Source Water Assessment

A Hydrogeologic Susceptibility and Vulnerability Assessment for Trails End Mobile Home Park, Anchorage, Alaska PWSID # 211130.001

DRINKING WATER PROTECTION PROGRAM REPORT 750

Alaska Department of Environmental Conservation

September 2002

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

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

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Drinking Water Protection Program
Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

The public water system for Trails End Mobile Home Park is a Class A (community) water system consisting of one well in the Anchorage area. Identified potential and current sources of contaminants for Trails End Mobile Home Park includes: gasoline stations, motor vehicle injection wells, heavy equipment storage, sewer lines, residential areas, roads, recreational trails, a Leaking Underground Storage Tank (LUST) site and a ADEC recognized contaminated site. These identified potential and existing sources of contamination are considered sources of bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals and other organic chemicals. Overall, Trails End Mobile Home Park received a vulnerability rating of **Low** for bacteria and viruses and synthetic organic chemicals, **Medium** for nitrates and/or nitrites, inorganic chemicals and other organic chemicals and **High** for volatile organic chemicals.

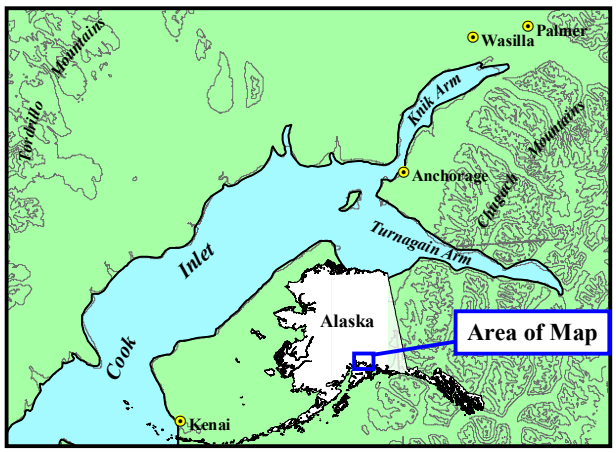

Figure 1. Index map showing the location of Anchorage, Alaska

INTRODUCTION

The Alaska Department of Environmental Conservation (ADEC) is completing source water assessments for all public drinking water sources in the State of Alaska. The purpose of this assessment is to provide public water system owners and/or operators, communities, and local governments with information they can use to preserve the quality of Alaska's public drinking water supplies. The results of this source water assessment can be used to decide where voluntary protection efforts are needed and feasible, and what efforts will be most effective in reducing contaminant risks to your water system.

This source water assessment combines a review of the natural conditions at the site and the potential and existing contaminant risks. These are combined to determine the overall vulnerability of the drinking water source to contamination.

DESCRIPTION OF THE ANCHORAGE AREA, ALASKA

Location

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

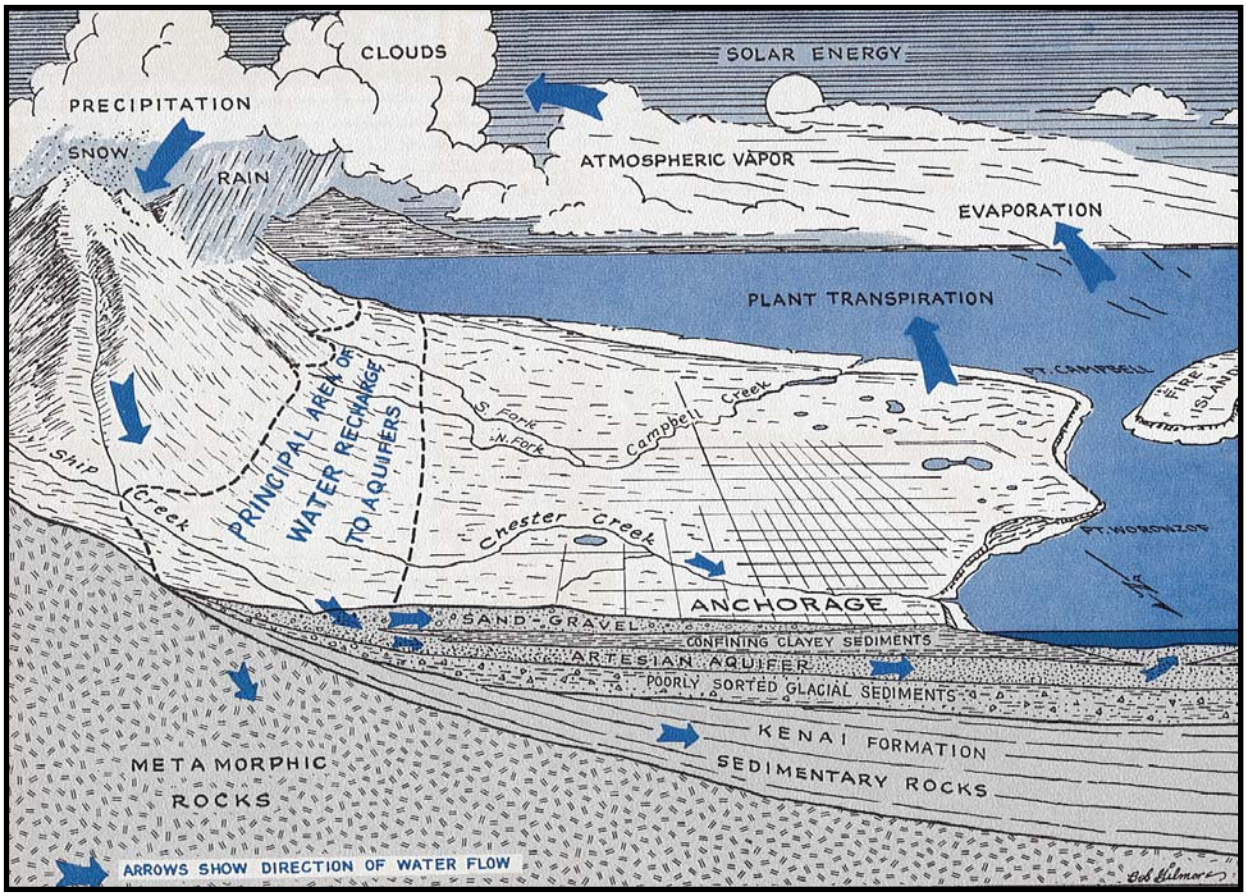

Figure 2. Generalized hydrologic cycle in the Anchorage area [*Barnwell, George, Dearborn,Weeks, and Zenone*, 1972].

Climate

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

Physiography and Groundwater Conditions

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

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

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

Water enters or recharges these two aquifer systems in several different ways. Along the front of the Chugach Mountains, groundwater seeps from fractures in

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

TRAILS END MOBILE HOME PARK PUBLIC DRINKING WATER SYSTEM

Trails End Mobile Home Park is a Class A (community) water system. The system one well in the Anchorage area. (See Map 1 of Appendix A). This area is at an elevation of approximately 200 feet above sea level.

The 1987 Sanitary Survey indicates that the wells are installed with caps providing a sanitary seal. A properly installed sanitary seal may provide protection against contaminants from entering the source waters at the well casing. The well was drilled in 1952, to a depth of 176 feet below the surface. Wells drilled at this time were not grouted according to current ADEC regulations. Proper grouting provides added protection against contaminants traveling along the well casing and into source waters.

The well log indicate that static water level at the time of drilling was 3.7 feet above ground, indicating that it was completed in an artesian aquifer. There appears to be a confining gravelly clay layer from, 50' - 85' and gravelly clay from 115' - 175'bsl. The confining layer and the affects of the artesian aquifer may provide protection from contaminates entering the aquifer. However, the clay layers tend to thin our towards the mountains allowing contaminants that enter the subsurface near the base of the mountains to enter the confined aquifer uninhibited by the absence of any protective layer.

This system operates 365 days per year and serves 100 residents through 27 service connections.

TRAILS END MOBILE HOME PARK PROTECTION AREA

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

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

An outline of the immediate watershed was used to determine the size and shape of the DWPA for Trails End Mobile Home Park. Available geology was also considered to take into account any uncertainties in groundwater flow and aquifer characteristics to arrive at a meaningful DWPA (Please refer to the Guidance Manual for Class A Public Water Systems for additional information).

The DWPAs established for wells by the ADEC are usually separated into four zones, limited by the watershed. These zones correspond to differences in the time-of-travel (TOT) of the water moving through the aquifer to the well. An analytical calculation was used to determine the size and shape of the DWPA. The input parameters describing the attributes of the aquifer in this calculation were adopted from the U.S. Geological Survey (*Patrick, Brabets, and Glass, 1989*), and State of Alaska Department of Water Resources (*Jokela et. al., 1991*).

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

Table 1. Definition of Zones

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

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of

contamination within Trails End Mobile Home Park DWPA. This inventory was completed through a search of agency records and other publicly available information. Potential sources of contamination to the drinking water aquifer include a wide range of categories and types. Potential drinking water contaminants are found within agricultural, residential, commercial, and industrial areas, but can also occur within areas that have little or no development.

For the basis of all Class 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 -4 in Appendix C and summarized in Table 1 of Appendix B.

RANKING OF CONTAMINANT RISKS

Once the potential and existing sources of contamination have been identified, they are assigned a ranking according to what type and level of risk they represent. Ranking of contaminant risks for a "potential" or "existing" source of contamination is a function of toxicity and volumes of specific contaminants associated with that source.

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

VULNERABILITY OF TRAILS END MOBILE HOME PARKDRINKING WATER SOURCE

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

- Natural susceptibility; and
- Contaminant risks.

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

Natural Susceptibility (0 – 50 points)

+

Contaminant Risks (0 – 50 points)

=

Vulnerability of the

Drinking Water Source to Contamination (0 – 100).

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

Susceptibility of the Wellhead (0 – 25 Points)

+

Susceptibility of the Aquifer (0 – 25 Points)

=

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

Table 2 shows the Susceptibility scores and ratings for the wells serving Trails End Mobile Home Park.

Table 2. Susceptibility of the well

	Score	Rating
Susceptibility of the Wellhead	5	Low
Susceptibility of the Aquifer	7	Low
Natural Susceptibility	13	Low

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. This data has been derived from an examination of existing and historical contamination that has been detected at the drinking water source through routine sampling. It also evaluates potential sources of contamination. Table 3 summarizes the Contaminant Risks for each category of drinking water contaminants.

Table 3. Contaminant Risks

Category	Score	Rating
Bacteria and Viruses	25	Medium
Nitrates and/or Nitrites	28	Medium
Volatile Organic Chemicals	50	Very High
Heavy Metals, Cyanide, and Other Inorganic Chemicals	42	Very High
Synthetic Organic Chemicals	12	Low
Other Organic Chemicals	40	Very High

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 naturally occurring attributes of the water source and influences on the groundwater system that might lead to contamination. Chart 3 analyzes 'Contaminant Risks' for the drinking water source with respect to bacteria and viruses. The 'Contaminant Risks' portion of the analysis considers potential sources of contaminants as well as a review of contamination that has or may have occurred, but has not arrived or been detected at the well. Lastly, Chart 4 contains the 'Vulnerability Analysis for Bacteria and Viruses'. Charts 5 through 14 contain the Contaminant Risks and Vulnerability Analyses for nitrates and nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other organic chemicals, respectively.
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	35	Low
Nitrates and Nitrites	40	Medium
Volatile Organic Chemicals	60	High
Heavy Metals, Cyanide and Other Inorganic Chemicals	55	Medium
Synthetic Organic Chemicals	25	Low
Other Organic Chemicals	52	Medium

Bacteria and Viruses
The contaminant risk for bacteria and viruses is medium with sewer lines and roads presenting the most significant risk to the drinking water well (See Chart 3 – Contaminant Risks for Bacteria and Viruses in Appendix D).

Sampling of the well indicates that no bacteria and viruses have been detected.

After combining the contaminant risk for bacteria and viruses with the natural susceptibility of the well, the overall vulnerability is low.

Nitrates and Nitrites
The contaminant risk for nitrates and nitrites is medium with sewer lines, recreation trails and city parks presenting the most significant risk to the drinking water well.

Nitrate concentrations in uncontaminated groundwater are typically less than 2 milligrams per liter (mg/L) and are derived primarily from the decomposition of organic matter in soils [Wang, Strelakos, Jokela, 2000]. Sampling history for Trailer End Mobile Home Court indicates low concentrations of nitrates have been detected in source waters. The most recent nitrate detection occurred Apil 8th, 2002 0.48 mg/l approximately 5% of the Maximum contaminant Level or MCL. (See Chart 5 - Contaminant Risks for Nitrates and/or Nitrites in Appendix D).

The MCL is the maximum level of contaminant that is allowed to exist in drinking water and still be consumed by humans. Due to the high solubility and weak retention by soil, nitrates are very mobile, moving at approximately the same rate as water. Though nitrates were detected at the site, concentrations remain at safe levels with respect to human health.

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 medium.

Volatile Organic Chemicals
The contaminant risk for volatile organic chemicals is very high with a gasoline station, heavy equipment storage, motor vehicle repair shop, class v injection well, closed Leaking Underground Storage Tank (LUST) site and a ADEC recognized contaminated site presenting the most significant risk for volatile organic chemicals (See Chart 7 – Contaminant Risks for Volatile Organic Chemicals in Appendix D).

An ADEC recognized contaminated site, File No. CS 100.04 and a closed LUST site L55.107 are located in Zone A.

CS 100.4 indicates that numerous oil spills with oil stained soil were present. Bioremediation of the soil has occurred and records indicate that the site has been closed. Priority: Medium

File #L55.107 indicates that 3 gasoline, 1 diesel and 1 waste oil tank plus 50 cubic yards of waste oil was removed and contamination discovered in 1995. Corrective action is underway. Priority: High

Sampling indicates that no volatile organic chemicals have been detected in the source waters. (See Chart 7 – Contaminant Risks for Volatile Organic Chemicals in Appendix D.)

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

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

Heavy Metals, Cyanide, and Other Inorganic Chemicals
The contaminant risk for heavy metals, cyanide and other inorganic chemicals is very high with motor vehicle repair shops, motor vehicle waste disposal wells presenting the most significant risk to the drinking water source (See Chart 9 – Contaminant Risks for Heavy Metals, Cyanide, and Other Inorganic Chemicals in Appendix D).

Sampling on 8/1398 detected barium and cadmium at very low levels.

The highest barium concentration detected was 0.038 mg/l or less then 2% of the 2.0 mg/l MCL. Barium is a lustrous, machinable metal, which exists in nature in ores containing mixtures of elements. It is used in making a wide variety of electronic components, in metal alloys, bleaches, dyes, fireworks, ceramics and glass. In particular, it is used in well drilling operations where it is directly released into the ground (USEPA, 2002). The source of the barium detected is unknown but it is likely naturally occurring.

The highest cadmium concentration detected was 0.0002 mg/l or less than 4% of the 0.005 mg/l MCL. According to the EPA, "Cadmium occurs naturally in zinc, lead, copper and other ores which can serve as sources to ground and surface waters, especially when in contact with soft, acidic waters. Major industrial releases of cadmium are due to waste streams and leaching of landfills, and from a variety of operations that involve cadmium or zinc. In particular, cadmium can be released to drinking water from the corrosion of some galvanized plumbing and water main pipe materials (USEPA. 2002). The source of the cadmium detected is unknown but it is likely that it is naturally occurring.

Combining the contaminant risk with the natural susceptibility of the wells leads to an overall vulnerability to heavy metals and other inorganic chemical contamination of medium.

Synthetic Organic Chemicals
The contaminant risk for synthetic organic chemicals is low with sewer lines, motor vehicle waste disposal wells and residential areas presenting the most significant risk. (See Chart 11 – Contaminant Risks for Synthetic Organic Chemicals in Appendix D, respectively).

Sampling of synthetic organic chemicals has not occurred.

Combining the contaminant risk with the natural susceptibility of the wells, the overall vulnerability to synthetic organic chemicals is low.

Other Organic Chemicals
The contaminant risk for other organic chemicals is very high with gasoline stations, heavy equipment storage and motor vehicle repair shop presenting the most significant risk.

Sampling of other organic chemicals has not occurred. After combining the contaminant risk with the natural susceptibility of the wells, the overall vulnerability to other organic chemicals is high. (See Chart 13 – Contaminant Risks for Other Organic Chemicals in Appendix D, respectively).

