Source Water Assessment -
Municipality of Anchorage (MOA)
Well #20, Anchorage, Alaska

A Hydrogeologic Susceptibility and Vulnerability Analysis

DRINKING WATER PROTECTION PROGRAM REPORT 162
PWSID 210906.005

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By MICHAEL J. CROTTEAU

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ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION: 2002

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By Michael J. Crotteau

Drinking Water Protection Program
Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

Municipality of Anchorage (MOA) ("Creekside") Well #20 is a Class A (community) drinking water source consisting of one well. Identified potential and current sources of contaminants for MOA Well #20 include domestic wastewater sewerlines, residential septic systems, gasoline stations, a lubrication shop, motor vehicle supply stores, a motor vehicle repair shop, open and closed leaking underground storage tank (LUST) sites, underground fuel storage tanks, a motor vehicle/general storage yard, paved roads, a municipal park, a commercial greenhouse, a heavy equipment rental/storage area, a construction trade area, and approximately 232 acres of residential area. These identified potential and existing sources of contamination are considered sources of bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other synthetic organic chemicals. Overall, MOA Well #20 public water source received a vulnerability rating of **Medium** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and a **Low** for other synthetic organic chemicals.

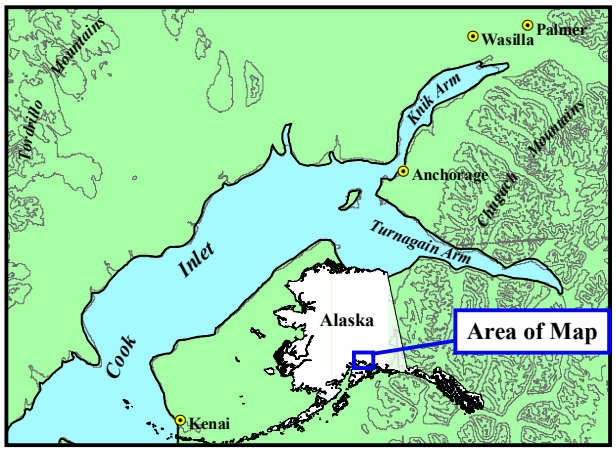

Figure 1. Index map showing the location of Anchorage, Alaska

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 MOA Well #20's source of public drinking water. This source consists of one well in the Anchorage-area (see 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 ANCHORAGE-AREA, ALASKA

Location

Anchorage, located in southcentral Alaska, encompasses 1,698 square miles of land and 264 square miles of water. The area containing a majority of the urban development, commonly referred to as the Anchorage Bowl, encompasses approximately 180 square miles (*Partick, Brabets, and Glass, 1989*) and envelopes the low lands of the area. This area is bounded on the east by the Chugach Mountains and the north, west, and south by the Knik and Turnagain Arms of Cook Inlet (Figure 1). In recent times, urban development has extended eastward along the flanks of the Chugach Mountains. This area, known locally as the Anchorage Hillside, contains development at elevations exceeding 3700 feet in elevation above sea level.

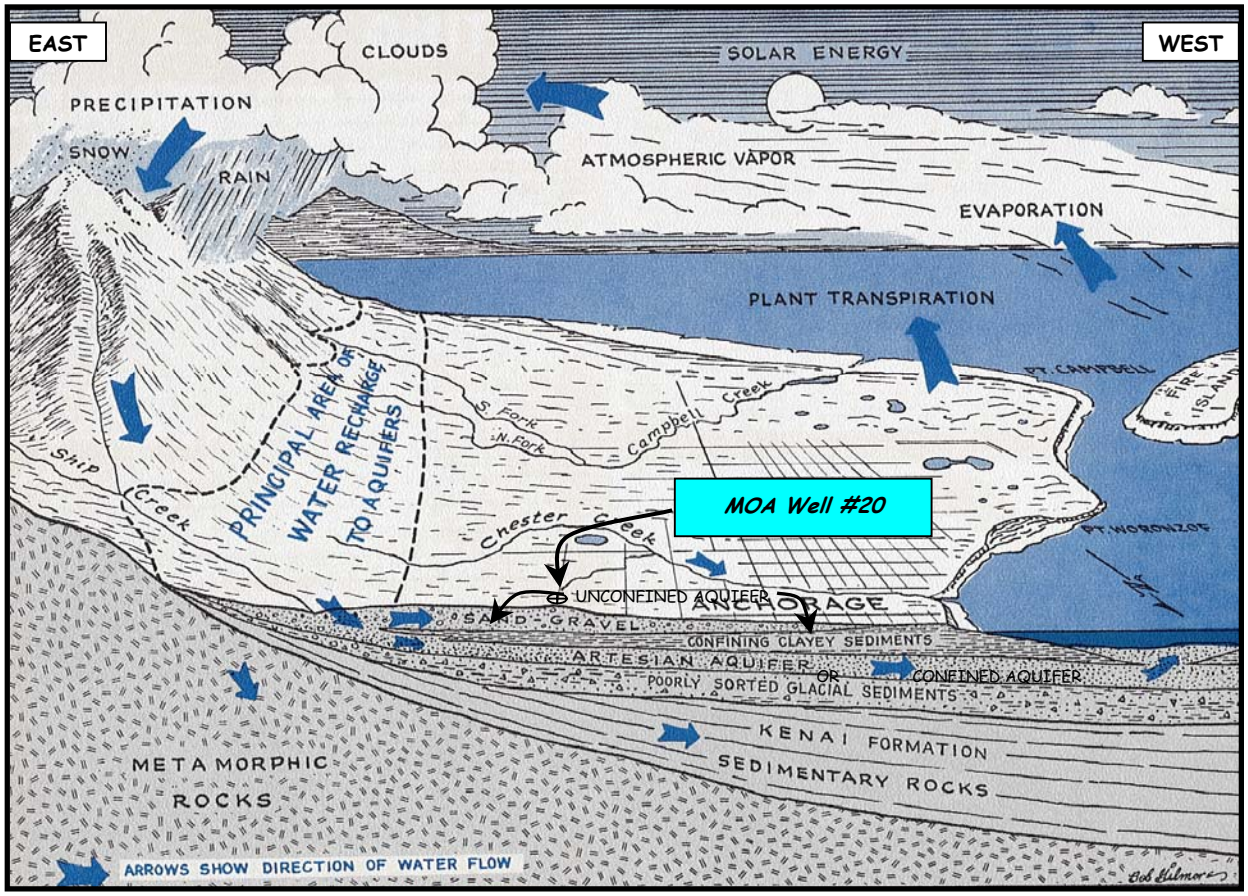

Figure 2. Generalized hydrologic cycle in the Anchorage-area [*Barnwell, George, Dearborn,Weeks, and Zenone*, 1972].

Climate

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

Physiography and Groundwater Conditions

Surface elevations in the Anchorage-area range from sea level at the Knik and Turnagain Arms to well over 5000 feet in the peaks that bound the area. Glacial moraine and outwash deposits primarily mantle the surface of the Anchorage Bowl.

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

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

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

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

MOA WELL #20 PUBLIC WATER SOURCE

MOA Well #20 public water source is a Class A (community) water source, which is owned by and operated by the Municipality of Anchorage – Anchorage Water & Wastewater Utility (AWWU). The source consists of one well near the base of the Chugach Mountains and is at an elevation of 270 feet above sea level. The well is located approximately 100 feet west of Jordt Circle (see Figure 2). According to the well log, MOA Well #20 does not appear to be grouted and penetrates sandy gravel, clay, sand, clay with gravel, and more gravel to a total depth of 339 feet below land surface. The well casing is perforated in the sand and gravel from 124 to 160 feet below land surface and again between 229 and 337 feet below land surface. MOA Well #20 had a static water level of 82 feet below land surface at the time of drilling (November 28, 1960).

Currently, MOA Well #20 is not operable and is in standby mode. During periods of operation, the water from MOA Well #20 is pumped directly into the distribution system for the Anchorage area. AWWU's drinking water sources collectively serve approximately 212,000 residents and non-residents through multiple service connections. More information on AWWU can be obtained from their website at http://www.awwu.ci.anchorage.ak.us/website/default.htm .

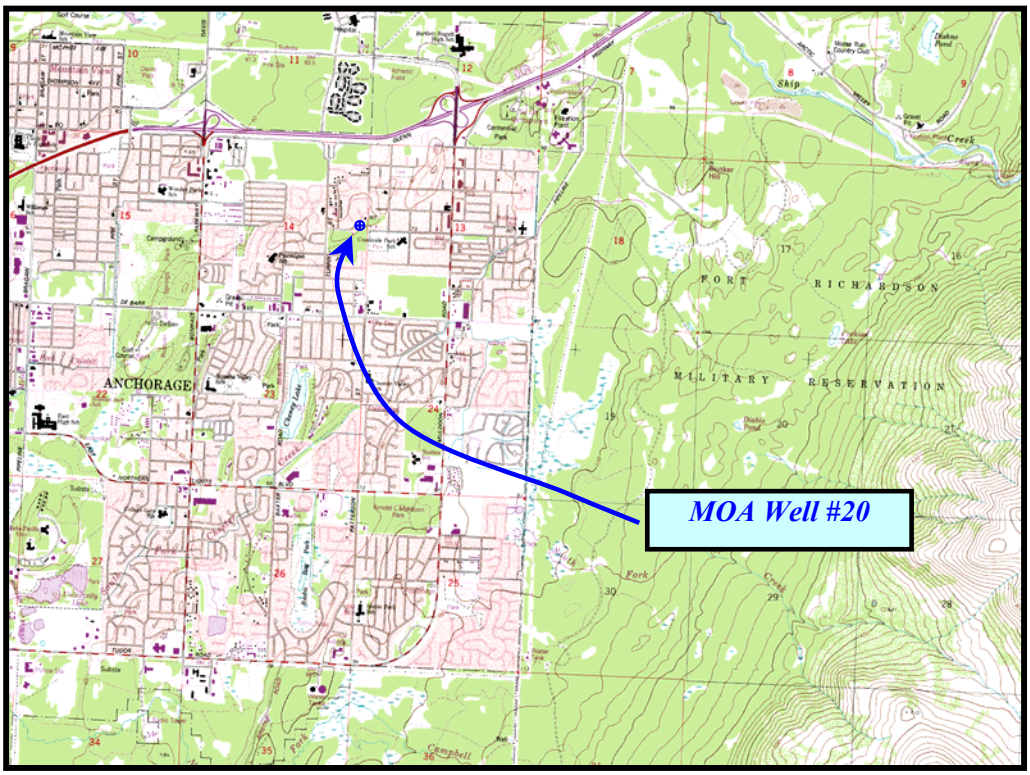

Figure 3. Map showing the location of the drinking water source for MOA Well #20
[Basemap: USGS Anchorage A8 NE].

ASSESSMENT AND PROTECTION AREA FOR MOA WELL #20 DRINKING WATER SOURCE

The Drinking Water Protection and Assessment Area that has been established for MOA Well #20's well is the area that is most sensitive to contamination. This area has served as a basis for assessing the risk of the drinking water source to contamination. This zone around the drinking water source is the most critical area for the preservation of the quality of the drinking water for this source. For simplicity, this area will be known as your Drinking Water Protection Area and will serve as the area of focus for voluntary protection efforts.

Conceptually, groundwater enters the aquifer systems along the front range of the Chugach Mountains (Figure 2) 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 U.S. Geological Survey (*Patrick, Brabets, and Glass, 1989*). This analytical calculation was used as a guide as the first step in establishing the protection area for MOA Well #20. 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 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 Area for MOA Well #20 contain four zones, Zone A through Zone D (See Map 1 in Appendix B). 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 downgradient 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 MOA Well #20 corresponds to a time-of-travel of less than two years and extends 3075 feet from the well toward the Chugach Mountains. Lastly, the Zone C and Zone D protection areas correspond to less than 5-years and 10-years time-of-travel, respectively. The 10-year time-of-travel isochrone (line of equal time) extends approximately 2.5 miles from the well toward the base of the Chugach Mountains.

INVENTORY OF POTENTIAL AND EXISTING CONTAMINANT SOURCES

The Drinking Water Protection Program has completed an inventory of potential and existing sources of contamination within MOA Well #20 Drinking Water Protection Area. This survey was completed through a search of agency records and other publicly available information, and verified by AWWU.

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; and
- Other synthetic organic chemicals.

Map 3 through Map 6 in Appendix C depict the Contaminant Source Inventory for MOA Well #20. Inventoried potential sources of contamination within Zones A through Zone C were associated with residential, commercial, transportation, and recreational type activities (see Table 1 in Appendix A). Only high and very high potential and existing sources of contamination are inventoried within the Zone D protection area. No contaminant sources within the high or very high risk class were identified in the Zone D protection area for MOA Well #20. Below is a summary of the contaminant sources inventoried within the MOA Well #20 protection area (Zones A – C):

- domestic wastewater sewer lines;
- activities associated with paved roads;
- a city park;
- residential septic systems;
- gasoline stations;
- a lubrication shop;
- motor vehicle supply stores;
- a motor vehicle repair shop;

- open and closed leaking underground storage tank (LUST) sites;
- underground fuel storage tanks;
- a motor vehicle/general storage yard;
- a commercial greenhouse;
- a heavy equipment rental/storage area;
- a construction trade area; and
- approximately 232 acres of residential area.

These potential contaminant sources present risk for all six categories of drinking water contaminants for MOA Well #20 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.

VULNERABILITY OF MOA WELL #20 DRINKING WATER SOURCE

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

- natural susceptibility; and
- contaminant risks.

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

Natural Susceptibility (0 – 50 points)

+

Contaminant Risks (0 – 50 points)

=

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

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

Susceptibility of the Wellhead (0 – 25 Points)
+
Susceptibility of the Aquifer (0 – 25 Points)

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

MOA Well #20 is completed in a confined aquifer setting. The well casing is perforated between 124 and 160 feet below land surface and again between 229 and 337 feet below land surface. The well penetrates 22 feet of blue clay between 72 and 94 feet below land surface. This clay layer may provide a significant protective barrier for the movement of contaminants in the subsurface. However, near the base of the Chugach Mountains, the clay layers tend to be discontinuous and thin toward the mountains. Therefore, contaminants that enter the subsurface near the base of the mountains may enter the confined aquifer uninhibited by the absence of any protective layer. The well does not appear to be properly grouted as indicated previously from information obtained from Department records. The absence of grouting can promote the transport of contaminants along the well casing. Combining the susceptibility of the wellhead and the aquifer to contamination leads to a score (0 – 50 points) and rating of overall Susceptibility (See Appendix D). Table 1 shows the overall Susceptibility score and rating for MOA Well #20.

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

	Score	Rating
Susceptibility of the Wellhead	5	Low
Susceptibility of the Aquifer	13	Medium
Natural Susceptibility	18	Low

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources.

A score (0 – 50 points) and rating of Contaminant Risks (See Appendix D) is assigned based on the findings of the Contaminant Source Inventory (Appendix B - Table 1 – Table 7). This portion of the analysis examines any existing or historical contamination that has been detected

at the drinking water source through routine sampling. It also reviews contamination that has or may have occurred but has not arrived or been detected at the well. Table 2 summarizes the Contaminant Risks for each category of drinking water contaminants.

Table 2. Contaminant Risks

Contaminant Risks	Score	Rating
Bacteria and Viruses	27	Medium
Nitrates and/or Nitrites	29	Medium
Volatile Organic Chemicals	27	Medium
Heavy Metals, Cyanide, and other Inorganic Chemicals	33	High
Synthetic Organic Chemicals	22	Medium
Other Synthetic Organic Chemicals	16	Low

Appendix D contains fourteen charts, which together form the 'Vulnerability Analysis' for a source water assessment for a public drinking water source. Chart 1 analyzes the 'Susceptibility of the Wellhead' to contamination by looking at the construction of the well and its surrounding area. Chart 2 analyzes the' Susceptibility of the Aquifer' to contamination by looking at the naturally occurring attributes of the water source and influences on the groundwater system that might lead to contamination. Chart 3 analyzes 'Contaminant Risks' for the drinking water source with respect to bacteria and viruses. The 'Contaminant Risks' portion of the analysis considers potential sources of contaminants as well as a review of contamination that has or may have occurred but has not arrived or been detected at the well. Lastly, Chart 4 contains the 'Vulnerability Analysis for Bacteria and Viruses'. Charts 5 through 14 contain the Contaminant Risks and Vulnerability Analysis for nitrates and nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other synthetic organic chemicals, respectively.

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

Table 3. Overall Vulnerability of MOA Well #20's Public Drinking Water Source to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	45	Medium
Nitrates and Nitrites	45	Medium
Volatile Organic Chemicals	45	Medium
Heavy Metals, Cyanide, and other Inorganic Chemicals	50	Medium
Synthetic Organic Chemicals	40	Medium
Other Synthetic Organic Chemicals	35	Low

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

Nitrates and/or nitrites are found in natural background concentrations at the site, as elsewhere in the Alaska. Sampling history of MOA Well #20's source waters indicate low concentrations of nitrate (See Chart 6 – Contaminant Risks for Nitrates/Nitrites in Appendix D). Existing nitrate contamination is approximately 6% of the allowable limit (MCL) for this contaminant. The Maximum Contaminant Level or MCL is the maximum level of contaminant that is allowed to exist in drinking water and still be consumed by humans without harmful health effects. Due to the high solubility and weak retention by soil, nitrates are very mobile in soil, moving at approximately the same rate as water. Nevertheless, the current nitrate concentration in MOA Well #20's source waters remains at safe levels with respect to human health.

Domestic wastewater sewerlines run within 105 feet of MOA Well #20. The risk associated with a catastrophic failure of the sewerlines as well as their close proximity to this drinking water source contributes to a medium bacteria and virus as well as nitrate and nitrite contaminant risk for MOA Well #20.

Heavy metals are also found in natural background concentrations at the site. Sampling history of MOA Well #20 source waters indicate low concentrations of barium and arsenic in past sampling periods (See Chart 9 – Contaminant Risks for Heavy Metals, Cyanide, and Other Inorganic Chemicals in Appendix D). Arsenic levels during past sampling periods have ranged between 4 - 22% of the allowable limit (MCL) for this

contaminant. Barium levels during past sampling periods have ranged from a detect to 6% of the MCL for this contaminant. Regardless of the quantity of arsenic and barium in the source waters of MOA Well #20, the current concentration remains at safe levels with respect to human health

In 1989, two underground storage tanks (UST's) used for refueling trucks were removed from 439 Idaho Street (CS ID Tag U7-1). Soil and groundwater contamination was documented upon the removal of the tanks (LUST File # L55.229). Gasoline and diesel constituents and trace amounts of chlorinated solvents were identified at the site. The status of this site is currently open. A contaminant plume of petroleum hydrocarbons extends to groundwater, however, the magnitude and extent has yet to be characterized. A release investigation is currently being outlined in order to determine the extent of contamination and initiate clean-up and closure procedures. This site is approximately 2250 feet upgradient from MOA Well #20 and falls within the two year time-of-travel or Zone B portion of the protection. Overall, this site ranks as the highest potential source of contamination for volatile organic chemicals for MOA Well #20 and represents a moderate risk to the integrity of this drinking water source.

On July 17, 1989, soils and groundwater contamination was encountered during the removal of six UST's located at 601 Muldoon Road (LUST File # L25.01) (CS ID Tag U7-2). On July 20, 1989, a Corrective Action Plan (CAP) was initiated to dispose of approximately 735 tons of contaminated soils excavated from the site at Anchorage Sand and Gravel. As part of the CAP monitoring wells were installed at and around the site for further soil and groundwater investigation. Proposed remediation of this site includes soil vapor extraction and groundwater recovery and/or air stripping treatment. Groundwater contamination is present and the contaminant plume is moving toward the west. However, currently the plume's areal extent is limited to the confines of the gasoline station's property boundary. This site is approximately 2900 feet upgradient of MOA Well #20 and is within the two year time-of-travel for the well. Overall, this site represents a low risk for volatile organic chemical contamination for MOA Well #20.

In July of 1996, petroleum contamination was discovered during the removal of three underground used oil tanks (LUST File # 55.224) (CS ID Tag U7-3) located at 530 Muldoon Road. The magnitude and extent of the contamination is unknown at this time with groundwater contamination a possibility. Very little additional information is available at this time. Overall, this site represents a low risk for volatile organic chemical contamination for MOA Well #20.

