

# *Source Water Assessment* for Equestrian Acres

A Hydrogeologic Susceptibility and Vulnerability Assessment

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DRINKING WATER PROTECTION PROGRAM REPORT 156 and 157  
PWSID 227199.001 and 227199.002

January 2002

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By Chris Miller,

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ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION: 2002

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# Hydrogeologic Susceptibility and Vulnerability Assessment for Equestrian Acres Public Drinking Water Source, Palmer, Alaska

By Chris Miller, ADEC

## Drinking Water Protection Program Alaska Department of Environmental Conservation

### EXECUTIVE SUMMARY

The Equestrian Acres is a Class A (community) drinking water source consisting of two well. Identified potential and current sources of contaminants for Equestrian Acres Well No. 1 and Well No. 2 include paved roads, residential septic systems and residential area. These existing and potential sources of contamination are considered a source of bacteria and viruses, nitrates and/or nitrites, and volatile organic chemicals. Overall, Equestrian Acres Well No. 1 and Well No.2 received a vulnerability rating of **Low** for bacteria and viruses, **High** for nitrates and/or nitrites, and **Low** for volatile organic chemicals, synthetics organic chemicals, other organic chemicals and heavy metals.

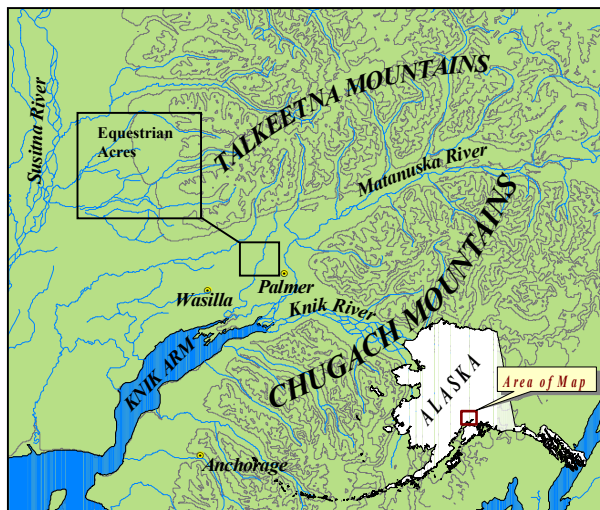


Figure 1. Index Map showing the location of the Matanuska-Susitna Valley and Equestrian Acres

### INTRODUCTION

The purpose of this environmental assessment is to provide public water system owners/operators, communities, and local governments with information they can use to preserve the quality of Alaska's public drinking water supplies. This assessment was completed for the Equestrian Acres source of public drinking water. This source consists of two wells in the Palmer area (Figure 1). This assessment, known under the Alaska Drinking Water Protection Program as the *Source Water Assessment*, has combined a review of the natural hydrogeologic sensitivity with potential and existing contaminant risks to arrive at an overall vulnerability of the drinking water source to contamination. This assessment has been completed as a basis for local voluntary protection efforts and to assist agencies in their efforts to reduce risk to this public drinking water supply.

### DESCRIPTION OF THE MATANUSKA-SUSITNA VALLEY-AREA, ALASKA

#### Location

The Matanuska-Susitna Valley is part of the lowland lying about 50 miles north of Anchorage in south-central Alaska. The well described in this report is part of the Matanuska River Watershed. This study area is roughly bounded on the north by the Talkeetna Mountains; on the west by Wasilla Creek; on the south by the Knik River; and on the east by the Chugach Mountains. The area covers approximately 150 square miles.

#### Climate

The climate of the Matanuska-Susitna Valley is the result of a combination of marine and continental influences. The 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 is approximately 15 inches per year. On the average, the Valley receives a total snow accumulation of 58 inches per year. Precipitation generally increased inland toward the Talkeetna Mountains where annual precipitation may exceed 60 inches. Mean daily temperature ranges from 67° F during July to 5° F in January (*Western Regional Climate Center*, 2000).

### Physiography and Groundwater Conditions

The Matanuska-Susitna Valley is surrounded by rugged mountains that rise abruptly above the valley floor. The Chugach Mountains at the southern edge of the valley reach altitudes greater than 6300 feet. These mountains are composed primarily of metamorphosed sedimentary marine and volcanic rocks, and greenstone of Mesozoic age. Along the northern edge of the valley, peaks in the Talkeetna Mountains reach altitudes of 3000 to 5000 feet. The Talkeetna Mountains are composed mainly of igneous rocks, chiefly granitic intrusives and

subordinate lavas and tuffs; Cretaceous and Tertiary sedimentary rocks form the south flank of the mountains. Although the altitude of the valley floor ranges from sea level at Knik Arm to 1000 feet at the base of Wishbone Hill, the local relief is commonly not more than 100 to 200 feet.

The Matanuska and Knik River's drain the area. These rivers are braided glacial outwash streams having wide floodplains. Drainage is poor in many interstream tracts resulting in large areas of swampy ground with shallow lakes occupying depressions.

The Matanuska-Susitna Valley is floored with unconsolidated deposits, chiefly glacial drift, that represents several episodes of glacial advances and retreats. The drift includes till, outwash stream deposits, and estuarine and lake deposits. Physiographic features formed by these deposits in or adjacent to the study area include end moraine, lateral moraines, eskers, crevasse fillings, and other pitted

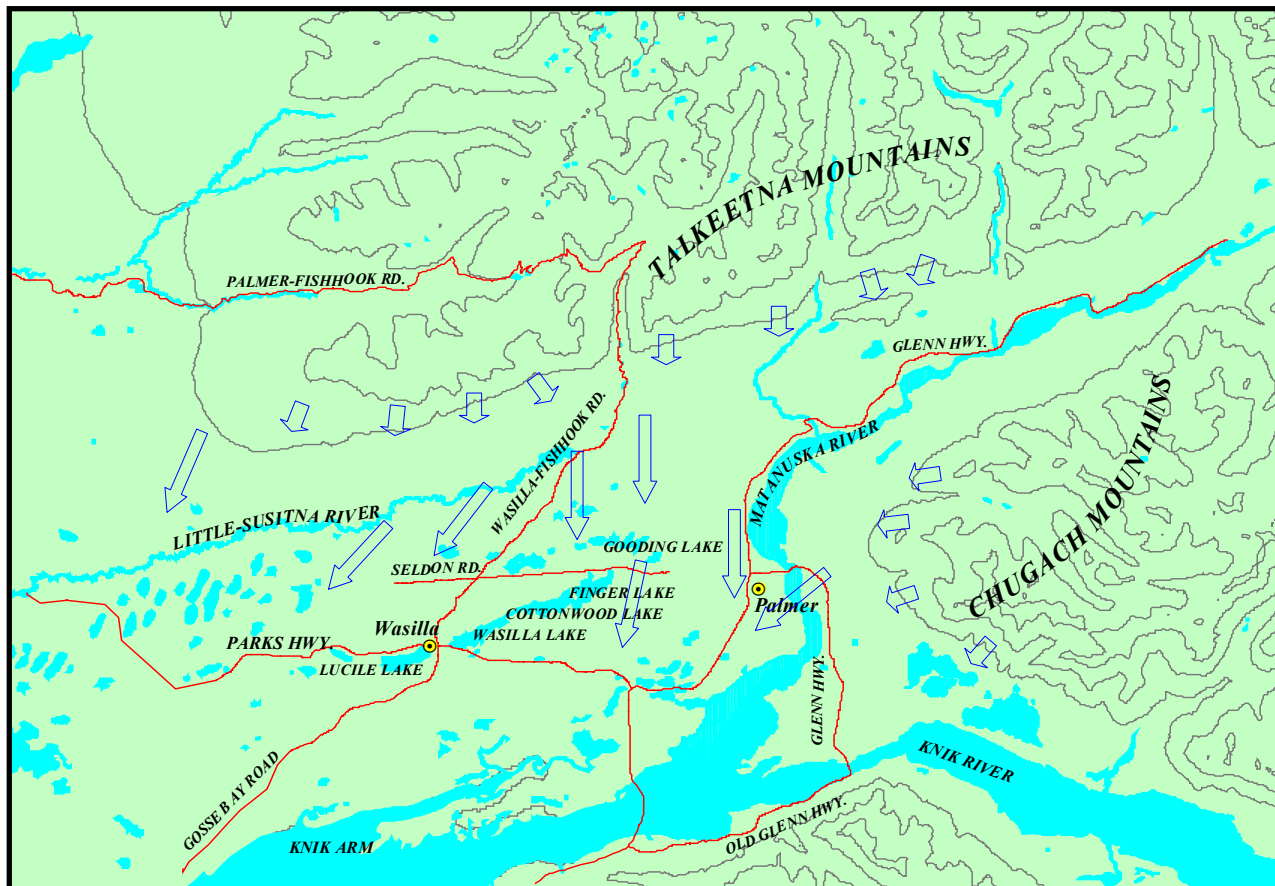


Figure 2. Map showing groundwater flow in the Matanuska-Susitna Valley (Jokela, Munter and Evans, 1991).

features, river terraces, outwash floodplains and an extensive estuarine flat (Trainer, 1960).

The glacial till and bedrock form aquifers of minor importance. The chief hydrologic significance of the till is in confining the artesian aquifer. Generally, the till is poorly permeable, although locally thin layers of sand may yield small quantities of water. Till that is present at or near the land surface in much of the area makes the acquisition of shallow groundwater difficult. The bedrock is poorly permeable. It yields water only from fractures, whose location and frequency cannot be easily predicted.

The chief aquifers are composed of outwash sand and gravel laid down by melt-water streams or in lakes. The outwash deposits are of two chief forms. The first consists of sheet-like deposits that lie just beneath the ground surface. These deposits range in thickness from a few feet to more than 100 feet. They typically rest on till or bedrock. The water in these deposits is unconfined. The other outwash deposits are buried beneath till. They are known to be as much as 50 to 60 feet thick, and probably are considerably thicker in some places. They commonly contain confined, or artesian, groundwater. Well logs and data from pumping tests suggest that outwash sand and gravel form a continuous or nearly continuous sheet in an area of more than 10 square miles north and west of Palmer (Jakola et al, 1991).

In the Mat-Su Valley, groundwater is primarily recharged by snowmelt and precipitation infiltrating both directly and also from the infiltration into the foothill slopes of the Talkeetna and Chugach Mountains. In addition,, aquifers may be recharged by streams where surface water percolates into surrounding permeable sediments (losing reaches of streams). This is the case for the water-table aquifers in the terrace south of Palmer and in the Bodenbug Butte area, which receive underground flow from the Matanuska River. Groundwater flow in the confined aquifers is generally from the north and north-northwest. The direction of groundwater flow in the upper unconfined aquifer is more variable due to the influence from surficial topography as well as its close connection with surface water bodies (Trainer,1960).

#### **EQUESTRIAN ACRES PUBLIC WATER SOURCE**

Equestrian Acres public water source is a Class A (community) water source, which is privately owned and operated. The source consists of one well located approximately 1000 ft north of the Palmer Wasilla Highway. and 1.5 miles west of the Glenn Highway.

The well is at an elevation of 350 feet above sea level. According to well logs, Equestrian Acres Well No.1 and Well No. 2 are not grouted. Both wells penetrate layers of sandy gravel separated by small clay layers. The largest clay layer occurs roughly from 85 to 117 feet. The well depth for Well No. 1 is 168 feet and Well No. 2 160 ft below the surface. Well No.1 is screened from 145' 3" to 166' 7". Well No. 2 is screened from 146' 3" to 164' 3". The static water level of Well No.1 was 101' 6" below the surface at the time of drilling ( 4/15/83). Well No.2 static water level was 117' feet below the surface at the time of drilling (10/18/84).

The water from Well No. 1, the primary well, is stored in a single 5000 gallon atmospheric tank. Water from Well No.2 mixes with water from Well No. 1. The system serves 300 residents through 112 service connections and operates 365 days per year.

#### **ASSESSMENT AND PROTECTION AREA FOR EQUESTRIAN ACRES DRINKING WATER SOURCE**

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

Conceptually, groundwater enters the aquifer systems along the front range of the Talkeetna Mountains and flows toward Cook Inlet. An analytical calculation was used to calculate the size and shape of the area that contributes water to the well. The input parameters describing the attributes of the aquifer in this calculation were adopted from the well log and the recent Sanitary Survey. This analytical calculation was used as a guide in establishing the protection area for Equestrian Acres. Additional methods were further employed to take into account any uncertainties in groundwater flow and aquifer characteristics to arrive at a meaningful and conservative protection area with respect to public health (Please refer to the Guidance Manual for Class A Public Water Systems for additional information). Due to their close proximity, similar depth and similar rate of production, Well No. 1 and Well No.2 were assessed as a single source. Further reference of the Equestrian Acres Drinking Water

Protection Area , includes both Well No. 1 and Well No. 2.

The Drinking Water Protection Areas established for wells by the Alaska Department of Environmental Conservation (ADEC) are separated into zones. These zones correspond to a time-of-travel. Time-of-travel is the time required for water to move in the saturated zone of the ground from a specific point to the well. The Drinking Water Protection Areas for Equestrian Acres contains four zones, Zone A, Zone B, Zone C and Zone D (Map 1, Appendix A). Zone A corresponds to the area between the well and the distance equal to ¼ of the distance of the 2-year time-of-travel. Depending on where a contaminant source is located within Zone A, travel time for a contaminant to the well may be on the order of several days to several hours. Zone A also extends down gradient from the well to take into account the area of the aquifer that is influenced by pumping of the well. The Zone B protection area for Equestrian Acres corresponds to a time-of-travel of less than two years and extends toward base of the Talkeetna Mountains. Zone C protection area corresponds to a time-of-travel of greater than 2 years and less than 5 years. Zone D corresponds to a time-of-travel of greater than 5 years and less than 10 years.

#### **INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES**

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within Equestrian Acres Drinking Water Protection Area. This survey was completed through a search of agency records and other publicly available information.

Potential sources of contamination to drinking water supplies cover a wide range of categories and types. Potential drinking water contaminants are found within agricultural, residential, commercial, and industrial areas, but can also occur within areas that have little or no development.

For the basis of this assessment and 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
- Other organic chemicals

Table 1 in Appendix C lists the Contaminant Source Inventory for Equestrian Acres . Below is a summary of the contaminant sources inventoried within the Equestrian Acres protection area:

- Paved roads and highways
- Residential Septic Systems
- Residential areas

These potential contaminant sources present risks for all six categories of drinking water contaminants for Equestrian Acres drinking water source.

#### **RANKING OF CONTAMINANT RISKS**

Potential and existing sources of contamination have been identified, sorted, and ranked according to what type and level of risk they represent. Ranking of contaminant risks for a “potential” or “existing” source of contamination is a function of toxicity and volumes of specific contaminants associated with that source. Contaminant risks are further a function of the number and density of those types of contaminant sources as well as the proximity of those sources to the well (Appendices B & C).

#### **VULNERABILITY OF EQUESTRIAN ACRES DRINKING WATER SOURCES**

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

- Natural susceptibility; and
- Contaminant risks.

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

Natural Susceptibility (0 – 50 points)

+

Contaminant Risks (0 – 50 points)

=

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

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

Susceptibility of the Wellhead (0 – 25 Points)

+

Susceptibility of the Aquifer (0 – 25 Points)  
 = Natural Susceptibility (Susceptibility of the Well)  
 (0 – 50 Points)

The wells serving Equestrian Acres are completed in a semi-confined aquifer setting. The well penetrates alternating layers of sandy gravel separated by clay layers. The clay layers may provide a protective barrier from the movement of contaminants in the subsurface. However, well logs in the area indicate that the clay layers tend to be discontinuous and thin. Therefore, contaminants that enter the subsurface may enter the confined aquifer uninhibited by any protective layer. The wells serving Equestrian Acres are not properly grouted. Combining the susceptibilities of the wellhead and the aquifer to contamination leads to a score (0 – 50 points) and rating of overall Susceptibility (Appendix D). Table 1 shows the overall Susceptibility score and rating for Equestrian Acres .

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

	Score	Rating
Susceptibility of the Wellheads	5	Low
Susceptibility of the Aquifer	8	Medium
Natural Susceptibility	13	Low

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. A score (0 – 50 points) and rating of Contaminant Risks (See Appendix D) is assigned based on the findings of the Contaminant Source Inventory (See Appendix B - Table 1 – Table 7). This portion of the analysis examines recent existing or historical contamination that has been detected at the drinking water source through routine sampling. It also reviews contamination that has or may have occurred but has not arrived or been detected at the well. Table 2 summarizes the Contaminant Risks for each category of drinking water contaminants.

**Table 2. Contaminant Risks**

Contaminant Risks	Score	Rating
Bacteria and Viruses	25	Medium
Nitrates and/or Nitrites	50	Very High
Volatile Organic Chemicals	12	Low
Heavy Metals, Cyanide, And Other Inorganic Chemicals	12	Low
Synthetic Organic Chemicals	12	Low
Other Organic Chemicals	12	Low

Appendix D contains fourteen charts, which together form the ‘Vulnerability Analysis’ for a Class A public drinking water system. 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 Analysis for nitrates and nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other organic chemicals, respectively.

The Vulnerability of a drinking water source to contamination is the combination of susceptibility of the aquifer and the well with contaminant risks. Table 3 contains the overall vulnerability scores (0 – 100) and ratings for each of the six categories of drinking water contaminants (See Appendix D). Note: scores are rounded off to the nearest five.



