

Source Water Assessment -
Municipality of Anchorage Well #31,
Anchorage, Alaska

A Hydrogeologic Susceptibility and Vulnerability Assessment

DRINKING WATER PROTECTION PROGRAM REPORT 149

November 2001

Source Water Assessment -
Municipality of Anchorage Well #31,
Anchorage, Alaska
A Hydrogeologic Susceptibility and Vulnerability Assessment

By MICHAEL J. CROTTEAU

DRINKING WATER PROTECTION PROGRAM REPORT 149

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION: 2001

CONTENTS

	Page		Page
Executive Summary	1	Inventory of Potential and Existing	
Introduction	1	Contaminant Sources	4
Description of the Anchorage-Area, Alaska	1	Ranking of Contaminant Risks	5
MOA Well #31 Public Water Source	3	Vulnerability of MOA Well #31	
Assessment/Protection Area for MOA Well #31		Drinking Water Source	5
Drinking Water Source	4	Summary	7
		References Cited	8

TABLES

TABLE	1. Natural Susceptibility - Susceptibility of the Wellhead and Aquifer to Contamination	5
	2. Contaminant Risks	6
	3. Overall Vulnerability of MOA Well #31 Public Drinking Water Source to Contamination	6

ILLUSTRATIONS

FIGURE	1. Index map showing the location of Anchorage, Alaska	1
	2. Generalized hydrologic cycle in the Anchorage-Area	2
	3. Map showing the location of drinking water source for MOA Well #31	3

APPENDICES

APPENDIX	A. MOA Well #31 Drinking Water Protection Area (Map 1)	
	B. Contaminant Source Inventory for MOA Well #31 (Table 1)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Bacteria and Viruses (Table 2)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Nitrates/Nitrites (Table 3)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Volatile organic chemicals (Table 4)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Heavy metals, cyanide, and other inorganic chemicals (Table 5)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Synthetic organic chemicals (Table 6)	
	Contaminant Source Inventory and Risk Ranking for MOA Well #31 – Other synthetic organic chemicals (Table 7)	
	C. MOA Well #31 Drinking Water Protection Area and Potential and Existing Contaminant Sources (Map 2 through Map 4)	
	D. Vulnerability Analysis for Contaminant Source Inventory and Risk Ranking for MOA Well #31 Public Drinking Water Source (Chart 1 – Chart 14 and Table 1 – Table 6)	

Source Water Assessment - Municipality of Anchorage Well #31, Anchorage, Alaska

A Hydrogeologic Susceptibility and Vulnerability Assessment

By Michael J. Crotteau

Drinking Water Protection Program Alaska Department of Environmental Conservation

EXECUTIVE SUMMARY

The Municipality of Anchorage (MOA) Well #31 is a Class A (community) drinking water source consisting of one well. Identified potential and current sources of contaminants for MOA Well #31 include domestic wastewater sewerlines, gravel and paved roads, residential septic systems, a municipal park, and approximately 356 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 #31 public water source received a vulnerability rating of **Low** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals, and other synthetic organic chemicals.

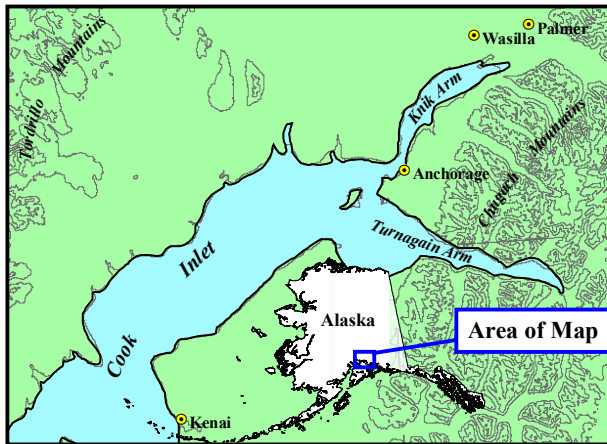


Figure 1. Index map showing the location of Anchorage, Alaska

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 #31 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.

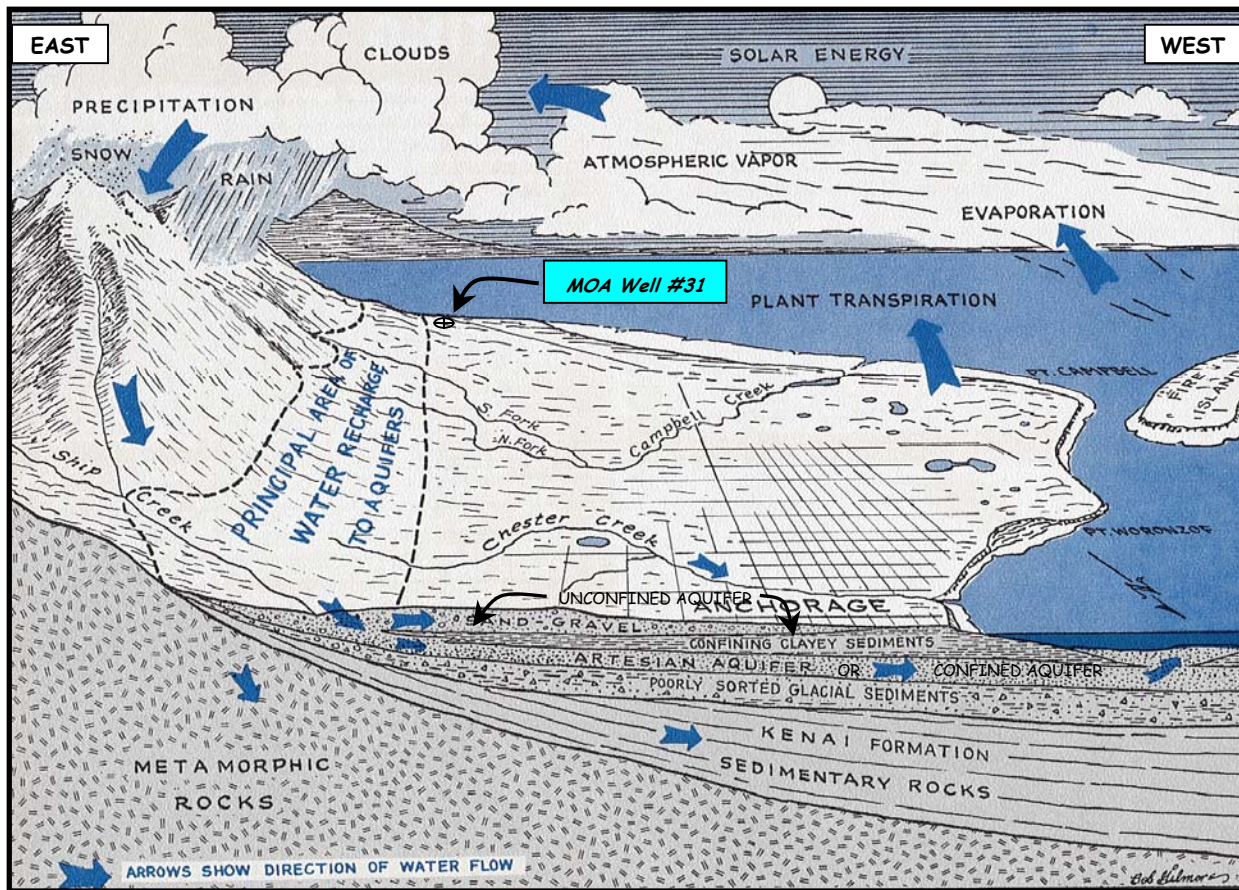


Figure 2. Generalized hydrologic cycle in the Anchorage-area [Barnwell, George, Dearborn, Weeks, and Zenone, 1972].

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 amounts 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 surficial topography as well as its close connection with surface water bodies.

MOA WELL #31 PUBLIC WATER SOURCE

MOA Well #31 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 250 feet above sea level. The well is located near the corner of Lake Otis Parkway and Legacy Drive in Nancy Park (see Figure 2). According to the well log, MOA Well #31 does not appear to be grouted and penetrates sandy and gravelly silts and clays, silty sand and gravel, gray clay, more sand and gravel, and hardpan (sandy gravelly silt) to a total depth of 550 feet below land surface. The well is screened in water bearing layers of sand and gravel within the hardpan from 440 to 480 feet below land surface and again between 492 to 540 feet below land surface. MOA Well #31 had a static water level of 8 feet above land surface (artesian flow) at the time of drilling (October 7, 1980).

The water from MOA Well #31 is pumped directly into the distribution system for the Anchorage area. This water source operates year round. 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>

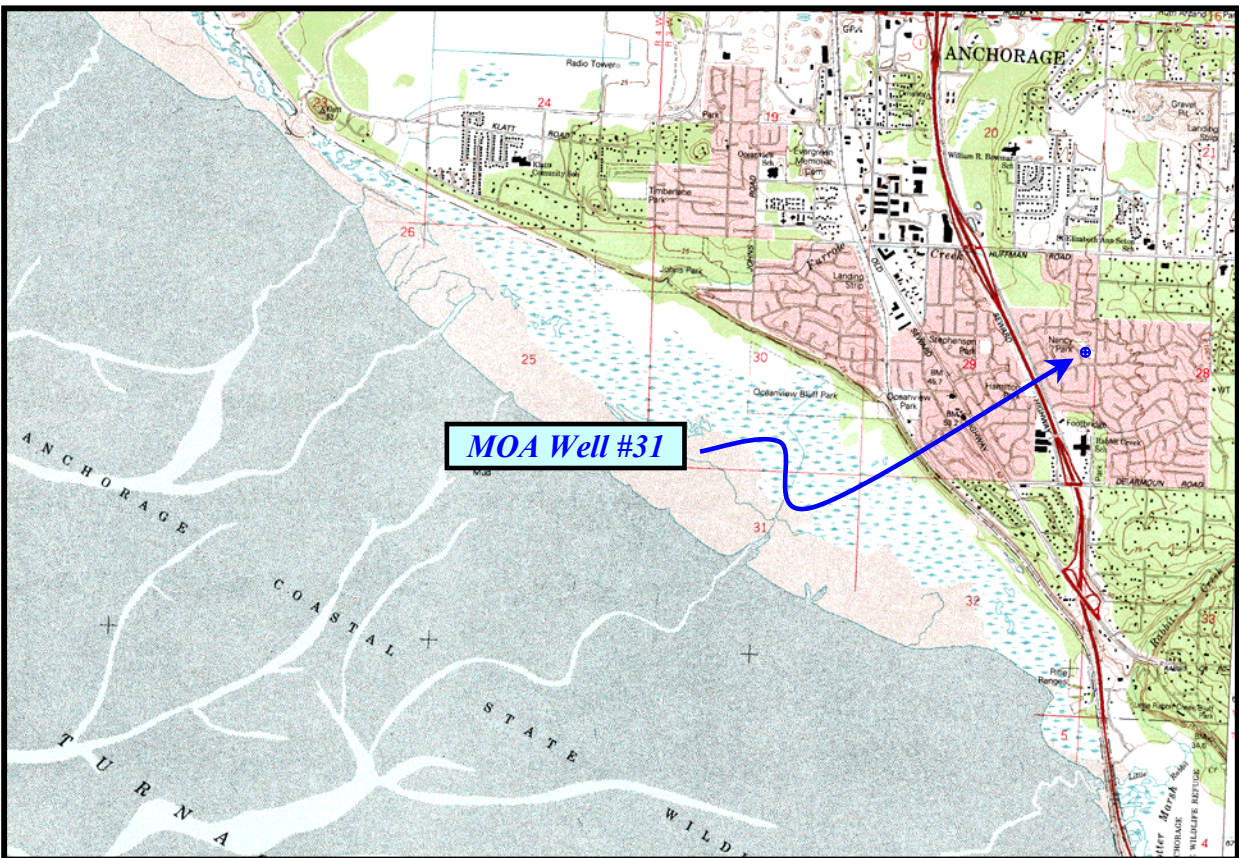


Figure 3. Map showing the location of the drinking water sources for MOA Well #31 [Base: USGS Anchorage A8 SW].

ASSESSMENT AND PROTECTION AREA FOR MOA WELL #31 DRINKING WATER SOURCE

The Drinking Water Protection and Assessment Area that has been established for MOA Well #31 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 #31. 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 #31 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 $\frac{1}{4}$ 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 #31 corresponds to a time-of-travel of less than two years and extends 3200 feet beyond Zone A 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 3.5 miles from the well towards 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 #31 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 2 through Map 4 in Appendix C depict the Contaminant Source Inventory for MOA Well #31. Inventoried potential sources of contamination within Zones A through Zone C were associated with residential 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 class were identified in the Zone D protection area for MOA Well #31. Below is a summary of the contaminant sources inventoried within the MOA Well #31 protection area (Zones A – C):

- domestic wastewater sewer lines;
- approximately 356 acres of residential area;
- activities associated with paved and gravel roads;
- residential septic systems; and
- a city park.

These potential contaminant sources present risk for all six categories of drinking water contaminants for MOA

Well #31 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 #31 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:

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

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

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

MOA Well #31 is completed in a confined aquifer setting. In its upper half section, the well penetrates 199 feet of sandy and gravelly silts and clays and an additional 30 feet of gray clay between 255 and 285 feet below land surface. These clay and silt layers may provide a significant protective barrier for the movement of contaminants in the subsurface. 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. Despite the lack of grouting, the source waters for MOA Well #31 are quite protective due to a significant component of upward flow in the well, evidenced from the static water level at the time of drilling (+8 feet above land surface). The artesian properties of this well, though probably somewhat reduced today through large withdrawals from the well since 1980, should provide very protective conditions from the movement of contaminants in the subsurface close to the well. However, near the base of the Chugach Mountains, the silt and 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. A high density of private drinking water wells in Zones B through Zone D may provide a quick pathway to the subsurface for contaminants. Therefore, these private wells increase the susceptibility of the source waters to contamination for MOA Well #31. 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 #31.

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

	Score	Rating
Susceptibility of the Wellhead	5	Low
Susceptibility of the Aquifer	5	Low
Natural Susceptibility	10	Low

Contaminant risks to a drinking water source depend on the type, number or density, and distribution of contaminant sources. Domestic wastewater sewerlines, gravel and paved roads, residential septic systems, a municipal park, and approximately 356 acres of residential area contribute the highest risk for potential contamination to the MOA’s Well #31 source of public drinking water.

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	27	Medium
Volatile Organic Chemicals	22	Medium
Heavy Metals, Cyanide, and other Inorganic Chemicals	14	Low
Synthetic Organic Chemicals	12	Low
Other Synthetic Organic Chemicals	11	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 #31 Public Drinking Water Source to Contamination by Category

Category	Score	Rating
Bacteria and Viruses	35	Low
Nitrates and Nitrites	35	Low
Volatile Organic Chemicals	30	Low
Heavy Metals, Cyanide, and other Inorganic Chemicals	25	Low
Synthetic Organic Chemicals	20	Low
Other Synthetic Organic Chemicals	20	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.

Domestic wastewater sewerlines run within 120 feet of MOA Well #31. 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 #31.

Also driving the contaminant risks for bacteria and viruses as well as nitrates and nitrites is the close proximity of residential areas and residential septic systems located in the Zone B protection area.

Heavy metals are found in natural background concentrations at the site, as elsewhere in the Alaska. Sampling history of MOA Well #31 source waters indicate low concentrations of barium and arsenic in past sampling periods (See Chart 7 – Contaminant Risks for Heavy Metals, Cyanide, and Other Inorganic Chemicals in Appendix D). Barium and arsenic levels are approximately 4% - 6% of the allowable limit (MCL) for these contaminants. 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. Nevertheless, the current heavy metal concentration in MOA Well #31 remains at safe levels with respect to human health.

SUMMARY

A *Source Water Assessment* has been completed for the MOA Well #31 source of public drinking water. The overall vulnerability of this source to contamination is **Low** for bacteria and viruses, nitrates and/or nitrites, volatile organic chemicals, heavy metals, synthetic organic chemicals and 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 Anchorage Water & Wastewater Utility 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.

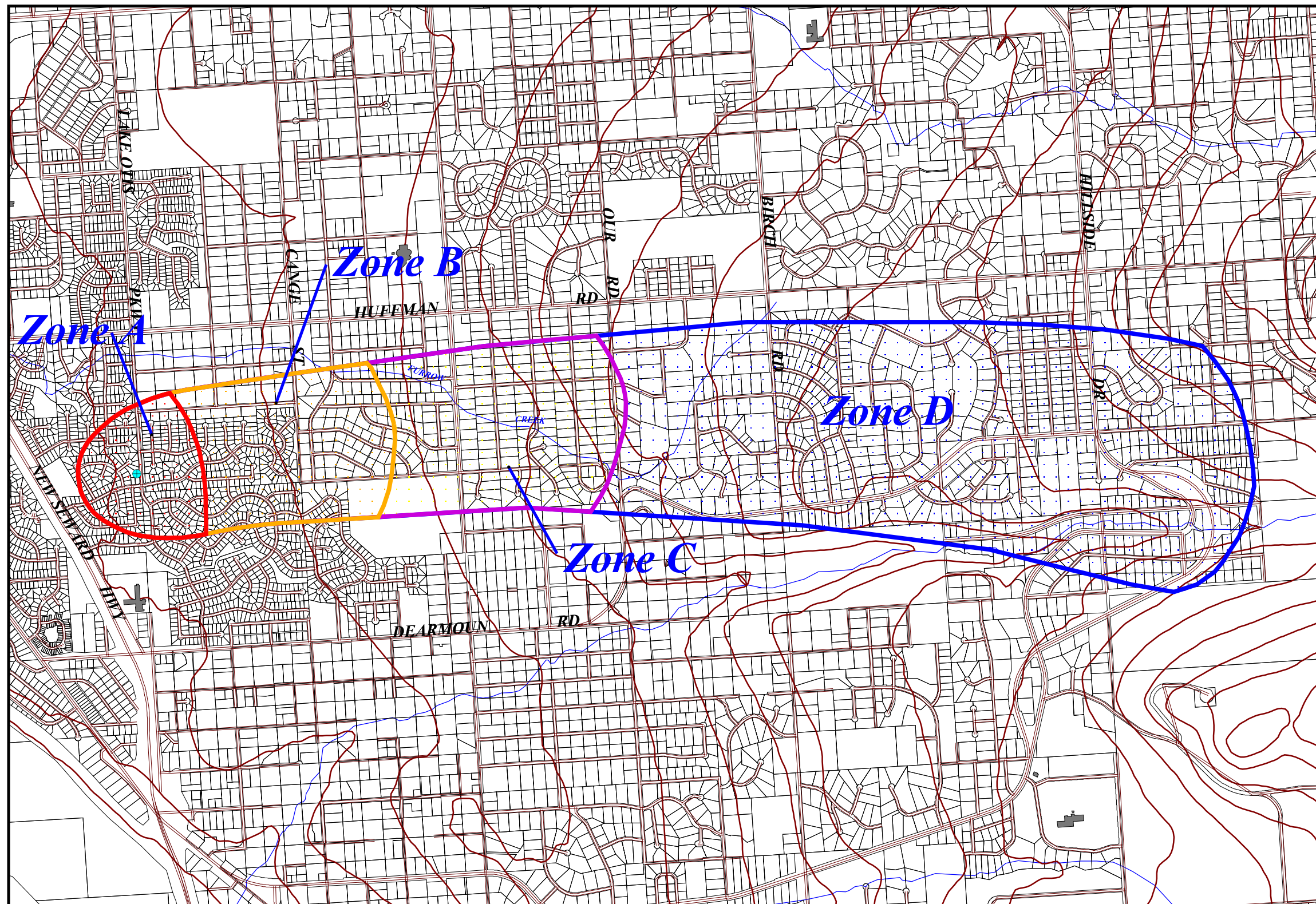
REFERENCES CITED

- Barnwell, W.W., George, R.S., Dearborn, L.L., Weeks, J.B., and Zenone, C., 1972, Water for Anchorage: an atlas of the water resources of the Anchorage area, Alaska: U.S. Geological Survey Open-File Report, 76 p.
- Patrick, L.D., Brabets, T.P., and Glass, R.L., 1989, Simulation of ground-water flow at Anchorage, Alaska: U.S. Geological Survey Water-Resources Investigations Report 88-4139, 41p.
- Ulery, C.A. and Updike, R.G, 1983, Subsurface structure of the cohesive facies of the Bootlegger Cove Formation, Southwest Anchorage, Alaska: Alaska Division of Geological and Geophysical Surveys Professional Report 84, 5 p.
- Western Regional Climate Center, 2000, August 24, Web extension to the *Western Regional Climate Center* [WWW document]. URL <http://www.wrcc.dri.edu/index.html>