SUMMARY

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

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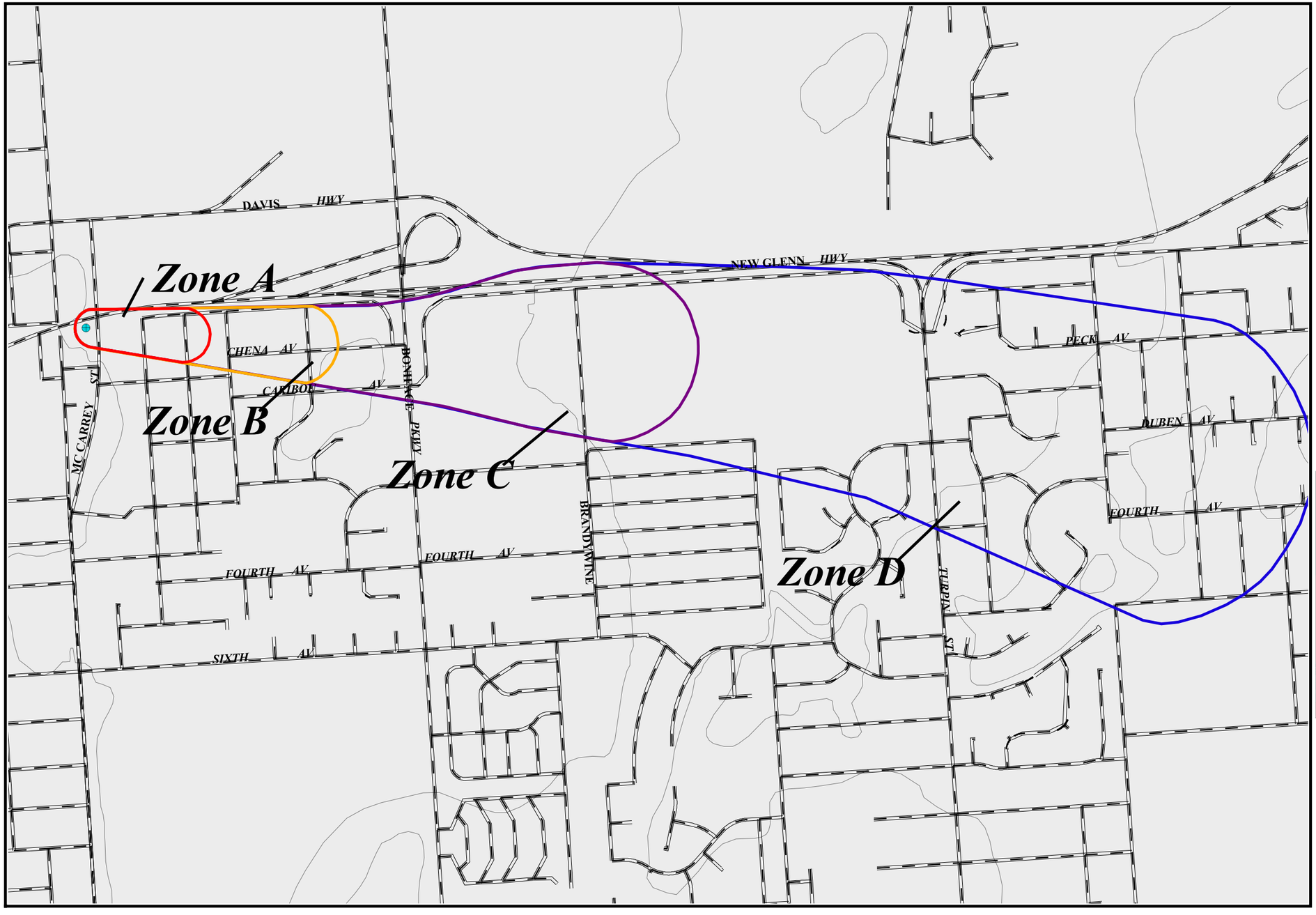
APPENDIX A

Trails End Mobile Home Park
Drinking Water Protection Area Location Map
(Map 1)

Drinking Water Protection Area for Trails End



Legend

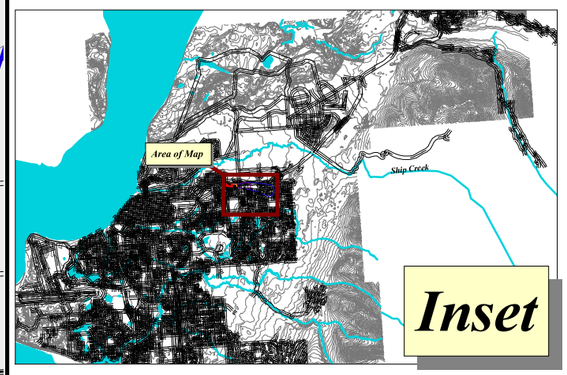
- Trails End Well

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less Than 2 Years Travel Time

Zone C Protection Area
- Less Than 5 Years Travel Time

Zone D Protection Area
- Less Than 10 Years Travel Time
- Roads
- Elevation Contours



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Map 1

APPENDIX B

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park (Tables 1-7)

Table 1

Contaminant Source Inventory for ***Trails End Mobile Home Park***

PWSID 211130.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Gasoline stations (with repair shop)	C16	C16-1	A	4	
Heavy equiptment rental/storage	C18	C18-1	A	4	
Motor /motor vehicle repair shops	C31	C31-1	A	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	4	
Lawns and gardens	R01	R1-1	A	4	
Lawns and gardens	R01	R1-2	A	4	
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04	U4-1	A	4	CS 100.04 Numerous oil spills with oil stained soil present. Bioremdiation of soil occurred and the site has been closed. The barrels containing carburetor parts for hazardous waste were not disposed of in an approved manner. Priority: Medium
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U08	U08-1	A	3	DEC File #L55.107 Removed 3 gasoline, 1 diesel and 1 waste oil tank plu 5 cubic yards of waste oil.
Municipal or city parks (with green areas)	X04	X4-1	A	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	2	
Dog walking areas/foot trails	X46	X46-1	A	4	
Dog walking areas/foot trails	X46	X46-2	A	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	2	

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Map Number*	*Comments*
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	B	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	B	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	B	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	C	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	3	

Table 2

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Bacteria and Viruses

PWSID 211130.001

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	D1-1	A	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Medium	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Low	4	
Municipal or city parks (with green areas)	X04	X4-1	A	Medium	4	
Dog walking areas/foot trails	X46	X46-1	A	Low	4	
Dog walking areas/foot trails	X46	X46-2	A	Low	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Medium	2	

Table 3

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Nitrates/Nitrites

PWSID 211130.001

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	D1-1	A	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Medium	2	
Lawns and gardens	R01	R1-1	A	Low	4	
Lawns and gardens	R01	R1-2	A	Low	4	
Municipal or city parks (with green areas)	X04	X4-1	A	Medium	4	
Dog walking areas/foot trails	X46	X46-1	A	Low	4	
Dog walking areas/foot trails	X46	X46-2	A	Low	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Medium	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	Medium	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	C	Medium	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	Medium	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	Medium	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	Medium	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	Medium	3	

Table 3 (continued)

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Nitrates/Nitrites

PWSID 211130.001

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	D1-9	C	Medium	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	

Table 4

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Volatile Organic Chemicals

PWSID 211130.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Gasoline stations (with repair shop)	C16	C16-1	A	High	4	
Heavy equiptment rental/storage	C18	C18-1	A	Medium	4	
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	High	4	
Contaminated sites, DEC recognized, non-Superfund, non-RCRA	U04	U4-1	A	High	4	CS 100.04 Numerous oil spills with oil stained soil present. Bioremdiation of soil occurred and the site has been closed. The barrels containing carburetor parts for hazardous waste were not disposed of in an approved manner. Priority: Medium
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	B	Low	2	

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park

Sources of Volatile Organic Chemicals

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Highways and roads, paved (cement or asphalt)	X20	X20-8	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	3	

Table 5

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park

Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals

PWSID 211130.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Gasoline stations (with repair shop)	C16	C16-1	A	Low	4	
Heavy equiptment rental/storage	C18	C18-1	A	Low	4	
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	High	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low	2	
Municipal or city parks (with green areas)	X04	X4-1	A	Low	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	B	Low	2	

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park

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*
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	3	

Table 6

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Synthetic Organic Chemicals

PWSID 211130.001

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	D1-1	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	Low	4	
Lawns and gardens	R01	R1-1	A	Low	4	
Lawns and gardens	R01	R1-2	A	Low	4	
Municipal or city parks (with green areas)	X04	X4-1	A	Low	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-11	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	C	Low	3	

Table 6 (continued)

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Synthetic Organic Chemicals

PWSID 211130.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	0	3	

Table 7

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park Sources of Other Organic Chemicals

PWSID 211130.001

Contaminant Source Type	*Contaminant Source ID*	*CS ID tag*	*Zone*	*Risk Ranking for Analysis*	*Map Number*	*Comments*
Gasoline stations (with repair shop)	C16	C16-1	A	Medium	4	
Heavy equiptment rental/storage	C18	C18-1	A	Medium	4	
Motor /motor vehicle repair shops	C31	C31-1	A	Medium	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-1	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-2	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-3	A	Low	2	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-1	A	High	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-4	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-5	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-6	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-7	B	Low	2	
Highways and roads, paved (cement or asphalt)	X20	X20-8	B	Low	2	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-10	C	Low	3	

Contaminant Source Inventory and Risk Ranking for Trails End Mobile Home Park

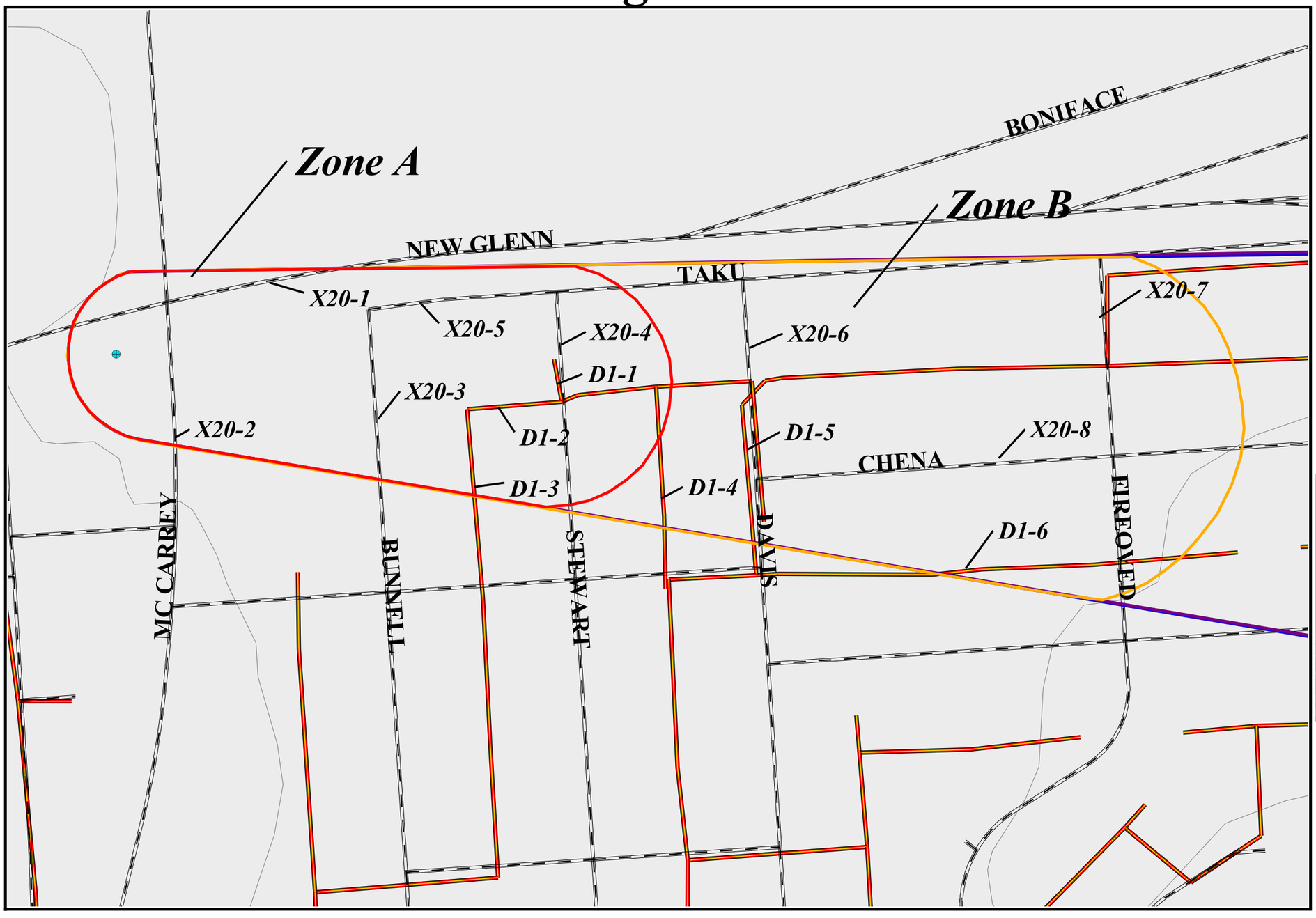
Sources of Other Organic Chemicals

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	D1-11	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-12	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-13	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-7	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-8	C	Low	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D01	D1-9	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	3	

APPENDIX C

Trails End Mobile Home Park
Drinking Water Protection Area
and Potential and Existing Contaminant Sources
(Maps 2 - 4)

Drinking Water Protection Area for Trails End and Potential and Existing Sources of Contamination



Legend

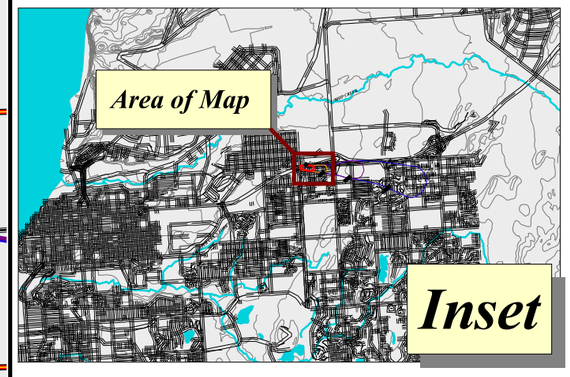
- Trails End Well

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less Than 2 Years Travel Time

Zone C Protection Area
- Less Than 5 Years Travel Time

Zone D Protection Area
- Less Than 10 Years Travel Time
- Anchorage streams.shp
- Lakes
- Cook inlet water.shp
- Roads (X20)
- Sewers (D1)
- Elevation Contours



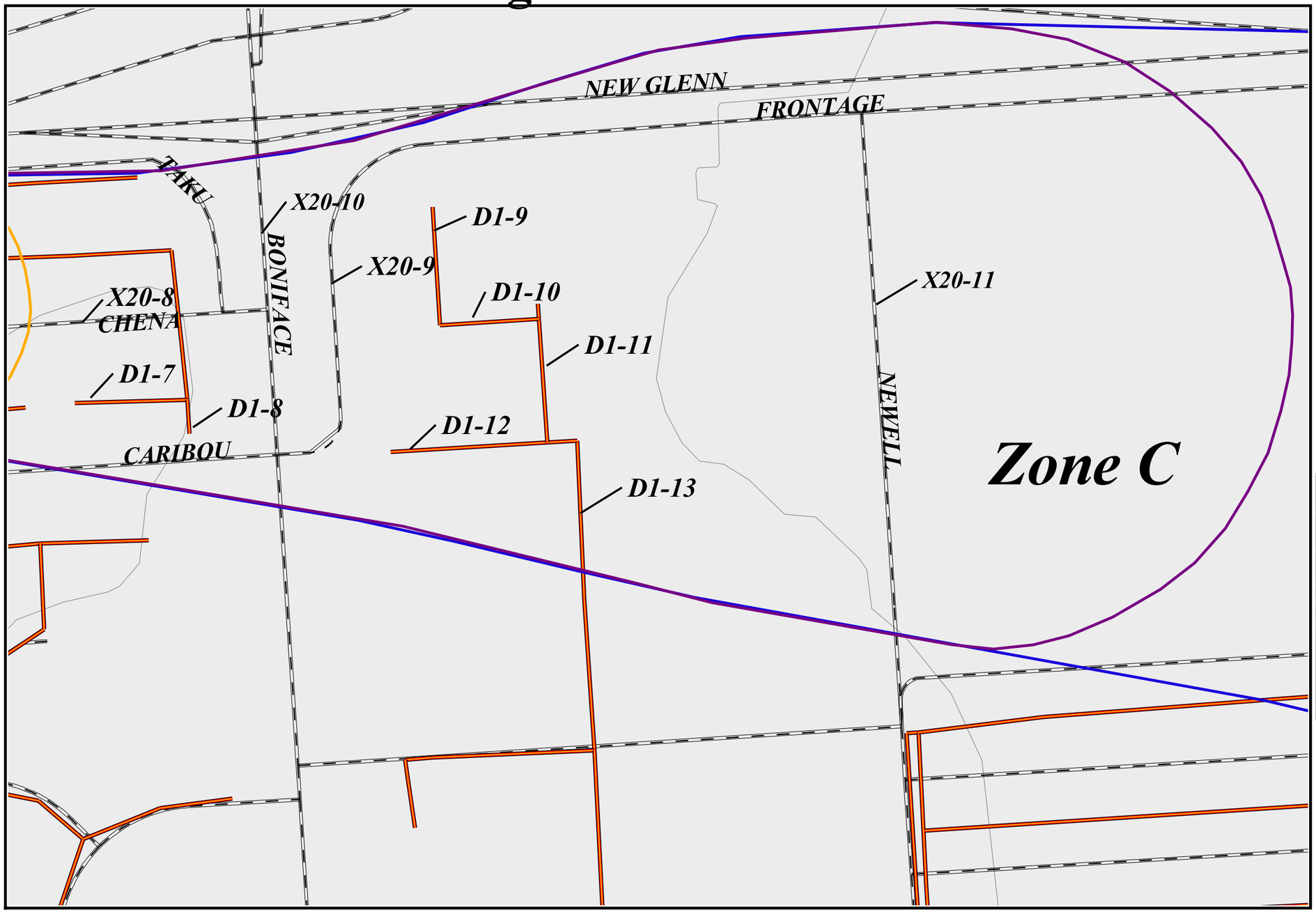
N
W E
S

500 0 500 Feet

PWSID 211130.001

Map 2

Drinking Water Protection Area for Trails End and Potential and Existing Sources of Contamination