Table 3. Overall Vulnerability of Equestrian Acres Public Drinking Water Source to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	35	Low
Nitrates and Nitrites	65	High
Volatile Organic Chemicals	25	Low
Heavy Metals, Cyanide, and Other Inorganic Chemicals	25	Low
Synthetic Organic Chemicals	25	Low
Other Organic Chemicals	25	Low

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, heavy metals, synthetic organic chemicals, and other organic chemicals, respectively.

Overall, contaminant risks for Equestrian Acres is medium for bacteria/viruses. This score is driven by the potential risks associated with residential areas, roads and density of residential septic systems. Recent sampling history indicates no detection of bacteria and viruses. Combining contamination risk with the natural susceptibility of the well leads to an overall vulnerability to bacteria/virus contamination of low.

Overall, contamination risks for Equestrian Acres is very high for nitrates/nitrites. This score is driven by the potential risks associated with residential areas, roads, density of residential septic systems and existing contamination detected. During the most recent sampling event on July 12, 2001, Nitrates were detected at 50% of the maximum contaminant level (MCL) of 10 mg/l. (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 without harmful effects.

Nitrates and/or nitrites are found in natural background concentration at this site, as elsewhere in Alaska. Other sources of nitrate and/or nitrites are human sewage, livestock manure, especially from feedlots and fertilizers. Due to high solubility and weak retention by soil, nitrates are very mobile often moving at approximately the same rate as water. It is unknown whether the existing contamination is naturally occurring or human influenced.

The most recent sampling event indicates a dramatic increase in nitrate levels from samples taken over the last 5 years. The detection of 50% MCL is considered safe and still can be consumed by human without harmful effects. However, the system must increase sampling to quarterly until the levels are below 50% MCL.

According to the EPA, short-term effects of excessive levels of nitrate in drinking water have caused serious illness and sometimes death. Serious illness in infants can occur due to the conversion of nitrate to nitrite by the body, which can interfere with the oxygen-carrying capacity of the child's blood. This can be an acute condition in which health deteriorates rapidly over a period of days. Symptoms include shortness of breath and blueness of the skin. Long term exposure to nitrates and nitrites at levels above the MCL can lead to diuresis, increased starchy deposits and hemorrhaging of the spleen. (EPA, 2001)

The contaminant risks for volatile organic chemicals, heavy metals, synthetic organic chemicals and other organic chemicals were determined to be low since no significant sources have been identified and recent sampling indicate no detection of any of these chemicals

## SUMMARY

A *Source Water Assessment* has been completed for the source of public drinking water serving Equestrian Acres. The overall vulnerability of this source to contamination is **Low** for bacteria and viruses, volatile organic chemicals, synthetic organic chemicals, other organic chemicals and heavy metals and **High** for nitrates and nitrites. 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 Equestrian Acres 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 Equestrian Acres public drinking water source.

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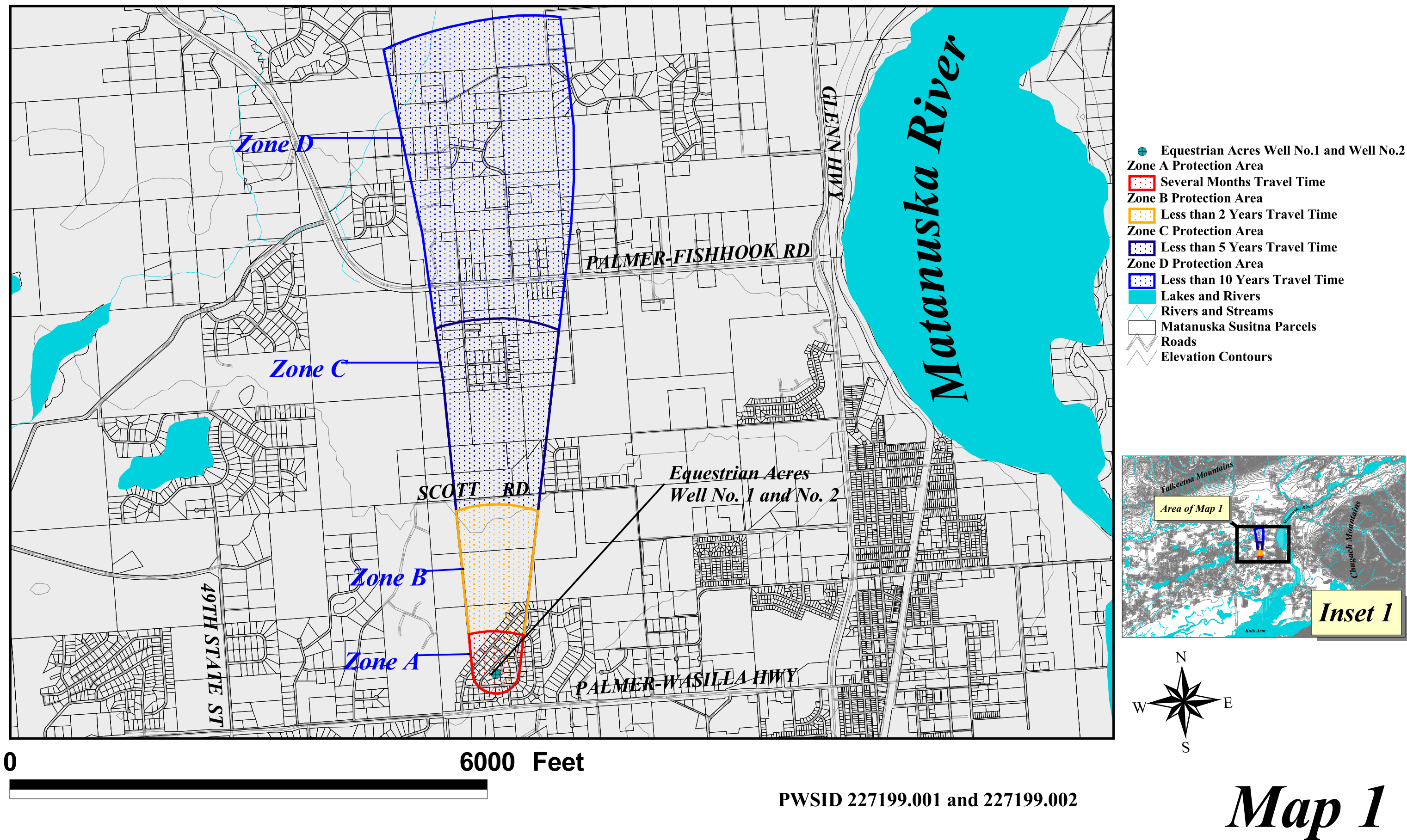
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## **APPENDIX A**

### **Equestrian Acres Drinking Water Protection Area**

# Drinking Water Protection Area for Equestrian Acres Well No. 1 and Well No.2



PWSID 227199.001 and 227199.002

## **APPENDIX B**

### **Contaminant Source Inventory and Risk Ranking for Equestrian Acres**

**Table 1****Contaminant Source Inventory for  
Equestrian Acres****PWSID 227199.001**

<b>Contaminant Source Type</b>	<b>Contaminant Source ID</b>	<b>CS ID tag</b>	<b>Zone</b>	<b>Location</b>	<b>Map Number</b>	<b>Comments</b>
Residential Areas	R01	R01-01	A	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Near Rockingham and Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-21	A	Near Rockingham and Kentucky Derby	4	

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-22	A	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-53	A	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Apaloosa Circle	2	

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Rockingham Court	2	
Residential Areas	R01	R01-02	B	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Kelson	2	
Residential Areas	R01	R01-03	C	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Grow Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Buroker Circle	3	



<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Hay Road	3	

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-17	D	Near Palmer Wasilla Highway	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-18	D	Near Palmer Wasilla Highway	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-19	D	Near Palmer Wasilla Highway	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-20	D	Near Palmer Wasilla Highway	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-21	D	Near Finger Lake	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-22	D	Near Bogard Road	4	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-23	D	Near Engstrom Road	4	
Injection wells (Class V) Industrial Process Water & Water Disposal Wells	D40	D40-01	D		4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-02	D	Near Palmer Wasilla Highway	4	
Injection wells (Class V) Motor Vehicle Waste Disposal Well	D42	D42-03	D	Near Palmer Wasilla Highway	4	
Airports	X14	X14-01	D	Four Corners Runway	4	

Table 2

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Bacteria and Viruses*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

**Table 2 (continued)**

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Bacteria and Viruses*

**PWSID 227199.001**

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	

Table 2 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Bacteria and Viruses*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Apaloosa Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Low	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Low	Rockingham Court	2	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Kelson	2	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Low	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Grow Lane	3	

**Table 2 (continued)**

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Bacteria and Viruses*

**PWSID 227199.001**

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Low	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Low	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Low	Buroker Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Low	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Low	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Low	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Low	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Low	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Low	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Low	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Low	Hay Road	3	

Table 3

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Nitrates/Nitrites*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

**Table 3 (continued)**

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Nitrates/Nitrites*

**PWSID 227199.001**

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	



Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Nitrates/Nitrites*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Apaloosa Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Low	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Low	Rockingham Court	2	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Kelson	2	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Low	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Grow Lane	3	

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Nitrates/Nitrites*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Low	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Low	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Low	Buroker Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Low	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Low	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Low	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Low	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Low	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Low	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Low	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Low	Hay Road	3	

Table 4

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Volatile Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

**Table 4 (continued)**

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Volatile Organic Chemicals*

**PWSID 227199.001**

<b>Contaminant Source Type</b>	<b>Contaminant Source ID</b>	<b>CS ID tag</b>	<b>Zone</b>	<b>Risk Ranking for Analysis</b>	<b>Location</b>	<b>Map Number</b>	<b>Comments</b>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	

Table 4 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Volatile Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Apaloosa Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Low	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Low	Rockingham Court	2	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Kelson	2	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Low	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Grow Lane	3	

**Table 4 (continued)**

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Volatile Organic Chemicals*

**PWSID 227199.001**

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Low	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Low	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Low	Buroker Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Low	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Low	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Low	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Low	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Low	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Low	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Low	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Low	Hay Road	3	

Table 5

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

Table 5 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres*

PWSID 227199.001

*Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals*

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	



Table 5 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres*

PWSID 227199.001

*Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals*

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Apaloosa Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Low	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Low	Rockingham Court	2	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Kelson	2	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Low	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Grow Lane	3	

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres

PWSID 227199.001

Sources of Heavy Metals, Cyanide and Other Inorganic Chemicals

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Location	Map Number	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Low	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Low	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Low	Buroker Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Low	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Low	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Low	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Low	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Low	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Low	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Low	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Low	Hay Road	3	

Table 6

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Synthetic Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

Table 6 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Synthetic Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	

Table 6 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Synthetic Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	

Table 7

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Other Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Residential Areas	R01	R01-01	A	Low	All Residential Area in Zone A	2	20 acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-20	A	Low	Near Rockingham and Kentucky Derby Drive	4	

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Other Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-21	A	Low	Near Rockingham and Kentucky Derby	4	
Septic systems (serves one single-family home)	R02	R02-22	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-23	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-24	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-25	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-26	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-27	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-28	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-29	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-30	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-31	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-32	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-33	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-34	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-35	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-36	A	Low	Near Rockingham	4	
Septic systems (serves one single-family home)	R02	R02-37	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-38	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-39	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-40	A	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-41	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-42	A	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-52	A	Low	Near Equestrian Street	4	

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Other Organic Chemicals*

PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Septic systems (serves one single-family home)	R02	R02-53	A	Low	Near Palomino Street	4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Palomino Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Kentucky Derby Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Apaloosa Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Palomino Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-05	A	Low	Equestrian	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	A	Low	Halean Court	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	A	Low	Rockingham Court	2	
Residential Areas	R01	R01-02	B	Low	All Residential Area in Zone B	2	2 acres
Septic systems (serves one single-family home)	R02	R02-43	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-44	B	Low	Near Kentucky Derby Drive	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-45	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-46	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-47	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-48	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-49	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-50	B	Low	Near Equestrian Street	4	
Septic systems (serves one single-family home)	R02	R02-51	B	Low	Near Equestrian Street	4	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Kelson	2	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	100 acra
Highways and roads, paved (cement or asphalt)	X20	X20-09	C	Low	Scotte Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Grow Lane	3	



Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for  
Equestrian Acres  
Sources of Other Organic Chemicals*

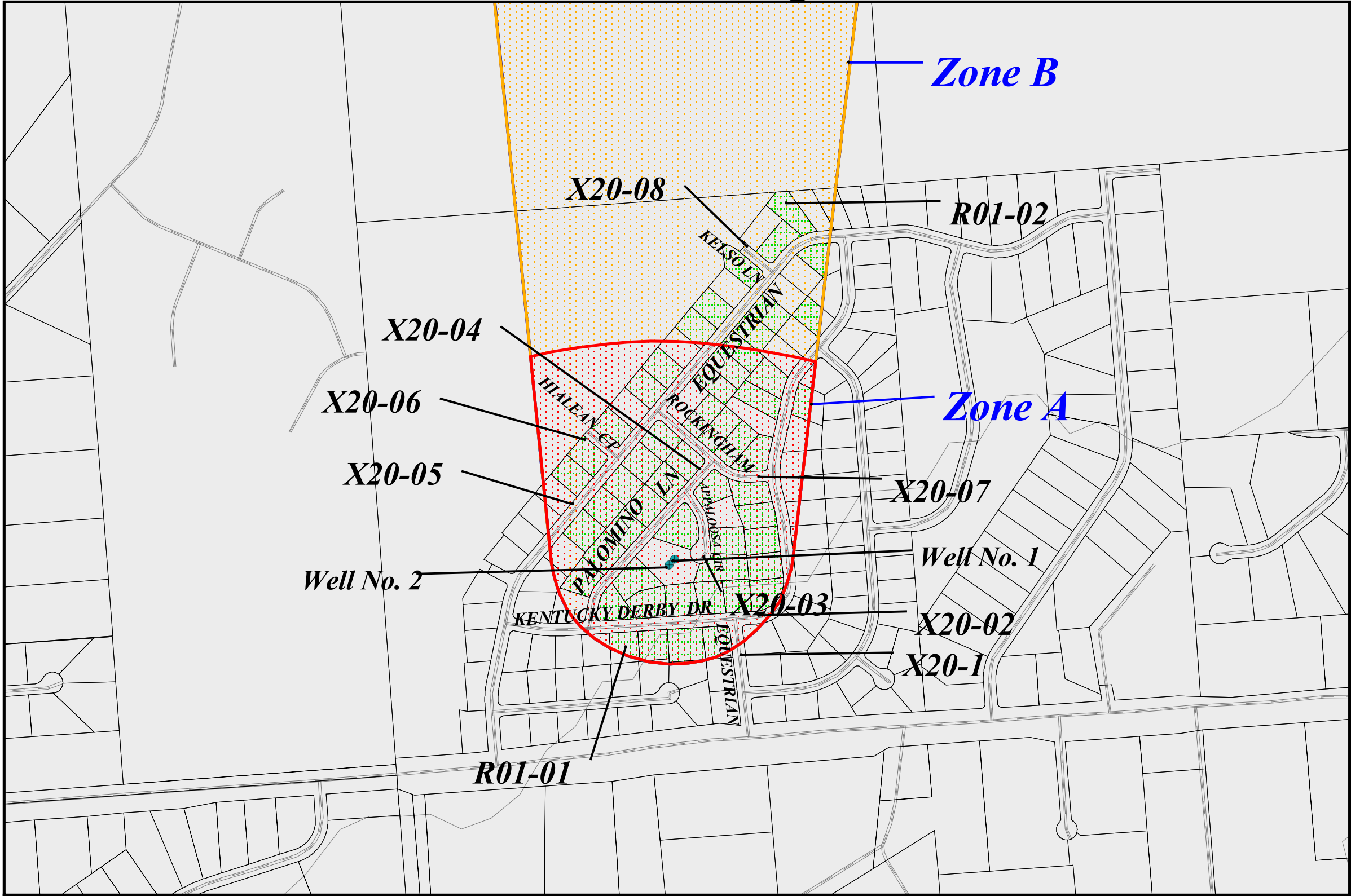
PWSID 227199.001

<i>Contaminant Source Type</i>	<i>Contaminant Source ID</i>	<i>CS ID tag</i>	<i>Zone</i>	<i>Risk Ranking for Analysis</i>	<i>Location</i>	<i>Map Number</i>	<i>Comments</i>
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Campbell Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	West Lake Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Morton Avenue	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Kecker Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-15	C	Low	Amfay Drive	3	
Residential Areas	R01	R01-04	D	Low	Residential Area in Zone D	3	
Highways and roads, paved (cement or asphalt)	X20	X20-16	D	Low	Palmer Fishhook Road	3	
Highways and roads, paved (cement or asphalt)	X20	X20-17	D	Low	Buroker Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-18	D	Low	Farm Loop	3	
Highways and roads, paved (cement or asphalt)	X20	X20-19	D	Low	Kilby Lane	3	
Highways and roads, paved (cement or asphalt)	X20	X20-20	D	Low	Hanks Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-21	D	Low	Center Street	3	
Highways and roads, paved (cement or asphalt)	X20	X20-22	D	Low	Larose Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-23	D	Low	Tazlina	3	
Highways and roads, paved (cement or asphalt)	X20	X20-24	D	Low	Fence Line	3	
Highways and roads, paved (cement or asphalt)	X20	X20-25	D	Low	Hay Road	3	

