Source Water Assessment

A Hydrogeologic Susceptibility and Vulnerability Assessment for University of Alaska Drinking Water System,
Fairbanks, Alaska
PWSID 310683

November 2003

DRINKING WATER PROTECTION PROGRAM REPORT Report 1257
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 University of Alaska Source of Public Drinking Water, Fairbanks, Alaska

Drinking Water Protection Program
Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

This source water assessment provides an evaluation of the vulnerability to potential contamination of three of the four wells serving the University of Alaska public water system. This Class A (community) water system consists of four active wells, three at the corner of Geist Road and Fairbanks Street and one further north along the Alaska Railroad in Fairbanks, Alaska. This report is an assessment of the three wells at the corner of Geist Road and Fairbanks Street: Geist Well #1 10 hp, Geist Well #1 30 hp, and Geist Well #2). These wells received a natural susceptibility rating of **High**. This rating is a combination of a **Low** rating for the actual wellheads and a **Very High** rating for the aquifer in which the well is drawing water from. Identified potential and current sources of contamination for the University of Alaska public water system include: industrial activities, businesses, fuel storage tanks, sewer lines, residential areas, Class V Injection Wells, Leaking Underground Fuel Storage Tank sites, and ADEC-recognized contaminated sites. These are considered as sources of bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals and other inorganic chemicals, synthetic organic chemicals, and other organic chemicals. Combining the natural susceptibility of the well with the contaminant risk, the public water system for University of Alaska received an overall vulnerability rating of **Very High** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, and heavy metals and other inorganic chemicals, and a **High** for synthetic organic chemicals, and other organic chemicals.

UNIVERSITY OF ALASKA PUBLIC DRINKING WATER SYSTEM

University of Alaska public water system is a Class A (community) water system. The system consists of four active wells, three at the corner of Geist Road and Fairbanks Street and one further north along the Alaska Railroad in Fairbanks, Alaska (T1S, R1W, Section 6) (See Map 1 of Appendix A). This report is an assessment of the three wells at the corner of Geist Road and Fairbanks Street: Geist Well #1 10 hp, Geist Well #1 30 hp, and Geist Well #2). Fairbanks is located in the Fairbanks North Star Borough which is near the center of Alaska (Please see the inset of Map 1 in Appendix A for location). The Borough's current population is 82,840 making it the second-largest population center in the state (ADCED, 2002). Communities located within the Borough include : College, Eielson Air Force Base, Ester, Fairbanks, Fox, Harding Lake, Moose Creek, North Pole, Pleasant Valley, Salcha, and Two Rivers.

Golden Heart Utilities provides water and sewer for the city of Fairbanks. Electricity is provided by Golden Valley Electric Association. The majority of residents (approximately 70%) use heating oil (typically stored in both above and below ground 275 to 500-gallon tanks) to heat homes and buildings (ADCED, 2002). Garbage collection services are proved by the city, and refuse is transported to the Fairbanks North Star Borough Class I Landfill on South Cushman Street.

The Fairbanks area includes two distinct topographic areas: the alluvial plain between the Tanana River and the Chena River, and the uplands north of this alluvial plain. The University of Alaska water system is located in the alluvial plain at an elevation of approximately 435 feet above sea level.

According to the well logs for this water system, the depths of the wells are between 80 and 82 feet below the ground surface and they are screened in gravels and sand. The alluvial plain consists of alternating layers of sand and gravel up to over 500 feet thick, in some locations overlain by 1 to 10 feet of silt or sandy silt or a few feet of peat (Glass and others, 1996). Discontinuous permafrost (perennially frozen areas) is also common in the alluvial plain. The depth to permafrost in these areas ranges between 2 and 45 feet below the ground surface with the thickness of the permafrost ranging between 5 and 265 feet (Pewe, T.L. 1958). Areas with discontinuous permafrost may locally affect the ground water flow directions.

Primarily the Tanana River, but also the Chena River contribute water to this alluvial aquifer. The Chena River typically only contributes water when its stage is high and the Tanana is low (Nelson, 1978). The Tanana River gets approximately 85% of its water from snowmelt of the Alaska Range and 15% from the Yukon-Tanana uplands (Anderson, 1970).

The University of Alaska public drinking water system serves approximately 5,000 people.

UNIVERSITY OF ALASKA DRINKING WATER PROTECTION AREA

The pathways most likely for surface contamination to reach the groundwater are identified as the first step in determining a drinking water system's risk. 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 capture zone. The groundwater capture zone is located in the area circling the well (the area influenced by pumping) and also the area of the water table upgradient of the well, usually forming a parabola shape.

There are many different methods for calculating the size of capture zones. This assessment uses a combination of two simple groundwater flow equations, the Thiem and uniform flow equations for all groundwater wells screened in unconsolidated material. The orientation of the capture zone is then drawn using a water table elevation map (if available) or a land surface elevation map of the area. The capture zone calculated in this assessment is an estimate using the available information and resources, and may differ slightly from the actual capture zone.

The parameters used to calculate the shape of this capture zone are general for the whole alluvial plain and were obtained from various United States Geological Survey (USGS) reports, area well logs, and the Groundwater textbook by Freeze and Cherry (Freeze and Cherry, 1979).

The water table in the area of the University of Alaska, the area between the Tanana and the Chena Rivers, is primarily influenced by the level of water flow in each river. The capture zones were drawn based on three separate configurations of the water table during various stages of the rivers: a period of high stage in the Chena River (October 14-17, 1986), high stage in the Tanana River (July 16-17, 1987), and low stages in both rivers (March 30-April 3, 1988) (Glass and others, 1996). High water levels in the Chena usually occur in the spring due to runoff from the uplands and in late summer due to rainstorms (Nelson, 1978). The Tanana usually experiences high flow during the hot, dry periods of mid-summer when maximum snowmelt from the Alaska Range occurs (Nelson, 1978). Groundwater in this area generally flows toward the northwest, from the Tanana River to the Chena River, however flow is reversed very near the Chena River during its high stage periods (Glass and others, 1996). These flow reversals are of short duration (i.e. days versus months) and of limited extent, generally within 1000 feet of the river (Nakanishi, et all, 1998).

Because of uncertainties and changing site conditions, a factor of safety is added to the groundwater capture zone to form the drinking water protection area for the well.

The protection areas established for wells are usually separated into four zones, limited by the watershed. These zones correspond to times-of-travel (TOT) of the water moving through the aquifer to the well (plus the factor of safety).

The following is a summary of the four 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 2 years time-of-travel
C	Less than 5 years time-of-travel
D	Less than 10 years time-of-travel

The time of travel for contaminants within the water varies with their unique physical and chemical characteristics.

The drinking water protection area outlined for the University of Alaska on Map 1 of Appendix A will serve as the focus for voluntary protection efforts.

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program (DWPP) has completed an inventory of potential and existing sources of contamination within the University of Alaska protection area. This inventory was completed through a search of agency records and other publicly available information. 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 A public water system assessments, six categories of drinking water contaminants were inventoried. They include:

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

The sources are displayed on Maps 2 through 5 of Appendix C and summarized in Table 1 of Appendix B. Because of the large number of sources identified in the

protection areas, only sources in Zones A and B are listed in the tables. Sources in all zones are displayed on the maps.

RANKING OF CONTAMINANT RISKS

Once the potential and existing sources of contamination have been identified, they are each 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 combination of toxicity and volume associated with that source. Rankings include:

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

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

VULNERABILITY OF UNIVERSITY OF ALASKA 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 fourteen 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 properties of the aquifer and the presence of other wells or boreholes in the area. 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 the water system's contaminant sample results. Lastly, Chart 4 combines the results of the first three charts to produce the 'Vulnerability Analysis for Bacteria and Viruses'. Charts 5 through 14 contain the Contaminant Risks and Vulnerability Analyses for nitrates and nitrites, volatile organic chemicals, heavy metals and other inorganic chemicals, synthetic organic chemicals, and other 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

The wellheads for the University of Alaska received a Low Susceptibility rating. The SOC/OOC Monitoring Waiver Application (7/14/97) indicates there is a seal on each of the wells, and the land surface is sloped away from the wells. However, the wells are not grouted. A sanitary seal prevents potential contaminant from entering the well, while a sloped land surface and grouting help to prevent contaminants from traveling down the outside of the well casing.

The aquifer the University of Alaska well is completed in received a Very High Susceptibility rating. The highly transmissive aquifer material (sand and gravel) in the area allows contaminants to travel downward from the surface with the precipitation and surface water runoff. The shallow water table allows potential contaminants to come into contact with the water table with little natural filtering where they can disperse quickly. Wells in the area can also provide a quick pathway for contaminants to travel down into the aquifer if the wells are not grouted correctly. Table 2 summarizes the Susceptibility scores and ratings for University of Alaska.

Table 2. Susceptibility

	Score	Rating
Susceptibility of the Wellhead	5	Low
Susceptibility of the Aquifer	25	Very High
Natural Susceptibility	30	High

The Contaminant Risk has been derived from an evaluation of the routine sampling results of the water system and the presence of potential sources of contamination. Contaminant risks to a drinking water source depend on the type and distribution of contaminant sources. 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	50	Very High
Nitrates and/or Nitrites	50	Very High
Volatile Organic Chemicals	50	Very High
Heavy Metals, Cyanide, and Other Inorganic Chemicals	50	Very High
Synthetic Organic Chemicals	30	High
Other Organic Chemicals	40	Very 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 six categories of drinking water contaminants. Note: scores are rounded off to the nearest five.

Table 4. Overall Vulnerability

Category	Score	Rating
Bacteria and Viruses	80	Very High
Nitrates and Nitrites	80	Very High
Volatile Organic Chemicals	80	Very High
Heavy Metals, Cyanide, and Other Inorganic Chemicals	80	Very High
Synthetic Organic Chemicals	60	High
Other Organic Chemicals	70	High

Bacteria and Viruses

The sewer lines in Zone A of the protection area represent the greatest risk of Bacteria and Viruses to the University of Alaska water system. The Large Capacity Septic System Class V Injection wells and the Industrial Process Water Class V Injection well in Zone B also represent Bacteria and Virus risk. Class V Injection wells are most commonly septic systems or dry wells.

A Large Capacity Septic System Class V Injection well differs from a residential septic system when it receives sanitary waste from multiple family residences or a non-residential establishment and has the capacity to serve 20 or more persons per day.

If a septic system, regardless of its size, receives any amount of commercial or industrial wastewater, it is considered a Class V Injection Well for Industrial Process Water.

Only a small amount of bacteria and viruses are required to endanger public health. Coli forms are found naturally in the environment and although they aren't necessarily a health threat, it is an indicator of other potentially harmful bacteria in the water, more specifically, fecal coli forms and E. coli which only come from human and animal fecal waste (EPA, 2002). Harmful bacteria can cause diarrhea, cramps, nausea, headaches, or other symptoms (EPA, 2002). Coli forms were detected most recently in this water system on

7/17/03 and 7/15/03. Fecal coliforms and E.Coli have not been detected recently (within the past 5 years).

After combining the contaminant risk for bacteria and viruses with the natural susceptibility of the well, the overall vulnerability of the well to contamination is very high.

Nitrates and Nitrites

The sewer lines and the Class V Injection wells also represent the greatest risk to to nitrates and nitrites for this source of public drinking water.

Nitrates are very mobile, moving at approximately the same rate as water. Nitrates were most recently detected at a concentration of 1.80 mg/L or 18% of its Maximum Contaminant Level (MCL). An MCL is the highest concentration of a contaminant allowed in drinking water by the Environmental Protection Agency (EPA).

After combining the contaminant risk for nitrates and nitrites with the natural susceptibility of the well, the overall vulnerability of the well to contamination is very high.

Volatile Organic Chemicals

The gasoline stations and their associated fuel storage tanks in Zone A represent the greatest risk of volatile organic chemical contamination to the University of Alaska water system.

The motor vehicle waste and Industrial process wastewater Class V wells (most likely septic systems or dry wells) in Zone B also represent risk of Volatile Organic Chemicals to the well. Motor vehicle waste Class V wells have been banned as of April 5, 2000 although existing disposal wells have until January 1, 2007 in most cases to either close or obtain a permit to operate.

Both underground and above ground residential heating oil tanks are common in Fairbanks. The most common causes of fuel leaks of these heating oil systems are overfilling the tank, ruptured fuel lines, leaking storage tanks, damaged or faulty valves and vandalism. Regular system maintenance and proper decommissioning can help prevent many of these harmful fuel leaks.

Volatile Organic Chemicals including 1,1 Dichloroethane, Benzene, Bromodichloromethane, Chlorodibromomethane, Chloroform, and Trichloroacetic acid have all been detected within the past 5 years in this water system. 1,1-Dichloroethane was only detected once in a very low concentration. Benzene has been consistently detected during routine sampling, most recently at concentrations ranging from 0.0091 mg/L on 7/23/03 to 0.00391 mg/L on 12/16/02. The MCL for Benzene is 0.005 mg/L. Benzene in groundwater is commonly associated with fuel contamination. Short-term exposure to Benzene in concentrations above the MCL has been found to potentially cause temporary nervous system disorders, immune system depression and anemia (EPA, 2002). Benzene has been found to potentially cause cancer after long-term exposures greater than the MCL (EPA, 2002). Bromodichloromethane, Chlorodibromomethane, Chloroform, and Trichloroacetic acid are common disinfection byproducts and are not usually found in the source water.

After combining the contaminant risk for volatile organic chemicals with the natural susceptibility of the well, the overall vulnerability of the well to contamination is very high.

Heavy Metals, Cyanide, and Other Inorganic Chemicals

The Class V Motor Vehicle Waste Disposal wells represent the greatest risk to Heavy Metals, Cyanide, and Other Inorganic Chemicals for this source of public drinking water.

Arsenic, Barium, Chromium, and Fluoride have all been detected during recent sampling. Arsenic has been consistently detected during recent routine sampling. It was most recently detected on 9/17/03 at a concentration of 0.0056 mg/L, or 56% of its MCL. Arsenic occurs naturally in the environment as well as from outside sources such mining and smelting (EPA, 2002). Studies have linked long-term exposure to arsenic above its MCL in drinking water to cancer as well as cardiovascular, pulmonary, immunological, neurological, and endocrine (e.g., diabetes) effects (EPA, 2002).

Barium, Chromium, and Fluoride were detected only once in extremely small concentrations with respect to their MCLs.

After combining the contaminant risk for nitrates and nitrites with the natural susceptibility of the well, the overall vulnerability of the well to contamination is very high.

Synthetic Organic Chemicals

The agricultural storage area in Zone B represents the greatest risk to Synthetic Organic Chemicals for this source of public drinking water.

Synthetic Organic Chemicals were sampled most recently on 6/11/96; none were detected.

After combining the contaminant risk for synthetic organic chemicals with the natural susceptibility of the

well, the overall vulnerability of the well to contamination is high.

Other Organic Chemicals

The Class V Industrial Process Water well and the businesses associated with automobiles represent the greatest risk to Other Organic Chemicals for University of Alaska public drinking water system.

Other Organic Chemicals were sampled most recently on 6/11/96; none were detected.

After combining the contaminant risk for other organic chemicals with the natural susceptibility of the well, the overall vulnerability of the well to contamination is high.

Existing Contaminated Sites

There are over 100 ADEC-recognized contaminated sites and Leaking Underground Storage Tank (LUST) sites located the protection area (displayed on Maps 2 through 5 of Appendix C). The ADEC Contaminated Sites program has identified, assessed, and is ensuring cleanup of these sites based on their prioritized order. Priority is based on risk to human health and the environment, including risk to public drinking water wells. Specific information on each site can be found on the internet at http://www.dec.state.ak.us/spar/cs/search/csites/csites_search.asp for contaminated sites or http://info.dec.state.ak.us/SPAR/CSP/UST/Search/ for LUST sites or by calling the ADEC Contaminated Sites Program at (907) 269-7658.

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APPENDIX A

University of Alaska
Drinking Water Protection Area Location Map
(Map 1)

University of Alaska emergency well

University of Alaska primary wells

YANKOVICH ROAD
FARMERS LOOP ROAD
COLLEGE ROAD
ASPEN STREET
CREAMER LANE
MARGARET AVENUE
O'CONNOR ROAD
FARMERS LOOP
NEW STEESE HIGHWAY
LAZELLE ROAD
COLLEGE ROAD
TRAINOR GATE ROAD
YUKON DRIVE
NOATAK DRIVE
TANANA DRIVE
PARKS HIGHWAY
GEIST ROAD
JOHANSEN EXPRESSWAY
RIVERVIEW DRIVE
COPPET STREET
PARK DRIVE
FAIRBANKS STREET
UNIVERSITY AVENUE
2ND AVENUE
COWLES STREET
STATE DRIVE
AIRPORT WAY
FAGAN AVENUE
WILLER STREET
GAFNEY ROAD
NEELY ROAD
CHENA PUMP ROAD
SOUTH FAIRBANKS EXPRESSWAY
19TH AVENUE
DAVIS ROAD
ROAD
ROBERT J. MITCHELL EXPRESSWAY
50TH AVENUE
NEW RICHARDSON HIGHWAY
OLD RICHARDSON HIGHWAY
MAGARTHUR STREET
BRADDOCK STREET
PEGER ROAD
VAN HORN ROAD
TAXIWAY AVENUE
QUEEN'S WAY
SOUTH CUSHMAN STREET
TREASURE STREET
LEVANEVSKI ACCESS

Area enlarged at left

Fox
College
Ester
Fairbanks
North Pole

Map 1: University of Alaska Drinking Water Protection Areas

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Alaska Drinking Water Protection Program

0 1,750 3,500 7,000 10,500 Feet

1 inch equals 3,500 feet

Data Sources:

Parcel, roads - Fairbanks North Star Borough
Water bodies, railroad - Geographic Data Technology
Elevation contours - USGS digital elevation models (DEMs)

Legend

- Zone A *Several months travel time*
- Zone B *Less than 2 years travel time*
- Zone C *Less than 5 years travel time*
- Zone D *Less than 10 years travel time*
- Roads
- Parcels
- Towns
- Surface water
- Elevation contours

N W E S

0 2.5 5 10 Miles

August 25, 2003

APPENDIX B

Contaminant Source Inventory and Risk Ranking for University of Alaska (Tables 1-7)

