

Source Water Assessment for Pioneer Meadows Subdivision

A Hydrogeologic Susceptibility and Vulnerability Assessment

DRINKING WATER PROTECTION PROGRAM REPORT 410
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Source Water Assessment for Pioneer Meadows Subdivision

By Alaska Department of Environmental Conservation

DRINKING WATER PROTECTION PROGRAM REPORT 410

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

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

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Hydrogeologic Susceptibility and Vulnerability Assessment for Pioneer Meadows Subdivision Public Drinking Water Source, Palmer, Alaska

By Alaska Department of Environmental Conservation

Drinking Water Protection Program Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

The Pioneer Meadows Subdivision is a Class A (community) drinking water source consisting of two wells. The two wells were assessed as a single well since they are near each other and are completed in the same aquifer. Identified potential and current sources of contaminants for Pioneer Meadows Subdivision includes residential areas, residential septic systems, large capacity septic systems, paved roads and horse stables. These existing and potential sources of contamination are considered a source of bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other organic chemicals. Overall, Pioneer Meadows Subdivision public water source received vulnerability rating of **Medium** for bacteria and viruses and synthetic organic chemicals; **High** for nitrates/nitrites; **Low** for volatile organic chemicals, synthetics organic chemicals and other organic chemicals.

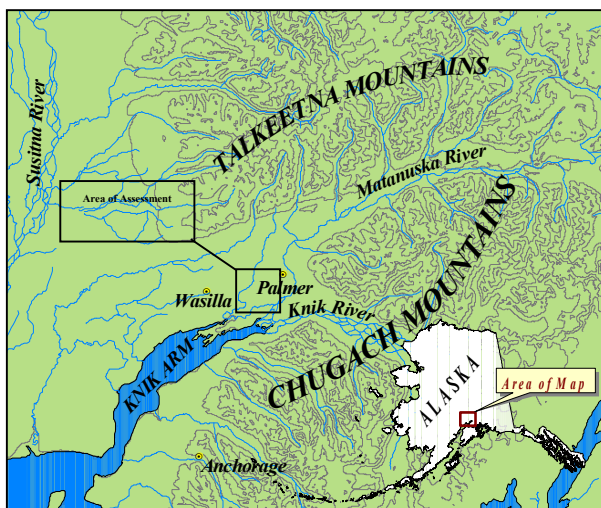


Figure 1. Index Map showing the location of the Matanuska-Susitna Valley and area of assessment.

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 Pioneer Meadows Subdivision 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. 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 granite 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

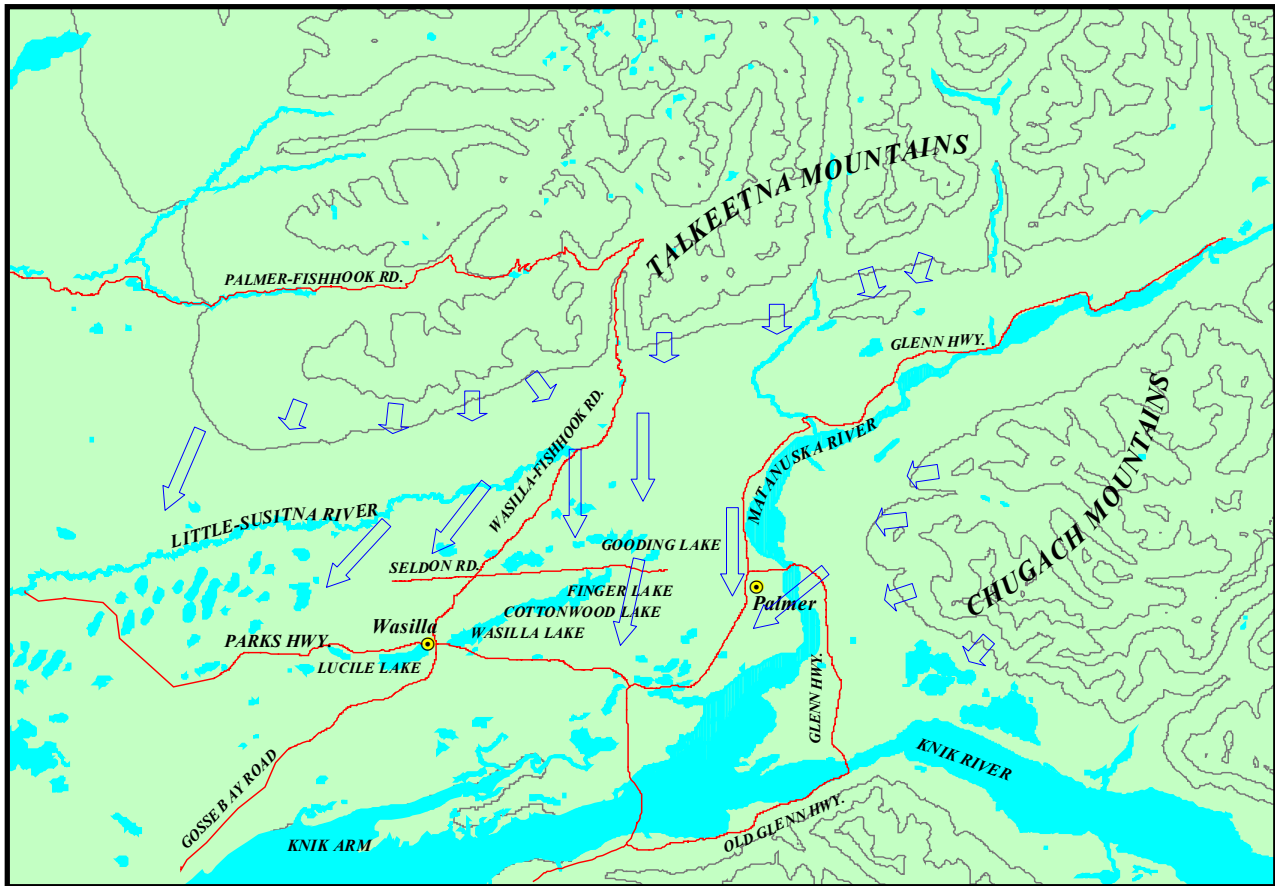


Figure 2. Map showing groundwater flow in the Matanuska-Susitna Valley (Jokela, Munter and Evans, 1991).

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).

PIONEER MEADOWS SUBDIVISION PUBLIC WATER SOURCE

Pioneer Meadows Subdivision public water source is a Class A (community) water source, which is privately owned and operated. The source consists of two wells located approximately ½ mile west of the Glenn Highway and 100 feet north of Cienna Avenue. The

wells is are at an approximate elevation of 130 feet above sea level and were drilled in 1999. Both wells are drilled to a depth of 100 feet below the surface. The static water level at Well No. 1 at the time of drilling (6/1/99) was 30 feet below the surface. The static water level at Well No. 2 at the time of drilling (6/2/99) was 27 feet below the surface. The well logs indicate that both Well No. 1 and No. 2 encountered a five foot layer of silt around 28' feet below the surface. The wells each have a 10 foot screen. The depth at which the screen occurs is unknown. The well casing is grouted. Grouting is a seal surrounding the well casing. The seal helps protect ground water resource from surface and/or subsurface contamination (NGWA, 2001).

The water system at Pioneer Meadows Subdivision collectively serves approximately 96 residents through 80 service connections and operates 365 days per year. The number of residents served is increasing as new phases of the subdivision are completed. .

ASSESSMENT AND PROTECTION AREA FOR PIONEER MEADOWS SUBDIVISION DRINKING WATER SOURCE

The Drinking Water Protection and Assessment Area that has been established for Pioneer Meadows Subdivision 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.). 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 to Pioneer Meadow Subdivision's Drinking Water Protection Area , includes both Well No. 1 and Well No. 2.

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 Pioneer Meadows Subdivision. 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).

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 Pioneer Meadows Subdivision 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 Pioneer Meadows Subdivision 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 Pioneer Meadows Subdivision 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 Pioneer Meadows Subdivision. Below is a summary of the categories of the contaminant sources inventoried within the Pioneer Meadows Subdivision protection area:

- Residential septic systems
- Paved roads
- Large capacity septic systems (Class V Injection Wells)
- Residential areas
- Paved roads
- Horse stables

These potential contaminant sources present risks for all six categories of drinking water contaminants for Pioneer Meadows Subdivision 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 PIONEER MEADOWS SUBDIVISION 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:

$$\begin{array}{r} \text{Natural Susceptibility (0 – 50 points)} \\ + \\ \text{Contaminant Risks (0 – 50 points)} \\ = \\ \text{Vulnerability of the} \\ \text{Drinking Water Source to Contamination (0 – 100).} \end{array}$$

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

$$\begin{aligned} & \text{Susceptibility of the Wellhead (0 – 25 Points)} \\ & \quad + \\ & \text{Susceptibility of the Aquifer (0 – 25 Points)} \\ & = \text{Natural Susceptibility (Susceptibility of the Well)} \\ & \quad \text{(0 – 50 Points)} \end{aligned}$$

The Pioneer Meadows Subdivision wells are completed in an unconfined-aquifer setting. Well logs indicate that a thin silt-confining layer exists below the two wells. However, the lateral extent of the confining layer appears to be inconsistent. Well logs directly north of this system indicate the absence of a barrier. The presence of a silt layer may provide a protective barrier from the movement of contaminants in the subsurface. However, the inconsistency of the layer may allow contaminants to enter the subsurface aquifer uninhibited by any protective layer.

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 Pioneer Meadows Subdivision.

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

	Score	Rating
Susceptibility of the Wellheads	0	Low
Susceptibility of the Aquifer	22	Very High
Natural Susceptibility	22	Medium

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 sources through routine sampling. It also reviews contamination that has or may have occurred but has not arrived or been detected at the either 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	16	Low
Heavy Metals, Cyanide, And Other Inorganic Chemicals	31	High
Synthetic Organic Chemicals	14	Low
Other Organic Chemicals	14	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.

Vulnerability of drinking water sources 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 Pioneer Meadows Subdivision Public Drinking Water Source to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	45	Medium
Nitrates and Nitrites	70	High
Volatile Organic Chemicals	35	Low
Heavy Metals, Cyanide, and Other Inorganic Chemicals	55	Medium
Synthetic Organic Chemicals	35	Low
Other Organic		

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.

The contamination risk for the Bacteria/Viruses is driven by the potential risk associated with large capacity septic systems (Class V Injection Wells) and residential septic systems. No detection of Bacteria and Viruses has occurred in recent sampling history. Combining the contamination risk with the natural susceptibility of the well leads to an overall vulnerability to bacteria and virus contamination of high.

The contamination risk for bacteria and viruses is driven by the potential risk associated with residential septic systems, residential areas, large capacity septic systems (class V injection wells) and roads.

Recent historical sampling indicates no detection of bacteria and viruses. Combining the contaminant risk with the natural susceptibility of the wells leads to an overall vulnerability to bacteria and virus contamination of medium.

The contamination risk for nitrate/nitrites is driven by the potential risk associated with large capacity septic systems (class V injection wells), residential septic systems, residential areas, and roads.

Existing risk was determined by reviewing recent historical sampling data. The most recent detection indicates that nitrates were detected at 28% of the maximum contaminant level (MCL) of 10 mg/l on 11/29/01. (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. Combining the contamination risk with the natural susceptibility of the well leads to an overall vulnerability to nitrate/nitrite contamination of very high.

The high risk ranking for nitrates/nitrites is largely attributed to existing contamination and the presence of one large capacity of septic systems (LCSS's) in Zone C. For purposes of this study, LCSS are defined as septic systems serving more than one single family home. The United States Environmental Protection Agency's (USEPA) Underground Injection Control Program (UICP) is responsible for regulating large capacity septic systems (LCSS's) serving 20 or more

individuals (USEPA, 1999). It is unknown how many individuals are served by the LCSS's located in Zone C.

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. According to the USEPA, short-term exposure to levels excessively above the MCL has 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 (USEPA, 2001).

Because naturally occurring nitrate levels are typically less than 2 mg/l (or 20% the MCL), it is suspected that the nitrate levels detected are being influenced by man made sources. (Wang, Strelakos, Jokela, 2000). Despite this, the level of nitrate detected at Pioneer Meadows Subdivision remains at very safe levels with respect to human health.

The contaminant risks for volatile organic chemicals are driven by the potential risk associated with roads, residential areas, residential septic systems and large capacity septic systems (LCSS's) and the presence of existing contamination.

Risk associated with existing contamination of volatile organic chemicals was determined by reviewing recent historical sampling data. Sampling done on 9/30/00 detected 1,2 dichloromethane at 13.6% of the MCL. Sampling done on 12/20/99 detected dichloromethane at 11% of the MCL and toluene at 1.6% of the MCL. Combining the potential contaminant risk and existing contamination risk with the natural susceptibility of the well leads to an overall vulnerability to volatile organic chemical contamination of low.

1,2 dichloromethane is used in making other organic chemicals, making lead-free gasoline. Other uses include, paper coating, soil fumigant for nematodes, and insecticide for stored grain (USEPA, 2001).

USEPA has found 1,2 dichloromethane to potentially cause damage to the liver, kidneys, adrenal glands, bladder, and the gastrointestinal and respiratory tracts.

when people are exposed to it at levels above the MCL for relatively short periods of time. A lifetime exposure to 1,2 dichloromethane at levels above the MCL has the potential to cause cancer. The levels of 1,2 dichloromethane detected at Pioneer Meadow Subdivision are very low and considered at safe levels with respect to human health. Since the detection on 9/30/00, no further detection has occurred.

Dichloromethane is as a paint remover. Other uses include: solvent and cleaning agent in a variety of industries, a fumigant for strawberries and grains; and to extract substances from foodstuffs. (USEPA,2001)

The USEPA has found dichloromethane to potentially cause damage to the nervous system and to blood when people are exposed to it at levels above the MCL for relatively short periods of time. The effects of a lifetime exposure at levels above the MCL include liver damage and cancer (USEPA, 2001). The levels of dichloromethane detected at Pioneer Meadow Subdivision are low and considered safe levels with respect to human health. Since the detection on 12/20/99, no further detection has occurred.

Toluene occurs naturally in crude oil and is often an additive to gasoline. Other uses include: used in the process of making gasoline and other fuels from crude oil, in making coke from coal, and as a by-product in the manufacture of styrene, making paints, paint thinners, fingernail polish, lacquers, adhesives, rubber and in some printing and leather tanning processes. (ATSDR, 1994).

The USEPA has found toluene to potentially cause minor nervous system disorders such as fatigue, nausea, weakness and confusion when people are exposed to it at levels above the MCL for relatively short periods of time. The effects of a lifetime exposure at levels above the MCL include pronounced nervous disorders such as spasms, tremors, impairment of speech, hearing, vision, memory, coordination; liver and kidney damage (USEPA, 2001). The levels of toluene detected at Pioneer Meadow Subdivision are low and remain at safe levels with respect to human health. Since the detection on 12/20/99, no further detection has occurred.

The source or sources of the volatile organic chemicals detected is unknown. One possibility is that the land was used for agricultural production and thus exposed to certain chemicals. Since the detentions of the volatile organic chemicals occurred once the well began production, it is possible that the contaminants were flushed through during the initial pumping. No further detection has occurred since the initial detection.

The contaminant risks for heavy metals and inorganic are driven by the potential risks associated with roads, residential septic systems, residential areas, large capacity septic systems, and the risks associated with existing contamination.

Risk associated with existing contamination of heavy metals and inorganics was determined by reviewing recent historical sampling data. Historical sampling indicates that barium and cyanide were detected at very low levels. Sampling done on 12/20/99 detected barium at 38% of the MCL of 0.2mg/l and cyanide at 8.5% of the MCL of 0.2 mg/l. Combining the potential contaminant risk and existing contaminant risk with the natural susceptibility of the well leads to an overall vulnerability to heavy metals and inorganic chemical contamination of medium.

Barium is a lustrous, machinable metal, which exists in nature in ores containing mixtures of elements. It is used in making a wide variety of electronic components, in metal alloys, bleaches, dyes, fireworks, ceramics and glass. In particular, it is used in well drilling operations where it is directly released into the ground (USEPA, 2002).

Barium has potential to cause gastrointestinal disturbances and muscular weakness when people are exposed to it at levels above the MCL for relatively short periods of time. Lifetime exposure at levels above the MCL may lead to high blood pressure (USEPA, 2001). The levels of barium detected at Pioneer Meadow Subdivision remains at very safe levels with respect to human health. Since the detection of barium on 12/20/99, no further detection has occurred.

Cyanide is mainly used to make the compounds needed to make nylon and other synthetic fiber resins and herbicides (USEPA, 2001). In addition, cyanide can be produced naturally by certain bacteria, fungi, and algae, and is found in a number of foods and plants (ATSDR, 1997).

The USEPA has found cyanide to potentially cause : rapid breathing, tremors and other neurological effects when people are exposed to it at levels above the MCL for relatively short periods of time. Lifetime exposure at levels above the MCL can potentially lead to weight loss, thyroid effects and nerve damage (USEPA, 2001). The levels of cyanide detected at Pioneer Meadow Subdivision were are low and considered at very safe levels with respect to human health. Since the detection of cyanide on 12/20/99, no further detection has occurred.

The contaminant risk for synthetic organic chemicals is driven by the potential risk associated with residential areas, large capacity septic systems and residential septic systems.

Pioneer Meadows has a waiver for synthetic organic chemicals. No sampling has occurred for this system. Combining the contaminant risk with the natural susceptibility of the well leads to an overall vulnerability to synthetic chemical contamination of low. Despite having no significant sources of synthetic organic chemicals, past land use may justify establishing a baseline for synthetic organic chemicals. The system should consider testing for synthetic organic chemicals at least once to establish a baseline.

The contamination risk for other organic chemicals is driven by the potential risk associated with roads, large capacity septic systems, residential areas and residential septic systems.

Pioneer Meadows has a waiver for other organic chemicals. No sampling has occurred for this system. Combining the contaminant risk with the natural susceptibility of the well leads to an overall vulnerability to other organic chemical contamination of low. Despite having no significant sources of other organic chemicals, past land use may justify establishing a baseline for other organic chemicals. The system should consider testing for other organic chemicals at least once to establish a baseline.

SUMMARY

A Source Water Assessment has been completed for the source of public drinking water serving Pioneer Meadows Subdivision. The overall vulnerability of this source to contamination is; **Medium** for bacteria and viruses and inorganic chemicals; **High** for nitrates/nitrites; **Low** for volatile organic chemicals and synthetic organic. 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 Pioneer Meadows Subdivision 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 Pioneer Meadows Subdivision's public drinking water source.