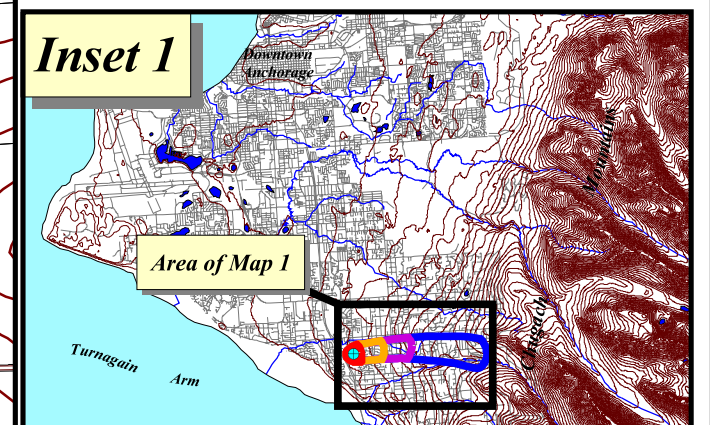
APPENDIX A

MOA Well #31 Drinking Water Protection Area

Drinking Water Protection Area for MOA Huffman Well #31



- MOA Well #31
- 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
- Elevation Contours
- MOA Land Parcels
- Streams



1 0 1 Miles

PWSID 210906.009



Map 1

APPENDIX B

Contaminant Source Inventory and Risk Ranking for MOA Well #31

Table 1

**Contaminant Source Inventory for
MOA Huffman Well #31**

PWSID 210906.009

Contaminant Source Category	Contaminant Source ID	CS ID tag	Zone	Location	Map	Comments
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Chesepeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Eastwind and Mainsail	3	
Residential Areas	R1	R1-1	A	Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Residential Areas	R1	R1-2	B	Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres

Table 1

**Contaminant Source Inventory for
MOA Huffman Well #31**

PWSID 210906.009

Residential Areas	R1	R1-3	C	Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Vern Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Plymouth Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Whitney Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Lindsey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	SeacLOUD Cir	4	

Table 1

**Contaminant Source Inventory for
MOA Huffman Well #31**

PWSID 210906.009

Highways and roads, paved (cement or asphalt)	X20	X20-36	B	East Wind Dr	4	
Municipal or city parks (with green areas)	X4	X4-1	A	Off of Lake Otis Parkway	2	0.8 acre park containing MOA Well #31
Septic systems (serves one single-family home)	R2	R2-1	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-34	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-35	B	Doroshin	3	

Table 1

**Contaminant Source Inventory for
MOA Huffman Well #31**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-36	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-67	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Leyden	3	

Table 1

**Contaminant Source Inventory for
MOA Huffman Well #31**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-74	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	All residential septic systems in Zone C Protection Area	3	
Highways and roads, dirt/gravel	X24	X24-1	B	Pintail St	4	
Highways and roads, dirt/gravel	X24	X24-2	B	Killey	4	
Highways and roads, dirt/gravel	X24	X24-3	B,C	Tiaga Dr	4	
Highways and roads, dirt/gravel	X24	X24-4	B,C	Doroshin Av	4	
Highways and roads, dirt/gravel	X24	X24-5	B,C	Kutcher Dr	4	
Highways and roads, dirt/gravel	X24	X24-6	B,C	Leyden Rd	4	
Highways and roads, dirt/gravel	X24	X24-7	B	Akula Dr	4	
Highways and roads, dirt/gravel	X24	X24-8	B	Hinchey	4	
Highways and roads, dirt/gravel	X24	X24-9	B,C	Furrow Creek Rd	4	
Highways and roads, dirt/gravel	X24	X24-10	C	Norak Pl	4	
Highways and roads, dirt/gravel	X24	X24-11	C	Lorraine	4	
Highways and roads, dirt/gravel	X24	X24-12	C	Fairmont Rd	4	
Highways and roads, dirt/gravel	X24	X24-13	C	Elmore Rd	4	
Highways and roads, dirt/gravel	X24	X24-14	C	Atherton Rd	4	
Highways and roads, dirt/gravel	X24	X24-15	C	McCabe Cir W	4	
Highways and roads, dirt/gravel	X24	X24-16	C	McCabe Cir	4	
Highways and roads, dirt/gravel	X24	X24-17	C	Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Bainbridge Rd	4	

Table 2

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Bacteria and Viruses**

PWSID 210906.009

Contaminant Source Type	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	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Medium	2	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Medium	3	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Medium	4	Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Medium	5	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Medium	6	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Medium	7	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Medium	8	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Medium	9	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Medium	10	Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Medium		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Medium		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Medium		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Medium		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Medium		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Medium		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Medium		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Medium		Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Medium		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Medium		Chesepeake Cir	3	

Table 2

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Bacteria and Viruses**

PWSID 210906.009

Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Medium		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Medium		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Medium		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Medium		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Medium		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Medium		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Medium		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Medium		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Medium		Eastwind and Mainsail	3	
Residential Areas	R1	R1-1	A	Low		Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Residential Areas	R1	R1-2	B	Low		Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahan S/D	2	132 acres
Residential Areas	R1	R1-3	C	Low		Knik Heights S/D, Turnagain View East, McMahan S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low		Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Very Low		Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Very Low		Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Very Low		Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Very Low		Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Very Low		Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Very Low		Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Very Low		Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Very Low		Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Very Low		Vern Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Very Low		Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Very Low		Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Very Low		Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Very Low		Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Very Low		Plymouth Cir	4	

Table 2

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Bacteria and Viruses**

PWSID 210906.009

Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Very Low		Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Very Low		Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Very Low		Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Very Low		Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Very Low		Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Very Low		Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Very Low		Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Very Low		Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Very Low		Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Very Low		Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Very Low		Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Very Low		Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Very Low		Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Very Low		Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Very Low		Whiteney Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Very Low		Lindsey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Very Low		Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Very Low		Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Very Low		Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	Very Low		Seacloud Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-36	B	Very Low		East Wind Dr	4	
Municipal or city parks (with green areas)	X4	X4-1	A	Low		Off of Lake Otis Parkway	2	0.8 acre park containing MOA Well #31
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low		Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low		Killey	3	

Table 2

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Bacteria and Viruses**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-16	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-34	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-35	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		Kutcher	3	

Table 2

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Bacteria and Viruses**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-55	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low	Leyden	3
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low	Leyden	3
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low	All residential septic systems in Zone C Protection Area	3
Highways and roads, dirt/gravel	X24	X24-1	B	Very Low	Pintail St	4
Highways and roads, dirt/gravel	X24	X24-2	B	Very Low	Killey	4
Highways and roads, dirt/gravel	X24	X24-3	B,C	Very Low	Tiaga Dr	4
Highways and roads, dirt/gravel	X24	X24-4	B,C	Very Low	Doroshin Av	4
Highways and roads, dirt/gravel	X24	X24-5	B,C	Very Low	Kutcher Dr	4
Highways and roads, dirt/gravel	X24	X24-6	B,C	Very Low	Leyden Rd	4
Highways and roads, dirt/gravel	X24	X24-7	B	Very Low	Akula Dr	4
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low	Hinchey	4
Highways and roads, dirt/gravel	X24	X24-9	B,C	Very Low	Furrow Creek Rd	4
Highways and roads, dirt/gravel	X24	X24-10	C	Very Low	Norak Pl	4
Highways and roads, dirt/gravel	X24	X24-11	C	Very Low	Lorraine	4
Highways and roads, dirt/gravel	X24	X24-12	C	Very Low	Fairmont Rd	4
Highways and roads, dirt/gravel	X24	X24-13	C	Very Low	Elmore Rd	4
Highways and roads, dirt/gravel	X24	X24-14	C	Very Low	Atherton Rd	4
Highways and roads, dirt/gravel	X24	X24-15	C	Very Low	McCabe Cir W	4
Highways and roads, dirt/gravel	X24	X24-16	C	Very Low	McCabe Cir	4

Potential and Existing Sources of Contamination for
MOA Well #31

Sources of Bacteria and Viruses

Highways and roads, dirt/gravel	X24	X24-17	C	Very Low		Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Very Low		Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Very Low		Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Very Low		Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Very Low		Bainbridge Rd	4	

Table 3

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Nitrate and Nitrites**

PWSID 210906.009

Contaminant Source Type	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	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Medium	2	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Medium	3	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Medium	4	Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Medium	5	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Medium	6	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Medium	7	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Medium	8	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Medium	9	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Medium	10	Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Medium		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Medium		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Medium		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Medium		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Medium		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Medium		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Medium		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Medium		Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Medium		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Medium		Chesapeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Medium		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Medium		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Medium		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Medium		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Medium		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Medium		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Medium		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Medium		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Medium		Eastwind and Mainsail	3	
Residential Areas	R1	R1-1	A	Low		Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres

Table 3

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Nitrate and Nitrites**

PWSID 210906.009

Residential Areas	R1	R1-2	B	Low	Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres
Residential Areas	R1	R1-3	C	Low	Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Very Low	Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Very Low	Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Very Low	Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Very Low	Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Very Low	Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Very Low	Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Very Low	Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Very Low	Vern Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Very Low	Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Very Low	Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Very Low	Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Very Low	Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Very Low	Plymouth Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Very Low	Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Very Low	Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Very Low	Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Very Low	Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Very Low	Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Very Low	Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Very Low	Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Very Low	Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Very Low	Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Very Low	Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Very Low	Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Very Low	Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Very Low	Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Very Low	Whiteney Cir	4	

Table 3

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Nitrate and Nitrites**

PWSID 210906.009

Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Very Low		Lindsey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Very Low		Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Very Low		Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Very Low		Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	Very Low		Seacloud Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-36	B	Very Low		East Wind Dr	4	
Municipal or city parks (with green areas)	X4	X4-1	A	Low		Off of Lake Otis Parkway	2	0.8 acre park containing MOA Well #31
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low		Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	

Table 3

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Nitrate and Nitrites**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-32	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-34	B	Very Low	Akula	3
Septic systems (serves one single-family home)	R2	R2-35	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low	Akula	3
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low	Leyden	3
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low	Leyden	3
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low	Akula	3
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low	Akula	3
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low	Akula	3
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low	Tiaga	3
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low	Leyden	3
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low	Kutcher	3
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low	Doroshin	3
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low	Furrow Creek	3
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low	Furrow Creek	3

Table 3

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Nitrate and Nitrites**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low		All residential septic systems in Zone C Protection Area	3	
Highways and roads, dirt/gravel	X24	X24-1	B	Very Low		Pintail St	4	
Highways and roads, dirt/gravel	X24	X24-2	B	Very Low		Killey	4	
Highways and roads, dirt/gravel	X24	X24-3	B,C	Very Low		Tiaga Dr	4	
Highways and roads, dirt/gravel	X24	X24-4	B,C	Very Low		Doroshin Av	4	
Highways and roads, dirt/gravel	X24	X24-5	B,C	Very Low		Kutcher Dr	4	
Highways and roads, dirt/gravel	X24	X24-6	B,C	Very Low		Leyden Rd	4	
Highways and roads, dirt/gravel	X24	X24-7	B	Very Low		Akula Dr	4	
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low		Hinchey	4	
Highways and roads, dirt/gravel	X24	X24-9	B,C	Very Low		Furrow Creek Rd	4	
Highways and roads, dirt/gravel	X24	X24-10	C	Very Low		Norak Pl	4	
Highways and roads, dirt/gravel	X24	X24-11	C	Very Low		Lorraine	4	
Highways and roads, dirt/gravel	X24	X24-12	C	Very Low		Fairmont Rd	4	
Highways and roads, dirt/gravel	X24	X24-13	C	Very Low		Elmore Rd	4	
Highways and roads, dirt/gravel	X24	X24-14	C	Very Low		Atherton Rd	4	
Highways and roads, dirt/gravel	X24	X24-15	C	Very Low		McCabe Cir W	4	
Highways and roads, dirt/gravel	X24	X24-16	C	Very Low		McCabe Cir	4	
Highways and roads, dirt/gravel	X24	X24-17	C	Very Low		Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Very Low		Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Very Low		Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Very Low		Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Very Low		Bainbridge Rd	4	

Table 4

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Volatile Organic Chemicals**

PWSID 210906.009

Contaminant Source Type	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	Very Low	1	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Very Low	2	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Very Low	3	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Very Low	4	Sean	3	
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Low	5	Lake Otis Parkway	4	
Residential Areas	R1	R1-1	A	Very Low	6	Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Very Low	7	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Very Low	8	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Very Low	9	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Very Low	10	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Very Low		Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Very Low		Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Very Low		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Very Low		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Very Low		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Very Low		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Very Low		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Very Low		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Very Low		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Very Low		Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Very Low		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Very Low		Chesapeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Very Low		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Very Low		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Very Low		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Very Low		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Very Low		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Very Low		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Very Low		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Very Low		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Very Low		Eastwind and Mainsail	3	

Table 4

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Volatile Organic Chemicals**

PWSID 210906.009

Residential Areas	R1	R1-2	B	Very Low	Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres
Residential Areas	R1	R1-3	C	Very Low	Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Very Low	Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Very Low	Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Very Low	Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Very Low	Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Very Low	Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Very Low	Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Very Low	Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Very Low	Vern Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Very Low	Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Very Low	Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Very Low	Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Very Low	Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Very Low	Plymouth Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Very Low	Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Very Low	Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Very Low	Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Very Low	Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Very Low	Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Very Low	Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Very Low	Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Very Low	Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Very Low	Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Very Low	Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Very Low	Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Very Low	Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Very Low	Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Very Low	Whiteney Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Very Low	Lindsey Cir	4	

Table 4

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Volatile Organic Chemicals

Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Very Low		Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Very Low		Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Very Low		Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	Very Low		SeacLOUD Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-36	B	Very Low		East Wind Dr	4	
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low		Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low		Tiaga	3	

Table 4

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Volatile Organic Chemicals

Septic systems (serves one single-family home)	R2	R2-34	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-35	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		Kutcher	3	

Table 4

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Volatile Organic Chemicals

Septic systems (serves one single-family home)	R2	R2-72	B	Very Low	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low	All residential septic systems in Zone C Protection Area	3	
Highways and roads, dirt/gravel	X24	X24-1	B	Very Low	Pintail St	4	
Highways and roads, dirt/gravel	X24	X24-2	B	Very Low	Killey	4	
Highways and roads, dirt/gravel	X24	X24-3	B,C	Very Low	Tiaga Dr	4	
Highways and roads, dirt/gravel	X24	X24-4	B,C	Very Low	Doroshin Av	4	
Highways and roads, dirt/gravel	X24	X24-5	B,C	Very Low	Kutcher Dr	4	
Highways and roads, dirt/gravel	X24	X24-6	B,C	Very Low	Leyden Rd	4	
Highways and roads, dirt/gravel	X24	X24-7	B	Very Low	Akula Dr	4	
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low	Hinchey	4	
Highways and roads, dirt/gravel	X24	X24-9	B,C	Very Low	Furrow Creek Rd	4	
Highways and roads, dirt/gravel	X24	X24-10	C	Very Low	Norak Pl	4	
Highways and roads, dirt/gravel	X24	X24-11	C	Very Low	Lorraine	4	
Highways and roads, dirt/gravel	X24	X24-12	C	Very Low	Fairmont Rd	4	
Highways and roads, dirt/gravel	X24	X24-13	C	Very Low	Elmore Rd	4	
Highways and roads, dirt/gravel	X24	X24-14	C	Very Low	Atherton Rd	4	
Highways and roads, dirt/gravel	X24	X24-15	C	Very Low	McCabe Cir W	4	
Highways and roads, dirt/gravel	X24	X24-16	C	Very Low	McCabe Cir	4	
Highways and roads, dirt/gravel	X24	X24-17	C	Very Low	Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Very Low	Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Very Low	Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Very Low	Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Very Low	Bainbridge Rd	4	

Table 5

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

Contaminant Source Type	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	Very Low	1	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Very Low	2	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Very Low	3	Sues Way	3	
Municipal or city parks (with green areas)	X4	X4-1	A	Low	4	Off of Lake Otis Parkway	2	0.8 acre park containing MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Very Low	5	Sean	3	
Residential Areas	R1	R1-1	A	Very Low	6	Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Very Low	7	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Very Low	8	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Very Low	9	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Very Low	10	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Very Low		Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Very Low		Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Very Low		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Very Low		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Very Low		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Very Low		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Very Low		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Very Low		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Very Low		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Very Low		Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Very Low		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Very Low		Chesapeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Very Low		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Very Low		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Very Low		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Very Low		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Very Low		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Very Low		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Very Low		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Very Low		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Very Low		Eastwind and Mainsail	3	

Table 5

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

Residential Areas	R1	R1-2	B	Very Low	Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres
Residential Areas	R1	R1-3	C	Very Low	Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Very Low	Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Very Low	Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Very Low	Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Very Low	Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Very Low	Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Very Low	Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Very Low	Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Very Low	Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Very Low	Vern Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Very Low	Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Very Low	Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Very Low	Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Very Low	Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Very Low	Plymouth Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Very Low	Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Very Low	Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Very Low	Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Very Low	Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Very Low	Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Very Low	Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Very Low	Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Very Low	Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Very Low	Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Very Low	Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Very Low	Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Very Low	Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Very Low	Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Very Low	Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Very Low	Whitney Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Very Low	Lindsey Cir	4	

Table 5

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Very Low		Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Very Low		Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Very Low		Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	Very Low		Seacloud Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-36	B	Very Low		East Wind Dr	4	
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low		Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-34	B	Very Low		Akula	3	

Table 5

**Potential and Existing Sources of Contamination for
MOA Well #31**

PWSID 210906.009

Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

Septic systems (serves one single-family home)	R2	R2-35	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		Leyden	3	

**Potential and Existing Sources of Contamination for
MOA Well #31**

Sources of Heavy Metals, Cyanide, and other Inorganic Chemicals

Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low		All residential septic systems in Zone C Protection Area	3	
Highways and roads, dirt/gravel	X24	X24-1	B	Very Low		Pintail St	4	
Highways and roads, dirt/gravel	X24	X24-2	B	Very Low		Killey	4	
Highways and roads, dirt/gravel	X24	X24-3	B,C	Very Low		Tiaga Dr	4	
Highways and roads, dirt/gravel	X24	X24-4	B,C	Very Low		Doroshin Av	4	
Highways and roads, dirt/gravel	X24	X24-5	B,C	Very Low		Kutcher Dr	4	
Highways and roads, dirt/gravel	X24	X24-6	B,C	Very Low		Leyden Rd	4	
Highways and roads, dirt/gravel	X24	X24-7	B	Very Low		Akula Dr	4	
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low		Hinchey	4	
Highways and roads, dirt/gravel	X24	X24-9	B,C	Very Low		Furrow Creek Rd	4	
Highways and roads, dirt/gravel	X24	X24-10	C	Very Low		Norak Pl	4	
Highways and roads, dirt/gravel	X24	X24-11	C	Very Low		Lorraine	4	
Highways and roads, dirt/gravel	X24	X24-12	C	Very Low		Fairmont Rd	4	
Highways and roads, dirt/gravel	X24	X24-13	C	Very Low		Elmore Rd	4	
Highways and roads, dirt/gravel	X24	X24-14	C	Very Low		Atherton Rd	4	
Highways and roads, dirt/gravel	X24	X24-15	C	Very Low		McCabe Cir W	4	
Highways and roads, dirt/gravel	X24	X24-16	C	Very Low		McCabe Cir	4	
Highways and roads, dirt/gravel	X24	X24-17	C	Very Low		Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Very Low		Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Very Low		Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Very Low		Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Very Low		Bainbridge Rd	4	