Table 1

Contaminant Source Inventory for ***University of Alaska***

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Florists	C12	C12-1	A	2	4001 Geist Rd #4
Gasoline stations (without repair shop)	C15	C15-1	A	2	4105 Geist Rd
Gasoline stations (with repair shop)	C16	C16-1	A	2	4001 Geist Rd
Domestic wastewater collection systems (sewer lines or lift stations)	D01		A	2	Estimated 10 sewer lines in Zone A
Residential Areas	R01		A	2	Approximately 25 acres of residential area in Zone A
Tanks, diesel (underground)	T08	T08-1	A	2	4105 Geist Rd
Tanks, diesel (underground)	T08	T08-2	A	2	3800 Geist Rd
Tanks, diesel (underground)	T08	T08-3	A	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-1	A	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-2	A	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-3	A	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-4	A	2	4001 Geist Rd
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04	U04-1	A	2	UAF Geist Rd well; RecKey 1988310129115
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-03	A	2	UAF-Old University Park School
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-04	A	2	3750 Geist Rd; FNSB Hutchison Career Center; File Number 100.26.082
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-1	A	2	4105 Geist Rd; Williams Express #5026; File Number 100.26.023
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-2	A	2	4001 Geist Rd; Tesoro - Northstore #116; File Number 100.26.171
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	2	4001 Geist Rd #3
Agricultural chemical sales/storage	C02	C02-1	B	2	3048 Riverview Dr
Body shops (automotive)	C05	C05-1	B	2	2747 Phillips Field Rd
Car washes with engine or undercarriage cleaning	C08	C08-1	B	2	3701 Cameron St
Car washes with engine or undercarriage cleaning	C08	C08-2	B	3	1295 University Ave
Construction trade areas and materials	C09	C09-01	B	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-01	B	3	4031 Marsha Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Construction trade areas and materials	C09	C09-02	B	3	4061 Mallard Way
Construction trade areas and materials	C09	C09-05	B	2	2761 Phillips Field Rd
Construction trade areas and materials	C09	C09-06	B	2	2650 Phillips Field Rd
Construction trade areas and materials	C09	C09-07	B	3	1503 Washington Drive
Construction trade areas and materials	C09	C09-08	B	3	1630 Washington Drive
Construction trade areas and materials	C09	C09-09	B	2	990 Deere St #1
Construction trade areas and materials	C09	C09-10	B	2	980 Deere Street
Construction trade areas and materials	C09	C09-11	B	2	923 Deere Street
Construction trade areas and materials	C09	C09-12	B	4	1500 Alaska Way
Construction trade areas and materials	C09	C09-3	B	2	3691 Cameron St
Construction trade areas and materials	C09	C09-4	B	2	3212 Riverview Dr
Dry cleaners	C10	C10-1	B	3	3574 Airport Way #B
Dry cleaners	C10	C10-2	B	3	3417 Airport Way
Dry cleaners	C10	C10-3	B	3	3370 Airport Way
Florists	C12	C12-2	B	3	3550 Airport Way #1
Furniture manufacturing, repair, and finishing shops	C14	C14-1	B	3	1448 University Ave S
Gasoline stations (without repair shop)	C15	C15-2	B	3	3596 Airport Way
Hardware stores	C17	C17-1	B	3	1440 University Ave S
Hardware stores	C17	C17-2	B	3	3605 Rewak Dr
Hardware stores	C17	C17-3	B	3	3455 Rewak Drive
Heavy equipment rental/storage	C18	C18-1	B	2	3415 Phillips Field Rd
Heavy equipment rental/storage	C18	C18-2	B	3	1162 Park Drive
Heavy equipment rental/storage	C18	C18-3	B	3	3115 Airport Way
Heavy equipment rental/storage	C18	C18-4	B	2	919 Commerce St
Jewelers	C19	C19-1	B	3	3627 Airport Way
Laboratories (chemical, soils, and research)	C20	C20-1	B	3	4012 Teal Ave
Laboratories (chemical, soils, and research)	C20	C20-2	B	2	600 University Ave #1

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Motor /motor vehicle repair shops	C31	C31-1	B	3	1432 University Ave S
Motor /motor vehicle repair shops	C31	C31-2	B	2	2910 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-3	B	2	2626 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-4	B	3	3449 Airport Way
Motor /motor vehicle repair shops	C31	C31-5	B	3	3121 Airport Way
Motor /motor vehicle repair shops	C31	C31-6	B	2	990 Deer ST
Motor /motor vehicle repair shops	C31	C31-7	B	2	1010 Deere St
Motor /motor vehicle repair shops	C31	C31-8	B	2	2207 Hanson Rd
Paint sales /service	C32	C32-1	B	3	1151 Sunset Drive
Pet groomers	C34	C34-1	B	3	1424 University Ave S
Pharmacies (with on-site wastewater disposal)	C35	C35-1	B	3	3121 Airport Way
Photography supplies/photo processing laboratories	C36	C36-1	B	2	921 Wood Way
Photography supplies/photo processing laboratories	C36	C36-2	B	3	3627 Airport Way
Photography supplies/photo processing laboratories	C36	C36-3	B	3	3419 Airport Way #D
Printers, publishers, copiers	C37	C37-1	B	2	954 Wood Way
Printers, publishers, copiers	C37	C37-2	B	3	3578 Airport Way #B
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	2	2207 Hanson Rd
Demolition sites	D20	D20-1	B	2	Hanson Road
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	3	3417 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	2	2755 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	3	1432 University Ave S

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	2	1011 Deere Street
Recycling and waste reduction facilities	D57	D57-1	B	2	2755 Phillips Field Rd
Metal fabrication	I25	I25-1	B	2	1010 Deere St
Sign manufacturing	I39	I39-1	B	2	990 Deere St #3
Residential Areas	R01		B	2,3	Approximately 200 acres of residential area in Zone B
Tanks, gasoline (underground)	T12	T12-05	B	3	1295 University Ave
Tanks, gasoline (underground)	T12	T12-06	B	3	3596 Airport Way
Tanks, gasoline (underground)	T12	T12-07	B	3	Airport Rd & Marlin
Tanks, gasoline (underground)	T12	T12-08	B	2	1011 Deere St
Tanks, heating oil, nonresidential (underground)	T16	T16-01	B	2	915 University Ave
Tanks, heating oil, nonresidential (underground)	T16	T16-02	B	2	565 University Ave
Tanks, heating oil, nonresidential (underground)	T16	T16-03	B	3	3627 Airport Way
Tanks, heating oil, nonresidential (underground)	T16	T16-04	B	3	3627 Airport Way
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04	U04-2	B	3	Geraghty Avenue; RecKey 1990310131101
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04	U04-3	B	2	3285 College Road; 105.38.007
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-05	B	2	601 Halverson Rd
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-06	B	2	601 Halverson Rd
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-07	B	2	3050 Phillips Field Rd; File Number 100.26.169
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-08	B	3	3700 Airport Way; File number 100.26.025
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-09	B	2	Phillips Field; File Number 100.26.010
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-10	B	3	3300 Airport Rd
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U07	U07-11	B	2	1011 Deere Street;File Number 102.26.115
Airports	X14	X14-1	B	2	Phillips Field
Motor vehicle/general storage yards/facilities	X27	X27-1	B	2	946 Coppet St
Motor vehicle/general storage yards/facilities	X27	X27-2	B	2	1011 Deere ST
Taxi service/maintenance facilities	X34	X34-1	B	2	2207 Hanson Rd

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	3	3437 Airport Way #205
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	3	3584 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	3	3291 Jefferson Drive

Table 2

Contaminant Source Inventory and Risk Ranking for University of Alaska Sources of Bacteria and Viruses

PWSID 310683.001

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		A	Medium	2	Estimated 10 sewer lines in Zone A
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	Medium	2	4001 Geist Rd #3
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Dry cleaners	C10	C10-1	B	Low	3	3574 Airport Way #B
Dry cleaners	C10	C10-2	B	Low	3	3417 Airport Way
Dry cleaners	C10	C10-3	B	Low	3	3370 Airport Way
Pharmacies (with on-site wastewater disposal)	C35	C35-1	B	Low	3	3121 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	High	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	High	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	High	2	2207 Hanson Rd
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	High	3	3417 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	Low	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	Low	2	2755 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	Low	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	Low	3	1432 University Ave S

Table 2 (continued)

Contaminant Source Inventory and Risk Ranking for University of Alaska Sources of Bacteria and Viruses

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	Low	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	Low	2	1011 Deere Street
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	Medium	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	Medium	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	Medium	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	Medium	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	Medium	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	Medium	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	Medium	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	Medium	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	Medium	3	3437 Airport Way #205
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	Medium	3	3584 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	Medium	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	Medium	3	3291 Jefferson Drive

Table 3

Contaminant Source Inventory and Risk Ranking for University of Alaska Sources of Nitrates/Nitrites

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Domestic wastewater collection systems (sewer lines or lift stations)	D01		A	Medium	2	Estimated 10 sewer lines in Zone A
Florists	C12	C12-1	A	Low	2	4001 Geist Rd #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	Low	2	4001 Geist Rd #3
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Agricultural chemical sales/storage	C02	C02-1	B	High	2	3048 Riverview Dr
Dry cleaners	C10	C10-1	B	Low	3	3574 Airport Way #B
Dry cleaners	C10	C10-2	B	Low	3	3417 Airport Way
Dry cleaners	C10	C10-3	B	Low	3	3370 Airport Way
Florists	C12	C12-2	B	Low	3	3550 Airport Way #1
Hardware stores	C17	C17-1	B	Low	3	1440 University Ave S
Hardware stores	C17	C17-2	B	Low	3	3605 Rewak Dr
Hardware stores	C17	C17-3	B	Low	3	3455 Rewak Drive
Pharmacies (with on-site wastewater disposal)	C35	C35-1	B	Low	3	3121 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	High	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	High	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	High	2	2207 Hanson Rd
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	High	3	3417 Airport Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Airports	X14	X14-1	B	Low	2	Phillips Field
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	Low	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	Low	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	Low	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	Low	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	Low	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	Low	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	Low	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	Low	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	Low	3	3437 Airport Way #205
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	Low	3	3584 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	Low	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	Low	3	3291 Jefferson Drive

Table 4

Contaminant Source Inventory and Risk Ranking for University of Alaska Sources of Volatile Organic Chemicals

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Domestic wastewater collection systems (sewer lines or lift stations)	D01		A	Low	2	Estimated 10 sewer lines in Zone A
Gasoline stations (without repair shop)	C15	C15-1	A	High	2	4105 Geist Rd
Gasoline stations (with repair shop)	C16	C16-1	A	High	2	4001 Geist Rd
Tanks, diesel (underground)	T08	T08-1	A	High	2	4105 Geist Rd
Tanks, diesel (underground)	T08	T08-2	A	High	2	3800 Geist Rd
Tanks, diesel (underground)	T08	T08-3	A	High	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-1	A	High	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-2	A	High	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-3	A	High	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-4	A	High	2	4001 Geist Rd
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	Low	2	4001 Geist Rd #3
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Body shops (automotive)	C05	C05-1	B	Medium	2	2747 Phillips Field Rd
Car washes with engine or undercarriage cleaning	C08	C08-1	B	High	2	3701 Cameron St
Car washes with engine or undercarriage cleaning	C08	C08-2	B	High	3	1295 University Ave
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-02	B	Low	3	4061 Mallard Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Construction trade areas and materials	C09	C09-05	B	Low	2	2761 Phillips Field Rd
Construction trade areas and materials	C09	C09-06	B	Low	2	2650 Phillips Field Rd
Construction trade areas and materials	C09	C09-07	B	Low	3	1503 Washington Drive
Construction trade areas and materials	C09	C09-08	B	Low	3	1630 Washington Drive
Construction trade areas and materials	C09	C09-09	B	Low	2	990 Deere St #1
Construction trade areas and materials	C09	C09-10	B	Low	2	980 Deere Street
Construction trade areas and materials	C09	C09-11	B	Low	2	923 Deere Street
Construction trade areas and materials	C09	C09-12	B	Low	4	1500 Alaska Way
Construction trade areas and materials	C09	C09-3	B	Low	2	3691 Cameron St
Construction trade areas and materials	C09	C09-4	B	Low	2	3212 Riverview Dr
Dry cleaners	C10	C10-1	B	High	3	3574 Airport Way #B
Dry cleaners	C10	C10-2	B	High	3	3417 Airport Way
Dry cleaners	C10	C10-3	B	High	3	3370 Airport Way
Furniture manufacturing, repair, and finishing shops	C14	C14-1	B	Medium	3	1448 University Ave S
Gasoline stations (without repair shop)	C15	C15-2	B	High	3	3596 Airport Way
Hardware stores	C17	C17-1	B	Low	3	1440 University Ave S
Hardware stores	C17	C17-2	B	Low	3	3605 Rewak Dr
Hardware stores	C17	C17-3	B	Low	3	3455 Rewak Drive
Heavy equipment rental/storage	C18	C18-1	B	Medium	2	3415 Phillips Field Rd
Heavy equipment rental/storage	C18	C18-2	B	Medium	3	1162 Park Drive

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Heavy equipment rental/storage	C18	C18-3	B	Medium	3	3115 Airport Way
Heavy equipment rental/storage	C18	C18-4	B	Medium	2	919 Commerce St
Jewelers	C19	C19-1	B	Low	3	3627 Airport Way
Laboratories (chemical, soils, and research)	C20	C20-1	B	Low	3	4012 Teal Ave
Laboratories (chemical, soils, and research)	C20	C20-2	B	Low	2	600 University Ave #1
Motor /motor vehicle repair shops	C31	C31-1	B	Medium	3	1432 University Ave S
Motor /motor vehicle repair shops	C31	C31-2	B	Medium	2	2910 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-3	B	Medium	2	2626 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-4	B	Medium	3	3449 Airport Way
Motor /motor vehicle repair shops	C31	C31-5	B	Medium	3	3121 Airport Way
Motor /motor vehicle repair shops	C31	C31-6	B	Medium	2	990 Deer ST
Motor /motor vehicle repair shops	C31	C31-7	B	Medium	2	1010 Deere St
Motor /motor vehicle repair shops	C31	C31-8	B	Medium	2	2207 Hanson Rd
Paint sales /service	C32	C32-1	B	Medium	3	1151 Sunset Drive
Pet groomers	C34	C34-1	B	Low	3	1424 University Ave S
Photography supplies/photo processing laboratories	C36	C36-1	B	Medium	2	921 Wood Way
Photography supplies/photo processing laboratories	C36	C36-2	B	Medium	3	3627 Airport Way
Photography supplies/photo processing laboratories	C36	C36-3	B	Medium	3	3419 Airport Way #D
Printers, publishers, copiers	C37	C37-1	B	High	2	954 Wood Way
Printers, publishers, copiers	C37	C37-2	B	High	3	3578 Airport Way #B

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	Low	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	Low	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	Low	2	2207 Hanson Rd
Demolition sites	D20	D20-1	B	High	2	Hanson Road
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	High	3	3417 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	High	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	High	2	2755 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	High	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	High	3	1432 University Ave S
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	High	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	High	2	1011 Deere Street
Metal fabrication	I25	I25-1	B	Medium	2	1010 Deere St
Sign manufacturing	I39	I39-1	B	Medium	2	990 Deere St #3
Tanks, gasoline (underground)	T12	T12-05	B	High	3	1295 University Ave
Tanks, gasoline (underground)	T12	T12-06	B	High	3	3596 Airport Way
Tanks, gasoline (underground)	T12	T12-07	B	High	3	Airport Rd & Marlin
Tanks, gasoline (underground)	T12	T12-08	B	High	2	1011 Deere St

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Tanks, heating oil, nonresidential (underground)	T16	T16-01	B	Low	2	915 University Ave
Tanks, heating oil, nonresidential (underground)	T16	T16-02	B	Low	2	565 University Ave
Tanks, heating oil, nonresidential (underground)	T16	T16-03	B	Low	3	3627 Airport Way
Tanks, heating oil, nonresidential (underground)	T16	T16-04	B	Low	3	3627 Airport Way
Airports	X14	X14-1	B	High	2	Phillips Field
Motor vehicle/general storage yards/facilities	X27	X27-1	B	Low	2	946 Coppet St
Motor vehicle/general storage yards/facilities	X27	X27-2	B	Low	2	1011 Deere ST
Taxi service/maintenance facilities	X34	X34-1	B	Medium	2	2207 Hanson Rd
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	Low	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	Low	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	Low	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	Low	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	Low	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	Low	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	Low	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	Low	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	Low	3	3437 Airport Way #205

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	Low	3	3584 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	Low	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	Low	3	3291 Jefferson Drive

Table 5

Contaminant Source Inventory and Risk Ranking for University of Alaska

Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Domestic wastewater collection systems (sewer lines or lift stations)	D01		A	Low	2	Estimated 10 sewer lines in Zone A
Florists	C12	C12-1	A	Low	2	4001 Geist Rd #4
Gasoline stations (without repair shop)	C15	C15-1	A	Low	2	4105 Geist Rd
Gasoline stations (with repair shop)	C16	C16-1	A	Low	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-1	A	Medium	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-2	A	Medium	2	4105 Geist Rd
Tanks, gasoline (underground)	T12	T12-3	A	Medium	2	4001 Geist Rd
Tanks, gasoline (underground)	T12	T12-4	A	Medium	2	4001 Geist Rd
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	Low	2	4001 Geist Rd #3
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Agricultural chemical sales/storage	C02	C02-1	B	Low	2	3048 Riverview Dr
Body shops (automotive)	C05	C05-1	B	Medium	2	2747 Phillips Field Rd
Car washes with engine or undercarriage cleaning	C08	C08-1	B	Medium	2	3701 Cameron St
Car washes with engine or undercarriage cleaning	C08	C08-2	B	Medium	3	1295 University Ave
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-02	B	Low	3	4061 Mallard Way
Construction trade areas and materials	C09	C09-05	B	Low	2	2761 Phillips Field Rd

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Construction trade areas and materials	C09	C09-06	B	Low	2	2650 Phillips Field Rd
Construction trade areas and materials	C09	C09-07	B	Low	3	1503 Washington Drive
Construction trade areas and materials	C09	C09-08	B	Low	3	1630 Washington Drive
Construction trade areas and materials	C09	C09-09	B	Low	2	990 Deere St #1
Construction trade areas and materials	C09	C09-10	B	Low	2	980 Deere Street
Construction trade areas and materials	C09	C09-11	B	Low	2	923 Deere Street
Construction trade areas and materials	C09	C09-12	B	Low	4	1500 Alaska Way
Construction trade areas and materials	C09	C09-3	B	Low	2	3691 Cameron St
Construction trade areas and materials	C09	C09-4	B	Low	2	3212 Riverview Dr
Florists	C12	C12-2	B	Low	3	3550 Airport Way #1
Furniture manufacturing, repair, and finishing shops	C14	C14-1	B	Low	3	1448 University Ave S
Gasoline stations (without repair shop)	C15	C15-2	B	Low	3	3596 Airport Way
Hardware stores	C17	C17-1	B	Low	3	1440 University Ave S
Hardware stores	C17	C17-2	B	Low	3	3605 Rewak Dr
Hardware stores	C17	C17-3	B	Low	3	3455 Rewak Drive
Heavy equipment rental/storage	C18	C18-1	B	Low	2	3415 Phillips Field Rd
Heavy equipment rental/storage	C18	C18-2	B	Low	3	1162 Park Drive
Heavy equipment rental/storage	C18	C18-3	B	Low	3	3115 Airport Way
Heavy equipment rental/storage	C18	C18-4	B	Low	2	919 Commerce St
Jewelers	C19	C19-1	B	Low	3	3627 Airport Way

Contaminant Source Inventory and Risk Ranking for University of Alaska

Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Laboratories (chemical, soils, and research)	C20	C20-1	B	Low	3	4012 Teal Ave
Laboratories (chemical, soils, and research)	C20	C20-2	B	Low	2	600 University Ave #1
Motor /motor vehicle repair shops	C31	C31-1	B	Medium	3	1432 University Ave S
Motor /motor vehicle repair shops	C31	C31-2	B	Medium	2	2910 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-3	B	Medium	2	2626 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-4	B	Medium	3	3449 Airport Way
Motor /motor vehicle repair shops	C31	C31-5	B	Medium	3	3121 Airport Way
Motor /motor vehicle repair shops	C31	C31-6	B	Medium	2	990 Deer ST
Motor /motor vehicle repair shops	C31	C31-7	B	Medium	2	1010 Deere St
Motor /motor vehicle repair shops	C31	C31-8	B	Medium	2	2207 Hanson Rd
Paint sales /service	C32	C32-1	B	Low	3	1151 Sunset Drive
Pharmacies (with on-site wastewater disposal)	C35	C35-1	B	Low	3	3121 Airport Way
Photography supplies/photo processing laboratories	C36	C36-1	B	Medium	2	921 Wood Way
Photography supplies/photo processing laboratories	C36	C36-2	B	Medium	3	3627 Airport Way
Photography supplies/photo processing laboratories	C36	C36-3	B	Medium	3	3419 Airport Way #D
Printers, publishers, copiers	C37	C37-1	B	Medium	2	954 Wood Way
Printers, publishers, copiers	C37	C37-2	B	Medium	3	3578 Airport Way #B
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	Low	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	Low	3	3098 Airport Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	Low	2	2207 Hanson Rd
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	High	3	3417 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	High	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	High	2	2755 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	High	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	High	3	1432 University Ave S
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	High	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	High	2	1011 Deere Street
Recycling and waste reduction facilities	D57	D57-1	B	High	2	2755 Phillips Field Rd
Metal fabrication	I25	I25-1	B	Low	2	1010 Deere St
Sign manufacturing	I39	I39-1	B	Medium	2	990 Deere St #3
Tanks, gasoline (underground)	T12	T12-05	B	Medium	3	1295 University Ave
Tanks, gasoline (underground)	T12	T12-06	B	Medium	3	3596 Airport Way
Tanks, gasoline (underground)	T12	T12-07	B	Medium	3	Airport Rd & Marlin
Tanks, gasoline (underground)	T12	T12-08	B	Medium	2	1011 Deere St
Tanks, heating oil, nonresidential (underground)	T16	T16-01	B	Low	2	915 University Ave
Tanks, heating oil, nonresidential (underground)	T16	T16-02	B	Low	2	565 University Ave