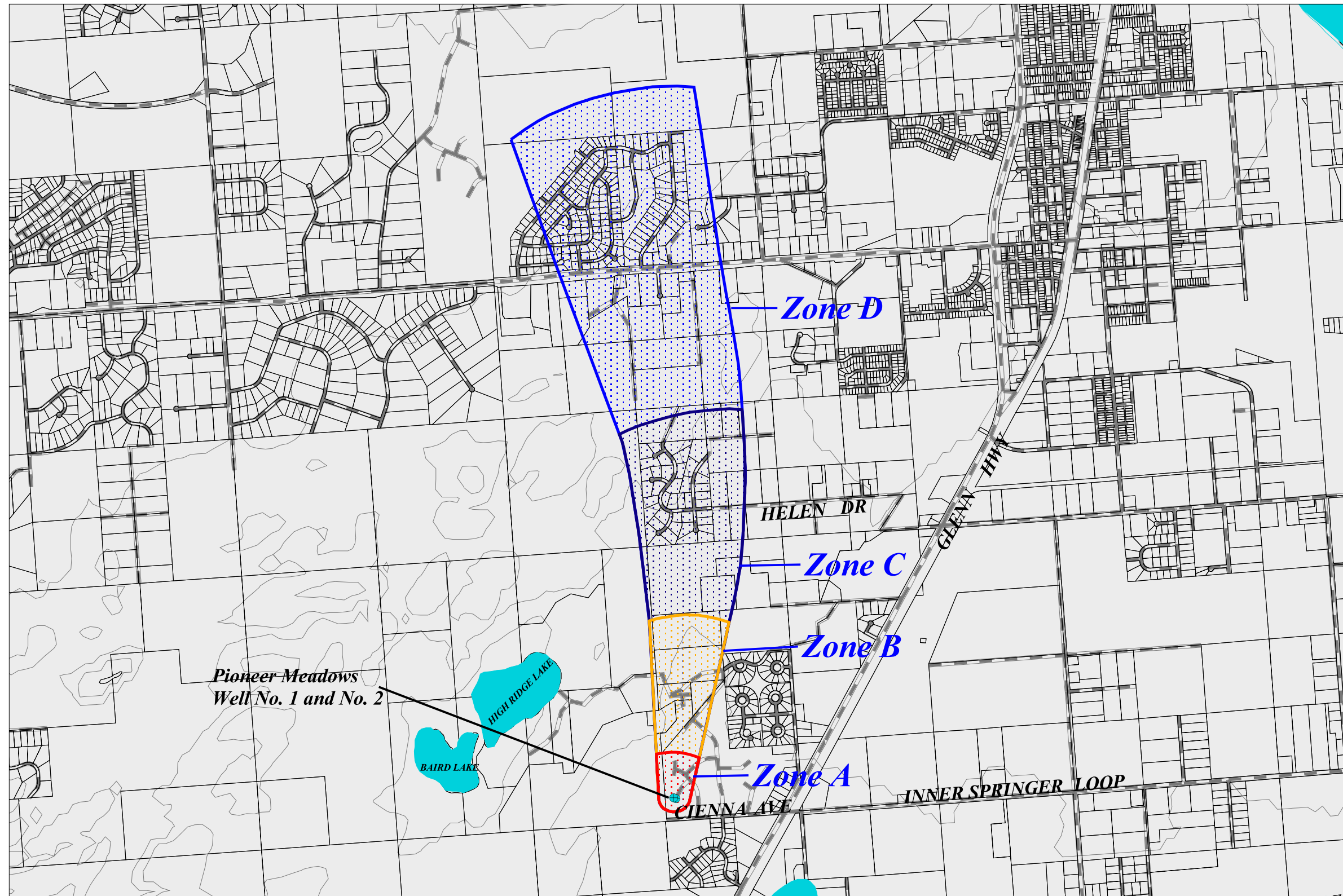
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APPENDIX A

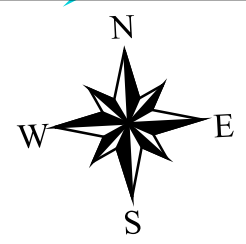
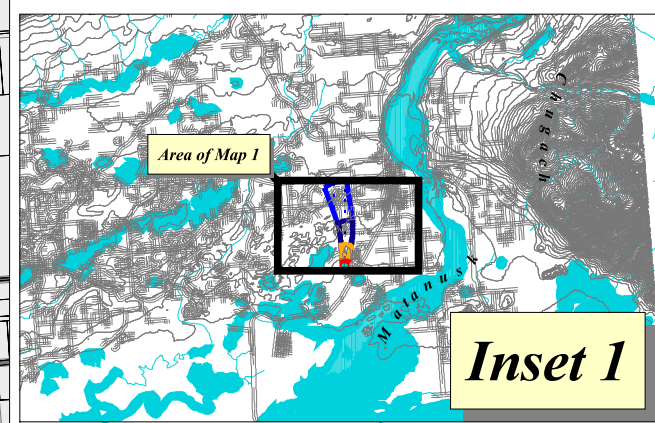
Pioneer Meadows Subdivision Drinking Water Protection Area

Drinking Water Protection Area for Pioneer Meadows



Legend

- Pioneer Meadows Public Water Systems
- 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 Time of Travel
- Lakes and Rivers
- Rivers and Streams
- Matanuska Susitna Borough Parcels
- Roads
- Elevation Contours



PWSID 227734.001 and 227734.002

Map 1

APPENDIX B

Contaminant Source Inventory and Risk Ranking for Pioneer Meadows Subdivision

Table 1

**Contaminant Source Inventory for
Pioneer Meadows**

PWSID 227734.001

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Comments
Residential Areas	R01	R02-01	A	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-01	A		4	
Septic systems (serves one single-family home)	R02	R02-02	A		4	
Septic systems (serves one single-family home)	R02	R02-03	A		4	
Septic systems (serves one single-family home)	R02	R02-04	A		4	
Septic systems (serves one single-family home)	R02	R02-05	A		4	
Septic systems (serves one single-family home)	R02	R02-06	A		4	
Septic systems (serves one single-family home)	R02	R02-07	A		4	
Septic systems (serves one single-family home)	R02	R02-08	A		4	
Septic systems (serves one single-family home)	R02	R02-09	A		4	
Septic systems (serves one single-family home)	R02	R02-10	A		4	
Septic systems (serves one single-family home)	R02	R02-11	A		4	
Septic systems (serves one single-family home)	R02	R02-12	A		4	
Septic systems (serves one single-family home)	R02	R02-13	A		4	
Septic systems (serves one single-family home)	R02	R02-14	A		4	
Septic systems (serves one single-family home)	R02	R02-15	A		4	
Septic systems (serves one single-family home)	R02	R02-15	A		4	
Septic systems (serves one single-family home)	R02	R02-15	A		4	
Septic systems (serves one single-family home)	R02	R02-16	A		4	
Septic systems (serves one single-family home)	R02	R02-17	A		4	
Septic systems (serves one single-family home)	R02	R02-18	A		4	
Septic systems (serves one single-family home)	R02	R02-19	A		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Near Frontier Drive	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	R02-56	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Annie Lane	2	
Residential Areas	R01	R01-02	B	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Valley Crest Drive	2	
Livestock stables/corrals	A09	A09-01	C		3	
Livestock stables/corrals	A09	A09-02	C		3	
Livestock stables/corrals	A09	A09-03	C		3	
Livestock stables/corrals	A09	A09-04	C		3	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	Valborg 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>
Residential Areas	R01	R01-03	C	Residential Area in Zone C	3	73 Acres
Septic systems (serves one single-family home)	R02	R02-21- 53	C		3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Esty Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Valborg Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Helen Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Kangaroo Court	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Turtle Drive	3	

Table 2

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.001

<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	R02-01	A	Low		4	
Residential Areas	R01	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 2 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.001

<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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Annie Lane	2	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Low	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Low	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Low	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Low	Valley Crest Drive	2	

Table 3

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.001

<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	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.001

<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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Annie Lane	2	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Low	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Low	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Low	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Low	Valley Crest Drive	2	
Livestock stables/corrals	A09	A09-01	C	Medium		3	
Livestock stables/corrals	A09	A09-02	C	Medium		3	
Livestock stables/corrals	A09	A09-03	C	Medium		3	

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.001

<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>
Livestock stables/corrals	A09	A09-04	C	Medium		3	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	High	Valborg Circle	3	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	73 Acres
Septic systems (serves one single-family home)	R02	R02-21- 53	C	Low		3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Esty Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Valborg Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	Helen Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Kangaroo Court	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Turtle Drive	3	

Table 4

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.001

<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	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 4 (continued)

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.001

<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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Annie Lane	2	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Low	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Low	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Low	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Low	Valley Crest Drive	2	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	Low	Valborg Circle	3	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	73 Acres

Table 4 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Volatile Organic Chemicals

PWSID 227734.001

<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- 53	C	Low		3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Esty Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Valborg Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	Helen Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Kangaroo Court	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Turtle Drive	3	

Table 5

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows*

PWSID 227734.001

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>
Residential Areas	R01	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows

PWSID 227734.001

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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Annie Lane	2	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Low	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Low	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Low	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Low	Valley Crest Drive	2	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	Low	Valborg Circle	3	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	73 Acres

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows

PWSID 227734.001

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- 53	C	Low		3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Esty Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Valborg Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	Helen Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Kangaroo Court	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Turtle Drive	3	

Table 6

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Synthetic Organic Chemicals*

PWSID 227734.001

<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	R02-01	A	Low		4	
Residential Areas	R01	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 6 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Synthetic Organic Chemicals*

PWSID 227734.001

<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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Livestock stables/corrals	A09	A09-01	C	Low		3	
Livestock stables/corrals	A09	A09-02	C	Low		3	
Livestock stables/corrals	A09	A09-03	C	Low		3	
Livestock stables/corrals	A09	A09-04	C	Low		3	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	Low	Valborg Circle	3	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	73 Acres
Septic systems (serves one single-family home)	R02	R02-21- 53	C	Low		3	

Table 7

*Contaminant Source Inventory and Risk Ranking for
Poineer Meadows
Sources of Other Organic Chemicals*

PWSID 227734.001

<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	R02-01	A	Low	Residential Area in Zone A	2	13.5 Acres
Septic systems (serves one single-family home)	R02	R02-01	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-02	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-03	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-04	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-05	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-06	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-07	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-08	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-09	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-10	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-11	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-12	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-13	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-14	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-15	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-16	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-17	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-18	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-19	A	Low		4	
Septic systems (serves one single-family home)	R02	R02-54	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-55	A	Low	Near Frontier Drive	4	

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals*

PWSID 227734.001

<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	R02-56	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-57	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-58	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-59	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-60	A	Low	Near Frontier Drive	4	
Septic systems (serves one single-family home)	R02	R02-61	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-62	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-63	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-64	A	Low	Near Annie Lane	4	
Septic systems (serves one single-family home)	R02	R02-65	A	Low	S. Settlers Circle	4	
Highways and roads, paved (cement or asphalt)	X20	X20-01	A	Low	Frontier Drive	2	
Highways and roads, paved (cement or asphalt)	X20	X20-02	A	Low	Pioneer Meadows	2	Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03	A	Low	Settlers Circles	2	
Highways and roads, paved (cement or asphalt)	X20	X20-04	A	Low	Annie Lane	2	
Residential Areas	R01	R01-02	B	Low	Residential Area in Zone B	2	4 Acres
Septic systems (serves one single-family home)	R02	R02-20	B	Low		4	
Highways and roads, paved (cement or asphalt)	X20	X20-05	B	Low	Rebecca Lane	2	
Highways and roads, paved (cement or asphalt)	X20	X20-06	B	Low	Knipple Street	2	
Highways and roads, paved (cement or asphalt)	X20	X20-07	B	Low	Stonington Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-08	B	Low	Taylor Circle	2	
Highways and roads, paved (cement or asphalt)	X20	X20-09	B	Low	Valley Crest Drive	2	
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01	C	Low	Valborg Circle	3	
Residential Areas	R01	R01-03	C	Low	Residential Area in Zone C	3	73 Acres

Table 7 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals

PWSID 227734.001

<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- 53	C	Low		3	
Highways and roads, paved (cement or asphalt)	X20	X20-10	C	Low	Esty Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-11	C	Low	Valborg Circle	3	
Highways and roads, paved (cement or asphalt)	X20	X20-12	C	Low	Helen Drive	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	C	Low	Kangaroo Court	3	
Highways and roads, paved (cement or asphalt)	X20	X20-14	C	Low	Turtle Drive	3	

Table 1

**Contaminant Source Inventory for
Pioneer Meadows**

PWSID 227734.002

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Location	Map Number	Comments
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		Valborg Circle		
Residential Areas	R01	R01-04		Residential Area in Zone D		
Residential Areas	R01	R02-01		Residential Area in Zone A		
Septic systems (serves one single-family home)	R02	R02-01				
Septic systems (serves one single-family home)	R02	R02-02				
Residential Areas	R01	R02-02		Residential Area in Zone B		
Residential Areas	R01	R02-03		Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-03				
Septic systems (serves one single-family home)	R02	R02-04				
Septic systems (serves one single-family home)	R02	R02-05				
Septic systems (serves one single-family home)	R02	R02-06				
Septic systems (serves one single-family home)	R02	R02-07				
Septic systems (serves one single-family home)	R02	R02-08				
Septic systems (serves one single-family home)	R02	R02-09				
Septic systems (serves one single-family home)	R02	R02-09				
Septic systems (serves one single-family home)	R02	R02-10				
Septic systems (serves one single-family home)	R02	R02-11				
Septic systems (serves one single-family home)	R02	R02-12				
Septic systems (serves one single-family home)	R02	R02-13				
Septic systems (serves one single-family home)	R02	R02-14				
Septic systems (serves one single-family home)	R02	R02-15				
Septic systems (serves one single-family home)	R02	R02-15				
Septic systems (serves one single-family home)	R02	R02-15				
Septic systems (serves one single-family home)	R02	R02-16				

<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	R02-17				
Septic systems (serves one single-family home)	R02	R02-18				
Septic systems (serves one single-family home)	R02	R02-19				
Septic systems (serves one single-family home)	R02	R02-20				
Septic systems (serves one single-family home)	R02	R02-21- 53				
Septic systems (serves one single-family home)	R02	R02-54		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Knipple Street		
Highways and roads, paved (cement or asphalt)	X20	X20-07		Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Esty Drive		

<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	X20-11		Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Belmount Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Appaloosa Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-31		Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Wondra Lane		

Table 2

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.002

<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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		High	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Septic systems (serves one single-family home)	R02	R02-02		Low			
Septic systems (serves one single-family home)	R02	R02-03		Low			
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 2 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.002

<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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Low	Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Low	Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Low	Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Low	Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Low	Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Low	Knipple Street		

Table 2 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.002

<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	X20-07		Low	Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Low	Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Low	Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Low	Esty Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-11		Low	Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Low	Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Low	Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Low	Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		Low	France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Low	Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		Low	France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Low	Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Low	Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Low	Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Low	Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Low	Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Low	Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Low	Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Low	Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Low	Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Low	Belmont Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Low	Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Low	Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Low	Appaloosa Drive		

Table 2 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Bacteria and Viruses*

PWSID 227734.002

<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	X20-31		Low	Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Low	Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Low	Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Low	Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Low	Wondra Lane		

Table 3

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.002

<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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		High	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Septic systems (serves one single-family home)	R02	R02-02		Low			
Septic systems (serves one single-family home)	R02	R02-03		Low			
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.002

<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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Low	Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Low	Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Low	Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Low	Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Low	Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Low	Knipple Street		

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.002

<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	X20-07		Low	Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Low	Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Low	Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Low	Esty Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-11		Low	Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Low	Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Low	Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Low	Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		Low	France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Low	Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		Low	France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Low	Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Low	Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Low	Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Low	Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Low	Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Low	Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Low	Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Low	Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Low	Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Low	Belmont Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Low	Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Low	Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Low	Appaloosa Drive		

Table 3 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Nitrates/Nitrites*

PWSID 227734.002

<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	X20-31		Low	Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Low	Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Low	Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Low	Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Low	Wondra Lane		

Table 4

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.002

<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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		Low	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Septic systems (serves one single-family home)	R02	R02-02		Low			
Septic systems (serves one single-family home)	R02	R02-03		Low			
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 4 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.002

<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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Low	Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Low	Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Low	Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Low	Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Low	Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Low	Knipple Street		

Table 4 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.002

<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	X20-07		Low	Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Low	Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Low	Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Low	Esty Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-11		Low	Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Low	Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Low	Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Low	Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		Low	France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Low	Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		Low	France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Low	Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Low	Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Low	Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Low	Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Low	Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Low	Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Low	Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Low	Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Low	Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Low	Belmont Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Low	Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Low	Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Low	Appaloosa Drive		

Table 4 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Volatile Organic Chemicals*

PWSID 227734.002

<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	X20-31		Low	Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Low	Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Low	Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Low	Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Low	Wondra Lane		

Table 5

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows*

PWSID 227734.002

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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		Low	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Septic systems (serves one single-family home)	R02	R02-02		Low			
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-03		Low			
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows

PWSID 227734.002

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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Low	Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Low	Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Low	Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Low	Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Low	Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Low	Knipple Street		

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows

PWSID 227734.002

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>
Highways and roads, paved (cement or asphalt)	X20	X20-07		Low	Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Low	Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Low	Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Low	Esty Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-11		Low	Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Low	Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Low	Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Low	Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		Low	France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Low	Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		Low	France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Low	Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Low	Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Low	Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Low	Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Low	Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Low	Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Low	Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Low	Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Low	Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Low	Belmont Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Low	Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Low	Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Low	Appaloosa Drive		

Table 5 (continued)

Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows

PWSID 227734.002

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>
Highways and roads, paved (cement or asphalt)	X20	X20-31		Low	Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Low	Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Low	Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Low	Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Low	Wondra Lane		

Table 6

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Synthetic Organic Chemicals*

PWSID 227734.002

<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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		Low	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Septic systems (serves one single-family home)	R02	R02-02		Low			
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Septic systems (serves one single-family home)	R02	R02-03		Low			
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 6 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Synthetic Organic Chemicals*

PWSID 227734.002

<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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		

Table 7

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals*

PWSID 227734.002

<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>
Injection wells (Class V) Large-Capacity Septic System (Drainfield Disposal Method)	D10	D10-01		Low	Valborg Circle		
Residential Areas	R01	R01-04		Low	Residential Area in Zone D		
Septic systems (serves one single-family home)	R02	R02-01		Low			
Residential Areas	R01	R02-01		Low	Residential Area in Zone A		
Residential Areas	R01	R02-02		Low	Residential Area in Zone B		
Septic systems (serves one single-family home)	R02	R02-02		Low			
Residential Areas	R01	R02-03		Low	Residential Area in Zone C		
Septic systems (serves one single-family home)	R02	R02-03		Low			
Septic systems (serves one single-family home)	R02	R02-04		Low			
Septic systems (serves one single-family home)	R02	R02-05		Low			
Septic systems (serves one single-family home)	R02	R02-06		Low			
Septic systems (serves one single-family home)	R02	R02-07		Low			
Septic systems (serves one single-family home)	R02	R02-08		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-09		Low			
Septic systems (serves one single-family home)	R02	R02-10		Low			
Septic systems (serves one single-family home)	R02	R02-11		Low			
Septic systems (serves one single-family home)	R02	R02-12		Low			
Septic systems (serves one single-family home)	R02	R02-13		Low			
Septic systems (serves one single-family home)	R02	R02-14		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			
Septic systems (serves one single-family home)	R02	R02-15		Low			

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals*

PWSID 227734.002

<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	R02-16		Low			
Septic systems (serves one single-family home)	R02	R02-17		Low			
Septic systems (serves one single-family home)	R02	R02-18		Low			
Septic systems (serves one single-family home)	R02	R02-19		Low			
Septic systems (serves one single-family home)	R02	R02-20		Low			
Septic systems (serves one single-family home)	R02	R02-21- 53		Low			
Septic systems (serves one single-family home)	R02	R02-54		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-55		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-56		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-57		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-58		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-59		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-60		Low	Near Frontier Drive		
Septic systems (serves one single-family home)	R02	R02-61		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-62		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-63		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-64		Low	Near Annie Lane		
Septic systems (serves one single-family home)	R02	R02-65		Low	S. Settlers Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-01		Low	Frontier Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-02		Low	Pioneer Meadows		Name of road unknown
Highways and roads, paved (cement or asphalt)	X20	X20-03		Low	Settlers Circles		
Highways and roads, paved (cement or asphalt)	X20	X20-04		Low	Annie Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-05		Low	Rebecca Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-06		Low	Knipple Street		

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals*

PWSID 227734.002

<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	X20-07		Low	Stonington Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-08		Low	Taylor Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-09		Low	Valley Crest Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-10		Low	Esty Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-11		Low	Valborg Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-12		Low	Helen Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-13		Low	Kangaroo Court		
Highways and roads, paved (cement or asphalt)	X20	X20-14		Low	Turtle Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-15		Low	France Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-16		Low	Local 302 Road		
Highways and roads, paved (cement or asphalt)	X20	X20-17		Low	France Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-18		Low	Terrilou Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-19		Low	Palmer-Wasilla Highway		
Highways and roads, paved (cement or asphalt)	X20	X20-20		Low	Equestrian Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-21		Low	Equestrian Place		
Highways and roads, paved (cement or asphalt)	X20	X20-22		Low	Belmont Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-23		Low	Monte Vista Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-24		Low	Basin Street		
Highways and roads, paved (cement or asphalt)	X20	X20-25		Low	Amber Hill Circle		
Highways and roads, paved (cement or asphalt)	X20	X20-26		Low	Verde Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-27		Low	Belmont Avenue		
Highways and roads, paved (cement or asphalt)	X20	X20-28		Low	Kentucky Derby Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-29		Low	Rockingham Way		
Highways and roads, paved (cement or asphalt)	X20	X20-30		Low	Appaloosa Drive		