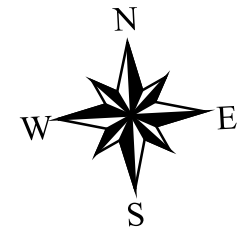
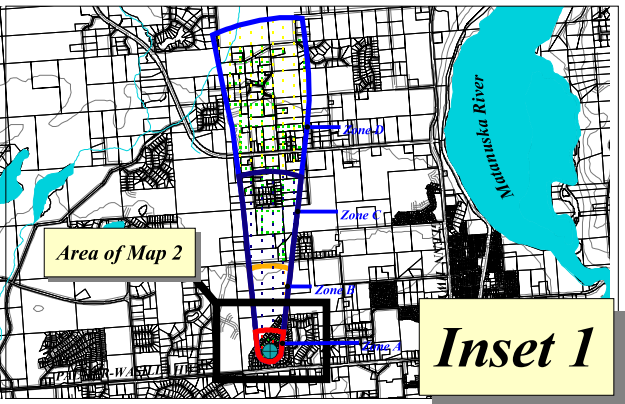
## **APPENDIX C**

### **Equestrian Acres Drinking Water Protection Area and Potential & Existing Contaminant Sources**

# Drinking Water Protection Area for Equestrian Acres Well No. 1 and Well No. 2 and Potential and Existing Sources of Contamination



- Equestrian Acres Well No.1 and Well No.2
- 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
- Residential Area (R1)
- Lakes and Rivers
- Rivers and Streams
- Matanuska Susitna Parcels
- Roads
- Elevation Contours

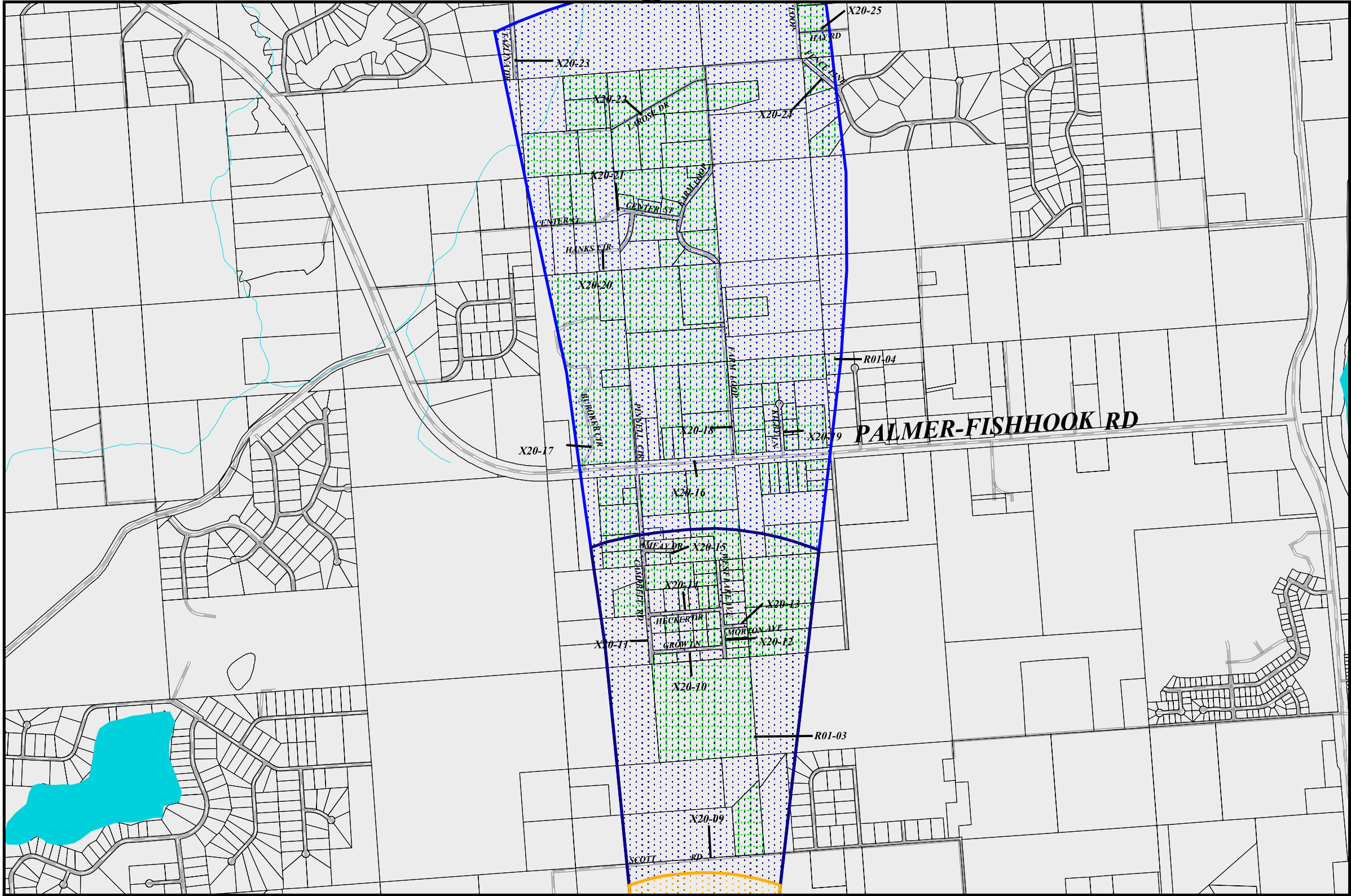


1000 0 1000 Feet

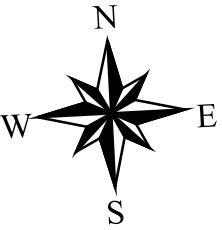
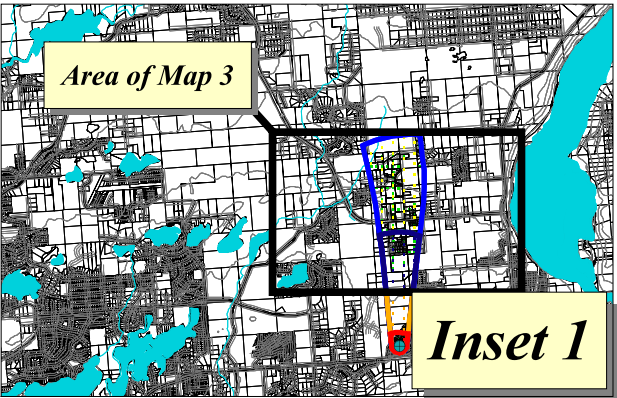
PWSID 227199.001 and 227199.002

*Map 2*

# Drinking Water Protection Area for Equestrian Acres and Potential and Existing Sources of Contamination.



- Equestrian Acres Well No.1 and Well No.2
- 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
- Residential Area (R1)
- Lakes and Rivers
- Rivers and Streams
- Matanuska Susitna Parcels
- Roads



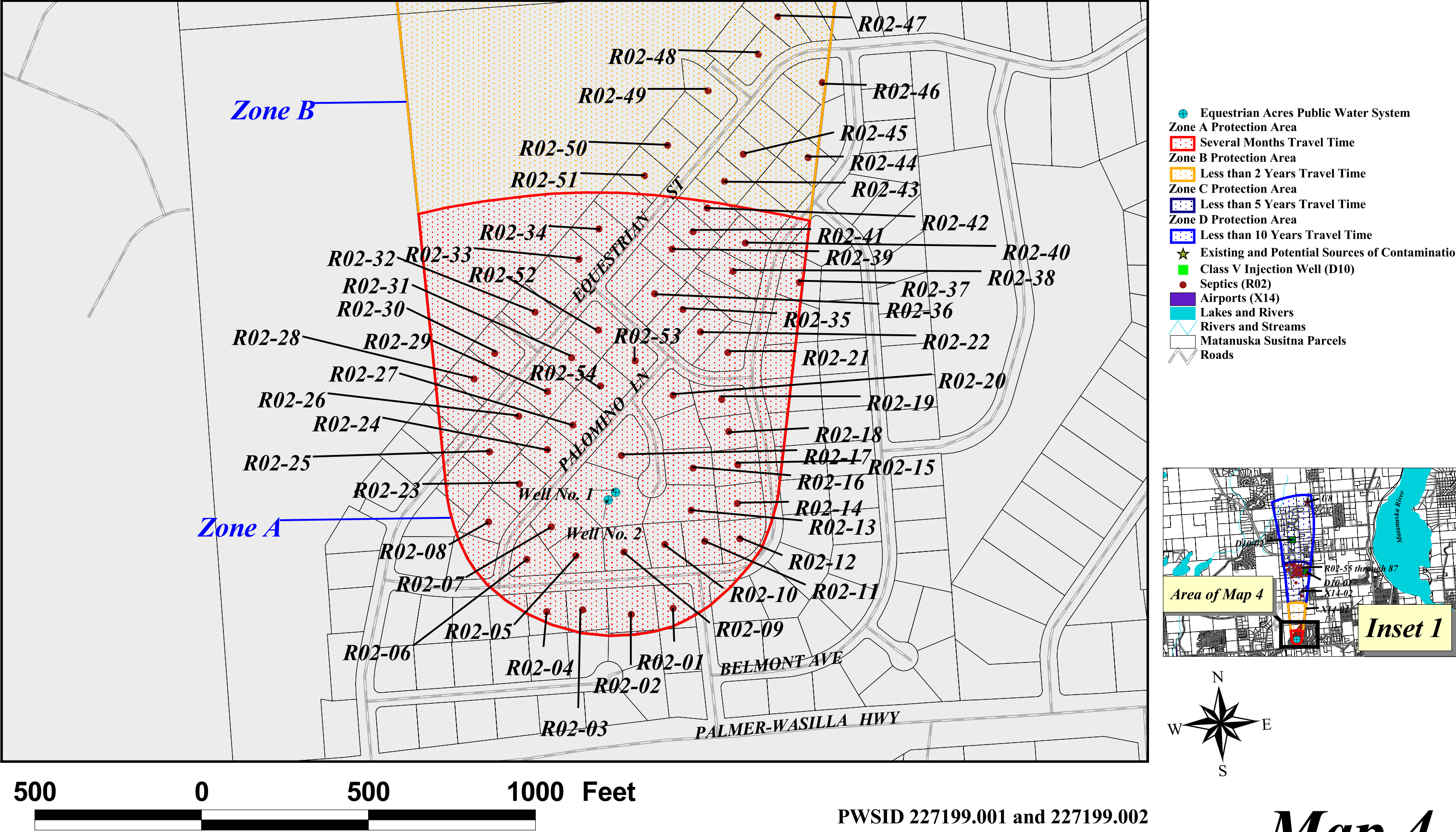
3000 0 3000 Feet

PWSID 227199.001 and 227199.002

*Map 3*



# Dininking Water Protection Area for Equestrian Acres Well No. 1 and Well No.2 and Potential and Exisitng Sources of Contamination