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Tanks, heating oil, nonresidential (underground)	T16	T16-03	B	Low	3	3627 Airport Way
Tanks, heating oil, nonresidential (underground)	T16	T16-04	B	Low	3	3627 Airport Way
Airports	X14	X14-1	B	Low	2	Phillips Field
Taxi service/maintenance facilities	X34	X34-1	B	Low	2	2207 Hanson Rd
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	Low	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	Low	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	Low	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	Low	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	Low	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	Low	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	Low	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	Low	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	Low	3	3437 Airport Way #205
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	Low	3	3584 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	Low	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	Low	3	3291 Jefferson Drive

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*

Table 6

Contaminant Source Inventory and Risk Ranking for University of Alaska Sources of Synthetic Organic Chemicals

PWSID 310683.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Domestic wastewater collection systems (sewer lines or lift stations)	D01		A	Low	2	Estimated 10 sewer lines in Zone A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-01	A	Low	2	4001 Geist Rd #3
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Agricultural chemical sales/storage	C02	C02-1	B	High	2	3048 Riverview Dr
Furniture manufacturing, repair, and finishing shops	C14	C14-1	B	Medium	3	1448 University Ave S
Paint sales /service	C32	C32-1	B	Low	3	1151 Sunset Drive
Pet groomers	C34	C34-1	B	Low	3	1424 University Ave S
Photography supplies/photo processing laboratories	C36	C36-1	B	Low	2	921 Wood Way
Photography supplies/photo processing laboratories	C36	C36-2	B	Low	3	3627 Airport Way
Photography supplies/photo processing laboratories	C36	C36-3	B	Low	3	3419 Airport Way #D
Printers, publishers, copiers	C37	C37-1	B	Low	2	954 Wood Way
Printers, publishers, copiers	C37	C37-2	B	Low	3	3578 Airport Way #B
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	Low	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	Low	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	Low	2	2207 Hanson Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	Low	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	Low	2	2755 Phillips Field Rd

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	Low	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	Low	3	1432 University Ave S
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	Low	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	Low	2	1011 Deere Street
Airports	X14	X14-1	B	Medium	2	Phillips Field
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-02	B	Low	2	3745 Geist Rd #1
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-03	B	Low	2	3691 Cameron St #101
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-04	B	Low	2	615 University Ave
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-05	B	Low	2	600 University Ave #4
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-06	B	Low	2	570 University Ave #A
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-07	B	Low	2	3350 Thomas St
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-08	B	Low	3	3433 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-09	B	Low	3	3487 Airport Way
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-10	B	Low	3	3437 Airport Way #205
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-11	B	Low	3	3584 Airport Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-12	B	Low	3	3112 Airport Way #2
Medical/veterinary facilities (doctor or dentist offices, hospitals, nursing homes)	X40	X40-13	B	Low	3	3291 Jefferson Drive

Table 7

Contaminant Source Inventory and Risk Ranking for University of Alaska

Sources of Other Organic Chemicals

PWSID 310683.001

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		A	Low	2	Estimated 10 sewer lines in Zone A
Residential Areas	R01		A	Low	2	Approximately 25 acres of residential area in Zone A
Gasoline stations (without repair shop)	C15	C15-1	A	Low	2	4105 Geist Rd
Gasoline stations (with repair shop)	C16	C16-1	A	Medium	2	4001 Geist Rd
Residential Areas	R01		B	Low	2,3	Approximately 200 acres of residential area in Zone B
Body shops (automotive)	C05	C05-1	B	Medium	2	2747 Phillips Field Rd
Car washes with engine or undercarriage cleaning	C08	C08-1	B	Medium	2	3701 Cameron St
Car washes with engine or undercarriage cleaning	C08	C08-2	B	Medium	3	1295 University Ave
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-01	B	Low	3	4031 Marsha Way
Construction trade areas and materials	C09	C09-02	B	Low	3	4061 Mallard Way
Construction trade areas and materials	C09	C09-05	B	Low	2	2761 Phillips Field Rd
Construction trade areas and materials	C09	C09-06	B	Low	2	2650 Phillips Field Rd
Construction trade areas and materials	C09	C09-07	B	Low	3	1503 Washington Drive
Construction trade areas and materials	C09	C09-08	B	Low	3	1630 Washington Drive
Construction trade areas and materials	C09	C09-09	B	Low	2	990 Deere St #1
Construction trade areas and materials	C09	C09-10	B	Low	2	980 Deere Street
Construction trade areas and materials	C09	C09-11	B	Low	2	923 Deere Street
Construction trade areas and materials	C09	C09-12	B	Low	4	1500 Alaska Way
Construction trade areas and materials	C09	C09-3	B	Low	2	3691 Cameron St

Contaminant Source Inventory and Risk Ranking for University of Alaska

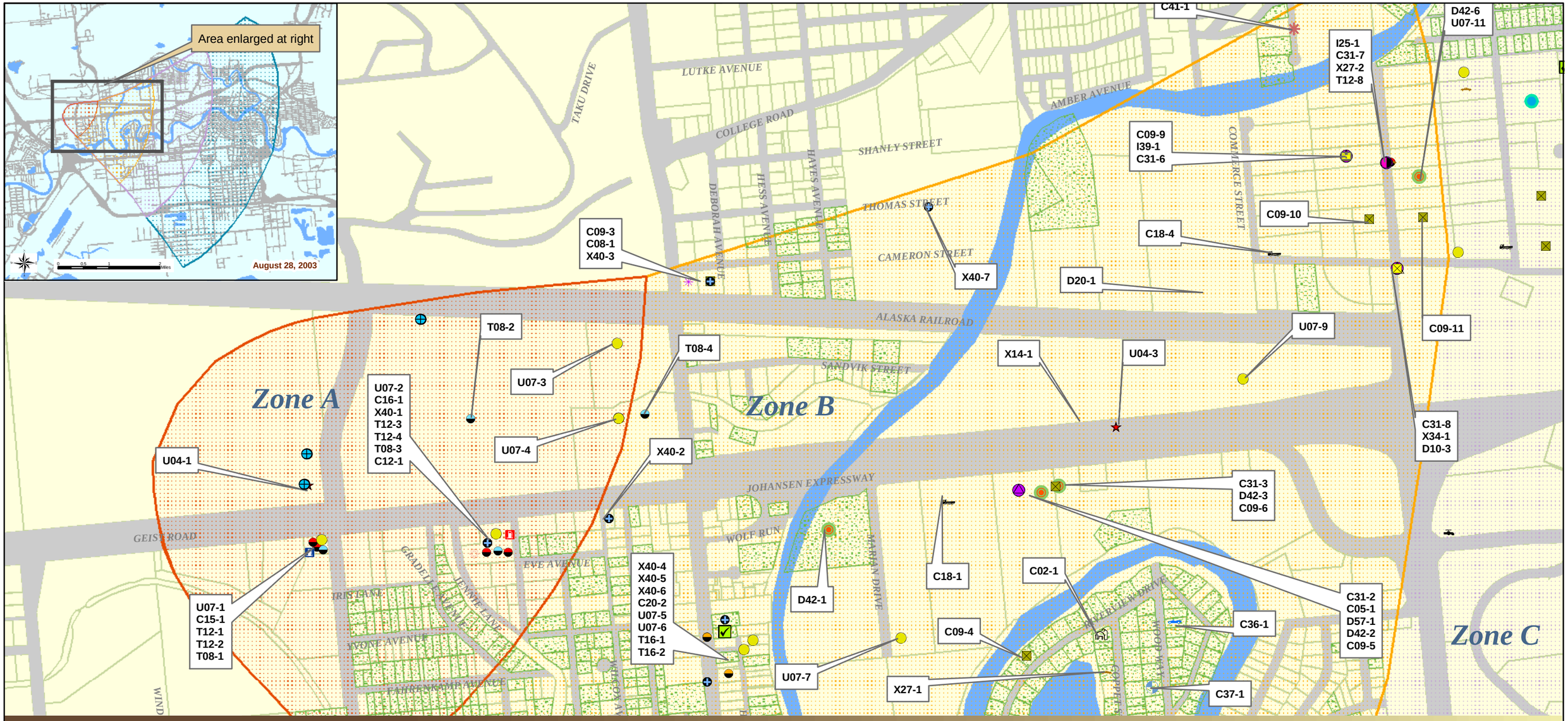
Sources of Other Organic Chemicals

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Construction trade areas and materials	C09	C09-4	B	Low	2	3212 Riverview Dr
Furniture manufacturing, repair, and finishing shops	C14	C14-1	B	Medium	3	1448 University Ave S
Gasoline stations (without repair shop)	C15	C15-2	B	Low	3	3596 Airport Way
Hardware stores	C17	C17-1	B	Low	3	1440 University Ave S
Hardware stores	C17	C17-2	B	Low	3	3605 Rewak Dr
Hardware stores	C17	C17-3	B	Low	3	3455 Rewak Drive
Heavy equipment rental/storage	C18	C18-1	B	Medium	2	3415 Phillips Field Rd
Heavy equipment rental/storage	C18	C18-2	B	Medium	3	1162 Park Drive
Heavy equipment rental/storage	C18	C18-3	B	Medium	3	3115 Airport Way
Heavy equipment rental/storage	C18	C18-4	B	Medium	2	919 Commerce St
Motor /motor vehicle repair shops	C31	C31-1	B	Medium	3	1432 University Ave S
Motor /motor vehicle repair shops	C31	C31-2	B	Medium	2	2910 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-3	B	Medium	2	2626 Phillips Field Rd
Motor /motor vehicle repair shops	C31	C31-4	B	Medium	3	3449 Airport Way
Motor /motor vehicle repair shops	C31	C31-5	B	Medium	3	3121 Airport Way
Motor /motor vehicle repair shops	C31	C31-6	B	Medium	2	990 Deer ST
Motor /motor vehicle repair shops	C31	C31-7	B	Medium	2	1010 Deere St
Motor /motor vehicle repair shops	C31	C31-8	B	Medium	2	2207 Hanson Rd
Photography supplies/photo processing laboratories	C36	C36-1	B	Low	2	921 Wood Way
Photography supplies/photo processing laboratories	C36	C36-2	B	Low	3	3627 Airport Way

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Photography supplies/photo processing laboratories	C36	C36-3	B	Low	3	3419 Airport Way #D
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-1	B	Low	3	1295 University Ave
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-2	B	Low	3	3098 Airport Way
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-3	B	Low	2	2207 Hanson Rd
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-1	B	High	3	3417 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	B	Medium	2	3415 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-2	B	Medium	2	2755 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-3	B	Medium	2	2626 Phillips Field Rd
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-4	B	Medium	3	1432 University Ave S
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-5	B	Medium	3	3449 Airport Way
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-6	B	Medium	2	1011 Deere Street
Metal fabrication	I25	I25-1	B	Medium	2	1010 Deere St
Airports	X14	X14-1	B	Medium	2	Phillips Field
Motor vehicle/general storage yards/facilities	X27	X27-1	B	Low	2	946 Coppet St
Motor vehicle/general storage yards/facilities	X27	X27-2	B	Low	2	1011 Deere ST
Taxi service/maintenance facilities	X34	X34-1	B	Medium	2	2207 Hanson Rd

APPENDIX C

University of Alaska
Drinking Water Protection Area
and Potential and Existing Contaminant Sources
(Map 2 - 5)



Map 2: Potential Contaminant Sources

PWSID: 310683

Alaska Department of Environmental Conservation

Alaska Drinking Water Protection Program

0 350 700 1,400 2,100 Feet

1:8,400

Data Sources:

Parcel, roads - Fairbanks North Star Borough
Water bodies, railroad - Geographic Data Technology
Elevation contours - USGS digital elevation models (DEMs)

Legend

- D20, Demolition site
- D52, Industrial landfill
- X14, Airport
- R01, Residential area
- A10, Orchards or nurseries
- C05, Body shops (automotive)
- C08, Car washes with undercarriage cleaning
- C09, Construction trade areas
- C10, Dry cleaners
- C12, Florists
- C14, Furniture manufacturing and repair shops
- C15, Gasoline stations
- C16, Gasoline stations (with repair shop)
- C17, Hardware stores
- C18, Heavy equipment storage
- C19, Jewelers
- C2, Agricultural chemicals storage
- C20, Laboratories
- C25, Lubrication shops
- C27, Motor vehicle dealerships (with service dept)
- C31, Motor vehicle repair shops
- C32, Paint sales /service
- C34, Pet groomers
- C35, Pharmacies
- C36, Photography supplies
- C37, Printers, publishers, copiers
- C41, Taxidermists
- C43, Welding shops
- D10,Large-Capacity Septic System
- D40, Industrial Process Water Disposal Wells
- D42, Motor Vehicle Waste Disposal wells
- D57, Recycling facilities
- I25, Metal fabrication
- I3, Asphalt storage
- I36, Plastics manufacturing
- I39, Sign manufacturing
- I44, Tanneries
- I7, Beverage industry
- I8, Cement manufacturing
- R08, Residential heating oil ASTs
- Residential heating oi USTs
- Diesel ASTs
- Diesel USTs
- Gasoline USTs
- Heating oil USTs
- U04, Contaminated sites, DEC recognized
- U07, Open LUST Sites
- U08, Closed LUST Sites
- X19, Government vehicle maintenance facilities
- X27, General storage yards
- X34, Taxi maintenance facilities
- X35, Campgrounds/RV Parks
- X38, Firehouses
- X40, Medical/veterinary facilities

Map 3: Potential Contaminant Sources

PWSID: 310683

Alaska Department of Environmental Conservation

Alaska Drinking Water Protection Program

0 362.5 725 1,450 Feet

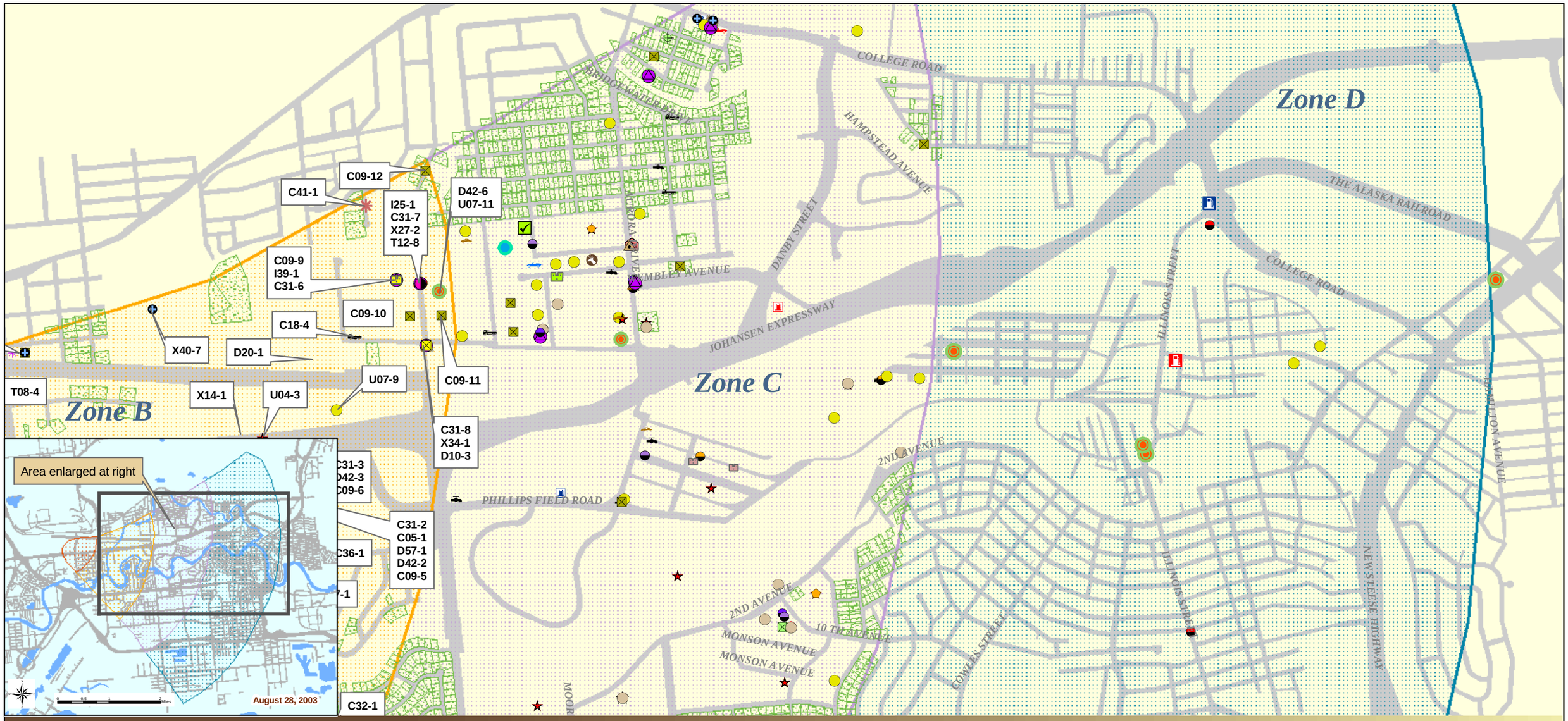
1:8,700

Data Sources:

Parcel, roads - Fairbanks North Star Borough
Water bodies, railroad - Geographic Data Technology
Elevation contours - USGS digital elevation models (DEMs)

Legend

- D20, Demolition site
- D52, Industrial landfill
- X14, Airport
- R01, Residential area
- A10, Orchards or nurseries
- C05, Body shops (automotive)
- C08, Car washes with undercarriage cleaning
- C09, Construction trade areas
- C10, Dry cleaners
- C12, Florists
- C14, Furniture manufacturing and repair shops
- C15, Gasoline stations
- C16, Gasoline stations (with repair shop)
- C17, Hardware stores
- C18, Heavy equipment storage
- C19, Jewelers
- C2, Agricultural chemicals storage
- C20, Laboratories
- C25, Lubrication shops
- C27, Motor vehicle dealerships (with service dept)
- C31, Motor vehicle repair shops
- C32, Paint sales /service
- C34, Pet groomers
- C35, Pharmacies
- C36, Photography supplies
- C37, Printers, publishers, copiers
- C41, Taxidermists
- C43, Welding shops
- D10,Large-Capacity Septic System
- D40, Industrial Process Water Disposal Wells
- D42, Motor Vehicle Waste Disposal wells
- D57, Recycling facilities
- I25, Metal fabrication
- I3, Asphalt storage
- I36, Plastics manufacturing
- I39, Sign manufacturing
- I44, Tanneries
- I7, Beverage industry
- I8, Cement manufacturing
- R08, Residential heating oil ASTs
- Residential heating oi USTs
- Diesel ASTs
- Diesel USTs
- Gasoline USTs
- Heating oil USTs
- U04, Contaminated sites, DEC recognized
- U07, Open LUST Sites
- U08, Closed LUST Sites
- X19, Government vehicle maintenance facilities
- X27, General storage yards
- X34, Taxi maintenance facilities
- X35, Campgrounds/RV Parks
- X38, Firehouses
- X40, Medical/veterinary facilities