Table 7 (continued)

*Contaminant Source Inventory and Risk Ranking for
Pioneer Meadows
Sources of Other Organic Chemicals*

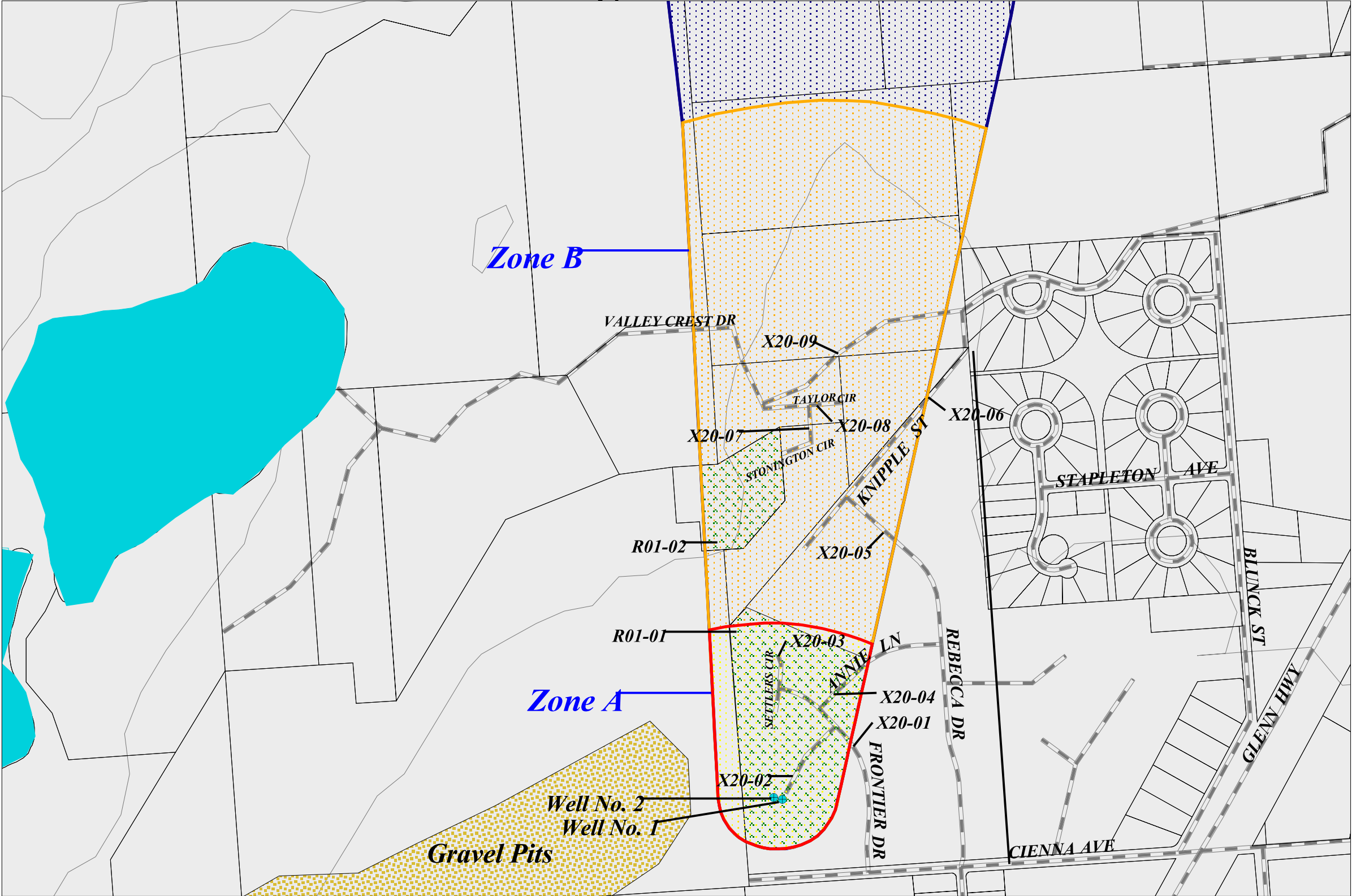
PWSID 227734.002

<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	X20-31		Low	Palimino Drive		
Highways and roads, paved (cement or asphalt)	X20	X20-32		Low	Equestrian Street		
Highways and roads, paved (cement or asphalt)	X20	X20-33		Low	Hialean Court		
Highways and roads, paved (cement or asphalt)	X20	X20-34		Low	Kelso Lane		
Highways and roads, paved (cement or asphalt)	X20	X20-35		Low	Wondra Lane		

APPENDIX C

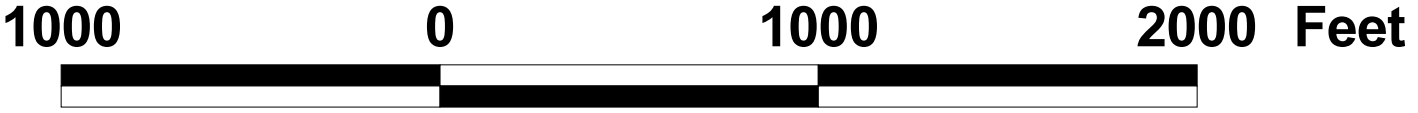
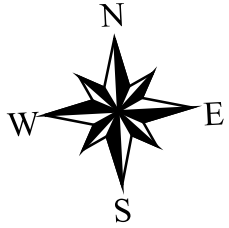
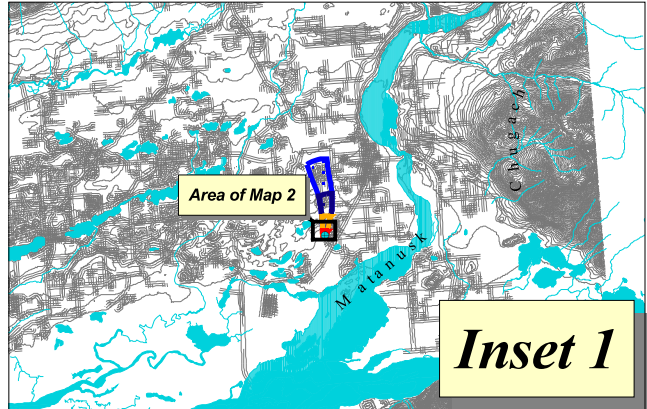
Pioneer Meadows Subdivision Drinking Water Protection Area And Potential & Existing Contaminant Sources

Drinking Water Protection Area for Pioneer Meadows and Potential and Existing Sources of Contamination



Legend

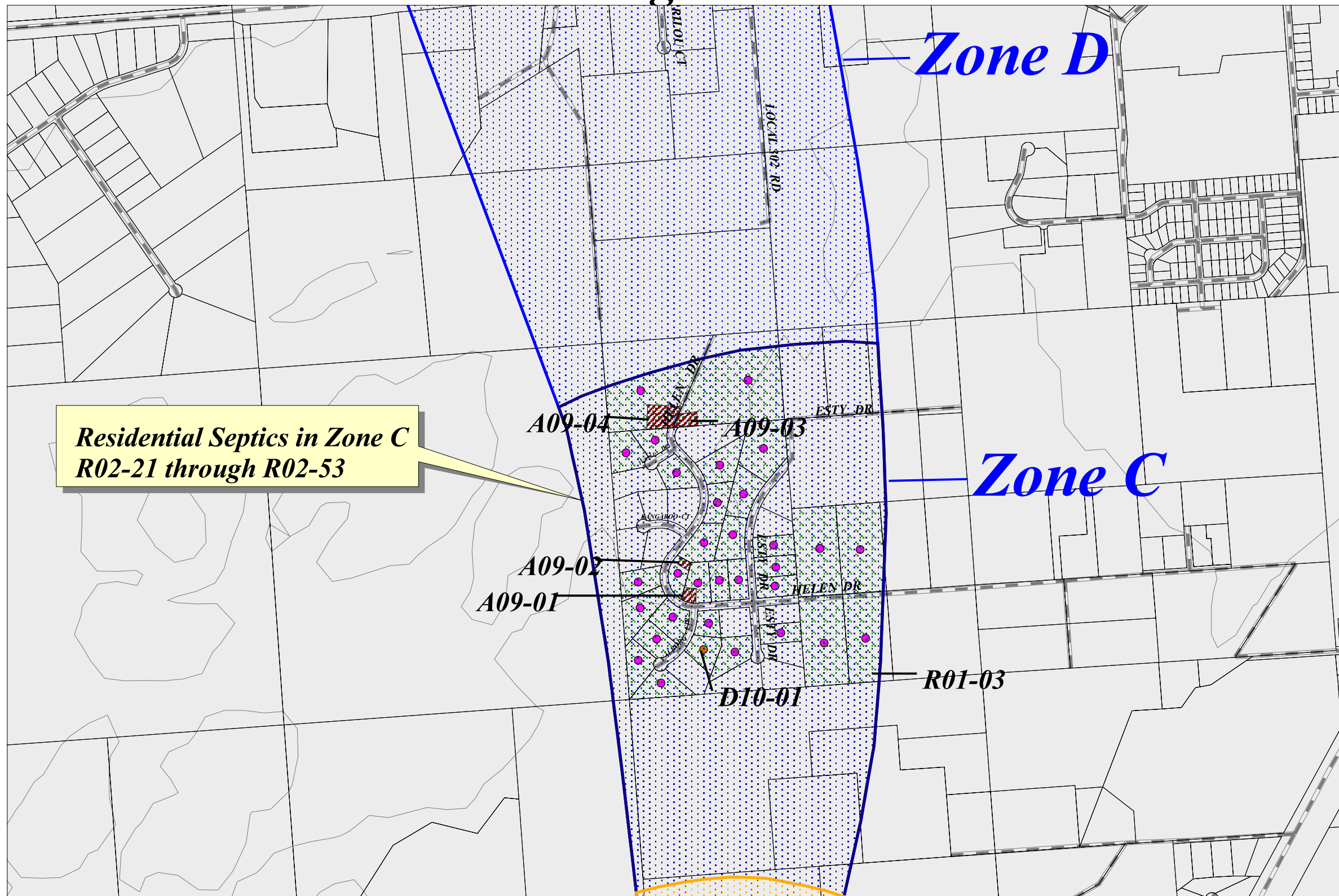
- Pioneer Meadows Public Water Systems
- Zone A Protection Area**
 - Several Months Travel Time
- Zone B Protection Area**
 - Less than 2 Years Travel Time
- Zone C Protection Area**
 - Less than 5 Years Travel Time
- Zone D Protection Area**
 - Less than 10 Years Time of Travel
- Residential (R01)
- Lakes and Rivers
- Rivers and Streams
- Matanuska Susitna Borough Parcels
- Roads
- Elevation Contours



PWSID 227734.001 and 227734.002

Map 2

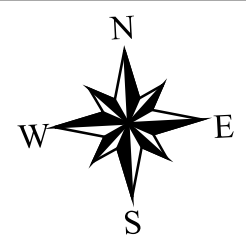
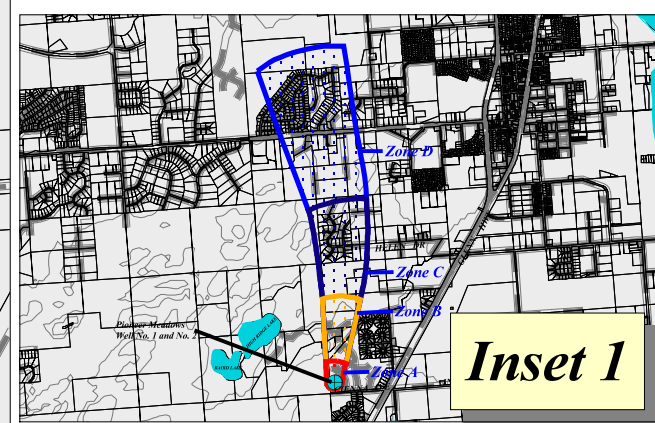
Drinking Water Protection Area for Pioneer Meadows and Potential and Existing Sources of Contamination.



Legend

- Pioneer Meadows Public Water Systems
- 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 Time of Travel
- Residential (R01)
- Horse Stable (A09)
- Septics (R02)
- Class V Injection Well (D10)
- Lakes and Rivers
- Rivers and Streams
- Matanuska Susitna Borough Parcels
- Roads
- Elevation Contours

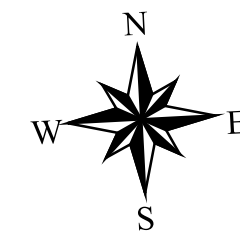
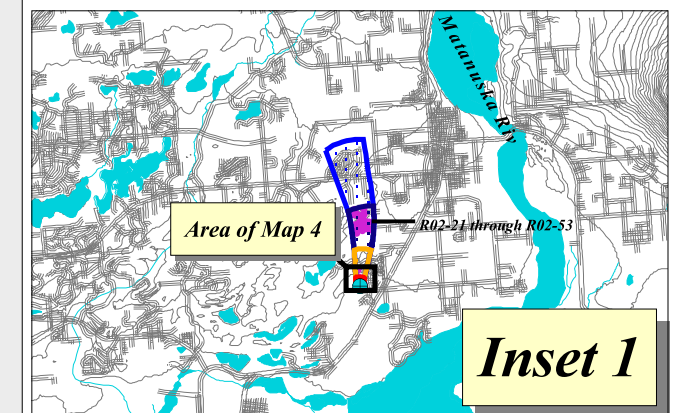
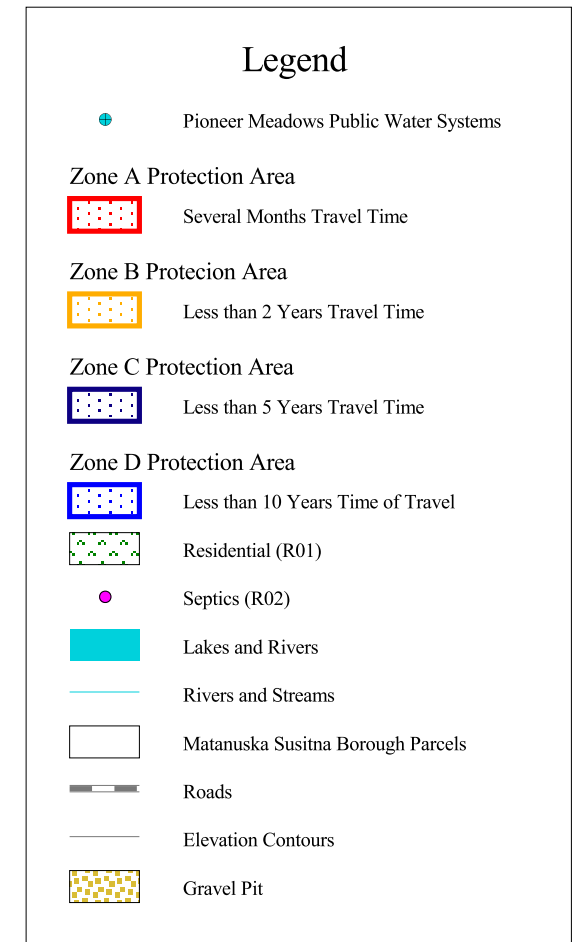
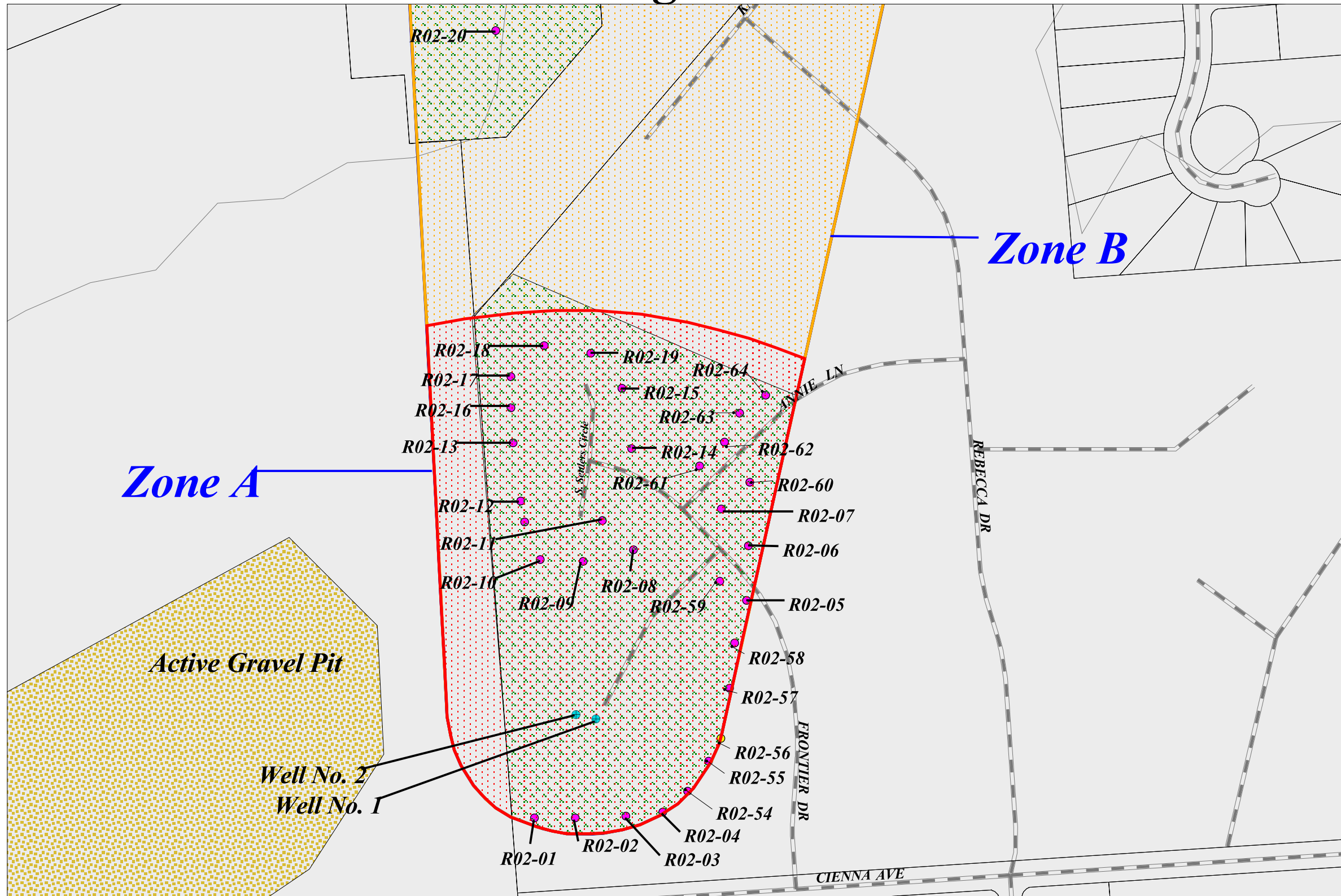
*Residential Septics in Zone C
R02-21 through R02-53*



PWSID 227734.001 and 227734.002

Map 3

Drinking Water Protection Area for Pioneer Meadows and Potential and Existing Sources of Contamination



PWSID 227734.001 and 227734.002

Map 4

APPENDIX D

Vulnerability Analysis for Pioneer Meadows Subdivision Public Drinking Water Source

Chart 1. Susceptibility of the wellhead - Pioneer Meadows Subdivision Well No. 1 and No. 2