In September of 1995, contamination was found around and beneath two 8,000-gallon UST's (LUST File # 20.55) (CS ID Tag U8-1) located at 545 Muldoon Road. Closure of this site involved the removal the gasoline tanks, a fuel island with two dispensers and the associated product line and piping. A total of approximately 38 tons of petroleum contaminated soils were removed during the excavation and removal of the UST system and transported to the Clean Soils facility for thermal treatment. Documentation was provided by Clean Soils on February 6, 1997, confirming that the soils were satisfactorily treated. Laboratory results from the confirmation sampling at the excavation site, representing undisturbed soils below the UST system, indicate that all the contaminated soils were removed. The current gasoline station replaced the UST system with a new 25,000-gallon, three-compartment, double-walled UST that is protected against corrosion and has a state-of-the art leak detection system. Site closure is complete and ADEC issued a No Further Action (is required) to the site owner in May of 1998. This site falls within the two year time-of-travel or Zone B of the protection area. The contaminant risks associated with this site stems from current activities related to the fueling of automobiles and the presence of the UST. Overall, this site represents a low risk to MOA Well #20 for volatile organic chemicals.

In 1993, the U.S. Environmental Protection Agency (EPA) inspected the motor vehicle repair shop at 1039 Muldoon Road (CS ID Tag C31-1 on Map 6). The inspection report concluded that the shop contained four floor drains with underlying "sumps" in the shop, but did not ascertain whether the sumps were in-ground holding tanks or settling tanks with a discharge pipe or dry well. On February 8, 2002, this site was once again inspected by the EPA due to its location within the critical recharge area for MOA Well #20. The inspection concluded that all "sumps" for this motor vehicle repair facility are connected to the main wastewater sewerline system for the Municipality of Anchorage. Therefore, this motor vehicle repair shop does not contain any shallow waste disposal systems, also known as injection wells, that could potentially harm the source water of MOA Well #20. These type of injection wells, called Class V Injection Wells – Motor Vehicle Waste Disposal Wells, have been banned by the EPA since April 2000 because of their extreme threat to groundwater quality. This ban requires all existing injection wells of this type be phased out and closed.

SUMMARY

A *Source Water Assessment* has been completed for the MOA Well #20 source of public drinking water. The overall vulnerability of this source to contamination is **Medium** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and **Low** for other synthetic organic chemicals. This assessment of contaminant risks can be used as a foundation for local voluntary protection efforts as well as a basis for the continuous efforts on the part of the AWWU 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 the public drinking water source.

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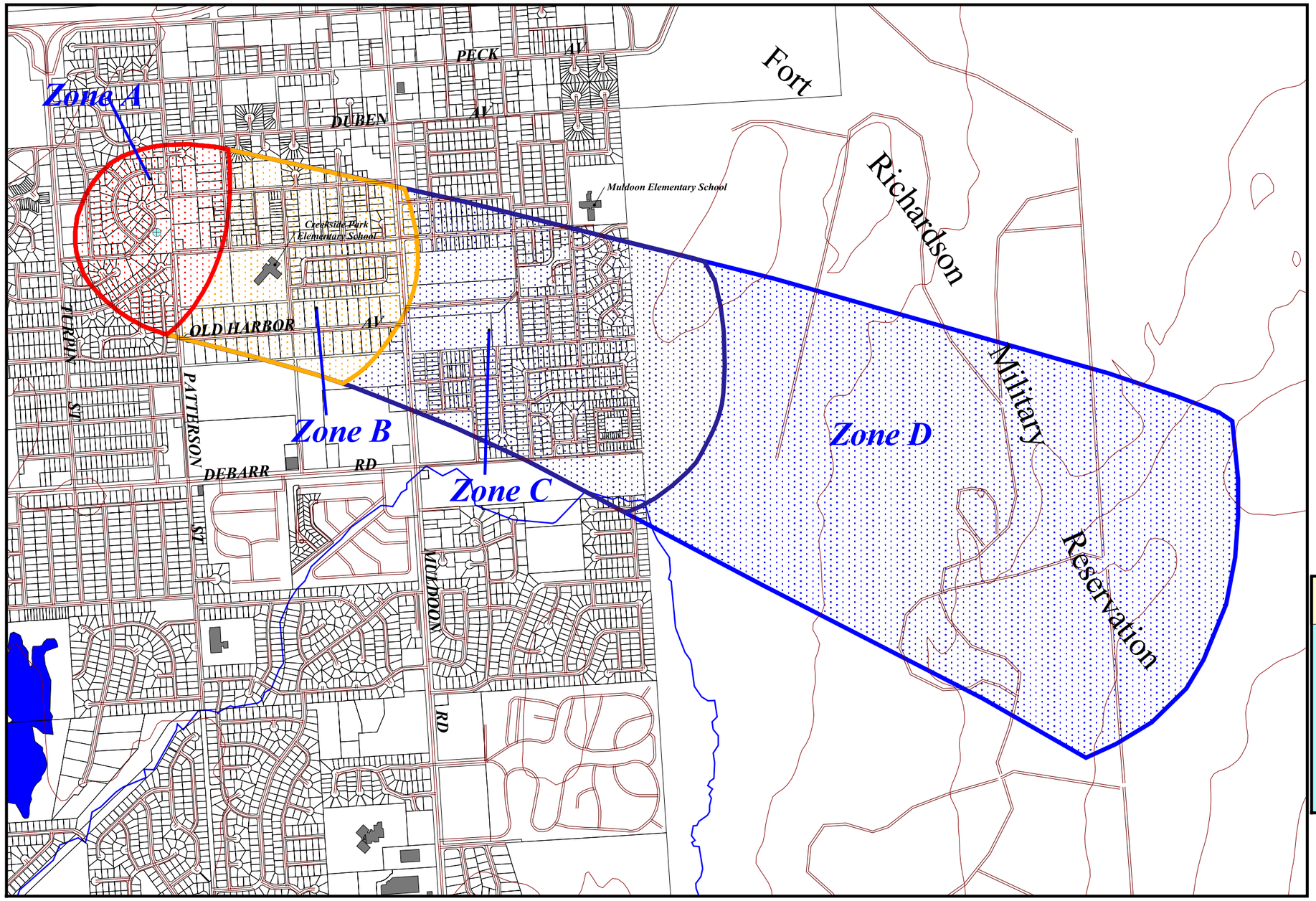
APPENDIX A

MOA Well #20
Drinking Water Protection Area

Drinking Water Protection Area for MOA Well #20



Legend

- MOA Well #20
- Roads
- Buildings
- Elevation Contours

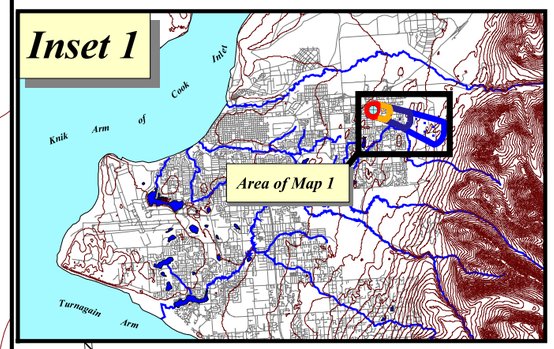
Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2-Years Travel Time

Zone C Protection Area
- Less than 5-Years Travel Time

Zone D Protection Area
- Less than 10-Years Travel Time

- Moa land parcels.shp
- Lakes
- Streams



N W E S

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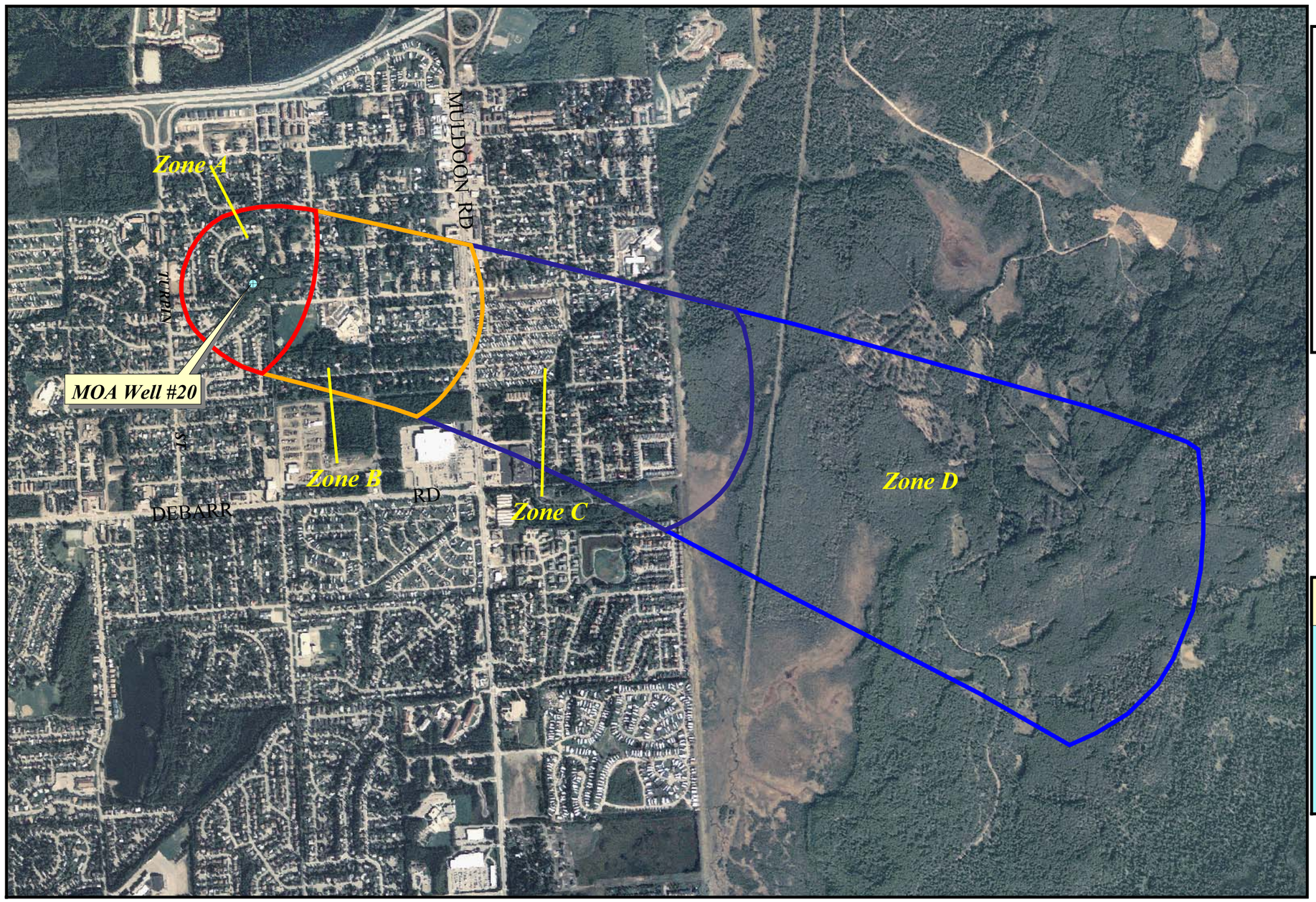
Map 1

Drinking Water Protection Area for MOA Well #20



Legend

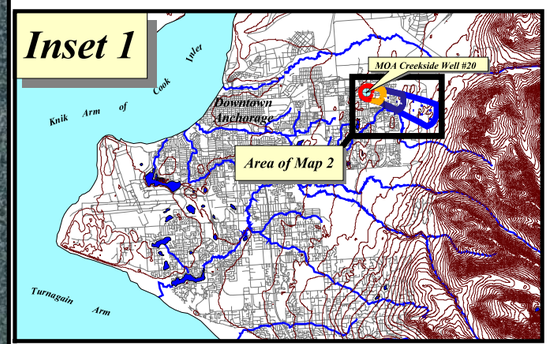
- MOA Well #20

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2-Years Travel Time

Zone C Protection Area
- Less than 5-Years Travel Time

Zone D Protection Area
- Less than 10-Years Travel Time



1 0 1 Miles

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N
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Map 2

APPENDIX B

Contaminant Source Inventory and Risk Ranking for MOA Well #20

Table 1

Contaminant Source Inventory for MOA Creekside Well #20

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Location	Map	Comments
Residential Area	R1	R1-1	A		3	42 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	THIRD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	OKLAHOMA ST	4	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	7101 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-3	A	7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	7220 4TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	SIXTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	QUEENS VIEW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	SHOORESIN	5	
Heavy equipment rental/storage	C18	C18-1	A	410 PATTERSON ST	6	
Construction trade areas and materials	C9	C9-1	A	7120 E FOURTH AVE	6	
Municipal or city parks (with green areas)	X4	X4-1	A,B	CREEKSIDE PARK	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	OKLAHOMA ST	5	
Residential Area	R1	R1-2	B		3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	CREEKSIDE ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	BETWEEN DOVER AND MARYLAND AVE	4	

Table 1

Contaminant Source Inventory for MOA Creekside Well #20

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	OLD HARBOR AV	5	
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	KENNY PL	5	
Orchards or nurseries	A10	A10-1	B	7435 OLD HARBOR AVE	6	
Gasoline stations (without repair shop)	C15	C15-1	B	545 MULDDON RD	6	
Lubrication shops	C25	C25-1	B	530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-1	B	530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-2	B	515 MULDOON RD	6	
Car washes with engine or undercarriage cleaning	C8	C8-1	B	501 MULDOON RD	6	
Closed tanks, diesel (underground)	T9	T9-1	B	7500 E FOURTH AVE	6	1,000 gallon diesel tank removed. No contamination reported
Closed tanks, diesel (underground)	T9	T9-2	B	7500 E FOURTH AVE	6	500 gallon diesel tank removed. No contamination reported
Gasoline stations (with repair shop)	C16	C16-1	B	601 MULDOON RD	6	

Table 1

Contaminant Source Inventory for MOA Creekside Well #20

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Location	Map	Comments
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-2	B	601 MULDOON RD	6	Soil/groundwater contamination documented during 1989 removal.of six underground storage tanks (USTs). Gasoline and diesel constituents and trace amounts chlorinated solvents identified during used oil tank excavation. Status Open. ADEC File # L25.01
Tanks, gasoline (underground)	T12	T12-1	B	601 MULDOON RD	6	10,000 gallon gasoline
Tanks, lubricants or other petroleum products (underground)	T20	T20-1	B	601 MULDOON RD	6	550 gallon capacity
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-1	B	439 IDAHO ST	6	Release associated with two diesel tanks. Status Open. ADEC File# L55.229
Tanks, diesel (underground)	T8	T8-1	B	601 MULDOON RD	6	10,000 gallon diesel
Tanks, gasoline (underground)	T12	T12-2	B	601 MULDOON RD	6	10,000 gallon gasoline
Tanks, gasoline (underground)	T12	T12-3	B	601 MULDOON RD	6	10,000 gallon gasoline
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-3	B	530 MULDOON RD	6	Petroleum contamination discovered during used oil tank (1-10,000 gallon, 1-5,000 gallon, and 1-3,000 gallon) removals. Status Open. ADEC File# L55.224
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U8	U8-1	B	545 MULDOON RD	6	Soil contamination found around and under USTs (2-8000 gallon gasoline) during closure and removal. 38 tons of contaminated soil was hauled to Clean Soils for thermal treatment. Status Closed. ADEC File# L20.55
Tanks, gasoline (underground)	T12	T12-4	B	545 MULDOON RD	6	25,000 gallon capacity
Motor vehicle/general storage yards/facilities	X27	X27-1	B	7341 E FOURTH AVE	6	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	MULDOON RD	5	
Residential Area	R1	R1-3	C		3	121 Acres
Municipal or city parks (with green areas)	X4	X4-2	C	VALLEY STREET PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-7	C	8023 11TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	NORTH VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	STATE ST	5	

Table 1

Contaminant Source Inventory for MOA Creekside Well #20

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	TENTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	KLUANE AV	5	
Motor /motor vehicle repair shops	C31	C31-1	C	1039 MULDOON RD	6	

Table 2

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Bacteria and Viruses

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Medium	1	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Medium	2	THIRD AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	3	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low	4	7101 6TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Medium	5	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Medium	6	HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Medium	7	PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Medium	8	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Medium	9	SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Medium	10	QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Medium		HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Medium		OKLAHOMA ST	4	
Residential Area	R1	R1-1	A	Low			3	42 Acres
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low		7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low		7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low		7220 4TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		SIXTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		QUEENS VIEW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		SHOORESIN	5	
Municipal or city parks (with green areas)	X4	X4-1	A,B	Low		CREEKSIDE PARK	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	Low		OKLAHOMA ST	5	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Medium		SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Medium		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Medium		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Medium		CREEKSIDE ST	4	

Table 2

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Bacteria and Viruses

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Medium		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Medium		FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Medium		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Medium		MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Medium		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Medium		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Medium		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Medium		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Medium		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Medium		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Medium		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Medium		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Medium		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	Low		PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	Low		OLD HARBOR AV	5	
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	Low		CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	Low		DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	Low		MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	Low		DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	Low		WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	Low		BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	Low		IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	Low		BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	Low		CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Low		KENNY PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	Low		MULDOON RD	5	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Municipal or city parks (with green areas)	X4	X4-2	C	Low		VALLEY STREET PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	Low		NORTH VALLEY ST	5	

Table 2

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Bacteria and Viruses

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	Low		FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	Low		BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	Low		FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	Low		VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	Low		KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	Low		MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	Low		RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	Low		TENTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	Low		KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	Low		CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	Low		CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	Low		DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	Low		AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	Low		RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	Low		FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	Low		ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	Low		CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	Low		LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	Low		LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	Low		KLUANE AV	5	

Table 3

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Nitrates and/or Nitrites

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Medium	1	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Medium	2	THIRD AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	3	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low	4	7101 6TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Medium	5	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Medium	6	HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Medium	7	PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Medium	8	FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Medium	9	SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Medium	10	QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Medium		HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Medium		OKLAHOMA ST	4	
Residential Area	R1	R1-1	A	Low			3	42 Acres
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low		7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low		7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low		7220 4TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		SIXTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		QUEENS VIEW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		SHOORESIN	5	
Municipal or city parks (with green areas)	X4	X4-1	A,B	Low		CREEKSIDE PARK	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	Low		OKLAHOMA ST	5	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Medium		SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Medium		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Medium		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Medium		CREEKSIDE ST	4	

Table 3

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Nitrates and/or Nitrites

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Medium		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Medium		FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Medium		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Medium		MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Medium		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Medium		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Medium		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Medium		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Medium		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Medium		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Medium		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Medium		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Medium		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	Low		PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	Low		OLD HARBOR AV	5	
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	Low		CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	Low		DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	Low		MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	Low		DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	Low		WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	Low		BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	Low		IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	Low		BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	Low		CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Low		KENNY PL	5	
Orchards or nurseries	A10	A10-1	B	Medium		7435 OLD HARBOR AVE	6	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	Low		MULDOON RD	5	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Municipal or city parks (with green areas)	X4	X4-2	C	Low		VALLEY STREET PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	Low		NORTH VALLEY ST	5	

Table 3

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Nitrates and/or Nitrites

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	Low		FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	Low		BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	Low		FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	Low		VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	Low		KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	Low		MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	Low		RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	Low		TENTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	Low		KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	Low		CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	Low		CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	Low		DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	Low		AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	Low		RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	Low		FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	Low		ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	Low		CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	Low		LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	Low		LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	Low		KLUANE AV	5	

Table 4

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Volatile Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-1	B	Medium	1	439 IDAHO ST	6	Release associated with two diesel tanks. Status Open. ADEC File# L55.229
Heavy equipment rental/storage	C18	C18-1	A	Medium	2	410 PATTERSON ST	6	
Construction trade areas and materials	C9	C9-1	A	Low	3	7120 E FOURTH AVE	6	
Motor vehicle/general storage yards/facilities	X27	X27-1	B	Medium	4	7341 E FOURTH AVE	6	
Residential Area	R1	R1-1	A	Low	5	Adjacent to well	3	42 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Low	6	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Low	7	THIRD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Low	8	FREDRICKS DR	4	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	9	ELMRICH #1 TR 1A	4	
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-2	B	Medium	10	601 MULDOON RD	6	Soil/groundwater contamination documented during 1989 removal of six underground storage tanks (USTs). Gasoline and diesel constituents and trace amounts chlorinated solvents identified during used oil tank excavation. Status Open. ADEC File # L25.01
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-3	B	Low		530 MULDOON RD	6	Petroleum contamination discovered during used oil tank (1-10,000 gallon, 1-5,000 gallon, and 1-3,000 gallon) removals. Status Open. ADEC File# L55.224
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		SIXTH AVE	5	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low		7101 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low		7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low		7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low		7220 4TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Low		HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Low		PATTERSON ST	4	

Table 4

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Volatile Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Low		SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Low		QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Low		HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Low		OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		QUEENS VIEW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		SHOORESIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	Low		OKLAHOMA ST	5	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Low		SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Low		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Low		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Low		CREEKSIDE ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Low		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Low		FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Low		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Low		MULDOON RD	4	

