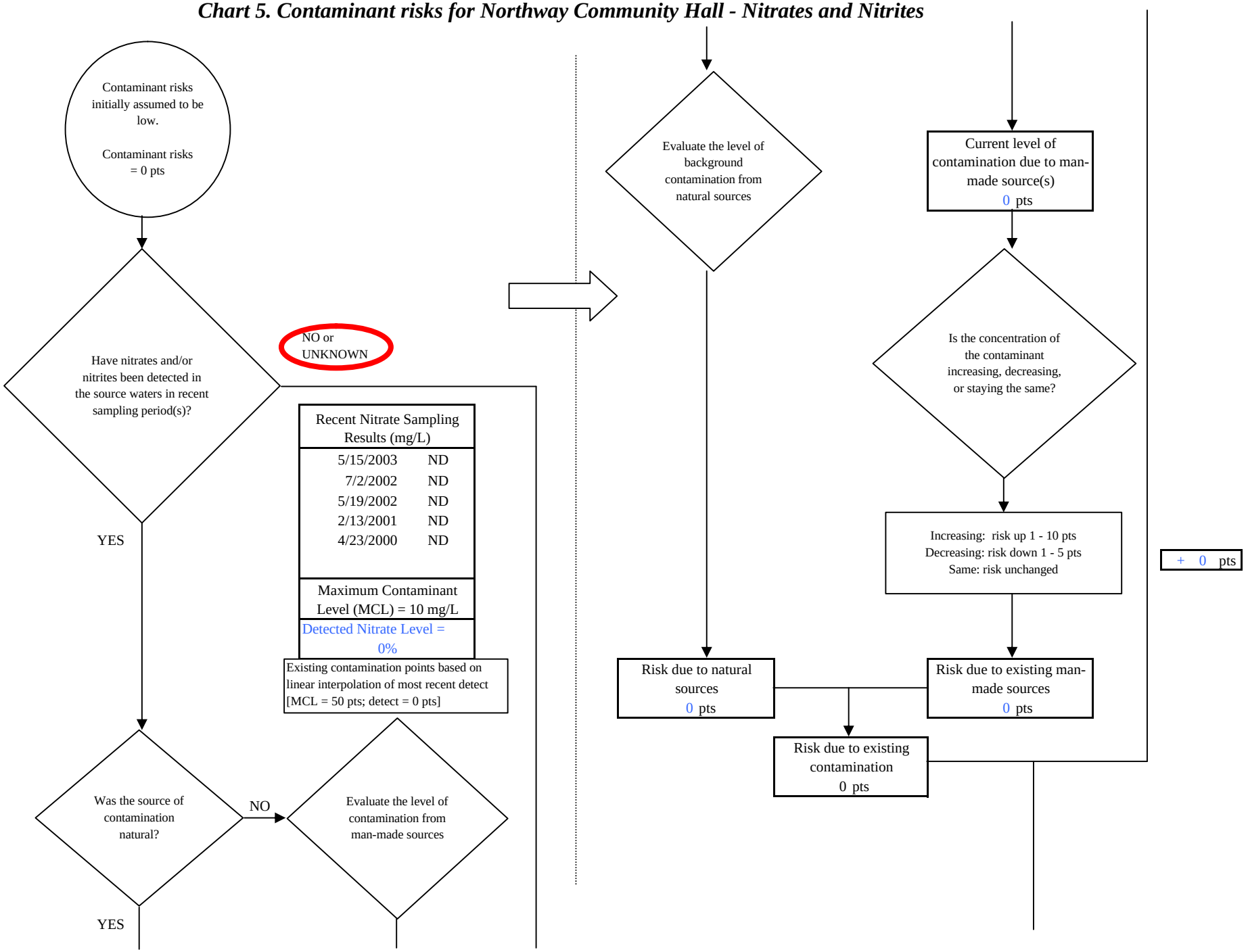


Chart 5. Contaminant risks for Northway Community Hall - Nitrates and Nitrites

Initial assessment of risk posed by potential sources of contamination = 20 pts

Is the source aquifer fractured rock or karst?