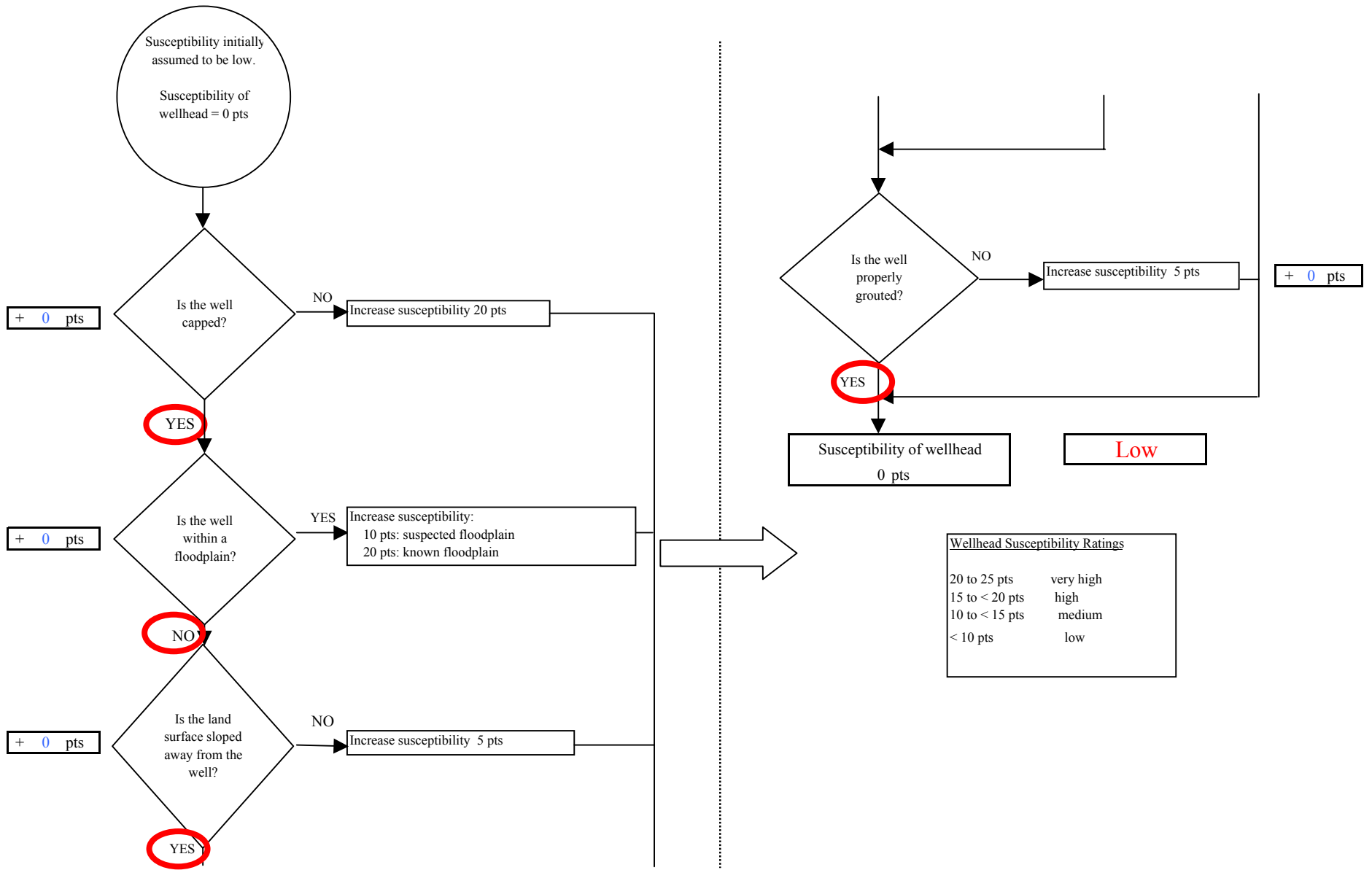


Chart 2. Susceptibility of the aquifer - Pioneer Meadows Subdivision Well No. 1 and No. 2

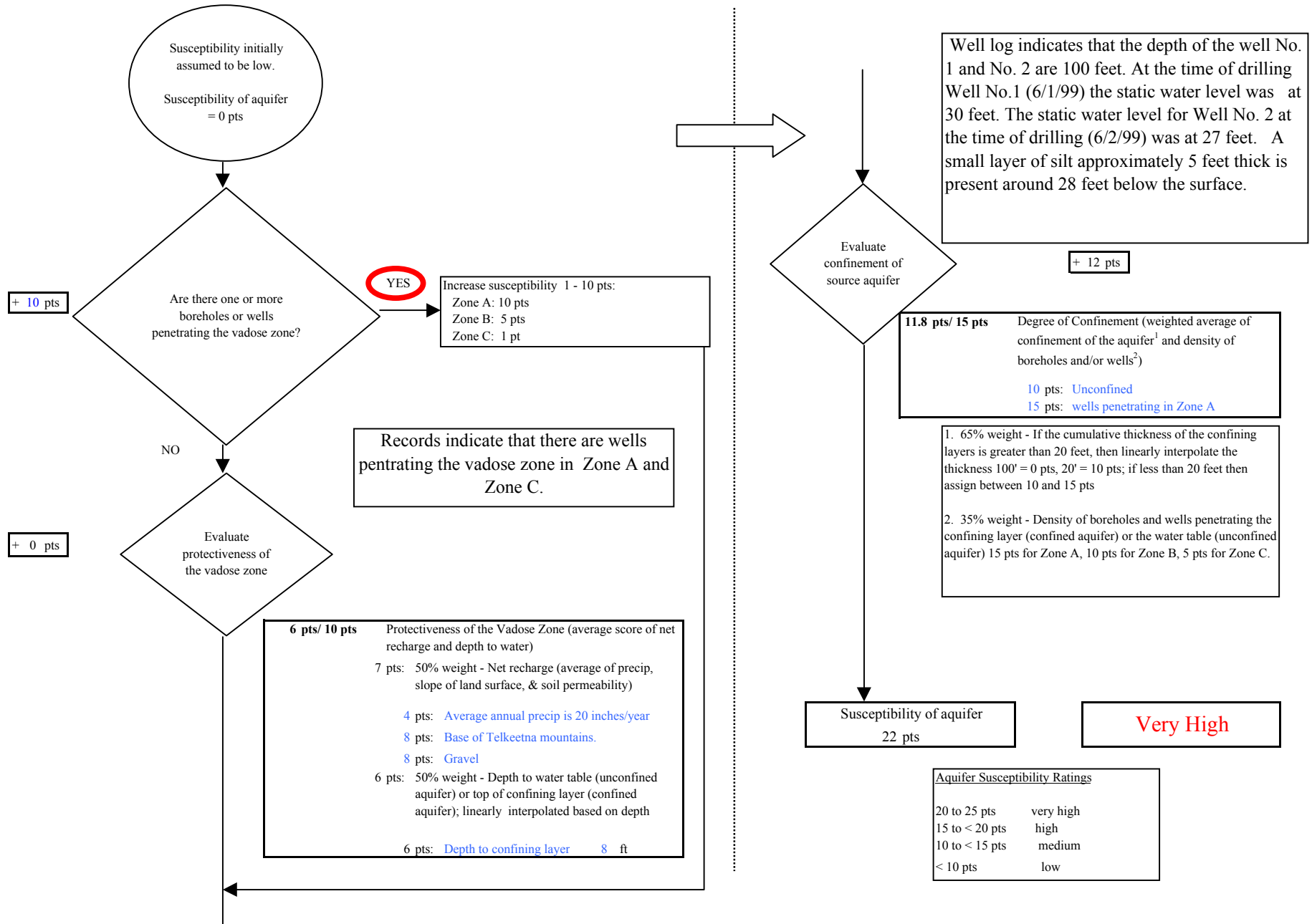


Chart 3. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Bacteria & Viruses

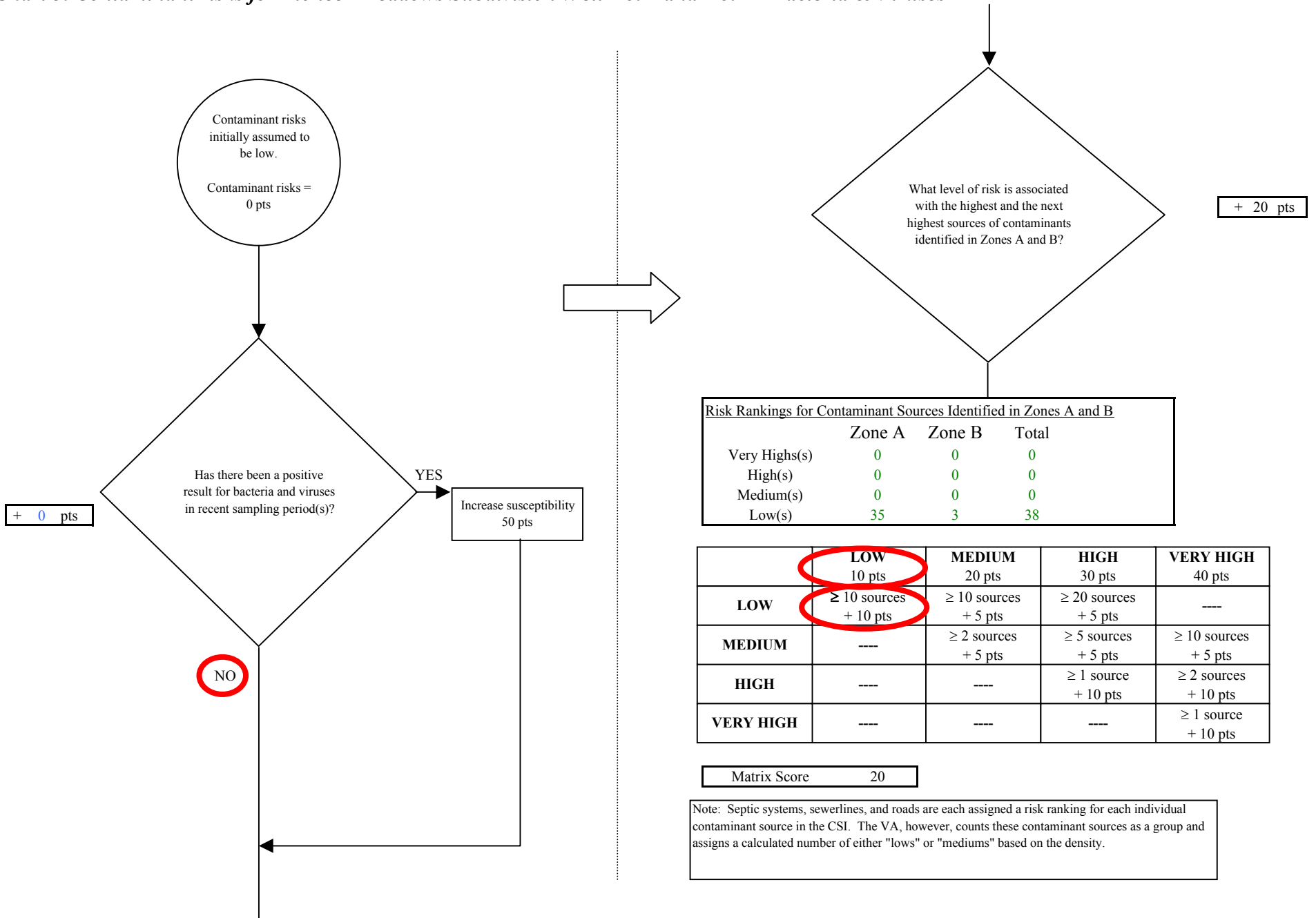


Chart 3. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Bacteria & Viruses

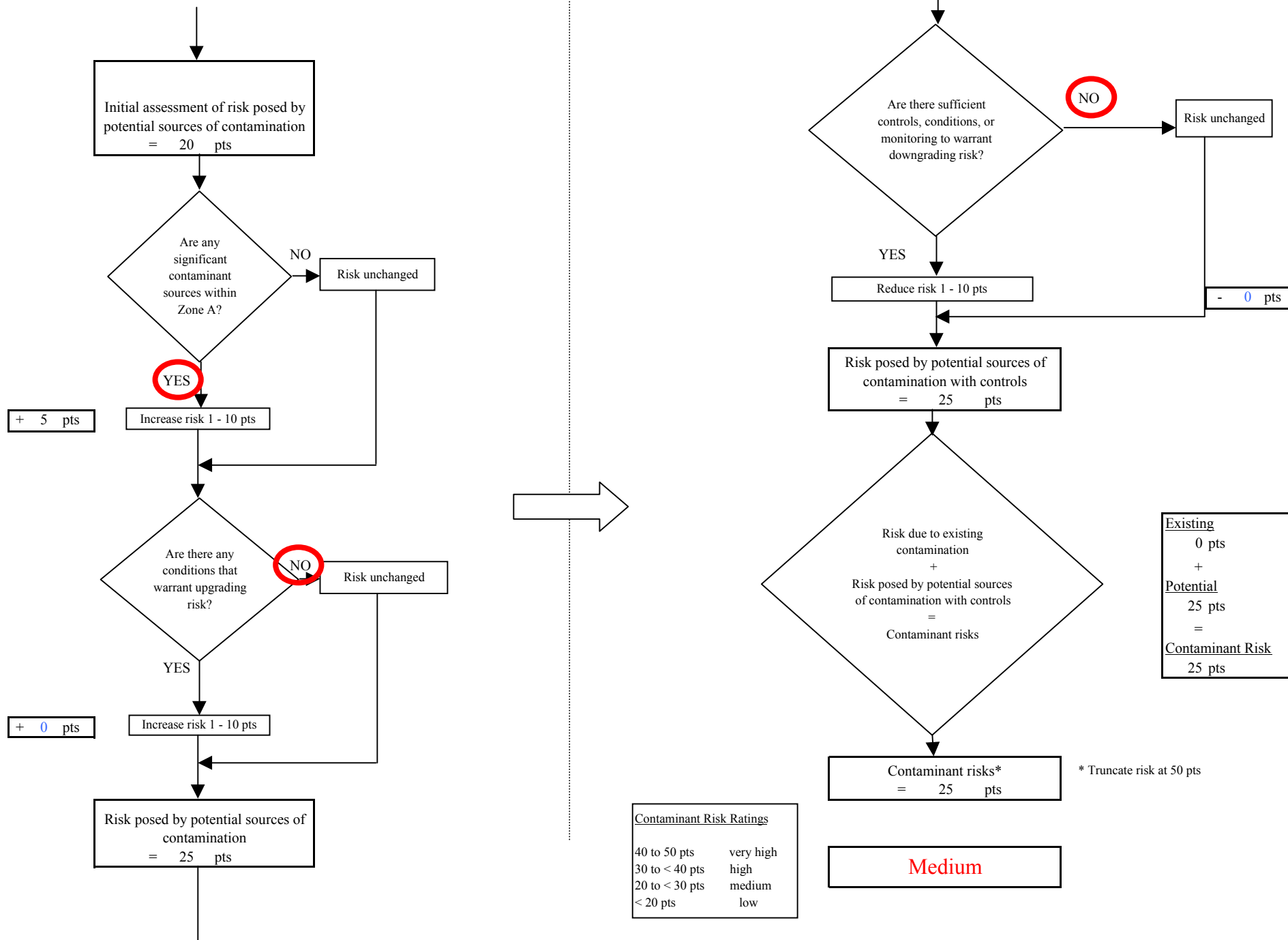


Chart 4. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Bacteria & Viruses

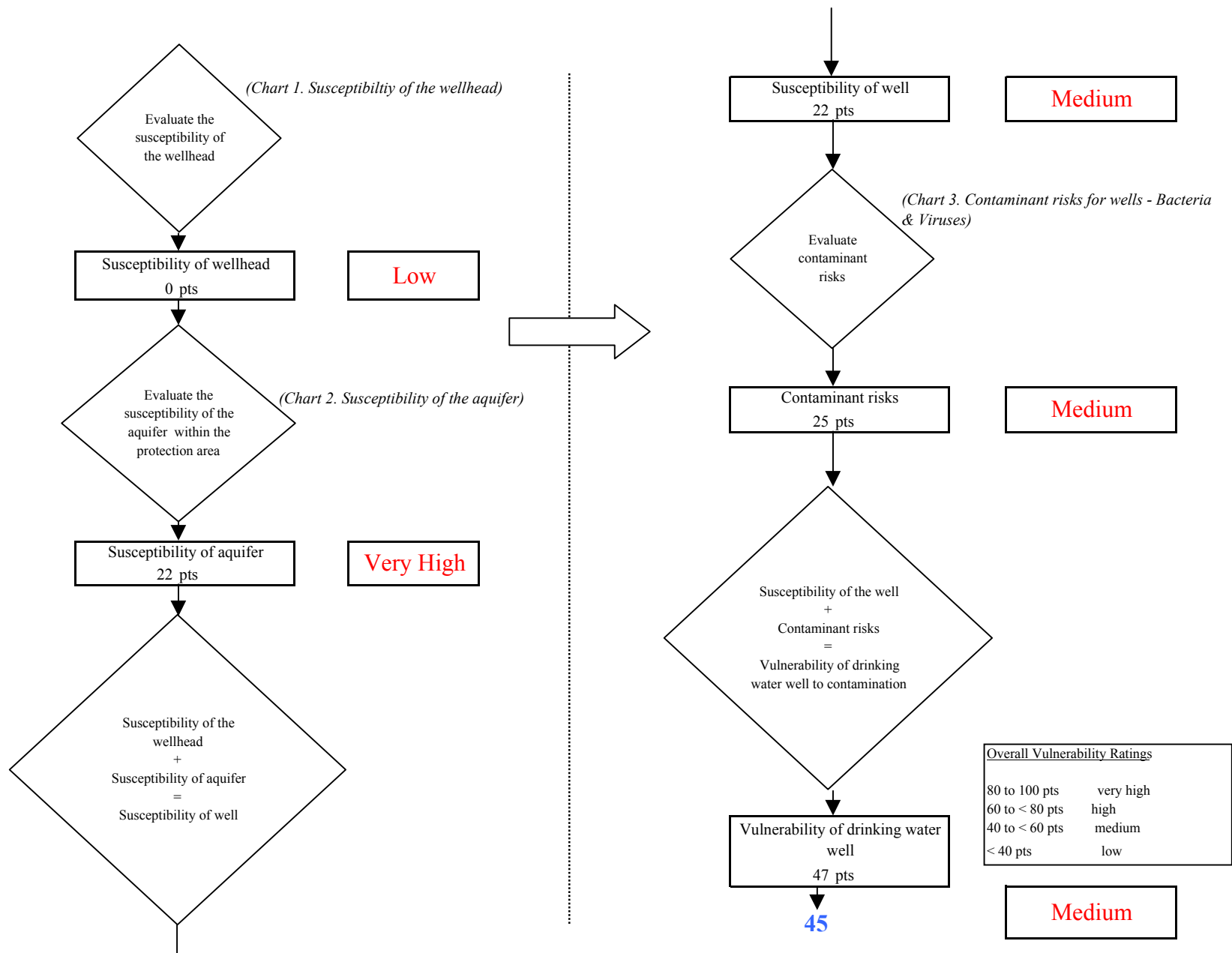


Chart 5. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Nitrates and Nitrites