Map 4: Potential Contaminant Sources

PWSID: 310683

Alaska Department of Environmental Conservation

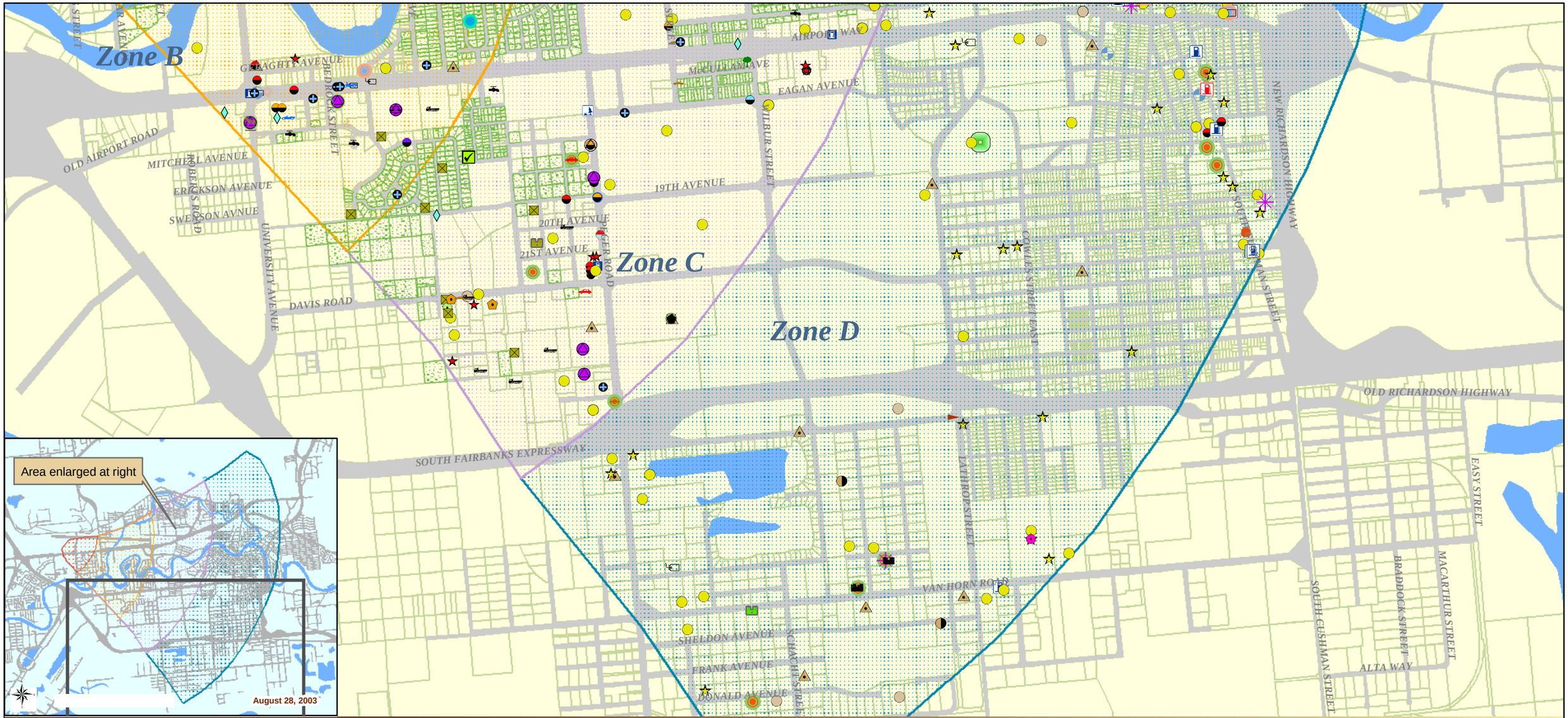
Alaska Drinking Water Protection Program

Data Sources:

Parcel, roads - Fairbanks North Star Borough
Water bodies, railroad - Geographic Data Technology
Elevation contours - USGS digital elevation models (DEMs)

Legend

- D20, Demolition site
- D52, Industrial landfill
- X14, Airport
- R01, Residential area
- A10, Orchards or nurseries
- C05, Body shops (automotive)
- C08, Car washes with undercarriage cleaning
- C09, Construction trade areas
- C10, Dry cleaners
- C12, Florists
- C14, Furniture manufacturing and repair shops
- C15, Gasoline stations
- C16, Gasoline stations (with repair shop)
- C17, Hardware stores
- C18, Heavy equipment storage
- C19, Jewelers
- C2, Agricultural chemicals storage
- C20, Laboratories
- C25, Lubrication shops
- C27, Motor vehicle dealerships (with service dept)
- C31, Motor vehicle repair shops
- C32, Paint sales /service
- C34, Pet groomers
- C35, Pharmacies
- C36, Photography supplies
- C37, Printers, publishers, copiers
- C41, Taxidermists
- C43, Welding shops
- D10,Large-Capacity Septic System
- D40, Industrial Process Water Disposal Wells
- D42, Motor Vehicle Waste Disposal wells
- D57, Recycling facilities
- I25, Metal fabrication
- I3, Asphalt storage
- I36, Plastics manufacturing
- I39, Sign manufacturing
- I44, Tanneries
- I7, Beverage industry
- I8, Cement manufacturing
- R08, Residential heating oil ASTs
- Residential heating oi USTs
- Diesel ASTs
- Diesel USTs
- Gasoline USTs
- Heating oil USTs
- U04, Contaminated sites, DEC recognized
- U07, Open LUST Sites
- U08, Closed LUST Sites
- X19, Government vehicle maintenance facilities
- X27, General storage yards
- X34, Taxi maintenance facilities
- X35, Campgrounds/RV Parks
- X38, Firehouses
- X40, Medical/veterinary facilities



Map 5: Potential Contaminant Sources

PWSID: 310683

Alaska Department of Environmental Conservation

Alaska Drinking Water Protection Program

1:18,000

Data Sources:

Parcel, roads - Fairbanks North Star Borough
Water bodies, railroad - Geographic Data Technology
Elevation contours - USGS digital elevation models (DEMs)

Legend

- D20, Demolition site
- D52, Industrial landfill
- X14, Airport
- R01, Residential area
- A10, Orchards or nurseries
- C05, Body shops (automotive)
- C08, Car washes with undercarriage cleaning
- C09, Construction trade areas
- C10, Dry cleaners
- C12, Florists
- C14, Furniture manufacturing and repair shops
- C15, Gasoline stations
- C16, Gasoline stations (with repair shop)
- C17, Hardware stores
- C18, Heavy equipment storage
- C19, Jewelers
- C2, Agricultural chemicals storage
- C20, Laboratories
- C25, Lubrication shops
- C27, Motor vehicle dealerships (with service dept)
- C31, Motor vehicle repair shops
- C32, Paint sales /service
- C34, Pet groomers
- C35, Pharmacies
- C36, Photography supplies
- C37, Printers, publishers, copiers
- C41, Taxidermists
- C43, Welding shops
- D10,Large-Capacity Septic System
- D40, Industrial Process Water Disposal Wells
- D42, Motor Vehicle Waste Disposal wells
- D57, Recycling facilities
- I25, Metal fabrication
- I3, Asphalt storage
- I36, Plastics manufacturing
- I39, Sign manufacturing
- I44, Tanneries
- I7, Beverage industry
- I8, Cement manufacturing
- R08, Residential heating oil ASTs
- Residential heating oi USTs
- Diesel ASTs
- Diesel USTs
- Gasoline USTs
- Heating oil USTs
- U04, Contaminated sites, DEC recognized
- U07, Open LUST Sites
- U08, Closed LUST Sites
- X19, Government vehicle maintenance facilities
- X27, General storage yards
- X34, Taxi maintenance facilities
- X35, Campgrounds/RV Parks
- X38, Firehouses
- X40, Medical/veterinary facilities

APPENDIX D

Vulnerability Analysis for University of Alaska Public Drinking Water Source

(Charts 1-14)

Chart 1. Susceptibility of the wellhead - University of Alaska

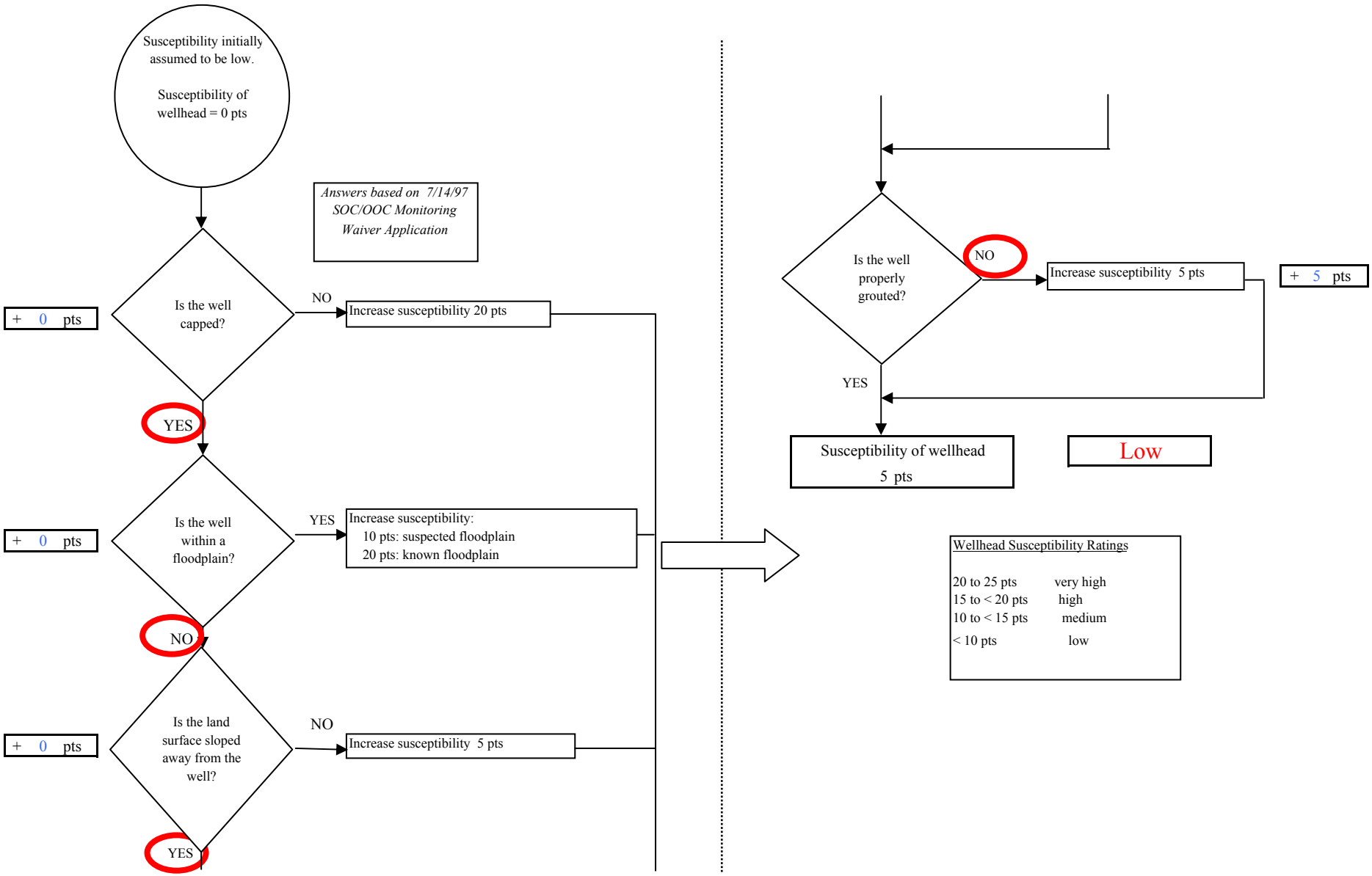


Chart 2. Susceptibility of the aquifer - University of Alaska

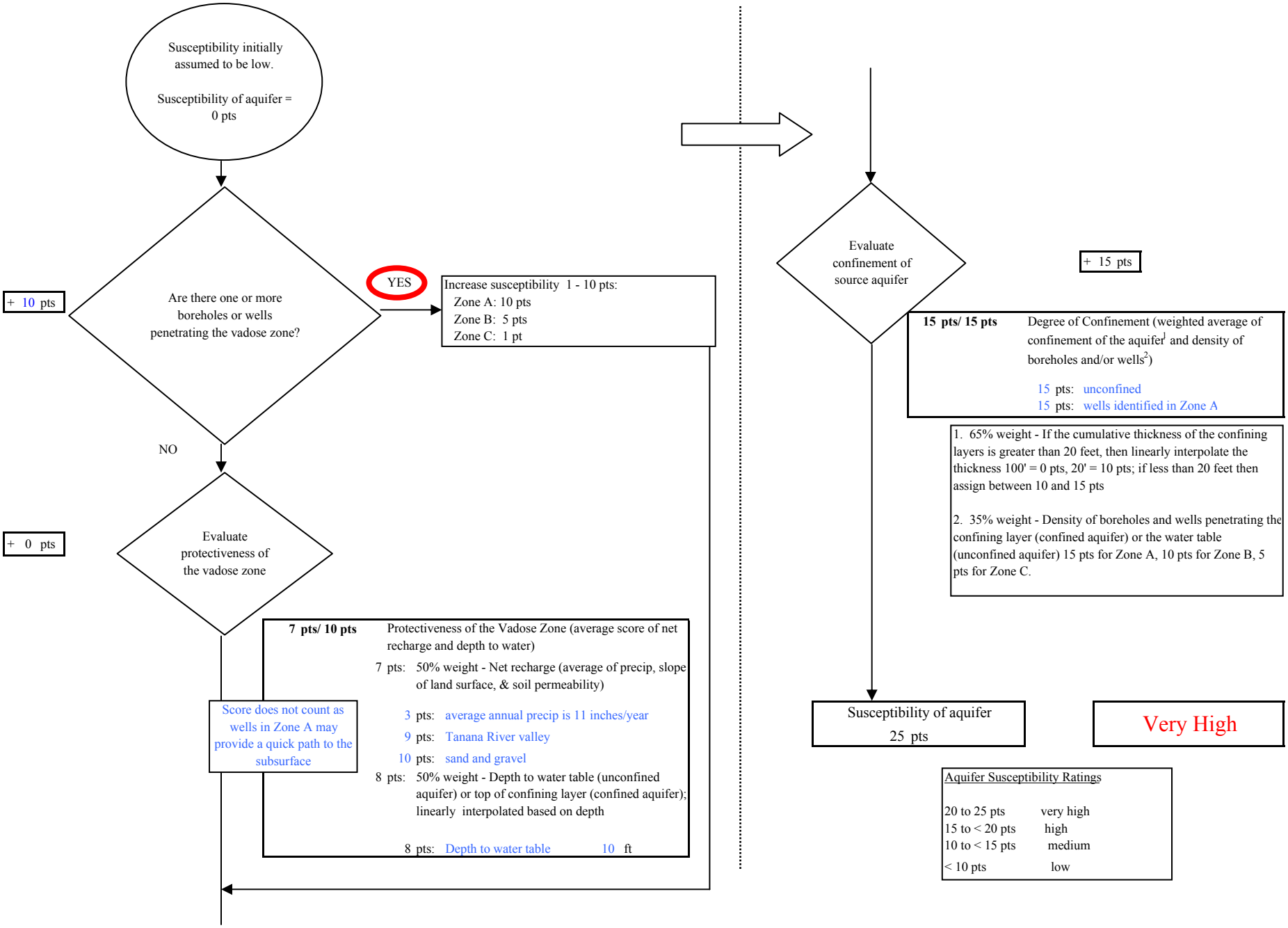
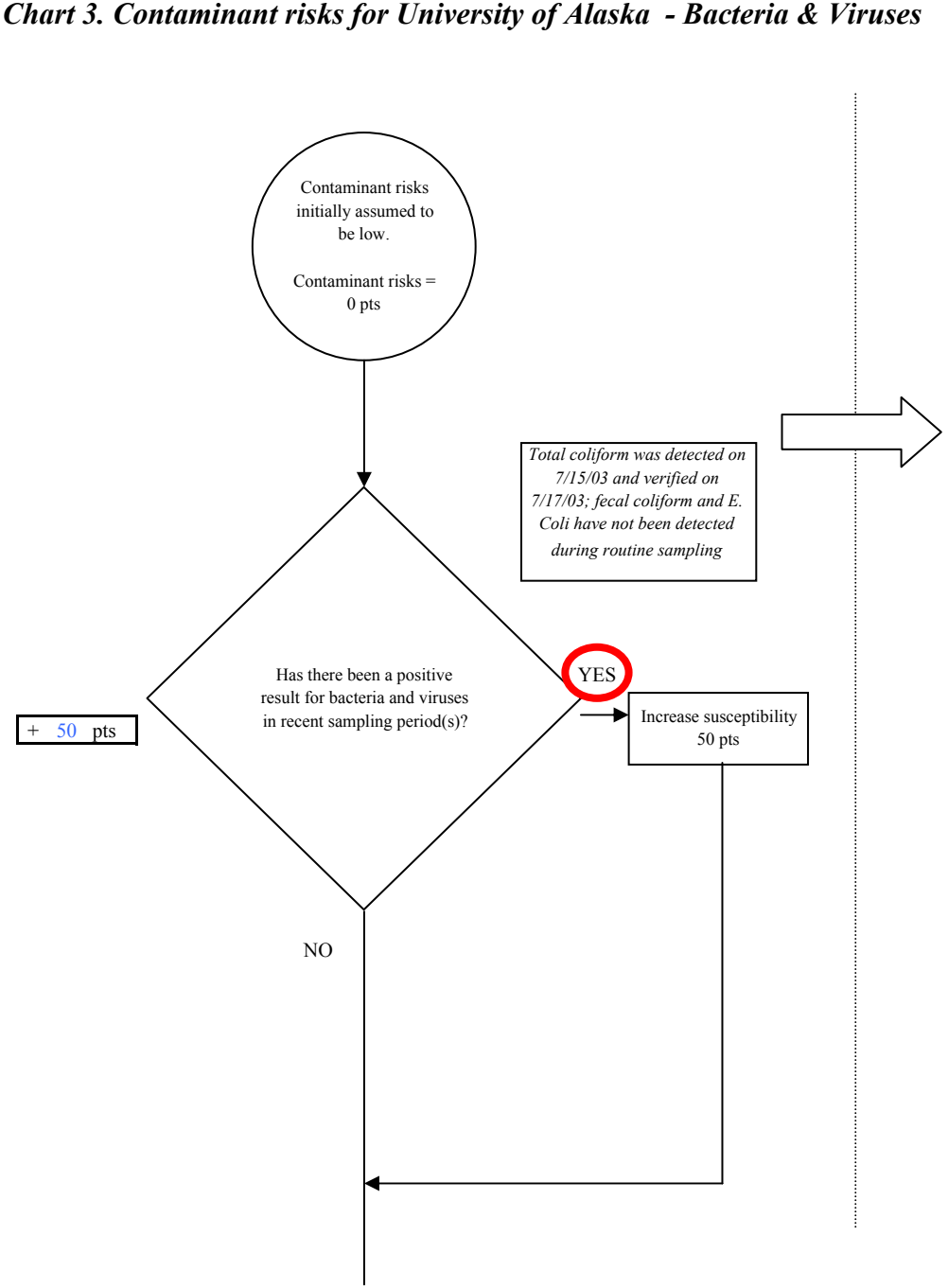
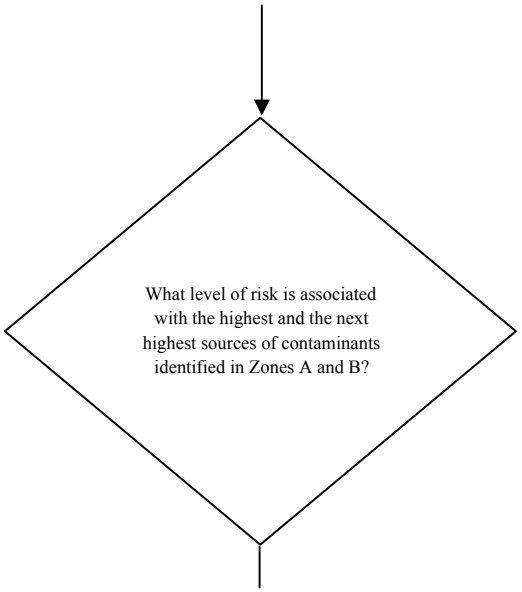