Table 6

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Synthetic Organic Chemicals**

PWSID 210906.009

Contaminant Source Type	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	Very Low	1	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Very Low	2	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Very Low	3	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Very Low	4	Sean	3	
Residential Areas	R1	R1-1	A	Low	5	Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Very Low	6	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Very Low	7	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Very Low	8	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Very Low	9	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Very Low	10	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Very Low		Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Very Low		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Very Low		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Very Low		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Very Low		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Very Low		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Very Low		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Very Low		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Very Low		Plymouth Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Very Low		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Very Low		Cheseapeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Very Low		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Very Low		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Very Low		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Very Low		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Very Low		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Very Low		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Very Low		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Very Low		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Very Low		Eastwind and Mainsail	3	

Table 6

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Synthetic Organic Chemicals**

PWSID 210906.009

Residential Areas	R1	R1-2	B	Very Low	Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres
Residential Areas	R1	R1-3	C	Very Low	Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low	Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low	Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low	Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low	Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low	Pintail	3	
Septic systems (serves one single-family home)	R2	R2-13	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Very Low	Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low	Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low	Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low	Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low	Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low	Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low	Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low	Leyden	3	

Table 6

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Synthetic Organic Chemicals**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-34	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-35	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		Kutcher	3	

Table 6

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Synthetic Organic Chemicals**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low		All residential septic systems in Zone C Protection Area	3	

Table 7

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

PWSID 210906.009

Contaminant Source Type	Contaminant Source ID	CS ID tag	Zone	Risk Ranking for Analysis	Overall Rank after Analysis	Location	Map	Comments
Residential Areas	R1	R1-1	A	Low	1	Kempton Hills S/D, Turnagain View S/D, and Huffman Hills S/D	2	67 acres
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-1	A	Very Low	2	Lake Otis Parkway	3	Approximately 125 feet upgradient of MOA Well #31
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-2	A	Very Low	3	Nancy Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-3	A	Very Low	4	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-4	A	Very Low	5	Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-5	A	Very Low	6	Legacy Dr and Biscayne	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-6	A	Very Low	7	Kempton Hills	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-7	A	Very Low	8	Vern Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-8	A	Very Low	9	Legacy and Sean	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-9	A	Very Low	10	Sues Way	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-10	A	Very Low		Between Steeple and Sues	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-11	A	Very Low		Summer and Autumn	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-12	A	Very Low		Wellsford and Galveston	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-13	A	Very Low		Cumberland	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-14	A	Very Low		Spinnaker Dr	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-15	A	Very Low		Westwind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-16	A	Very Low		Windrush Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-17	A	Very Low		Leeward	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-18	A	Very Low		Plymouth Cir	3	

Table 7

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

PWSID 210906.009

Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-19	A	Very Low		Baywind	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-20	A	Very Low		Cheseapeake Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-21	A	Very Low		Legacy	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-22	A	Very Low		Monterey	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-23	A	Very Low		Mission Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-24	A	Very Low		Trent Cir	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-25	A	Very Low		Whaler	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-26	A	Very Low		Seawind and Seacloud	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-27	A	Very Low		Lindsay and Tara	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-28	A	Very Low		Beamreach	3	
Domestic wastewater collection systems (sewer lines or lift stations)	D1	D1-29	A	Very Low		Eastwind and Mainsail	3	
Residential Areas	R1	R1-2	B	Low		Kempton Park S/D, Turnagain View East, Turnagain View Estates, Grace S/D, and McMahon S/D	2	132 acres
Residential Areas	R1	R1-3	C	Low		Knik Heights S/D, Turnagain View East, McMahon S/D, and McCade/McCade West S/D	2	157 acres
Highways and roads, paved (cement or asphalt)	X20	X20-1	A	Very Low		Lake Otis Parkway	4	
Highways and roads, paved (cement or asphalt)	X20	X20-2	A,B	Very Low		Legacy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-3	A,B	Very Low		Kempton Hills	4	
Highways and roads, paved (cement or asphalt)	X20	X20-4	A	Very Low		Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-5	A,B	Very Low		Spinnaker Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-6	A	Very Low		Nancy Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-7	A	Very Low		Galveston	4	
Highways and roads, paved (cement or asphalt)	X20	X20-8	A	Very Low		Sher Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-9	A	Very Low		Biscayne	4	
Highways and roads, paved (cement or asphalt)	X20	X20-10	A	Very Low		Vern Dr	4	

Table 7

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

PWSID 210906.009

Highways and roads, paved (cement or asphalt)	X20	X20-11	A	Very Low		Windrush Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-12	A,B	Very Low		Chesapeake Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-13	A	Very Low		Wellsford	4	
Highways and roads, paved (cement or asphalt)	X20	X20-14	A	Very Low		Cumberland	4	
Highways and roads, paved (cement or asphalt)	X20	X20-15	A	Very Low		Plymouth Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-16	A	Very Low		Sean Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-17	A	Very Low		Summer Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-18	A	Very Low		Autumn Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-19	A	Very Low		Autumn Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-20	A,B	Very Low		Flyway Ave	4	
Highways and roads, paved (cement or asphalt)	X20	X20-21	A	Very Low		Sues Way	4	
Highways and roads, paved (cement or asphalt)	X20	X20-22	A	Very Low		Westwind Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-23	A	Very Low		Leeward Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-24	A	Very Low		Steeple Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-25	B	Very Low		Monterey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-26	B	Very Low		Whaler	4	
Highways and roads, paved (cement or asphalt)	X20	X20-27	B	Very Low		Mission Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-28	B	Very Low		Trent Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-29	B	Very Low		Montego Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-30	B	Very Low		Whiteney Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-31	B	Very Low		Lindsey Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-32	B	Very Low		Tara Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-33	B	Very Low		Beamreach	4	
Highways and roads, paved (cement or asphalt)	X20	X20-34	B	Very Low		Seawind Dr	4	
Highways and roads, paved (cement or asphalt)	X20	X20-35	B	Very Low		Seacloud Cir	4	
Highways and roads, paved (cement or asphalt)	X20	X20-36	B	Very Low		East Wind Dr	4	
Septic systems (serves one single-family home)	R2	R2-1	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-2	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-3	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-4	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-5	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-6	B	Very Low		Gander	3	
Septic systems (serves one single-family home)	R2	R2-7	B	Very Low		Merganser	3	
Septic systems (serves one single-family home)	R2	R2-8	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-9	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-10	B	Very Low		Flyway	3	
Septic systems (serves one single-family home)	R2	R2-11	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-12	B	Very Low		Pintail	3	

Table 7

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-13	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-14	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-15	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-16	B	Very Low		Pintail	3	
Septic systems (serves one single-family home)	R2	R2-17	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-18	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-19	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-20	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-21	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-22	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-23	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-24	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-25	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-26	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-27	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-28	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-29	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-30	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-31	B	Very Low		Killey	3	
Septic systems (serves one single-family home)	R2	R2-32	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-33	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-34	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-35	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-36	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-37	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-38	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-39	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-40	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-41	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-42	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-43	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-44	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-45	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-46	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-47	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-48	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-49	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-50	B	Very Low		Doroshin	3	

Table 7

**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

PWSID 210906.009

Septic systems (serves one single-family home)	R2	R2-51	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-52	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-53	B	Very Low		Akula	3	
Septic systems (serves one single-family home)	R2	R2-54	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-55	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-56	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-57	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-58	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-59	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-60	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-61	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-62	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-63	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-64	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-65	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-66	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-67	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-68	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-69	B	Very Low		Furrow Creek	3	
Septic systems (serves one single-family home)	R2	R2-70	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-71	B	Very Low		Kutcher	3	
Septic systems (serves one single-family home)	R2	R2-72	B	Very Low		Tiaga	3	
Septic systems (serves one single-family home)	R2	R2-73	B	Very Low		Leyden	3	
Septic systems (serves one single-family home)	R2	R2-74	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-75	B	Very Low		Doroshin	3	
Septic systems (serves one single-family home)	R2	R2-76-262	C	Very Low		All residential septic systems in Zone C Protection Area	3	
Highways and roads, dirt/gravel	X24	X24-1	B	Very Low		Pintail St	4	
Highways and roads, dirt/gravel	X24	X24-2	B	Very Low		Killey	4	
Highways and roads, dirt/gravel	X24	X24-3	B,C	Very Low		Tiaga Dr	4	
Highways and roads, dirt/gravel	X24	X24-4	B,C	Very Low		Doroshin Av	4	
Highways and roads, dirt/gravel	X24	X24-5	B,C	Very Low		Kutcher Dr	4	
Highways and roads, dirt/gravel	X24	X24-6	B,C	Very Low		Leyden Rd	4	
Highways and roads, dirt/gravel	X24	X24-7	B	Very Low		Akula Dr	4	
Highways and roads, dirt/gravel	X24	X24-8	B	Very Low		Hinchey	4	
Highways and roads, dirt/gravel	X24	X24-9	B,C	Very Low		Furrow Creek Rd	4	
Highways and roads, dirt/gravel	X24	X24-10	C	Very Low		Norak Pl	4	

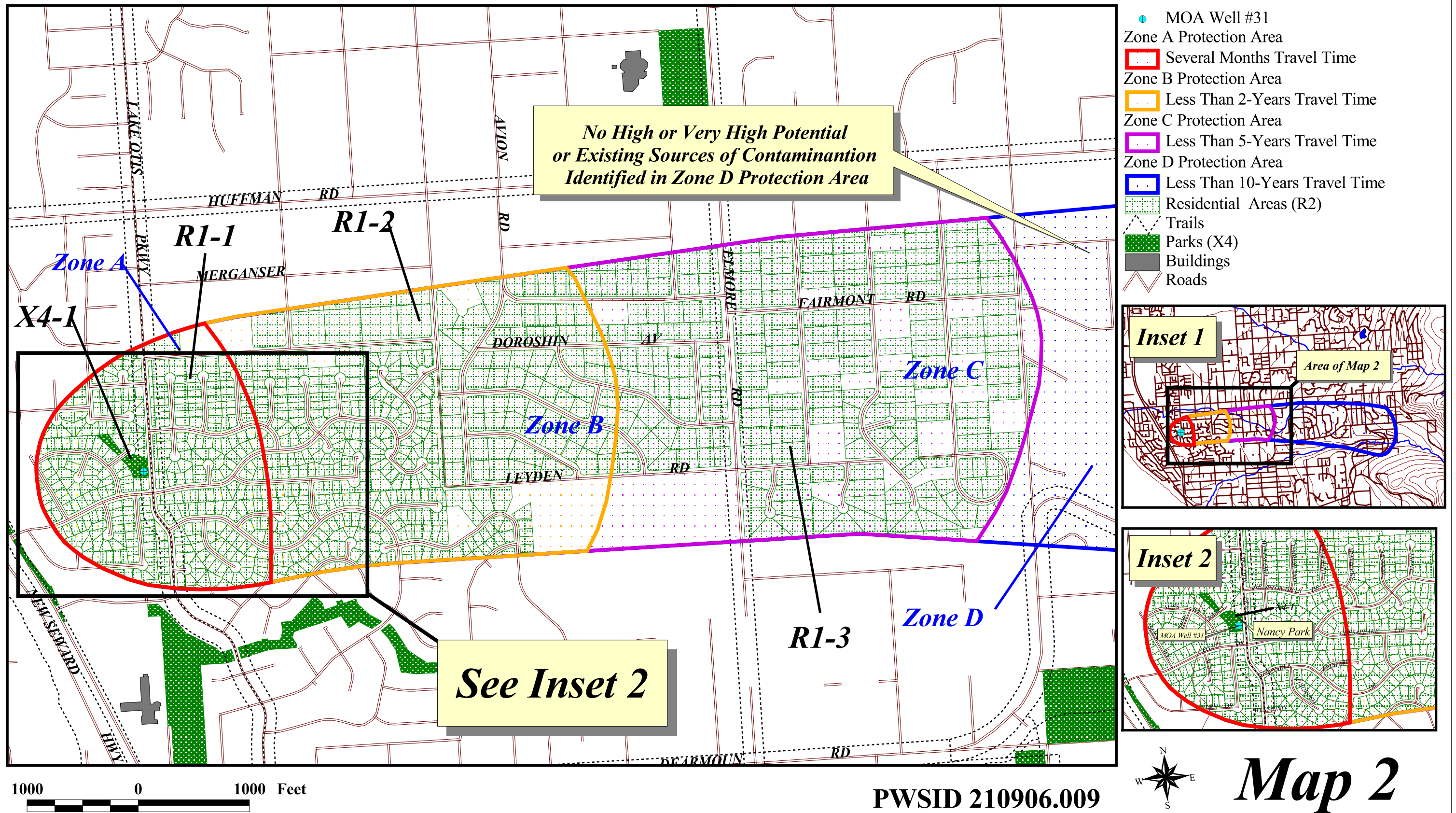
**Potential and Existing Sources of Contamination for
MOA Well #31
Sources of Other Synthetic Organic Chemicals**

Highways and roads, dirt/gravel	X24	X24-11	C	Very Low		Lorraine	4	
Highways and roads, dirt/gravel	X24	X24-12	C	Very Low		Fairmont Rd	4	
Highways and roads, dirt/gravel	X24	X24-13	C	Very Low		Elmore Rd	4	
Highways and roads, dirt/gravel	X24	X24-14	C	Very Low		Atherton Rd	4	
Highways and roads, dirt/gravel	X24	X24-15	C	Very Low		McCabe Cir W	4	
Highways and roads, dirt/gravel	X24	X24-16	C	Very Low		McCabe Cir	4	
Highways and roads, dirt/gravel	X24	X24-17	C	Very Low		Shelburne Rd	4	
Highways and roads, dirt/gravel	X24	X24-18	C	Very Low		Shelburne	4	
Highways and roads, dirt/gravel	X24	X24-19	C	Very Low		Ridgewood Rd	4	
Highways and roads, dirt/gravel	X24	X24-20	C	Very Low		Ridgewood Cir	4	
Highways and roads, dirt/gravel	X24	X24-21	C	Very Low		Bainbridge Rd	4	

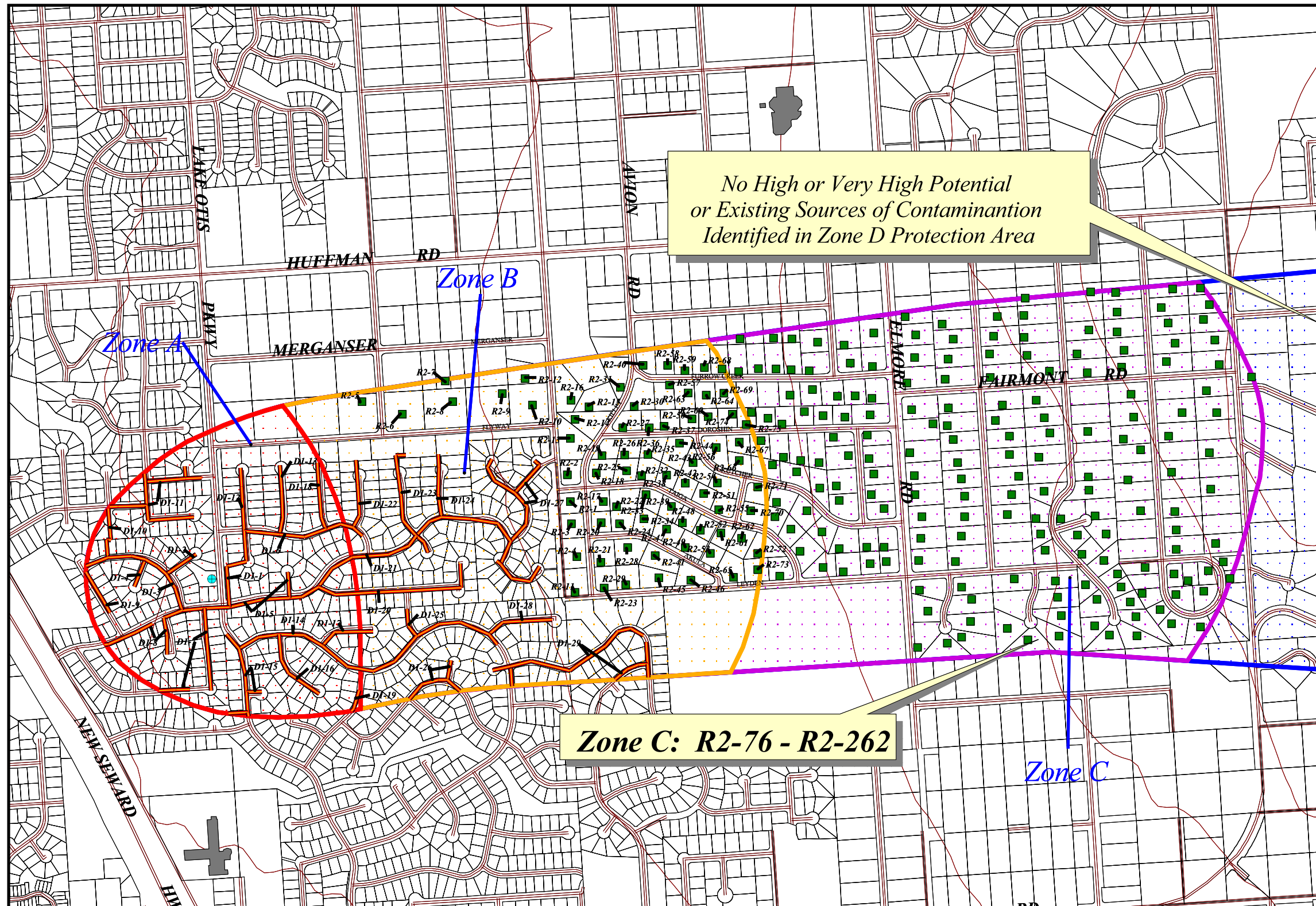
APPENDIX C

MOA Well #31 Drinking Water Protection Area and Potential & Existing Contaminant Sources

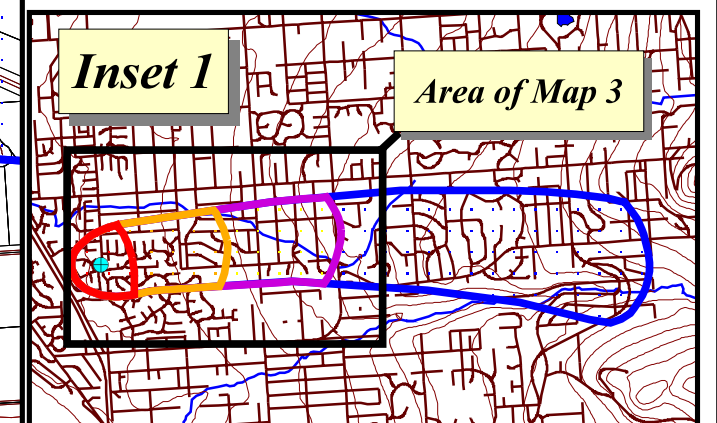
Drinking Water Protection Area for MOA Well #31 and Potential & Existing Sources of Contamination



Drinking Water Protection Area for MOA Well #31 and Potential & Existing Sources of Contamination



- Residential Septic Systems (R2)
- Domestic Wastewater Sewerlines (D1)
- MOA Well #31
- 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
- Elevation Contours