Legend

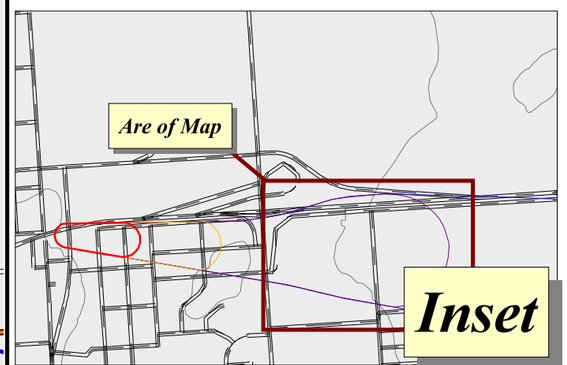
- Public Water System

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less Than 2 Years Travel Time

Zone C Protection Area
- Less Than 5 Years Travel Time

Zone D Protection Area
- Less Than 10 Years Travel Time
- Sewers (D1)
- Roads
- Elevation Contours
- Anchorage streams.shp
- Lakes



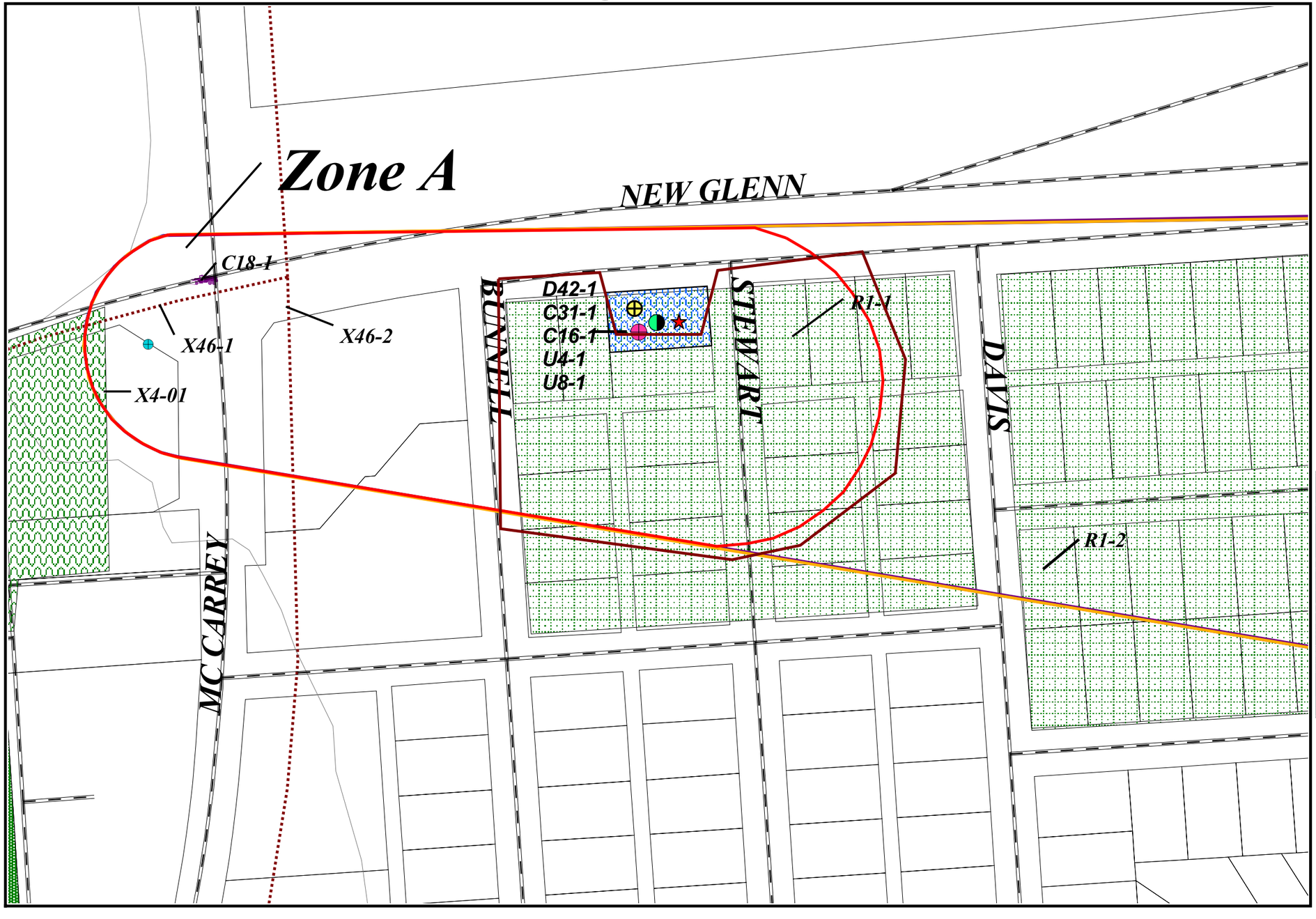
N
W E
S

800 0 800 Feet

PWSID 211130.001

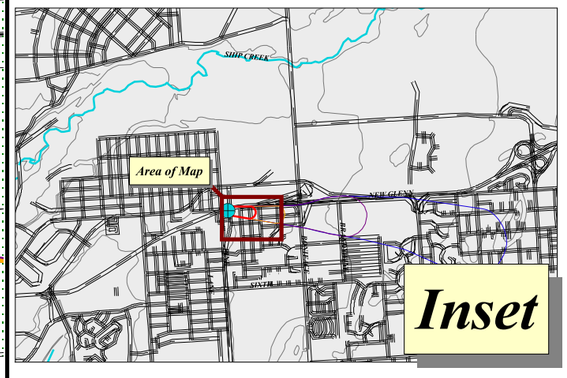
Map 3

Drinking Water Protection Area for Trails End and Potential and Existing Sources of Contamination



Legend

- Trails End Well
- Zone A Protection Area
- Several Months Travel Time
- Zone B Protection Area
- Less Than 2 Years Travel Time
- Zone C Protection Area
- Less Than 5 Years Travel Time
- Zone D Protection Area
- Less Than 10 Years Travel Time
- Trails_end_csi-point.shp
- Contaminated sites, DEC recognized, non-Superfund, non-RCRA
- Injection wells (Class V) Motor Vehicle Waste Disposal Well
- Leaking Underground Fuel Storage Tank (LUST) Site
- Motor / motor vehicle repair shops
- Trails_end_csi-poly.shp
- Motor /motor vehicle repair shops
- Residential lawns (R1)
- Municiple Parks (X4)
- Roads
- Elevation Contours
- Parks (X4)
- Heavy equipment rental/storage (C18)
- Trails (X46)
- MOA Land Parcels



N
W E
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0 0.2 Miles

PWSID 211130.001

Map 4

APPENDIX D

Vulnerability Analysis for
Trails End Mobile Home Park
(Charts 1-14)

Chart 1. Susceptibility of the wellhead - Tails End Mobile Home Park

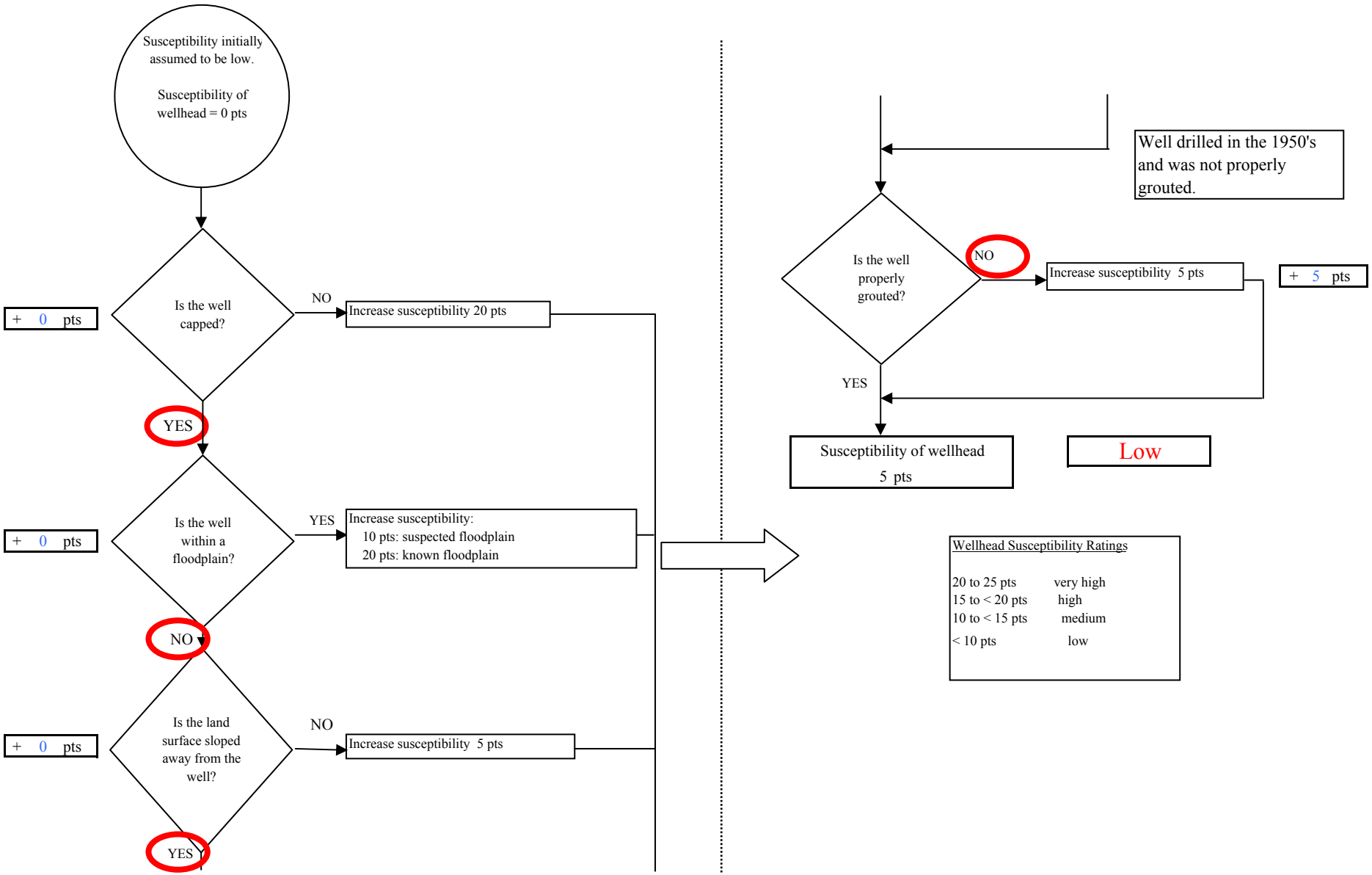


Chart 2. Susceptibility of the aquifer - Trails End Mobile Home Park

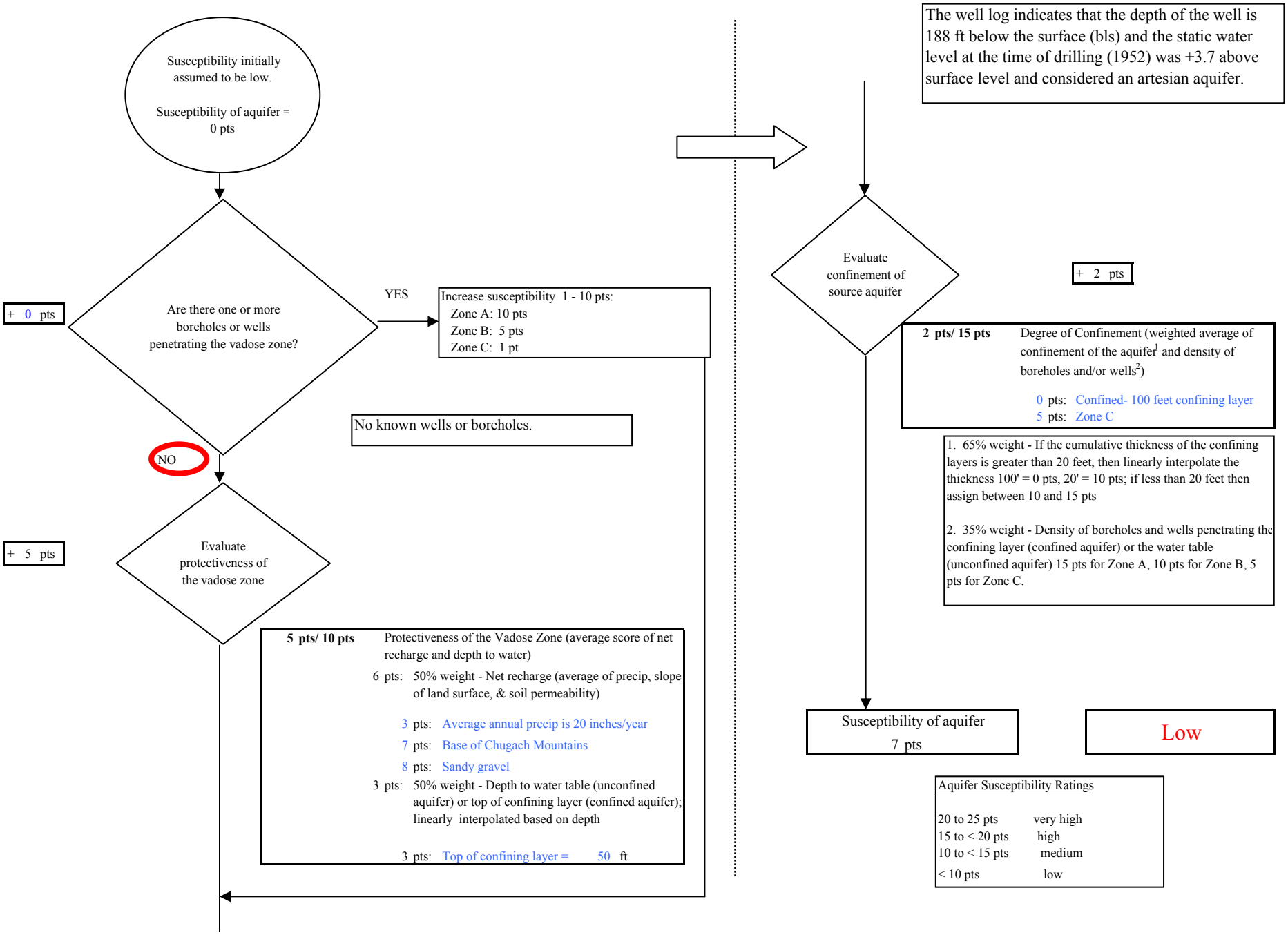
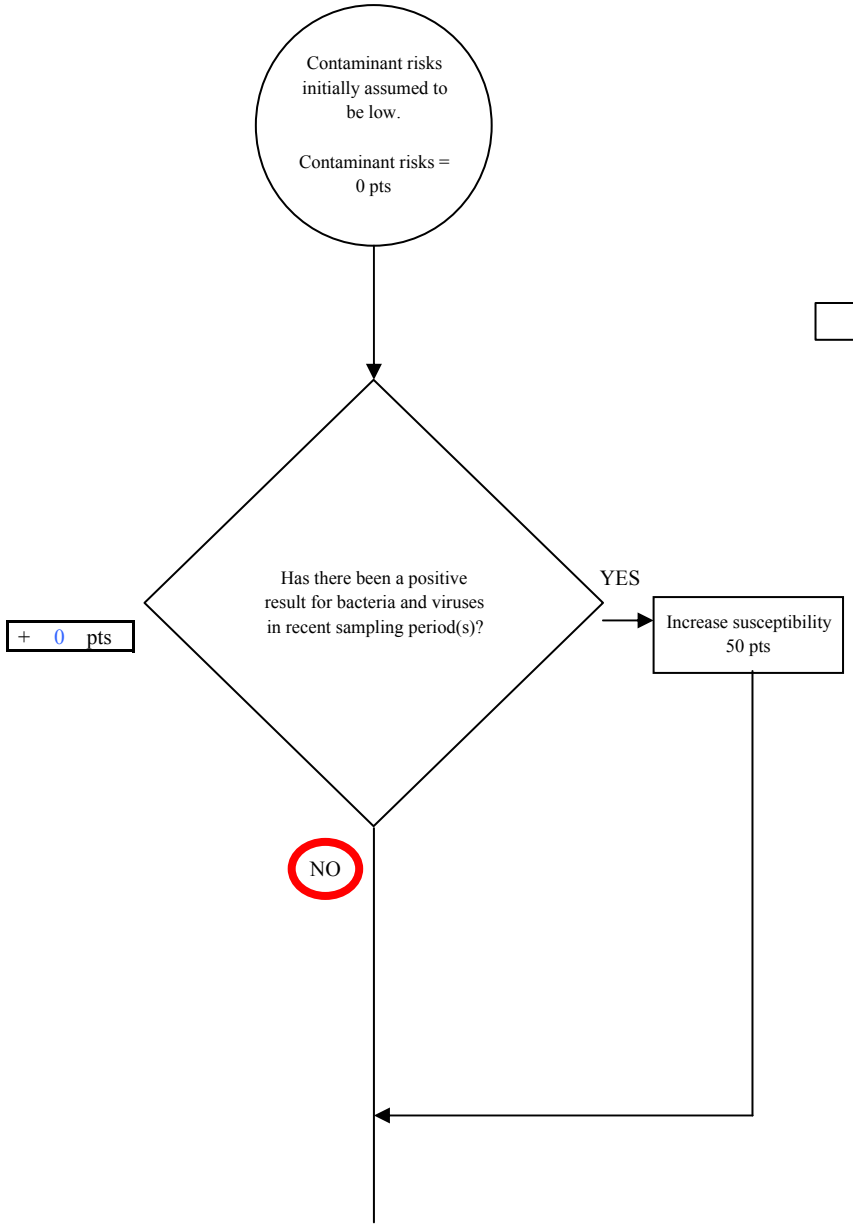
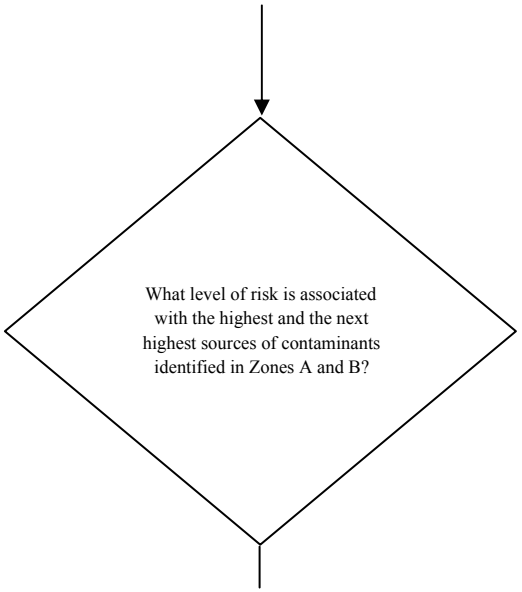