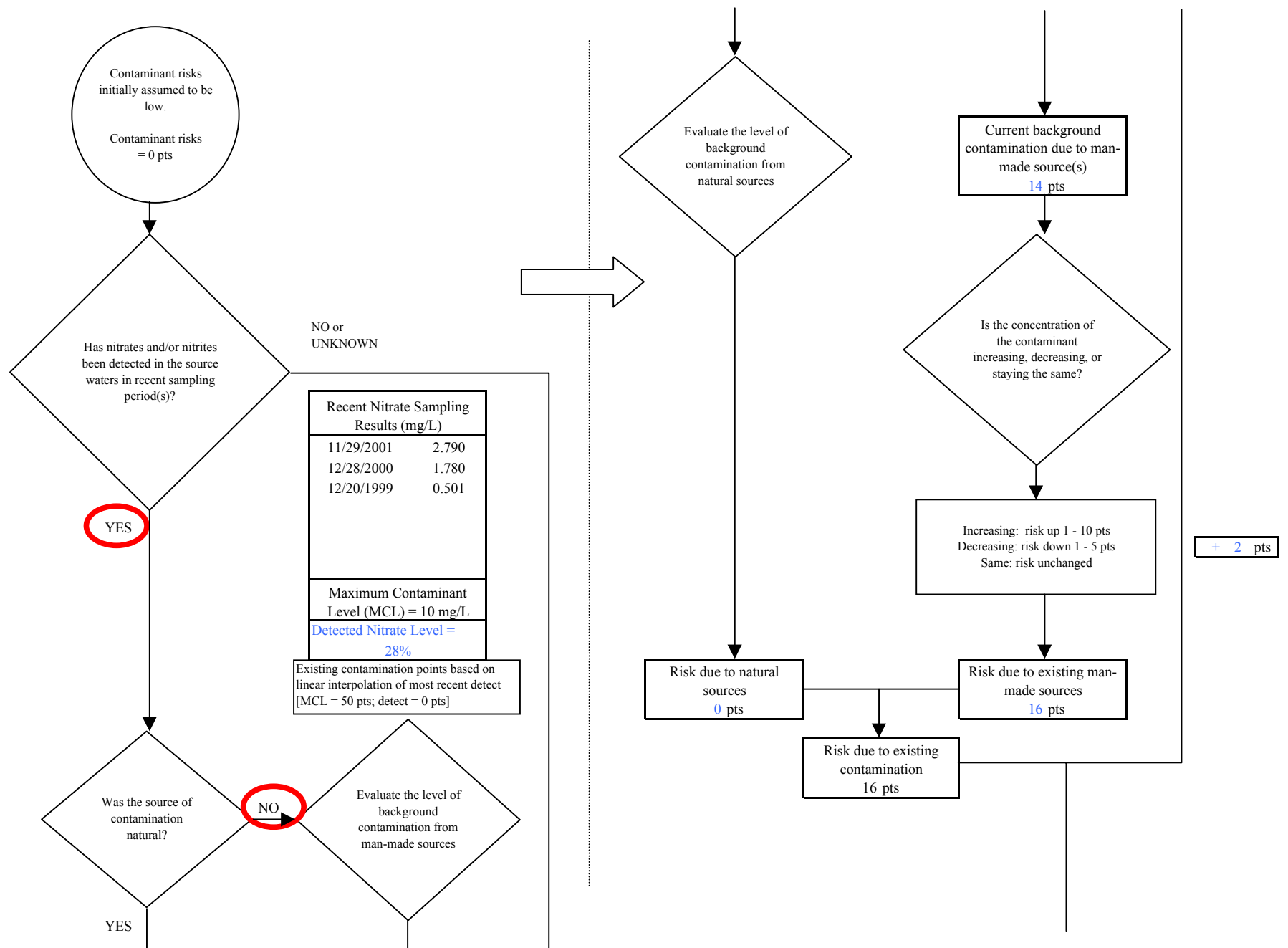
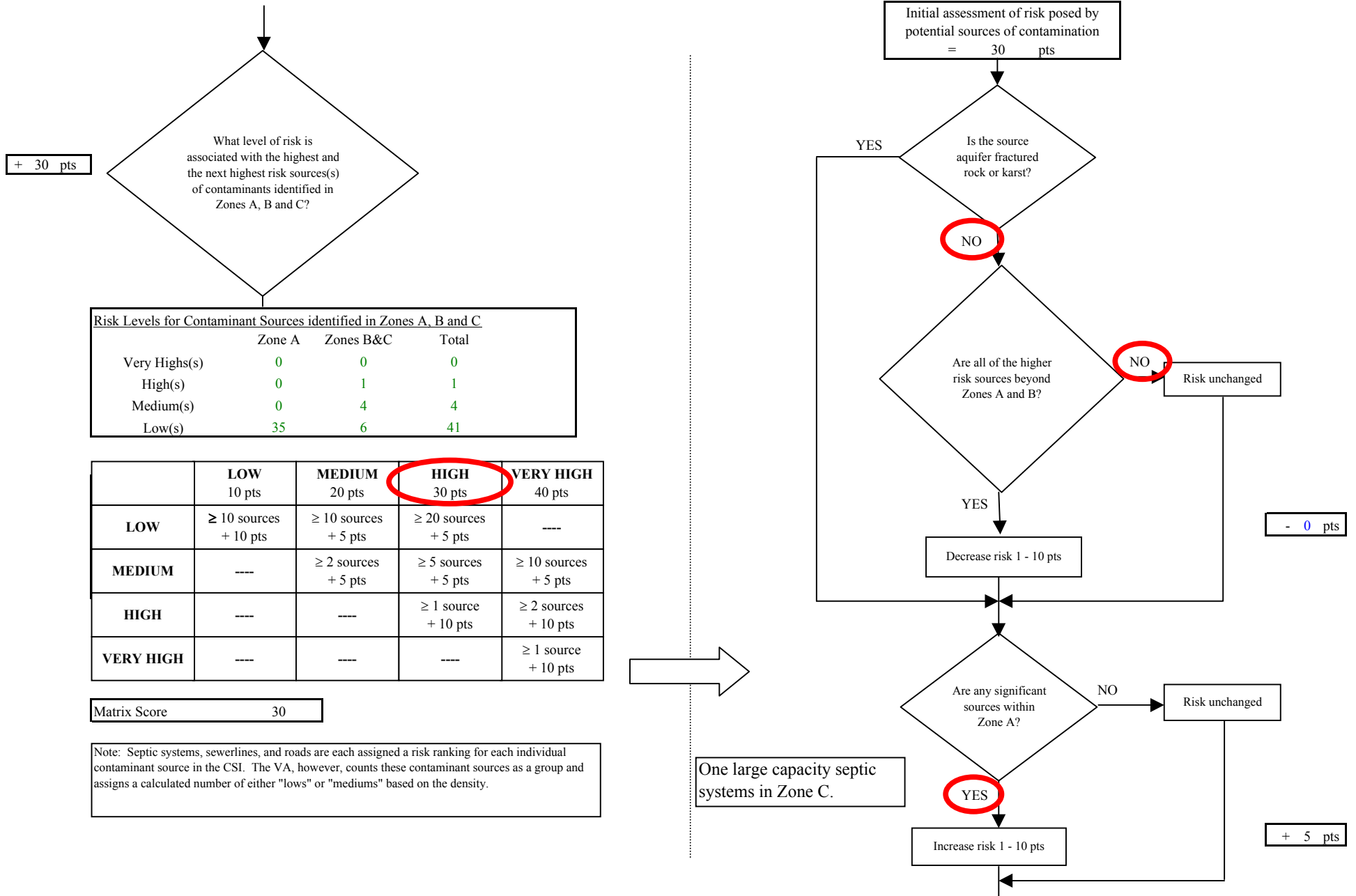


Chart 5. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Nitrates and Nitrites



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

	Zone A	Zones B&C	Total
Very High(s)	0	0	0
High(s)	0	1	1
Medium(s)	0	4	4
Low(s)	35	6	41

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

Matrix Score 30

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

One large capacity septic systems in Zone C.

Chart 5. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Nitrates and Nitrites

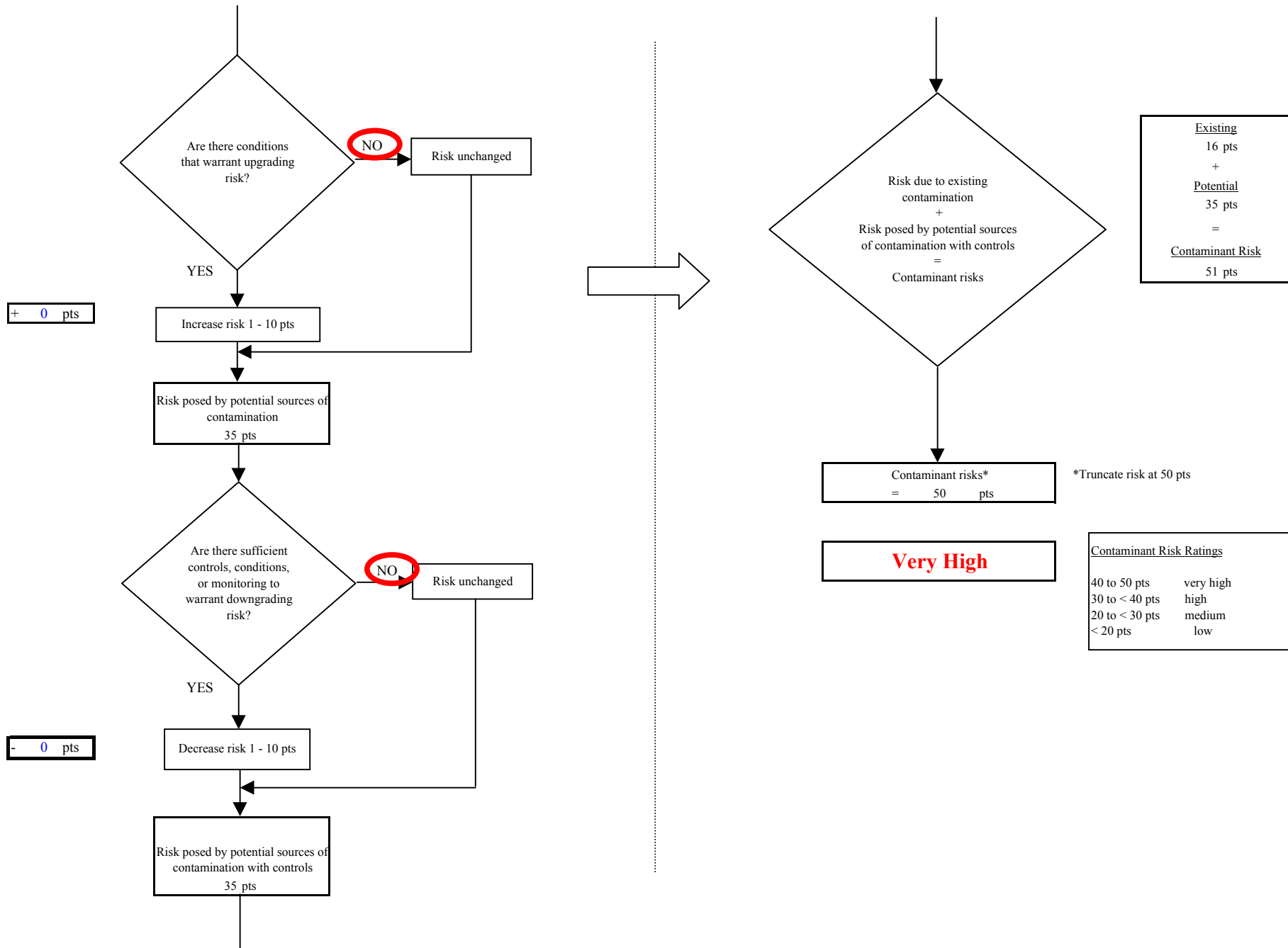


Chart 6. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Nitrates and Nitrites

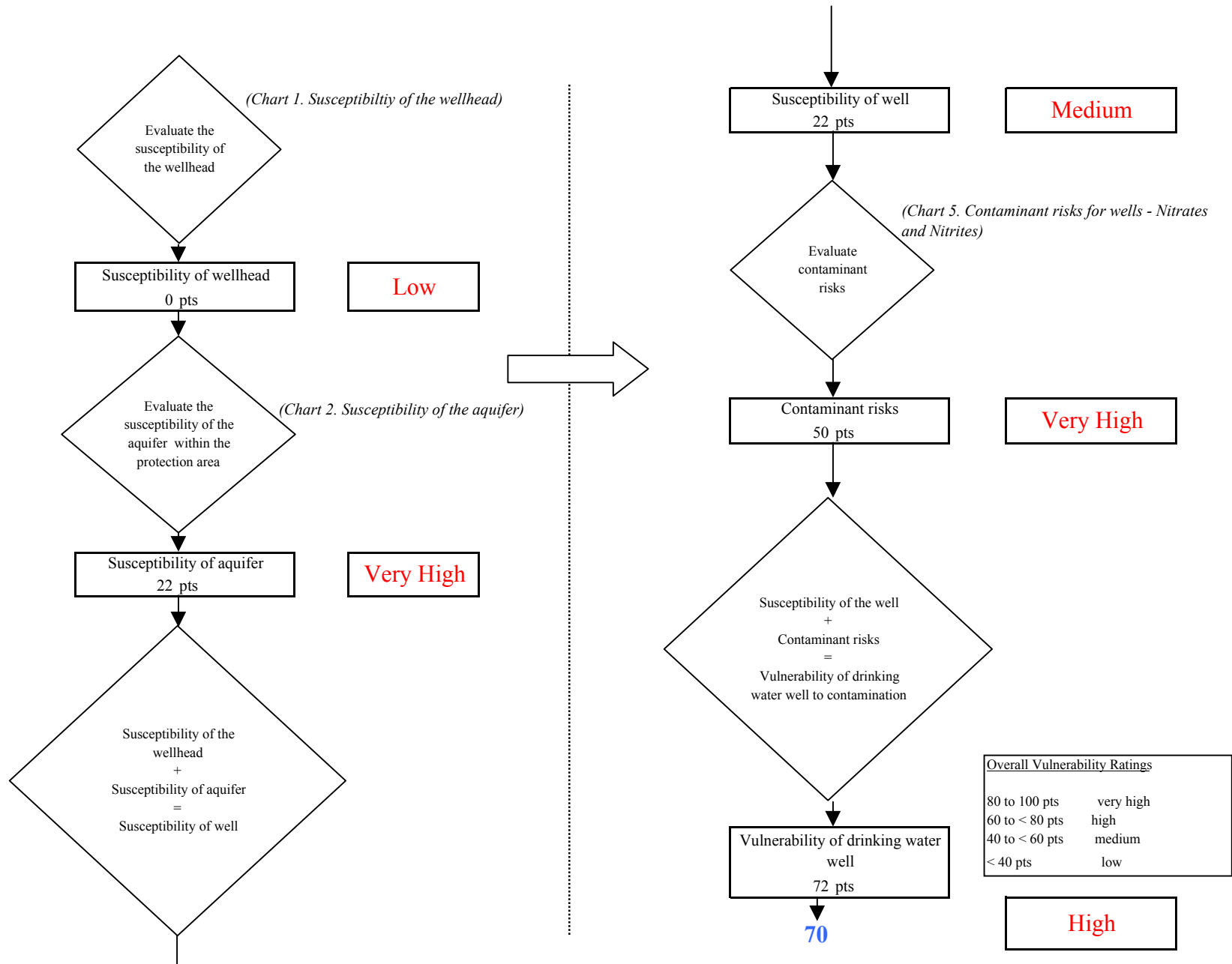


Chart 7. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Volatile Organic Chemicals

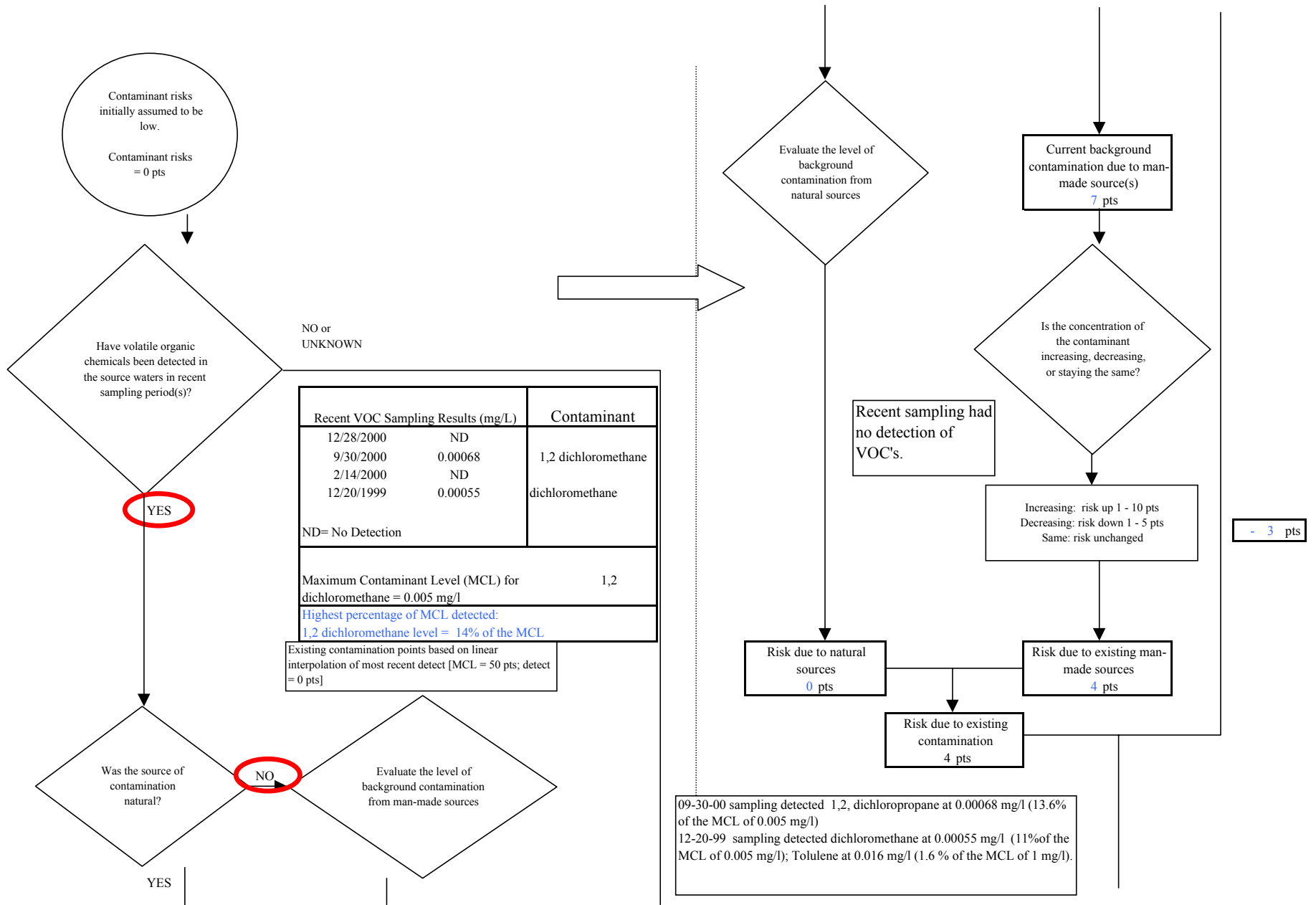


Chart 7. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Volatile Organic Chemicals