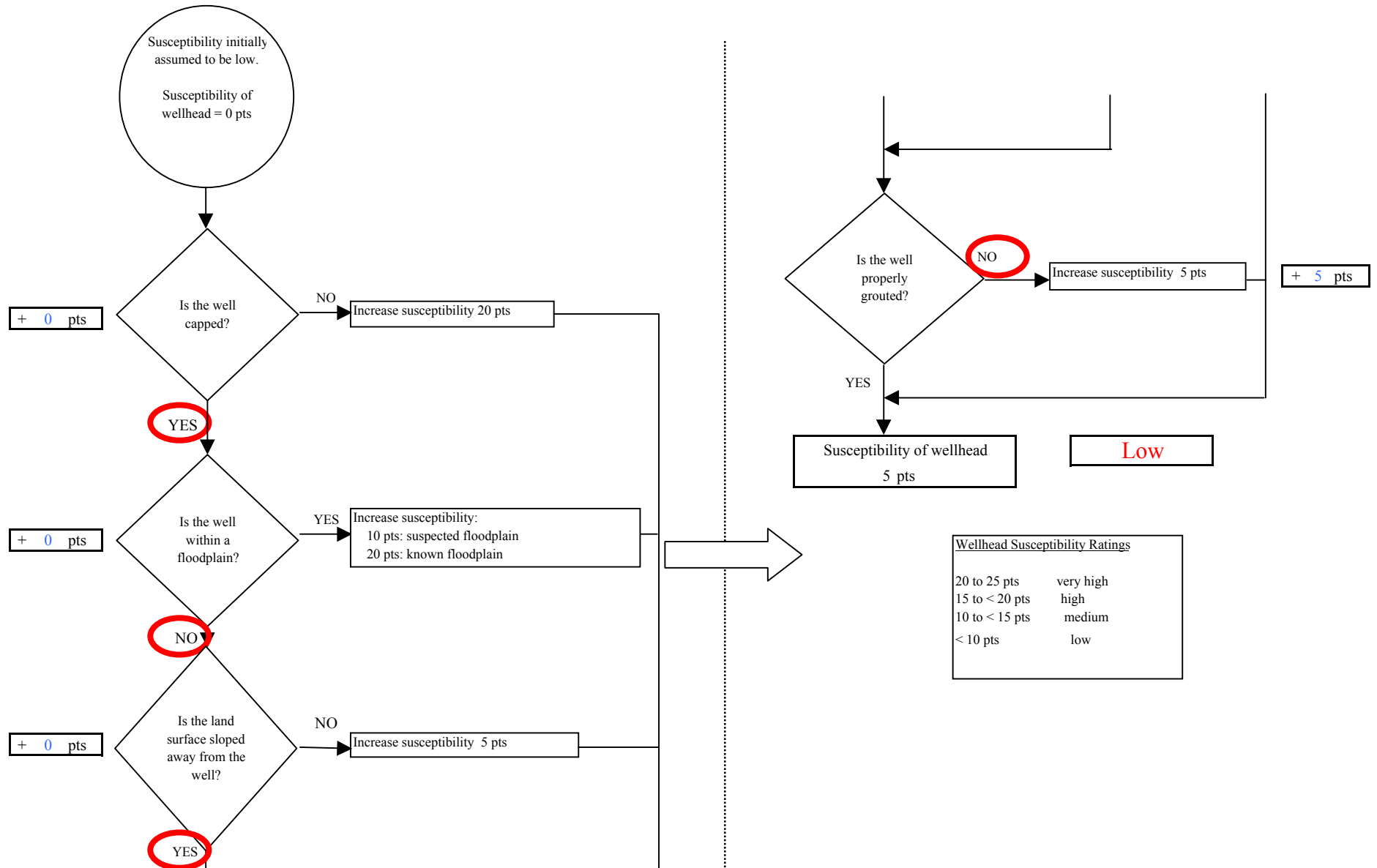
PWSID 227199.001 and 227199.002

Map 4

## **APPENDIX D**

### **Vulnerability Analysis for Equestrian Acres Public Drinking Water Source**

**Chart 1. Susceptibility of the wellhead - Equestrian Acres Well No. 1 and Well No. 2**



**Chart 2. Susceptibility of the aquifer - Equestrian Acres Well No. 1 and Well No. 2**

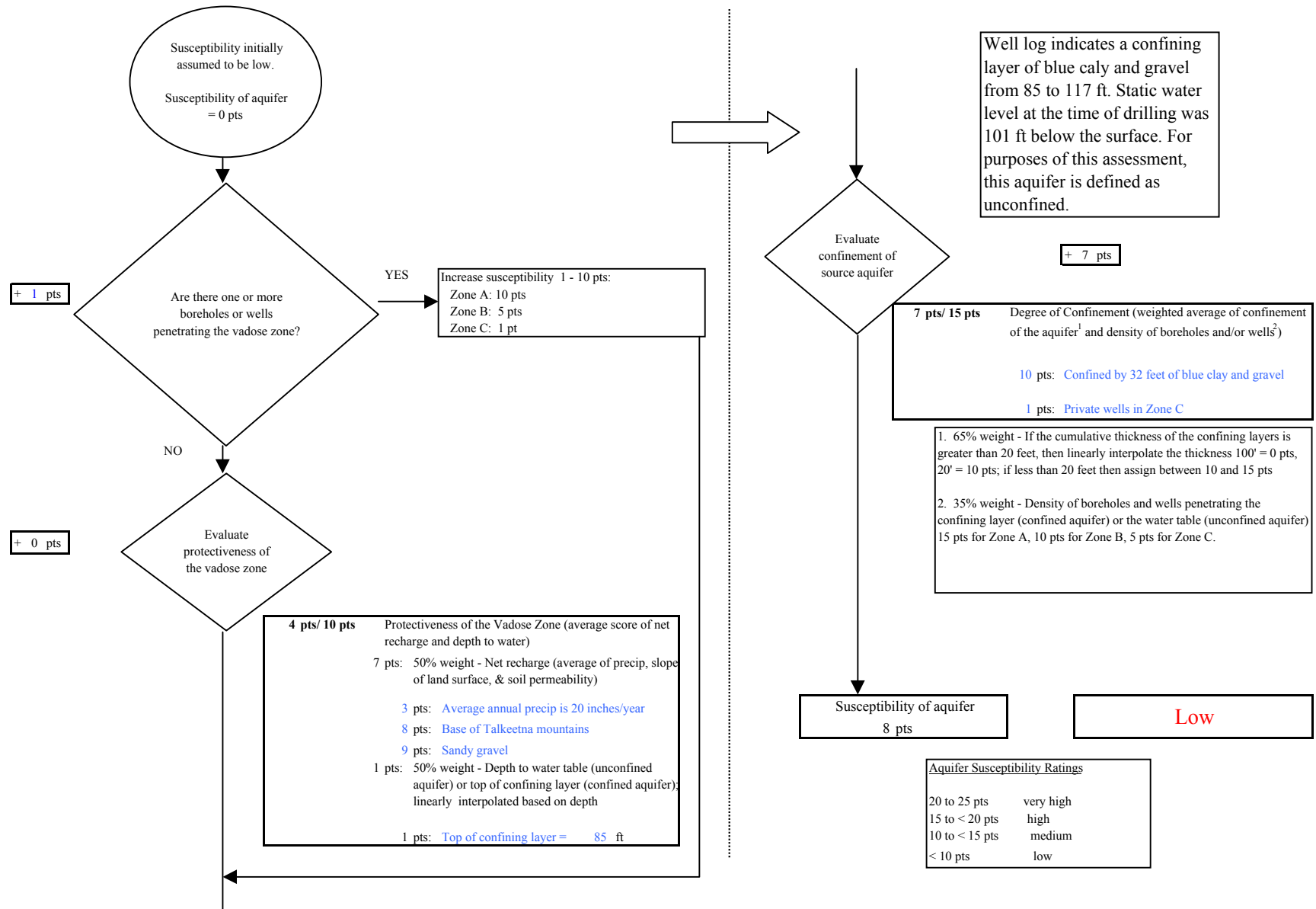
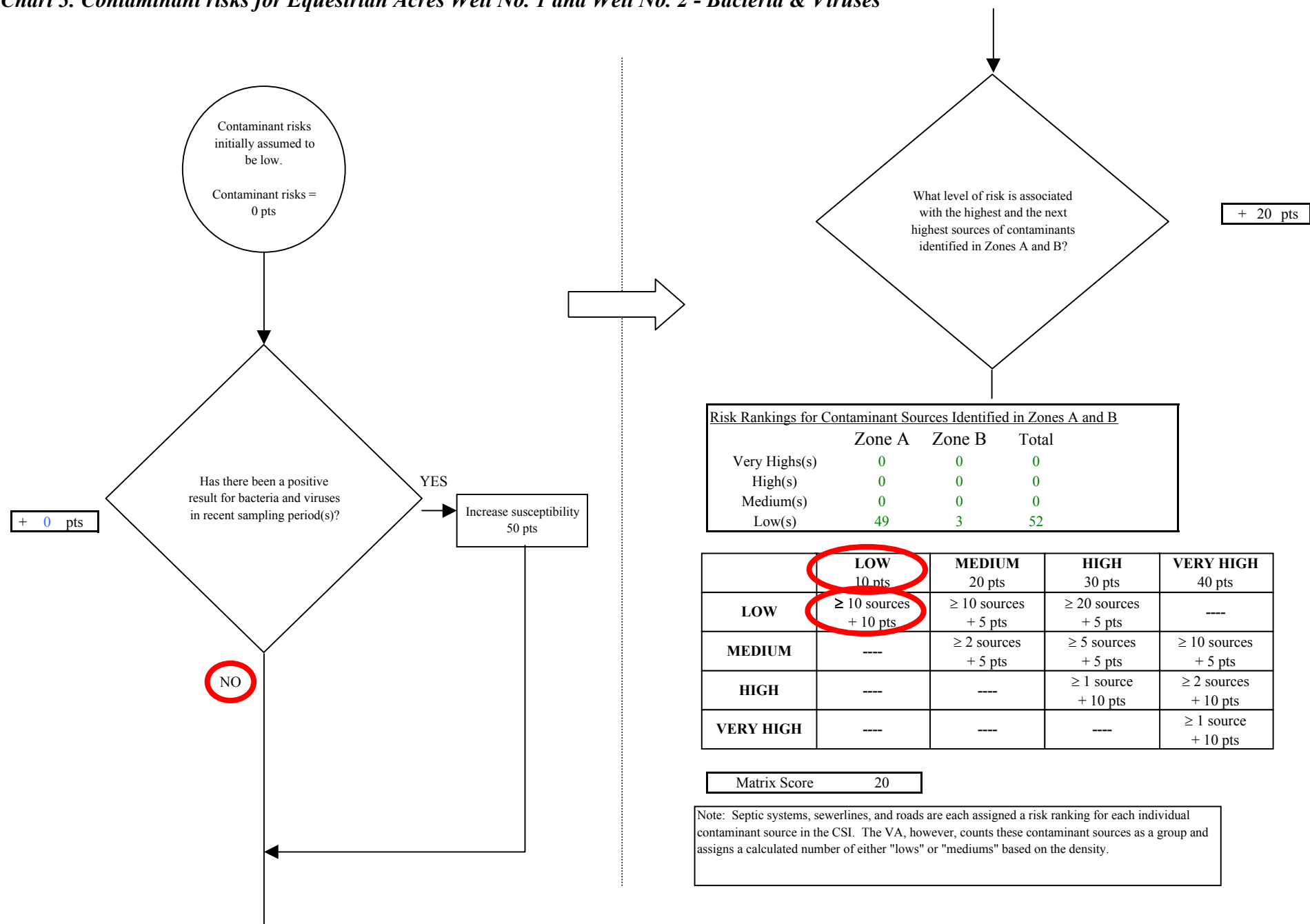
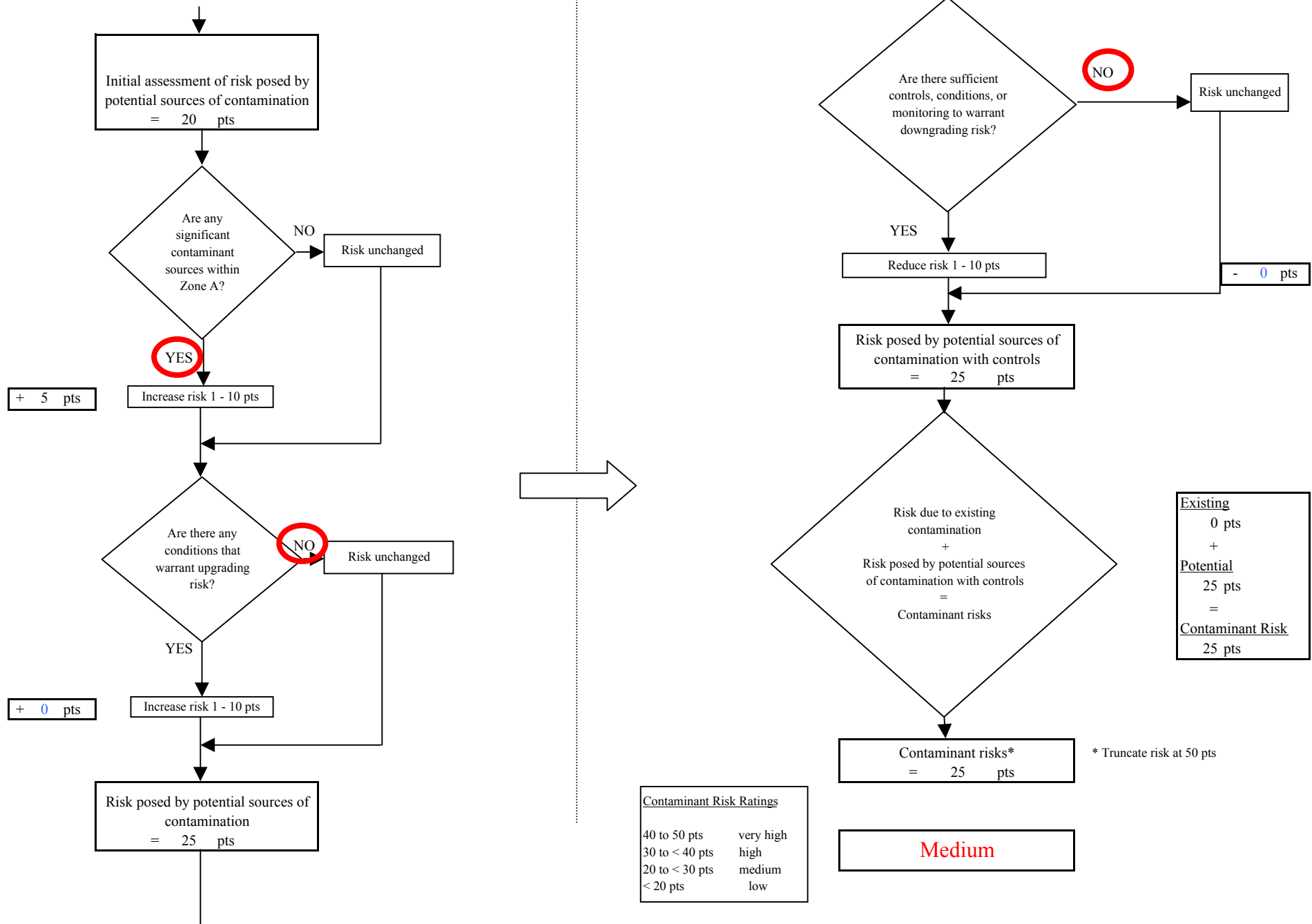




Chart 3. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Bacteria & Viruses



**Chart 3. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Bacteria & Viruses**



**Chart 4. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Bacteria & Viruses**

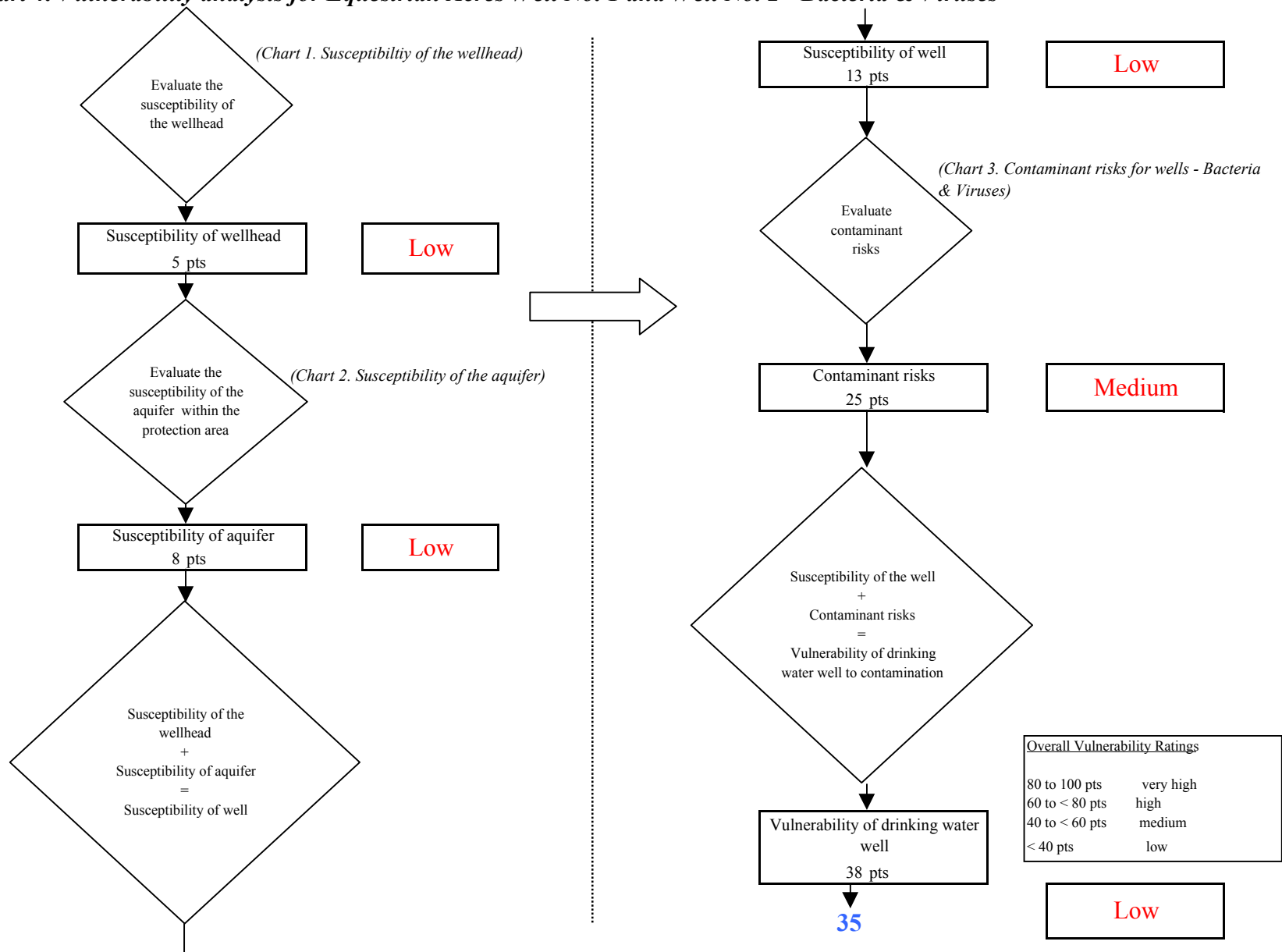


Chart 5. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Nitrates and Nitrites

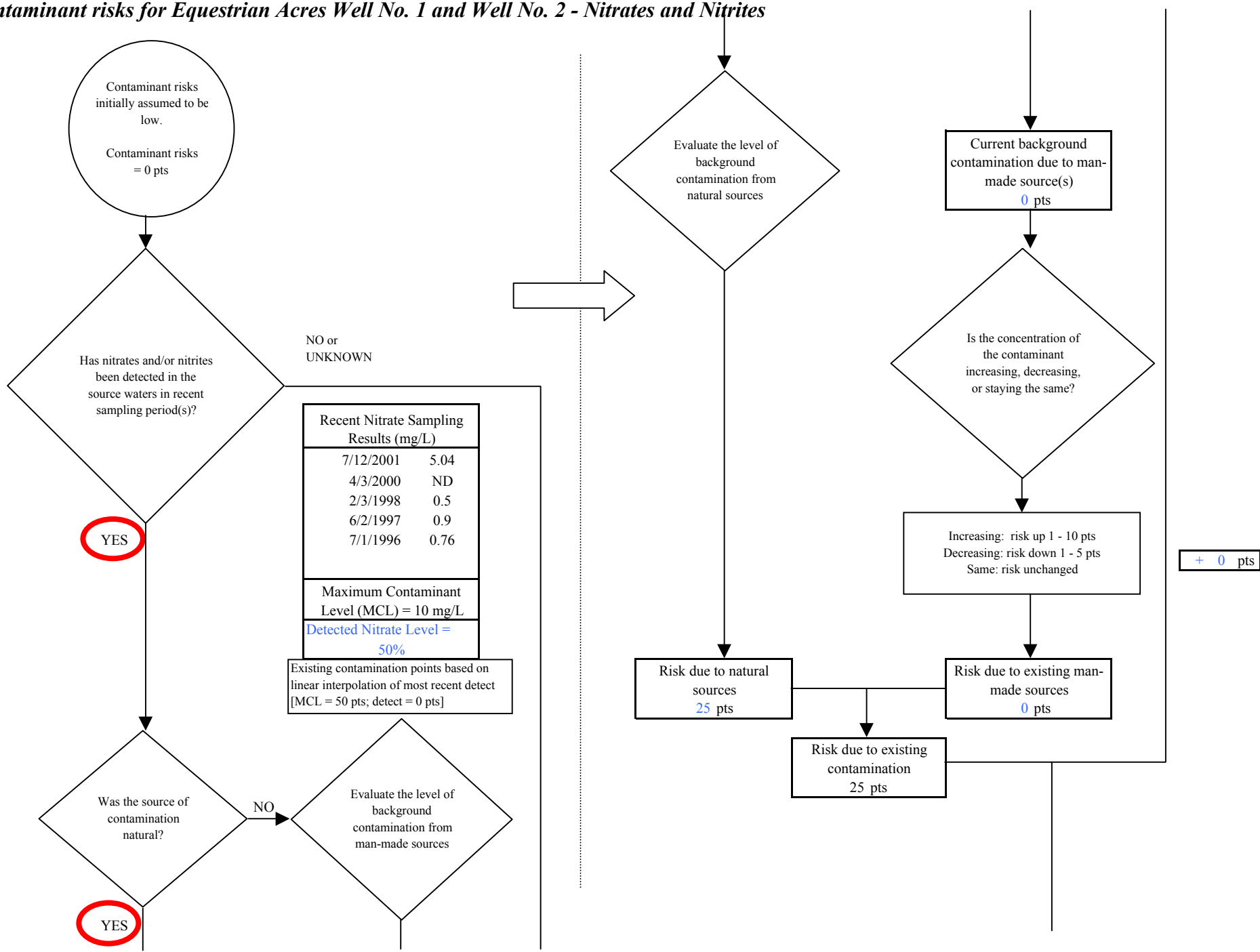


Chart 5. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Nitrates and Nitrites