Chart 3. Contaminant risks for Trails End Mobile Home Park- Bacteria & Viruses





+ 20 pts

Risk Rankings for Contaminant Sources Identified in Zones A and B

	Zone A	Zone B	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	2	0	2
Low(s)	3	1	4

	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 20

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

Chart 3. Contaminant risks for Trails End Mobile Home Park- Bacteria & Viruses

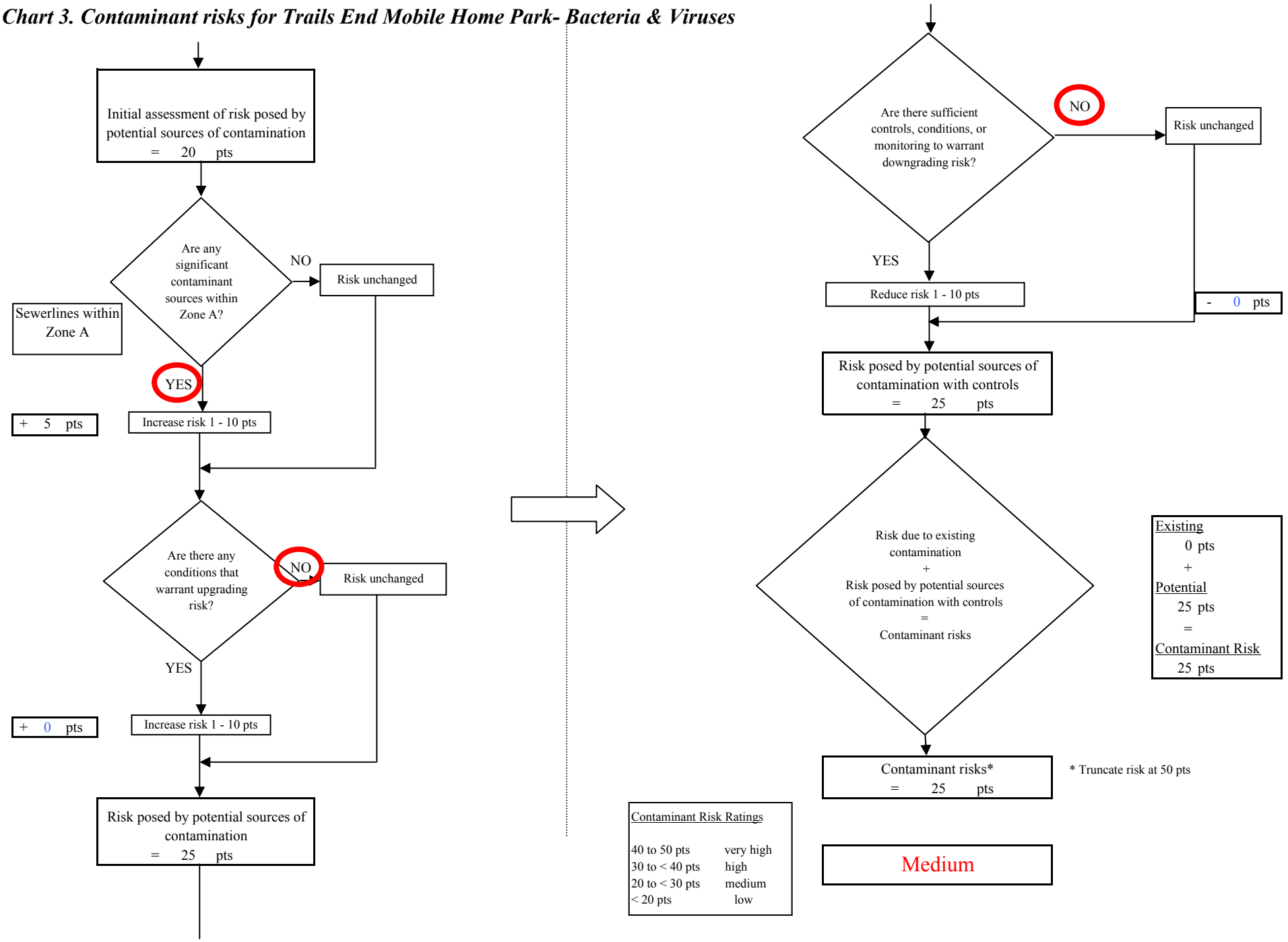


Chart 4. Vulnerability analysis for Trails End Mobile Home Park- Bacteria & Viruses

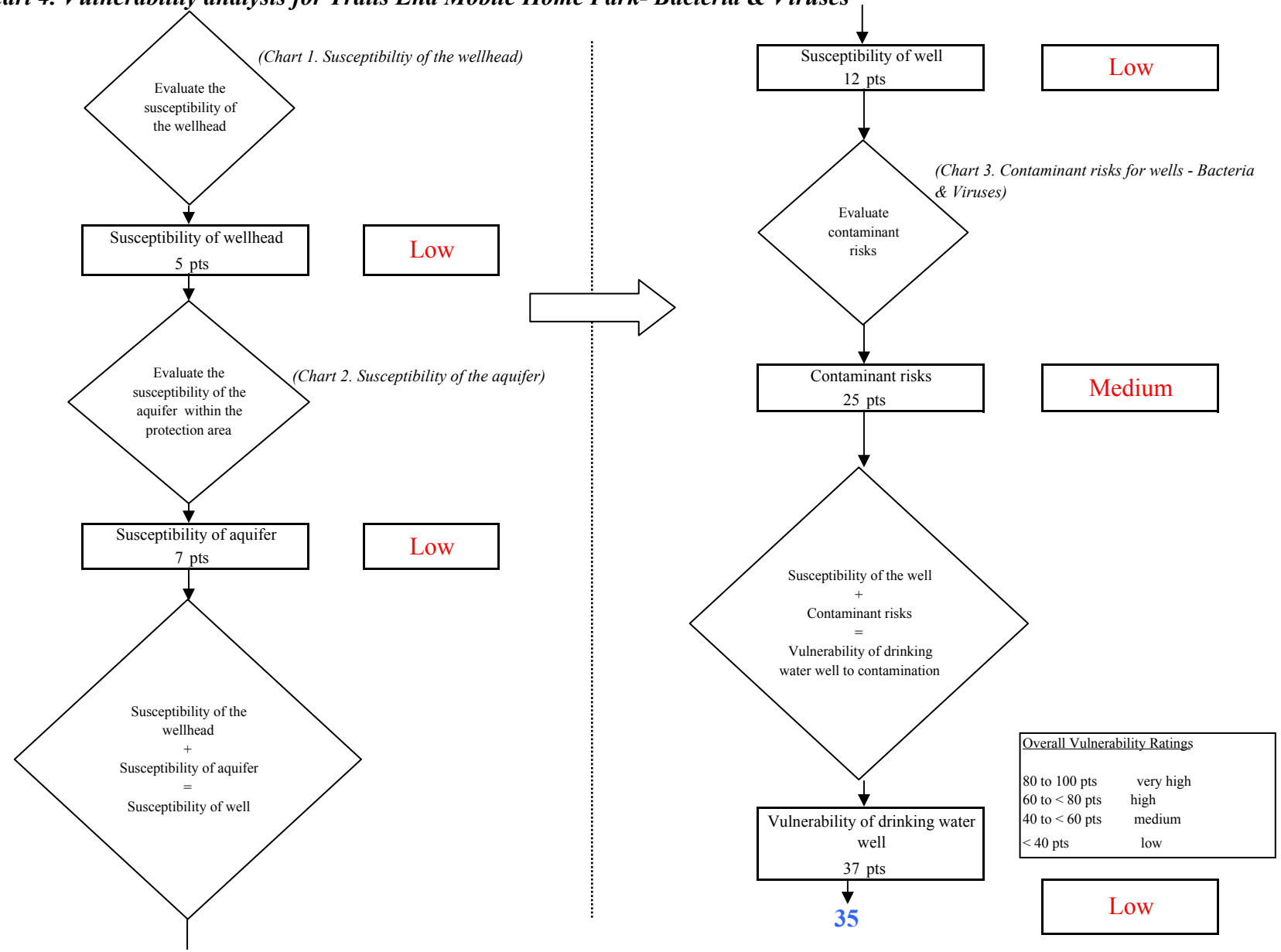


Chart 5. Contaminant risks for Trails End Mobile Home Park- Nitrates and Nitrites

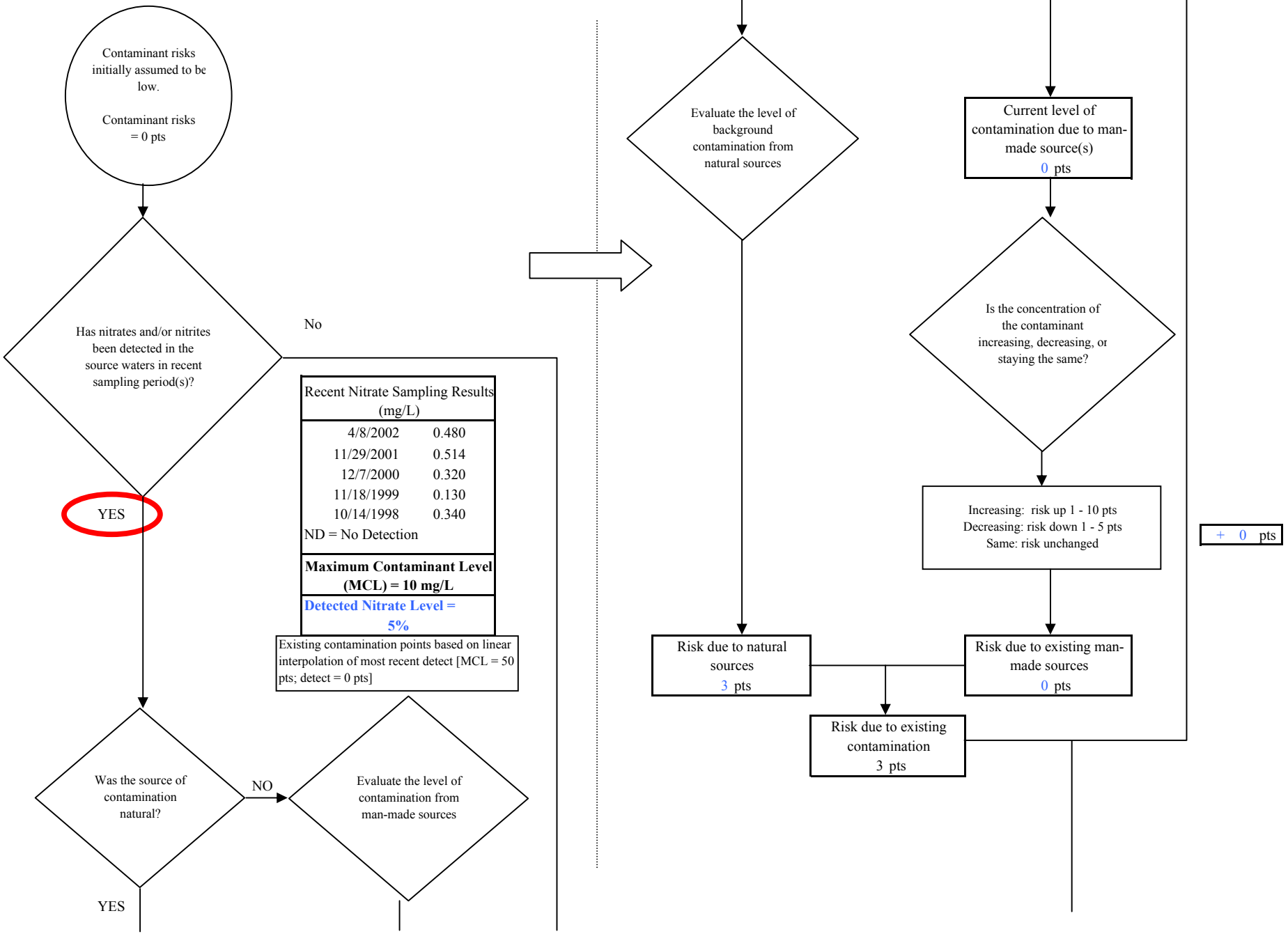


Chart 5. Contaminant risks for Trails End Mobile Home Park- Nitrates and Nitrites

+ 20 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	0	0
Medium(s)	2	0	2
Low(s)	4	1	5