Table 4

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Volatile Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Low		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Low		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Low		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Low		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Low		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Low		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Low		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Low		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Low		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	Low		PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	Low		OLD HARBOR AV	5	
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	Low		CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	Low		DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	Low		MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	Low		DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	Low		WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	Low		BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	Low		IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	Low		BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	Low		CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Low		KENNY PL	5	
Gasoline stations (without repair shop)	C15	C15-1	B	Medium		545 MULDDON RD	6	
Lubrication shops	C25	C25-1	B	Medium		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-1	B	Low		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-2	B	Low		515 MULDOON RD	6	
Car washes with engine or undercarriage cleaning	C8	C8-1	B	Low		501 MULDOON RD	6	

Table 4

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Volatile Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Closed tanks, diesel (underground)	T9	T9-1	B	Low		7500 E FOURTH AVE	6	1,000 gallon diesel tank removed. No contamination reported
Closed tanks, diesel (underground)	T9	T9-2	B	Low		7500 E FOURTH AVE	6	500 gallon diesel tank removed. No contamination reported
Gasoline stations (with repair shop)	C16	C16-1	B	Medium		601 MULDOON RD	6	
Tanks, gasoline (underground)	T12	T12-1	B	Medium		601 MULDOON RD	6	10,000 gallon gasoline
Tanks, lubricants or other petroleum products (underground)	T20	T20-1	B	Medium		601 MULDOON RD	6	550 gallon capacity
Tanks, diesel (underground)	T8	T8-1	B	Medium		601 MULDOON RD	6	10,000 gallon diesel
Tanks, gasoline (underground)	T12	T12-2	B	Medium		601 MULDOON RD	6	10,000 gallon gasoline
Tanks, gasoline (underground)	T12	T12-3	B	Medium		601 MULDOON RD	6	10,000 gallon gasoline
Closed Leaking Underground Fuel Storage Tank (LUST) Sites	U8	U8-1	B	Low		545 MULDOON RD	6	Soil contamination found around and under USTs (2-8000 gallon gasoline) during closure and removal. 38 tons of contaminated soil was hauled to Clean Soils for thermal treatment. Status Closed. ADEC File# L20.55
Tanks, gasoline (underground)	T12	T12-4	B	Medium		545 MULDOON RD	6	25,000 gallon capacity
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	Low		MULDOON RD	5	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	Low		NORTH VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	Low		FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	Low		BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	Low		FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	Low		VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	Low		KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	Low		MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	Low		RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	Low		TENTH AVE	5	

Table 4

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Volatile Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	Low		KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	Low		CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	Low		CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	Low		DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	Low		AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	Low		RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	Low		FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	Low		ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	Low		CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	Low		LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	Low		LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	Low		KLUANE AV	5	
Motor /motor vehicle repair shops	C31	C31-1	C	Medium		1039 MULDOON RD	6	

Table 5

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Heavy equipment rental/storage	C18	C18-1	A	Medium	1	410 PATTERSON ST	6	
Construction trade areas and materials	C9	C9-1	A	Low	2	7120 E FOURTH AVE	6	
Residential Area	R1	R1-1	A	Low	3		3	42 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Low	4	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Low	6	THIRD AVE	4	
Orchards or nurseries	A10	A10-1	B	Medium	7	7435 OLD HARBOR AVE	6	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	5	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low	8	7101 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low	9	7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low	10	7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low		7220 4TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Low		OKLAHOMA ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Low		HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Low		PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Low		SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Low		QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Low		HUNT and WINTERHAVEN	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		SIXTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		QUEENS VIEW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		SHOORESIN	5	
Municipal or city parks (with green areas)	X4	X4-1	A,B	Low		CREEKSIDE PARK	3	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	Low		OKLAHOMA ST	5	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Low		SIXTH AVE	4	

Table 5

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Low		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Low		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Low		CREEKSIDE ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Low		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Low		FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Low		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Low		MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Low		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Low		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Low		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Low		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Low		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Low		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Low		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Low		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Low		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	Low		PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	Low		OLD HARBOR AV	5	
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	Low		CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	Low		DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	Low		MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	Low		DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	Low		WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	Low		BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	Low		IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	Low		BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	Low		CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Low		KENNY PL	5	

Table 5

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Gasoline stations (without repair shop)	C15	C15-1	B	Low		545 MULDDON RD	6	
Lubrication shops	C25	C25-1	B	Medium		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-1	B	Low		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-2	B	Low		515 MULDOON RD	6	
Car washes with engine or undercarriage cleaning	C8	C8-1	B	Medium		501 MULDOON RD	6	
Gasoline stations (with repair shop)	C16	C16-1	B	Medium		601 MULDOON RD	6	
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-2	B	Medium		601 MULDOON RD	6	Soil/groundwater contamination documented during 1989 removal.of six underground storage tanks (USTs). Gasoline and diesel constituents and trace amounts chlorinated solvents identified during used oil tank excavation. Status Open. ADEC File # L25.01
Tanks, lubricants or other petroleum products (underground)	T20	T20-1	B	Medium		601 MULDOON RD	6	550 gallon capacity
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-3	B	Medium		530 MULDOON RD	6	Petroleum contamination discovered during used oil tank (1-10,000 gallon, 1-5,000 gallon, and 1-3,000 gallon) removals. Status Open. ADEC File# L55.224
Motor vehicle/general storage yards/facilities	X27	X27-1	B	Medium		7341 E FOURTH AVE	6	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	Low		MULDOON RD	5	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Municipal or city parks (with green areas)	X4	X4-2	C	Low		VALLEY STREET PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	Low		NORTH VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	Low		FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	Low		BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	Low		FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	Low		VALLEY ST	5	

Table 5

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	Low		KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	Low		MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	Low		RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	Low		TENTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	Low		KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	Low		CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	Low		CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	Low		DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	Low		AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	Low		RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	Low		FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	Low		ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	Low		CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	Low		LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	Low		LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	Low		KLUANE AV	5	
Motor /motor vehicle repair shops	C31	C31-1	C	Medium		1039 MULDOON RD	6	

Table 6

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Synthetic Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Residential Area	R1	R1-1	A	Low	1		3	42 Acres
Orchards or nurseries	A10	A10-1	B	Medium	2	7435 OLD HARBOR AVE	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Low	3	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Low	4	THIRD AVE	4	
Municipal or city parks (with green areas)	X4	X4-1	A,B	Low	5	CREEKSIDE PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	6	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low	7	7101 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low	8	7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low	9	7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low	10	7220 4TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Low		HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Low		PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Low		SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Low		QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Low		HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Low		OKLAHOMA ST	4	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Low		SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Low		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Low		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Low		CREEKSIDE ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Low		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Low		FOURTH AND IDAHO	4	

Table 6

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Synthetic Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Low		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Low		MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Low		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Low		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Low		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Low		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Low		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Low		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Low		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Low		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Low		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Municipal or city parks (with green areas)	X4	X4-2	C	Low		VALLEY STREET PARK	3	
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	

Table 7

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Other Synthetic Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Heavy equipment rental/storage	C18	C18-1	A	Low	1	410 PATTERSON ST	6	
Construction trade areas and materials	C9	C9-1	A	Low	2	7120 E FOURTH AVE	6	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Low	4	JORDT CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Low	5	THIRD AVE	4	
Residential Area	R1	R1-1	A	Low	6		3	42 Acres
Septic systems (serves one or more single-family homes)	R2	R2-1	A	Low	7	ELMRICH #1 TR 1A	4	
Septic systems (serves one or more single-family homes)	R2	R2-2	A	Low	8	7101 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-3	A	Low	9	7141 6TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-4	A	Low	10	7110 4TH AVE	4	
Septic systems (serves one or more single-family homes)	R2	R2-5	A	Low		7220 4TH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Low		HOWARD AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Low		PATTERSON ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Low		FREDRICKS DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Low		SHOORESIN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Low		QUEENS VIEW CIR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Low		HUNT and WINTERHAVEN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Low		OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		JORDT CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A	Low		SIXTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A	Low		FOURTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Low		FREDRICKS DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A	Low		FERN LANE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Low		HOWARD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Low		PATTERSON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Low		WINTER HAVEN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Low		HUNT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Low		THIRD AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Low		QUEENS VIEW CIR	5	

Table 7

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Other Synthetic Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-12	A	Low		SHOORESIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A,B	Low		OKLAHOMA ST	5	
Residential Area	R1	R1-2	B	Low			3	69 Acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	B	Low		SIXTH AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	B	Low		RIGHT-OF-WAY ALONG CREEKSIDE PARK	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	B	Low		FOURTH AND PASTRY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	B	Low		CREEKSIDE ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	B	Low		BETWEEN DOVER AND MARYLAND AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	B	Low		FOURTH AND IDAHO	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	B	Low		SOUTH OF OLD HARBOR AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	C	Low		MULDOON RD	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	C	Low		SIXTH AVE TO NORTH VALLEY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	C	Low		ELEVENTH, STATE, BOSTON, AND FRIENDLY	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	C	Low		NORTH VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	C	Low		MASON AND KLUANE DR	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	C	Low		RANGEVIEW AVE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	C	Low		ELEVENTH, TWELFTH, AND VALLEY ST	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	C	Low		LORI, ELAINE, AND CONNIE	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	C	Low		DEBARR, RYOAKS, FARROW, CROSS POINT AND AUTUMN	4	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	C	Low		EARLY VIEW AND TURF	4	
Septic systems (serves one or more single-family homes)	R2	R2-6	B	Low		520 OKLAHOMA ST	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	B	Low		PATSY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-15	B	Low		OLD HARBOR AV	5	

Table 7

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Other Synthetic Organic Chemicals

PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-16	B	Low		CREEKSIDE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-17	B	Low		DELAWARE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-18	B	Low		MARYLAND AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-19	B	Low		DOVER AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-20	B	Low		WINSTON	5	
Highways and roads, paved (cement or asphalt)	X20	X20-21	B	Low		BEULAH	5	
Highways and roads, paved (cement or asphalt)	X20	X20-22	B	Low		IDAHO ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-23	B	Low		BALTIMORE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-24	B	Low		CARIN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Low		KENNY PL	5	
Gasoline stations (without repair shop)	C15	C15-1	B	Low		545 MULDDON RD	6	
Lubrication shops	C25	C25-1	B	Low		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-1	B	Low		530 MULDOON RD	6	
Motor/motor vehicle supplies stores	C28	C28-2	B	Low		515 MULDOON RD	6	
Car washes with engine or undercarriage cleaning	C8	C8-1	B	Low		501 MULDOON RD	6	
Gasoline stations (with repair shop)	C16	C16-1	B	Medium		601 MULDOON RD	6	
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-2	B	Low		601 MULDOON RD	6	Soil/groundwater contamination documented during 1989 removal.of six underground storage tanks (USTs). Gasoline and diesel constituents and trace amounts chlorinated solvents identified during used oil tank excavation. Status Open. ADEC File # L25.01
Tanks, lubricants or other petroleum products (underground)	T20	T20-1	B	Low		601 MULDOON RD	6	550 gallon capacity
Open Leaking Underground Fuel Storage Tank (LUST) Sites	U7	U7-3	B	Low		530 MULDOON RD	6	Petroleum contamination discovered during used oil tank (1-10,000 gallon, 1-5,000 gallon, and 1-3,000 gallon) removals. Status Open. ADEC File# L55.224
Motor vehicle/general storage yards/facilities	X27	X27-1	B	Low		7341 E FOURTH AVE	6	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B,C	Low		MULDOON RD	5	
Residential Area	R1	R1-3	C	Low			3	121 Acres
Septic systems (serves one or more single-family homes)	R2	R2-7	C	Low		8023 11TH AVE	4	

Table 7

Potential and Existing Sources of Contamination for MOA Creekside Well #20 Sources of Other Synthetic Organic Chemicals

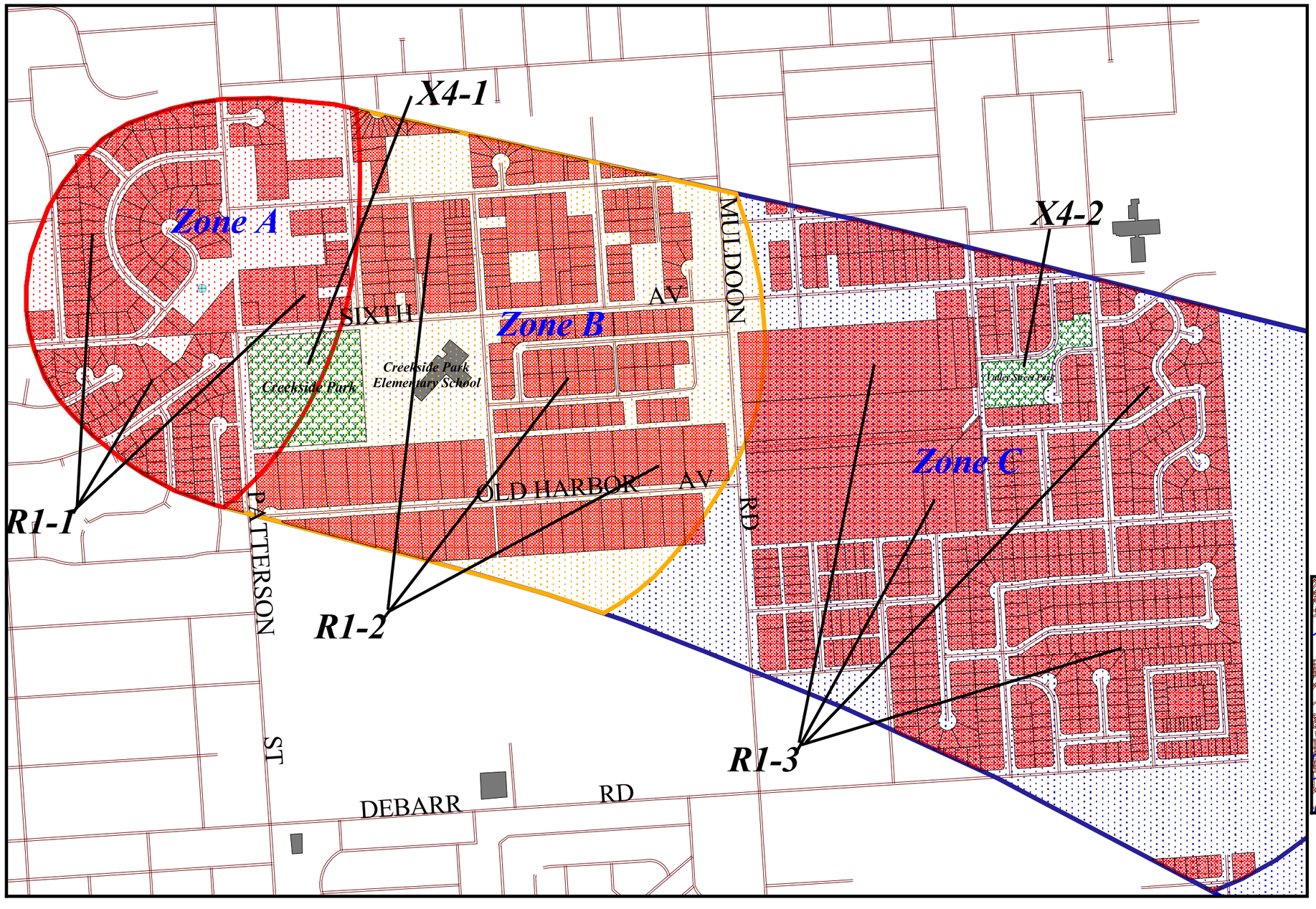
PWSID 210906.005

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Highways and roads, paved (cement or asphalt)	X20	X20-27	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-28	C	Low		NORTH VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-29	C	Low		FIFTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-30	C	Low		STATE ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-31	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-32	C	Low		BOSTON ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-33	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-34	C	Low		FRIENDLY LA	5	
Highways and roads, paved (cement or asphalt)	X20	X20-35	C	Low		TWELTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-36	C	Low		VALLEY ST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-37	C	Low		KIM PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-38	C	Low		MASON DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-39	C	Low		RANGEVIEW AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-40	C	Low		TENTH AVE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-41	C	Low		KATHU PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-42	C	Low		CHERRY PST	5	
Highways and roads, paved (cement or asphalt)	X20	X20-43	C	Low		ELEVENTH CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-44	C	Low		CROSS POINTE LP	5	
Highways and roads, paved (cement or asphalt)	X20	X20-45	C	Low		DEBARR RD	5	
Highways and roads, paved (cement or asphalt)	X20	X20-46	C	Low		AUTUMN	5	
Highways and roads, paved (cement or asphalt)	X20	X20-47	C	Low		RYOAKS PL	5	
Highways and roads, paved (cement or asphalt)	X20	X20-48	C	Low		FARROW CIR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-49	C	Low		ELAINE DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-50	C	Low		CONNIE	5	
Highways and roads, paved (cement or asphalt)	X20	X20-51	C	Low		LORI DR	5	
Highways and roads, paved (cement or asphalt)	X20	X20-52	C	Low		LORI CT	5	
Highways and roads, paved (cement or asphalt)	X20	X20-53	C	Low		KLUANE AV	5	
Motor/motor vehicle repair shops	C31	C31-1	C	Medium		1039 MULDOON RD	6	

APPENDIX C

MOA Well #20
Drinking Water Protection Area
and Potential & Existing Contaminant Sources

Drinking Water Protection Area for MOA Well #20 and Potential & Existing Sources of Contamination



Legend

- MOA Well #20
- Municipal or City Parks (X4)
- Residential Areas (R1)

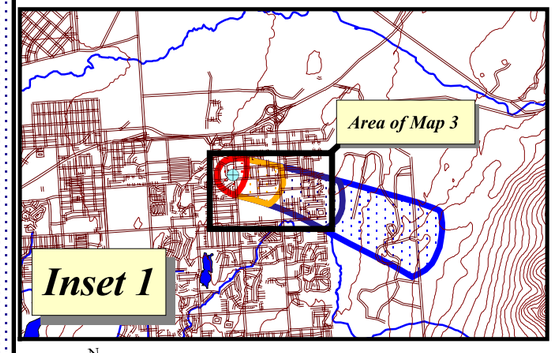
Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2-Years Travel Time

Zone C Protection Area
- Less than 5-Years Travel Time

Zone D Protection Area
- Less than 10-Years Travel Time

- Buildings
- Roads

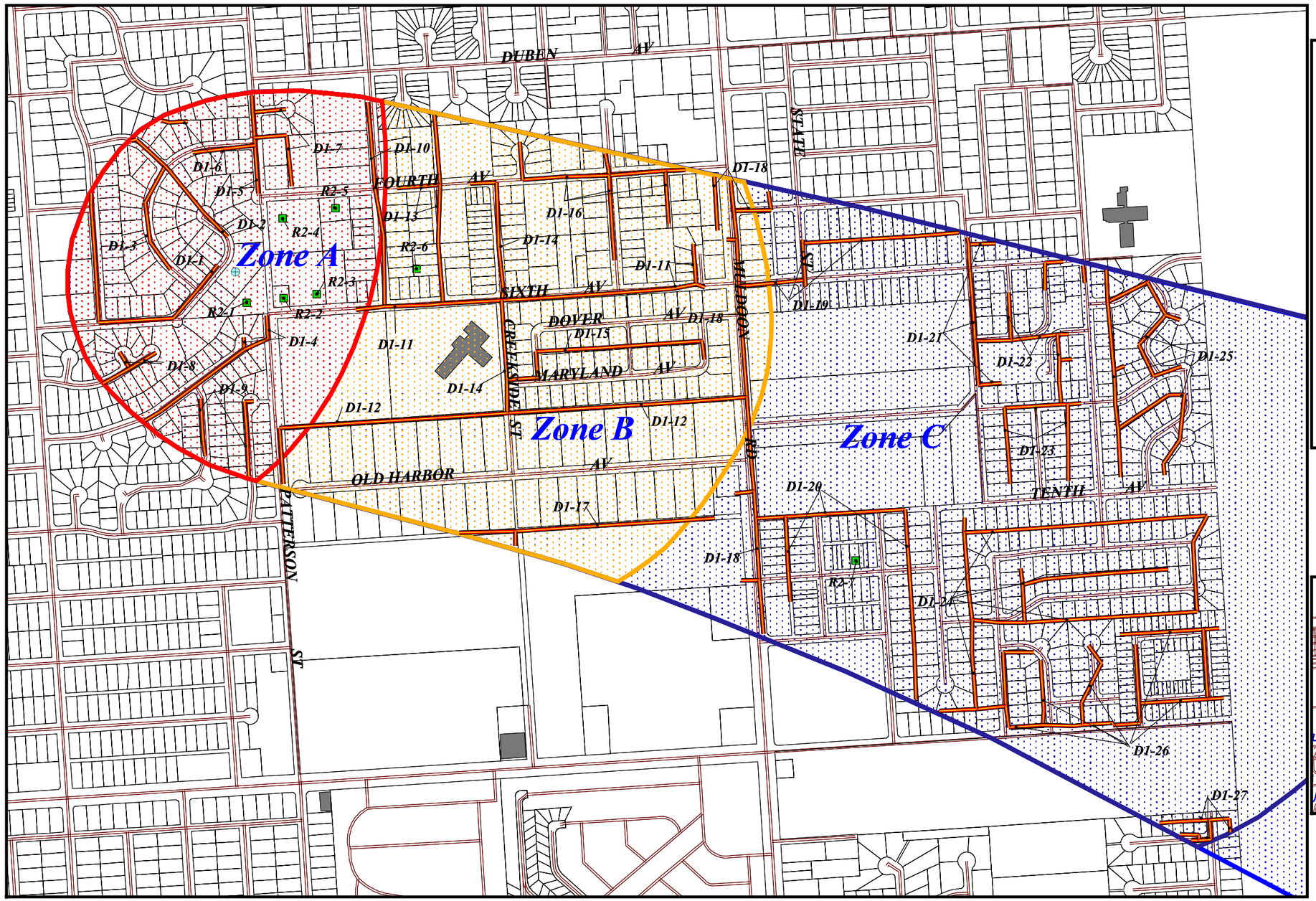


1000 0 1000 Feet

PWSID 210906.005

Map 3

Drinking Water Protection Area for MOA Well #20 and Potential & Existing Sources of Contamination