YES

NO

Are all of the higher risk sources beyond Zones A and B?

NO → Risk unchanged

YES

Decrease risk 1 - 10 pts

- 0 pts

Are any significant sources within Zone A?

NO → Risk unchanged

YES

Increase risk 1 - 10 pts

+ 5 pts

What level of risk is associated with the highest and the next highest risk sources(s) of contaminants identified in Zones A, B and C?

+ 20 pts

Risk Levels for Contaminant Sources identified in Zones A, B and C

	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	2	0	2
Low(s)	2	2	4

	LOW 10 pts	**MEDIUM** 20 pts	**HIGH** 30 pts	**VERY HIGH** 40 pts
LOW	[3] 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	----
MEDIUM	----	≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH	----	----	≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH	----	----	----	≥ 1 source + 10 pts

Matrix Score 20

Note: Septic systems, sewerlines, and roads are each assigned a risk ranking for each individual contaminant source in the CSI. The VA, however, counts these contaminant sources as a group and assigns a calculated number of either "lows" or "mediums" based on the density.

1 Domestic Wastewater Collection System (D01), 1 Domestic Wastewater Treatment Plant (D05), 1 Highway (X24), and 1 Medical Facility (X40)

Chart 5. Contaminant risks for Northway Community Hall - Nitrates and Nitrites

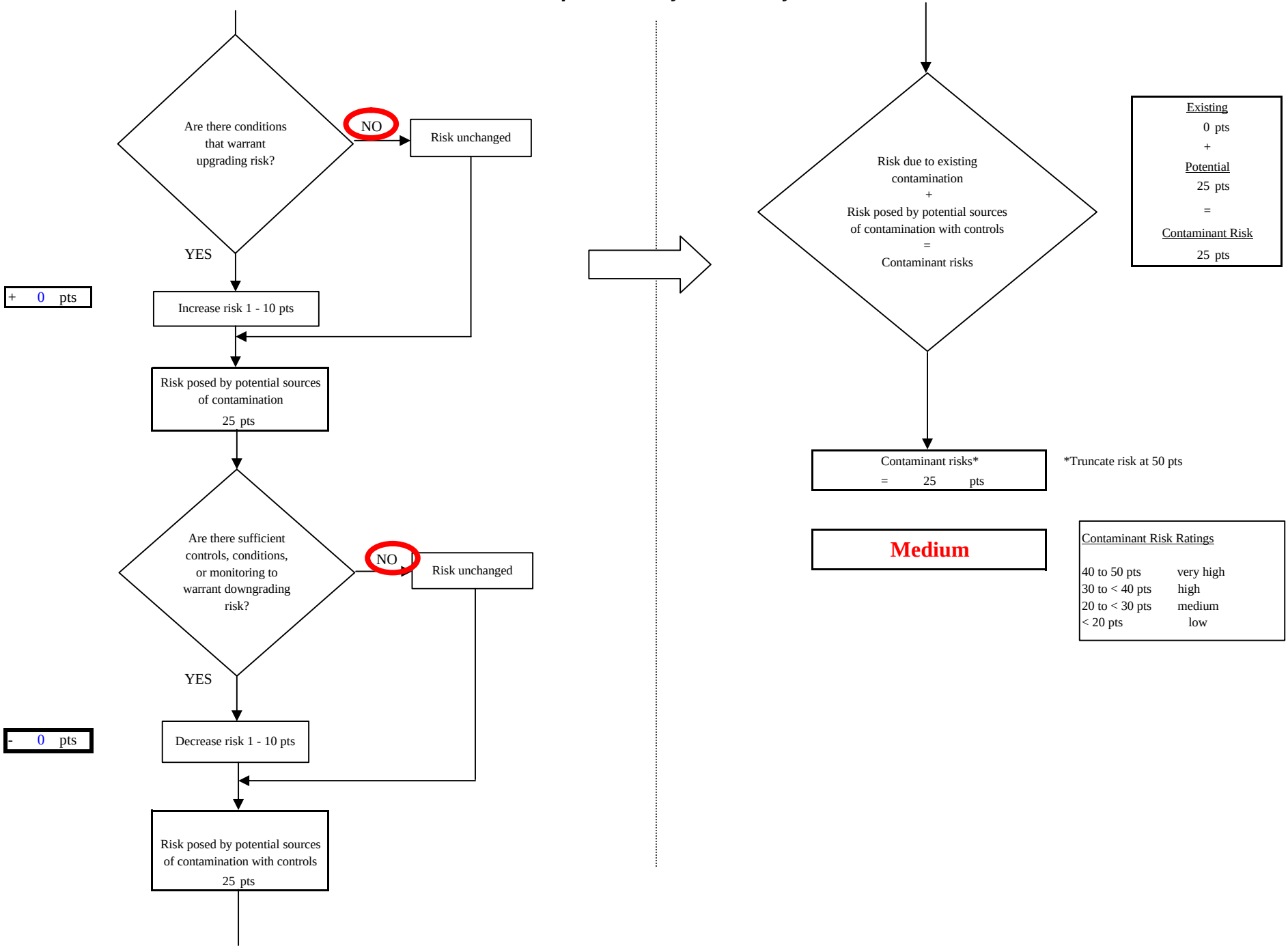


Chart 6. Vulnerability analysis for Northway Community Hall - Nitrates and Nitrites