	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 20

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

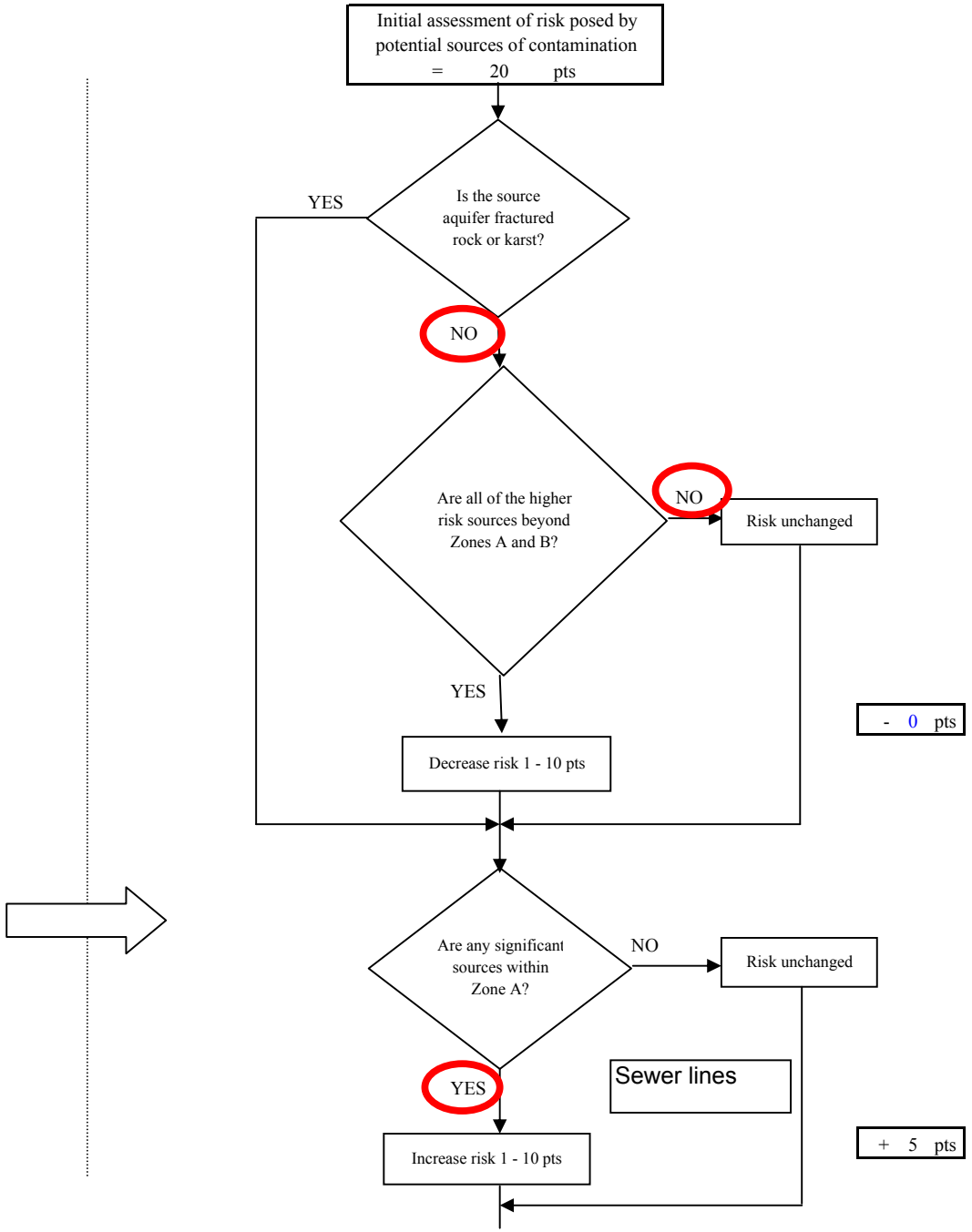


Chart 5. Contaminant risks for Trails End Mobile Home Park- Nitrates and Nitrites

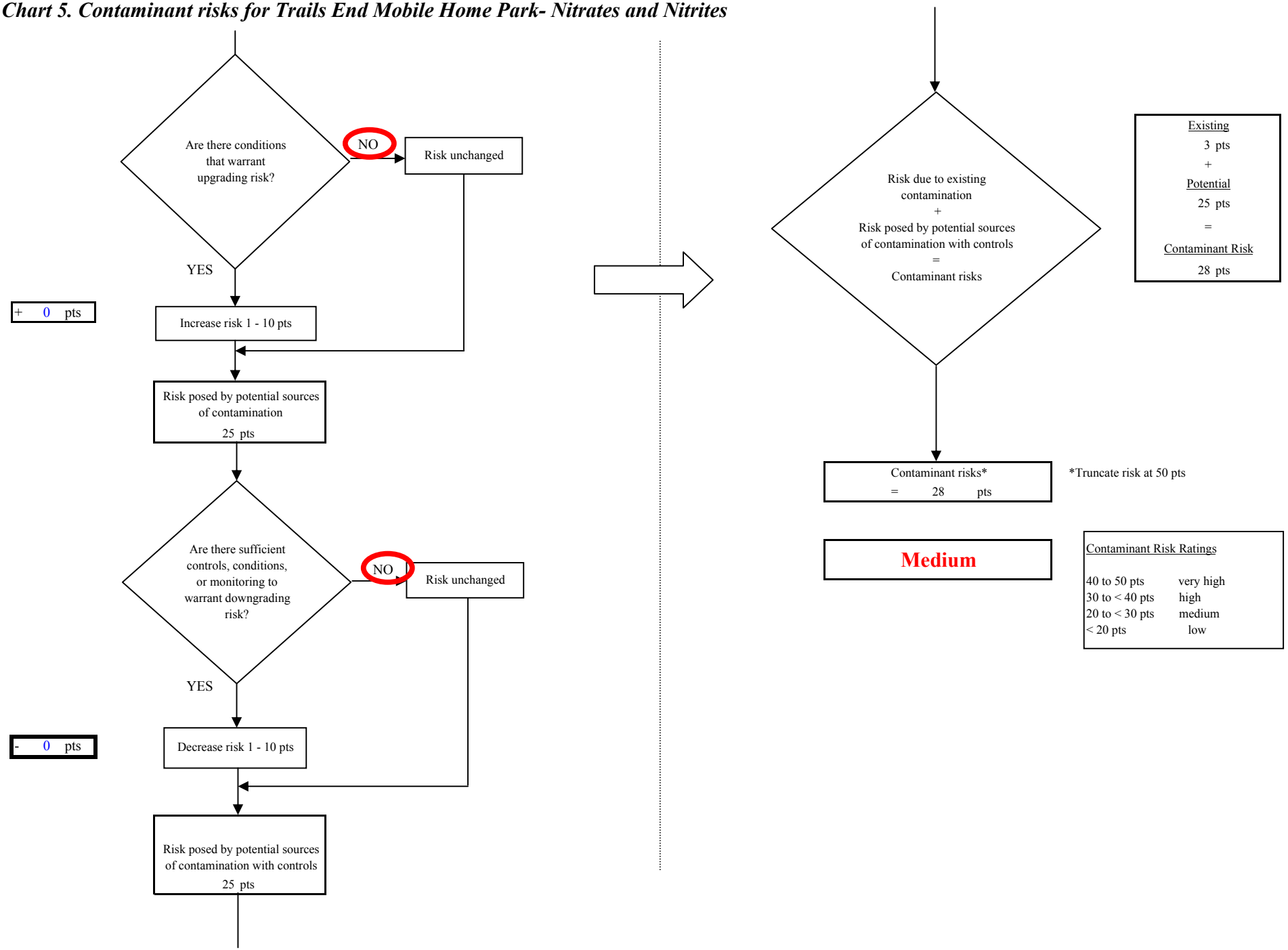


Chart 6. Vulnerability analysis for Trails End Mobile Home Park- Nitrates and Nitrites

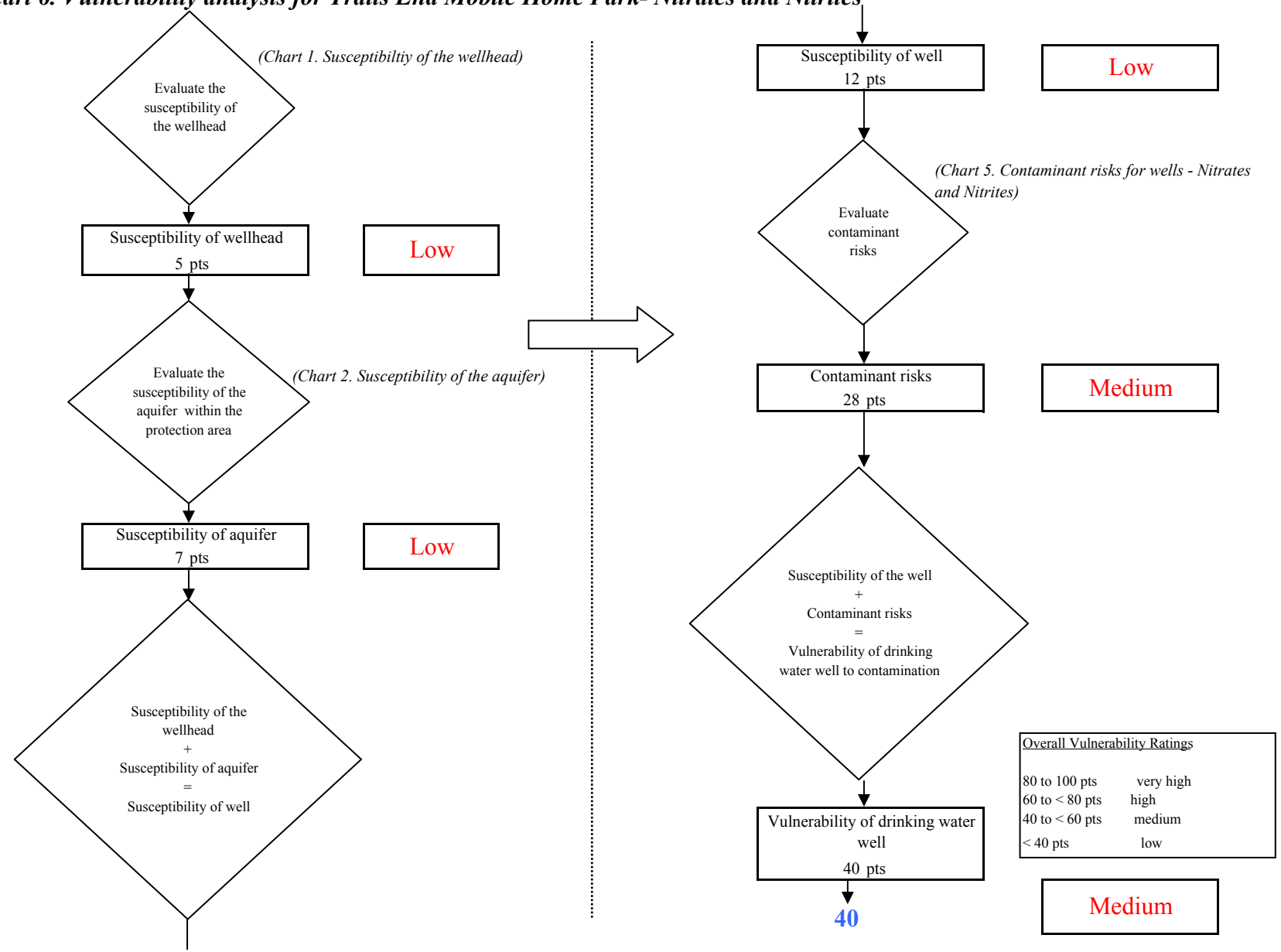


Chart 7. Contaminant risks for Trails End Mobile Home Park- Volatile Organic Chemicals

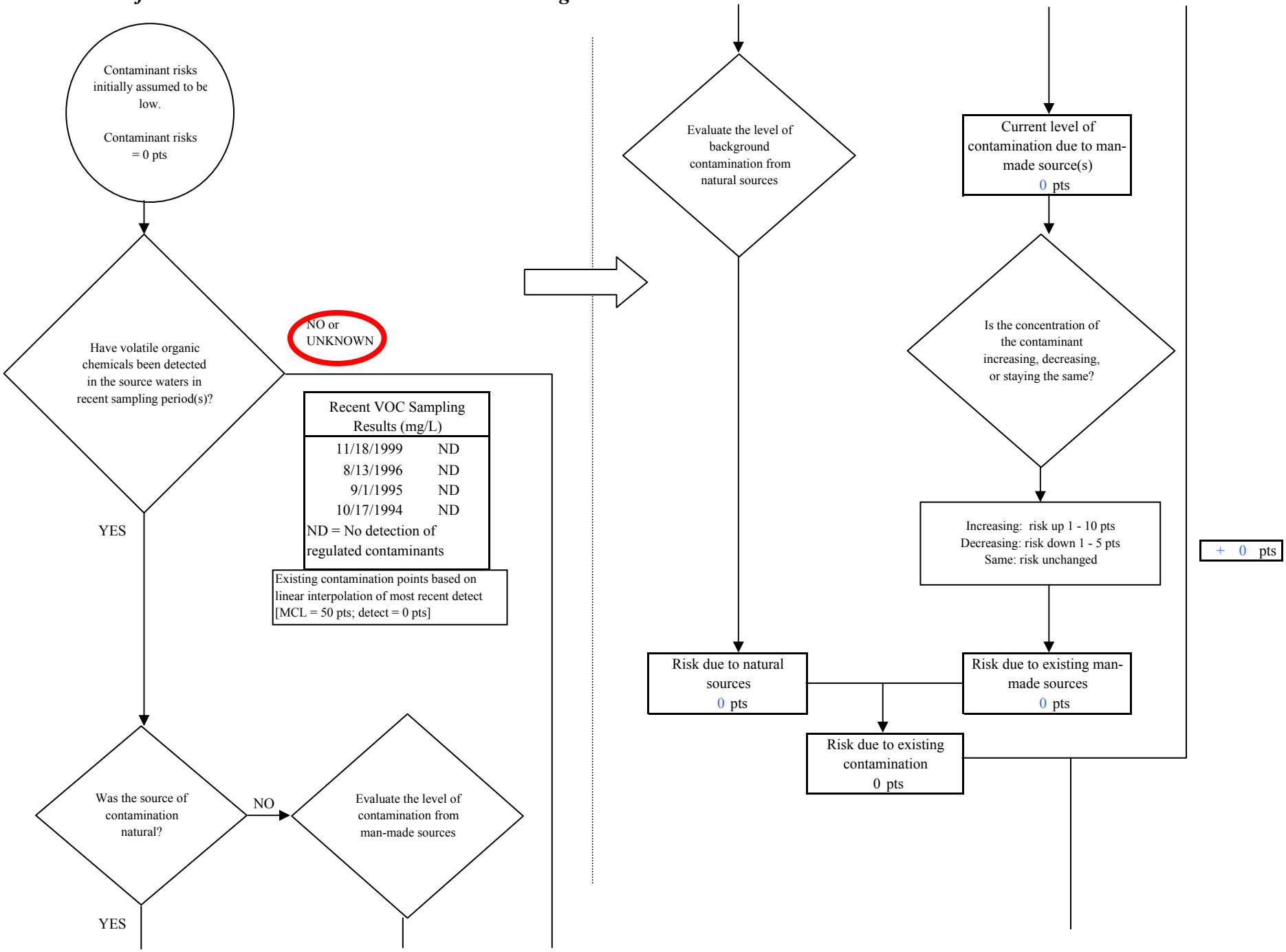


Chart 7. Contaminant risks for Trails End Mobile Home Park- Volatile Organic Chemicals

+ 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)	3	0	3
Medium(s)	2	0	2
Low(s)	2	1	3

	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

YES

Increase risk 1 - 10 pts

+ 10 pts

Chart 7. Contaminant risks for Trails End Mobile Home Park- Volatile Organic Chemicals