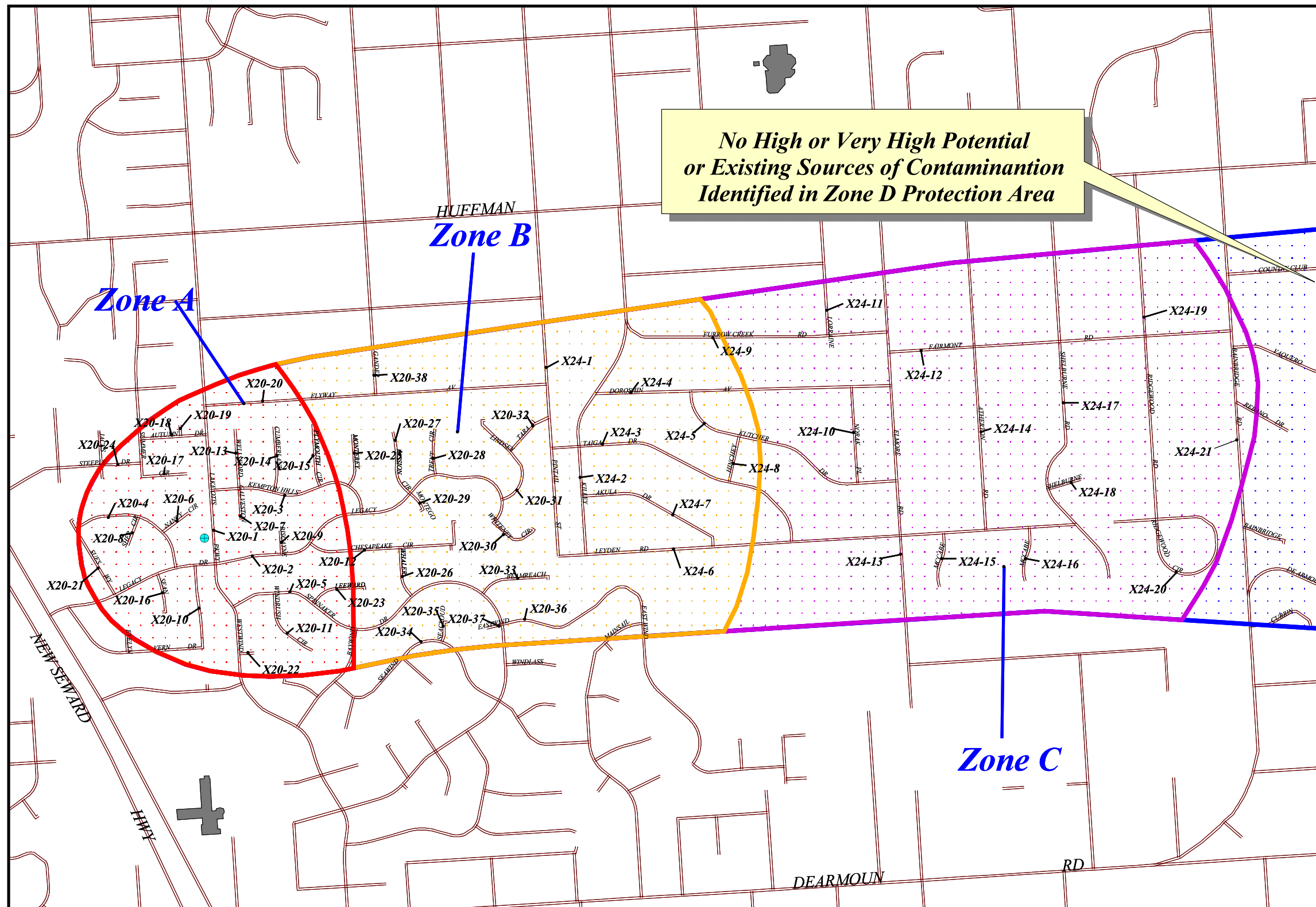


PWSID 210906.009

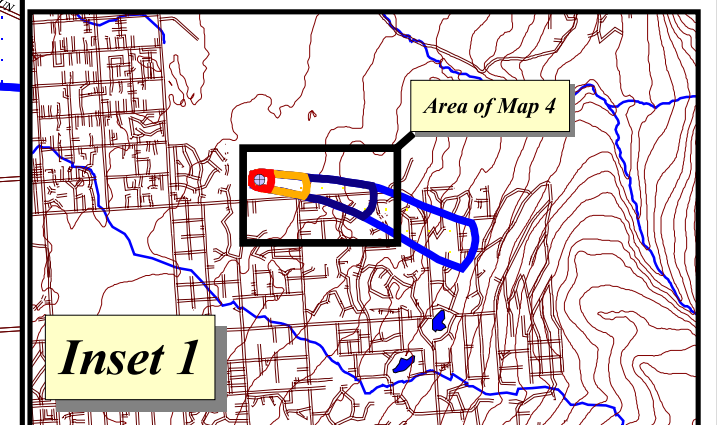


Map 3

Drinking Water Protection Area for MOA Well #31 and Potential & Existing Sources of Contamination



- MOA Well #31
- 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



PWSID 210906.009

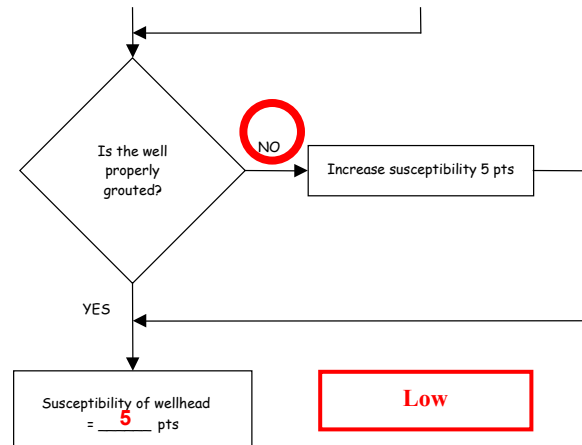
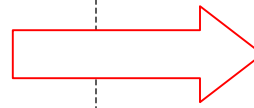
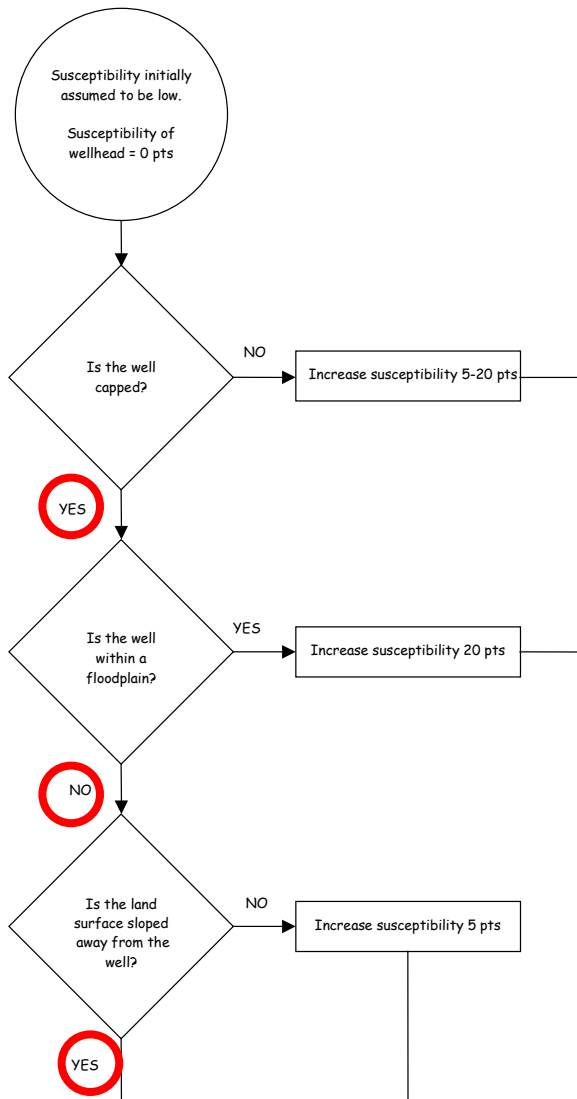


Map 4

APPENDIX D

Vulnerability Analysis for MOA Well #31 Public Drinking Water Source

Chart 1. Susceptibility of the wellhead – MOA Well #31



<u>Wellhead Susceptibility Ratings</u>	
20 to 25 pts	very high
15 to < 20 pts	high
10 to < 15 pts	medium
< 10	low

Chart 2. Susceptibility of the aquifer – MOA Well #31

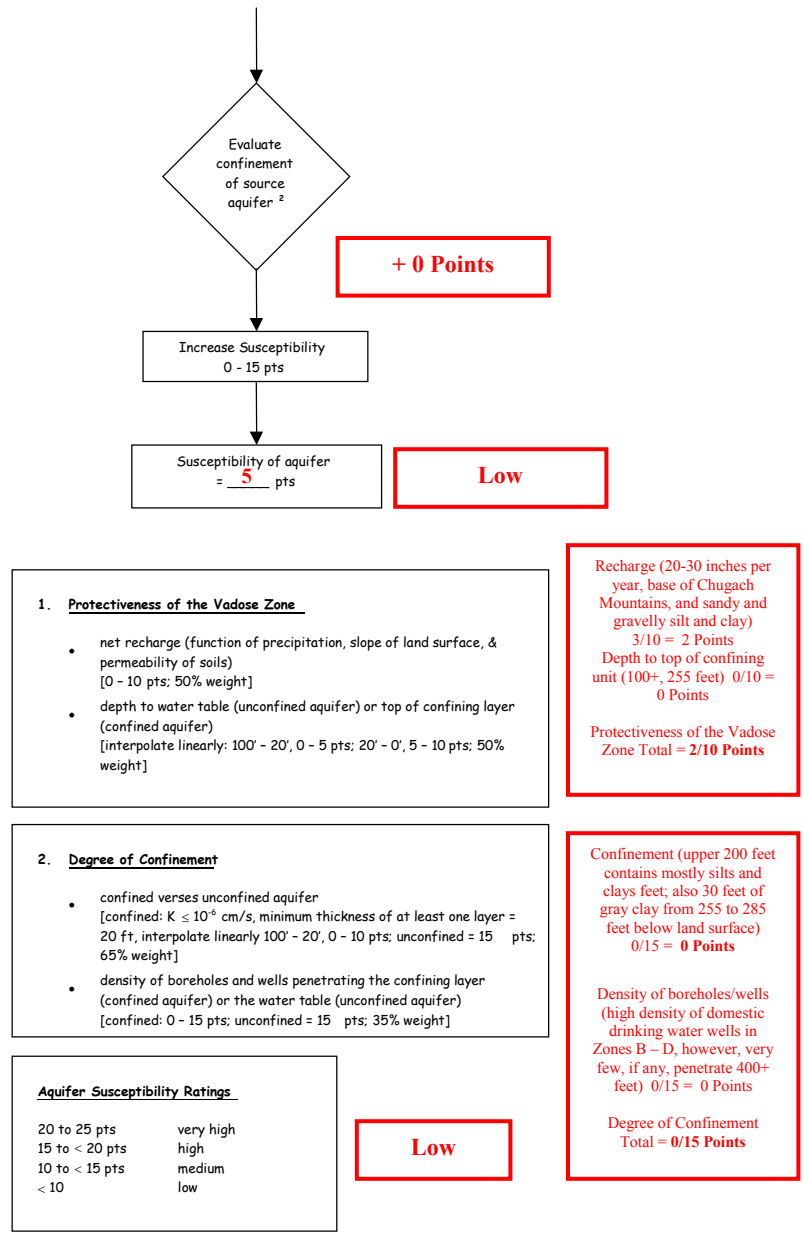
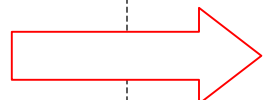
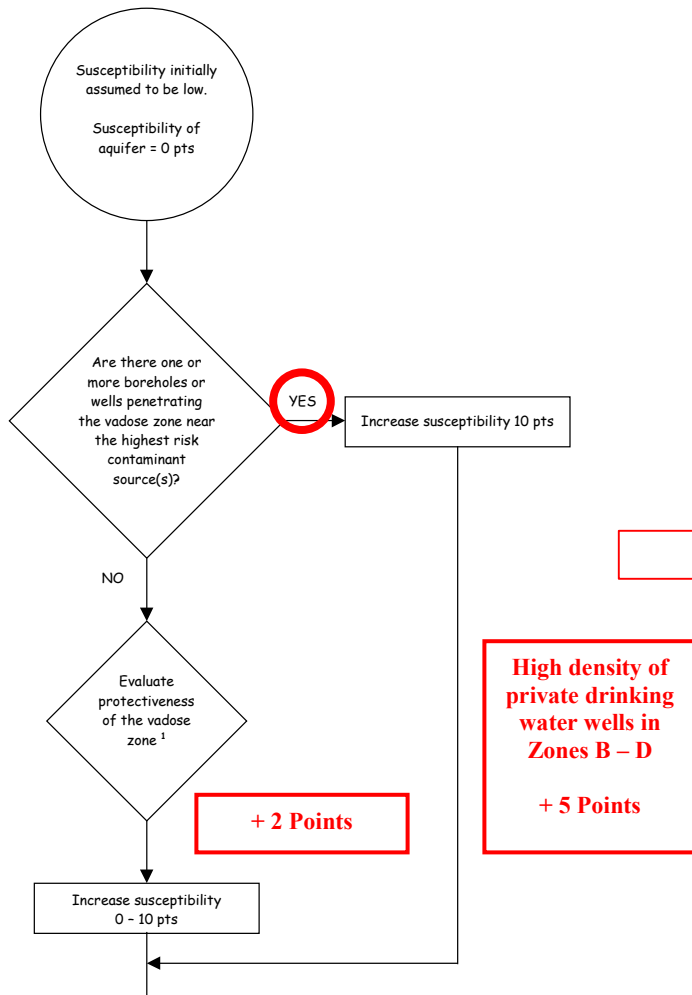


Chart 3. Contaminant risks for MOA Well #31 – Bacteria & Viruses

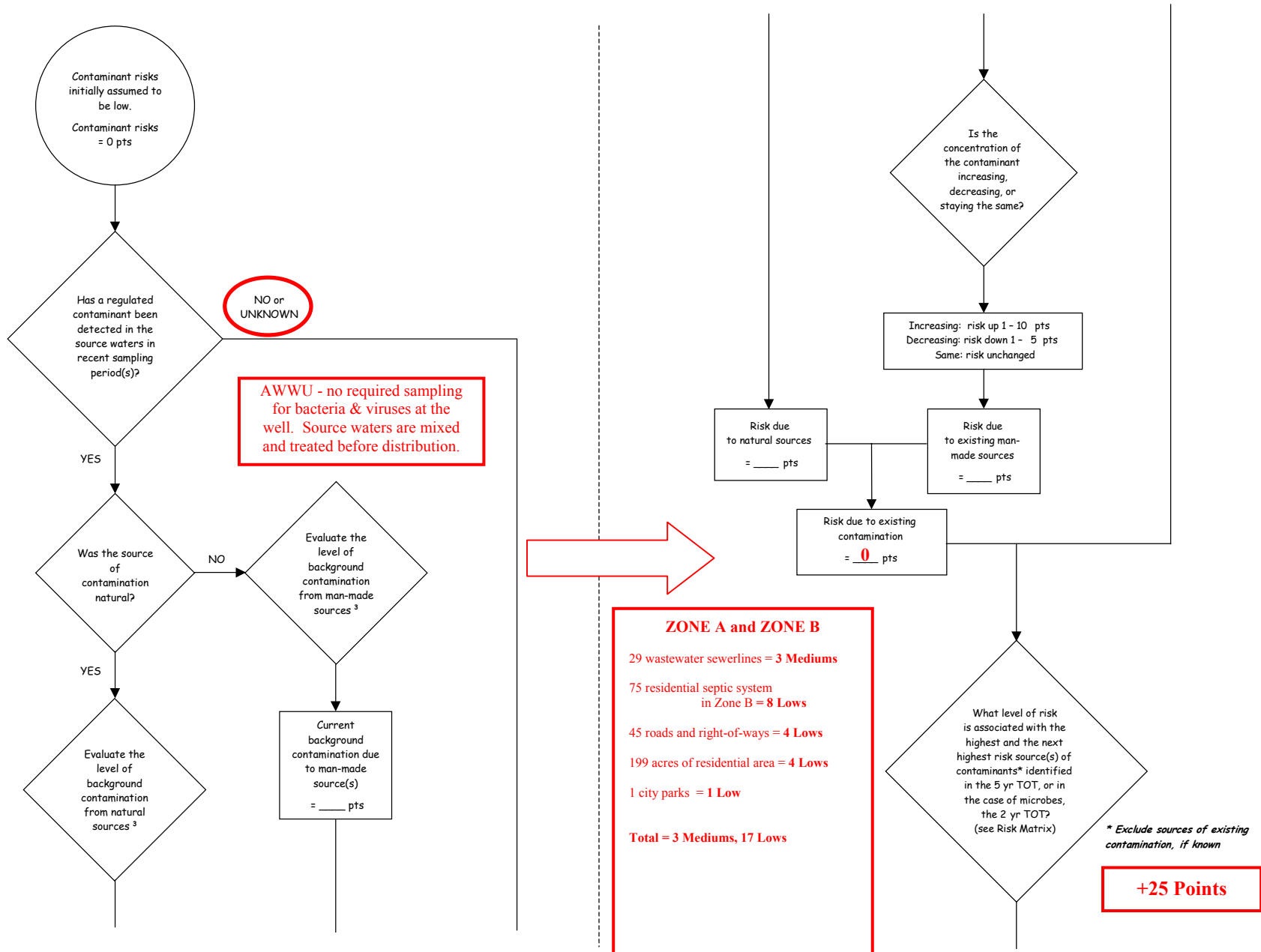


Chart 3. Contaminant risks for MOA Well #31 – Bacteria & Viruses (Continued)

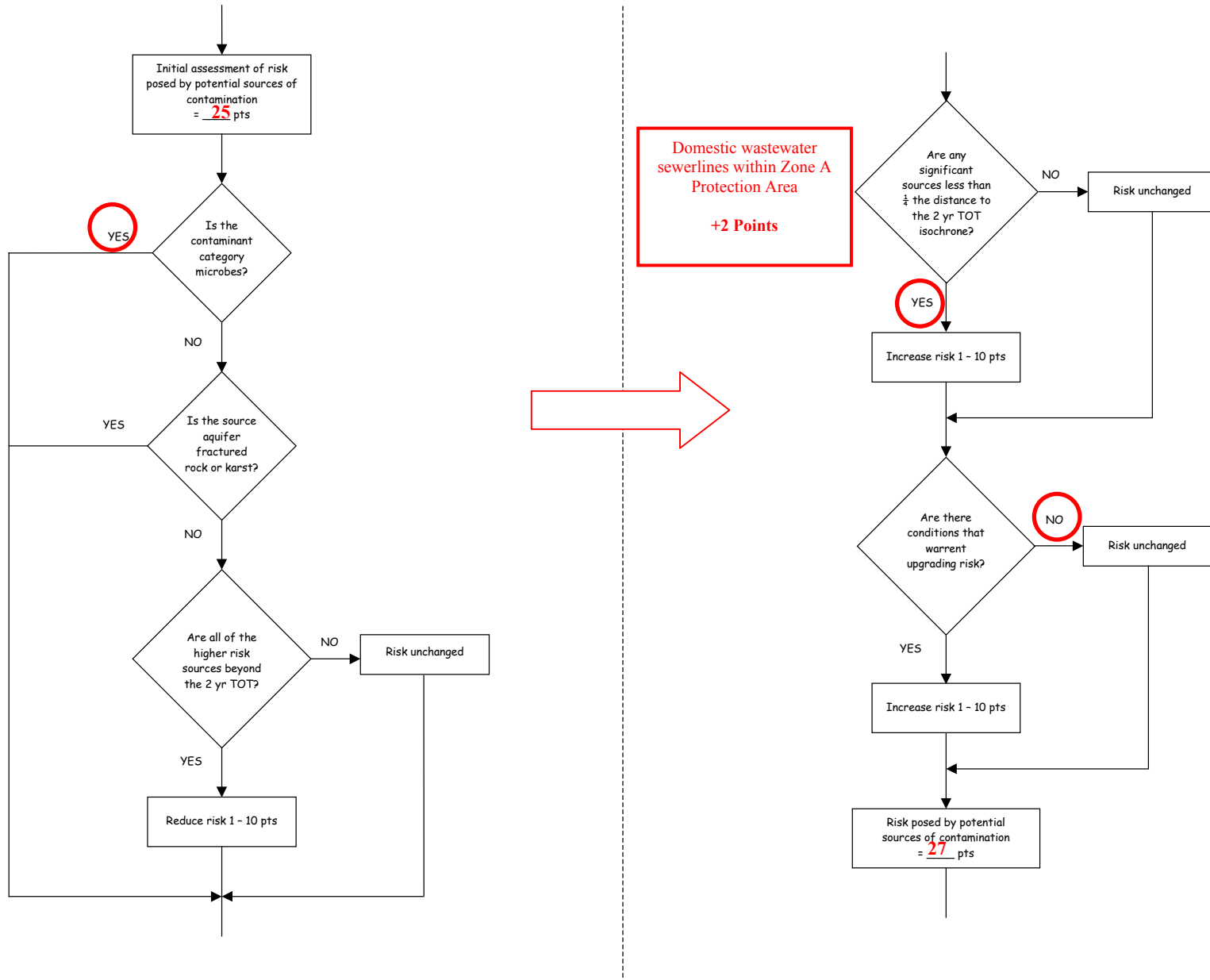


Chart 3. Contaminant risks for MOA Well #31 – Bacteria & Viruses (Continued)