Legend

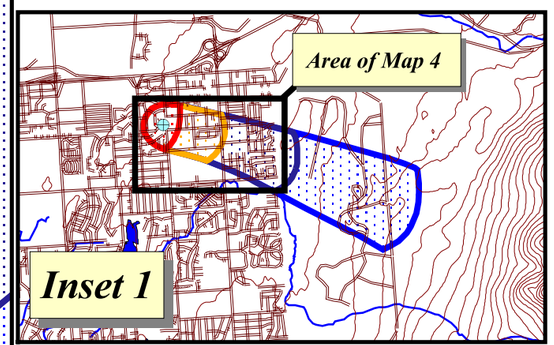
- Domestic Wastewater Sewerlines (D1)
- MOA Well #20

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2-Years Travel Time

Zone C Protection Area
- Less than 5-Years Travel Time

Zone D Protection Area
- Less than 10-Years Travel Time
- Buildings
- Land Parcels
- Roads
- Residential Septic Systems (R2)



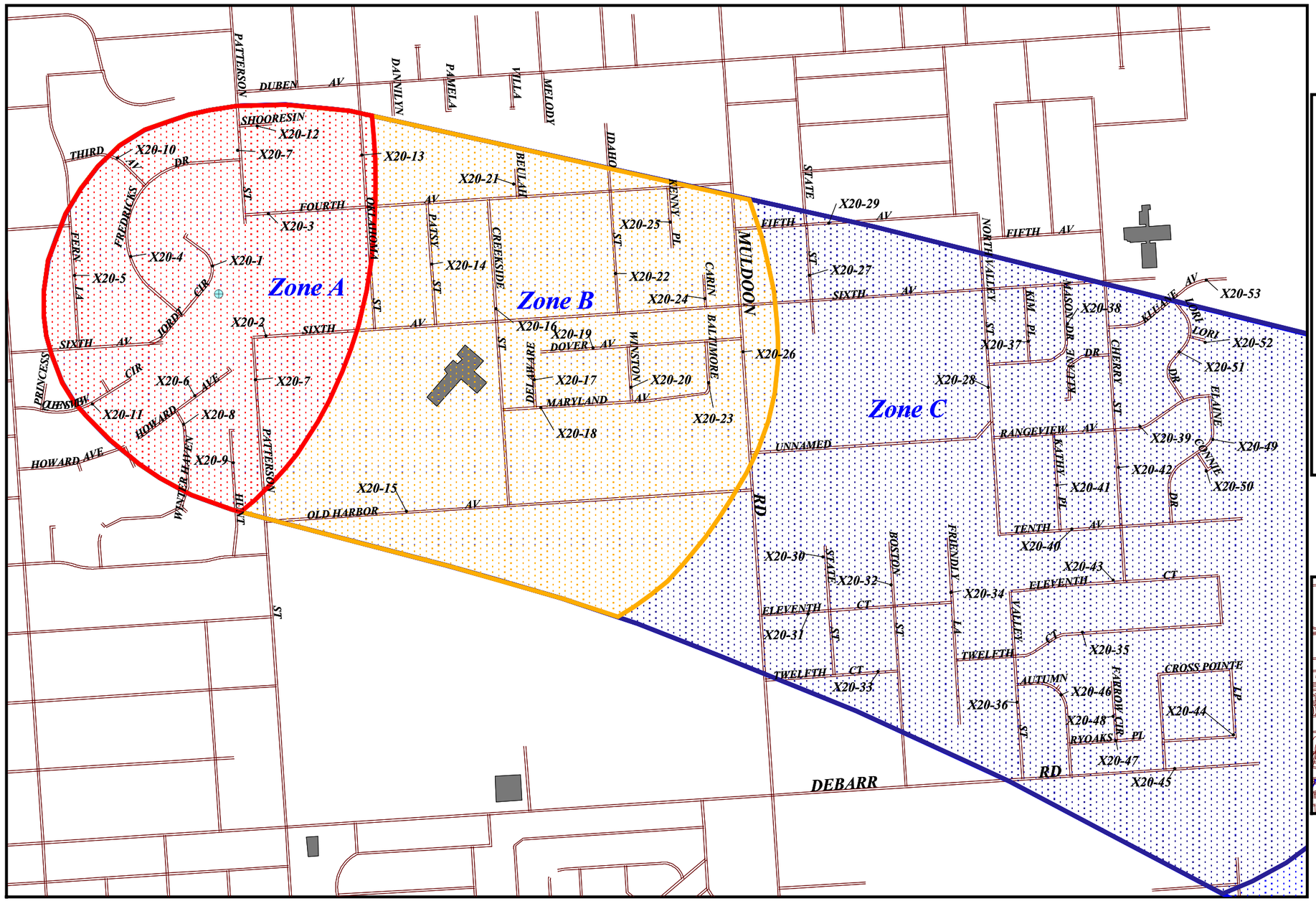
1000 0 1000 Feet

PWSID 210906.005

N W E S

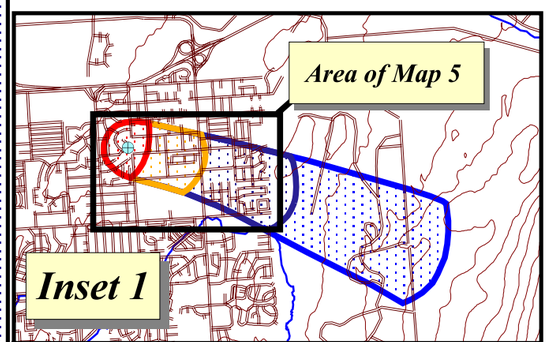
Map 4

Drinking Water Protection Area for MOA Well #20 and Potential & Existing Sources of Contamination



Legend

- MOA Well #20
- Zone A Protection Area
  - Several Months Travel Time
- Zone B Protection Area
  - Less than 2-Years Travel Time
- Zone C Protection Area
  - Less than 5-Years Travel Time
- Zone D Protection Area
  - Less than 10-Years Travel Time
- Buildings
- Roads



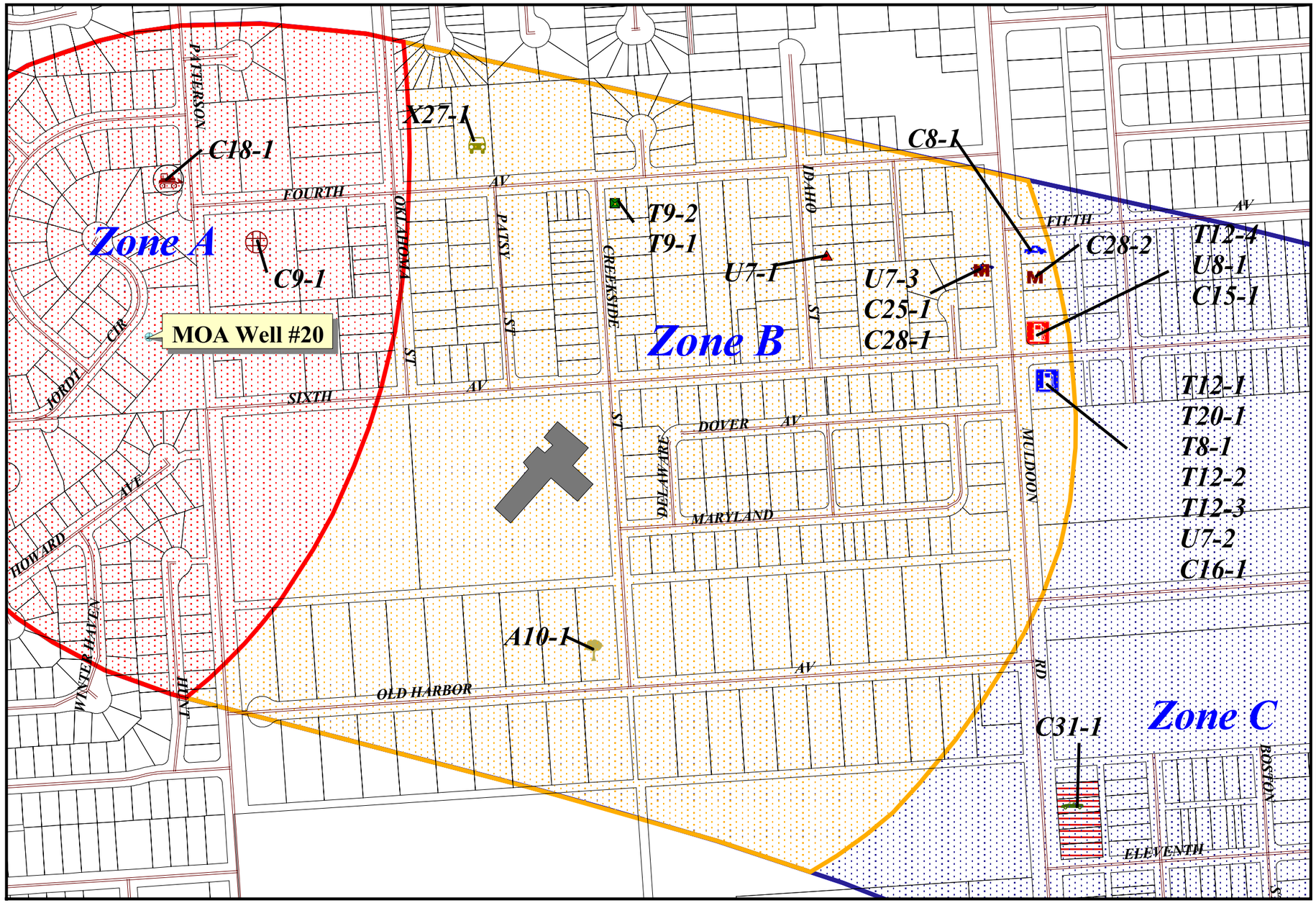
1000 0 1000 Feet

PWSID 210906.005

N W E S

Map 5

Drinking Water Protection Area for MOA Well #20 and Potential & Existing Sources of Contamination



Legend

- MOA Well #20
- Roads
- Buildings
- Land Parcels

Zone A Protection Area
- Several Months Travel Time

Zone B Protection Area
- Less than 2-Years Travel Time

Zone C Protection Area
- Less than 5-Years Travel Time

Zone D Protection Area
- Less than 10-Years Travel Time

Potential & Existing Sources of Contamination
- Car washes with engine or undercarriage cleaning (C8)
- Closed tanks, diesel (underground) (T9)
- Construction trade areas and materials (C9)
- Gasoline stations (with repair shop) (C16)
- Gasoline stations (without repair shop) (C15)
- Heavy equiptment rental/storage (C18)
- Lubrication shops (C25)
- Motor/motor vehicle repair shops (C31)
- Motor vehicle dealerships - (with service department) (C27)
- Motor vehicle/general storage yards/facilities (X27)
- Motor/motor vehicle supplies stores (C28)
- Orchards or nurseries (A10)
- Tanks, diesel (underground) (T8)
- Tanks, gasoline (underground) (T12)
- Tanks, heating oil, nonresidential (underground) (T16)
- Tanks, lubricants or other petroleum products (underground) (T20)
- Open Leaking Underground Fuel Storage Tank (LUST) (U7)
- Closed Leaking Underground Fuel Storage Tank (LUST) (U8)
- Motor Vehicle Repair Shop Areas (C31)

1000 0 1000 Feet

PWSID 210906.005

N W E S

Map 6

APPENDIX D

Vulnerability Analysis for MOA Well #20
Public Drinking Water Source

Chart 1. Susceptibility of the wellhead – MOA Creekside Well #20

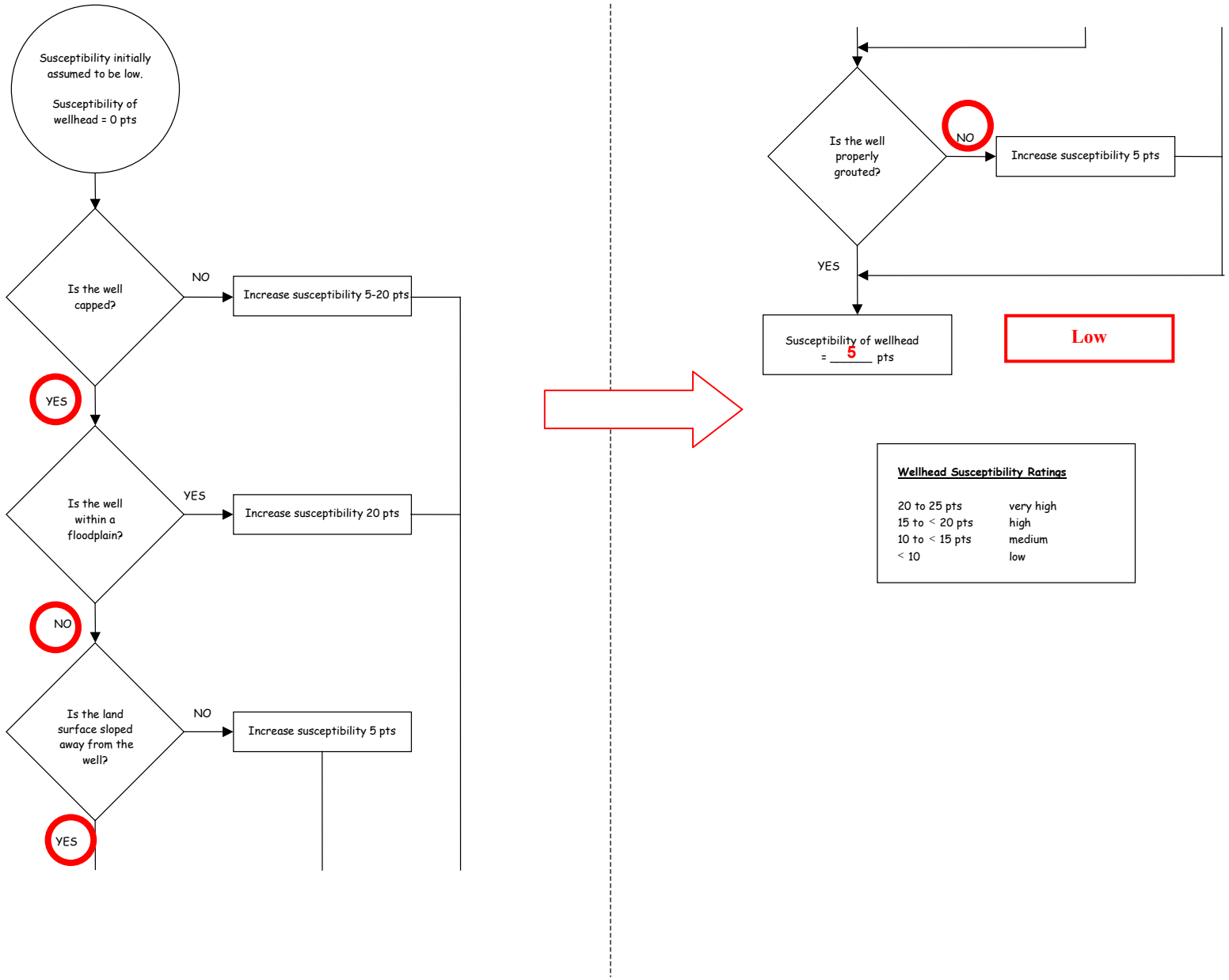
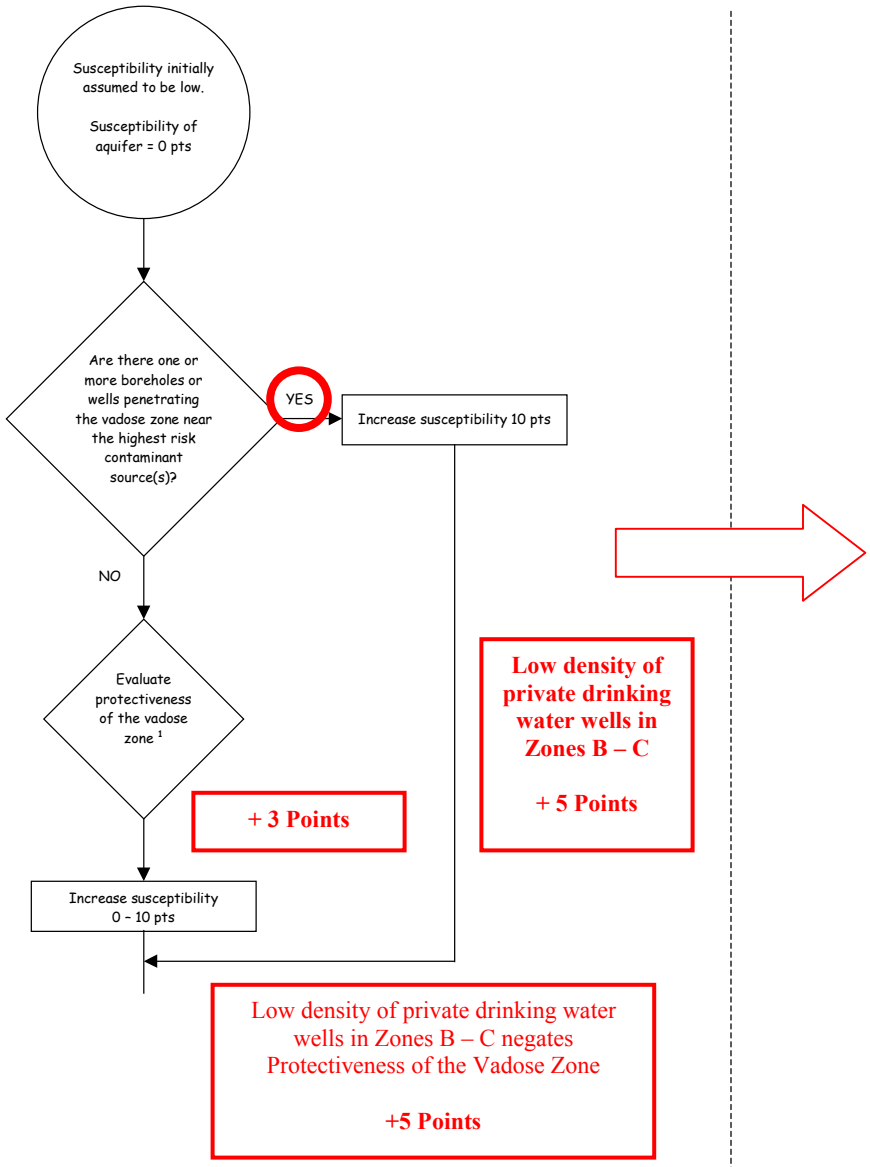
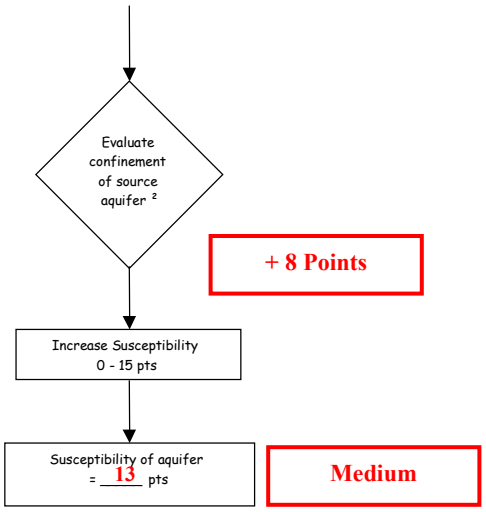


Chart 2. Susceptibility of the aquifer – MOA Creekside Well #20





1. **Protectiveness of the Vadose Zone**
   - net recharge (function of precipitation, slope of land surface, & permeability of soils) [0 – 10 pts; 50% weight]
   - depth to water table (unconfined aquifer) or top of confining layer (confined aquifer) [interpolate linearly: 100' – 20', 0 – 5 pts; 20' – 0', 5 – 10 pts; 50% weight]