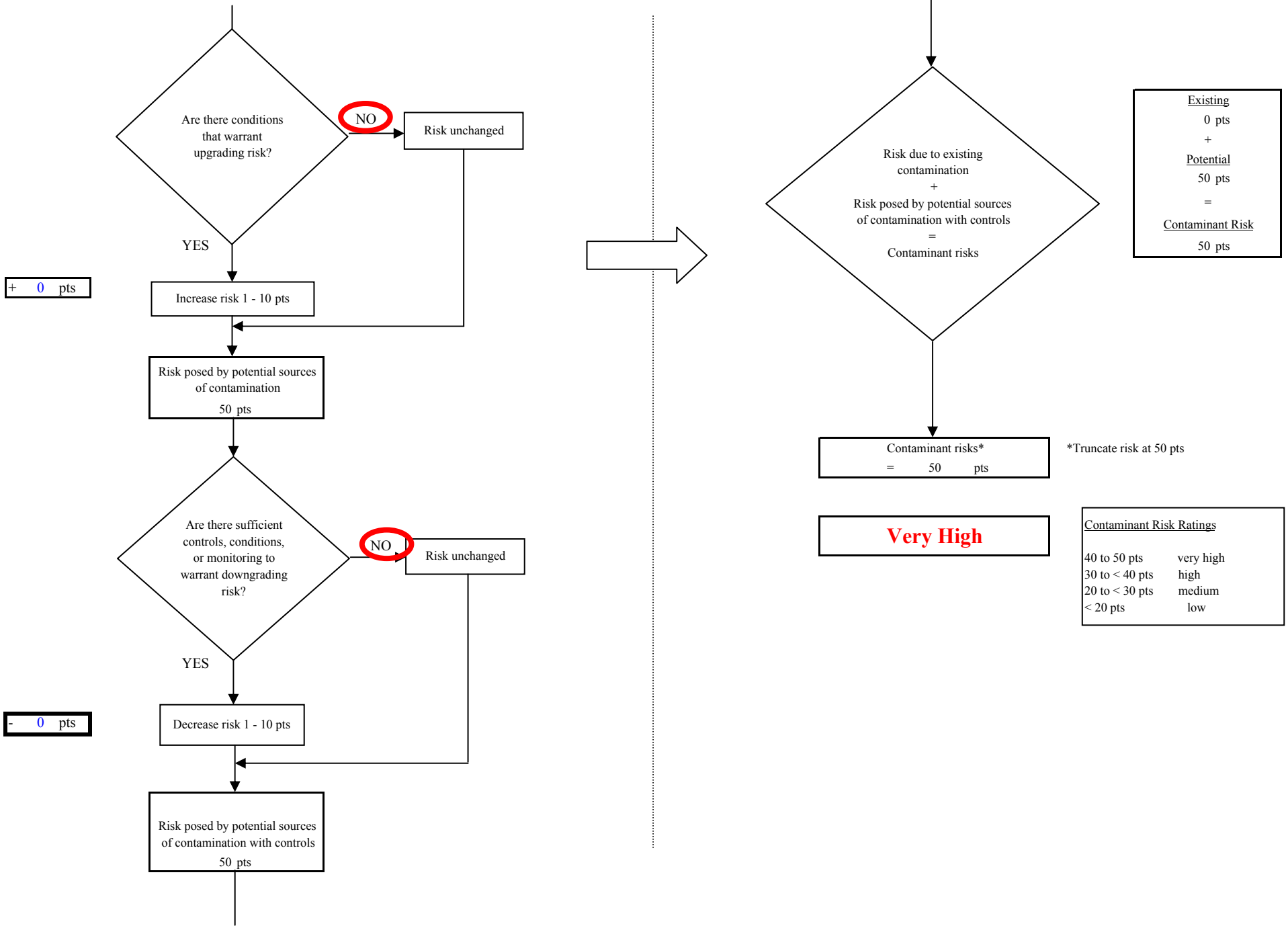


Chart 8. Vulnerability analysis for Trails End Mobile Home Park- Volatile Organic Chemicals

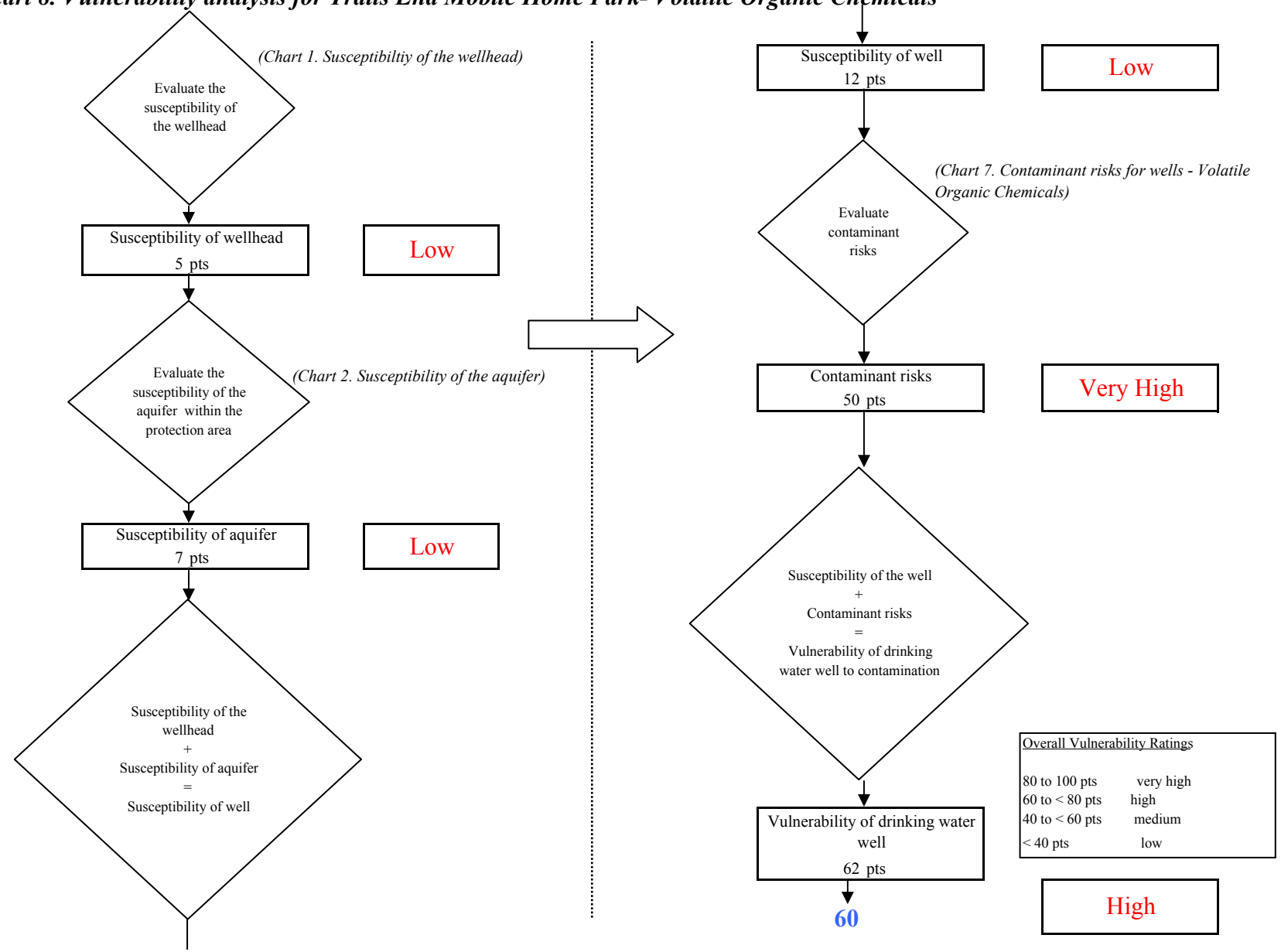


Chart 9. Contaminant risks for Trails End Mobile Home Park- Heavy Metals, Cyanide and Other Inorganic Chemicals

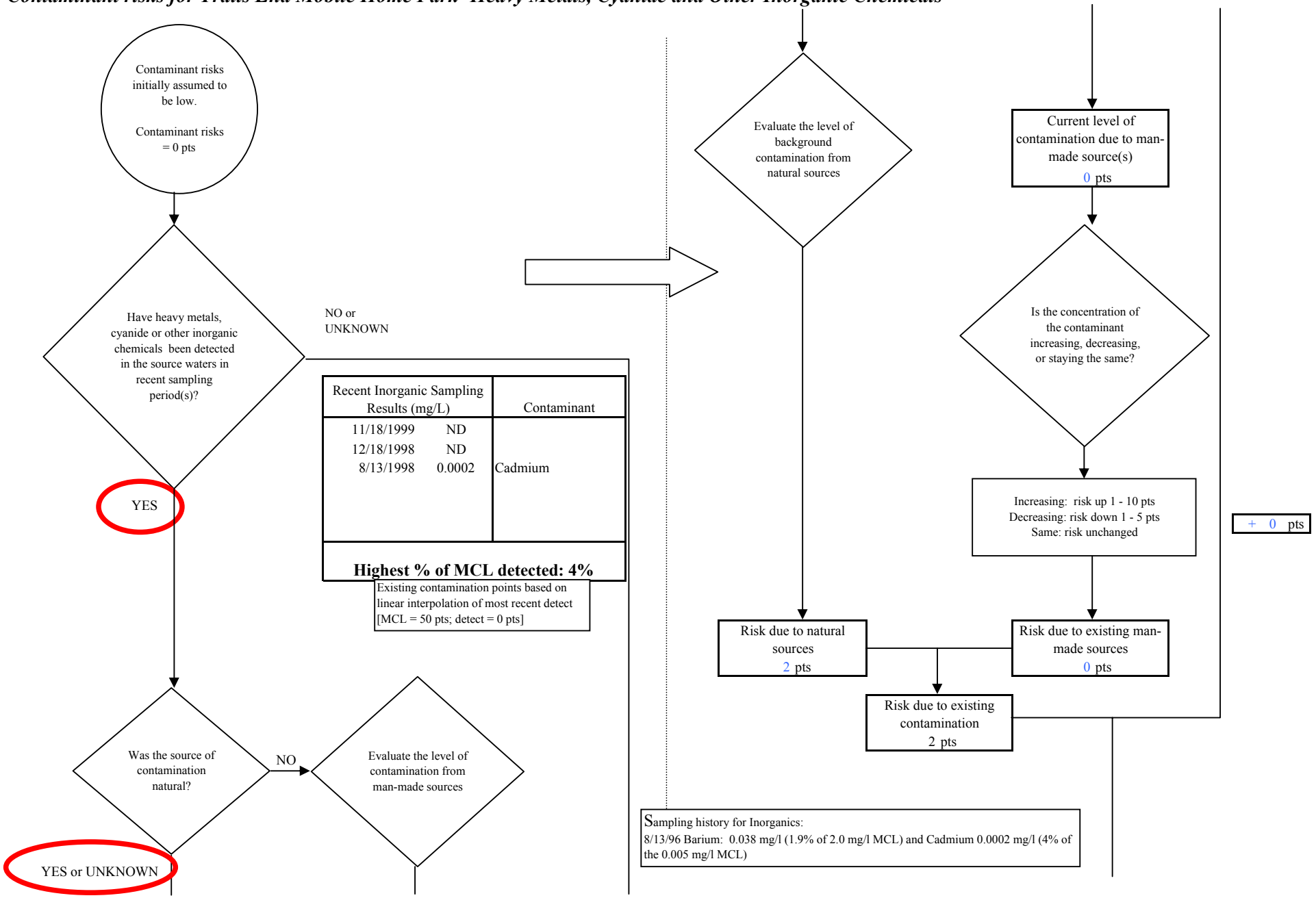


Chart 9. Contaminant risks for Trails End Mobile Home Park- Heavy Metals, Cyanide and Other Inorganic Chemicals

+ 30 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)	1	0	1
Medium(s)	1	0	1
Low(s)	5	1	6

	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.

Initial assessment of risk posed by potential sources of contamination = 30 pts

Is the source aquifer fractured rock or karst?

YES

NO

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

NO → Risk unchanged

YES

Decrease risk 1 - 10 pts

- 0 pts

Are any significant sources within Zone A?

NO → Risk unchanged

YES

Motor vehicle repair and print shop

Increase risk 1 - 10 pts

+ 10 pts

Chart 9. Contaminant risks for Trails End Mobile Home Park- Heavy Metals, Cyanide and Other Inorganic Chemicals

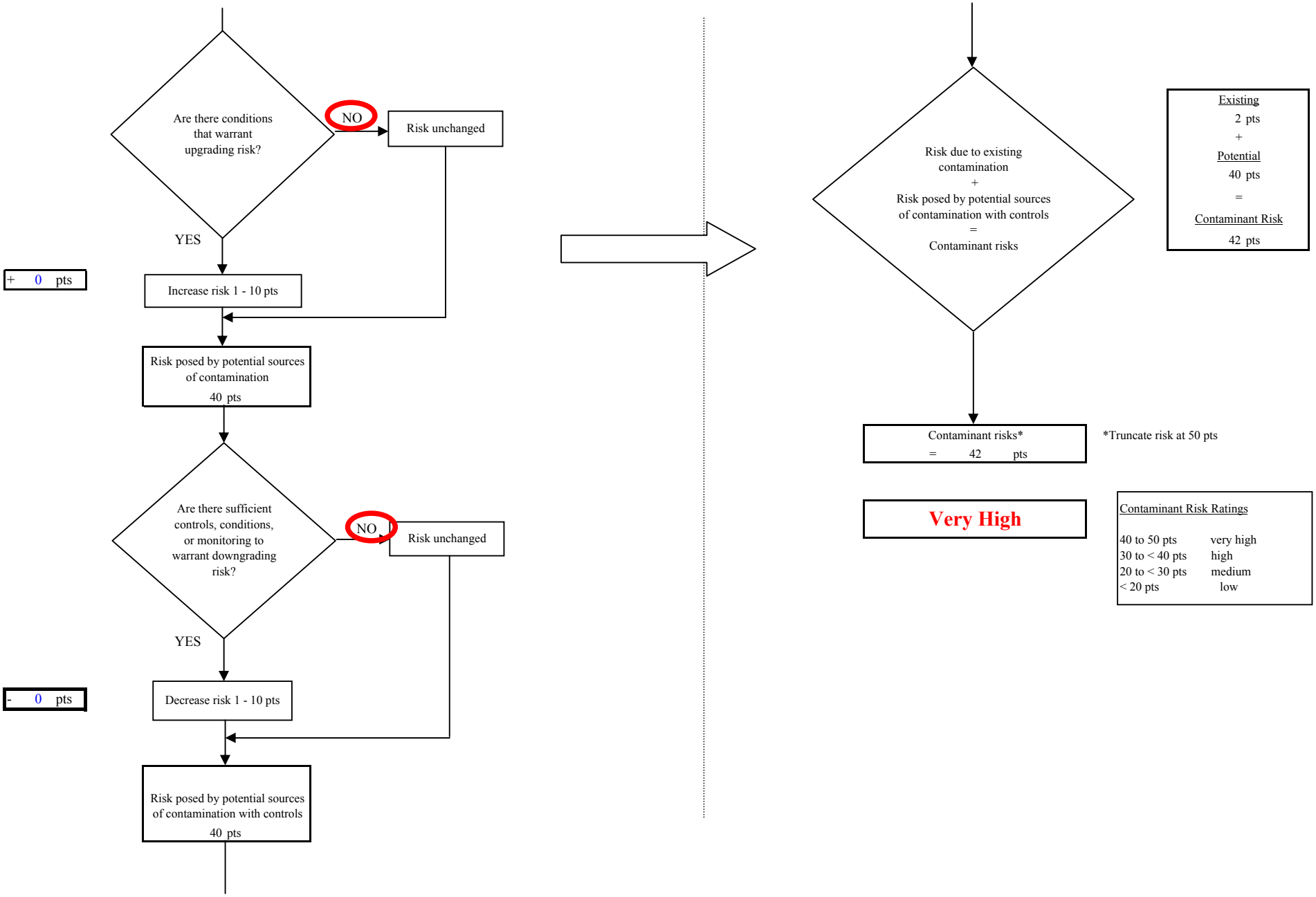


Chart 10. Vulnerability analysis for Trails End Mobile Home Park- Heavy Metals, Cyanide and Other Inorganic Chemicals