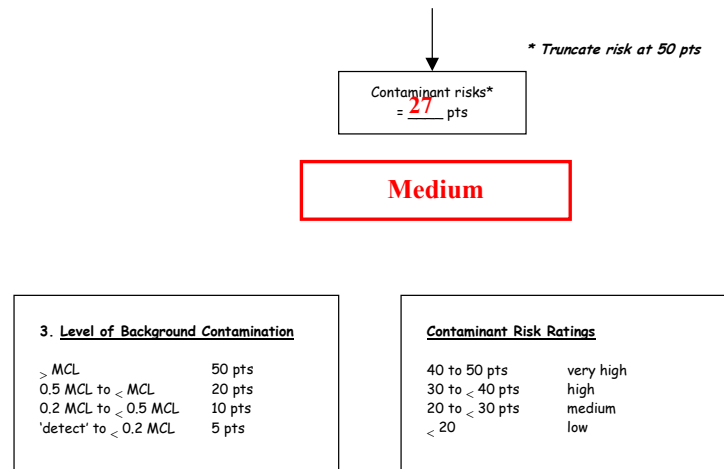
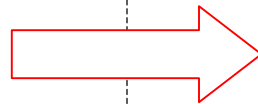
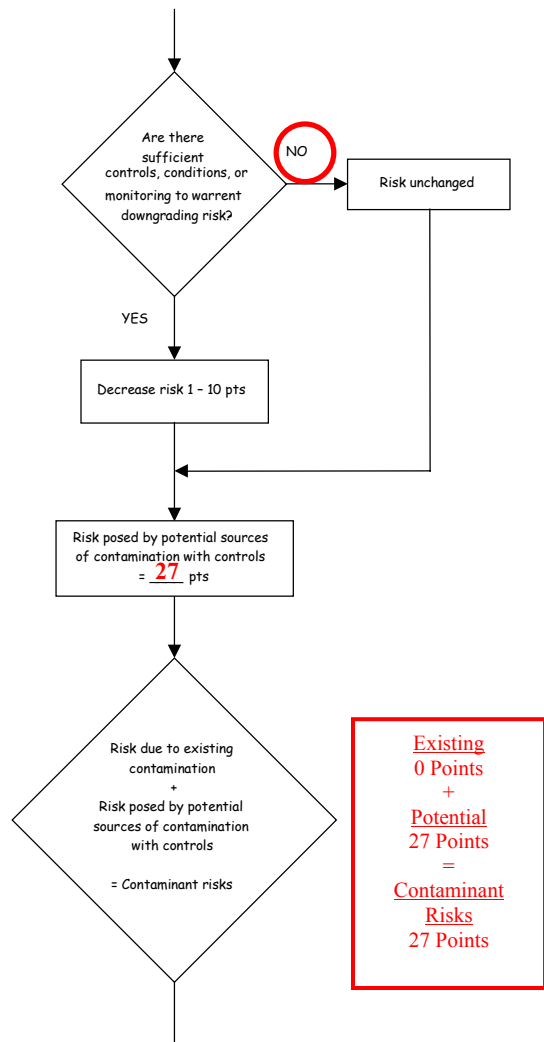


Table 1. Risk Matrix for Contaminant Sources for MOA Well #31 – Bacteria & Viruses

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	3 Mediums, 17 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 Well #31 – Bacteria & Viruses

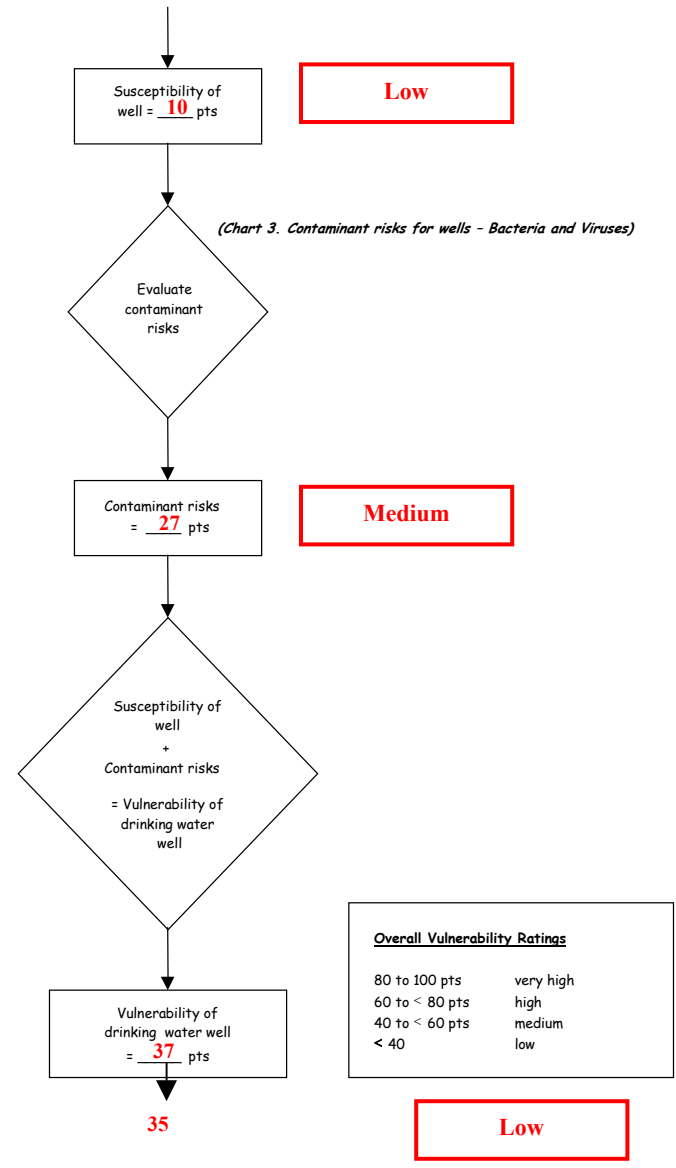
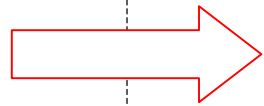
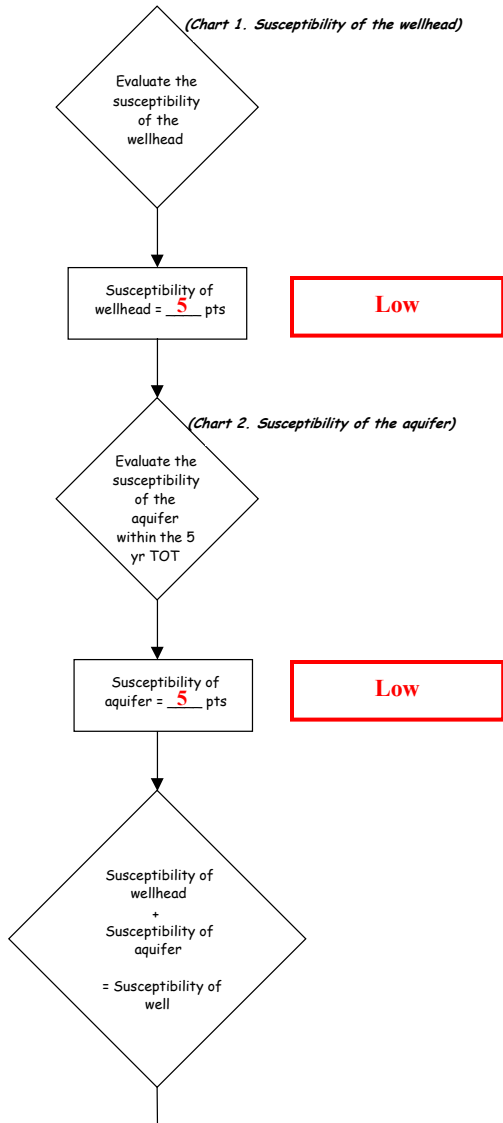


Chart 5. Contaminant risks for MOA Well #31 – Nitrates & Nitrites

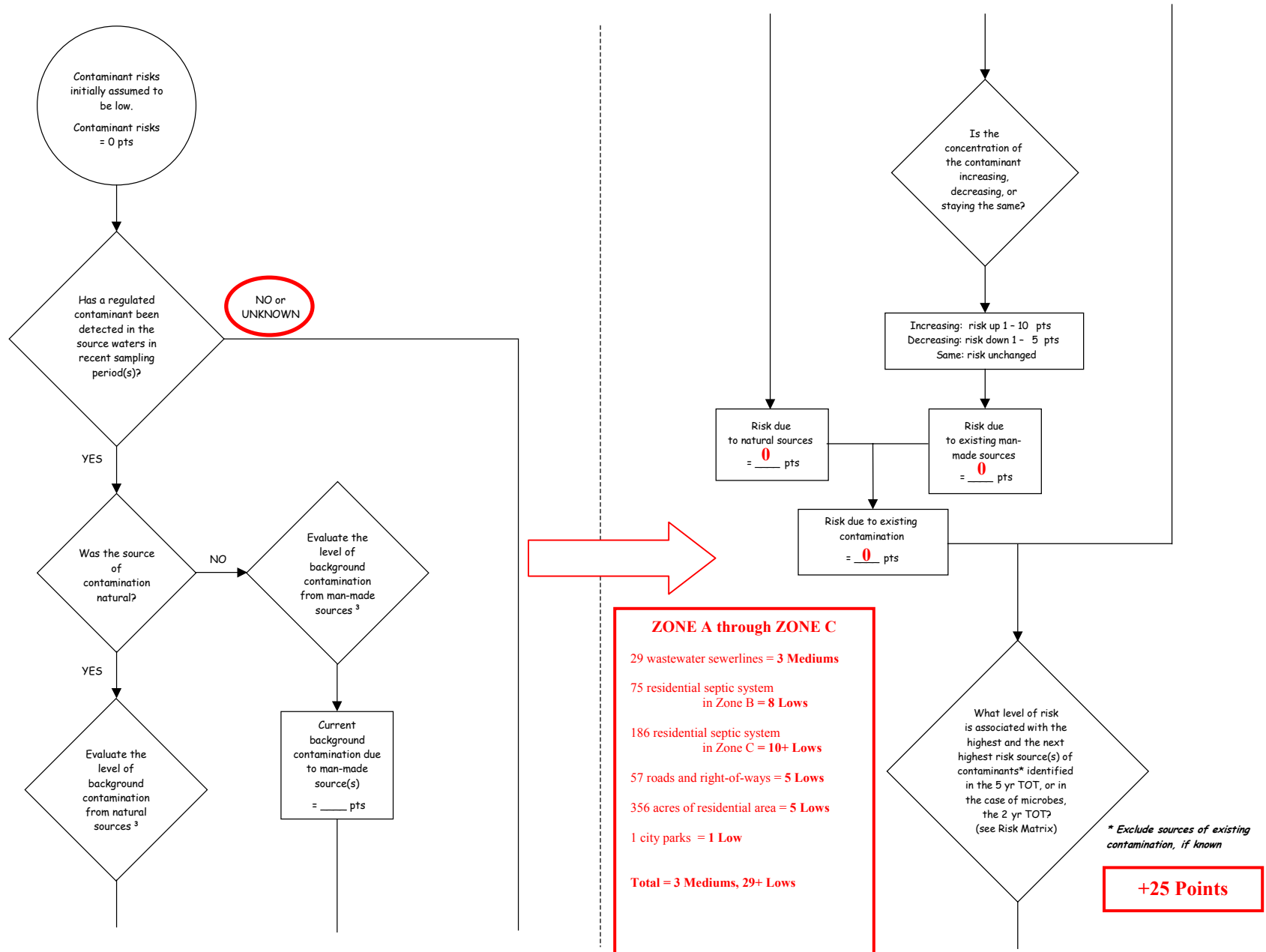


Chart 5. Contaminant risks for MOA Well #31 – Nitrates & Nitrites (Continued)

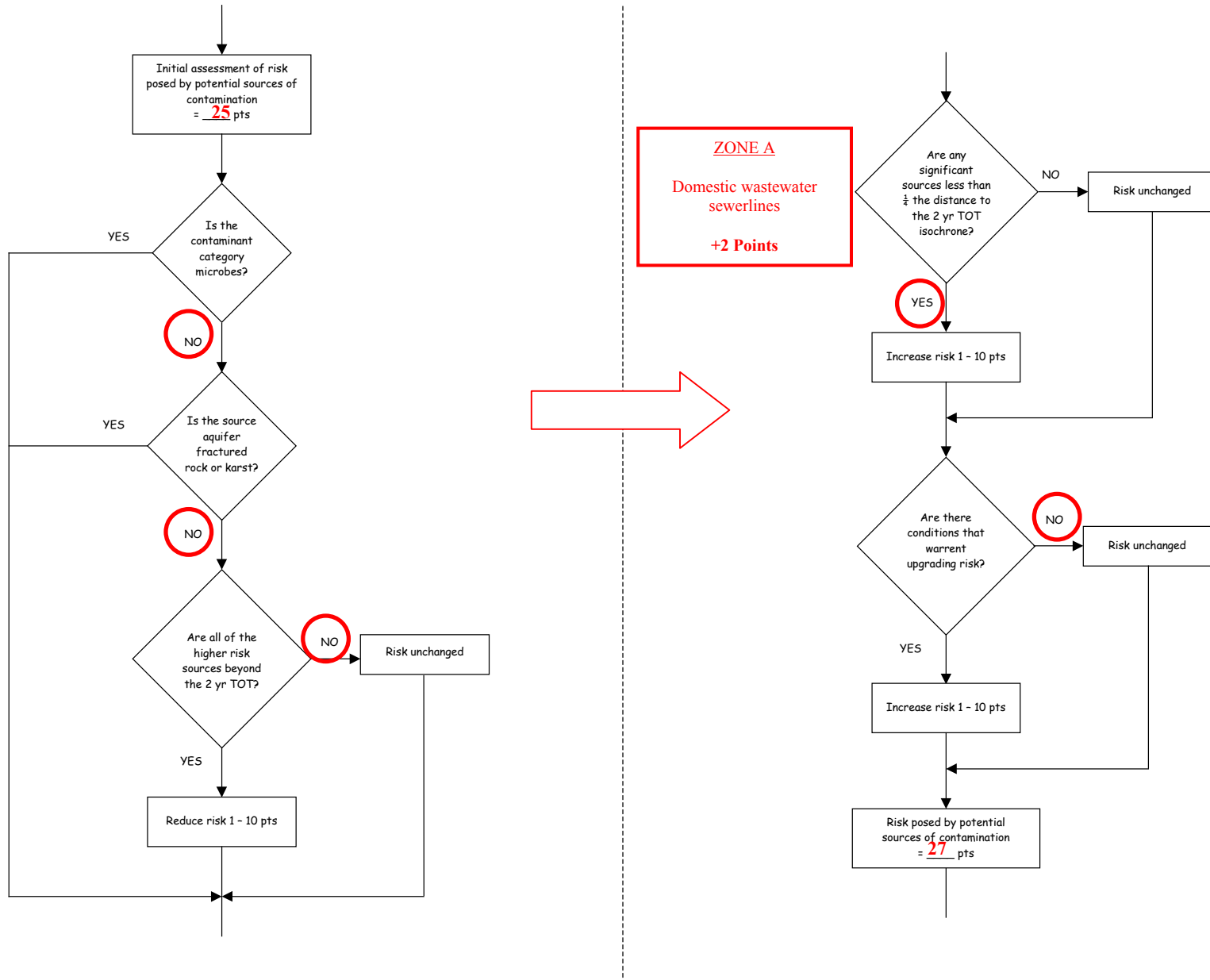
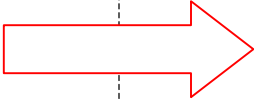
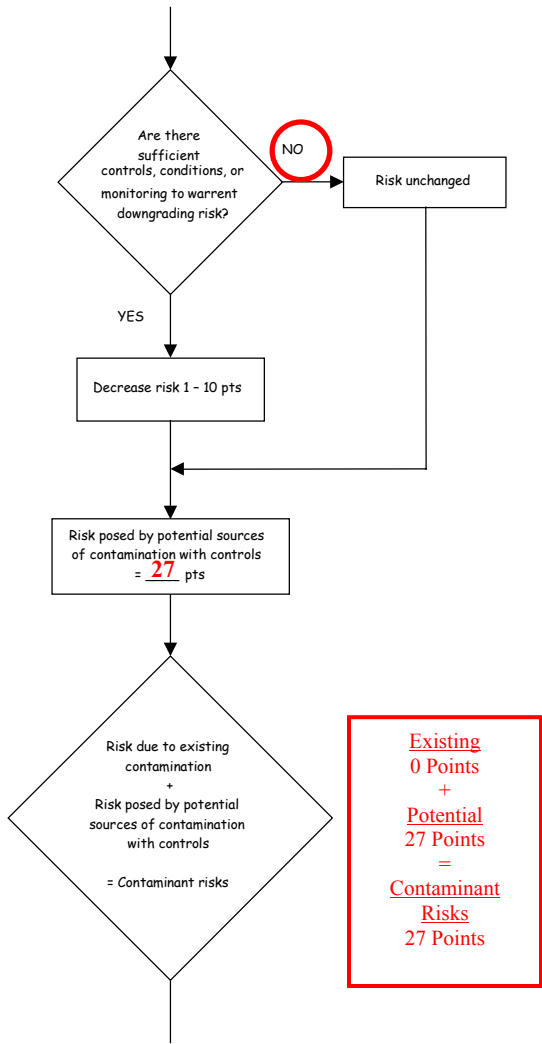


Chart 5. Contaminant risks for MOA Well #31 – Nitrates & Nitrites (Continued)



* 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 2. Risk Matrix for Contaminant Sources for MOA Well #31 – Nitrates & Nitrites

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	3 Mediums, 29+ 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 Well #31 – Nitrates and Nitrites