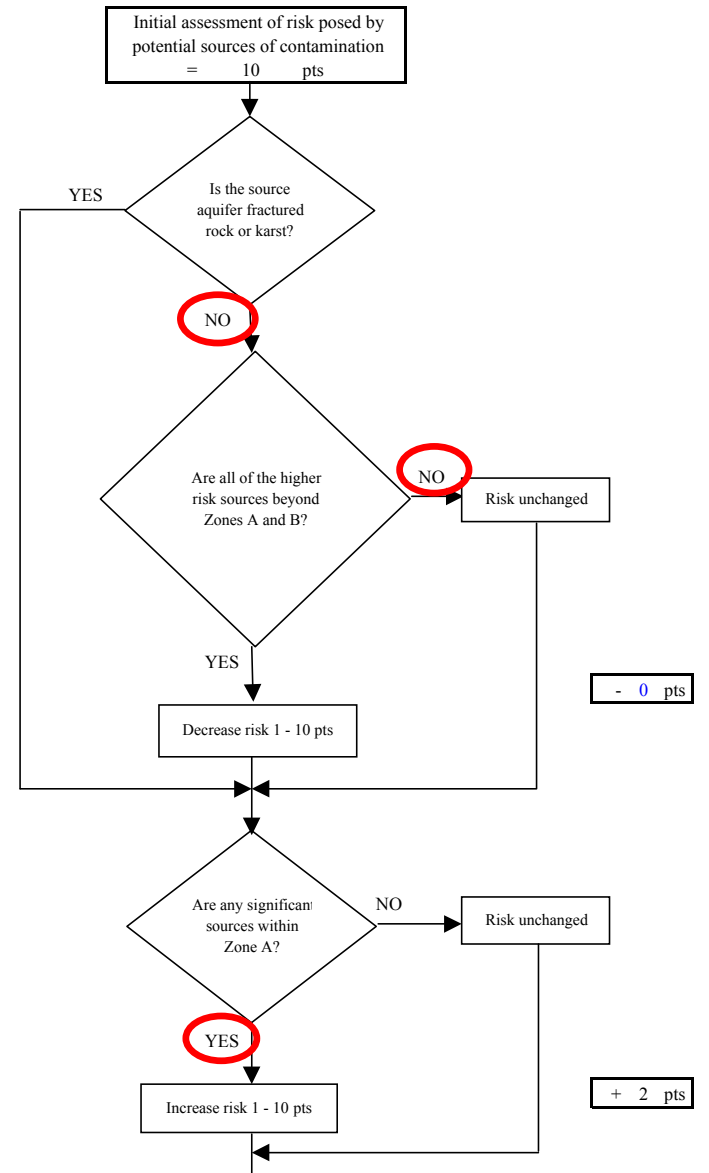
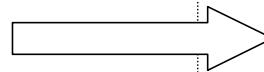
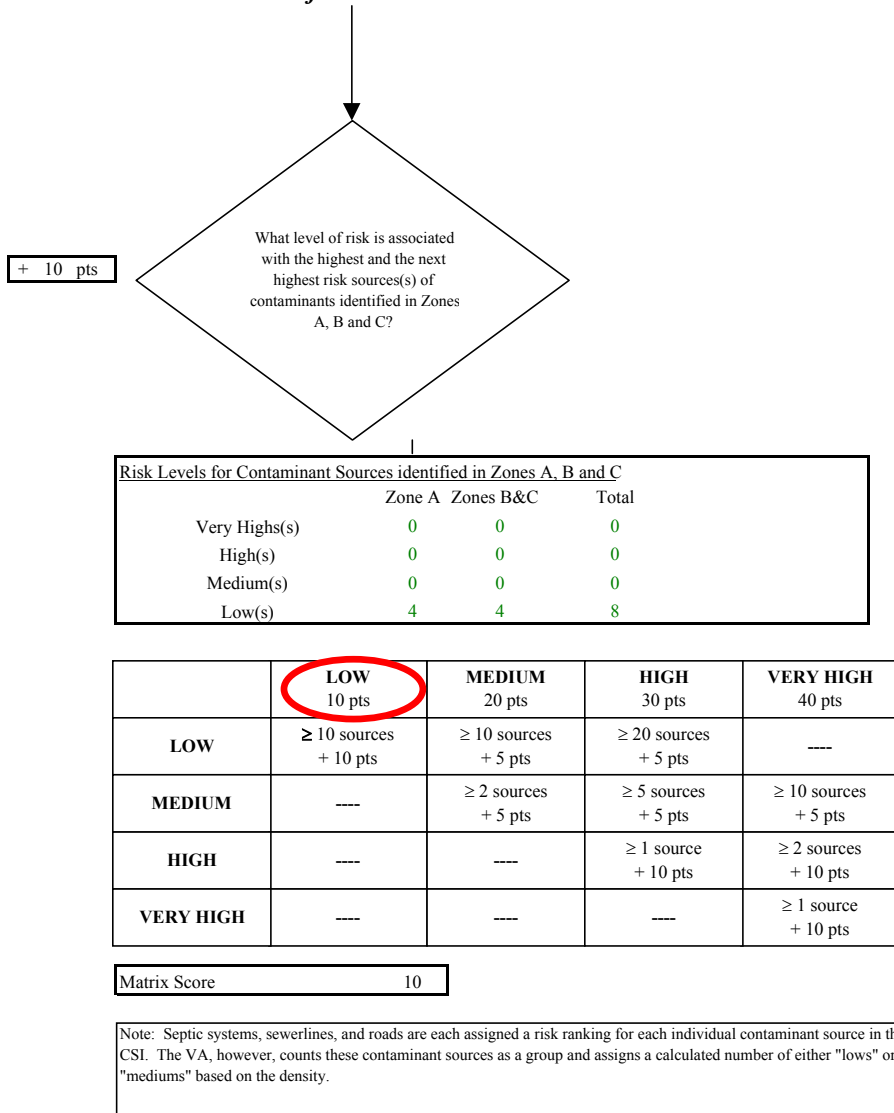


Chart 7. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Volatile Organic Chemicals

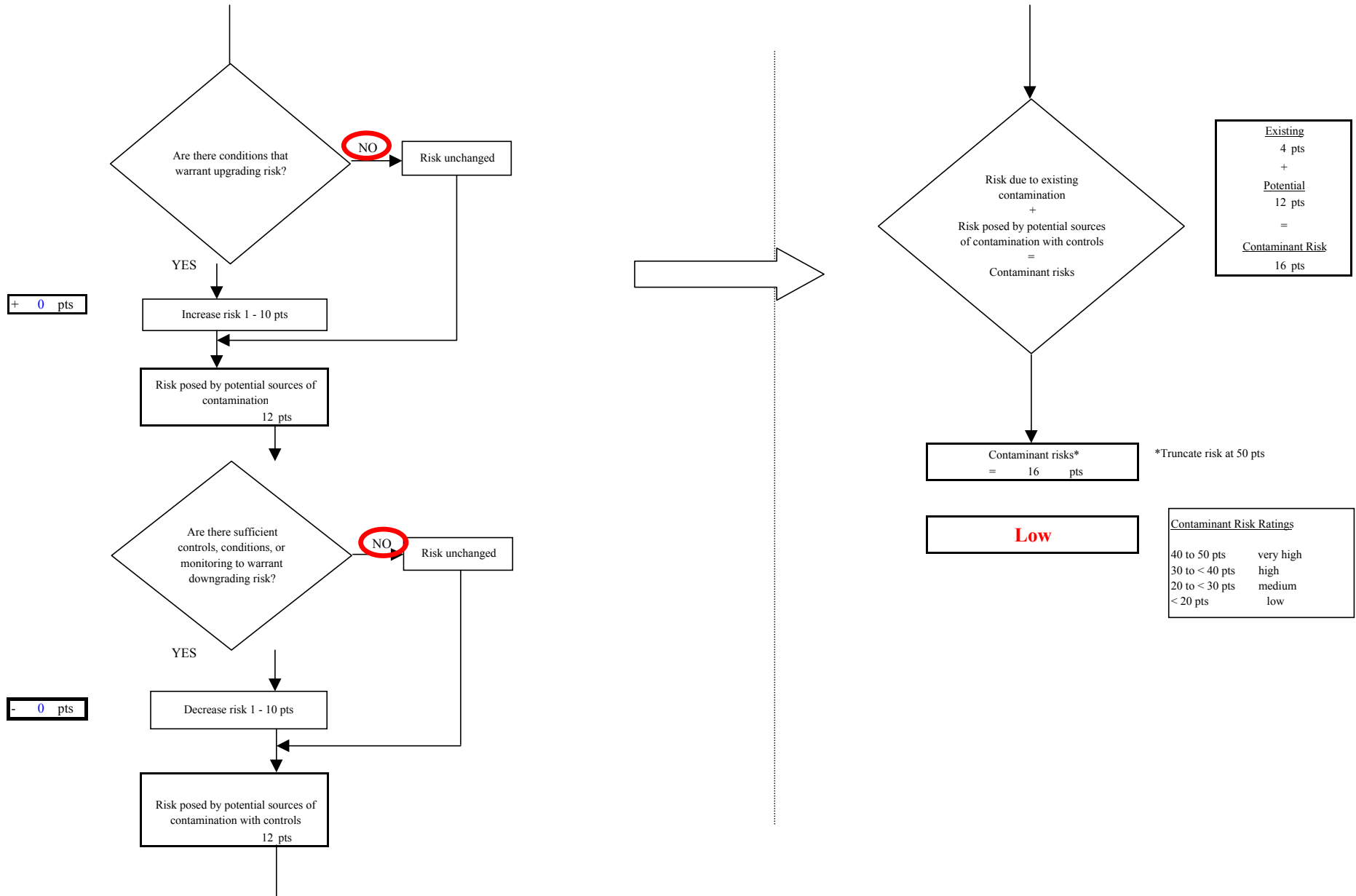


Chart 8. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Volatile Organic Chemicals

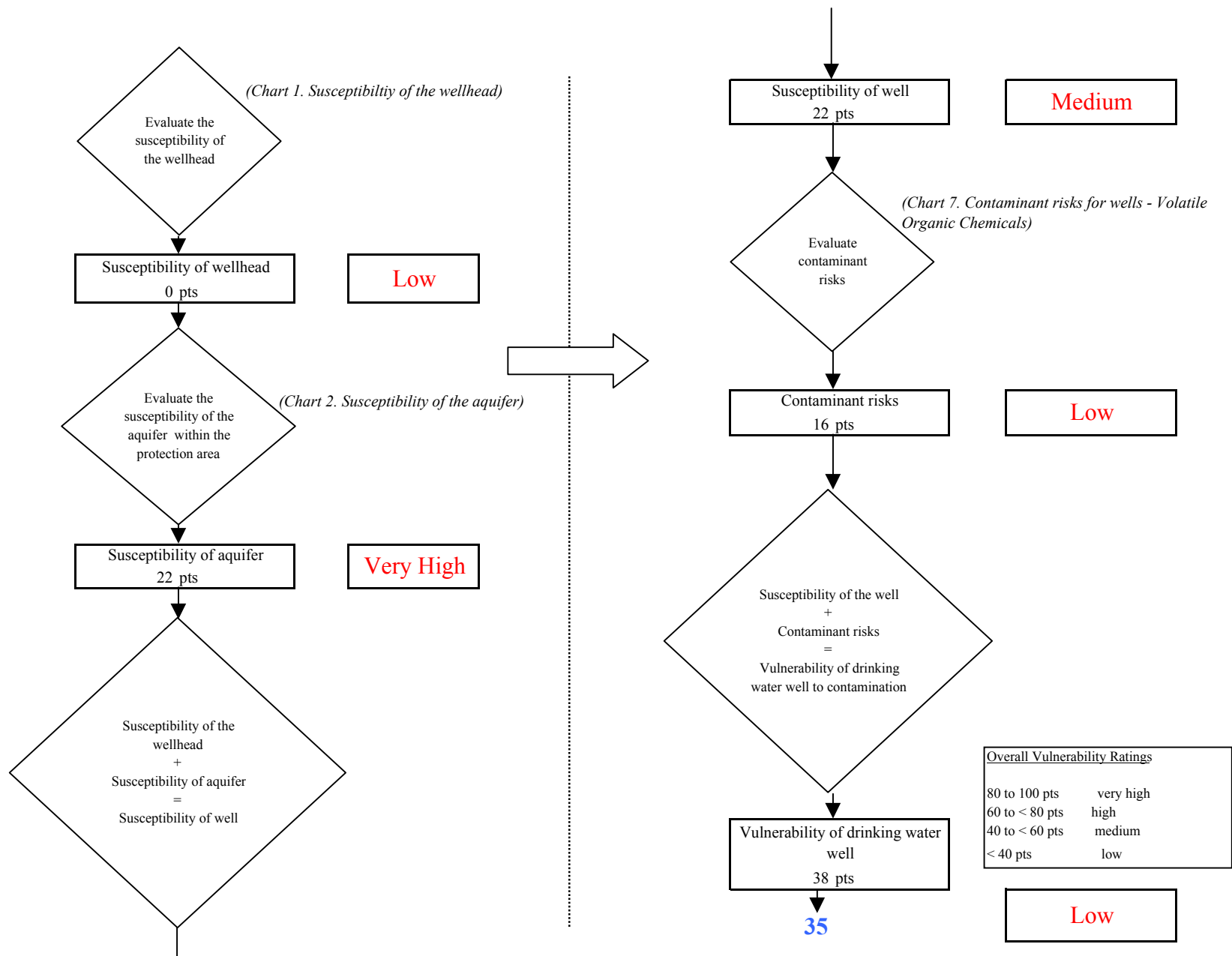


Chart 9. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals

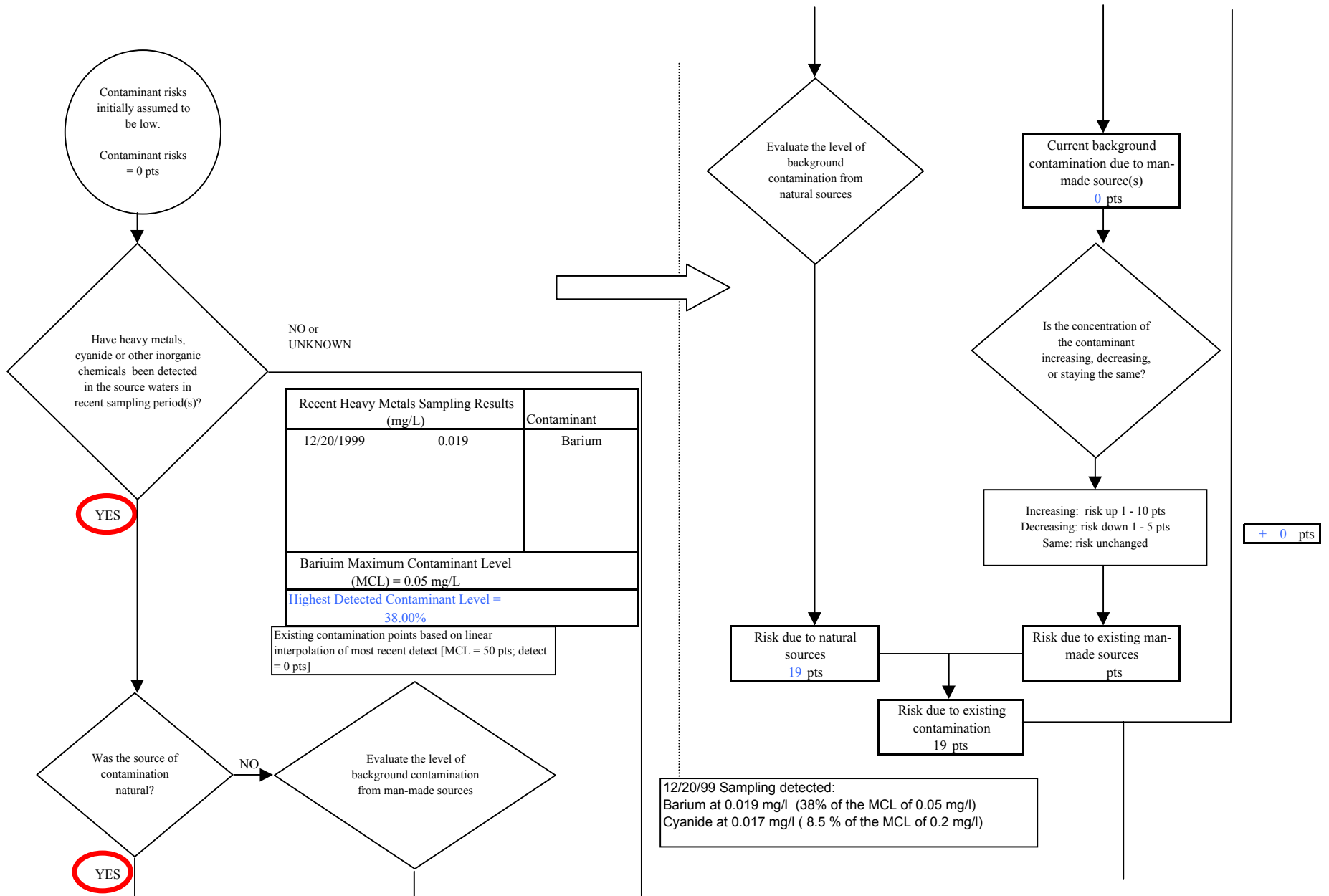


Chart 9. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals

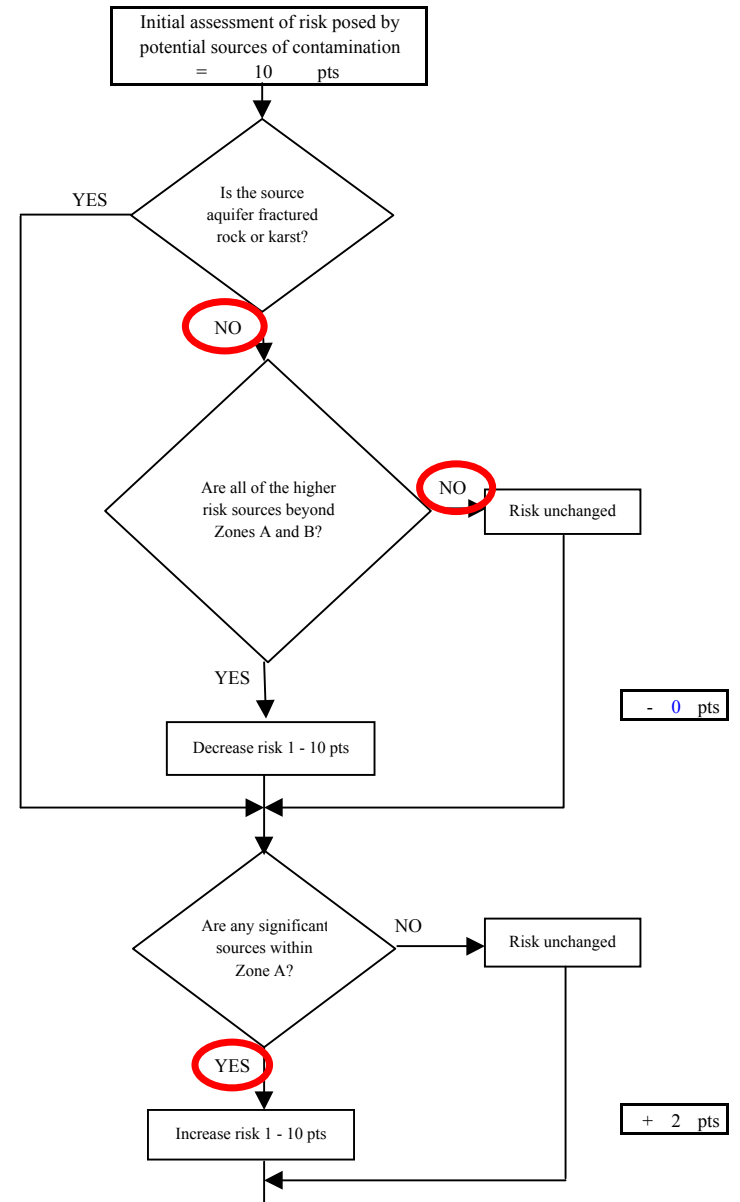
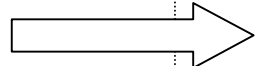
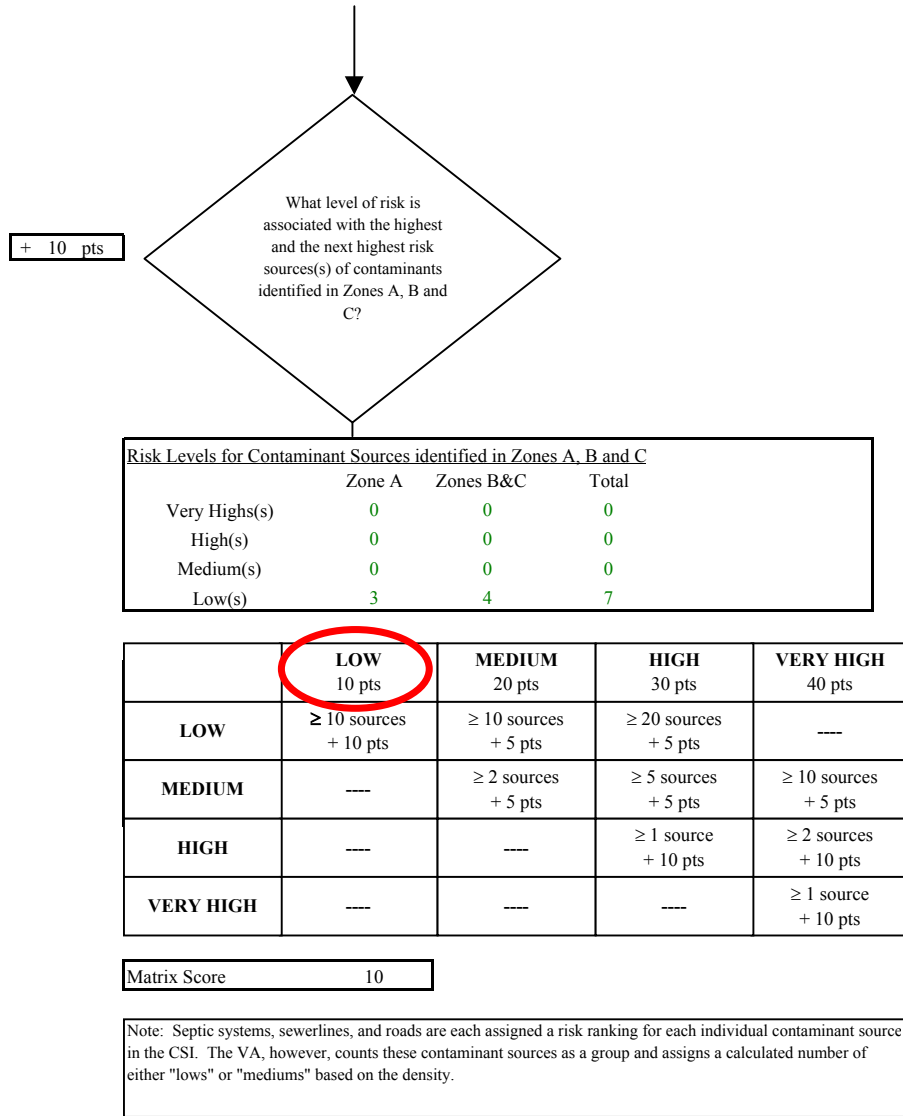