Recharge (20-30 inches per year, base of Chugach Mountains, and silty sandy gravel) 3/10 = 2 Points
Depth to top of confining unit (72 feet) 1/10 = 1 Point

Protectiveness of the Vadose Zone Total = **3/10 Points**

2. **Degree of Confinement**
   - confined verses unconfined aquifer [confined: K ≤ 10^{-6} cm/s, minimum thickness of at least one layer = 20 ft, interpolate linearly 100' – 20', 0 – 10 pts; unconfined = 15 pts; 65% weight]
   - density of boreholes and wells penetrating the confining layer (confined aquifer) or the water table (unconfined aquifer) [confined: 0 – 15 pts; unconfined = 15 pts; 35% weight]

Confinement (22 feet of blue clay from 72 to 94 feet below land surface) 10/15 = **6 Points**

Density of boreholes/wells (low density of domestic drinking water wells in Zones B – C, which penetrate to upper confined aquifer) 5/15 = 2 Points

Degree of Confinement Total = **8/15 Points**

Aquifer Susceptibility Ratings

20 to 25 pts	very high
15 to < 20 pts	high
10 to < 15 pts	medium
< 10	low

Medium

Chart 3. Contaminant risks for MOA Creekside Well #20 – Bacteria & Viruses

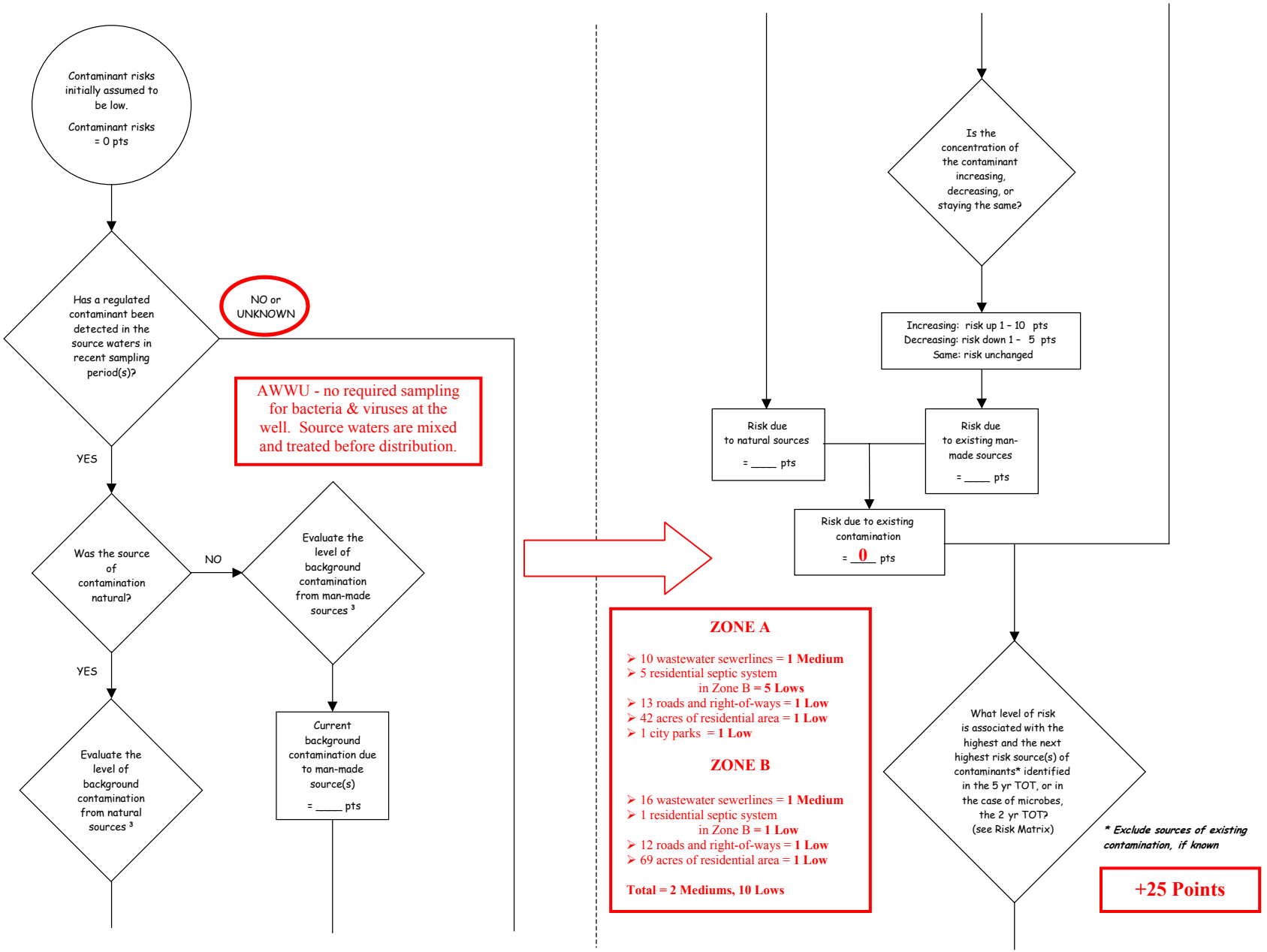


Chart 3. Contaminant risks for MOA Creekside Well #20 – Bacteria & Viruses (Continued)

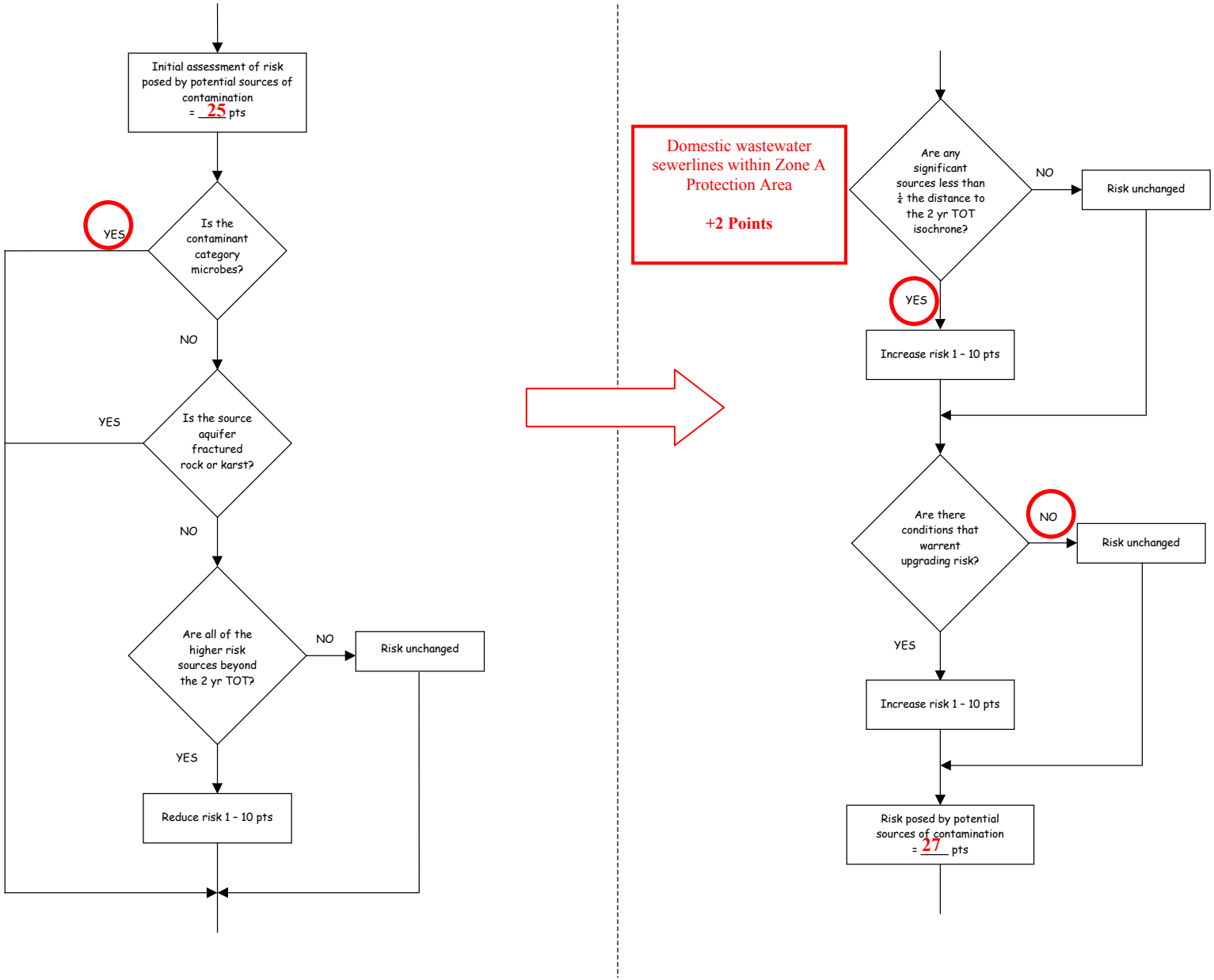
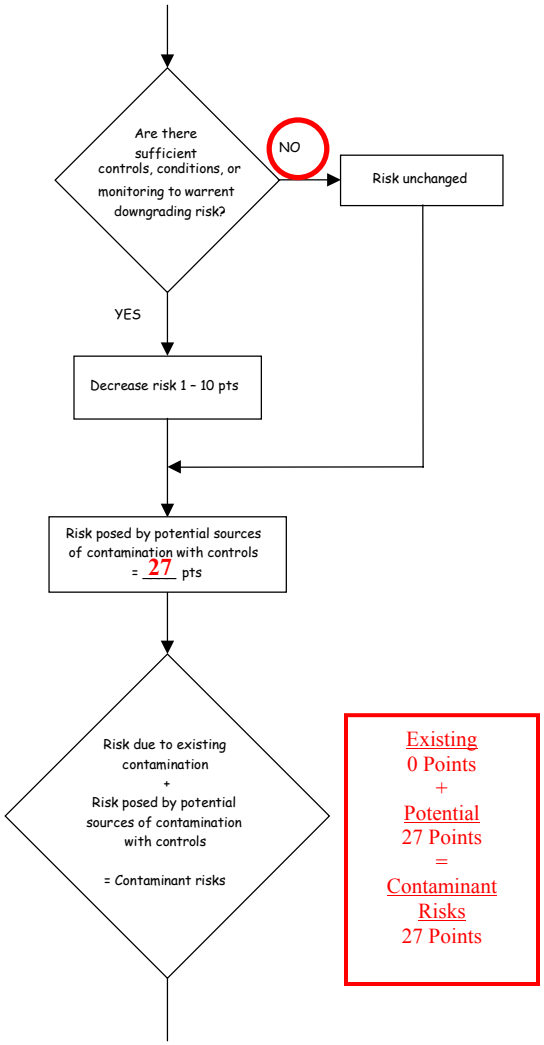
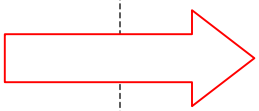


Chart 3. Contaminant risks for MOA Creekside Well #20 – Bacteria & Viruses (Continued)



Existing
0 Points
+
Potential
27 Points
=
Contaminant
Risks
27 Points



** Truncate risk at 50 pts*

Contaminant risks*
= 27 pts

Medium

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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

Table 1. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Bacteria & Viruses

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	**2 Mediums, 10 Lows**	**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

Chart 4. Vulnerability analysis for MOA Creekside Well #20 – Bacteria & Viruses

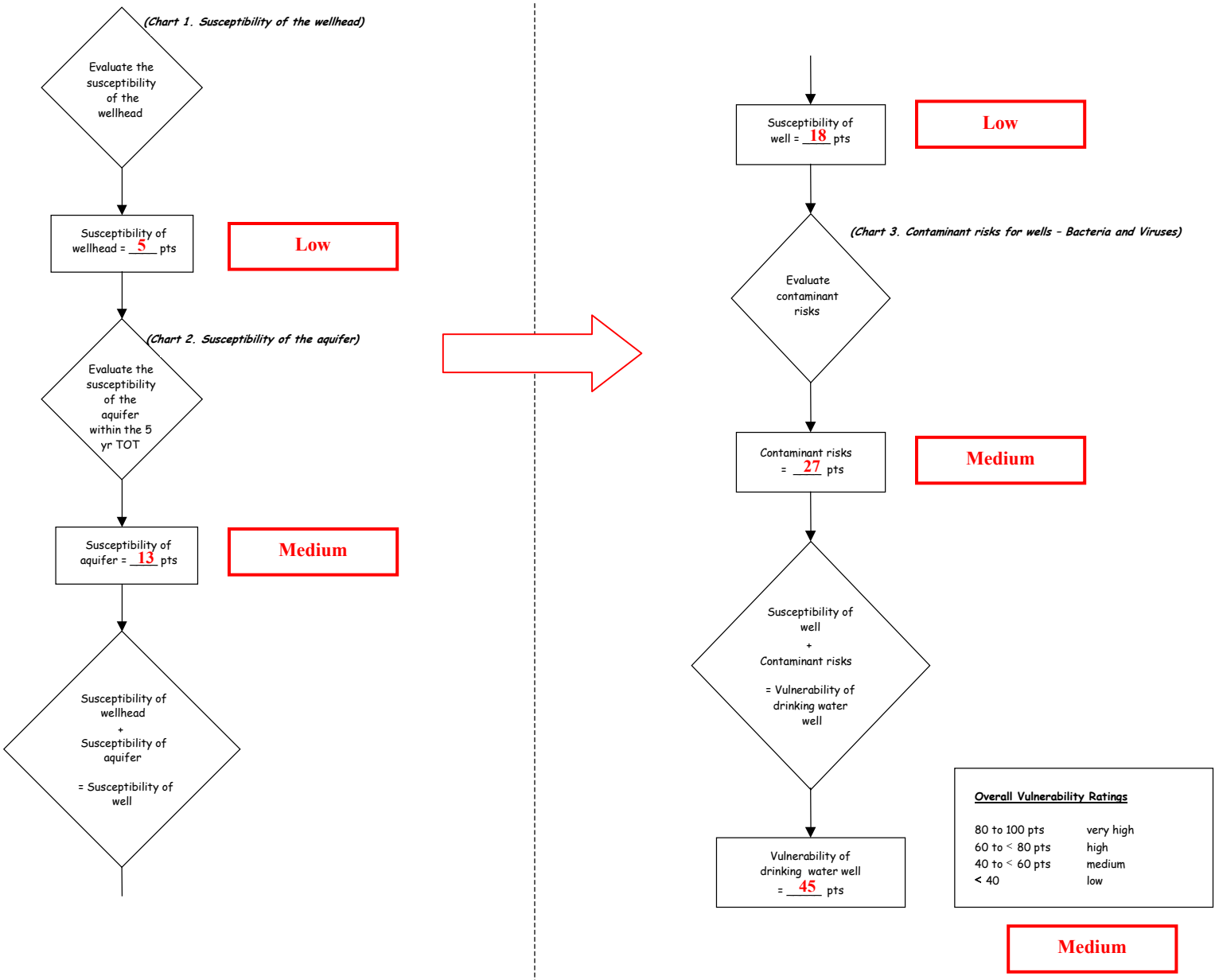


Chart 5. Contaminant risks for MOA Creekside Well #20 – Nitrates & Nitrites

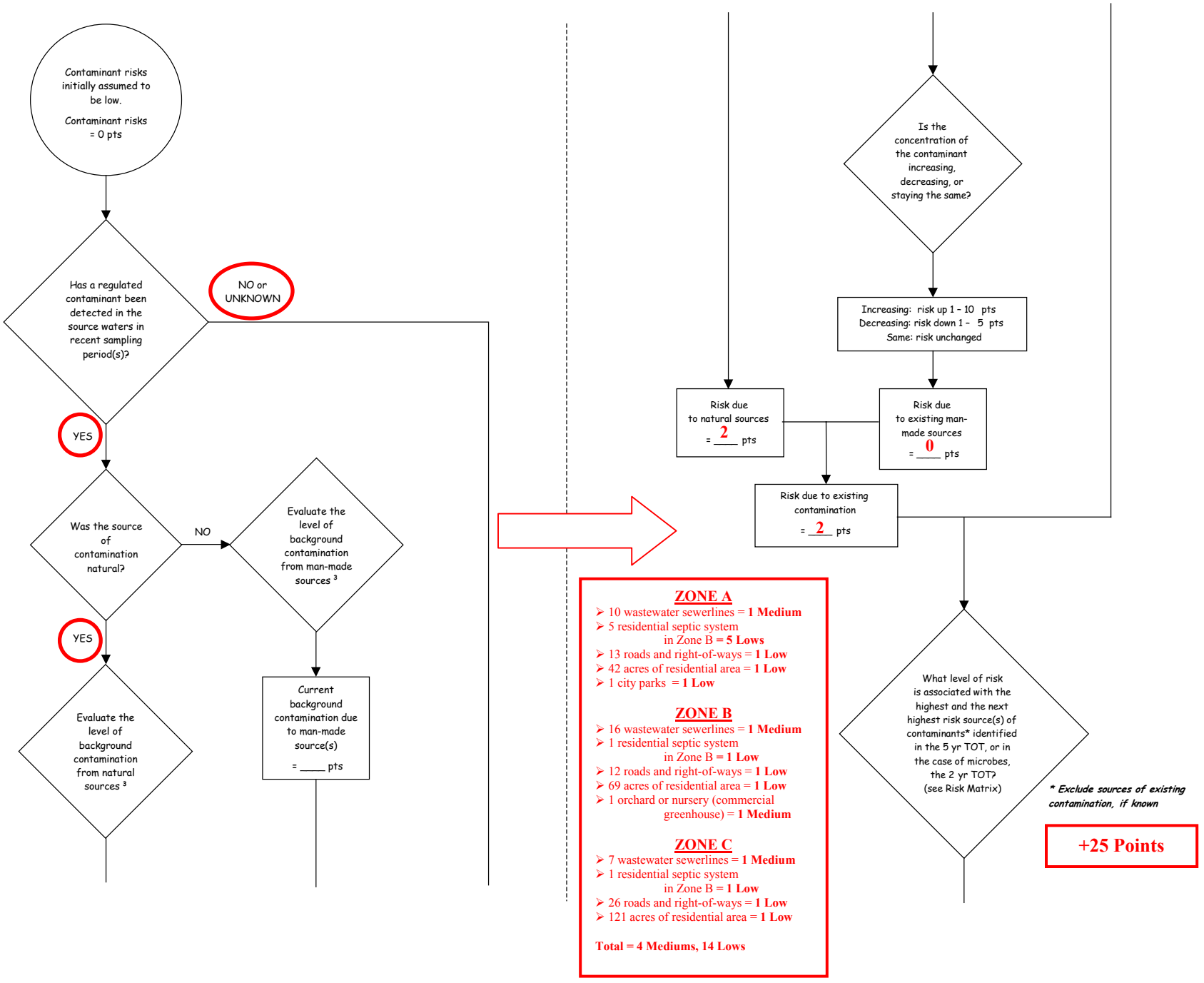


Chart 5. Contaminant risks for MOA Creekside Well #20 – Nitrates & Nitrites (Continued)