Chart 3. Contaminant risks for University of Alaska - Bacteria & Viruses





+ 40 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	4	4
Medium(s)	2	12	14
Low(s)	1	12	13

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

Matrix Score 40

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 University of Alaska - Bacteria & Viruses

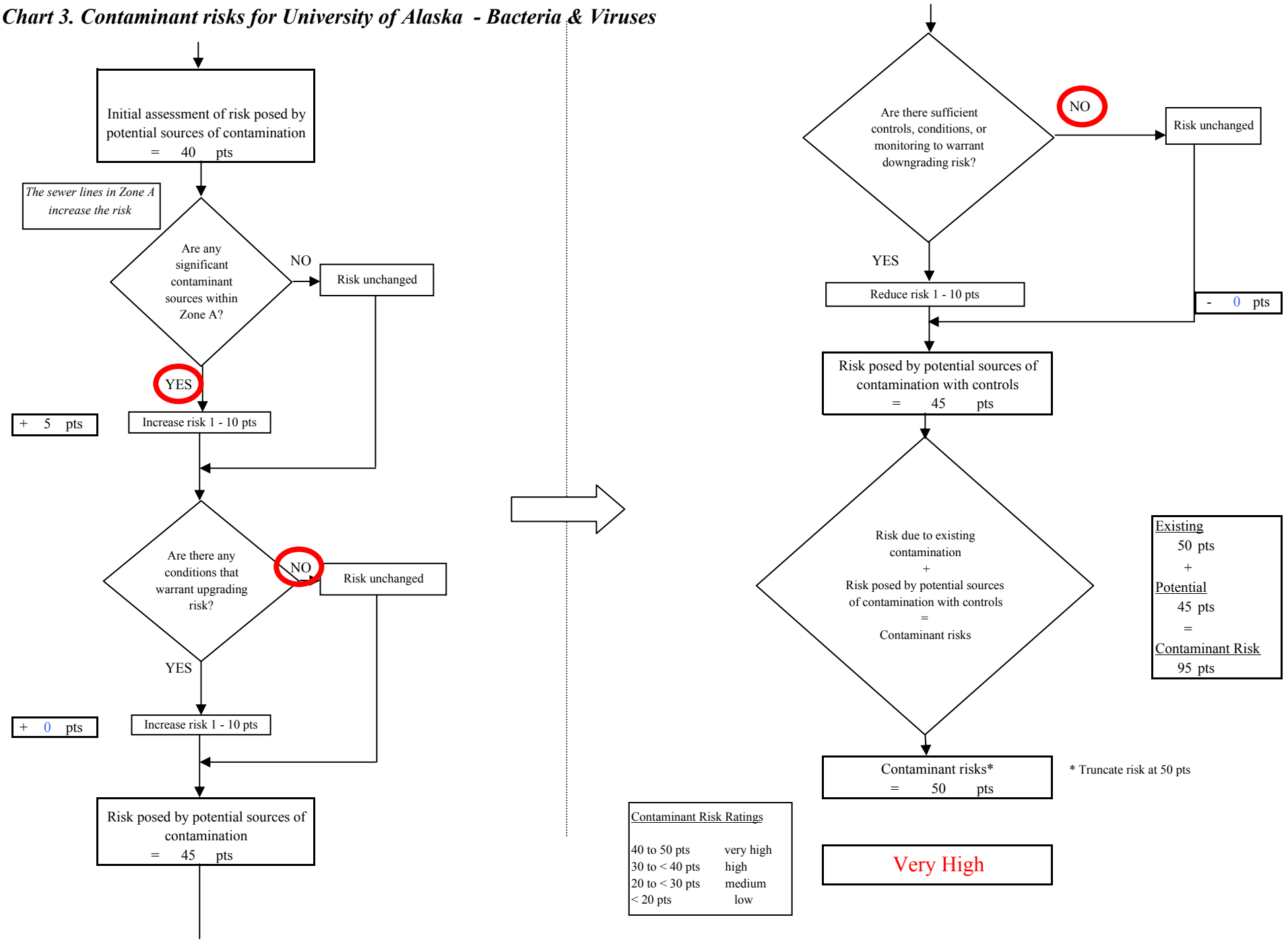


Chart 4. Vulnerability analysis for University of Alaska - Bacteria & Viruses

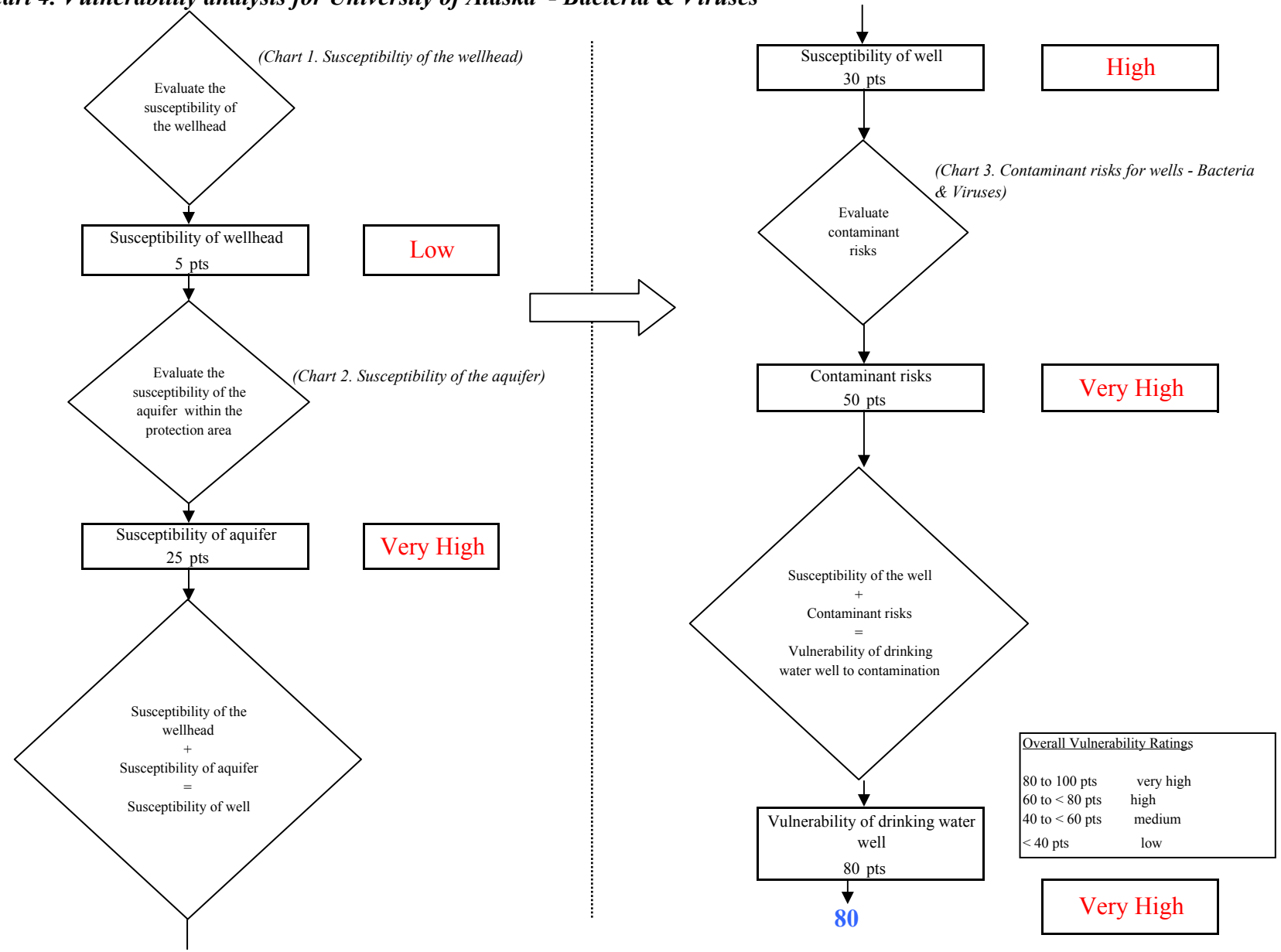


Chart 5. Contaminant risks for University of Alaska - Nitrates and Nitrites

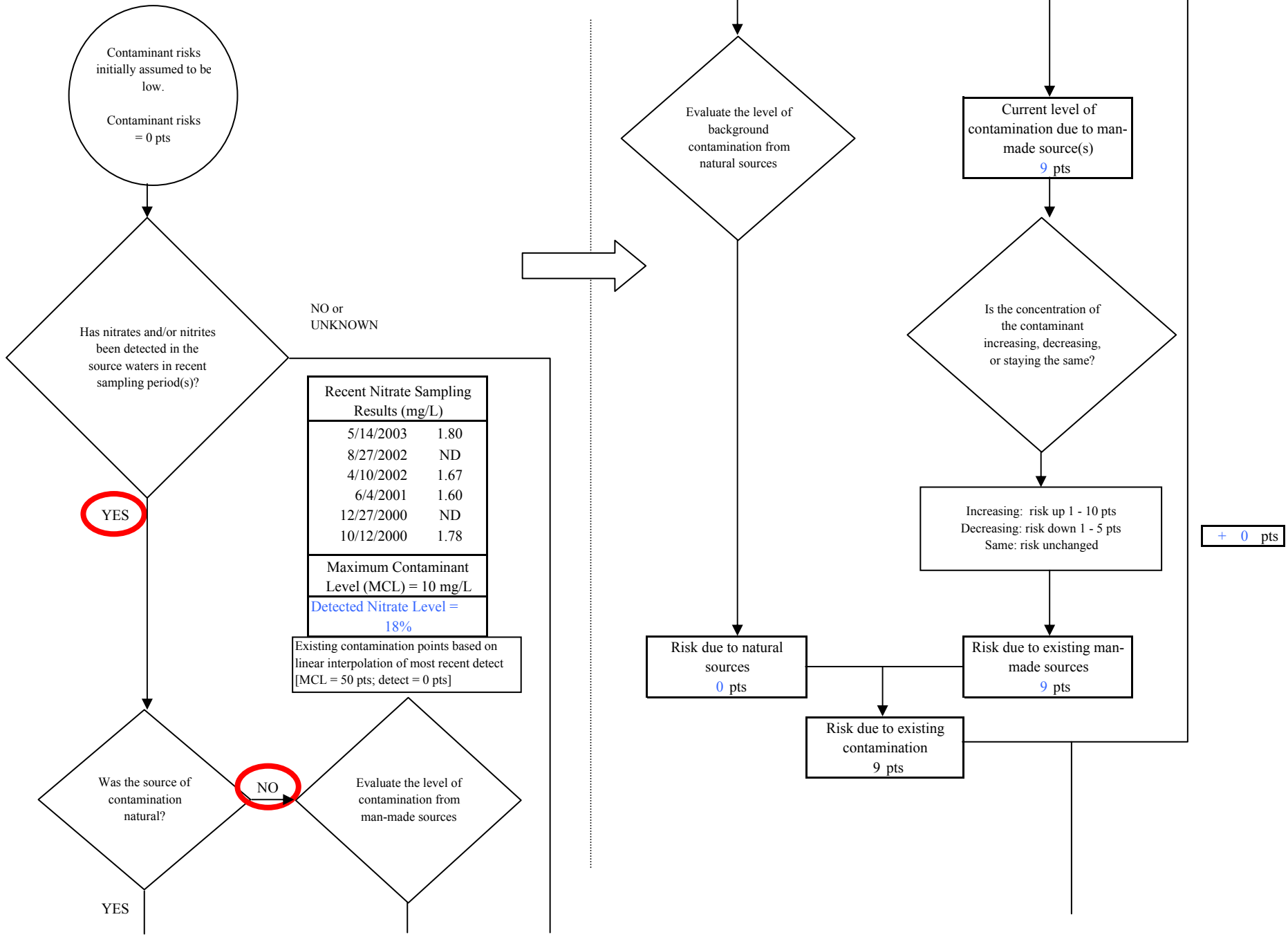


Chart 5. Contaminant risks for University of Alaska - Nitrates and Nitrites

+ 40 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?

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	5	5
Medium(s)	1	0	1
Low(s)	3	23	26

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

Matrix Score 40

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.