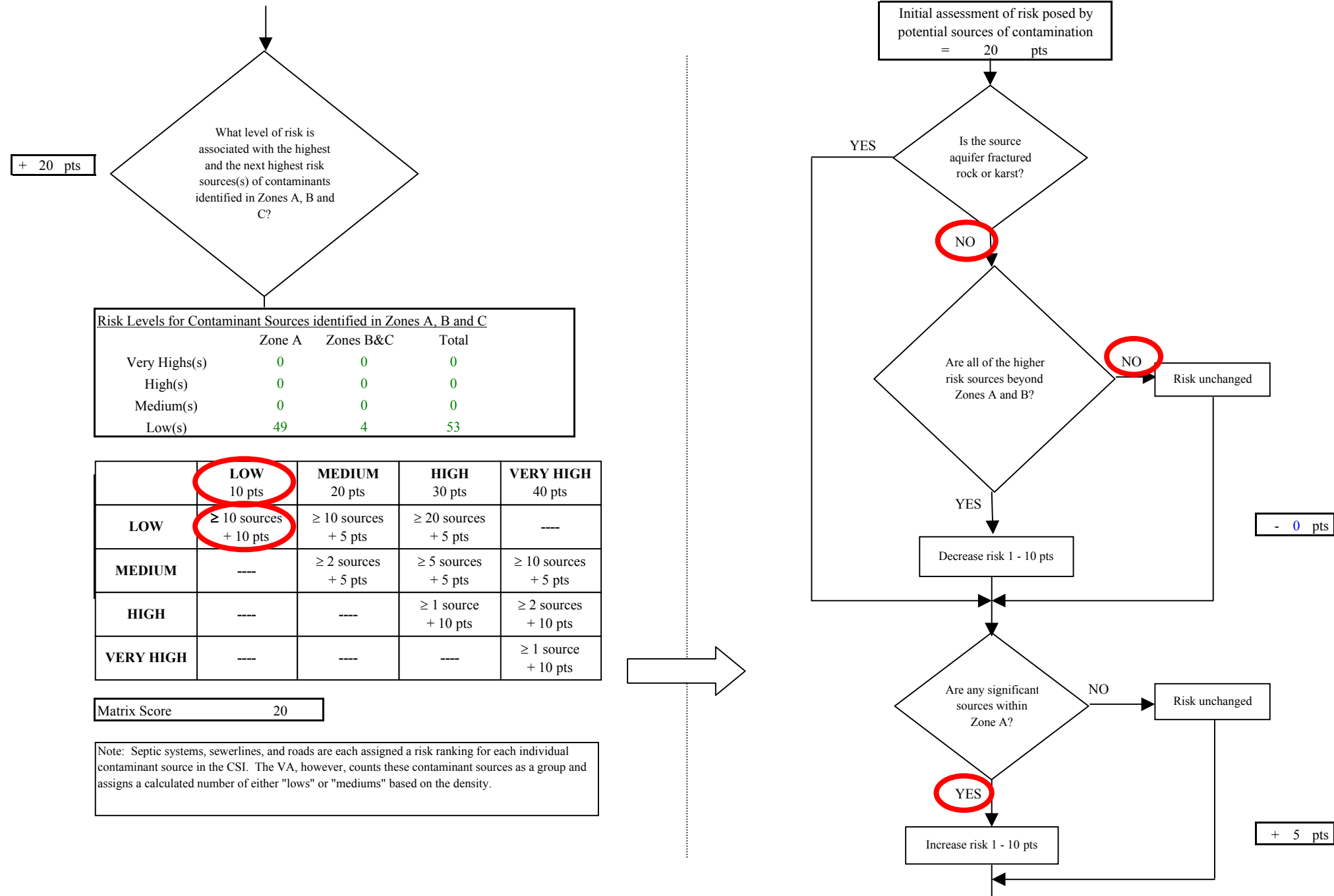
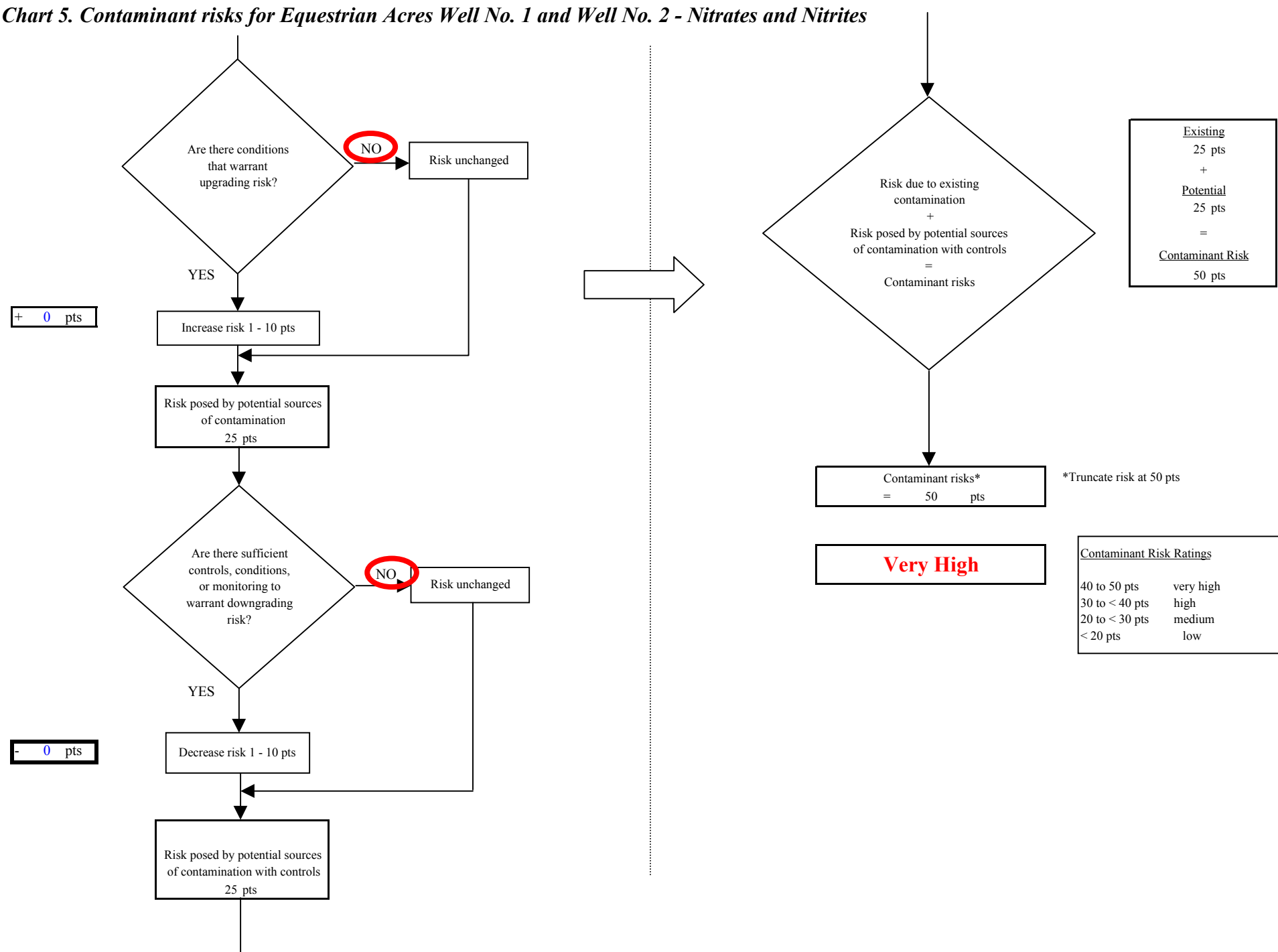


Chart 5. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Nitrates and Nitrites



**Chart 6. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Nitrates and Nitrites**

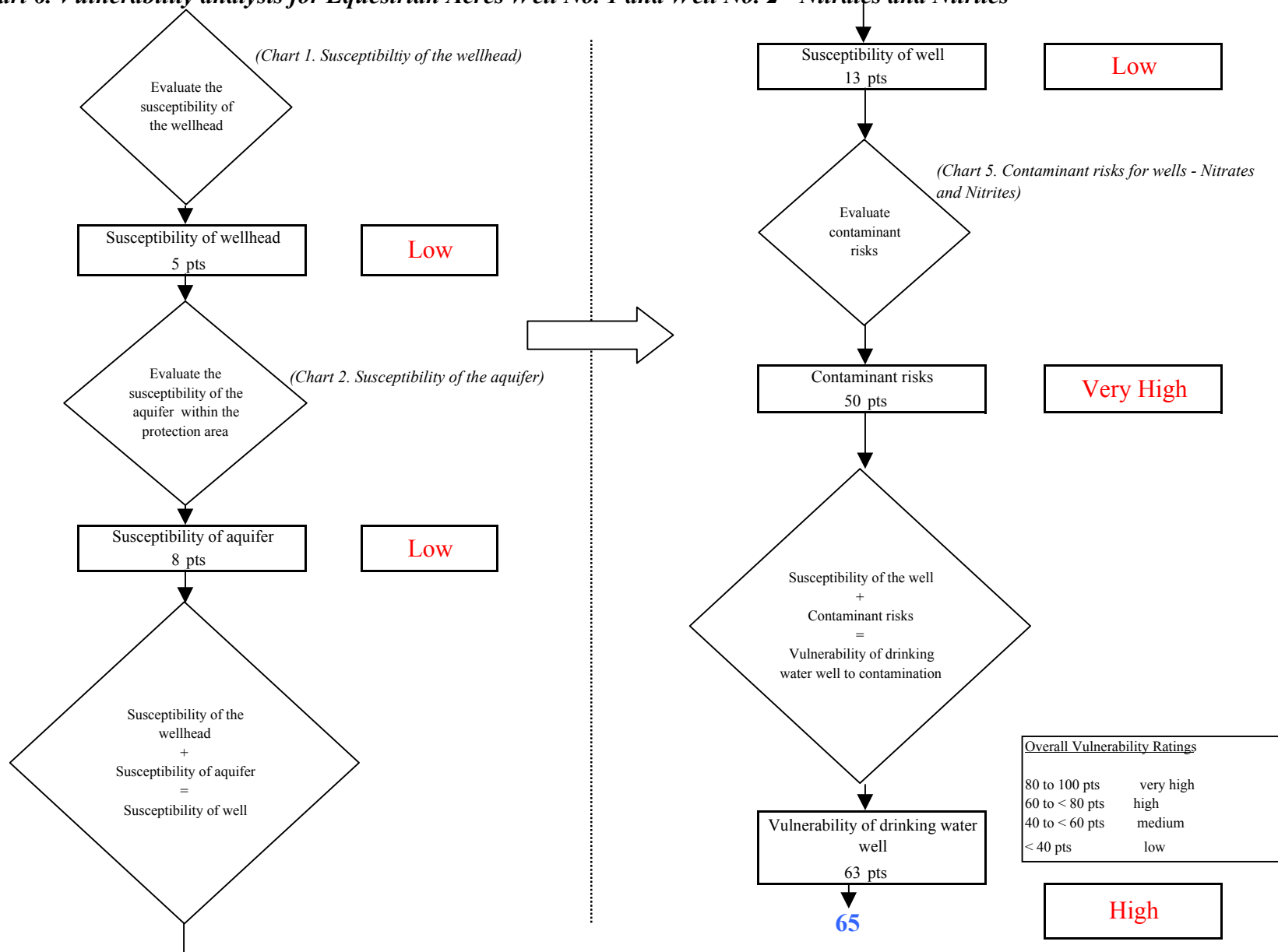


Chart 7. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Volatile Organic Chemicals

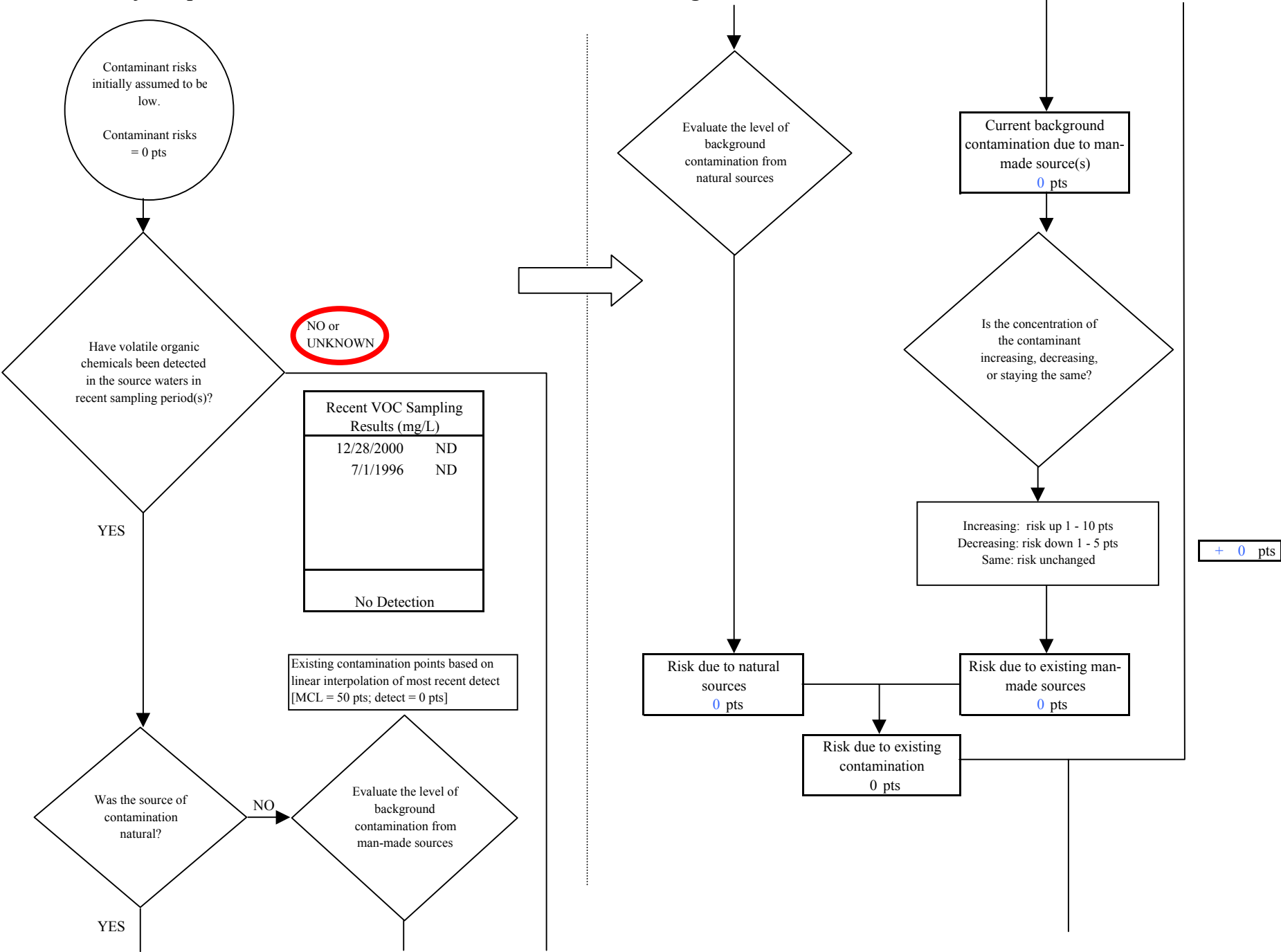




Chart 7. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Volatile Organic Chemicals