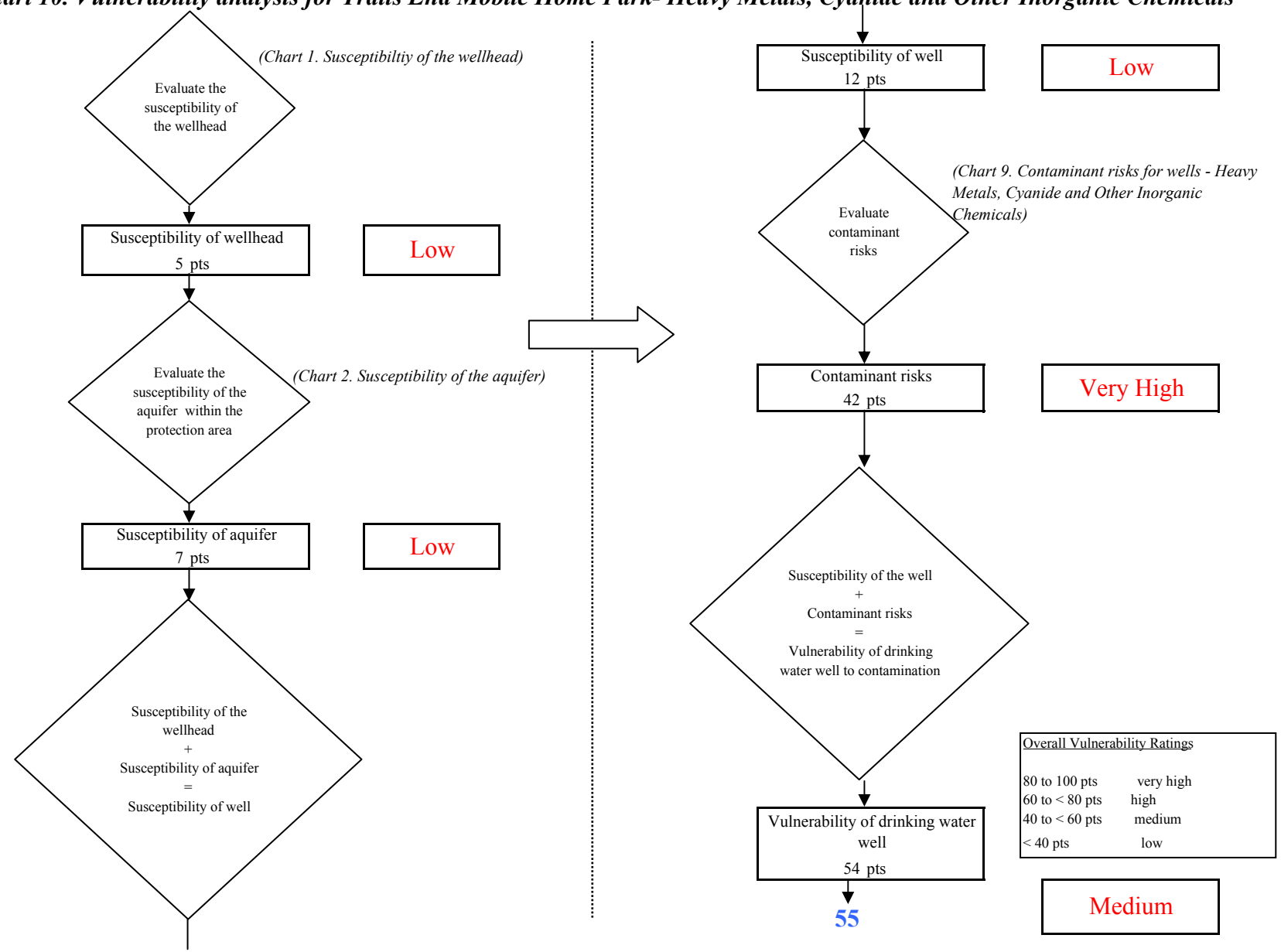


Chart 11. Contaminant risks for Trails End Mobile Home Park- Synthetic Organic Chemicals

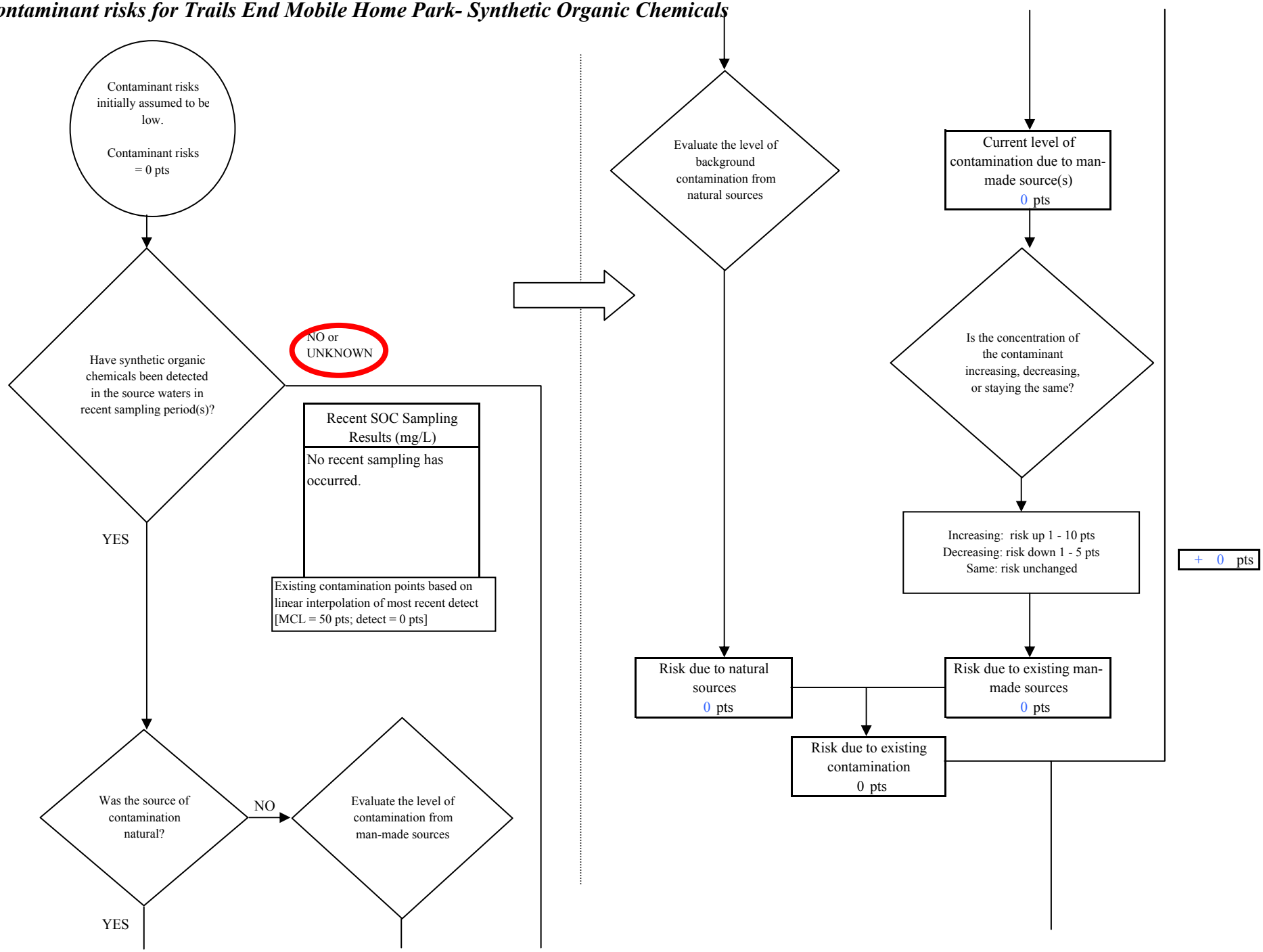
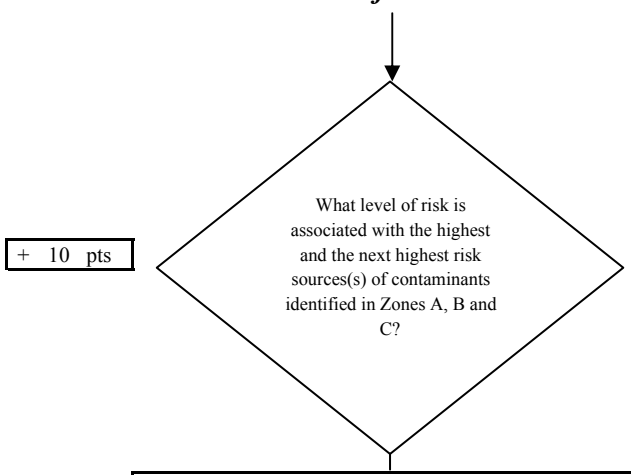


Chart 11. Contaminant risks for Trails End Mobile Home Park- Synthetic Organic Chemicals



+ 10 pts

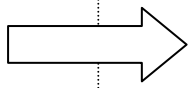
Risk Levels for Contaminant Sources identified in Zones A, B and C

	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	0	0	0
Low(s)	5	0	5

	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 10

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.



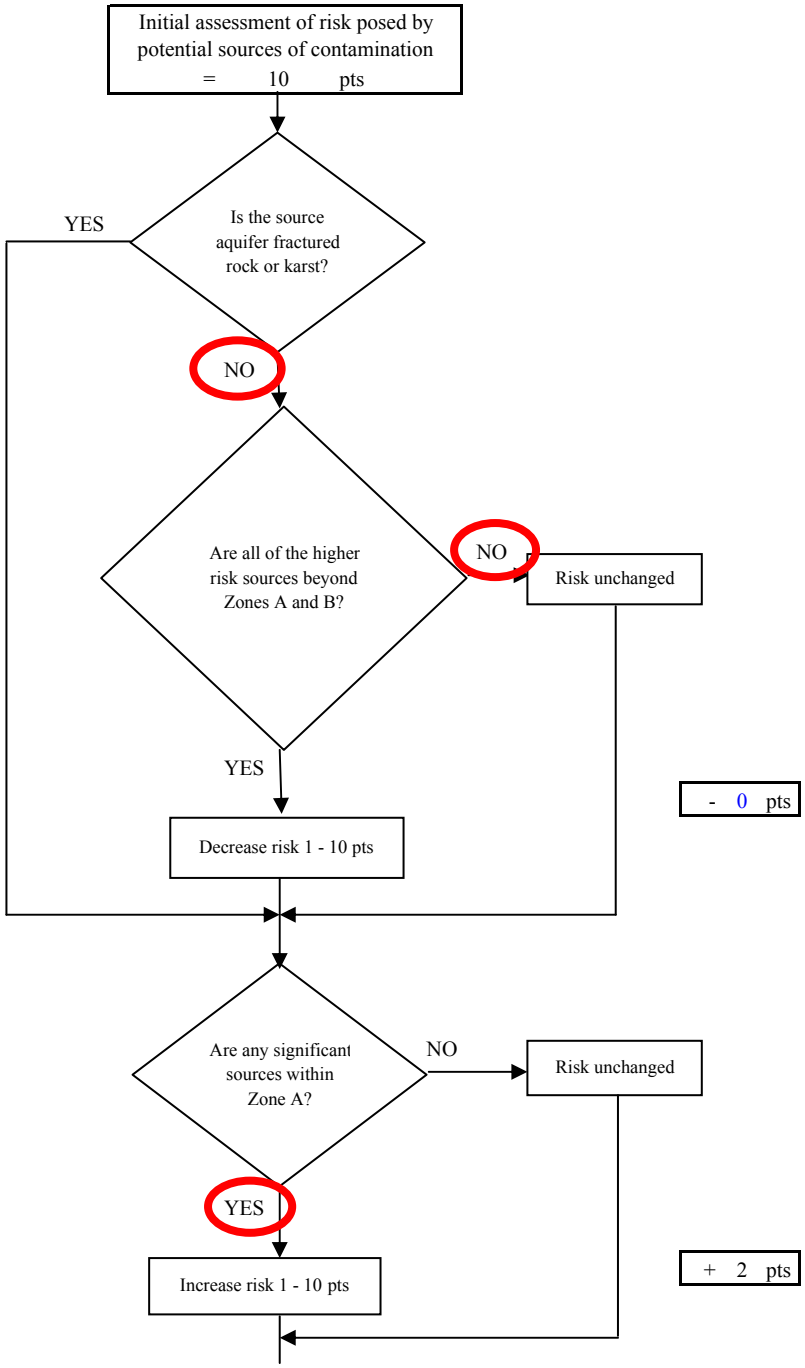


Chart 11. Contaminant risks for Trails End Mobile Home Park- Synthetic Organic Chemicals

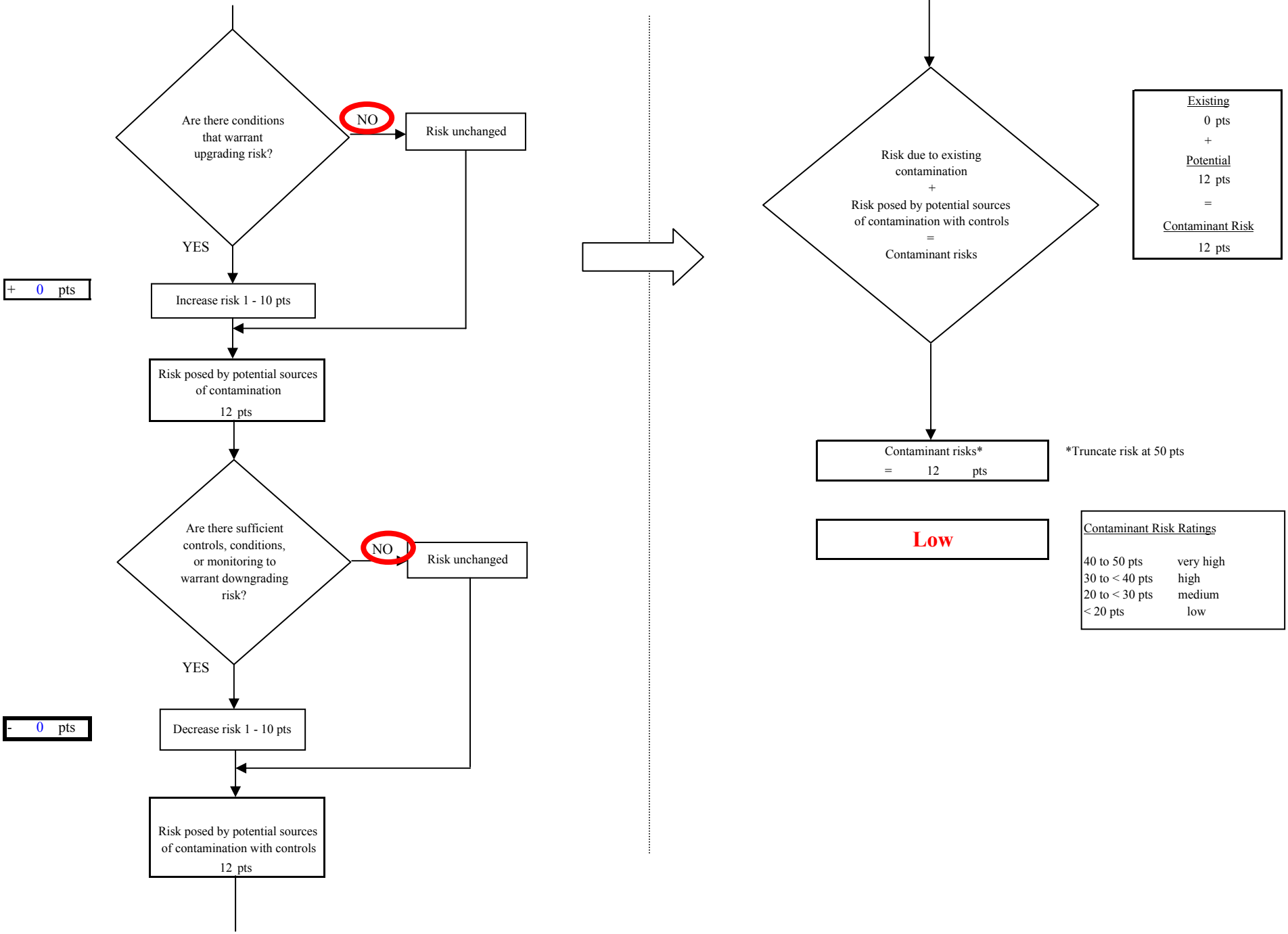


Chart 12. Vulnerability analysis for Trails End Mobile Home Park- Synthetic Organic Chemicals