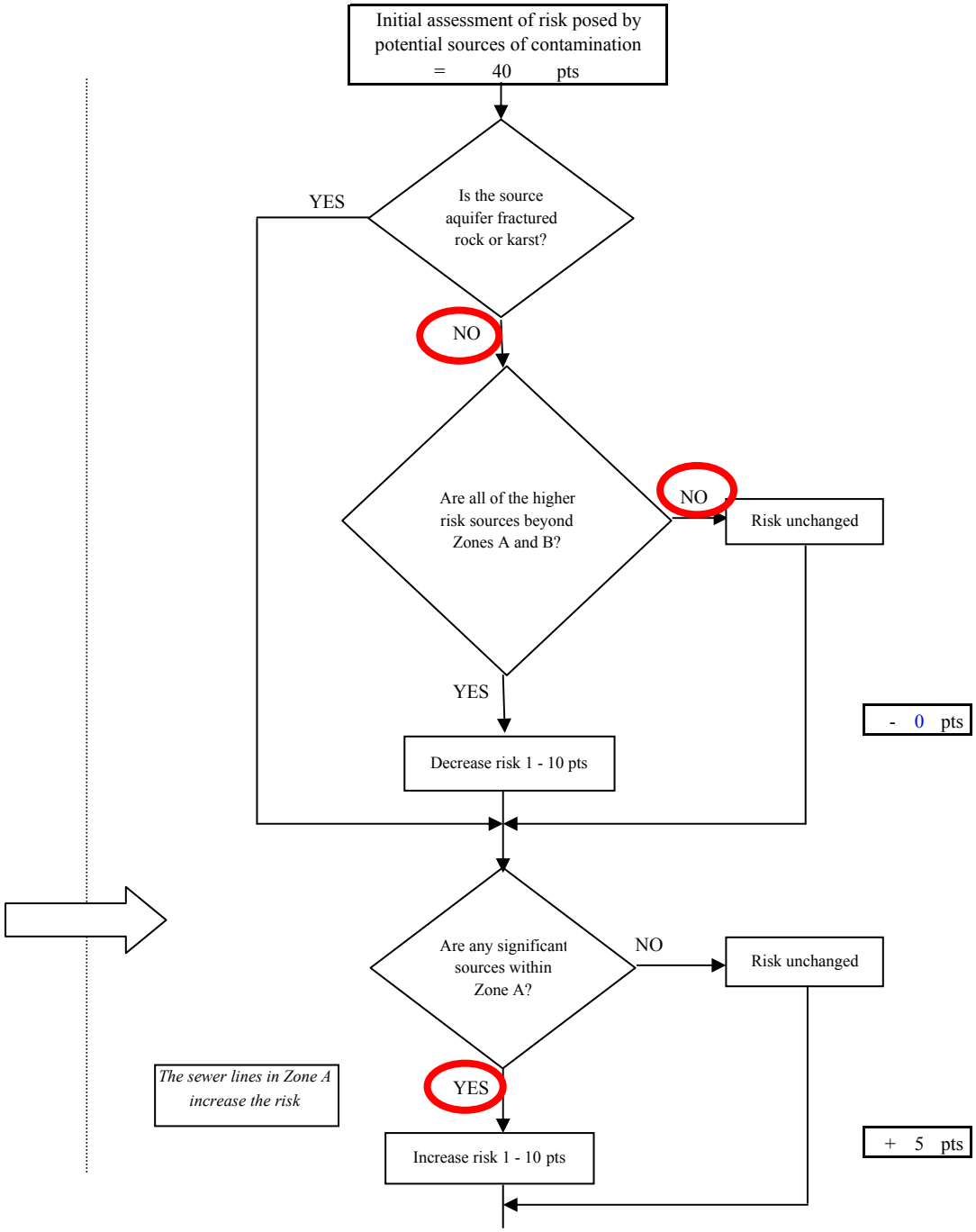


Chart 5. Contaminant risks for University of Alaska - Nitrates and Nitrites

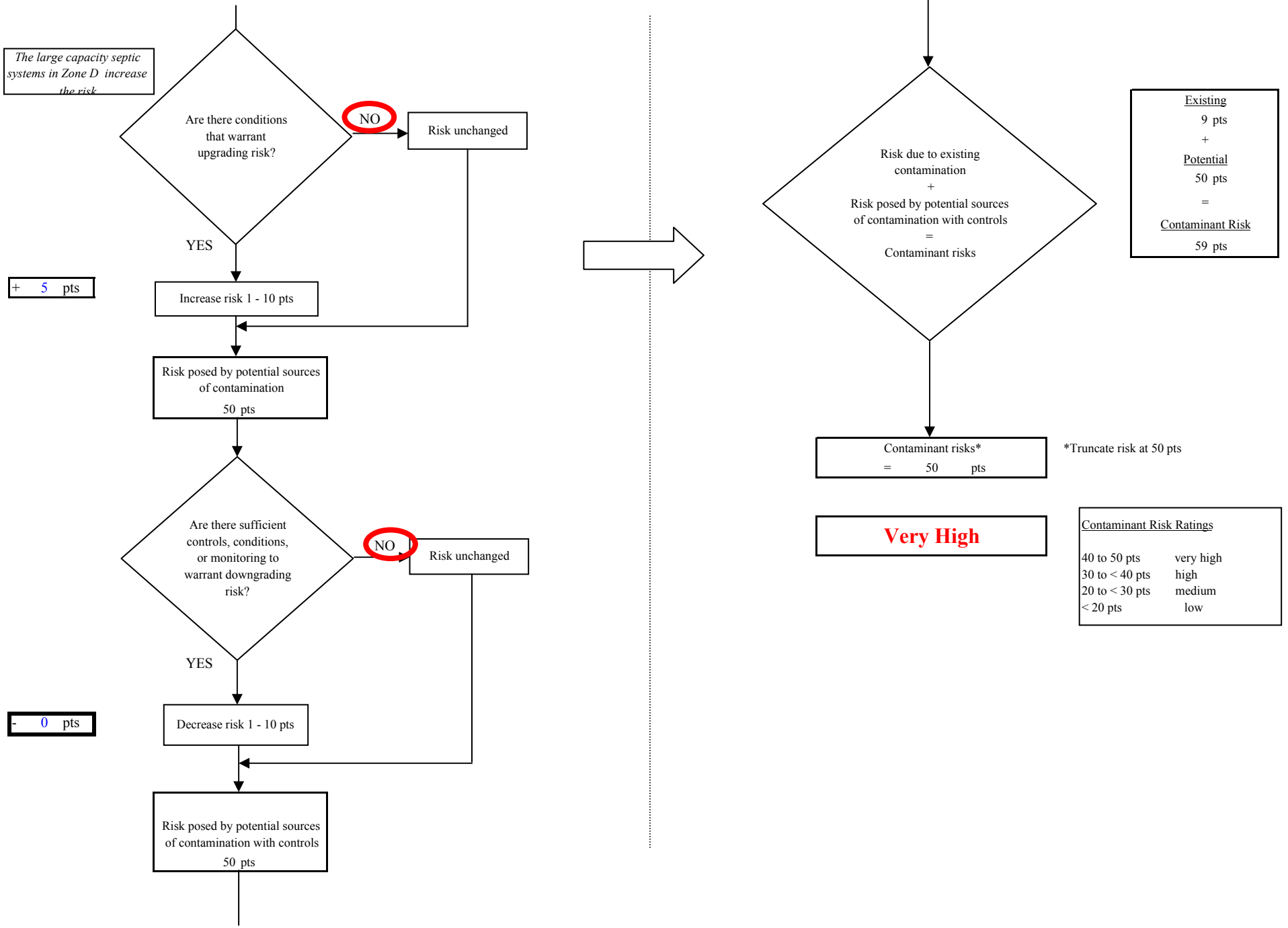


Chart 6. Vulnerability analysis for University of Alaska - Nitrates and Nitrites

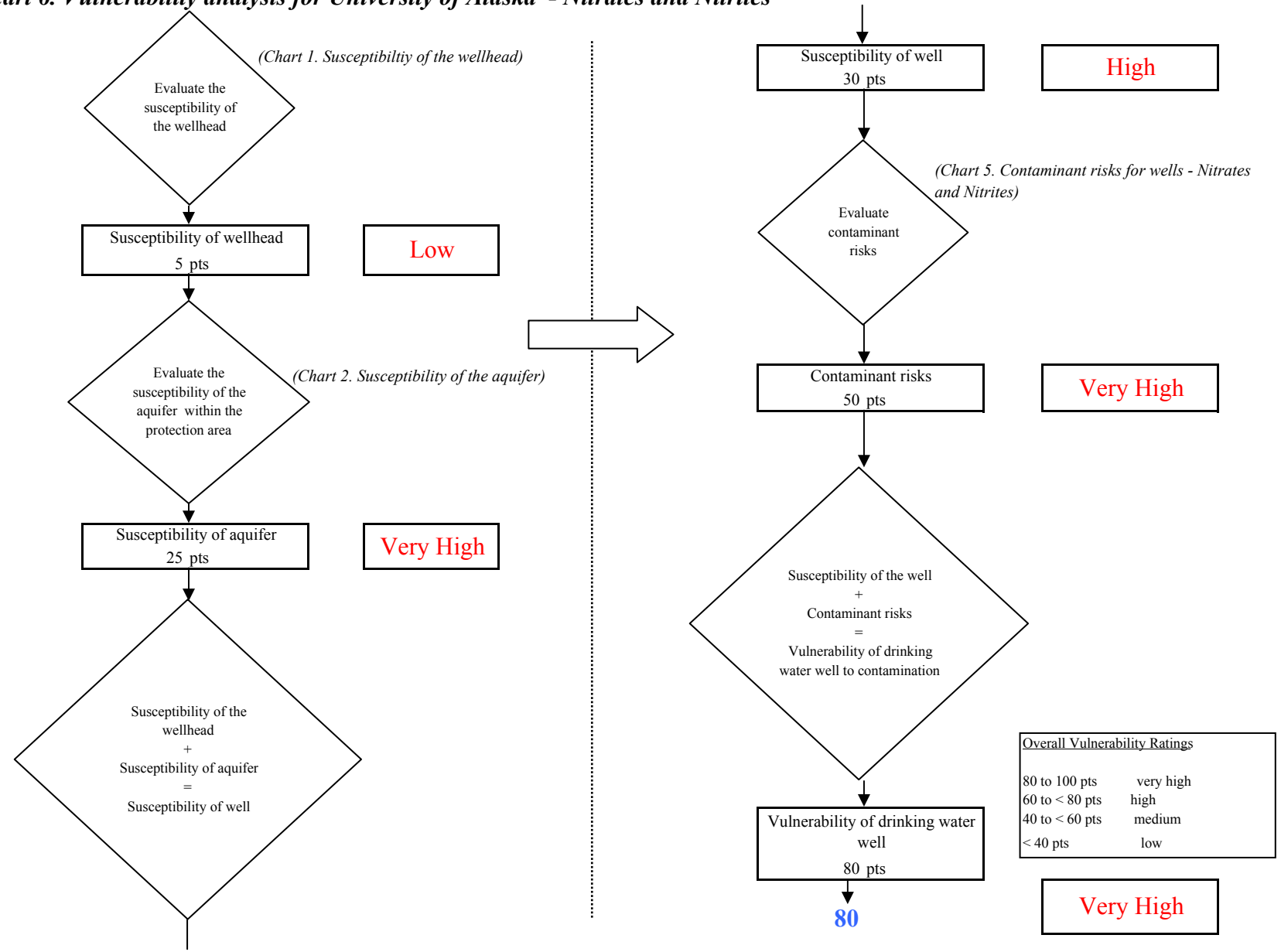


Chart 7. Contaminant risks for University of Alaska - Volatile Organic Chemicals

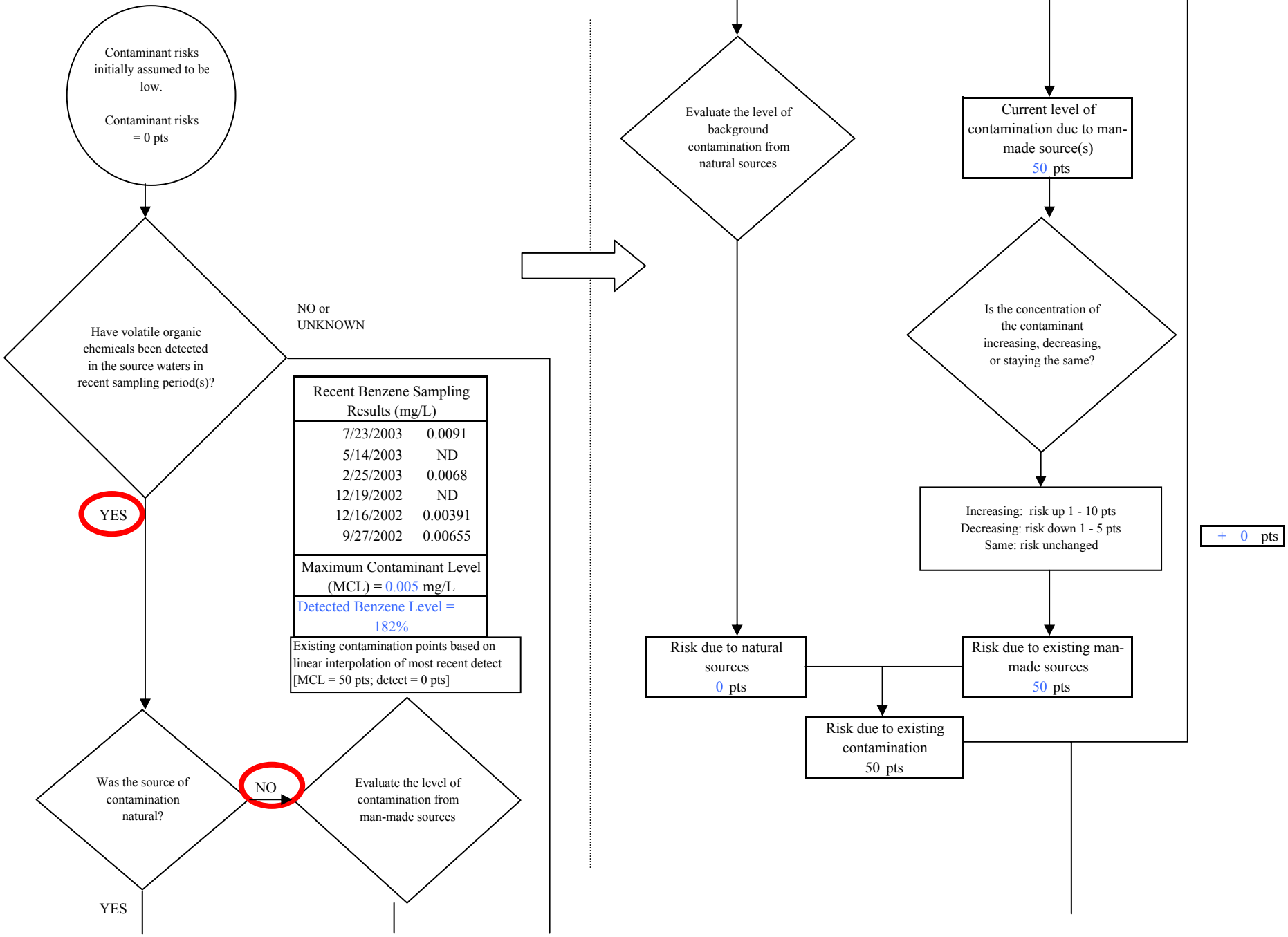


Chart 7. Contaminant risks for University of Alaska - Volatile Organic Chemicals

+ 40 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?

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)	9	21	30
Medium(s)	0	21	21
Low(s)	3	43	46

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

Matrix Score 40

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.

Initial assessment of risk posed by potential sources of contamination = 40 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

The gasoline stations and their associated fuel storage tanks increase the risk

YES

Increase risk 1 - 10 pts

+ 10 pts

Chart 7. Contaminant risks for University of Alaska - Volatile Organic Chemicals

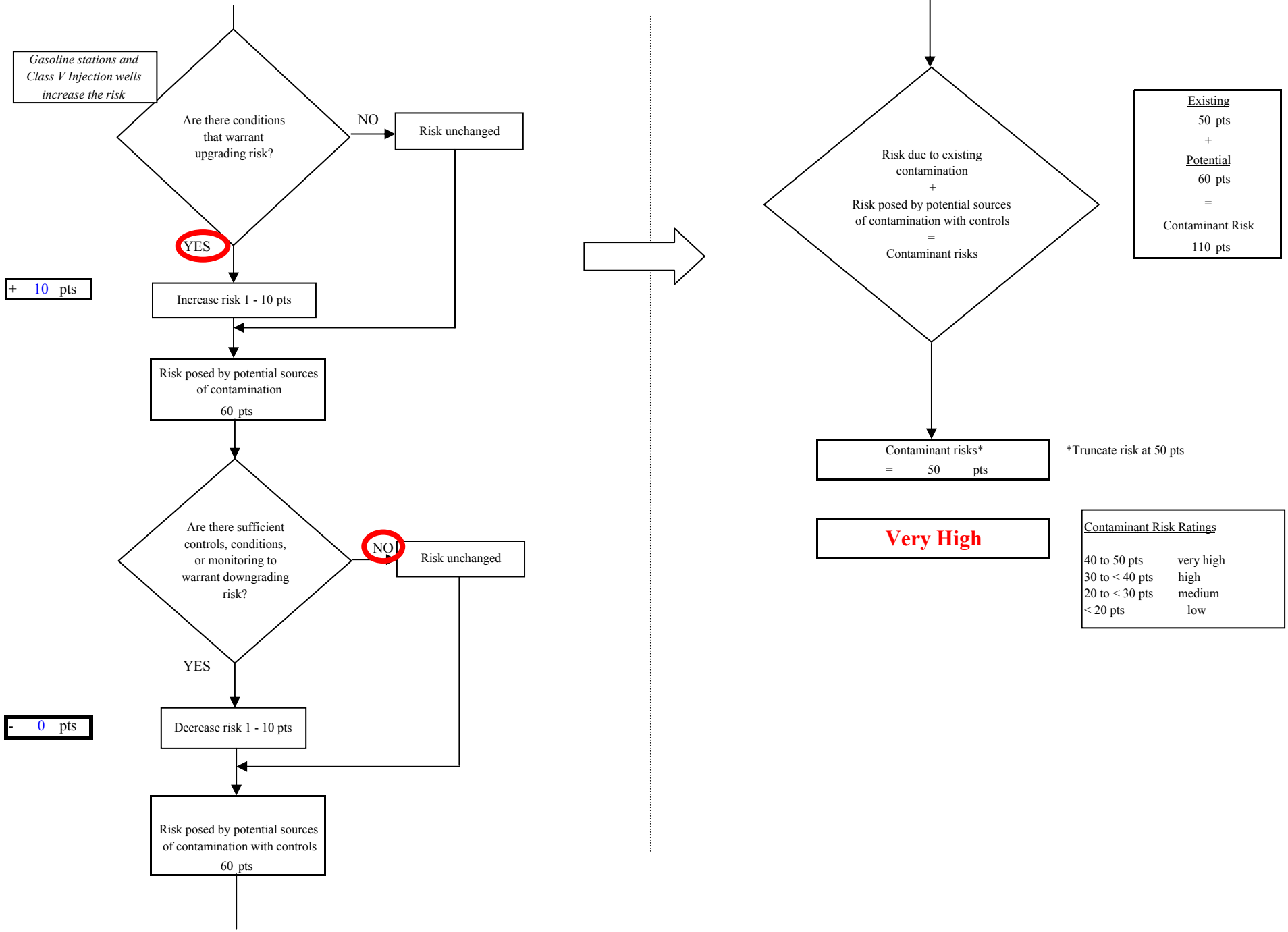


Chart 8. Vulnerability analysis for University of Alaska - Volatile Organic Chemicals

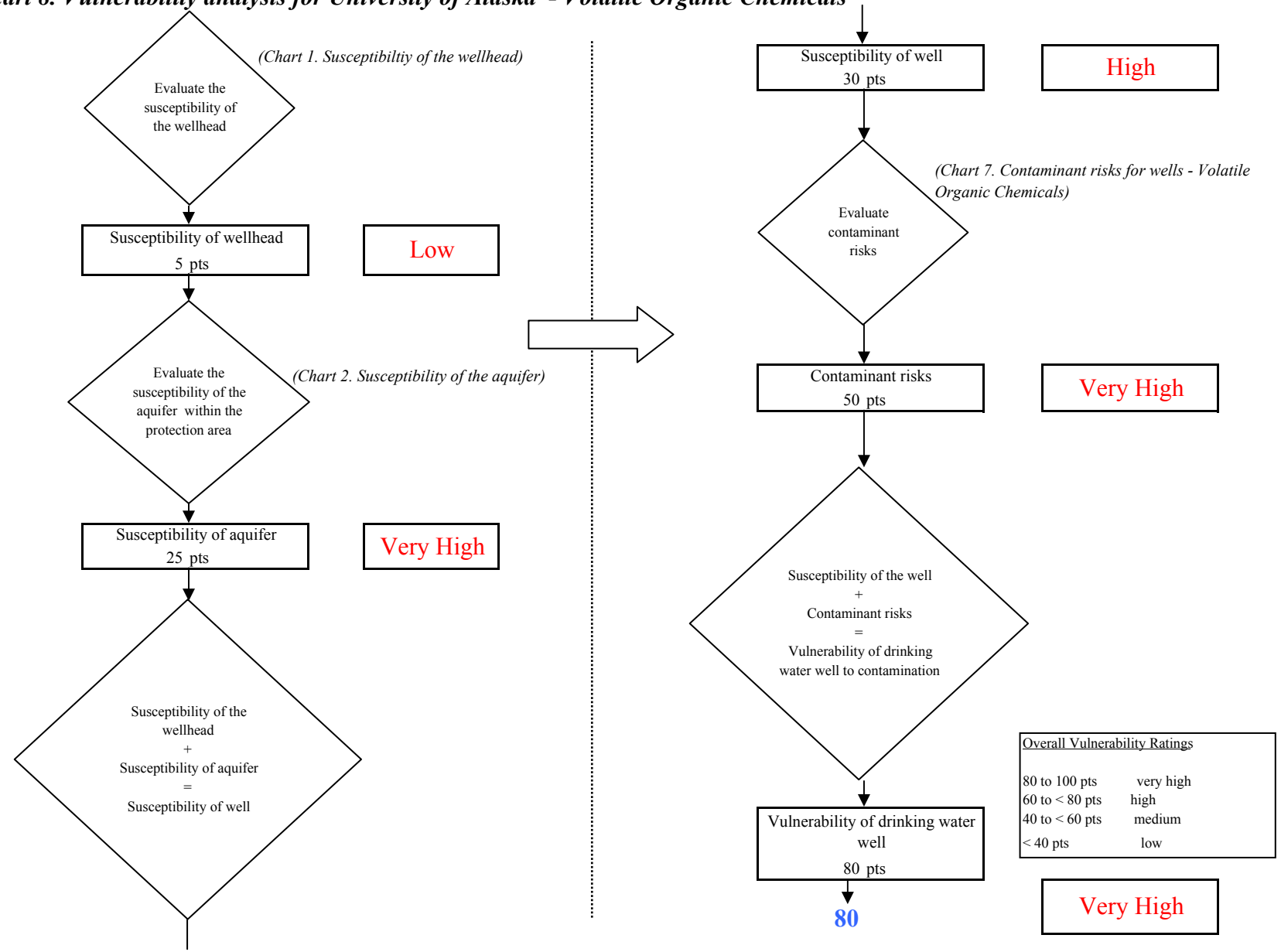


Chart 9. Contaminant risks for University of Alaska - Heavy Metals, Cyanide and Other Inorganic Chemicals