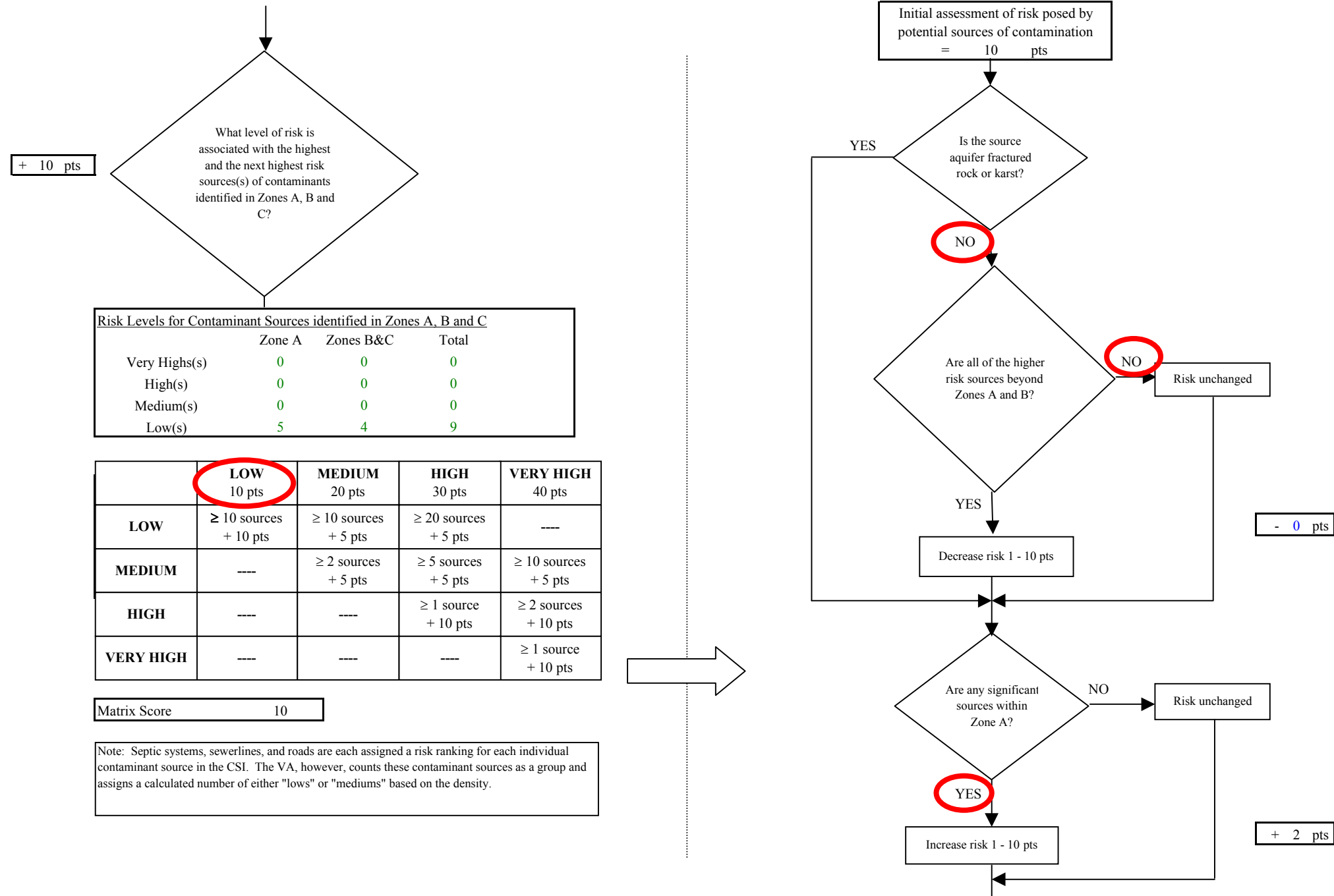
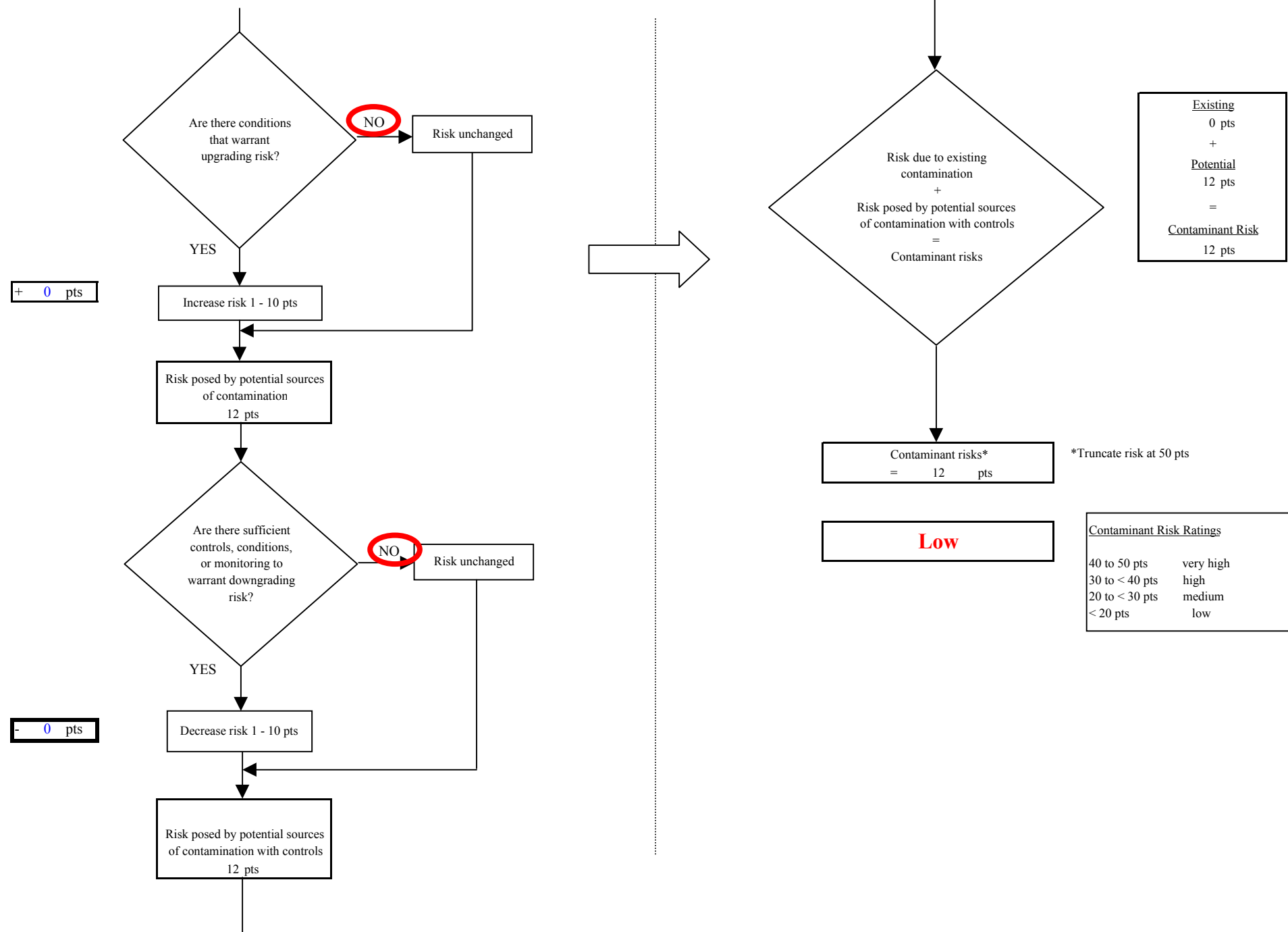
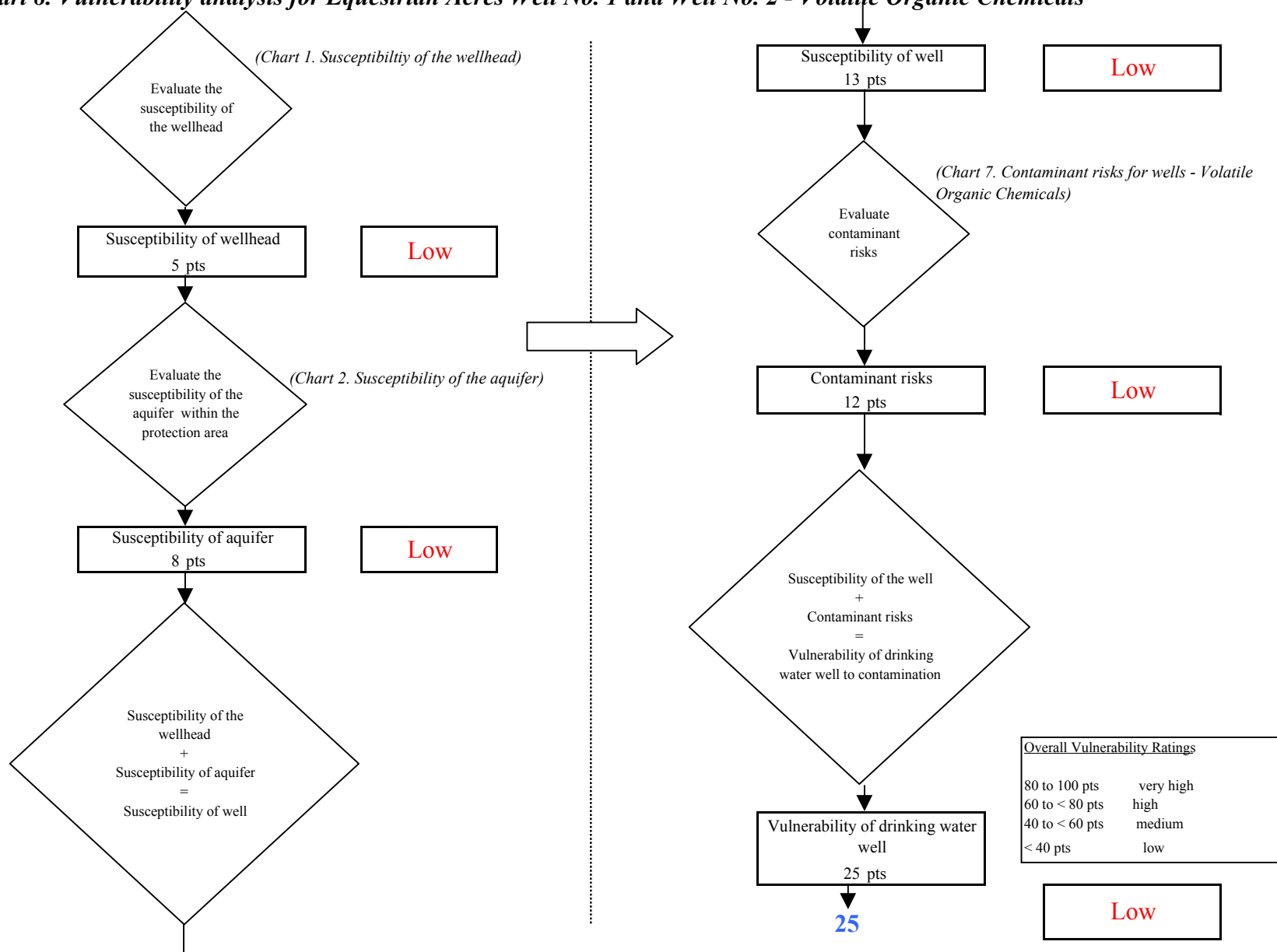


Chart 7. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Volatile Organic Chemicals



**Chart 8. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Volatile Organic Chemicals**



**Chart 9. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals**

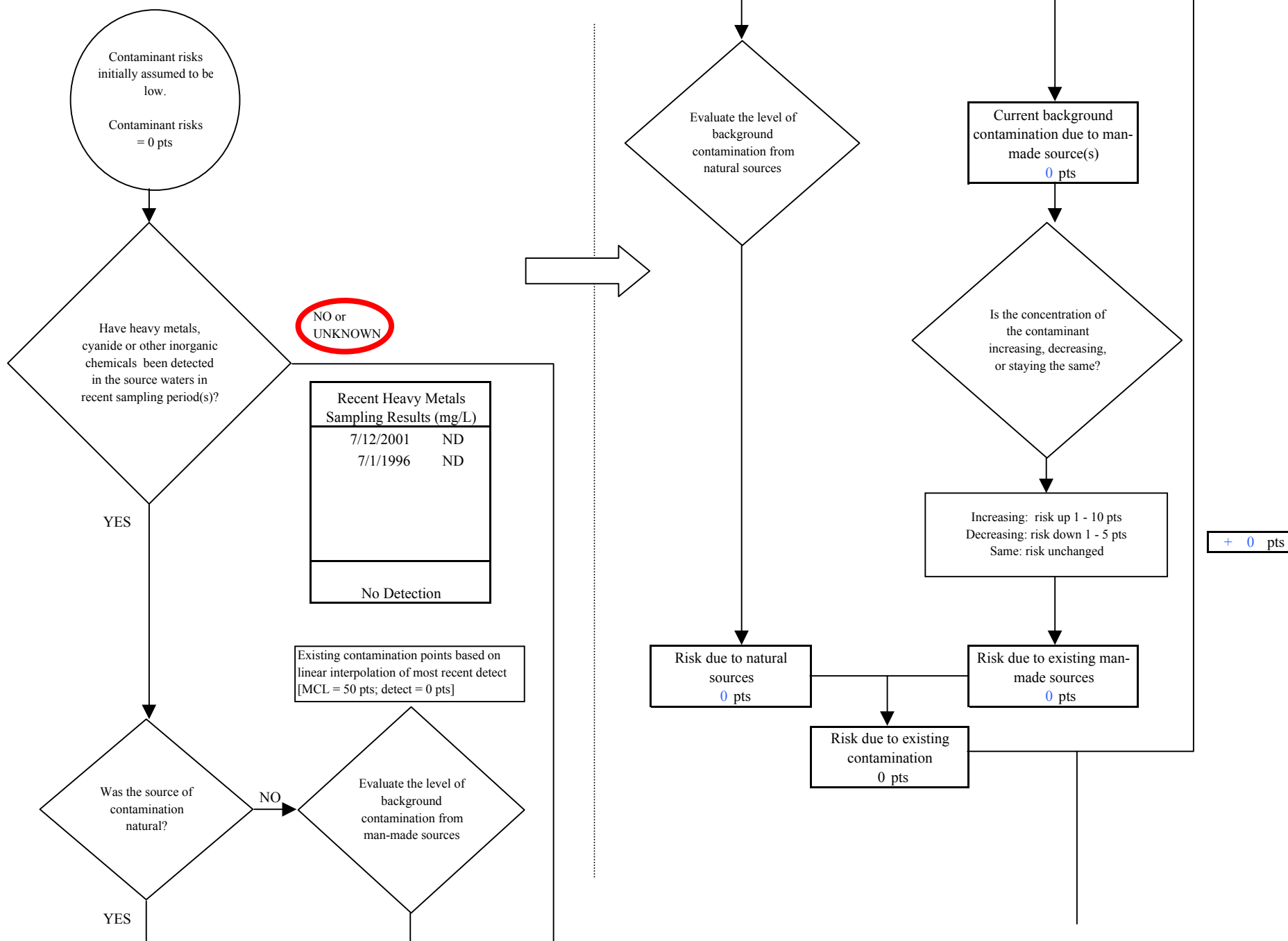


Chart 9. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals

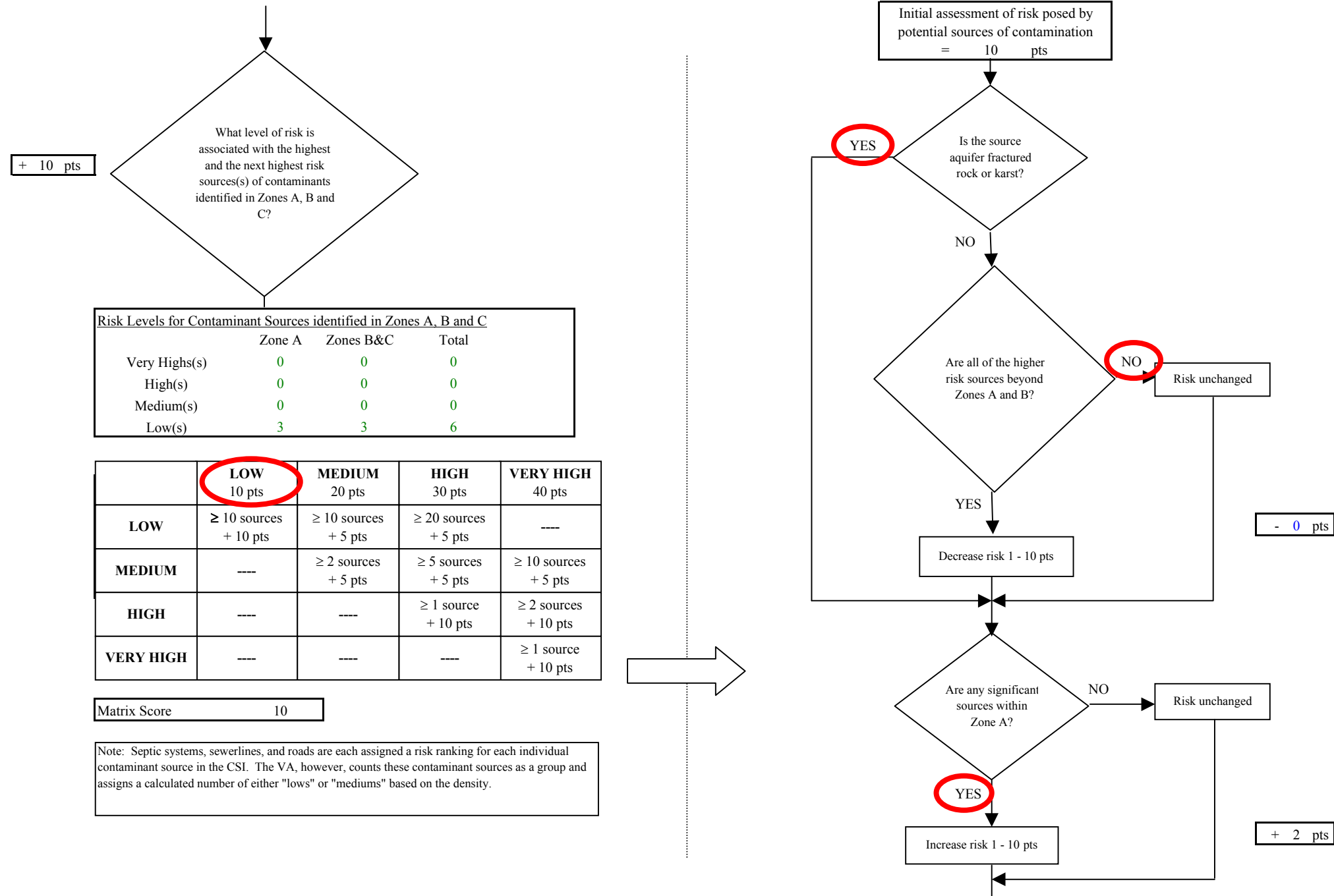
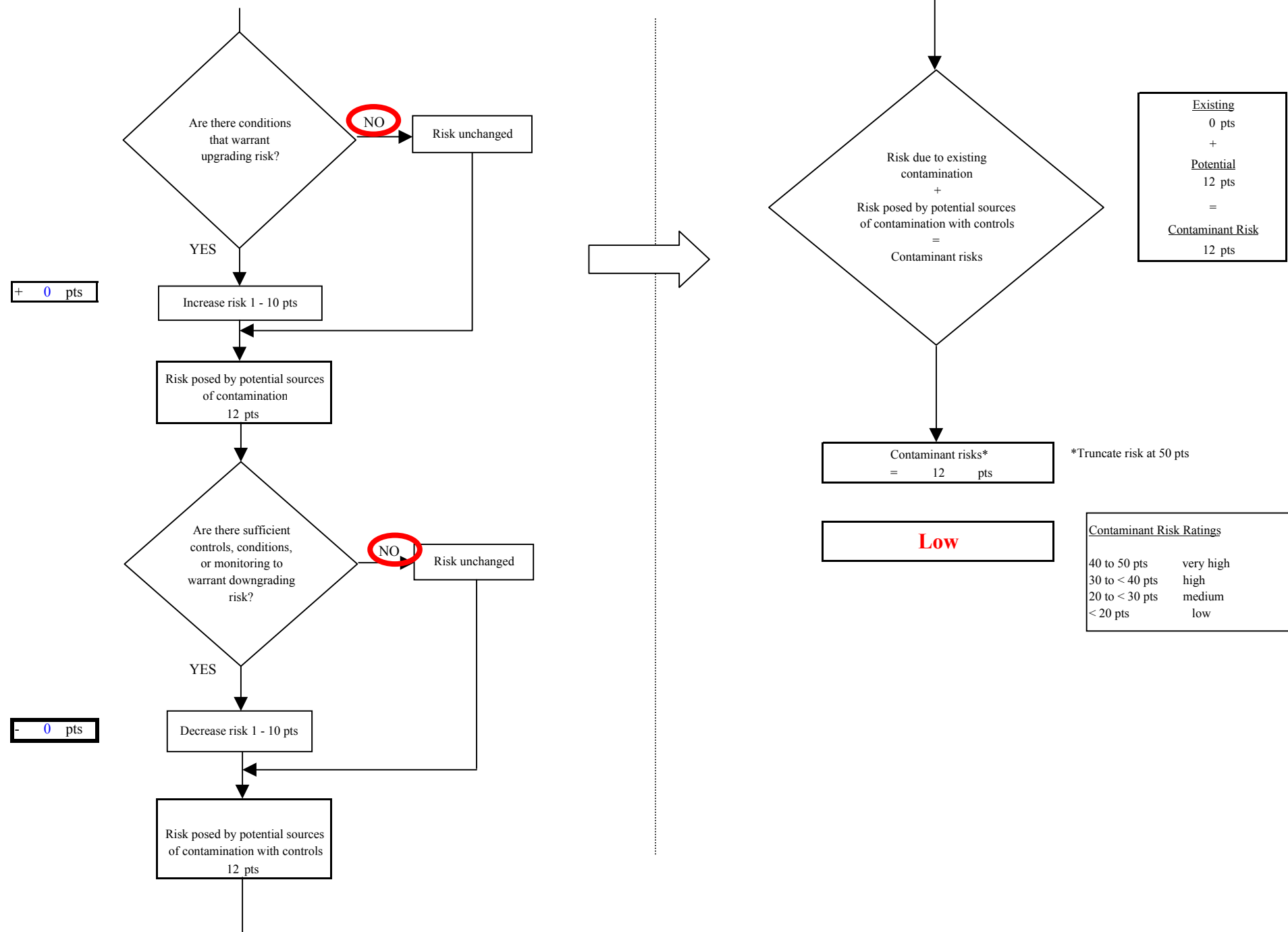