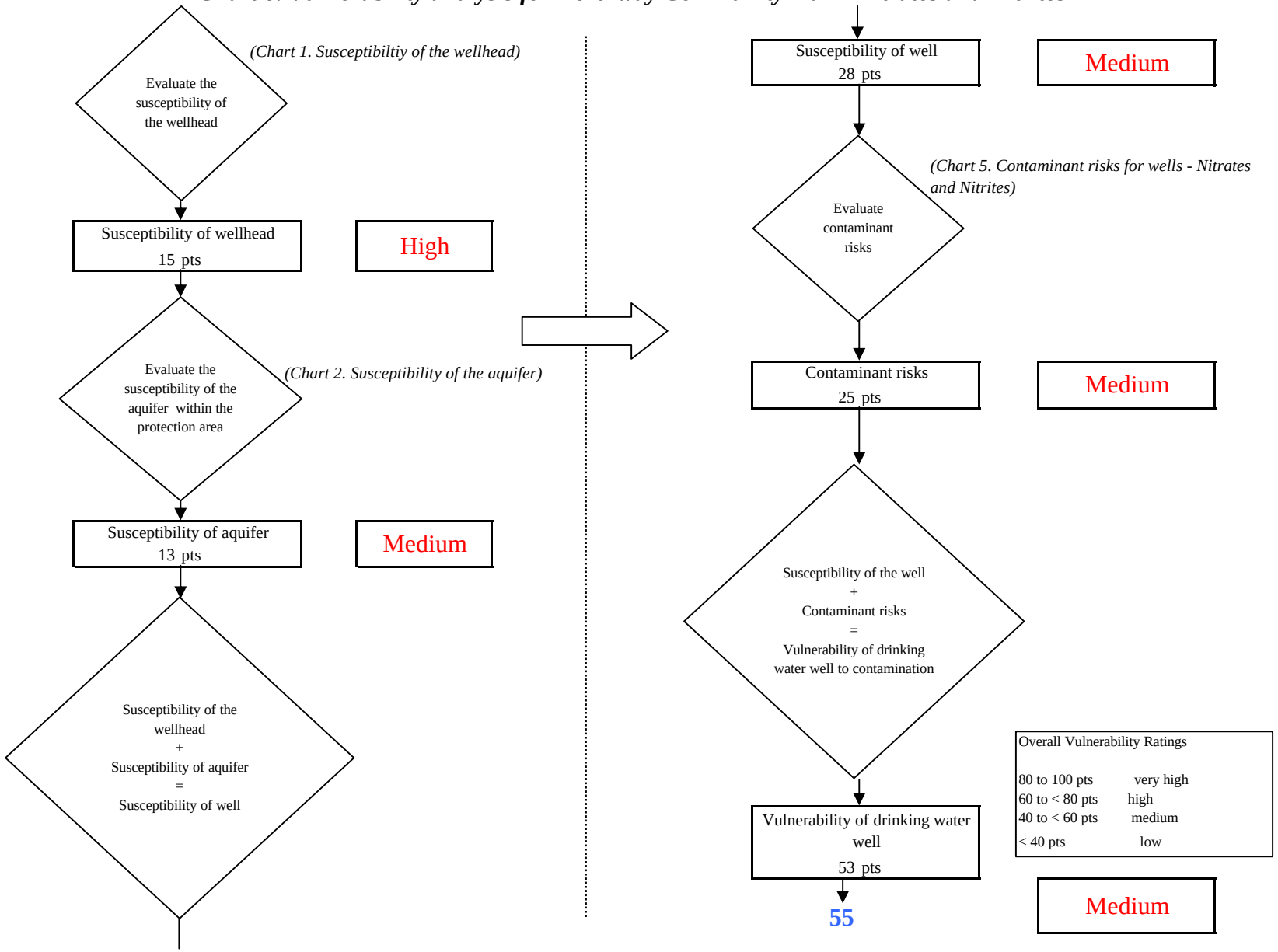


Chart 7. Contaminant risks for Northway Community Hall - Volatile Organic Chemicals