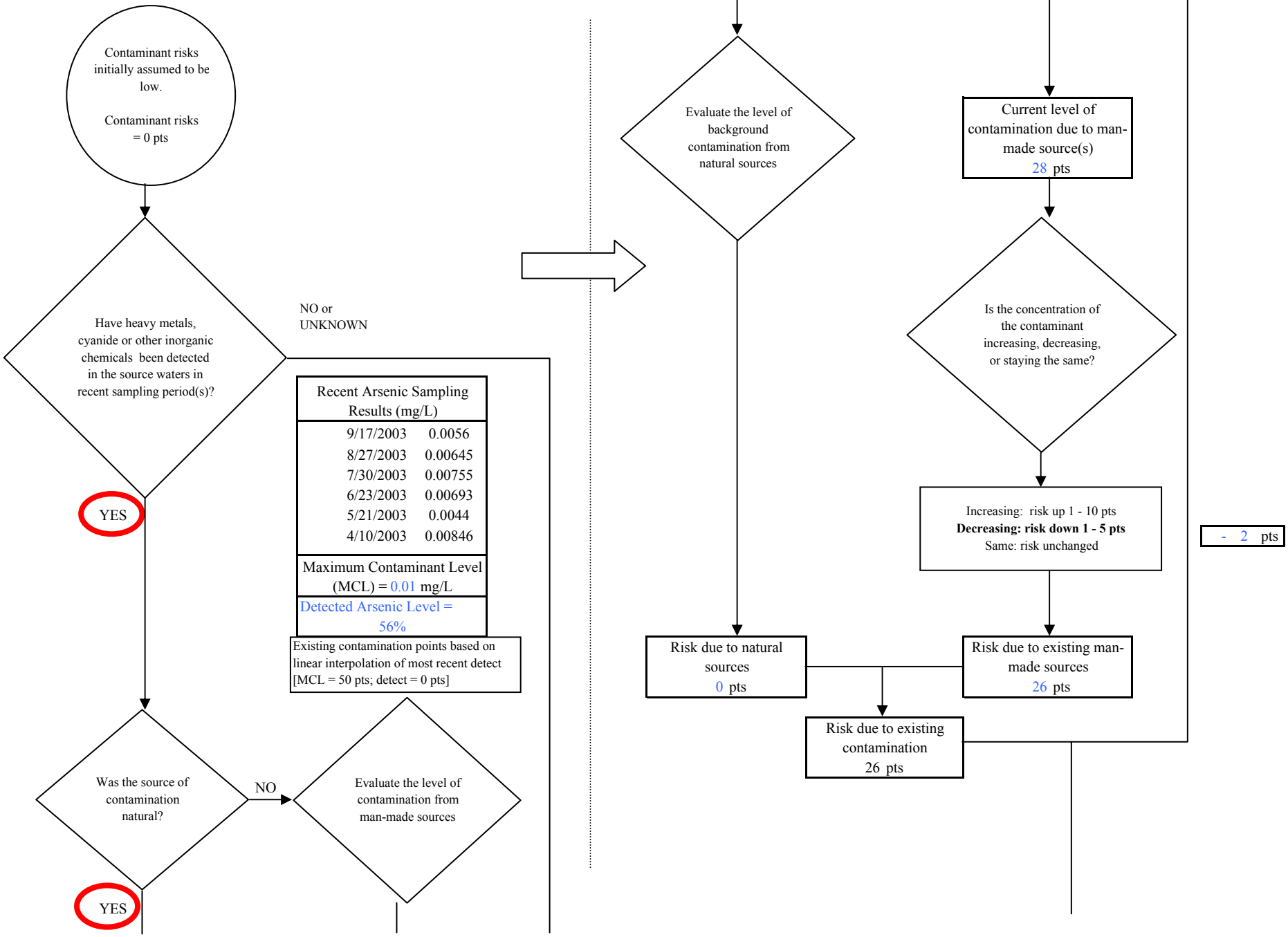
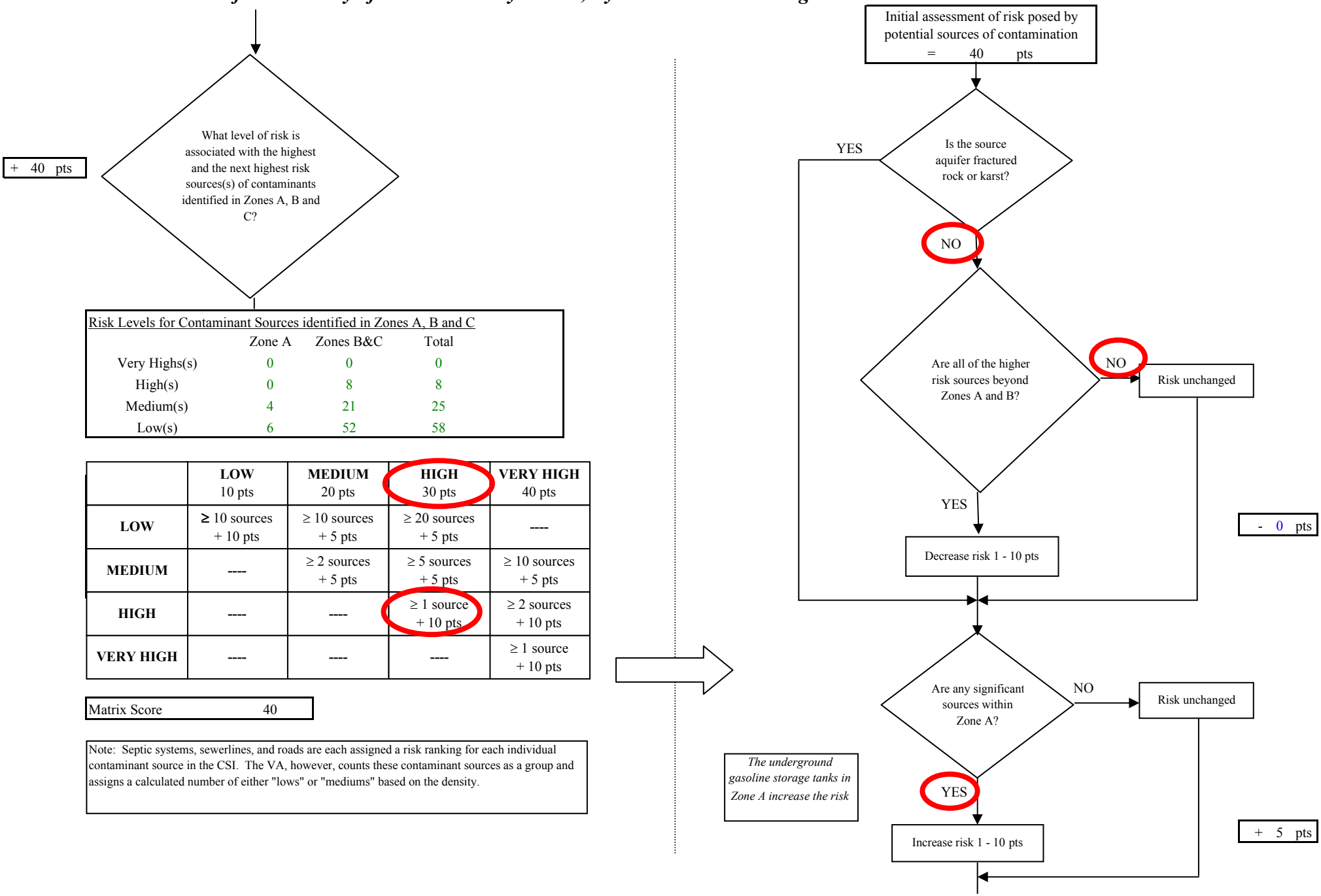


Chart 9. Contaminant risks for University of Alaska - Heavy Metals, Cyanide and Other Inorganic Chemicals



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

	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	8	8
Medium(s)	4	21	25
Low(s)	6	52	58

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

Matrix Score 40

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 9. Contaminant risks for University of Alaska - Heavy Metals, Cyanide and Other Inorganic Chemicals

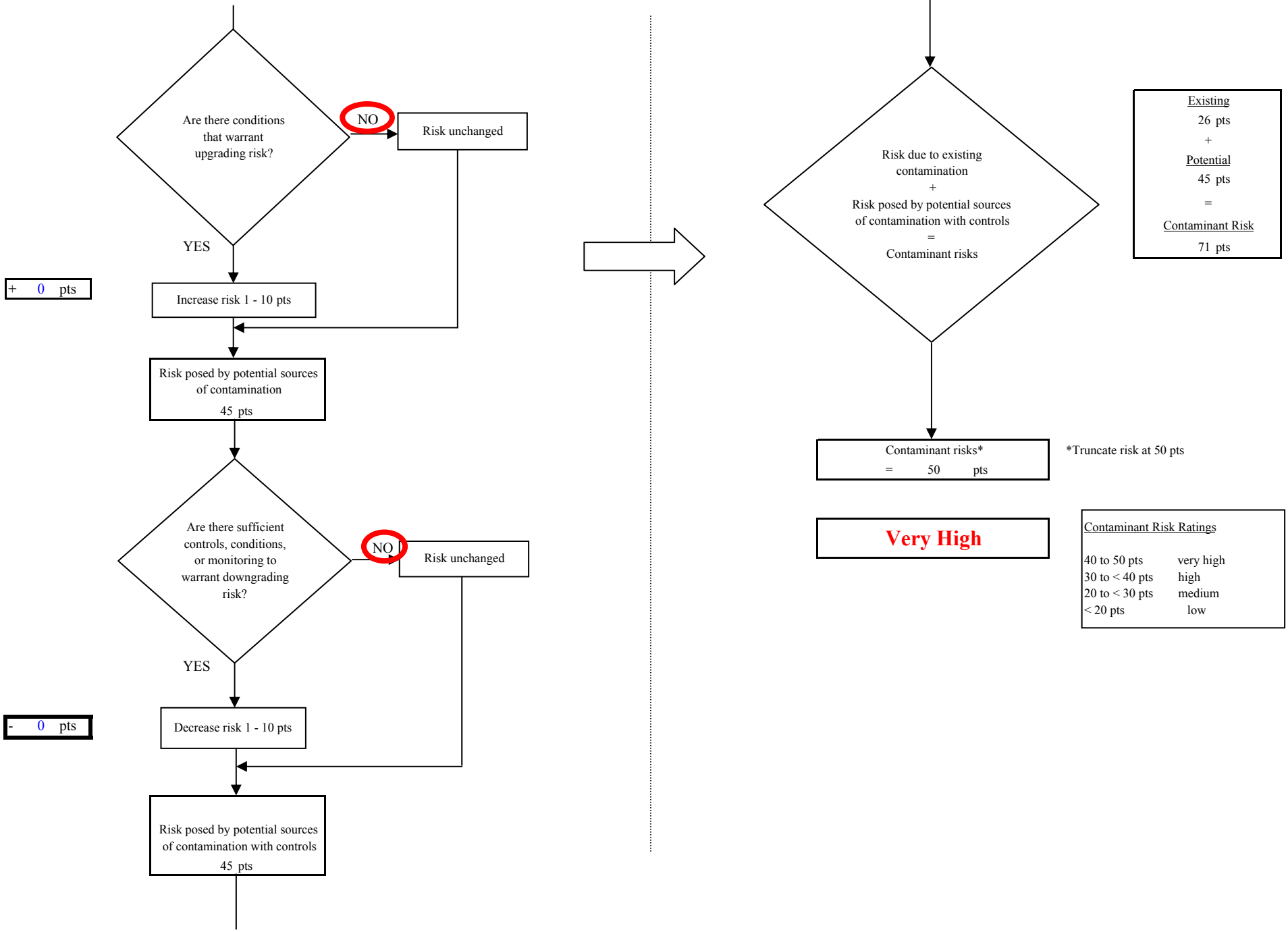


Chart 10. Vulnerability analysis for University of Alaska - Heavy Metals, Cyanide and Other Inorganic Chemicals

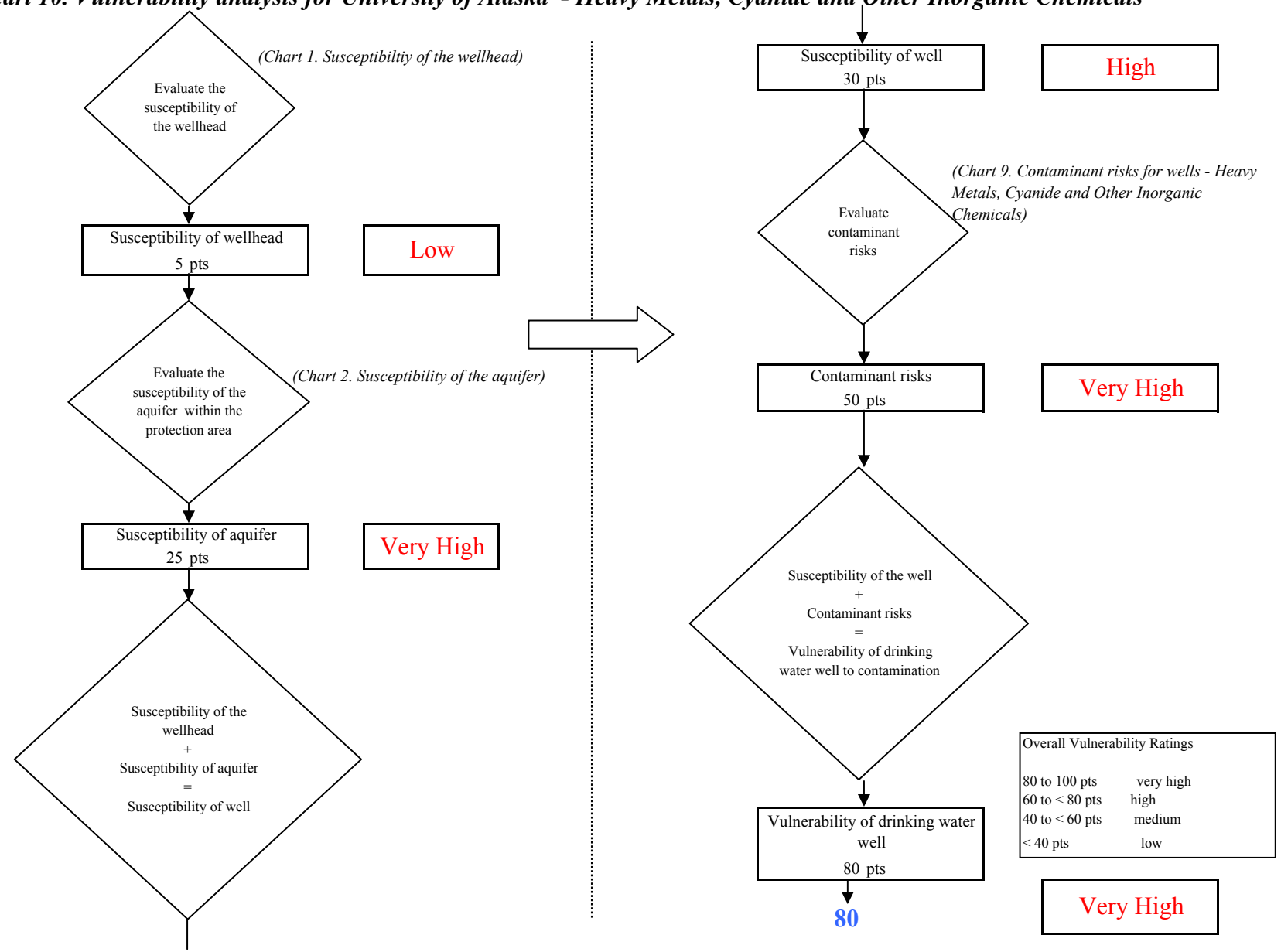


Chart 11. Contaminant risks for University of Alaska - Synthetic Organic Chemicals

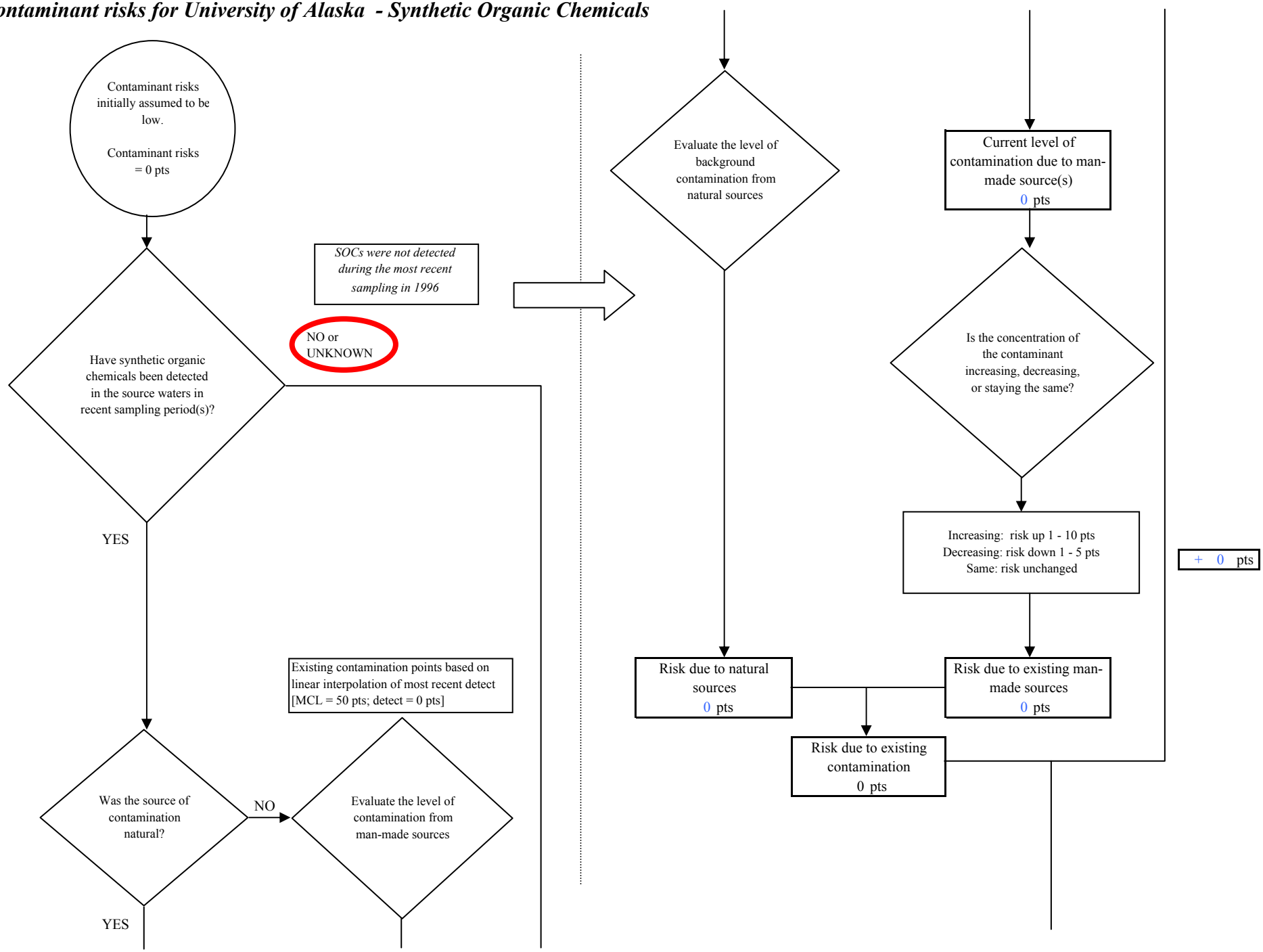
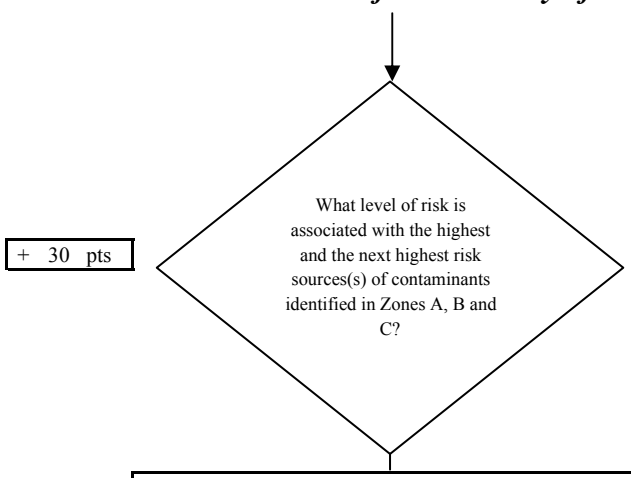


Chart 11. Contaminant risks for University of Alaska - Synthetic Organic Chemicals



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

	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	1	1
Medium(s)	0	2	2
Low(s)	3	29	32

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

Matrix Score 30

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.