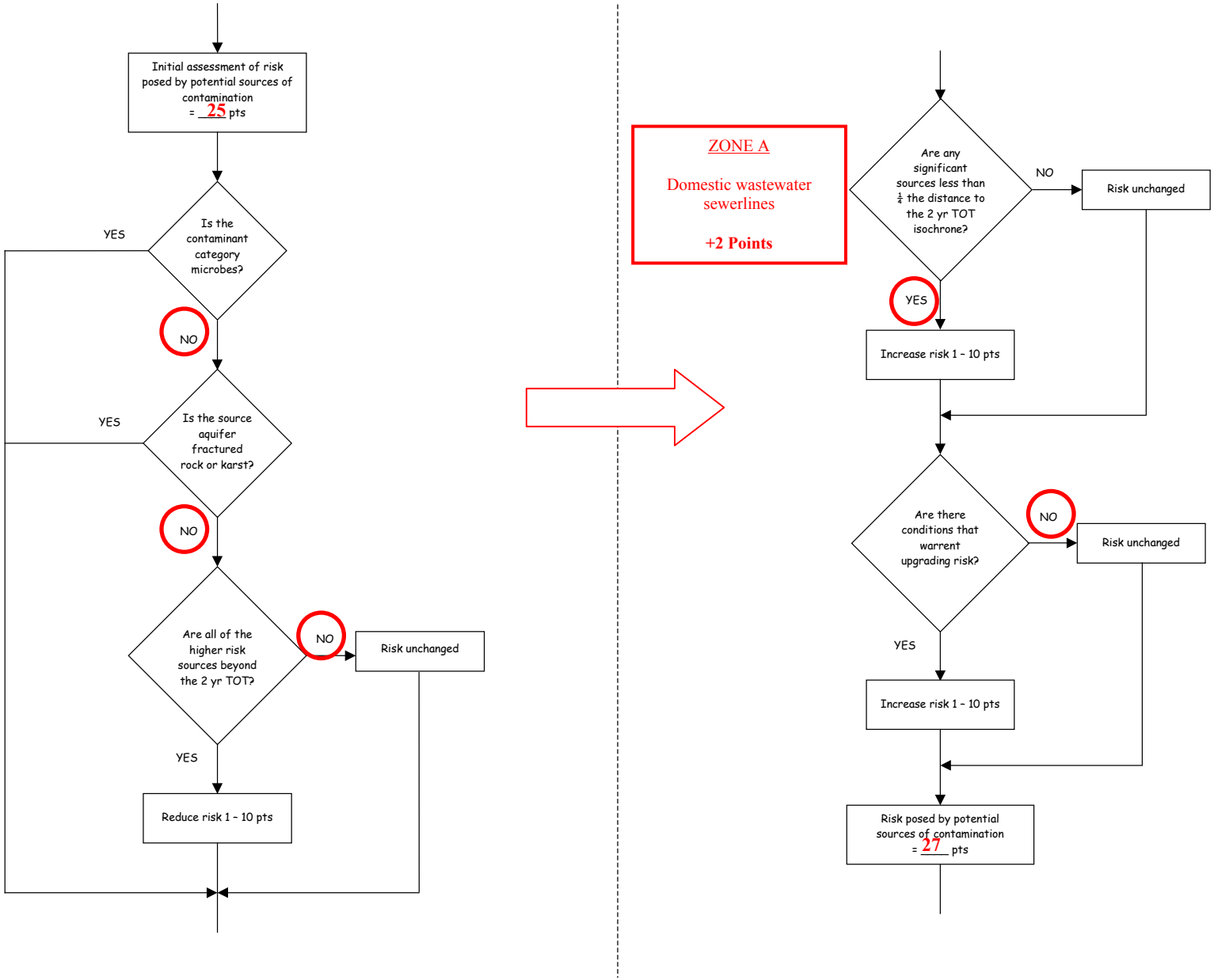
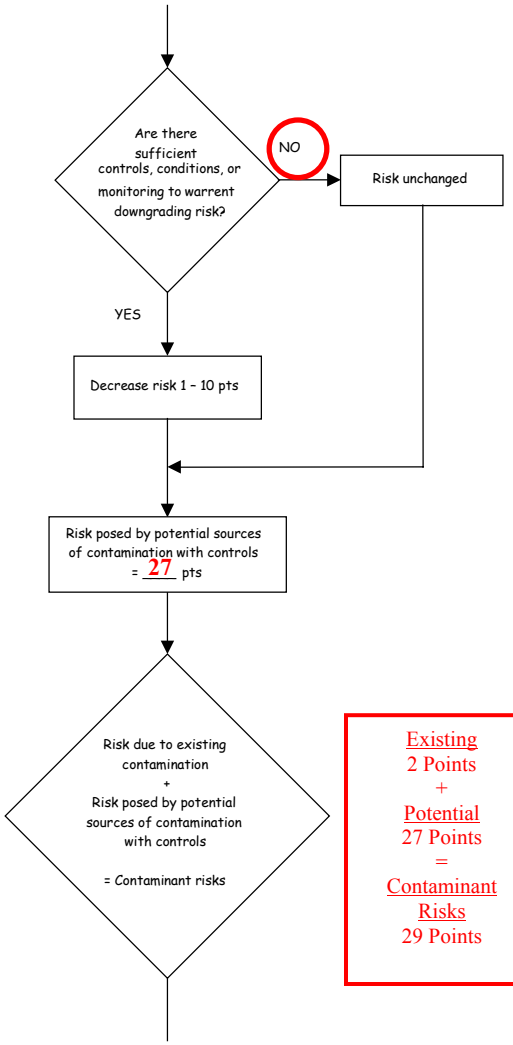


Chart 5. Contaminant risks for MOA Creekside Well #20 – Nitrates & Nitrites (Continued)



Existing
2 Points
+
Potential
27 Points
=
Contaminant Risks
29 Points

* Truncate risk at 50 pts

Contaminant risks* = 29 pts

Medium

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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

Nitrate

0.676 mg/L on 7/14/99
0.209 mg/L on 11/4/98
0.100 mg/L on 12/10/97
No Detect on 11/18/96
0.120 mg/L on 9/27/95
0.110 mg/L on 9/26/94

Maximum Contaminant Level (MCL)
= 10mg/L
0.676/10
= 0.0676 or 6% of MCL

+2 Points

Table 2. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Nitrates & Nitrites

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	**4 Mediums, 14 Lows**	**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

Chart 6. Vulnerability analysis for MOA Creekside Well #20– Nitrates and Nitrites

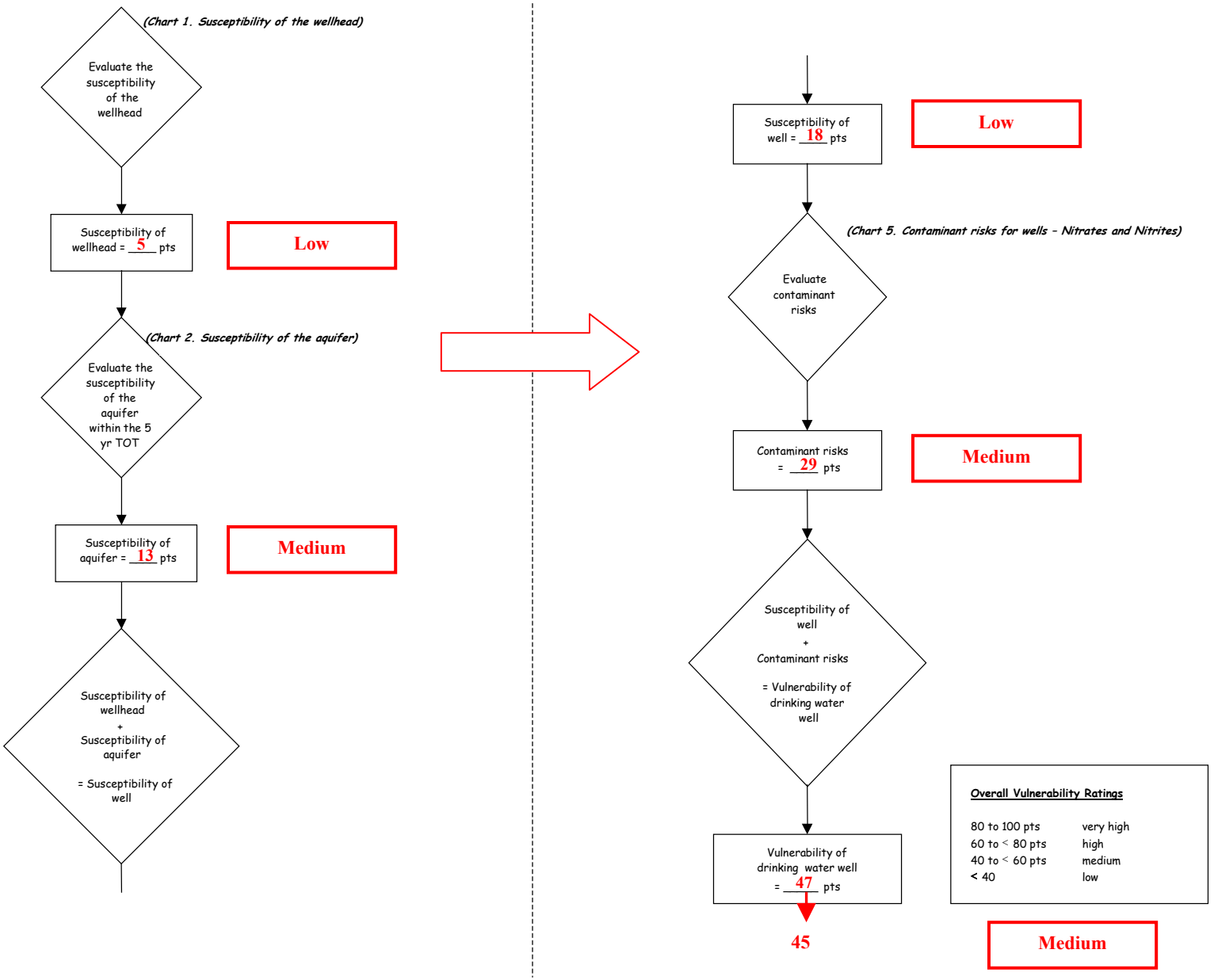


Chart 7. Contaminant risks for MOA Creekside Well #20 – Volatile Organic Chemicals

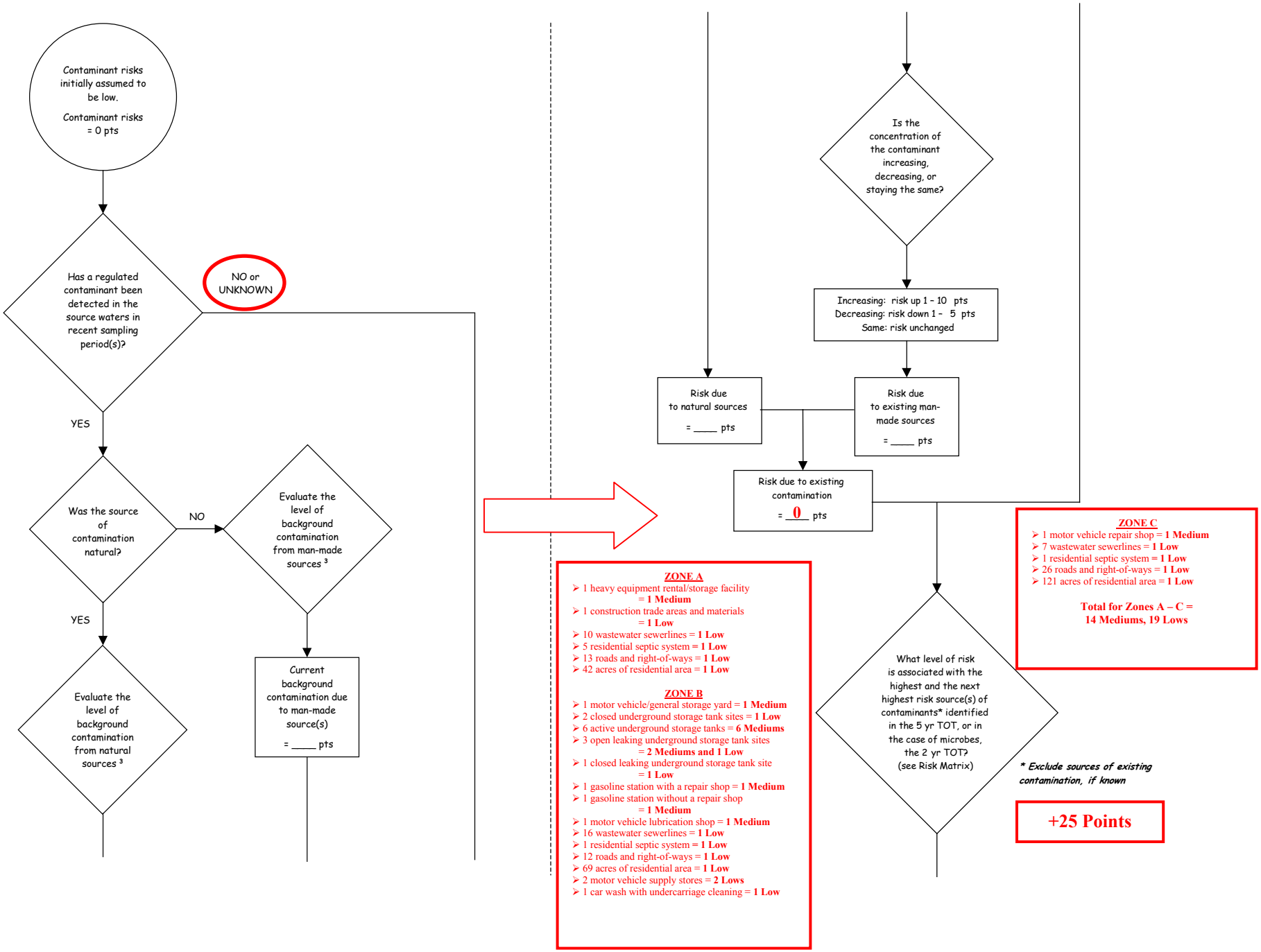


Chart 7. Contaminant risks for MOA Creekside Well #20 – Volatile Organic Chemicals (Continued)

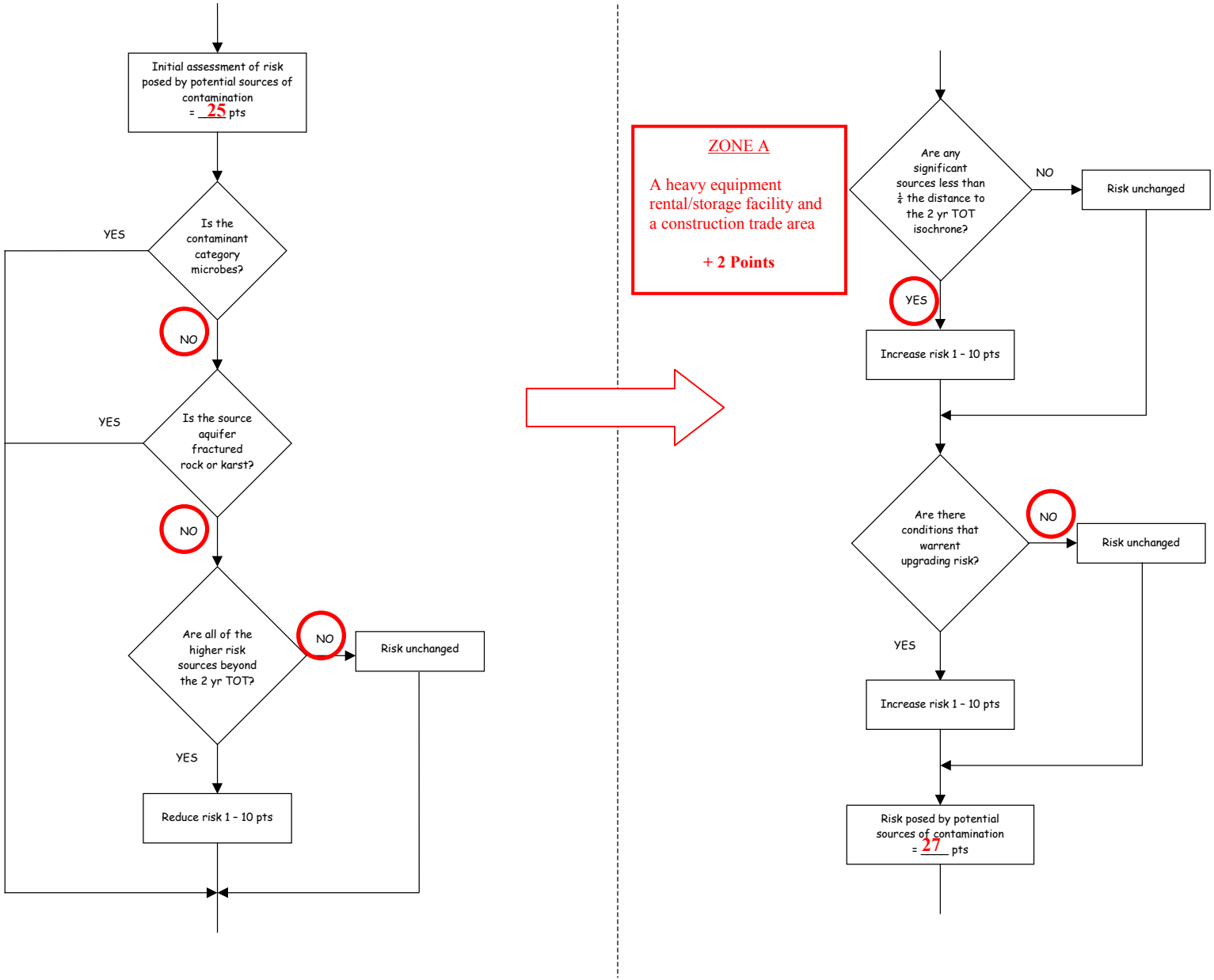
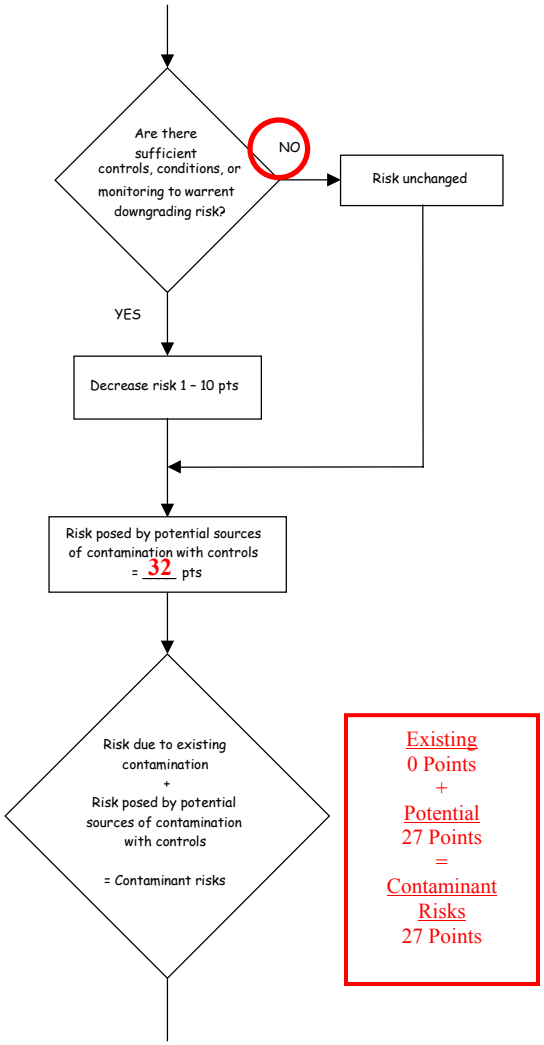
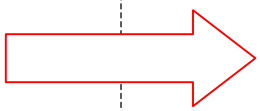


Chart 7. Contaminant risks for MOA Creekside Well #20 – Volatile Organic Chemicals (Continued)



Existing
0 Points
+
Potential
27 Points
=
Contaminant Risks
27 Points



* *Truncate risk at 50 pts*

Contaminant risks*
= 27 pts

Medium

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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

Table 3. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Volatile Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	Total for Zones A – C = 14 Mediums, 19 Lows	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

Chart 8. Vulnerability analysis for MOA Creekside Well #20 – Volatile Organic Chemicals

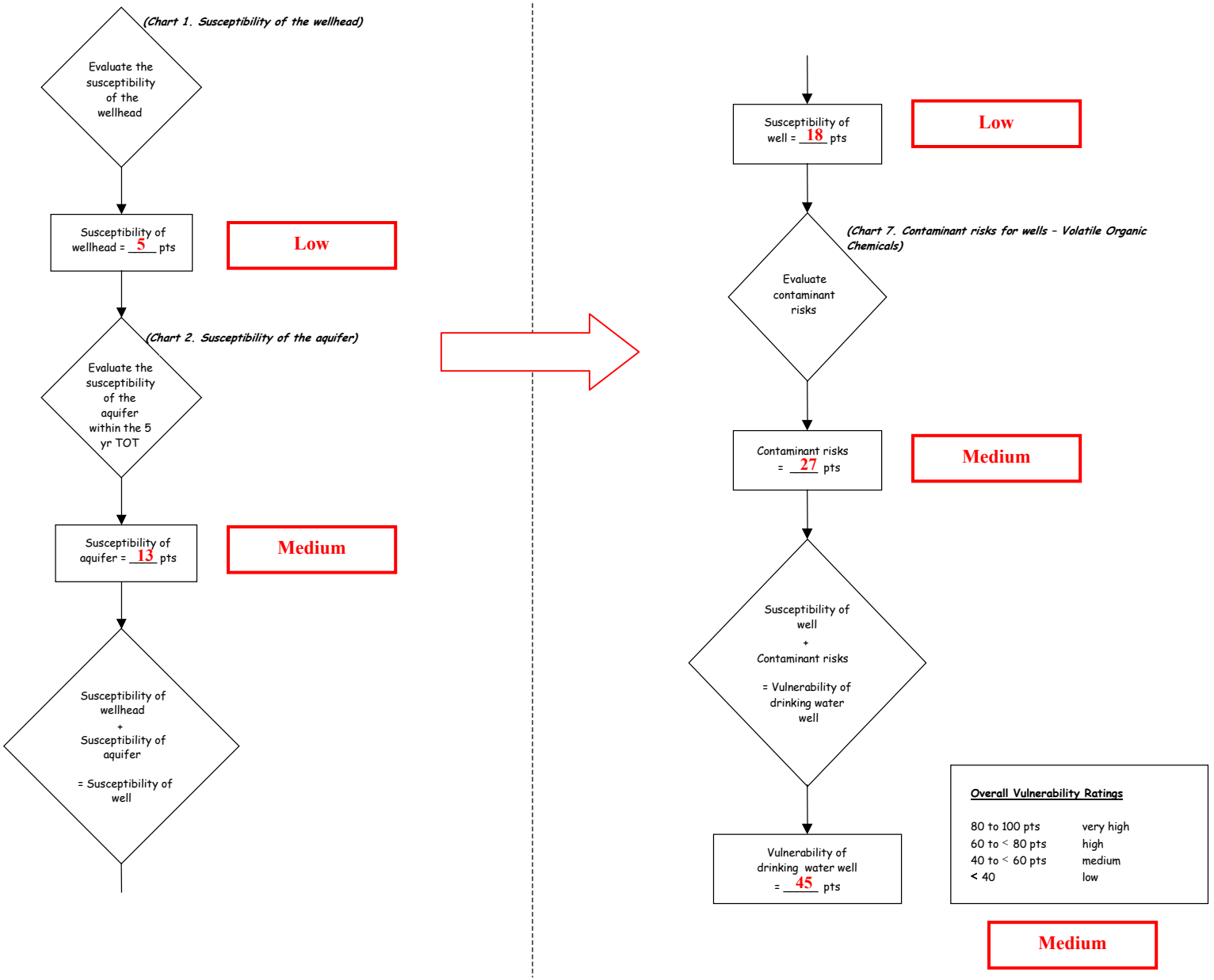


Chart 9. Contaminant risks for MOA Creekside Well #20 – Heavy Metals, Cyanide, and other Inorganic Chemicals