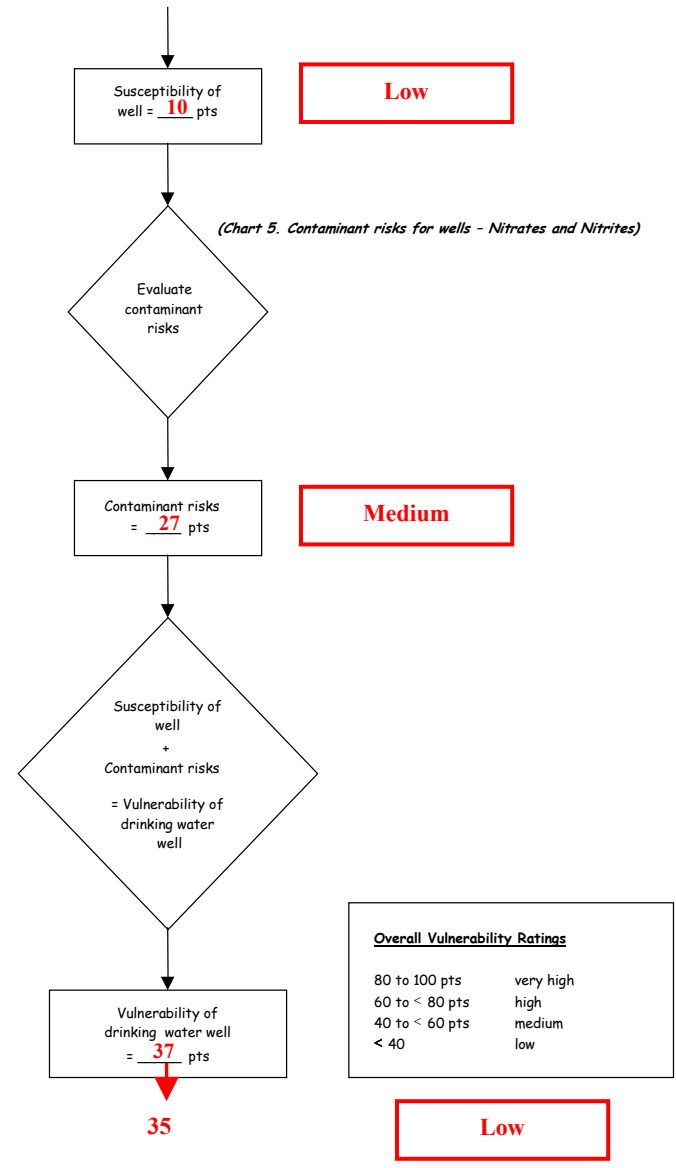
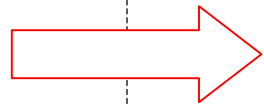
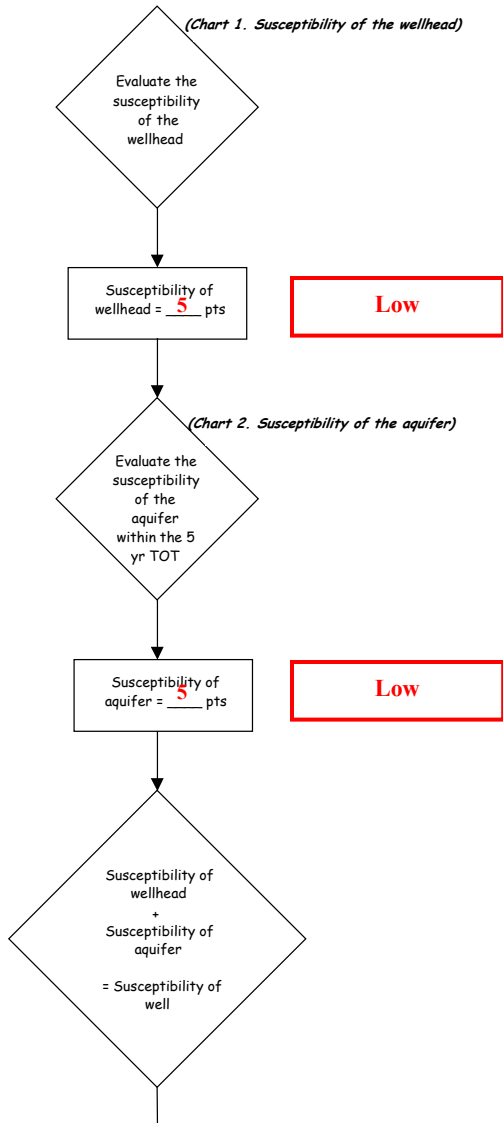


Chart 7. Contaminant risks for MOA Well #31 – Volatile Organic Chemicals

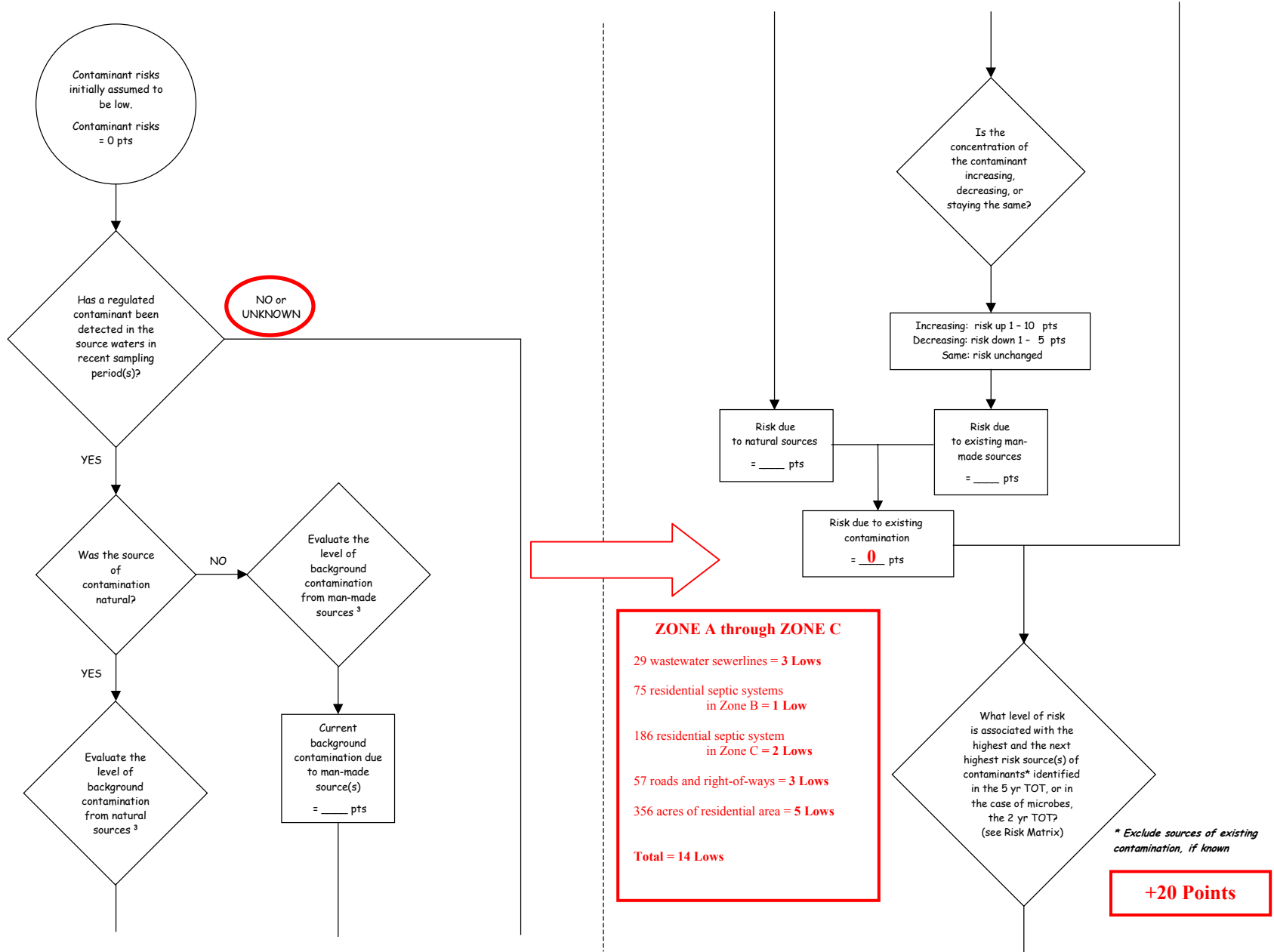


Chart 7. Contaminant risks for MOA Well #31 – Volatile Organic Chemicals (Continued)

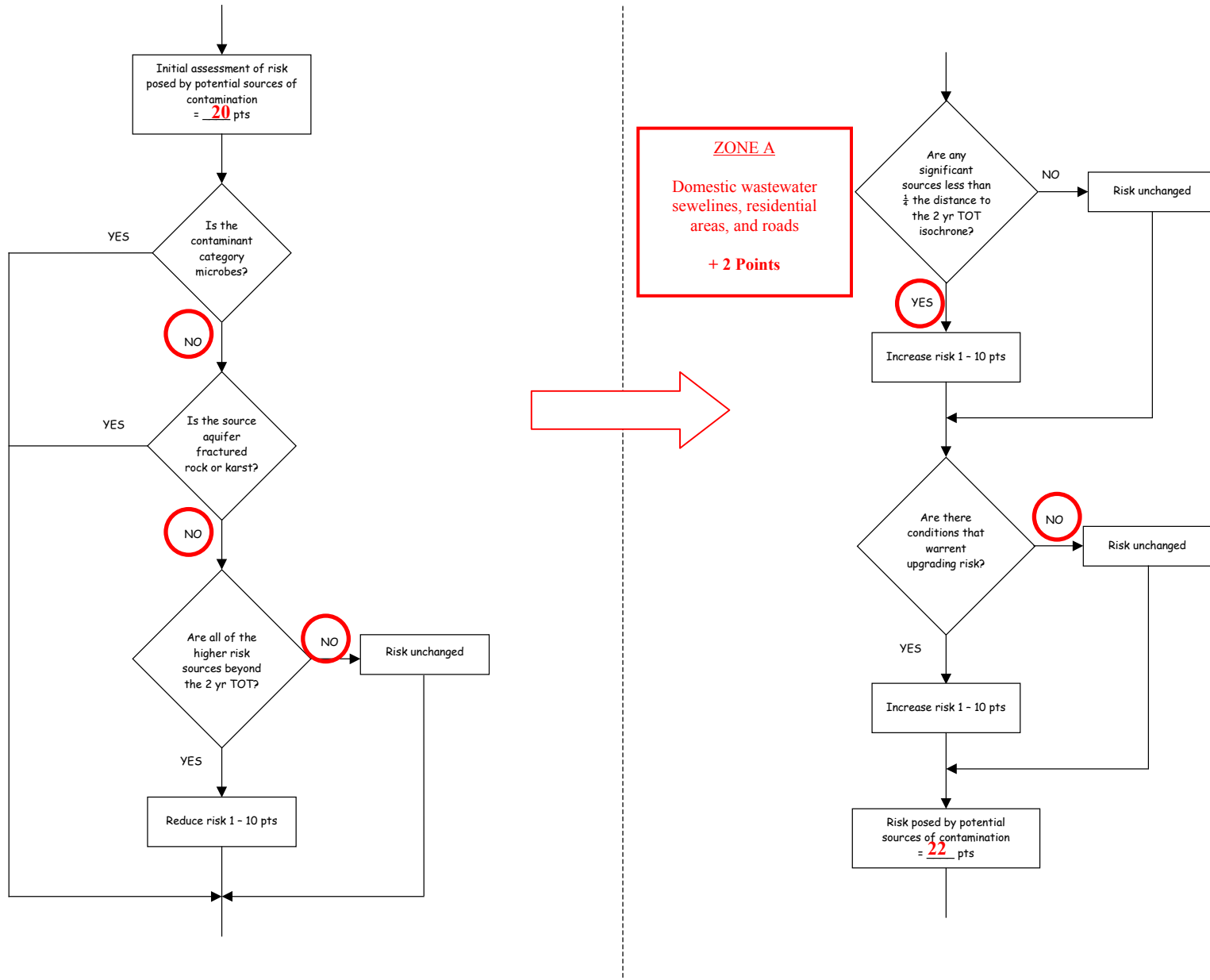


Chart 7. Contaminant risks for MOA Well #31 – Volatile Organic Chemicals (Continued)

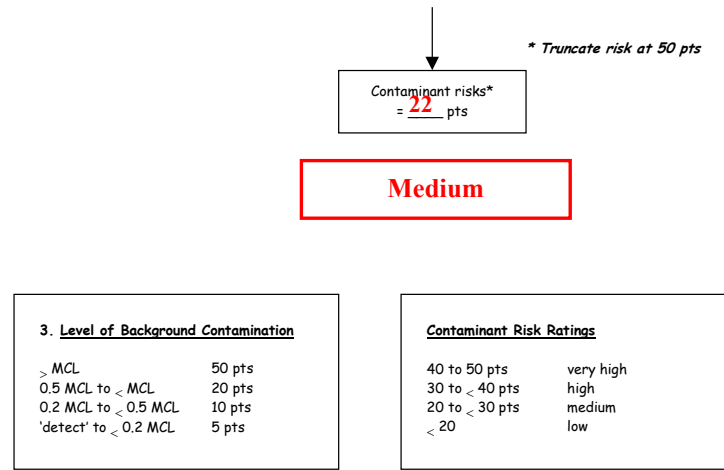
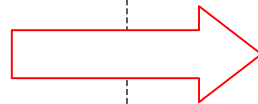
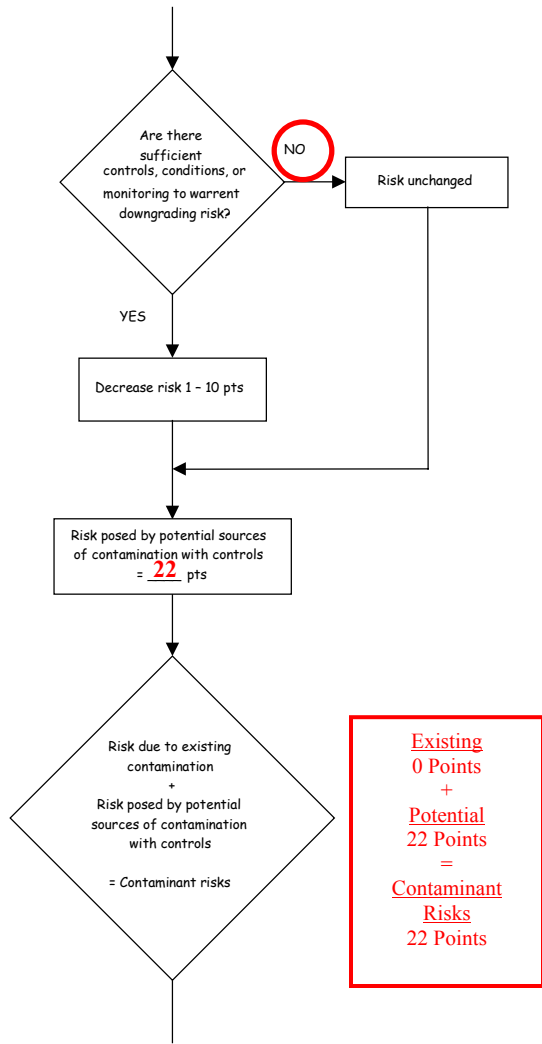


Table 3. Risk Matrix for Contaminant Sources for MOA Well #31 – Volatile Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	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 8. Vulnerability analysis for MOA Well #31 – Volatile Organic Chemicals

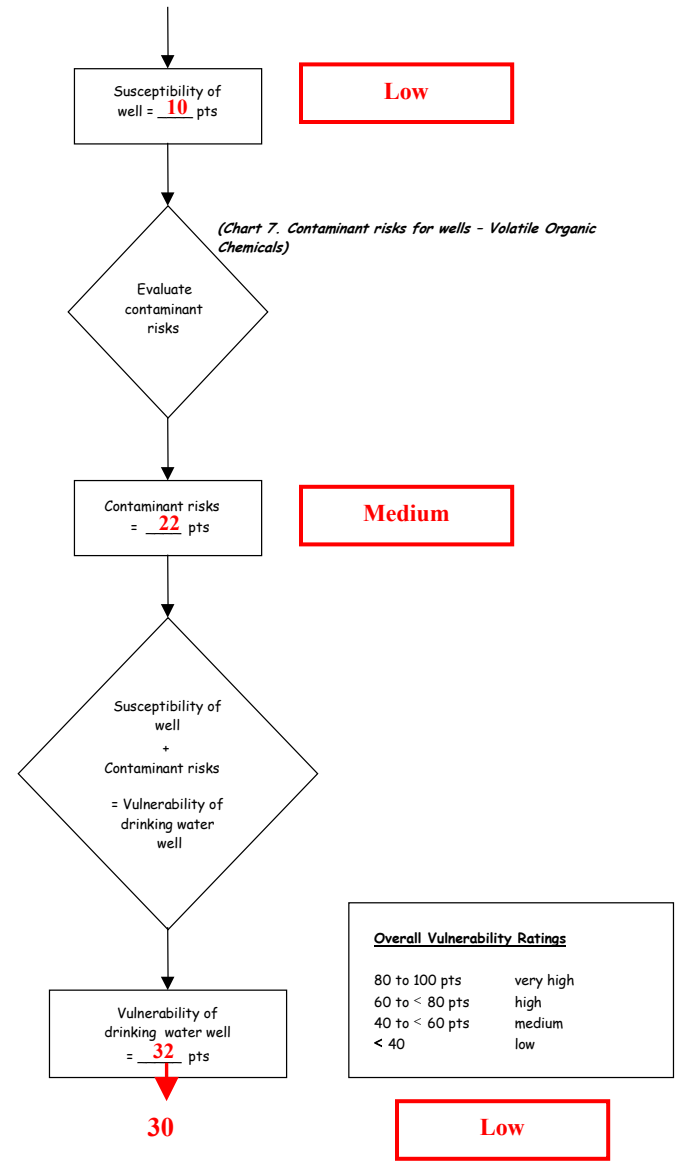
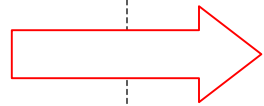
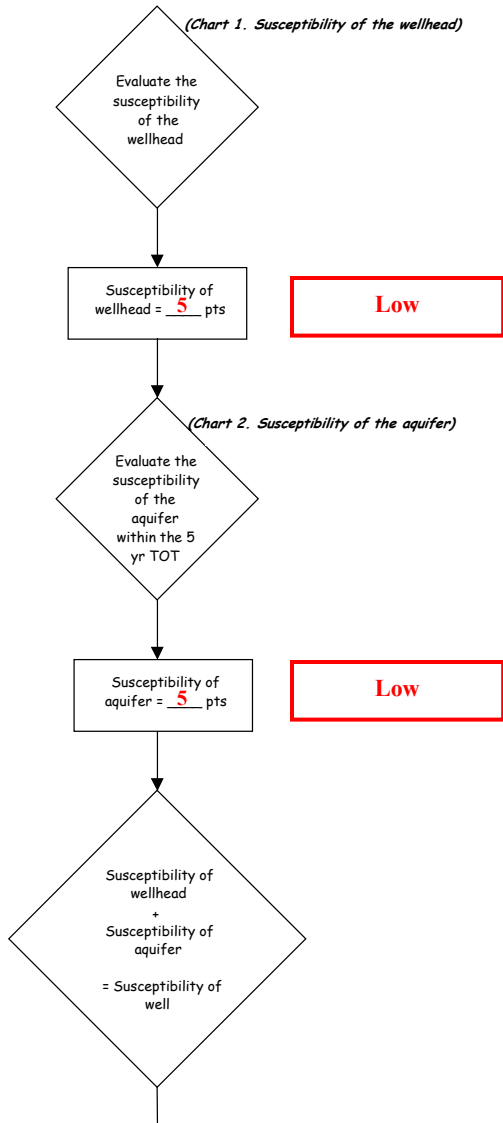


Chart 9. Contaminant risks for MOA Well #31 – Heavy Metals, Cyanide, and other Inorganic Chemicals