Chart 9. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals



**Chart 10. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals**

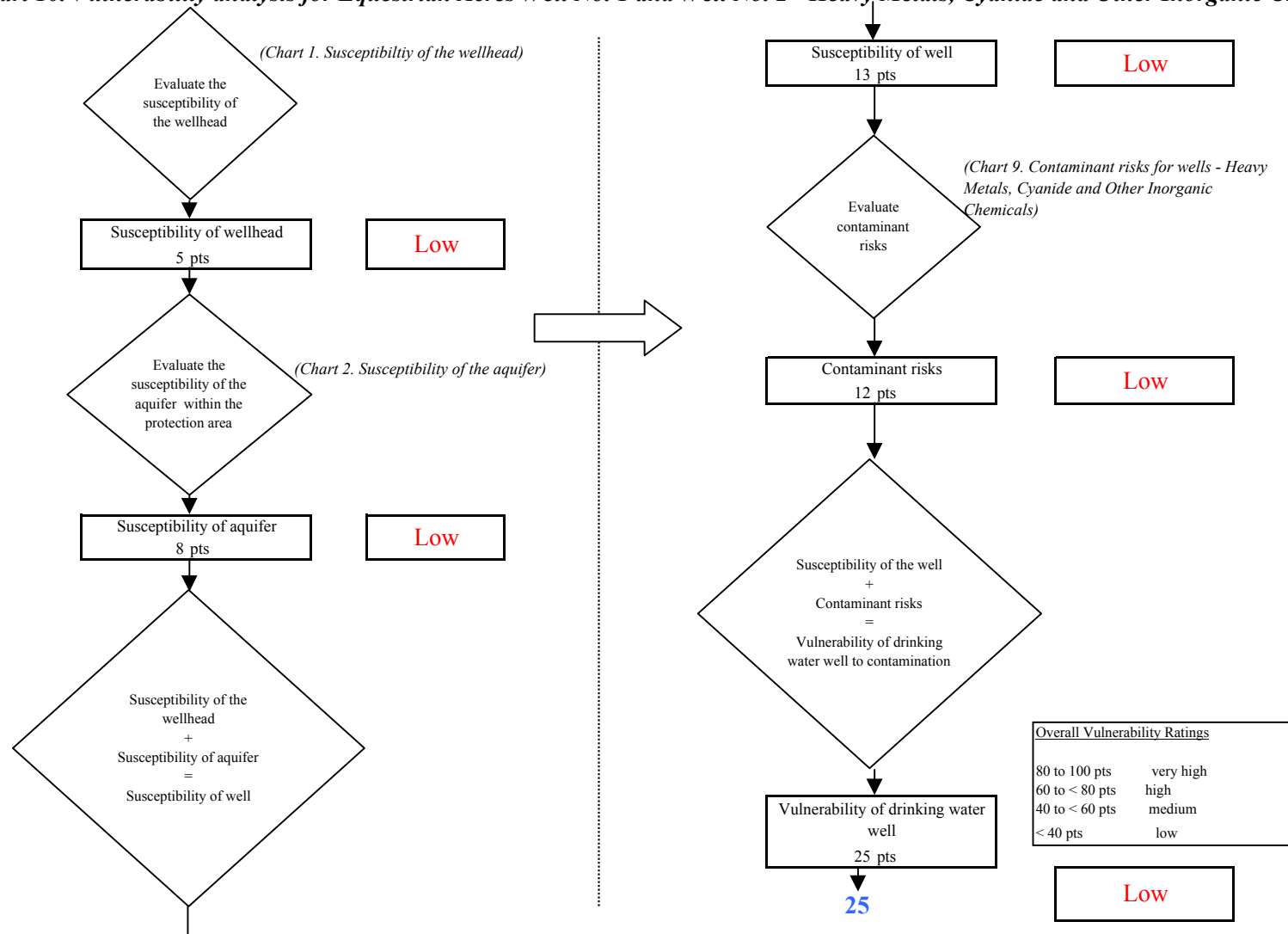


Chart 11. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Synthetic Organic Chemicals

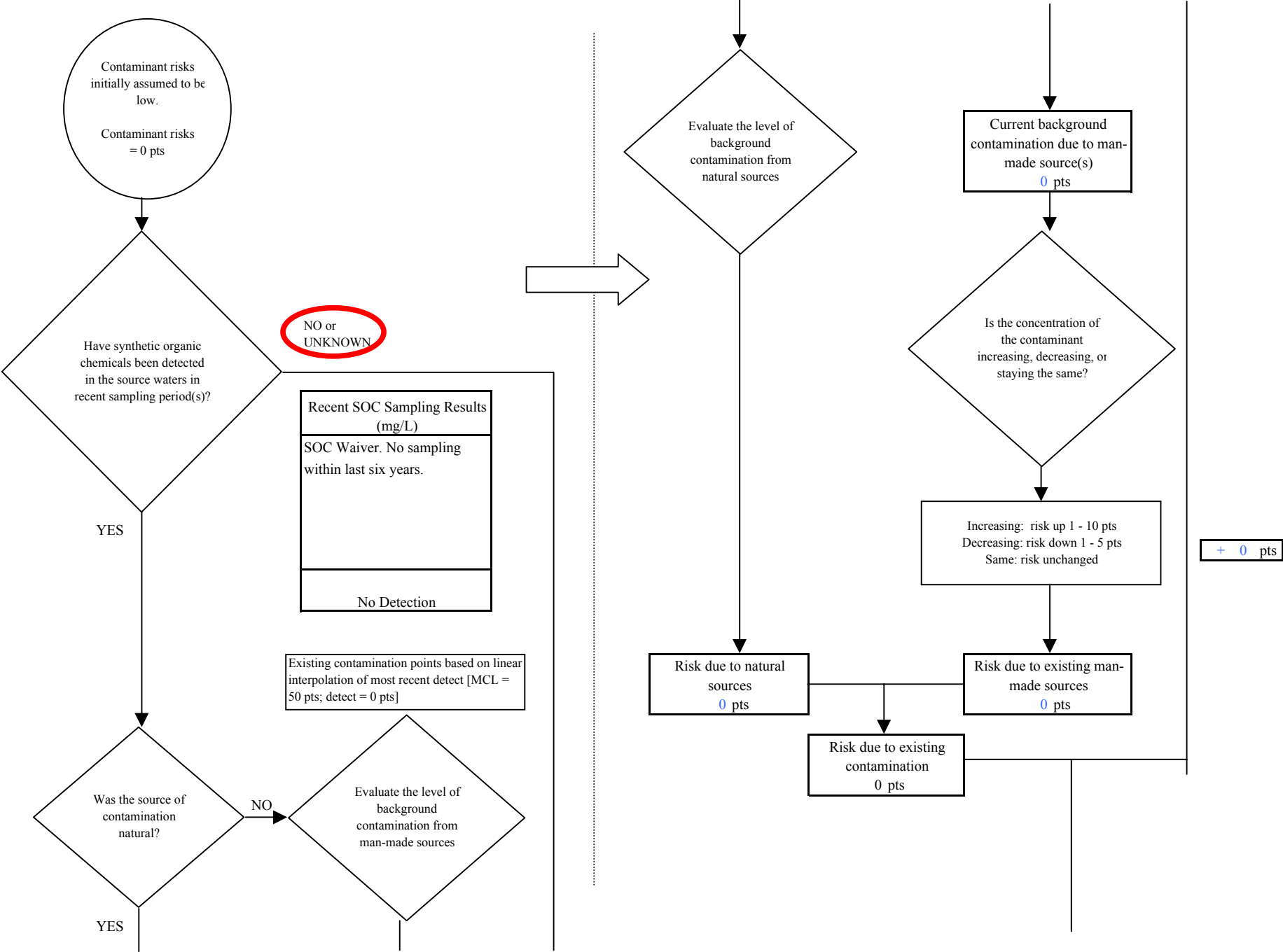




Chart 11. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Synthetic Organic Chemicals