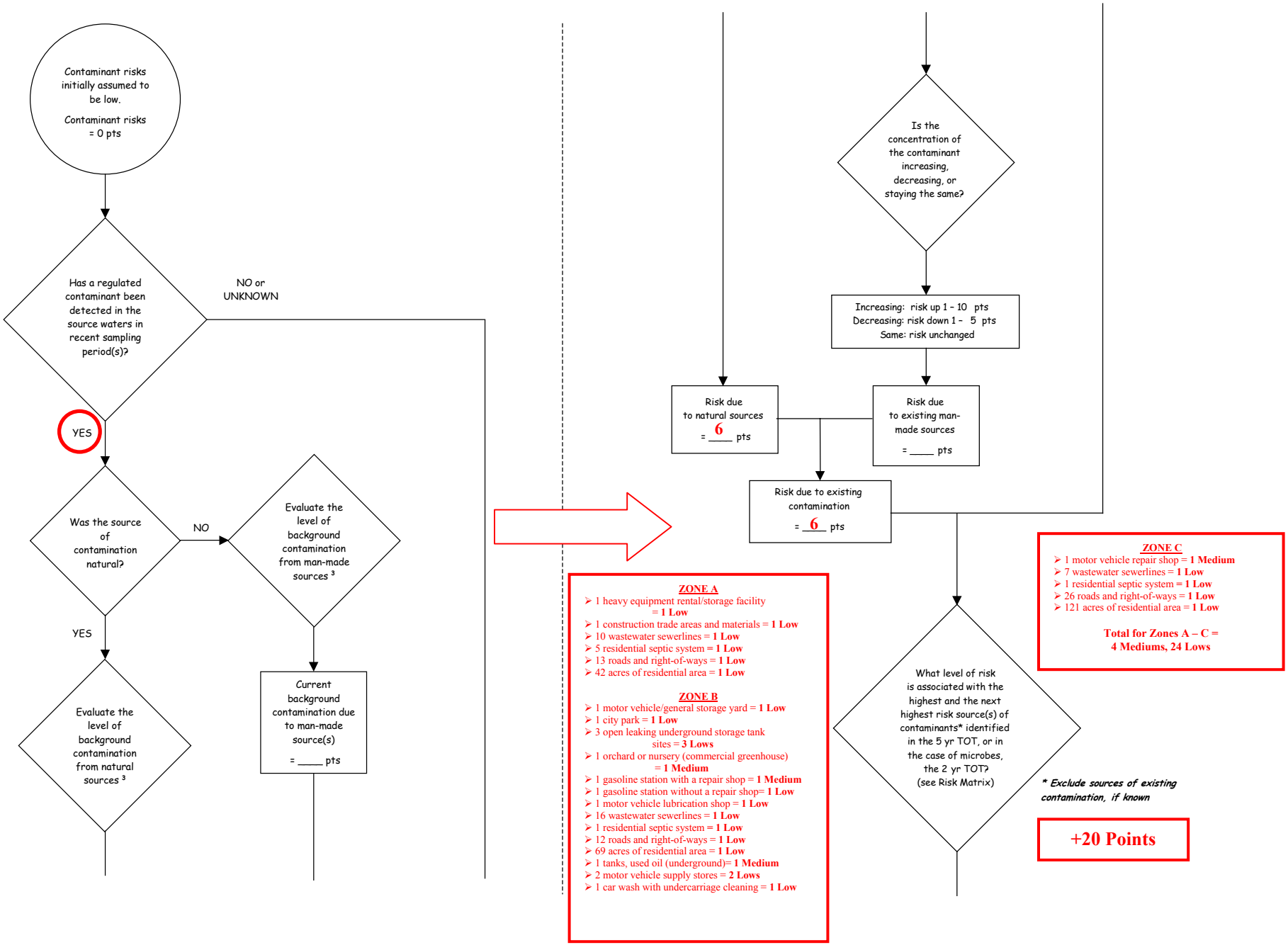


Chart 9. Contaminant risks for MOA Creekside Well #20 – Heavy Metals, Cyanide, and other Inorganic Chemicals (Continued)

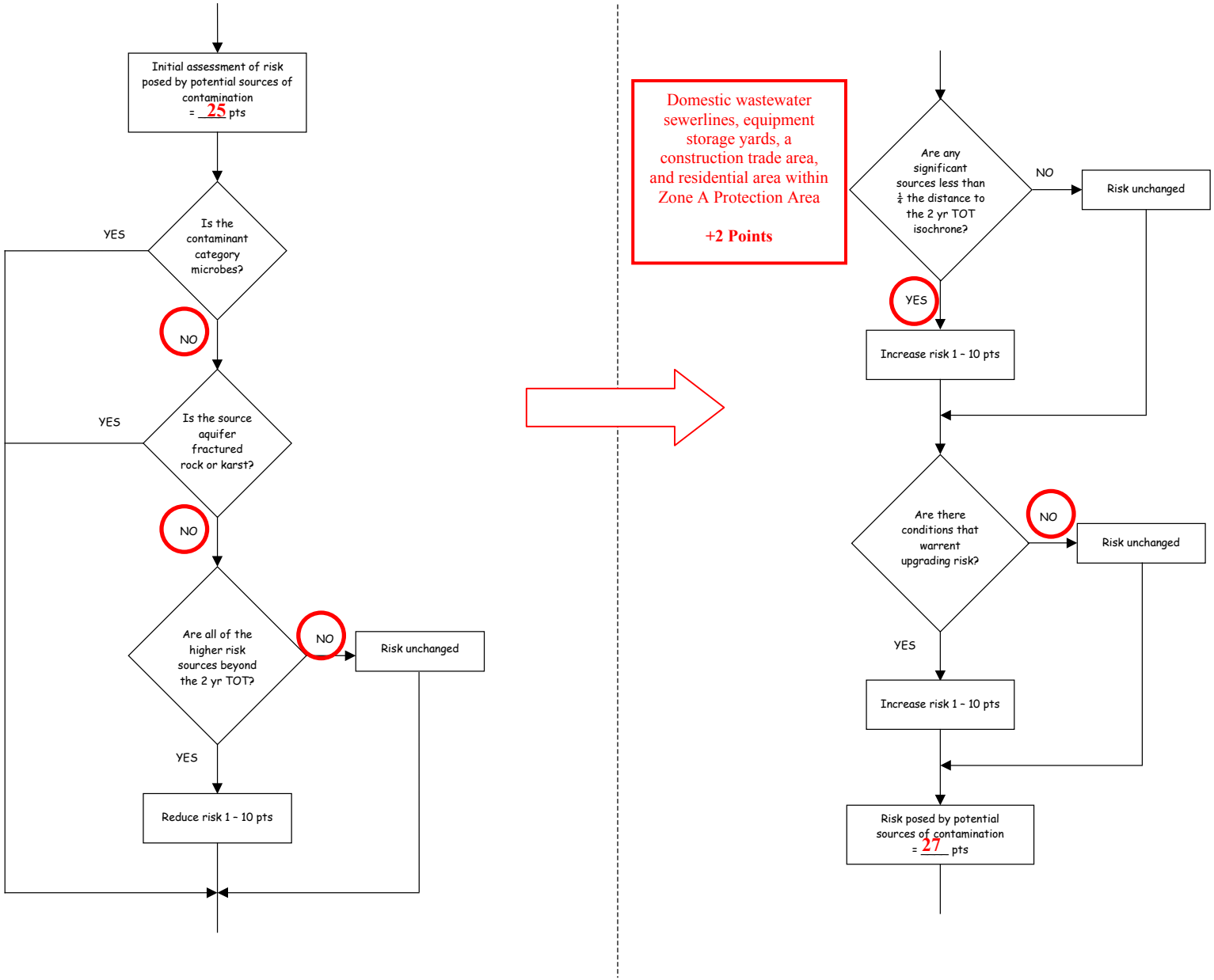
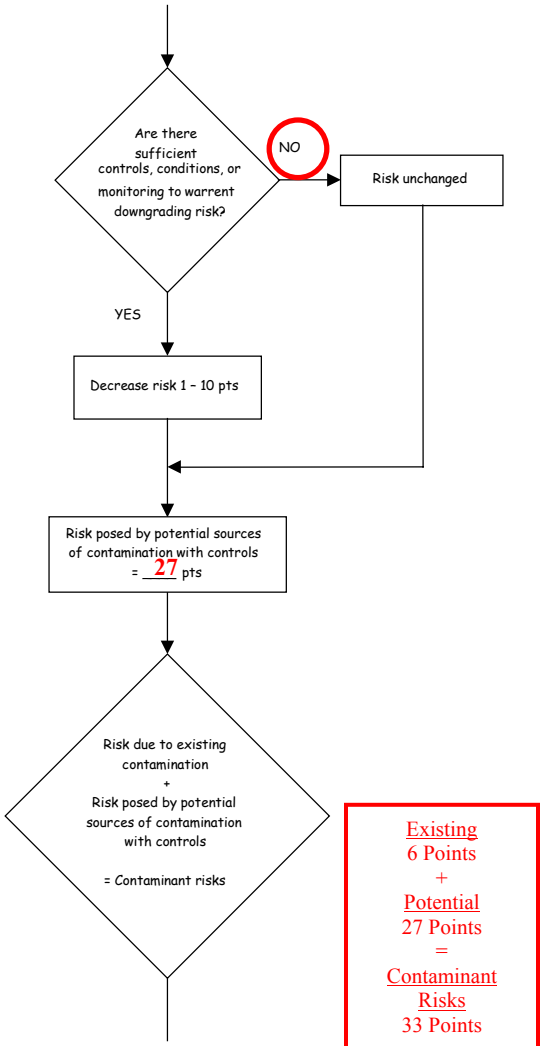
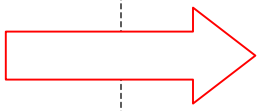


Chart 9. Contaminant risks for MOA Creekside Well #20 – Heavy Metals, Cyanide, and other Inorganic Chemicals (Continued)



Existing
6 Points
+
Potential
27 Points
=
Contaminant Risks
33 Points



* *Truncate risk at 50 pts*

Contaminant risks* = 33 pts

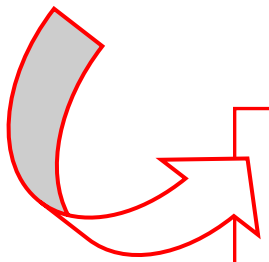
High

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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



Arsenic
0.011 mg/L on 7/12/95
Maximum Contaminant Level (MCL)
= 0.05 mg/L
0.011/0.5
= 0.22 or 22% of MCL
+6 Points

Barium
0.0115 mg/L on 11/4/98
Maximum Contaminant Level (MCL)
= 0.2mg/L
0.0115/0.2
= 0.06 or 6% of MCL

Existing Contaminant Risks from Arsenic Drives the Score

Table 4. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Heavy Metals, Cyanide, and other Inorganic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	4 Mediums, 24 Lows	**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

Chart 10. Vulnerability analysis for MOA Creekside Well #20 – Heavy Metals, Cyanide, and other Inorganic Chemicals

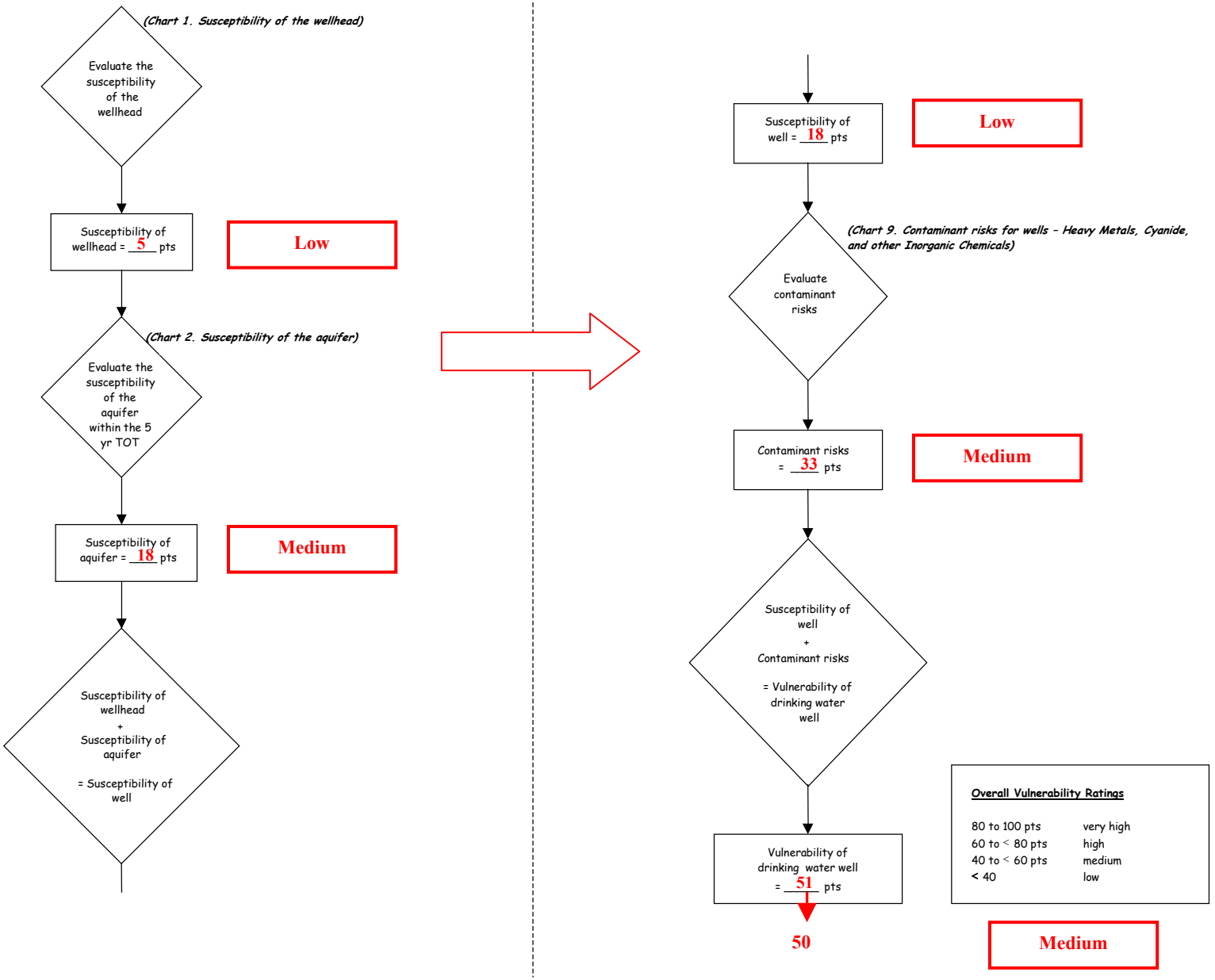


Chart 11. Contaminant risks for MOA Creekside Well #20 – Synthetic Organic Chemicals

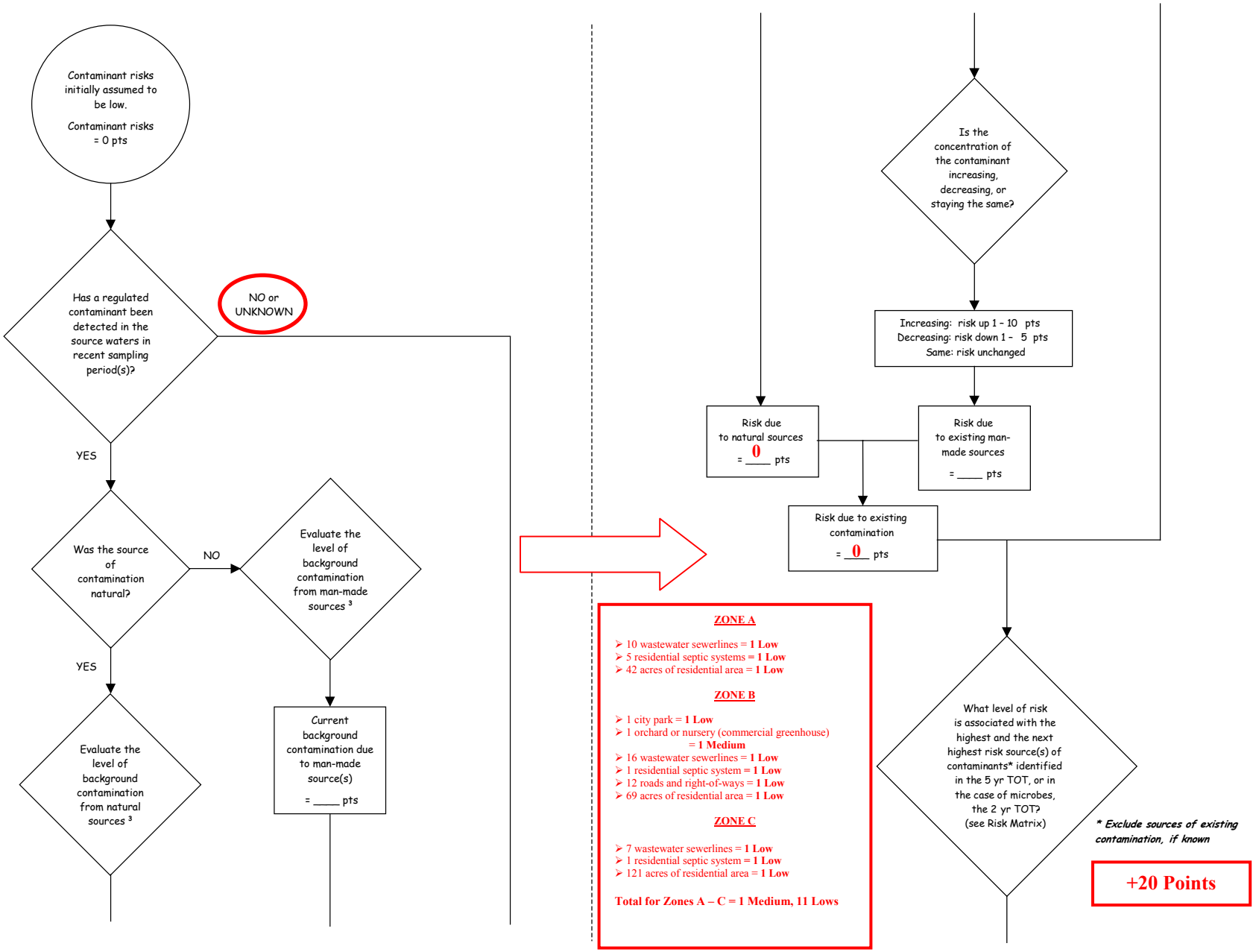


Chart 11. Contaminant risks for MOA Creekside Well #20 – Synthetic Organic Chemicals (Continued)