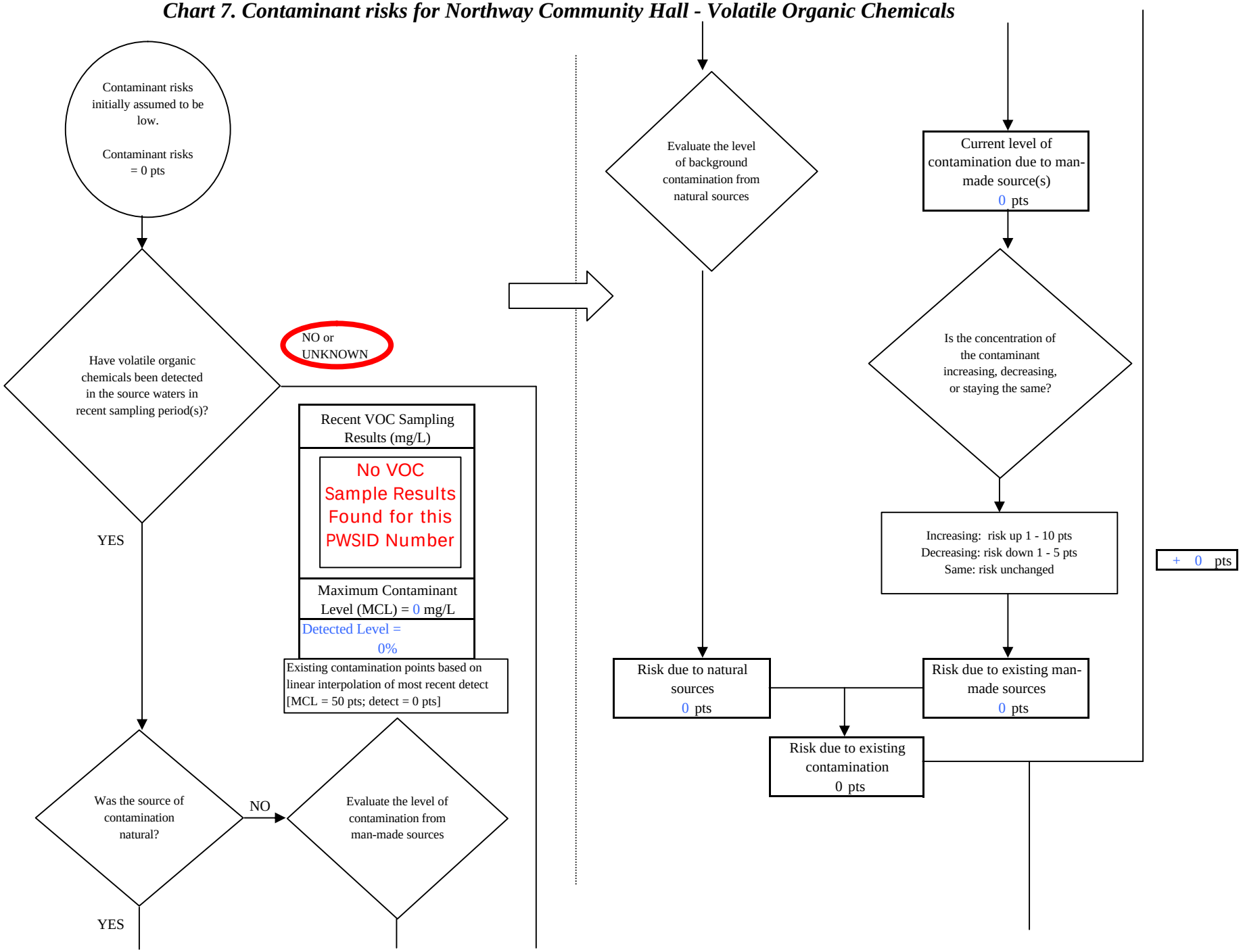


Chart 7. Contaminant risks for Northway Community Hall - Volatile Organic Chemicals

Initial assessment of risk posed by potential sources of contamination = 25 pts

Is the source aquifer fractured rock or karst?

YES

NO

Are all of the higher risk sources beyond Zones A and B?

NO → Risk unchanged

YES → Decrease risk 1 - 10 pts

- 0 pts

Are any significant sources within Zone A?

NO → Risk unchanged

YES → Increase risk 1 - 10 pts

+ 10 pts

What level of risk is associated with the highest and the next highest risk sources(s) of contaminants identified in Zones A, B and C?

+ 25 pts

Risk Levels for Contaminant Sources identified in Zones A, B and C

	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	13	2	15
Low(s)	6	2	8

	LOW 10 pts	**MEDIUM** 20 pts	**HIGH** 30 pts	**VERY HIGH** 40 pts
LOW	[3] 10 sources + 10 pts	≥ 10 sources + 5 pts	≥ 20 sources + 5 pts	----
MEDIUM	----	≥ 2 sources + 5 pts	≥ 5 sources + 5 pts	≥ 10 sources + 5 pts
HIGH	----	----	≥ 1 source + 10 pts	≥ 2 sources + 10 pts
VERY HIGH	----	----	----	≥ 1 source + 10 pts

Matrix Score 25

Note: Septic systems, sewerlines, and roads are each assigned a risk ranking for each individual contaminant source in the CSI. The VA, however, counts these contaminant sources as a group and assigns a calculated number of either "lows" or "mediums" based on the density.