Chart 9. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals

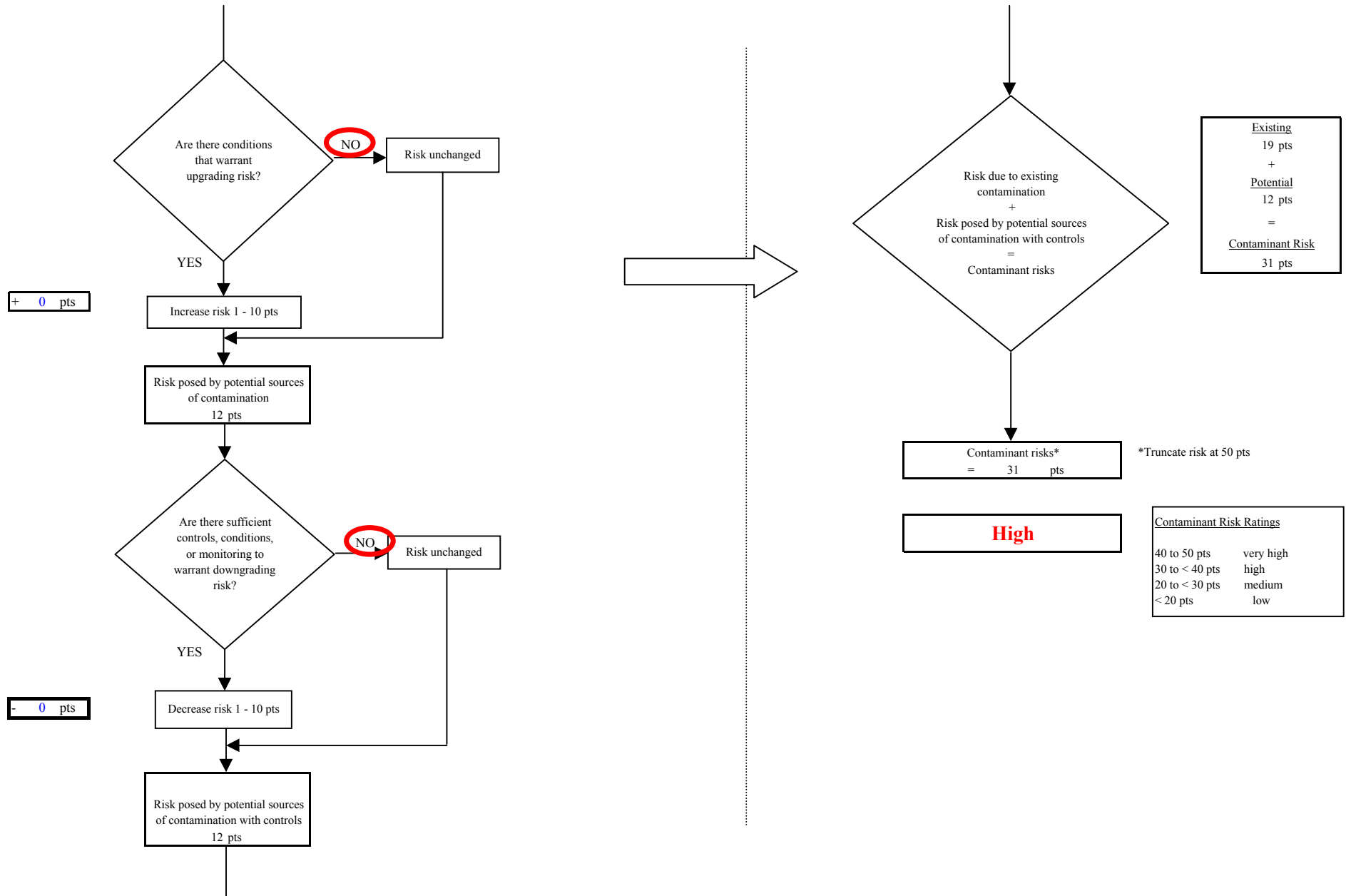


Chart 10. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Heavy Metals, Cyanide and Other Inorganic Chemicals

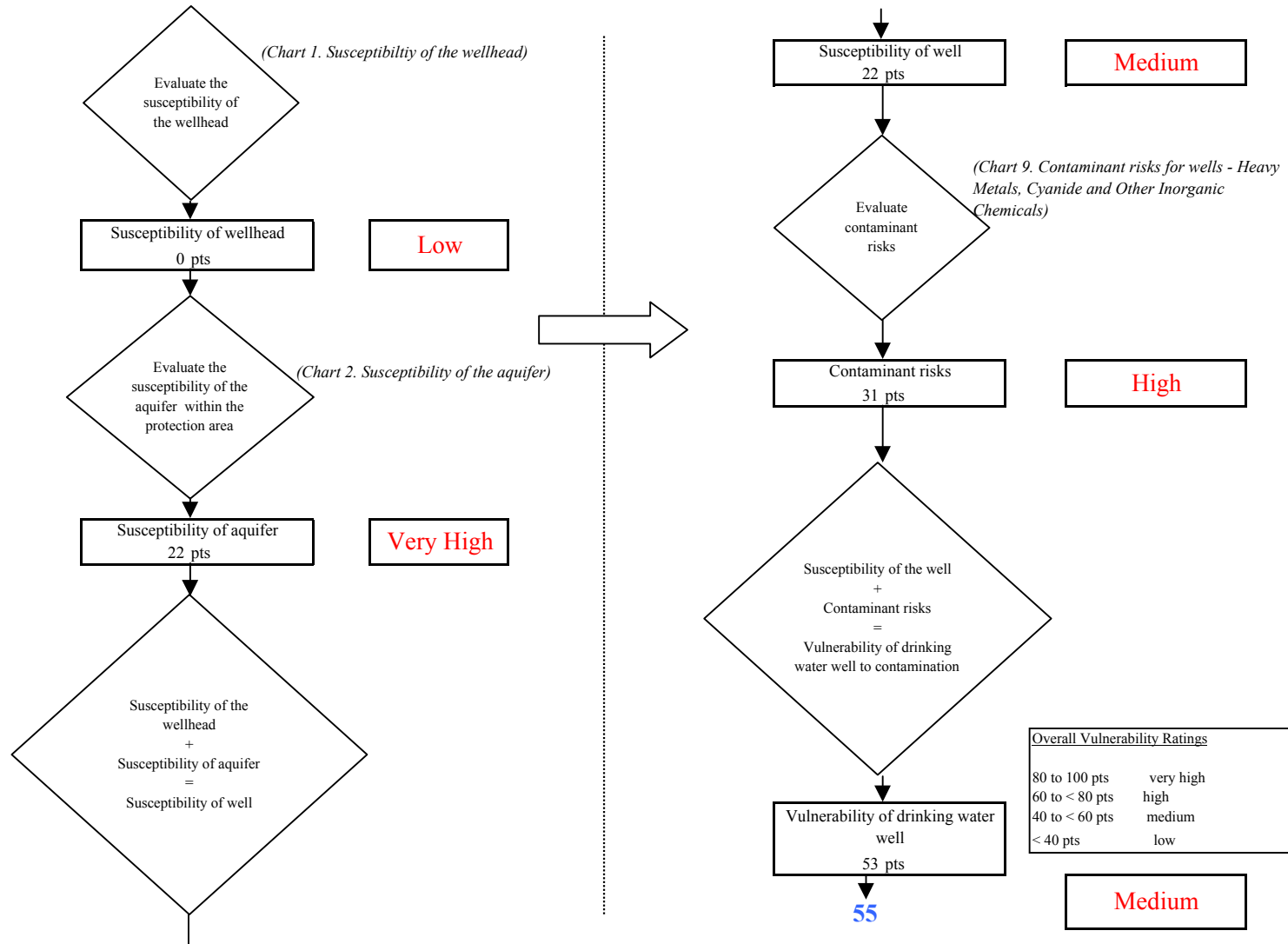


Chart 11. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Synthetic Organic Chemicals

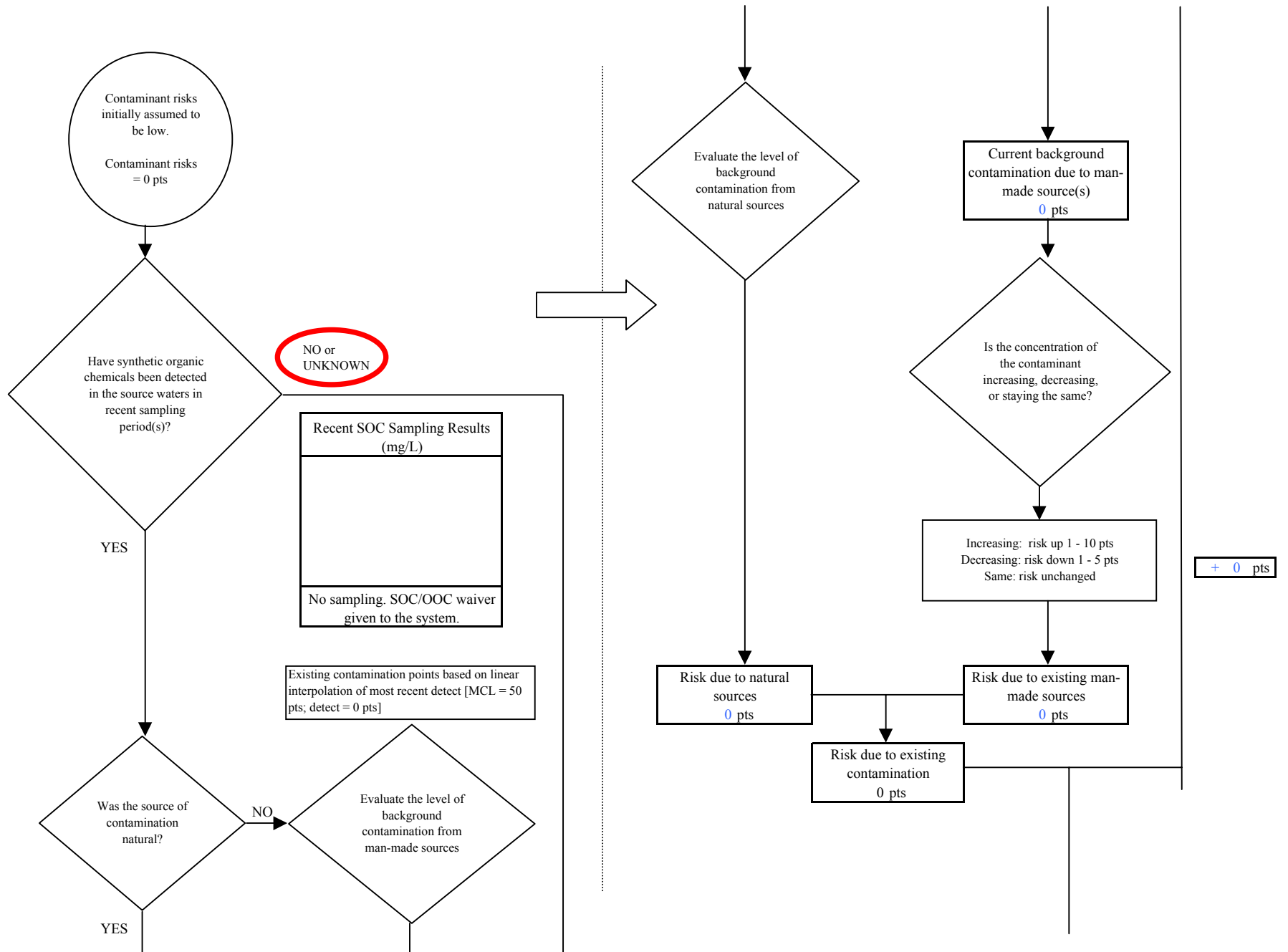
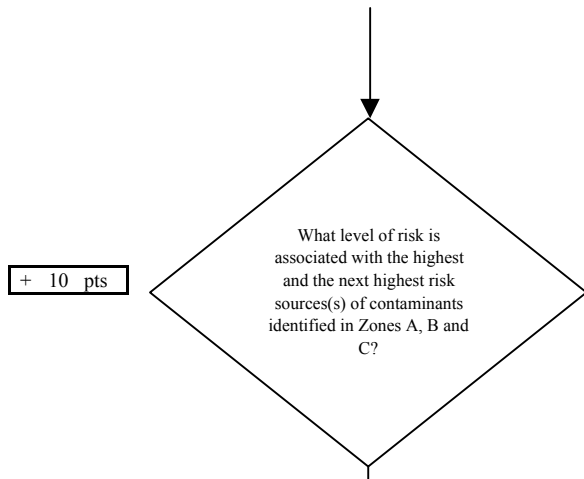


Chart 11. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Synthetic Organic Chemicals



Risk Levels for Contaminant Sources identified in Zones A, B and C			
	Zone A	Zones B&C	Total
Very Highs(s)	0	0	0
High(s)	0	0	0
Medium(s)	0	0	0
Low(s)	2	7	9

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

Matrix Score 10

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

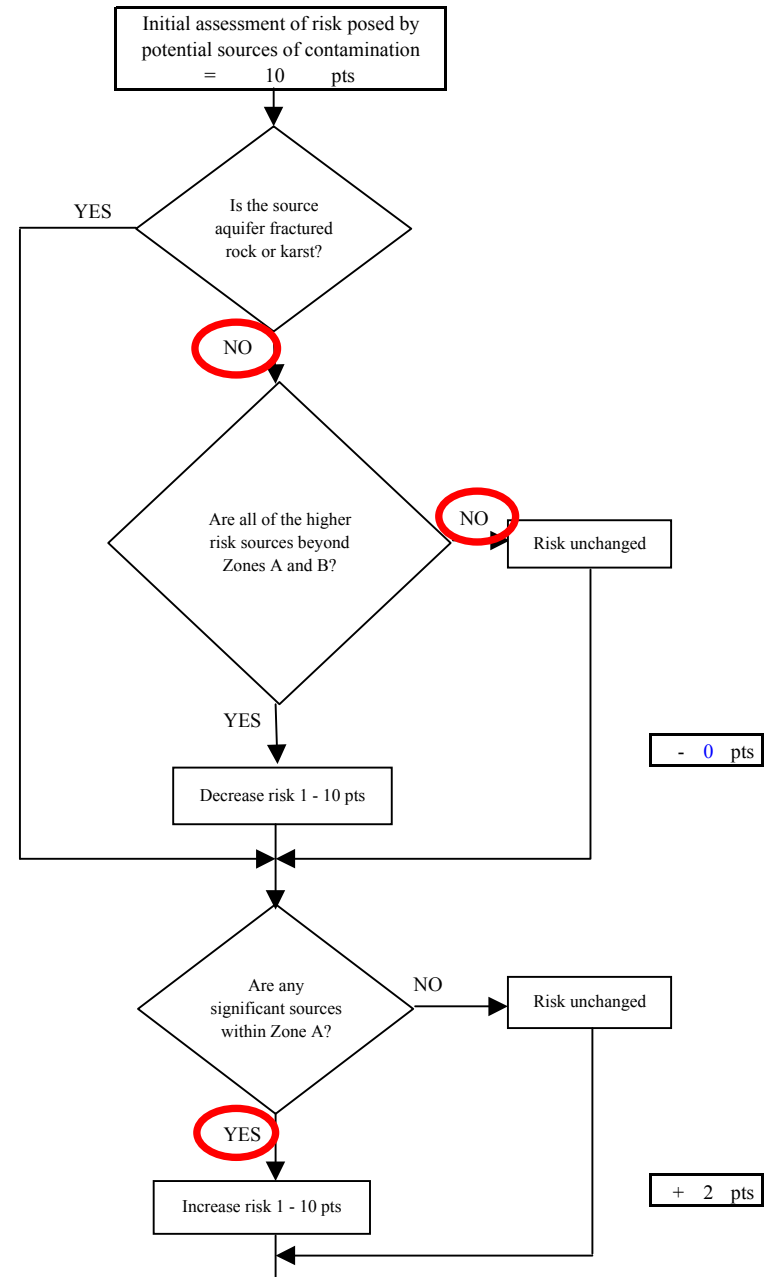
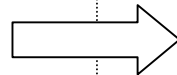


Chart 11. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Synthetic Organic Chemicals

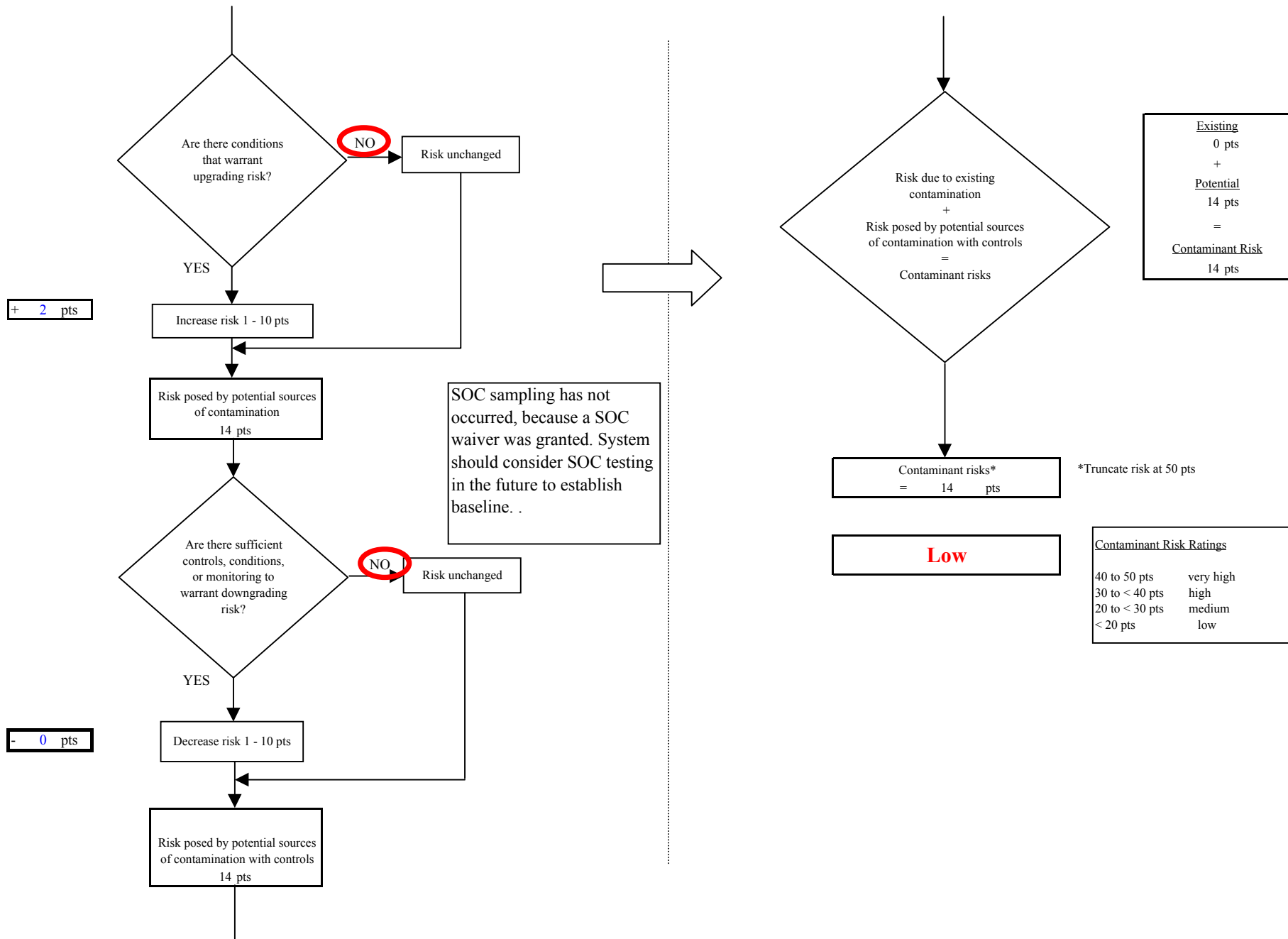


Chart 12. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Synthetic Organic Chemicals