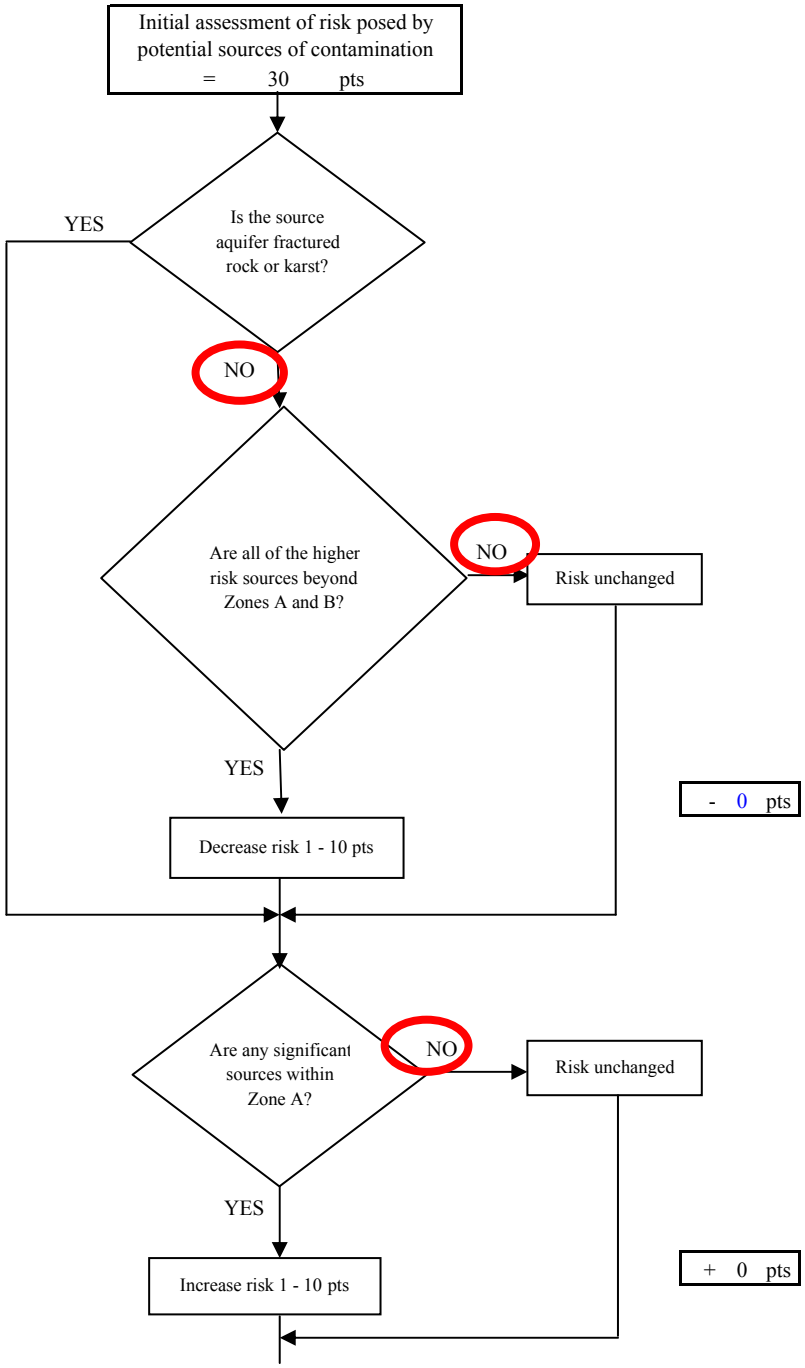


Chart 11. Contaminant risks for University of Alaska - Synthetic Organic Chemicals

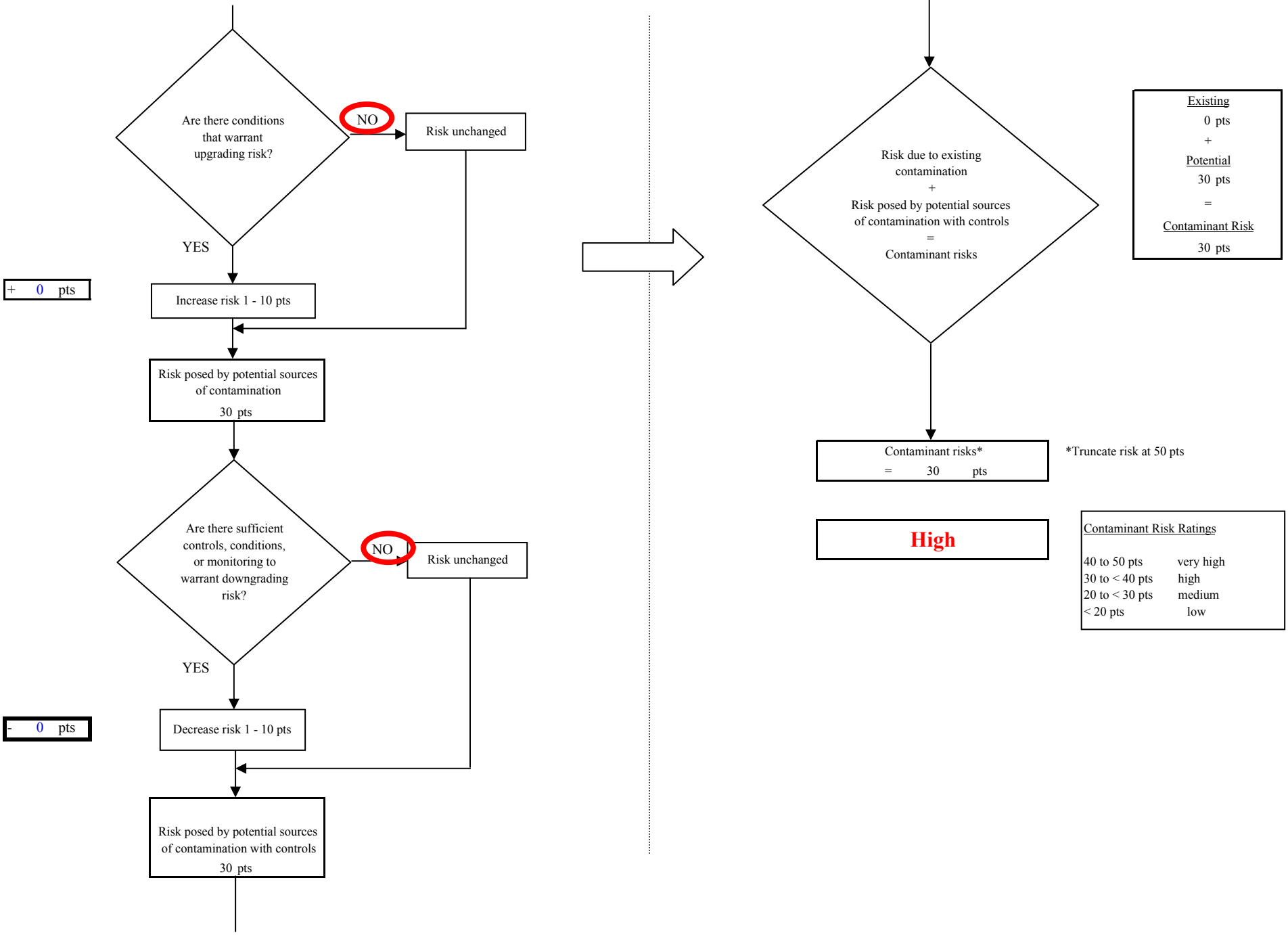


Chart 12. Vulnerability analysis for University of Alaska - Synthetic Organic Chemicals

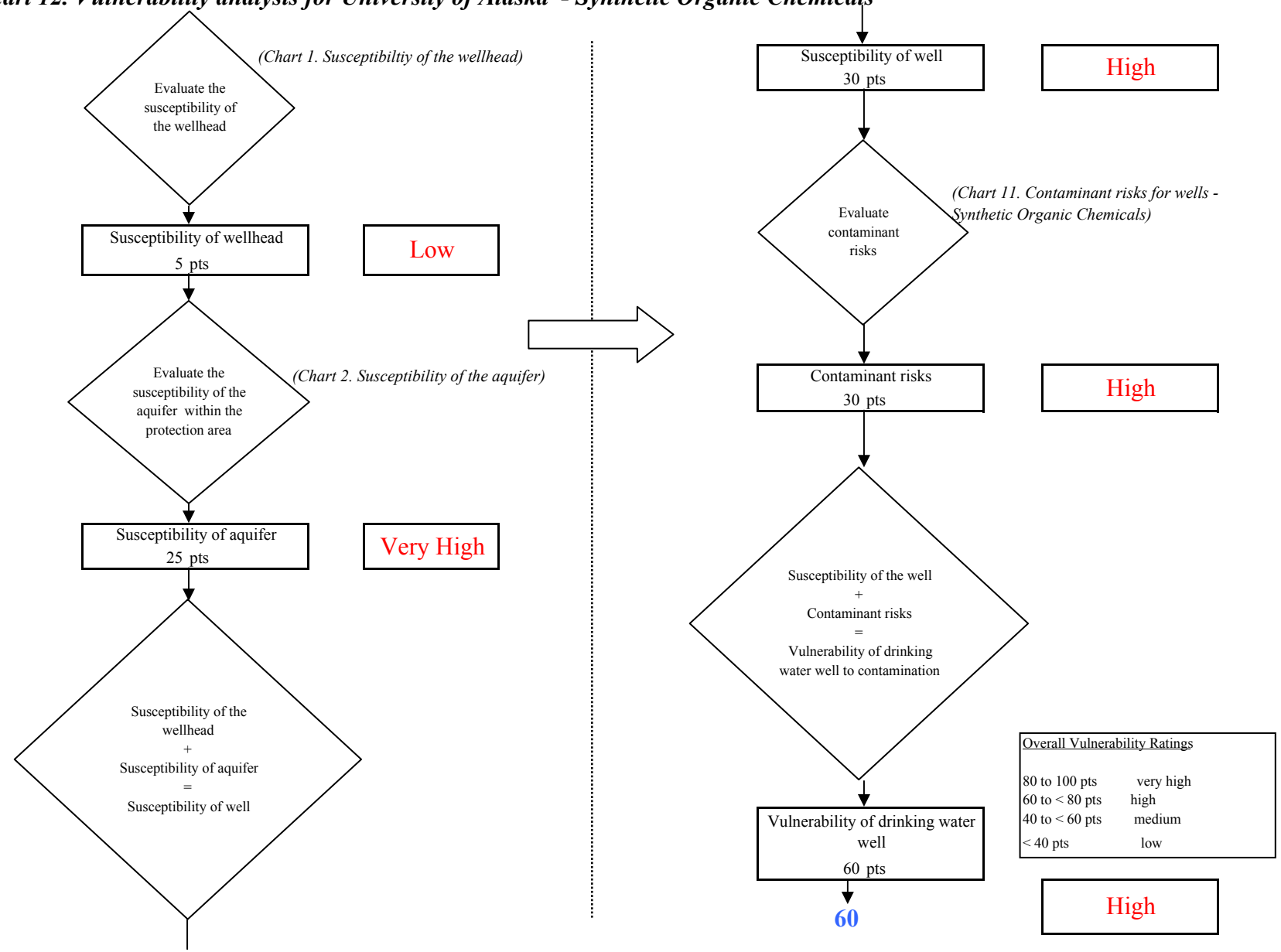


Chart 13. Contaminant risks for University of Alaska - Other Organic Chemicals

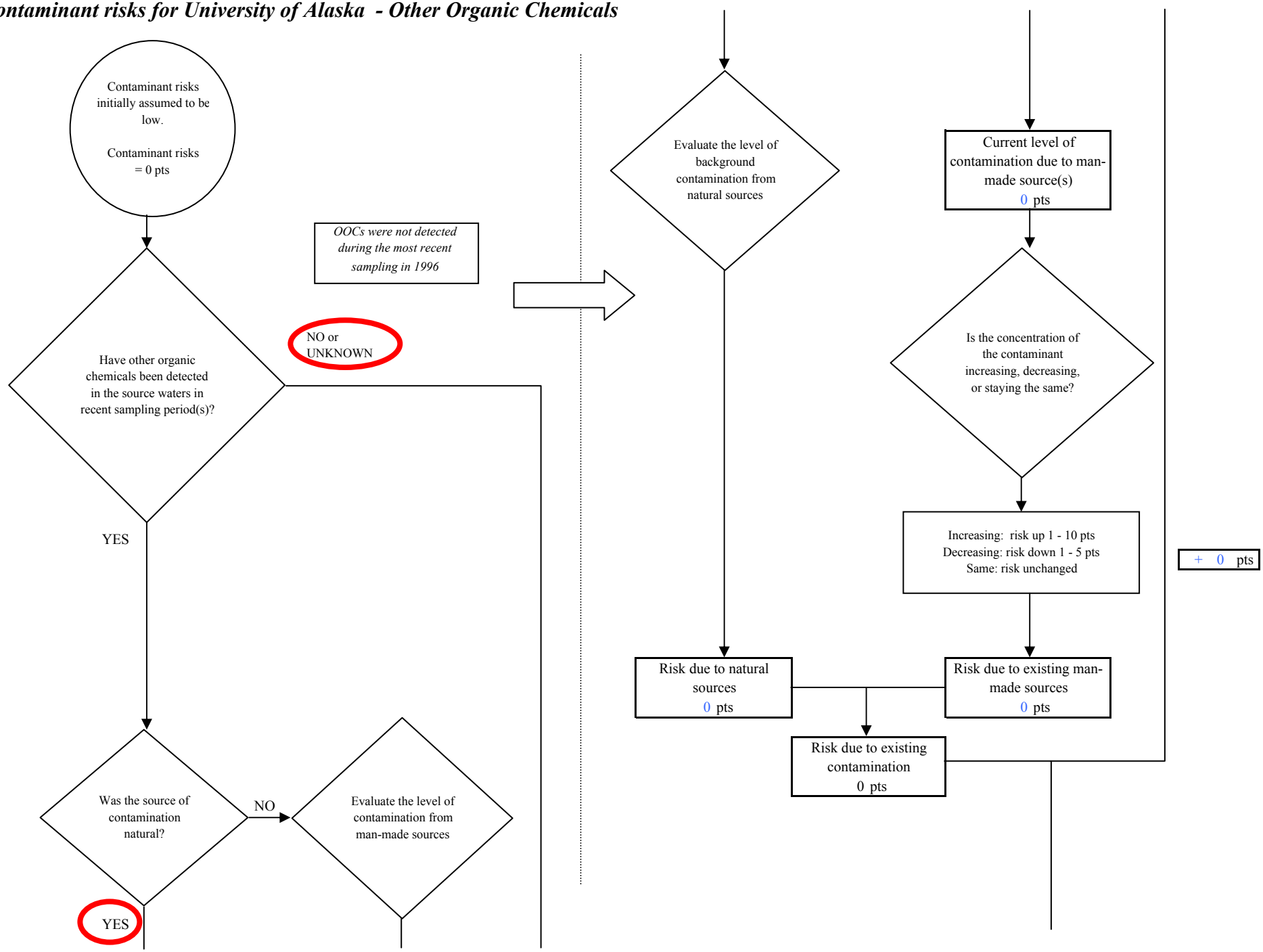


Chart 13. Contaminant risks for University of Alaska - Other Organic Chemicals

+ 35 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?

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	1	1
Medium(s)	1	25	26
Low(s)	3	26	29

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

Matrix Score 35

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.

Initial assessment of risk posed by potential sources of contamination = 35 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

- 0 pts

Decrease risk 1 - 10 pts

Are any significant sources within Zone A?

NO

Risk unchanged

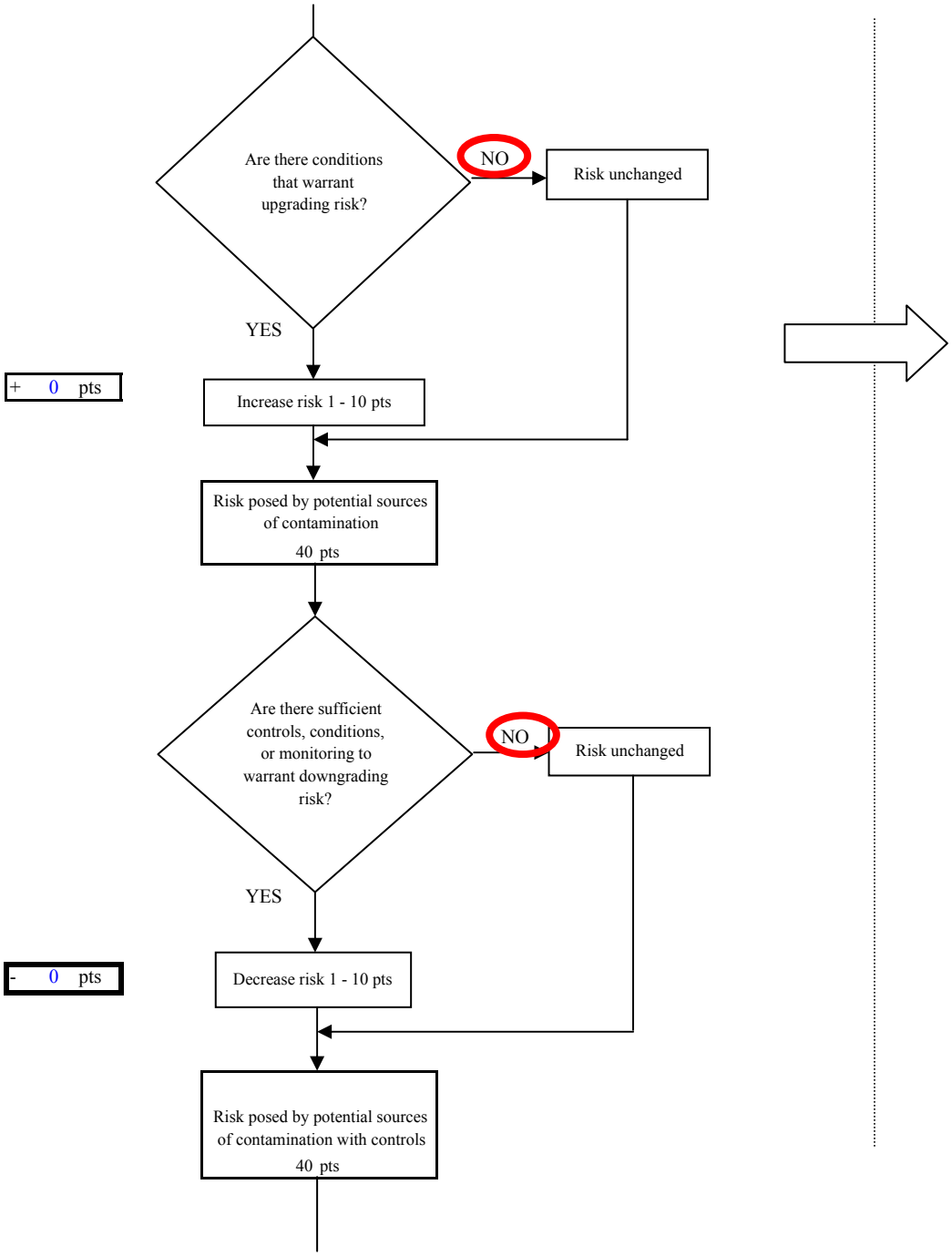
The gasoline station/repair shop in Zone A increases the risk

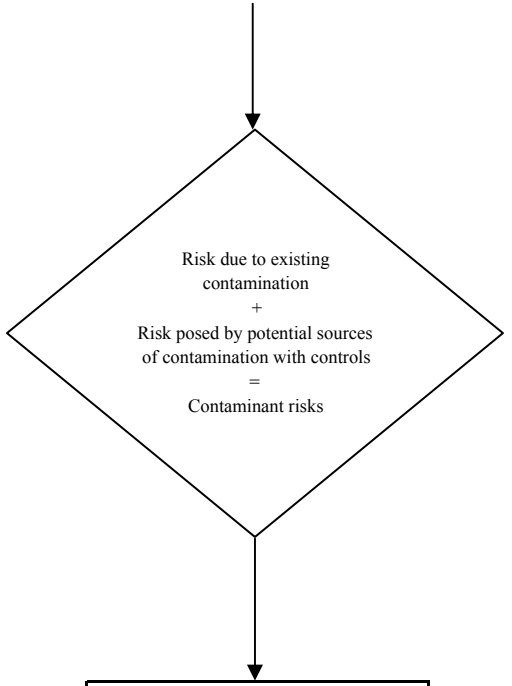
YES

Increase risk 1 - 10 pts

+ 5 pts

Chart 13. Contaminant risks for University of Alaska - Other Organic Chemicals





Existing
0 pts
+
Potential
40 pts
=
Contaminant Risk
40 pts

Contaminant risks*
= 40 pts

*Truncate risk at 50 pts

Very High

Contaminant Risk Ratings

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

Chart 14. Vulnerability analysis for University of Alaska - Other Organic Chemicals