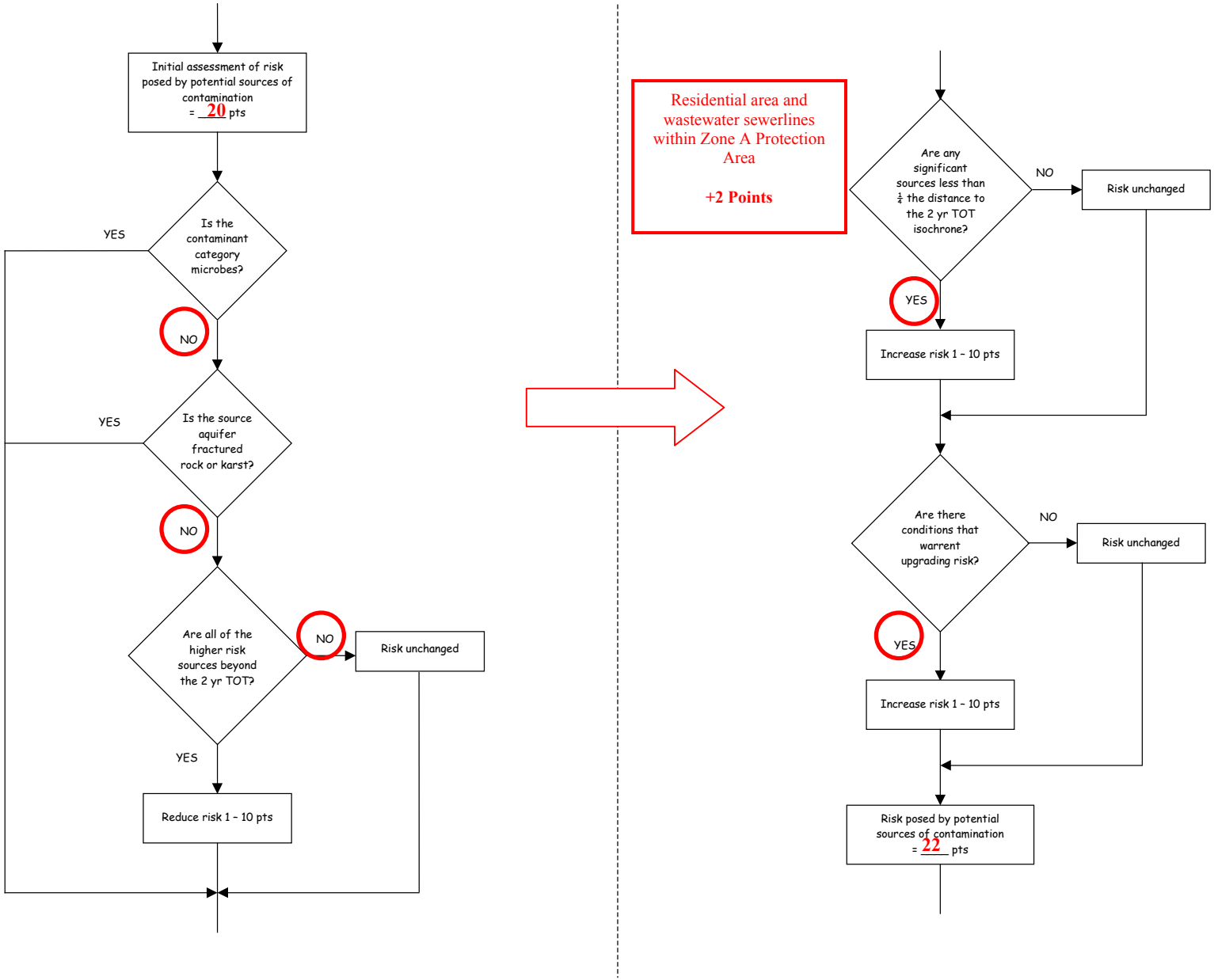
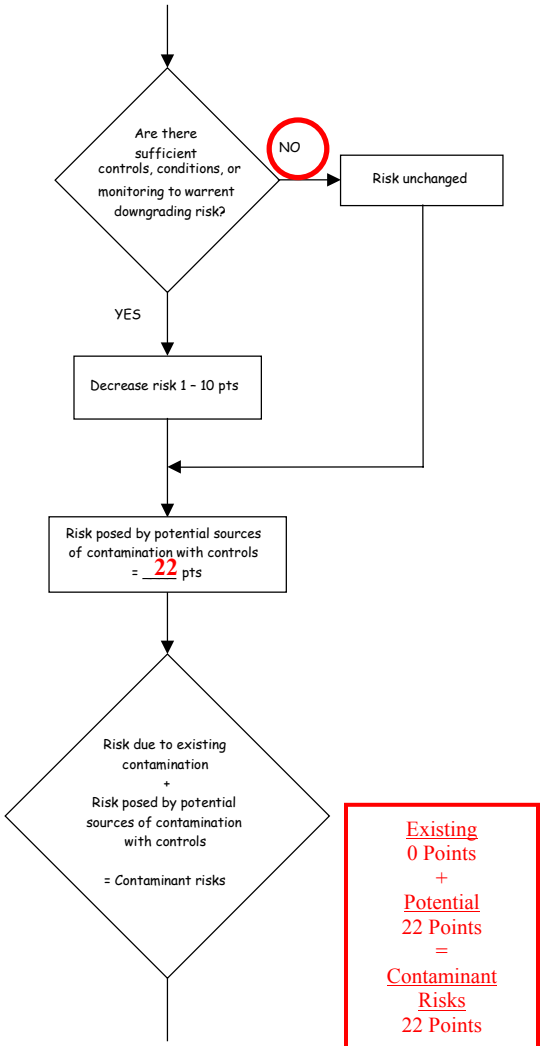


Chart 11. Contaminant risks for MOA Creekside Well #20 – Synthetic Organic Chemicals (Continued)



Existing
0 Points
+
Potential
22 Points
=
Contaminant Risks
22 Points

* *Truncate risk at 50 pts*

Contaminant risks* = 22 pts

Medium

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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

Table 5. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Synthetic Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)

TOTAL FOR ZONES A – C = 1 MEDIUM, 11 LOWS	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

Chart 12. Vulnerability analysis for MOA Creekside Well #20 – Synthetic Organic Chemicals

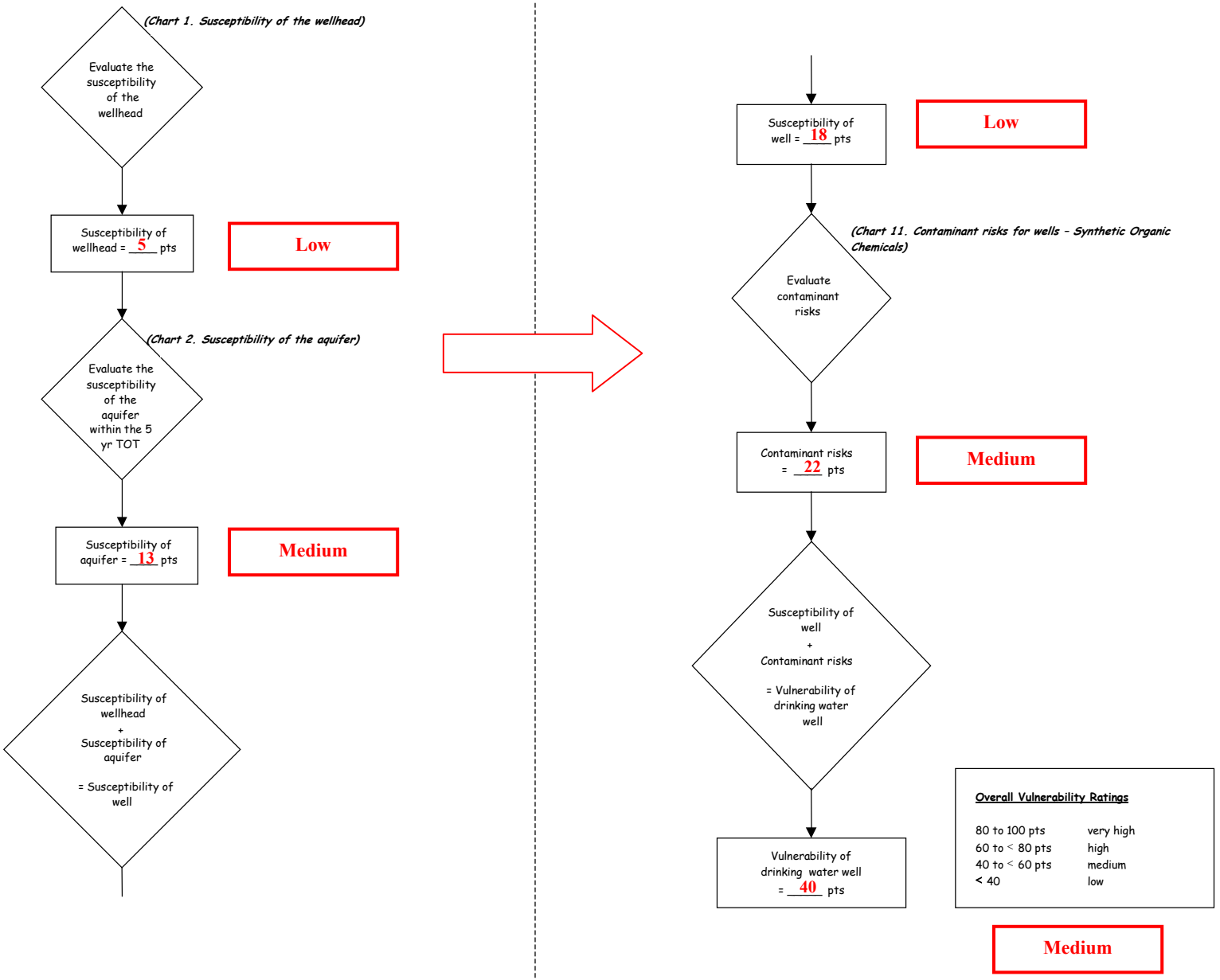


Chart 13. Contaminant risks for MOA Creekside Well #20 – Other Synthetic Organic Chemicals

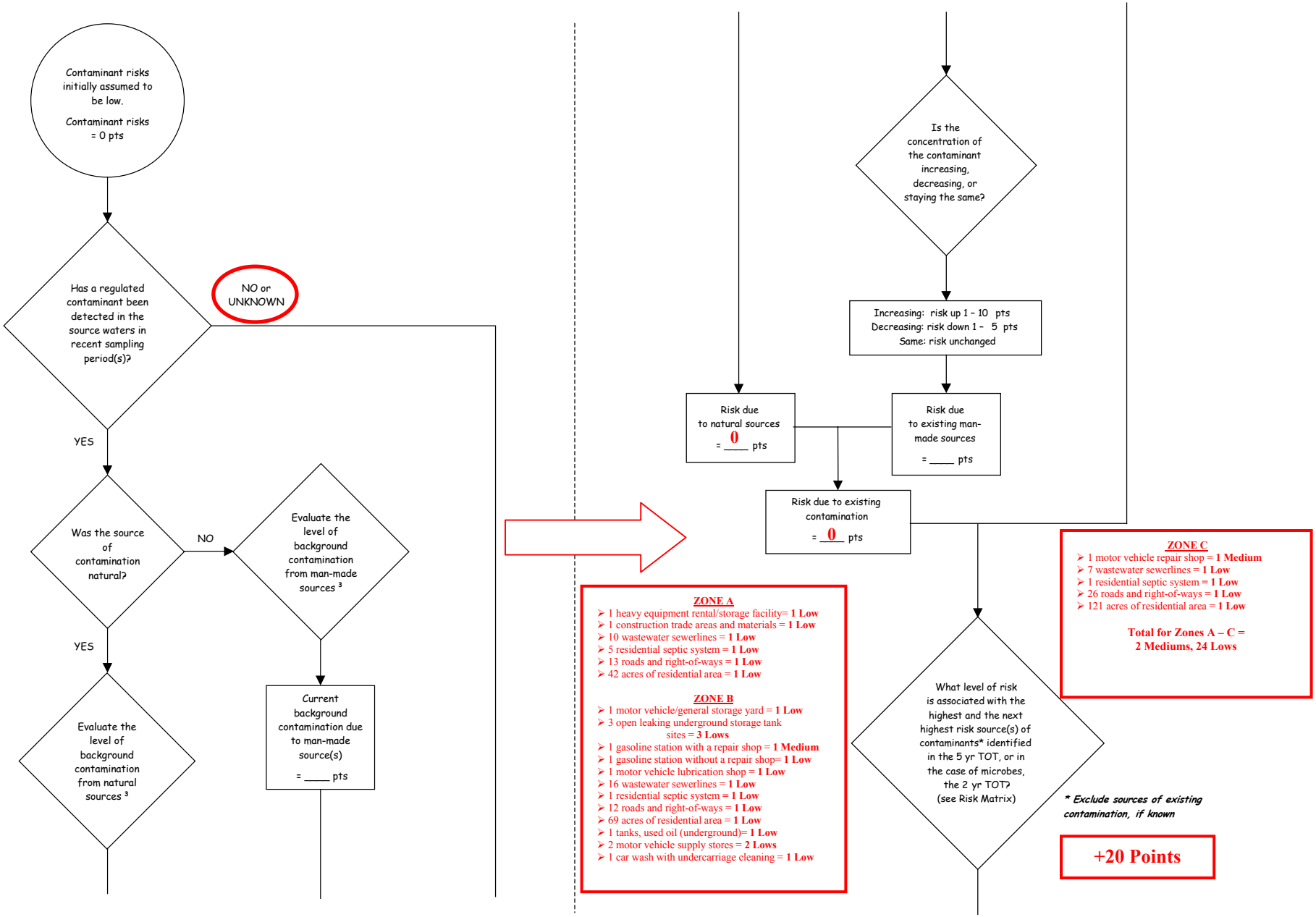


Chart 13. Contaminant risks for MOA Creekside Well #20 – Other Synthetic Organic Chemicals (Continued)

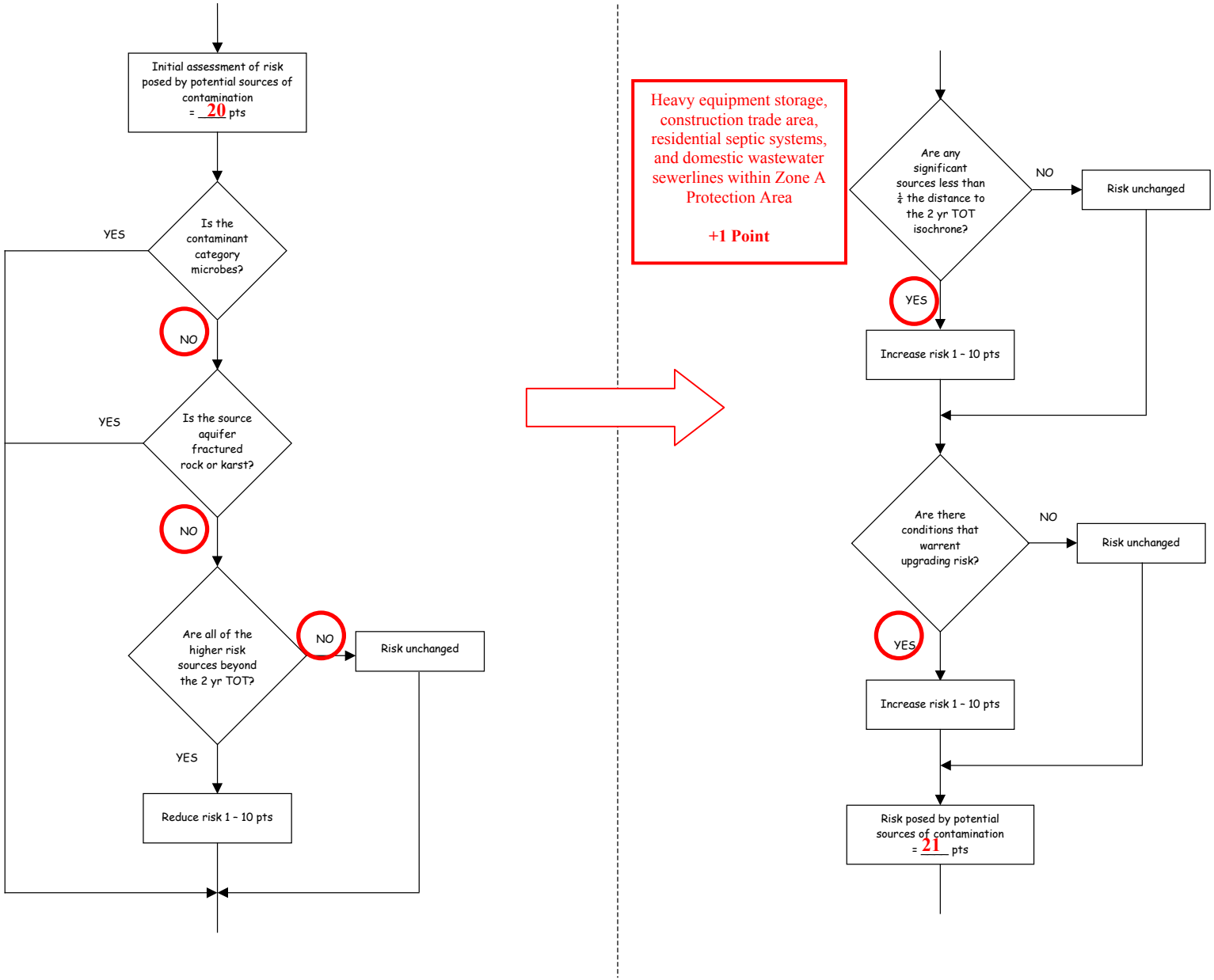
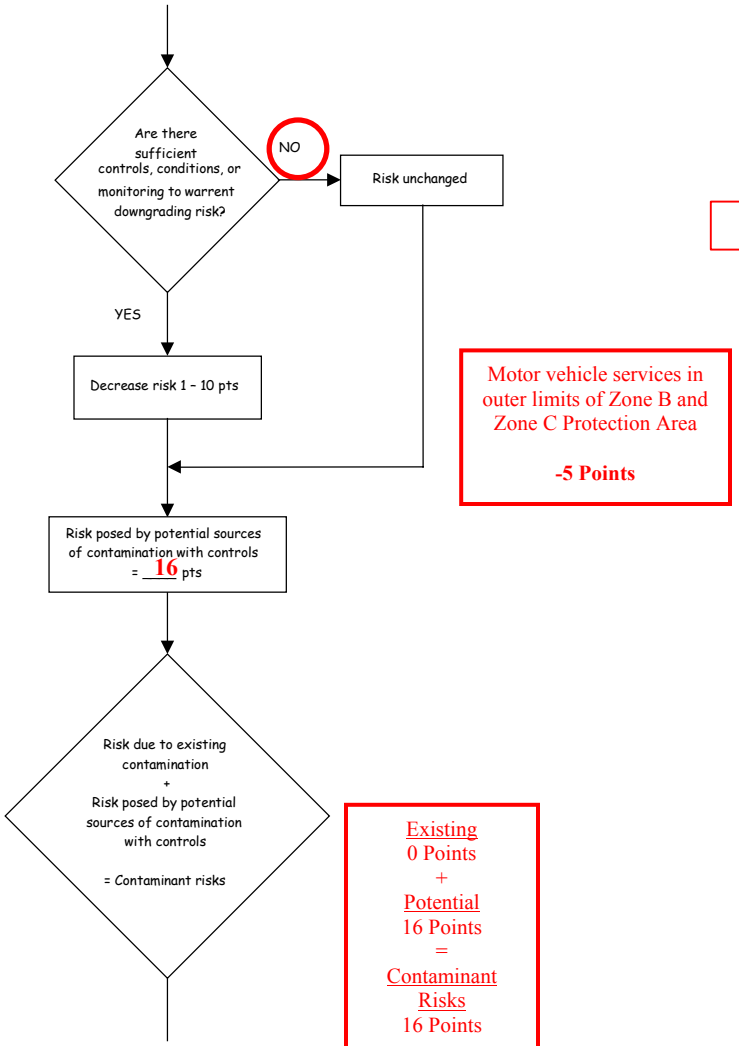


Chart 13. Contaminant risks for MOA Creekside Well #20 – Other Synthetic Organic Chemicals (Continued)



Motor vehicle services in outer limits of Zone B and Zone C Protection Area

-5 Points

Existing
0 Points
+
Potential
16 Points
=
Contaminant Risks
16 Points

** Truncate risk at 50 pts*

Contaminant risks* = 16 pts

Low

3. Level of Background Contamination

> MCL	50 pts
0.5 MCL to < MCL	20 pts
0.2 MCL to < 0.5 MCL	10 pts
'detect' to < 0.2 MCL	5 pts

Contaminant Risk Ratings

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

Table 6. Risk Matrix for Contaminant Sources for MOA Creekside Well #20 – Other Synthetic Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)

2 Mediums, 24 Lows	**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

Chart 14. Vulnerability analysis for MOA Creekside Well #20 – Other Synthetic Organic Chemicals