1 Domestic Wastewater Collection System (D01), 1 Domestic Wastewater Treatment Plant (D05), 1 Highway (X24), 1 Medical Facility (X40), 13 Residential Heating Oil Tanks (R08), and 2 Nonresidential Heating Oil Tanks (T14)

Chart 7. Contaminant risks for Northway Community Hall - Volatile Organic Chemicals

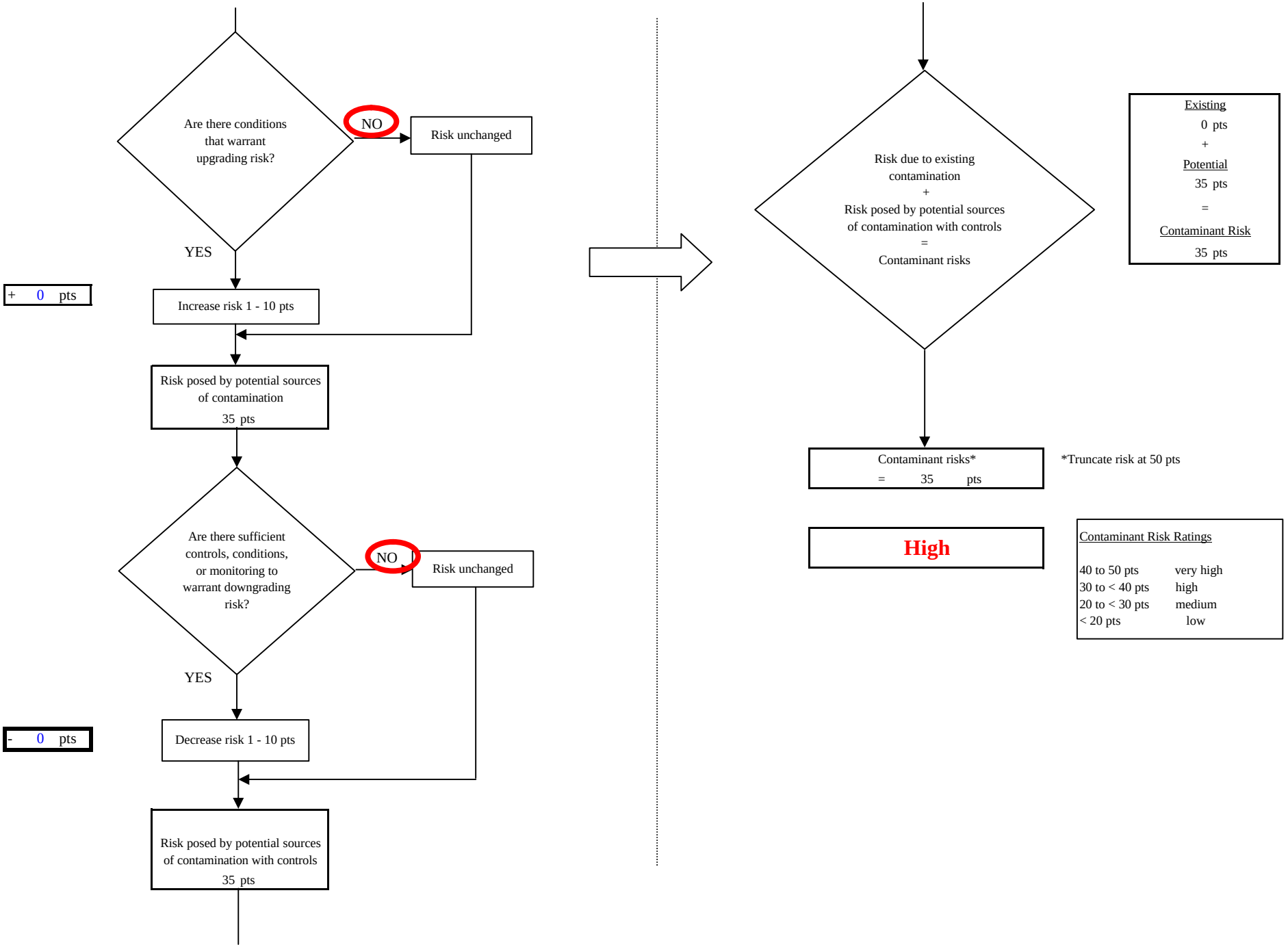


Chart 8. Vulnerability analysis for Northway Community Hall - Volatile Organic Chemicals