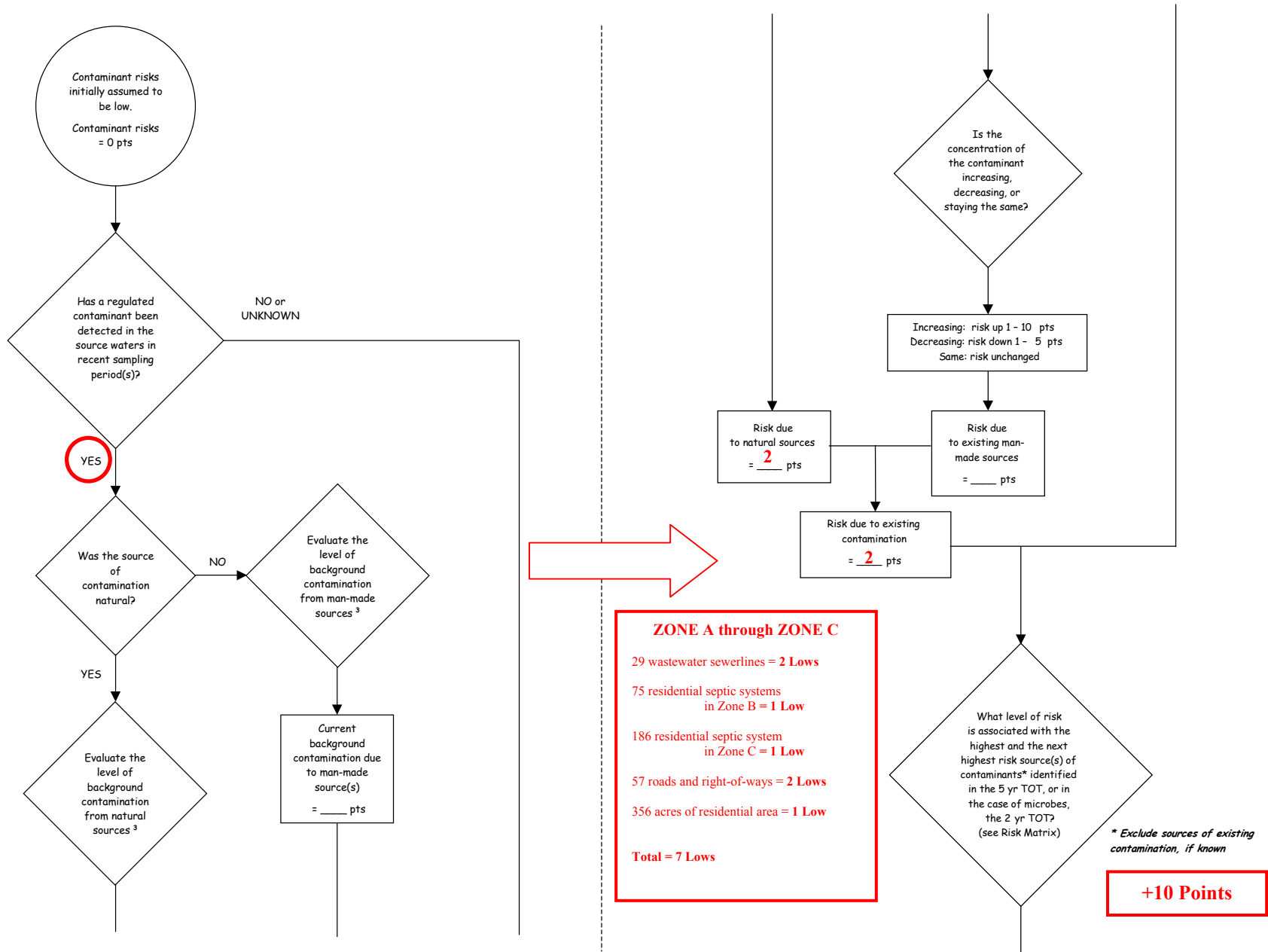


Chart 9. Contaminant risks for MOA Well #31 – Heavy Metals, Cyanide, and other Inorganic Chemicals (Continued)

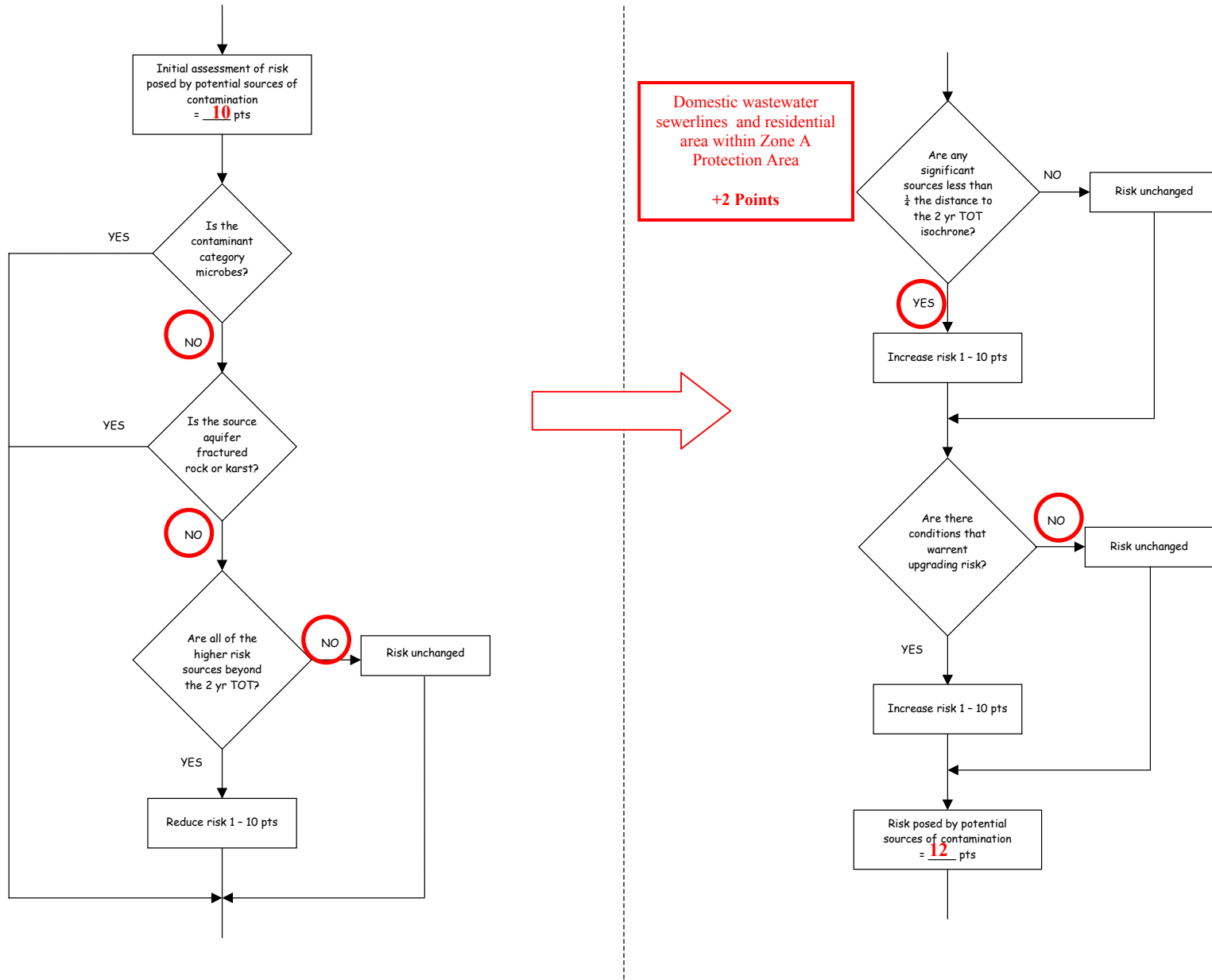


Chart 9. Contaminant risks for MOA Well #31 – Heavy Metals, Cyanide, and other Inorganic Chemicals (Continued)

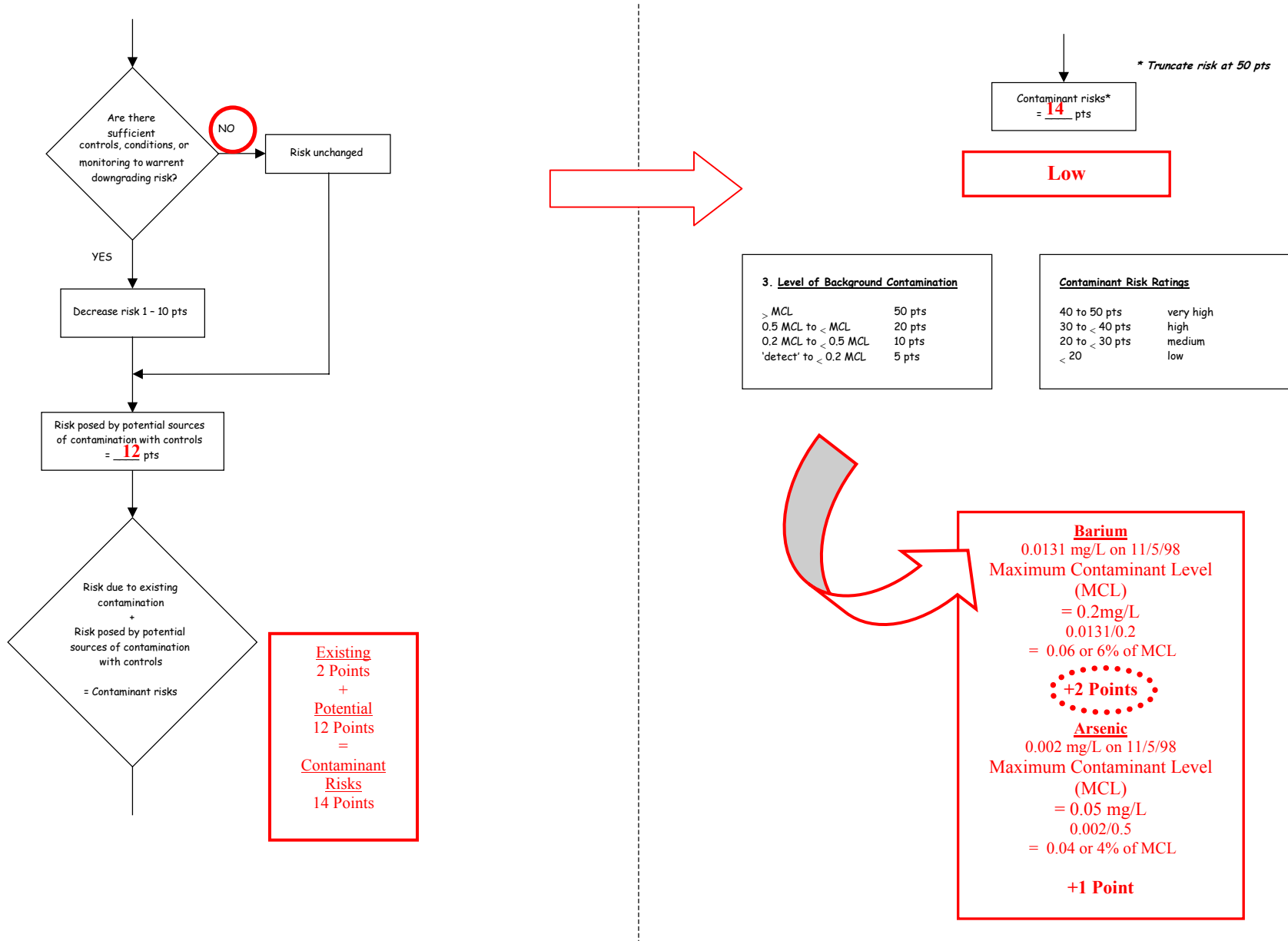


Table 4. Risk Matrix for Contaminant Sources for MOA Well #31 – Heavy Metals, Cyanide, and other Inorganic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	7 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 Well #31 – Heavy Metals, Cyanide, and other Inorganic Chemicals

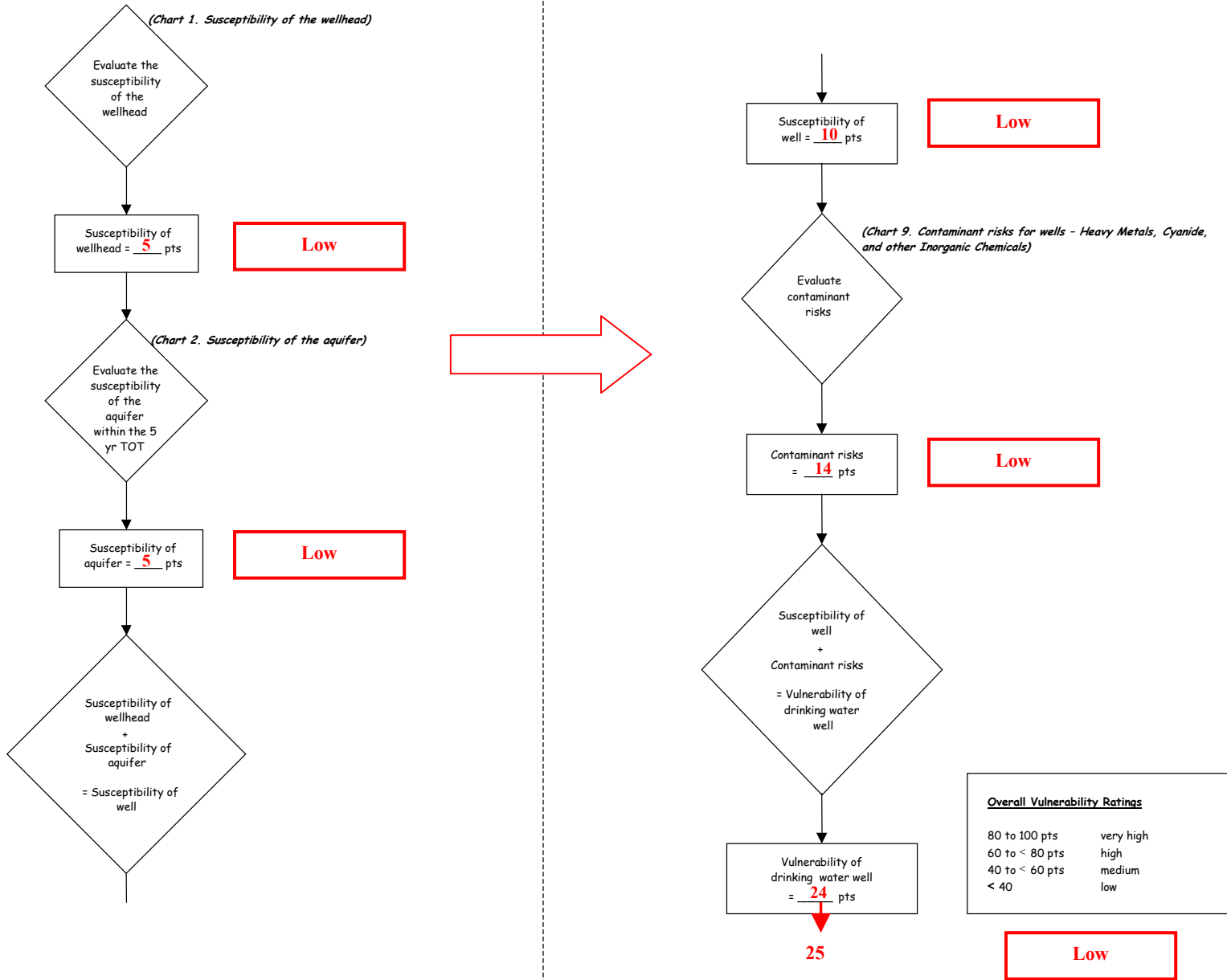


Chart 11. Contaminant risks for MOA Well #31 – Synthetic Organic Chemicals

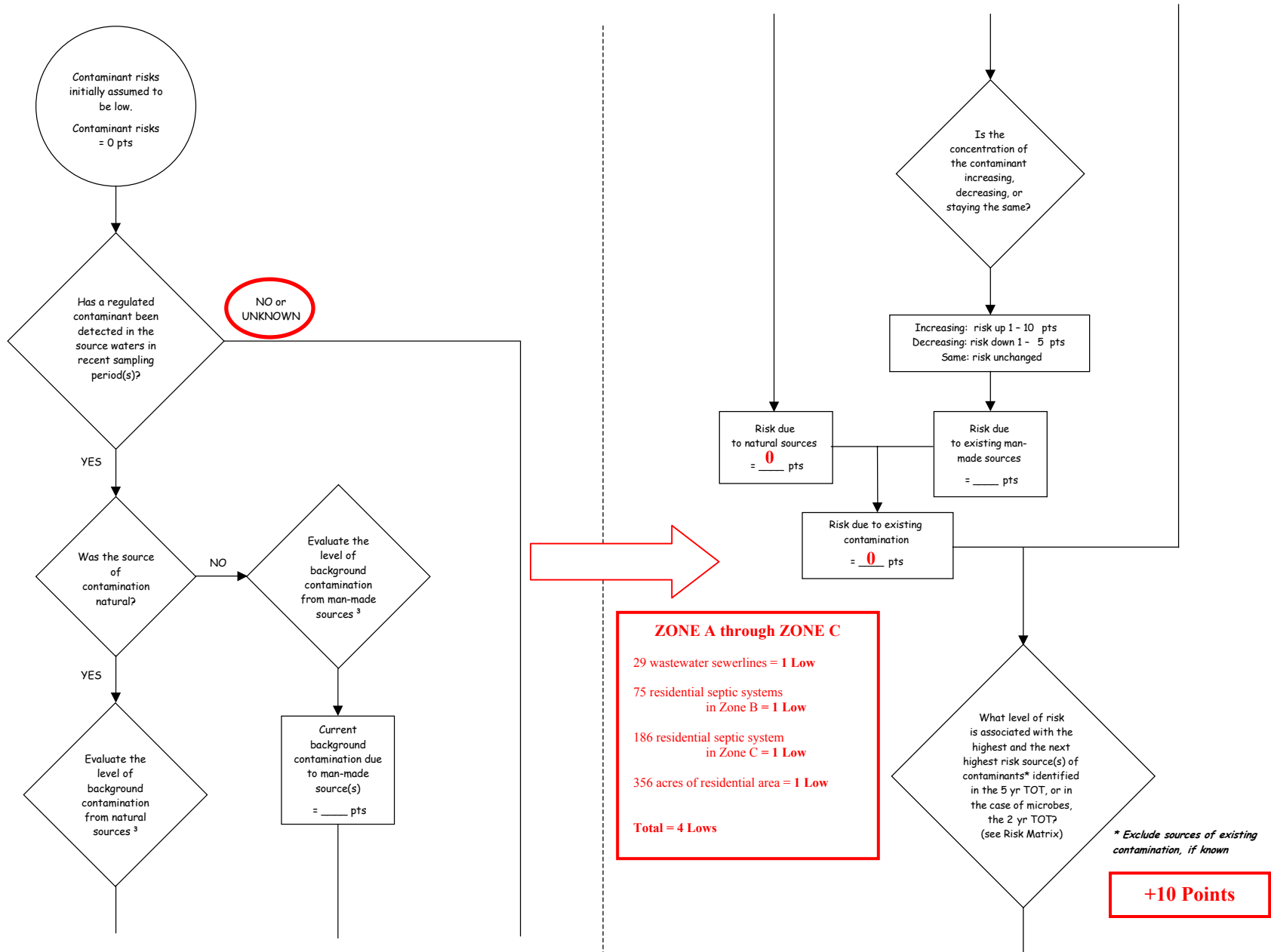
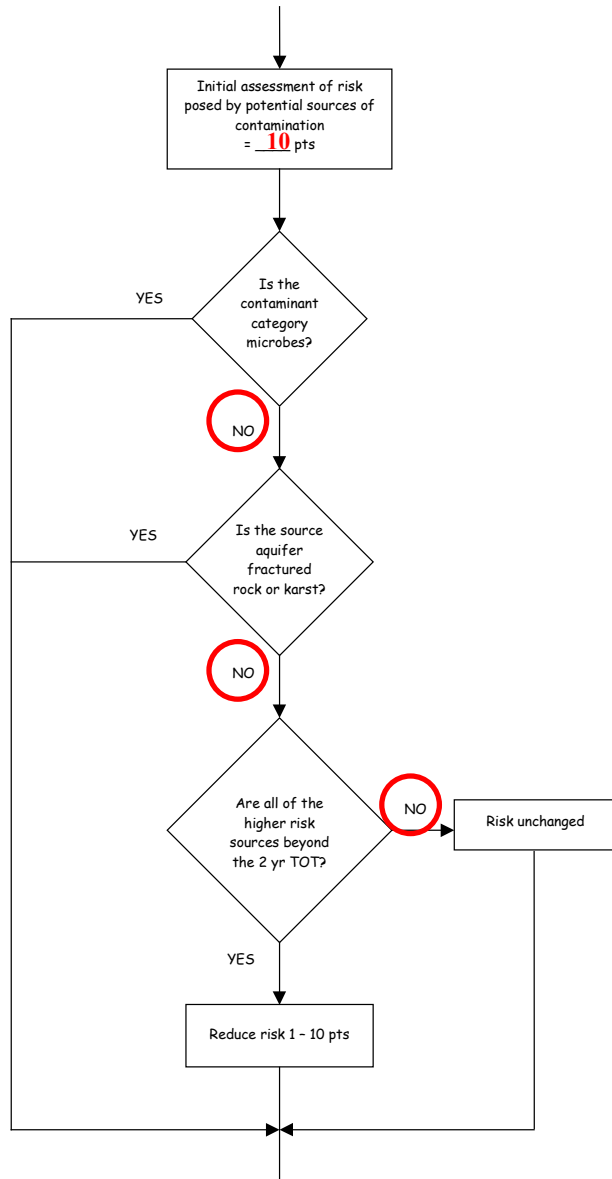