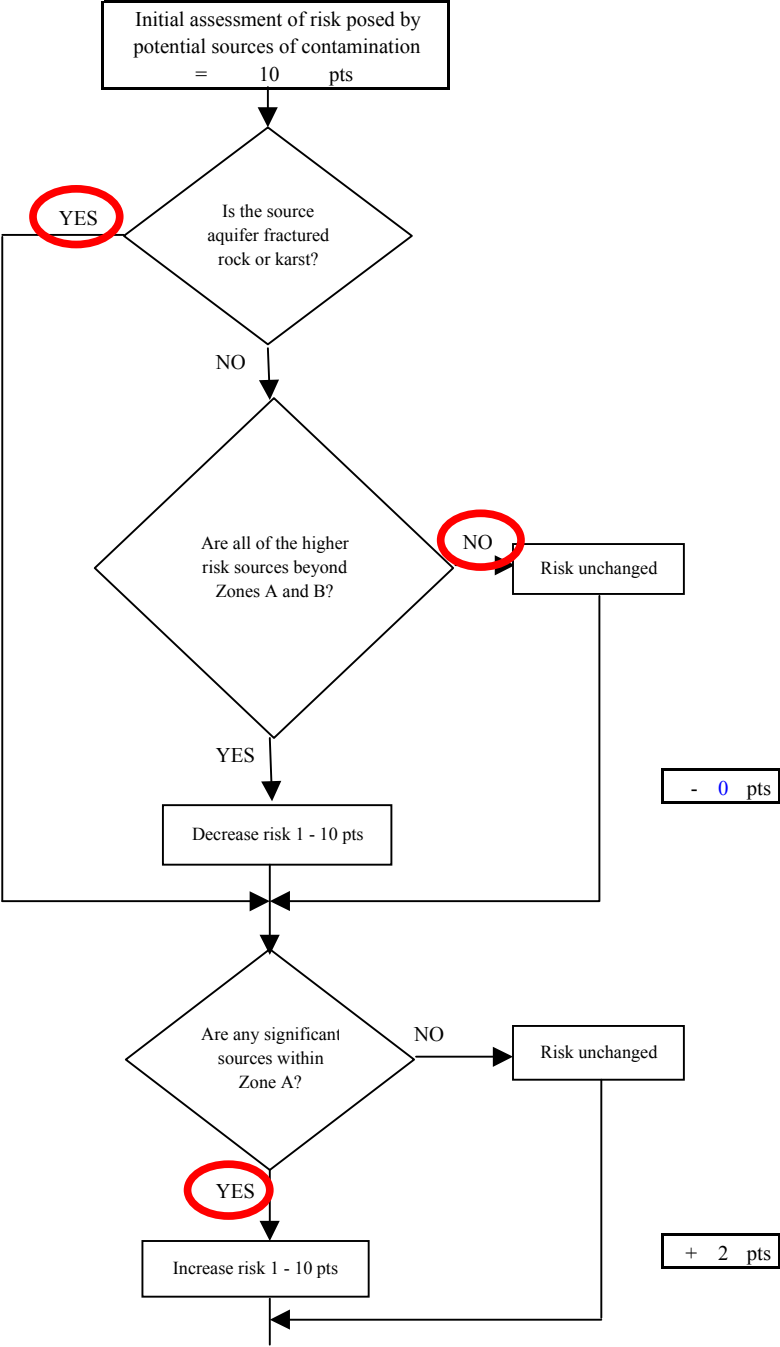
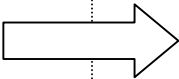
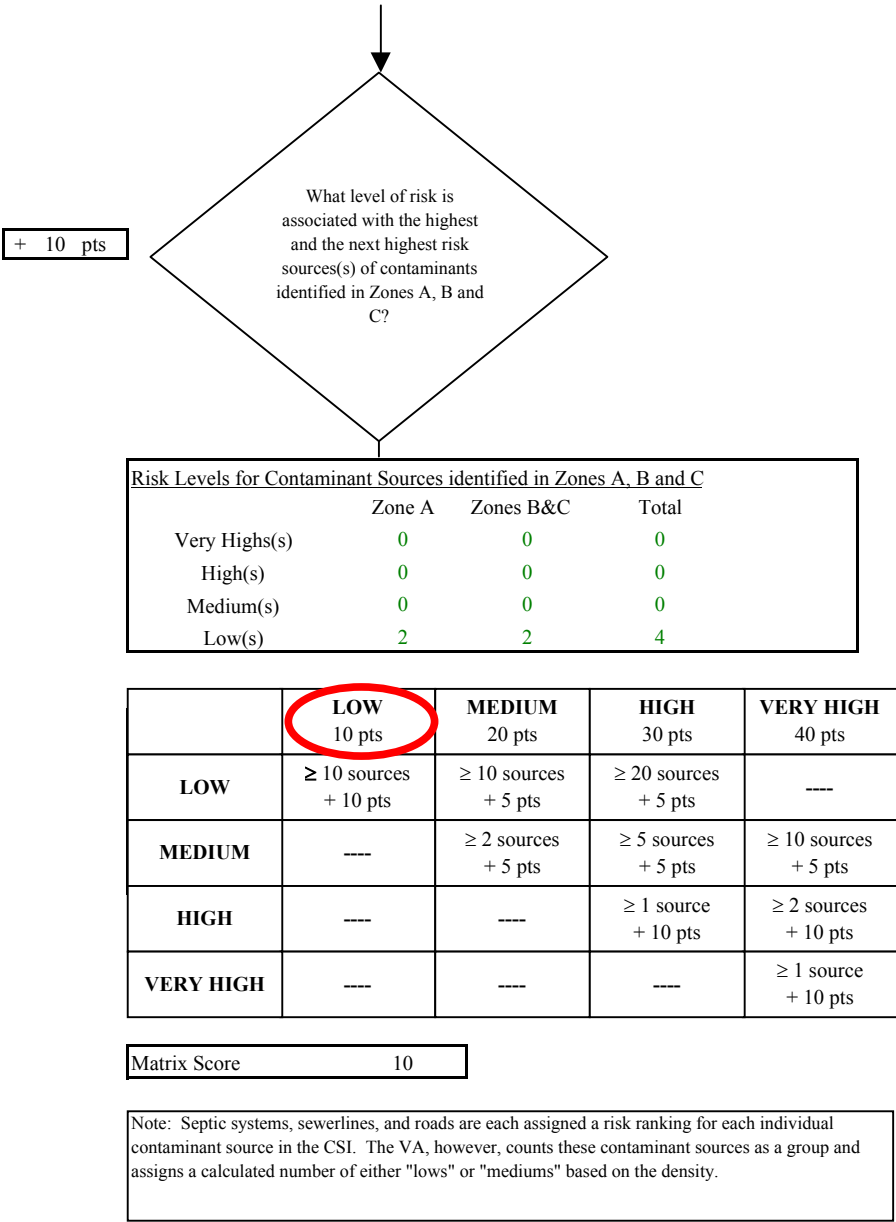
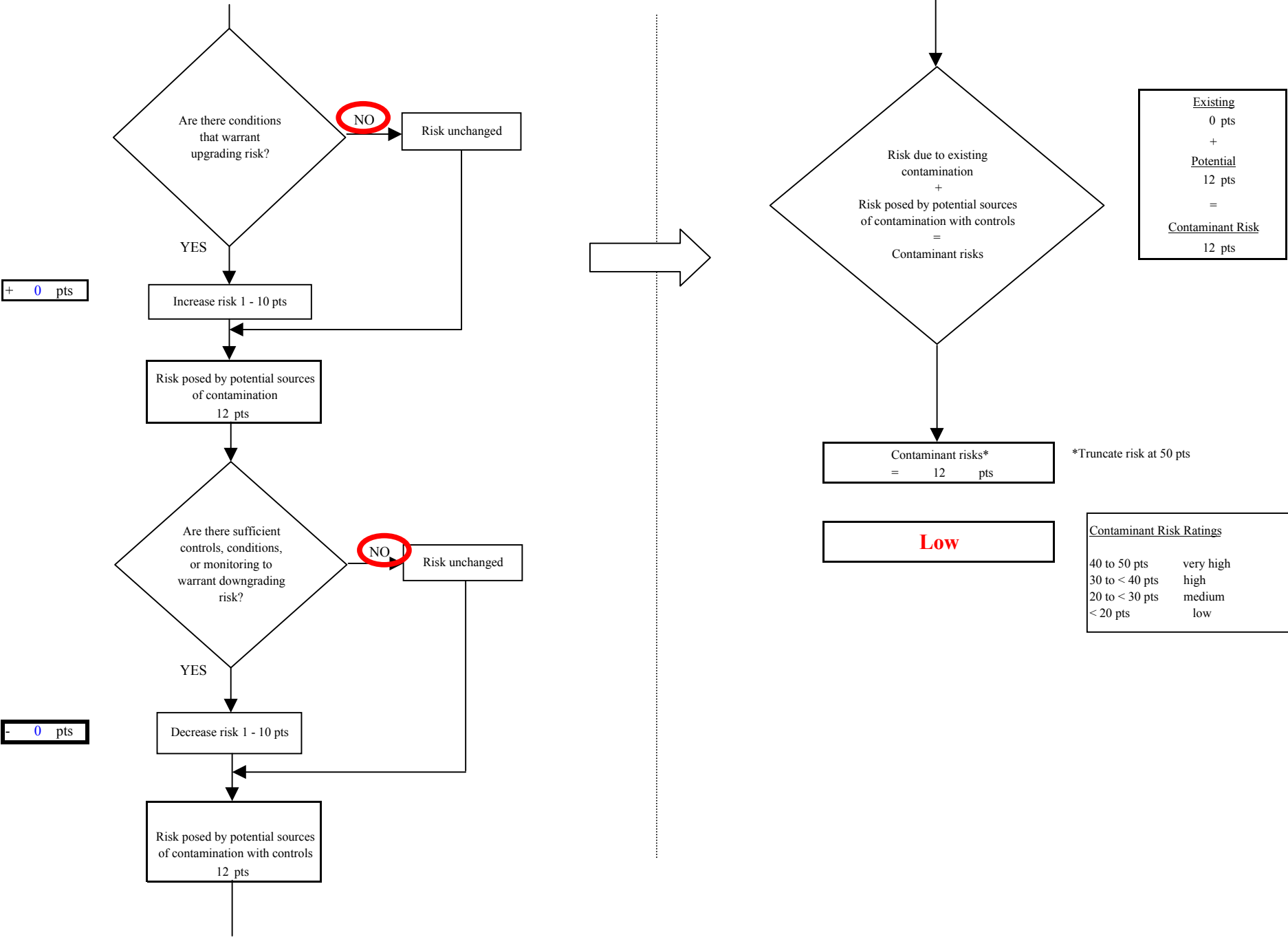
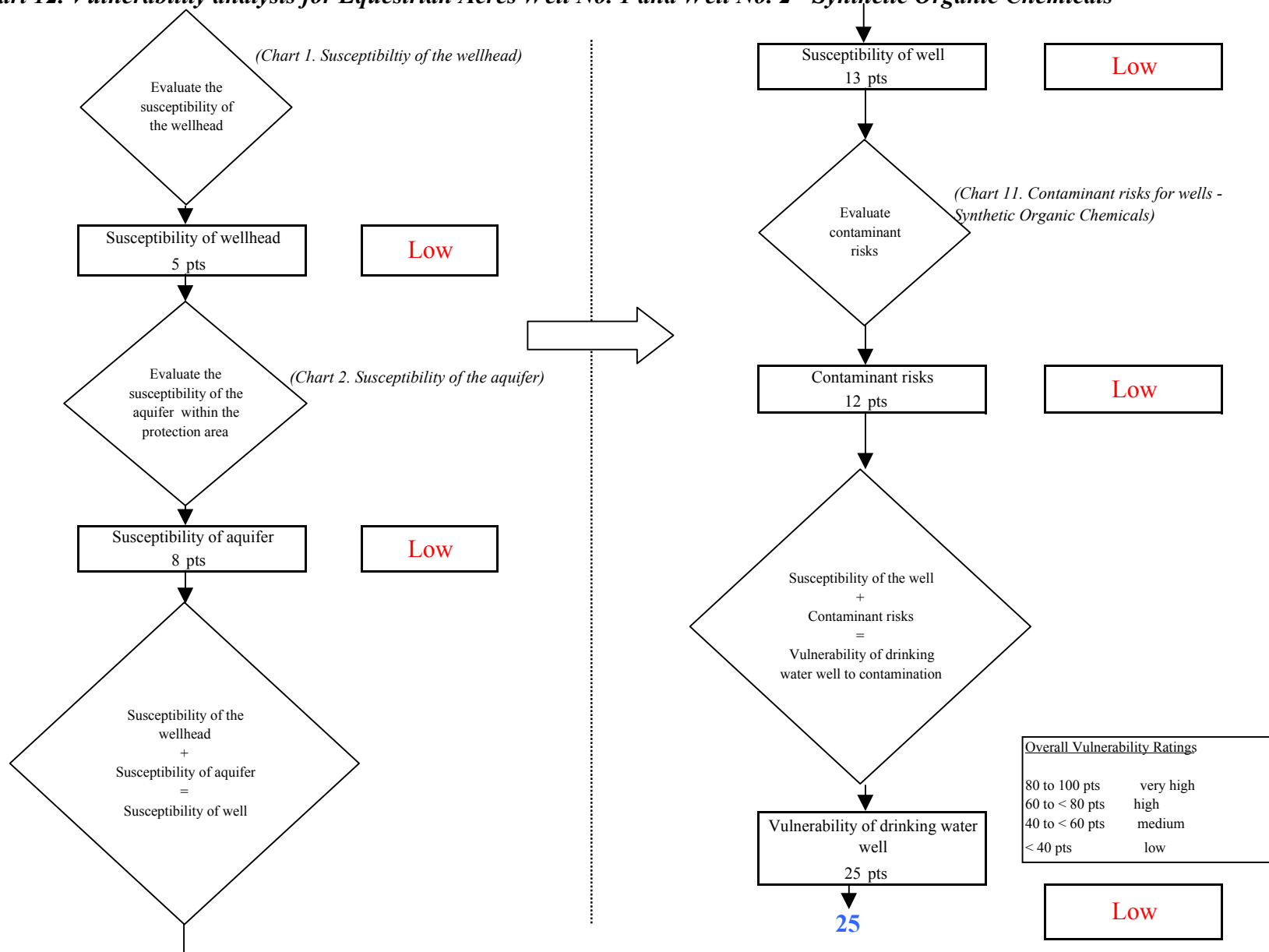


Chart 11. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Synthetic Organic Chemicals



**Chart 12. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Synthetic Organic Chemicals**



```

graph TD
    Start([Contaminant risks initially assumed to be low.  
Contaminant risks = 0 pts]) --> D1{Have other organic chemicals been detected in the source waters in recent sampling period(s)?}
    D1 -- YES --> Table[Recent OOC Sampling Results (mg/L)  
12/28/2000 ND  
7/1/1996 ND  
No Detection]
    D1 -- NO or UNKNOWN --> D2{Evaluate the level of background contamination from man-made sources}
    D2 -- YES --> D3{Was the source of contamination natural?}
    D3 -- YES --> D4{Evaluate the level of background contamination from natural sources}
    D3 -- NO --> D5{Evaluate the level of background contamination from man-made sources}
    D4 --> RiskNat[Risk due to natural sources  
0 pts]
    D5 --> RiskNat
    D5 --> RiskMan[Risk due to existing man-made sources  
0 pts]
    RiskNat --> RiskExist[Risk due to existing contamination  
0 pts]
    RiskMan --> RiskExist
    RiskExist --> EndBox[+ 0 pts]
  
```

Contaminant risks initially assumed to be low.  
Contaminant risks = 0 pts

Have other organic chemicals been detected in the source waters in recent sampling period(s)?

YES

Recent OOC Sampling Results (mg/L)	
12/28/2000	ND
7/1/1996	ND
No Detection	

NO or UNKNOWN

Evaluate the level of background contamination from man-made sources

YES

Was the source of contamination natural?

YES

Evaluate the level of background contamination from natural sources

Risk due to natural sources  
0 pts

Risk due to existing man-made sources  
0 pts

Risk due to existing contamination  
0 pts

+ 0 pts

Chart 13. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Other Organic Chemicals

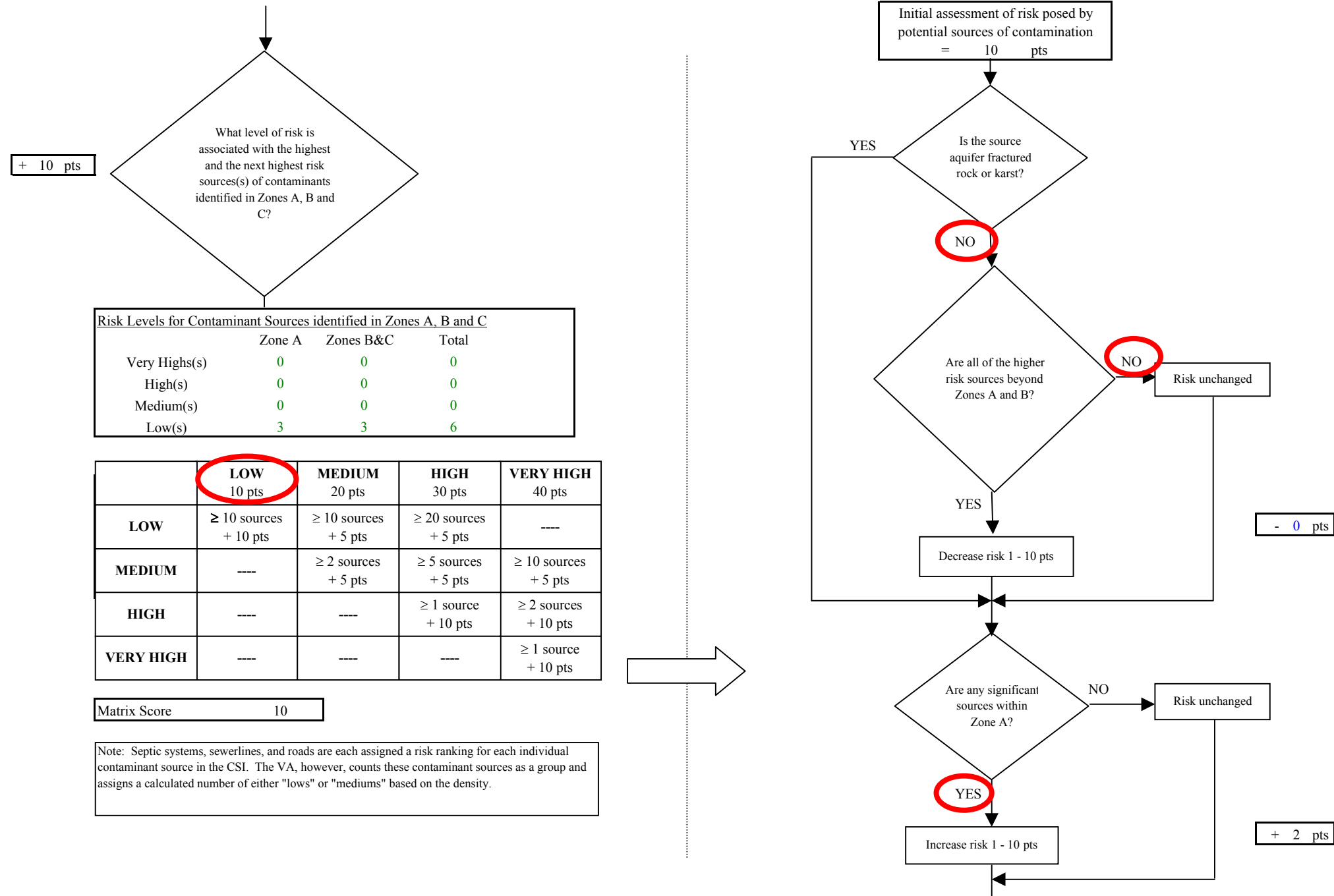
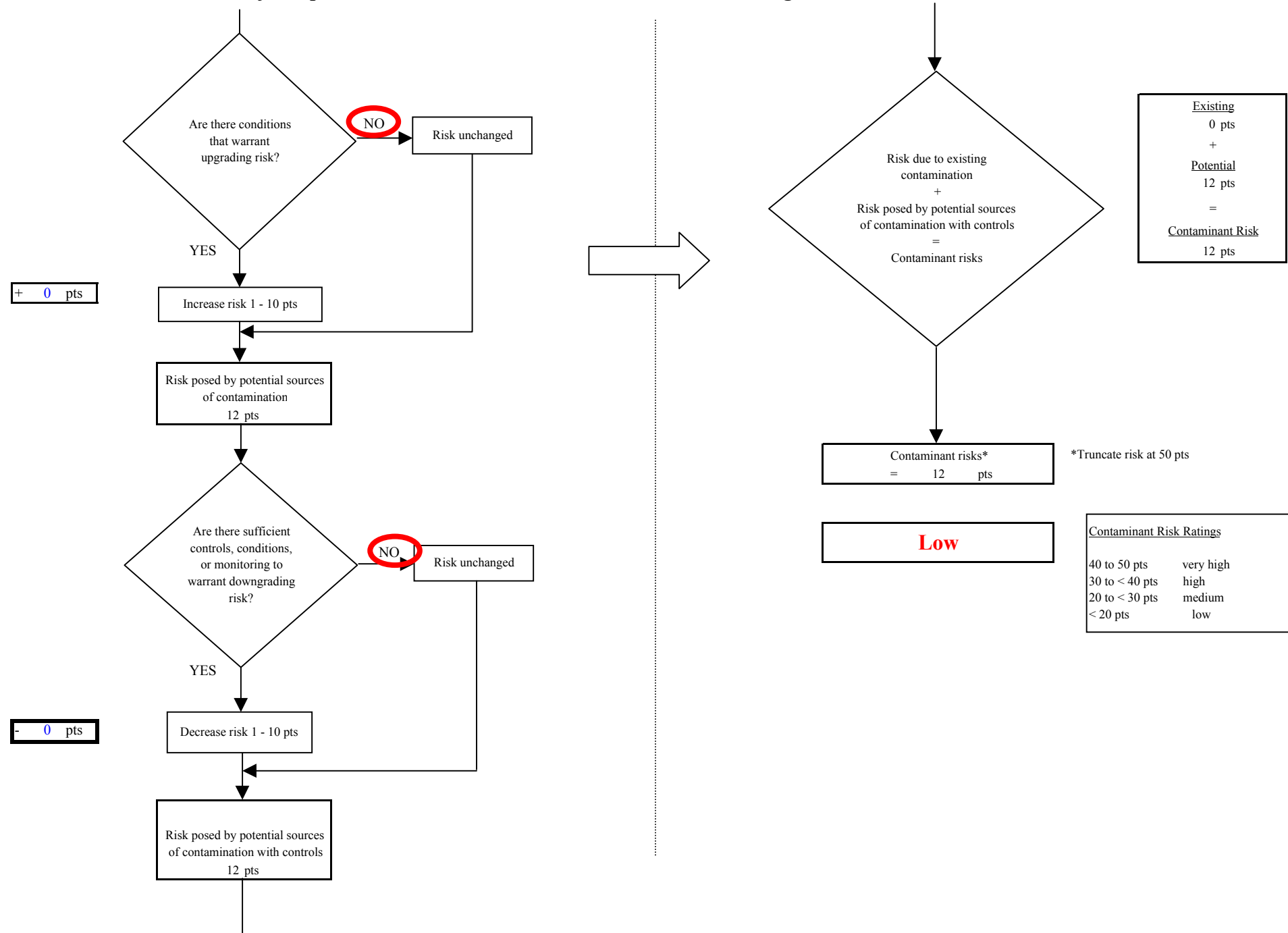


Chart 13. Contaminant risks for Equestrian Acres Well No. 1 and Well No. 2 - Other Organic Chemicals



**Chart 14. Vulnerability analysis for Equestrian Acres Well No. 1 and Well No. 2 - Other Organic Chemicals**