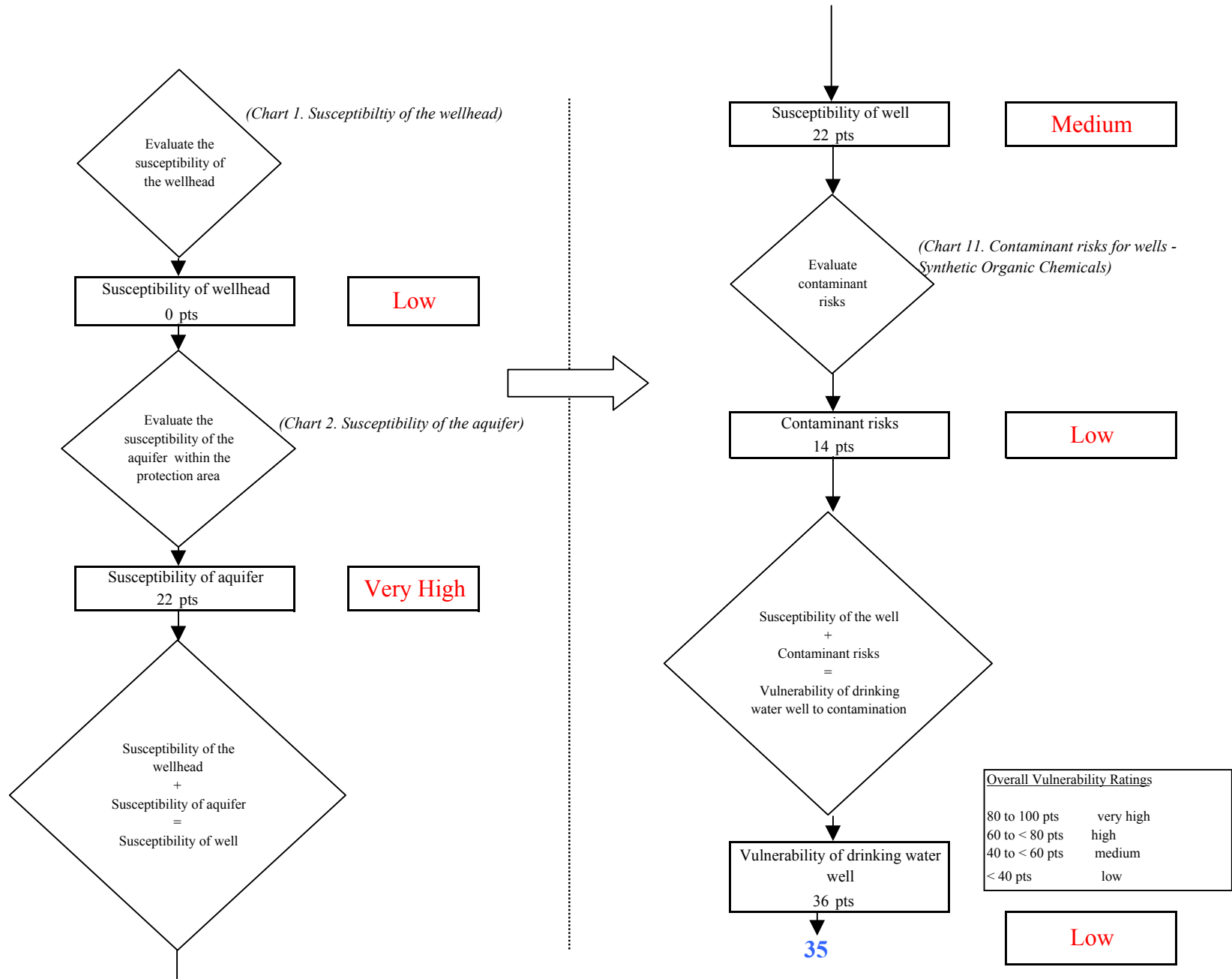


Chart 13. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Other Organic Chemicals

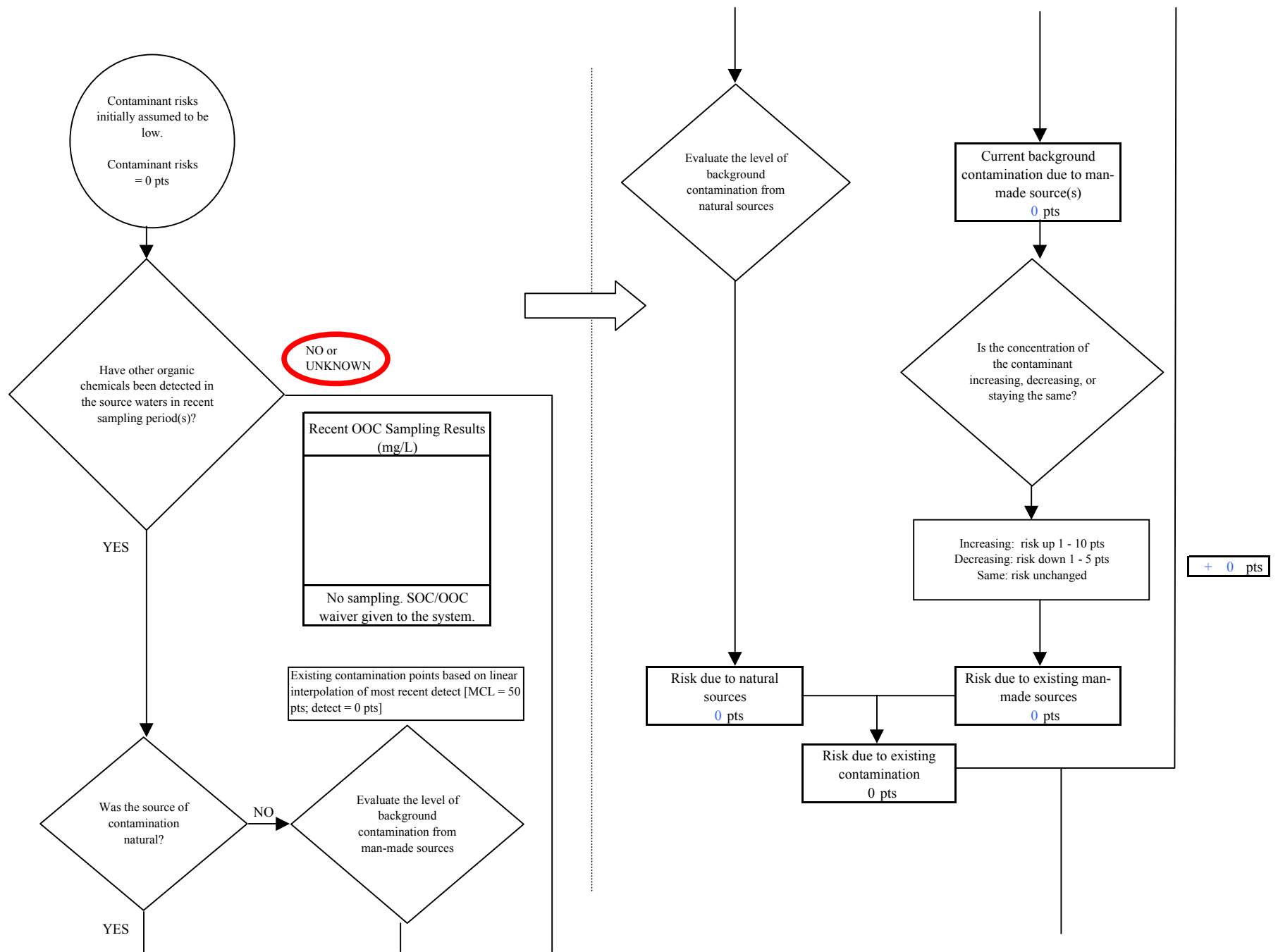


Chart 13. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Other Organic Chemicals

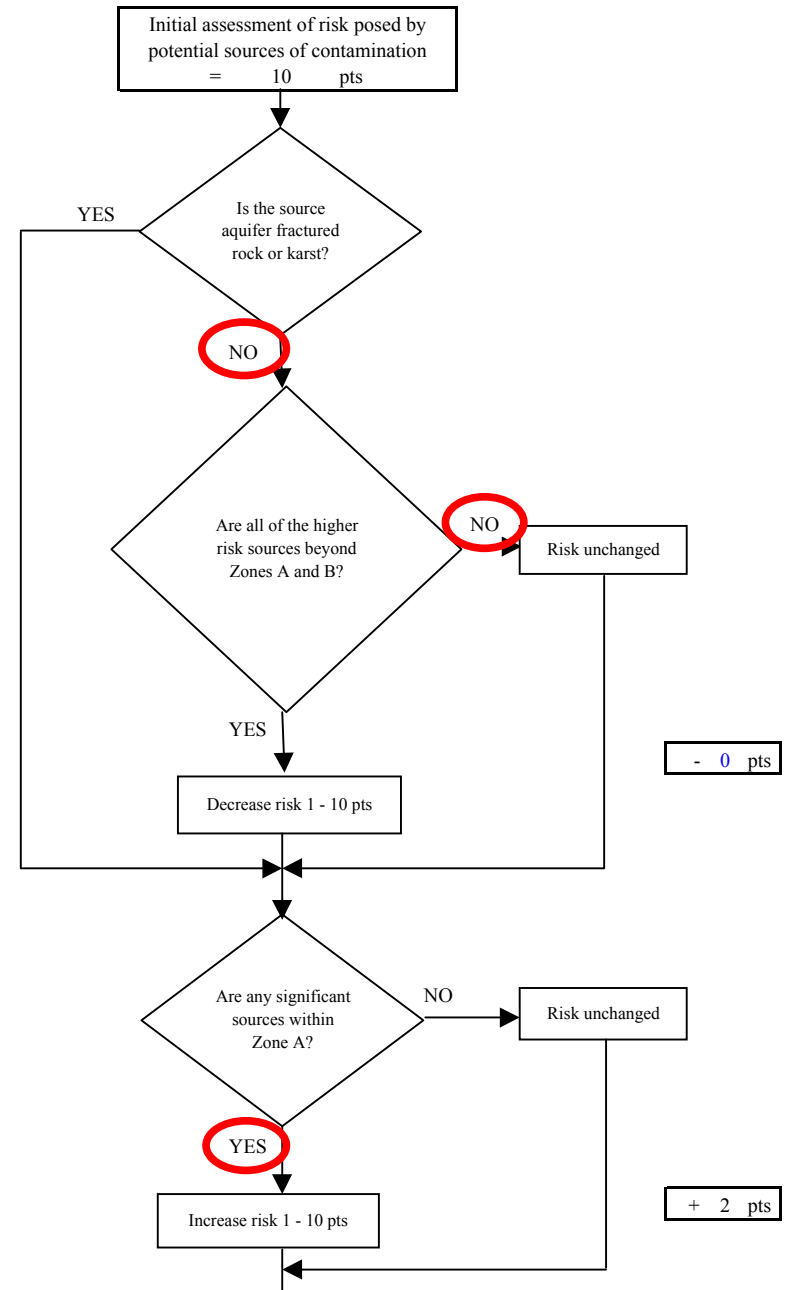
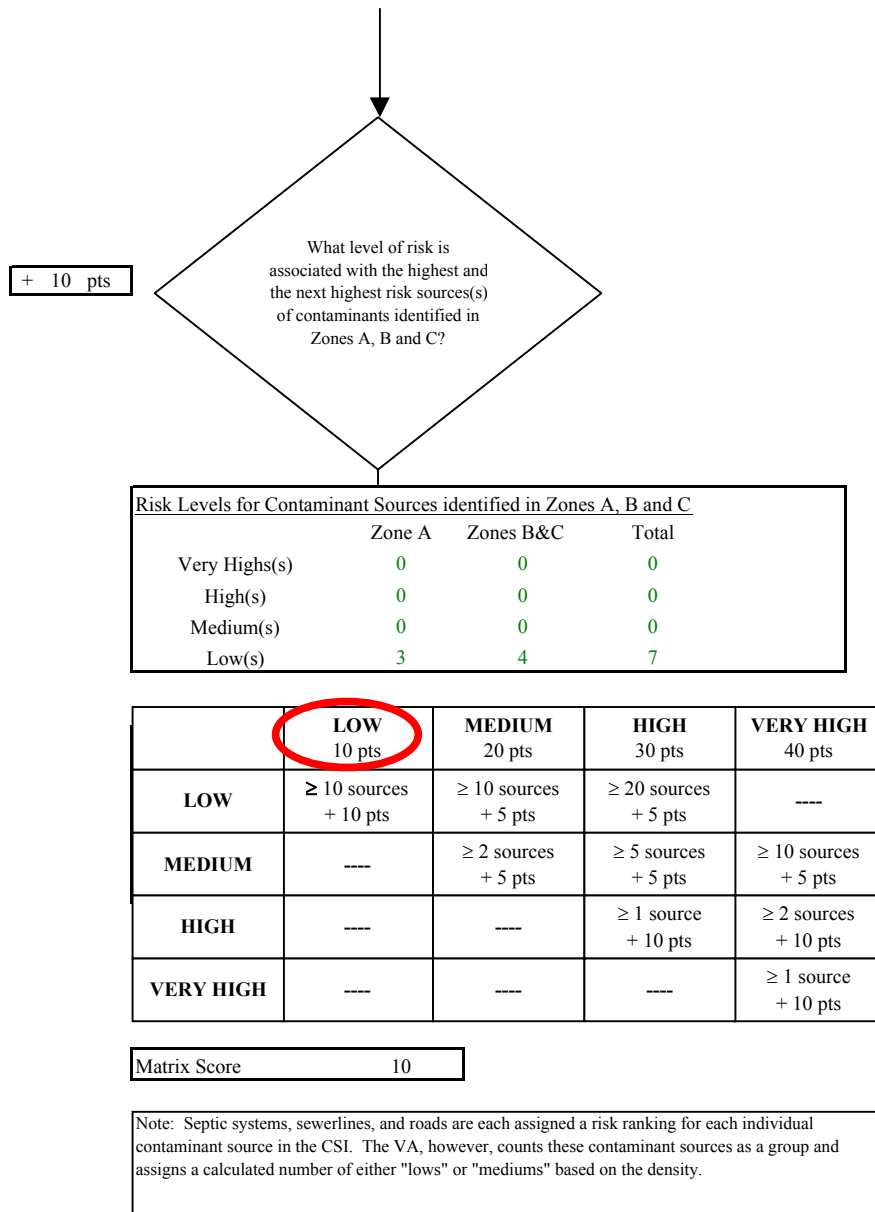


Chart 13. Contaminant risks for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Other Organic Chemicals

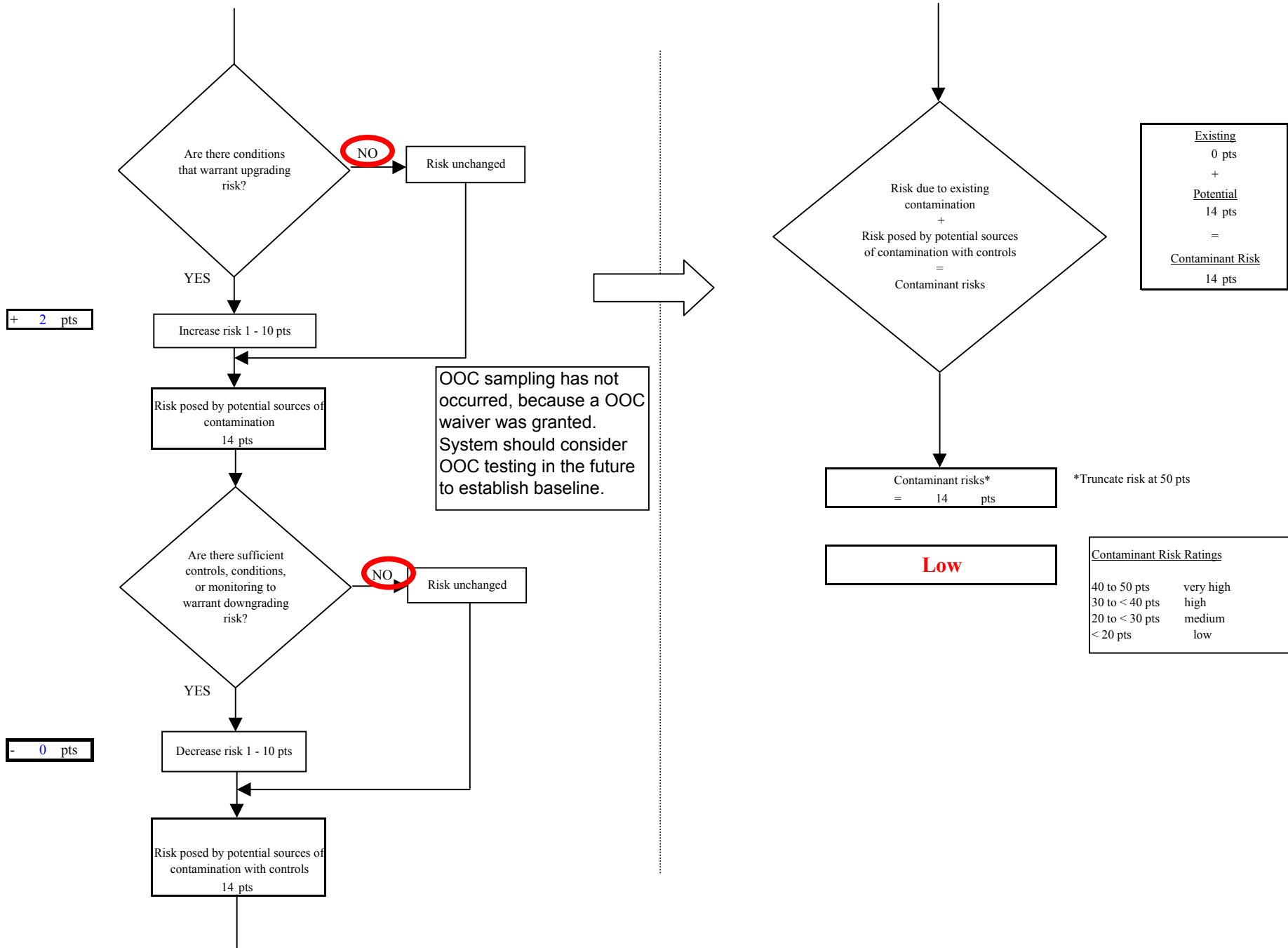


Chart 14. Vulnerability analysis for Pioneer Meadows Subdivision Well No. 1 and No. 2 - Other Organic Chemicals