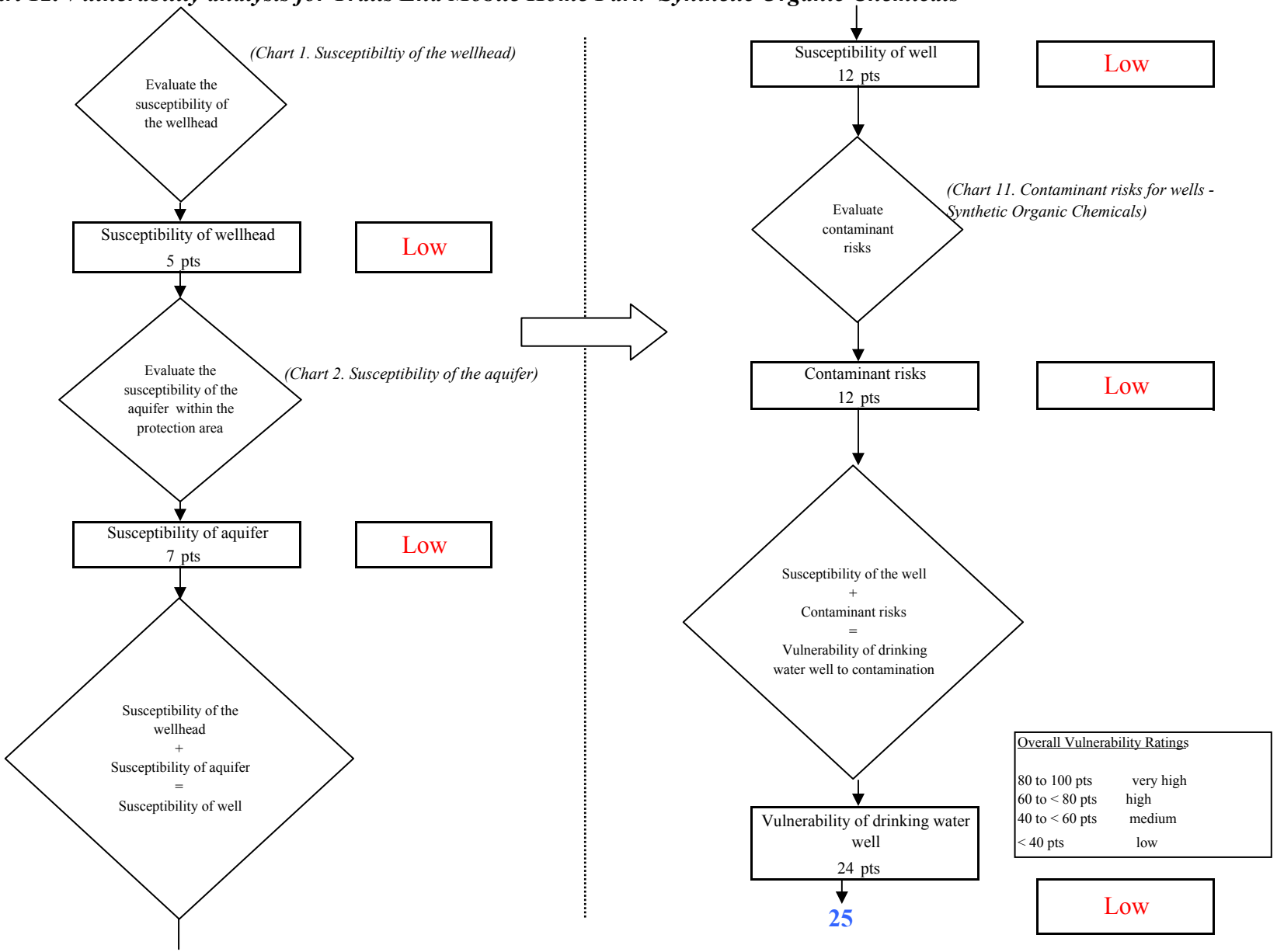


Chart 13. Contaminant risks for Trails End Mobile Home Park- Other Organic Chemicals

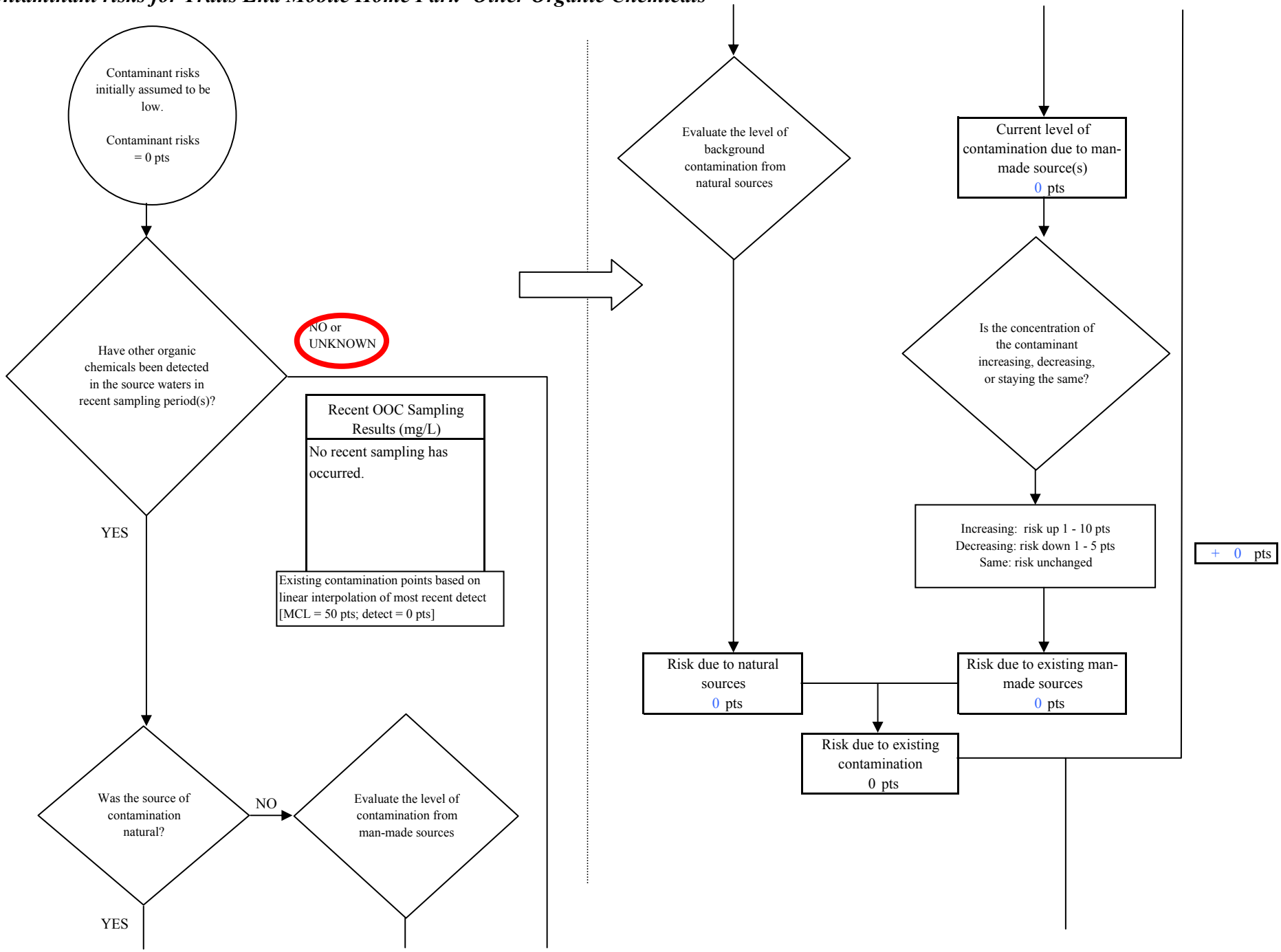
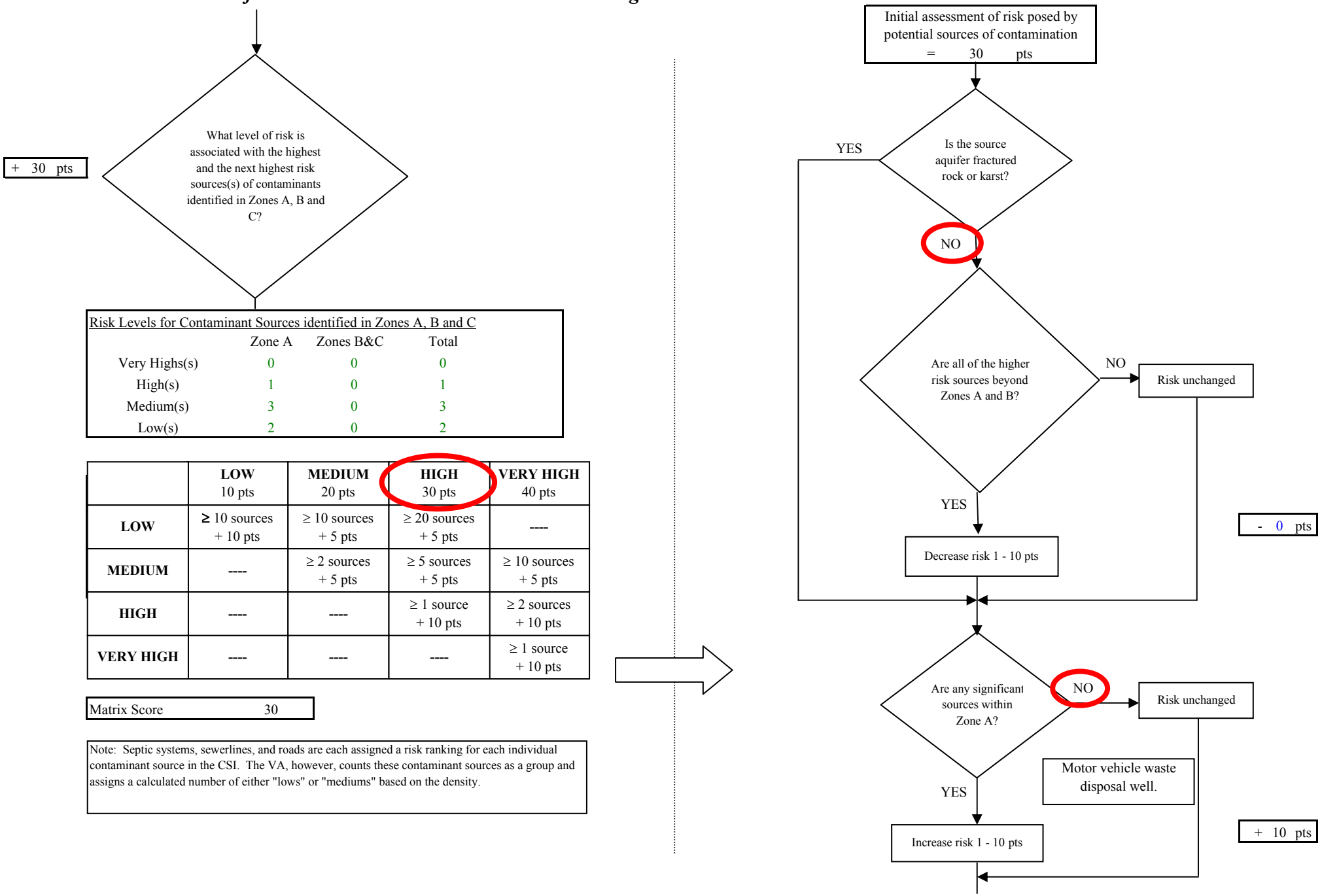


Chart 13. Contaminant risks for Trails End Mobile Home Park- Other Organic Chemicals



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

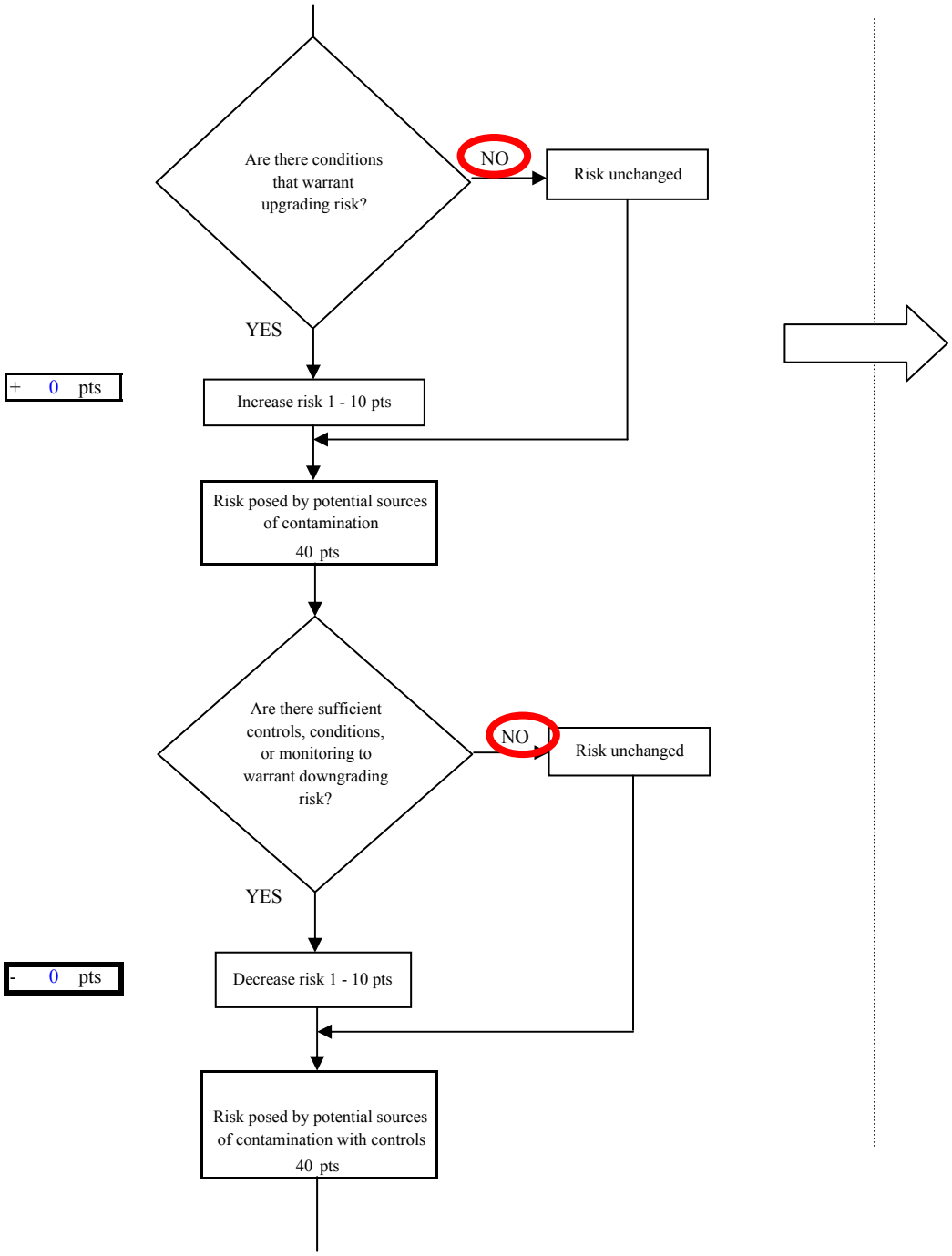
	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	1	0	1
Medium(s)	3	0	3
Low(s)	2	0	2

	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 13. Contaminant risks for Trails End Mobile Home Park- Other Organic Chemicals



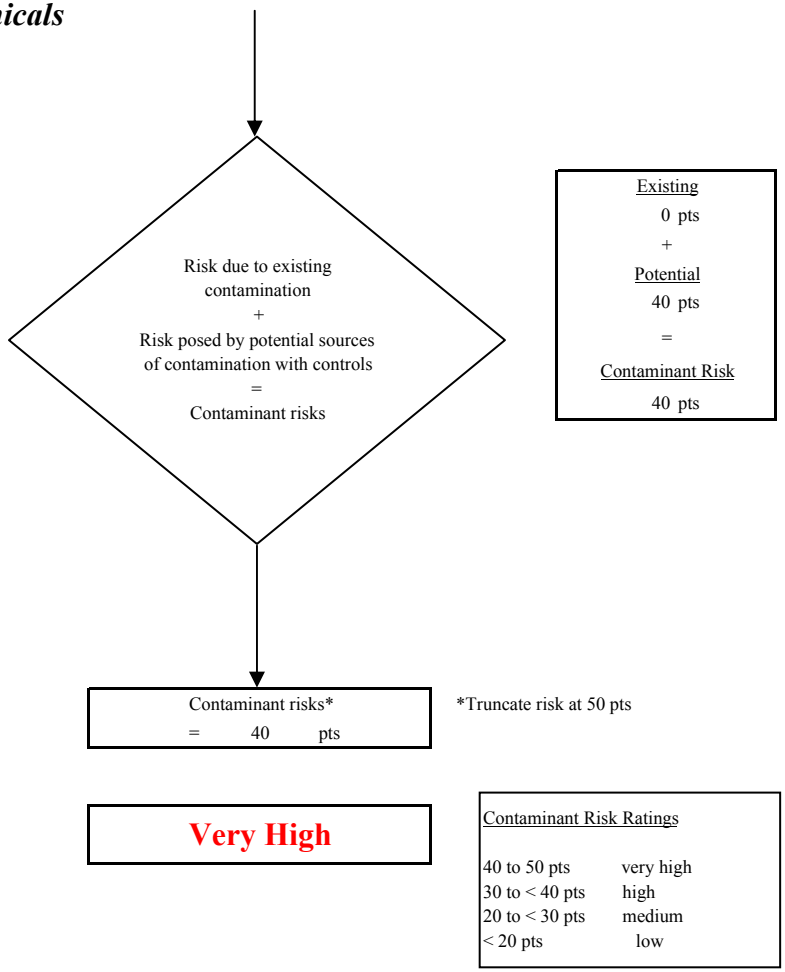


Chart 14. Vulnerability analysis for Trails End Mobile Home Park- Other Organic Chemicals