Chart 11. Contaminant risks for MOA Well #31 – Synthetic Organic Chemicals (Continued)



Residential area and wastewater sewerlines within Zone A Protection Area
+2 Points

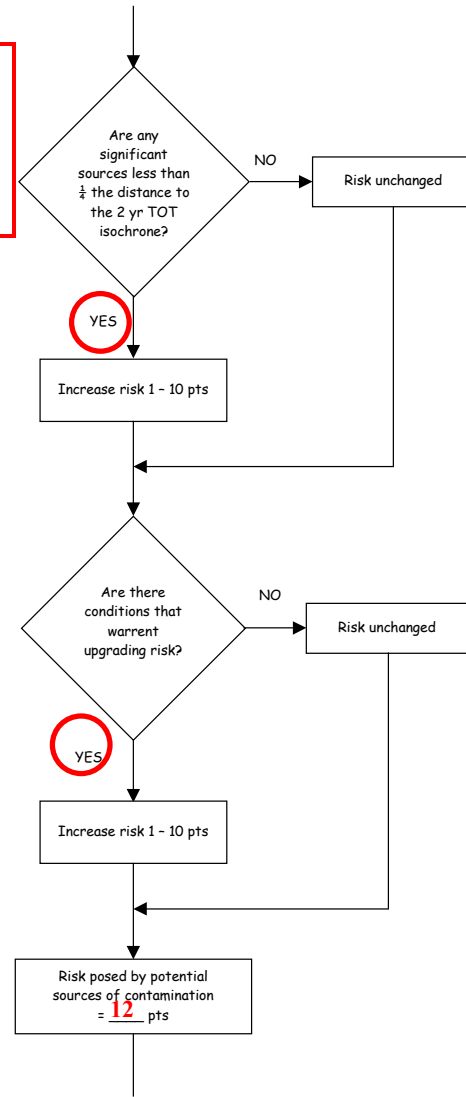
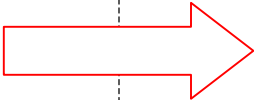


Chart 11. Contaminant risks for MOA Well #31 – Synthetic Organic Chemicals (Continued)

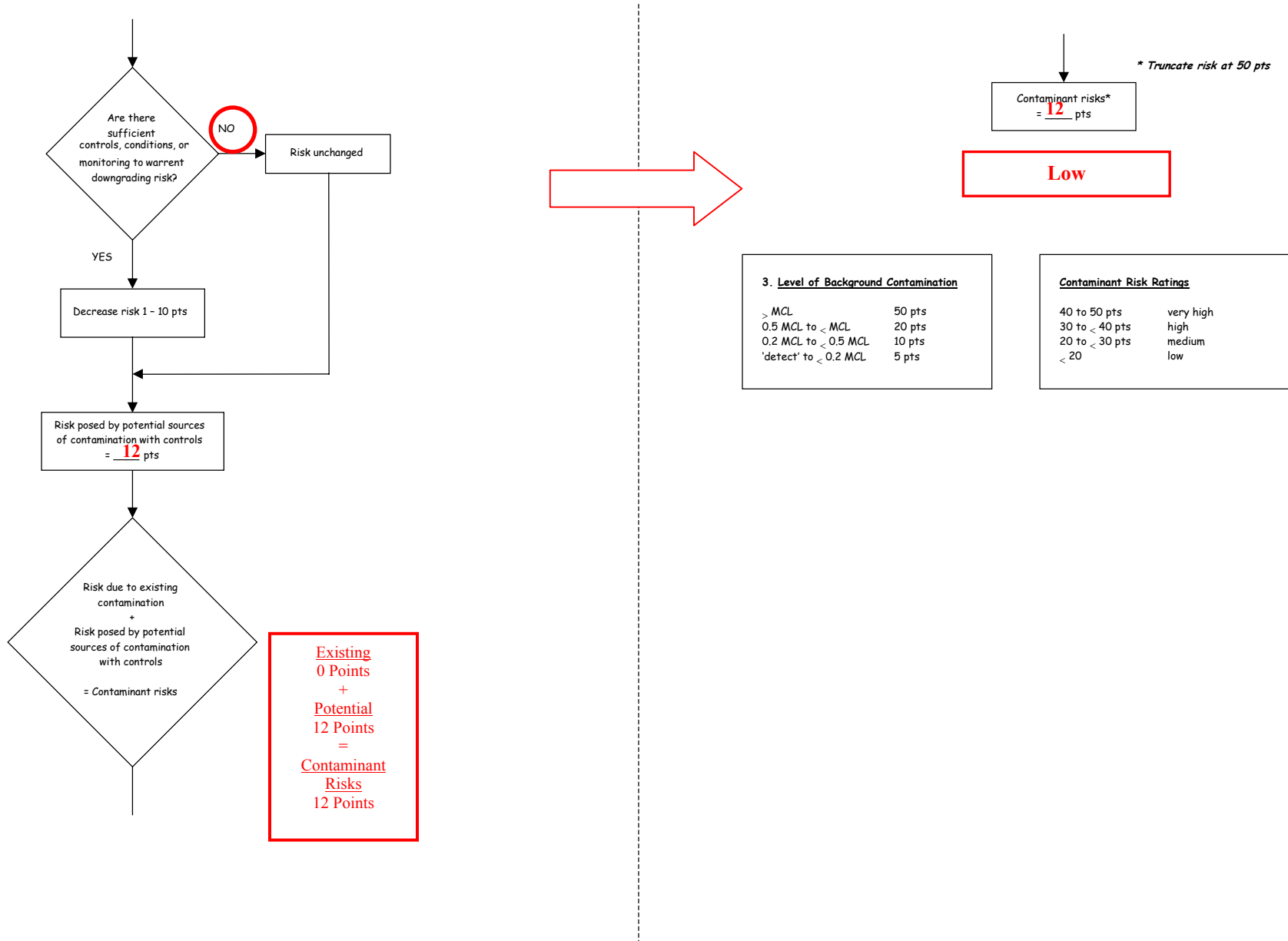


Table 5. Risk Matrix for Contaminant Sources for MOA Well #31 – Synthetic Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	4 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 Well #31 – Synthetic Organic Chemicals

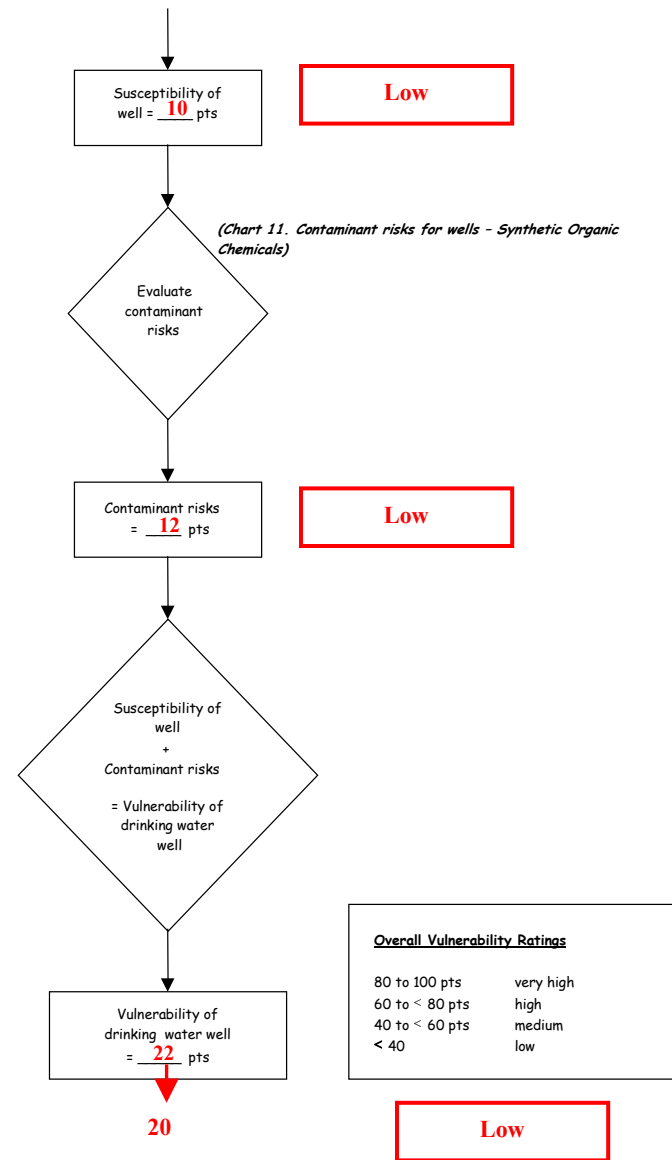
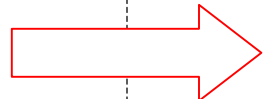
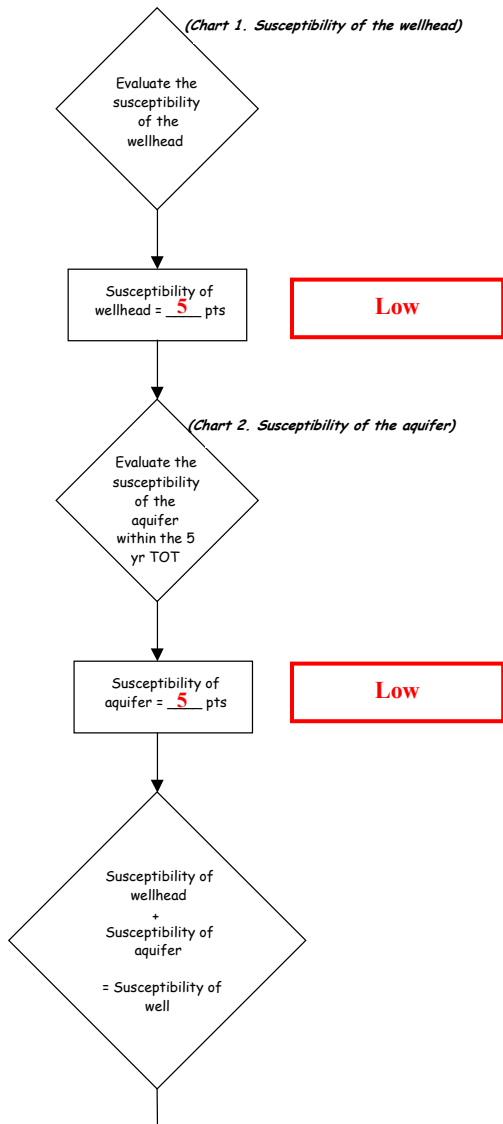


Chart 13. Contaminant risks for MOA Well #31 – Other Synthetic Organic Chemicals

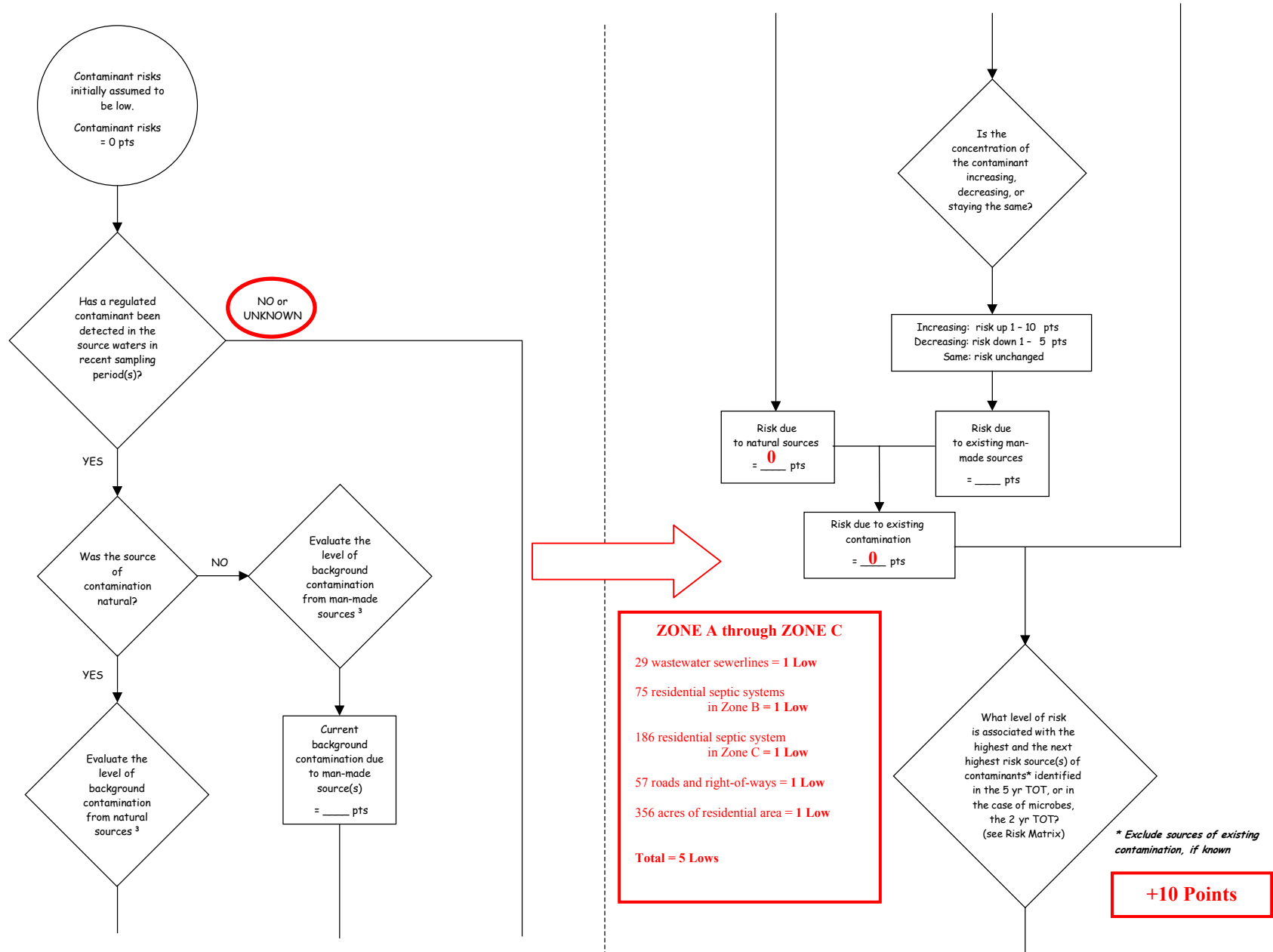


Chart 13. Contaminant risks for MOA Well #31 – Other Synthetic Organic Chemicals (Continued)

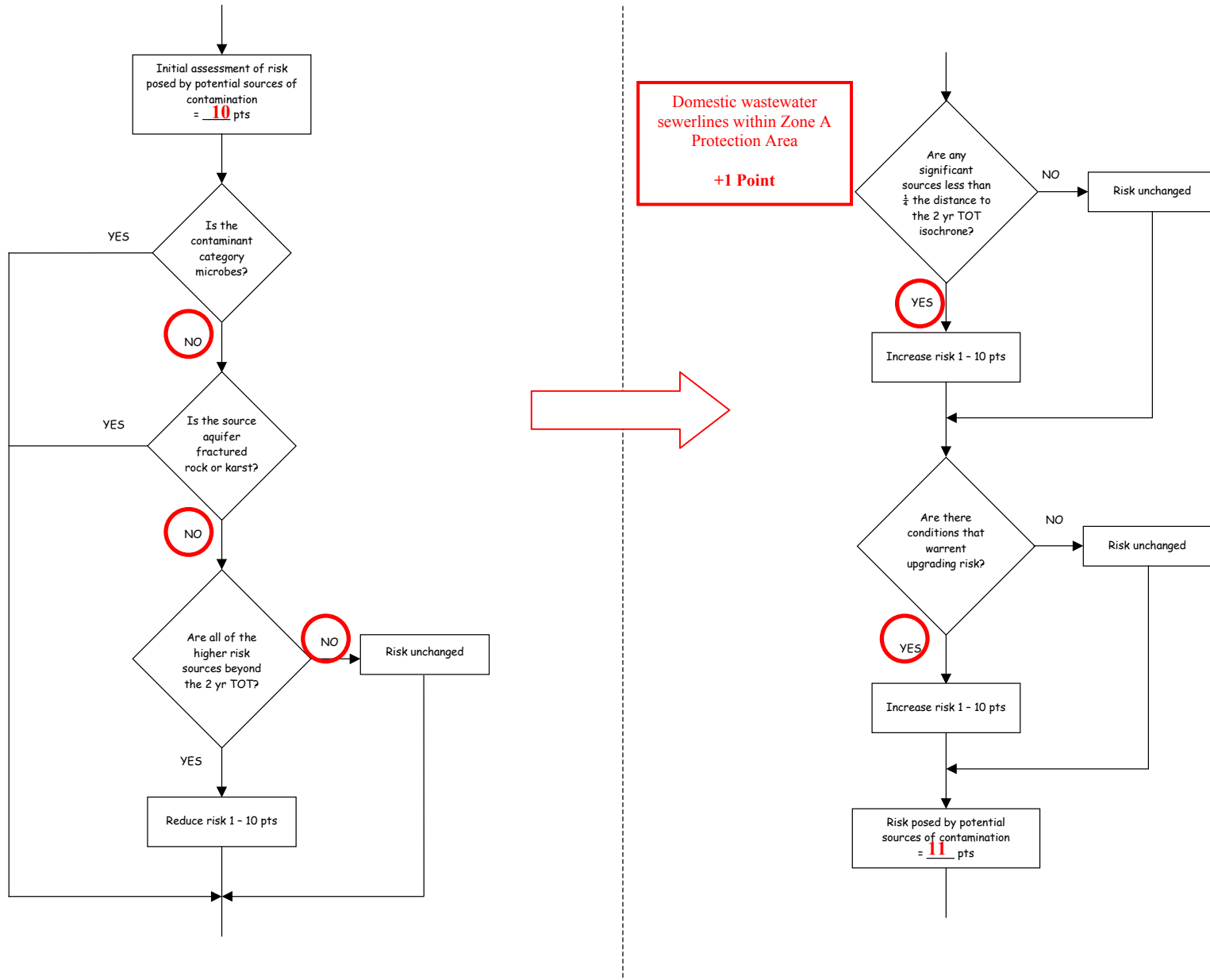


Chart 13. Contaminant risks for MOA Well #31 – Other Synthetic Organic Chemicals (Continued)

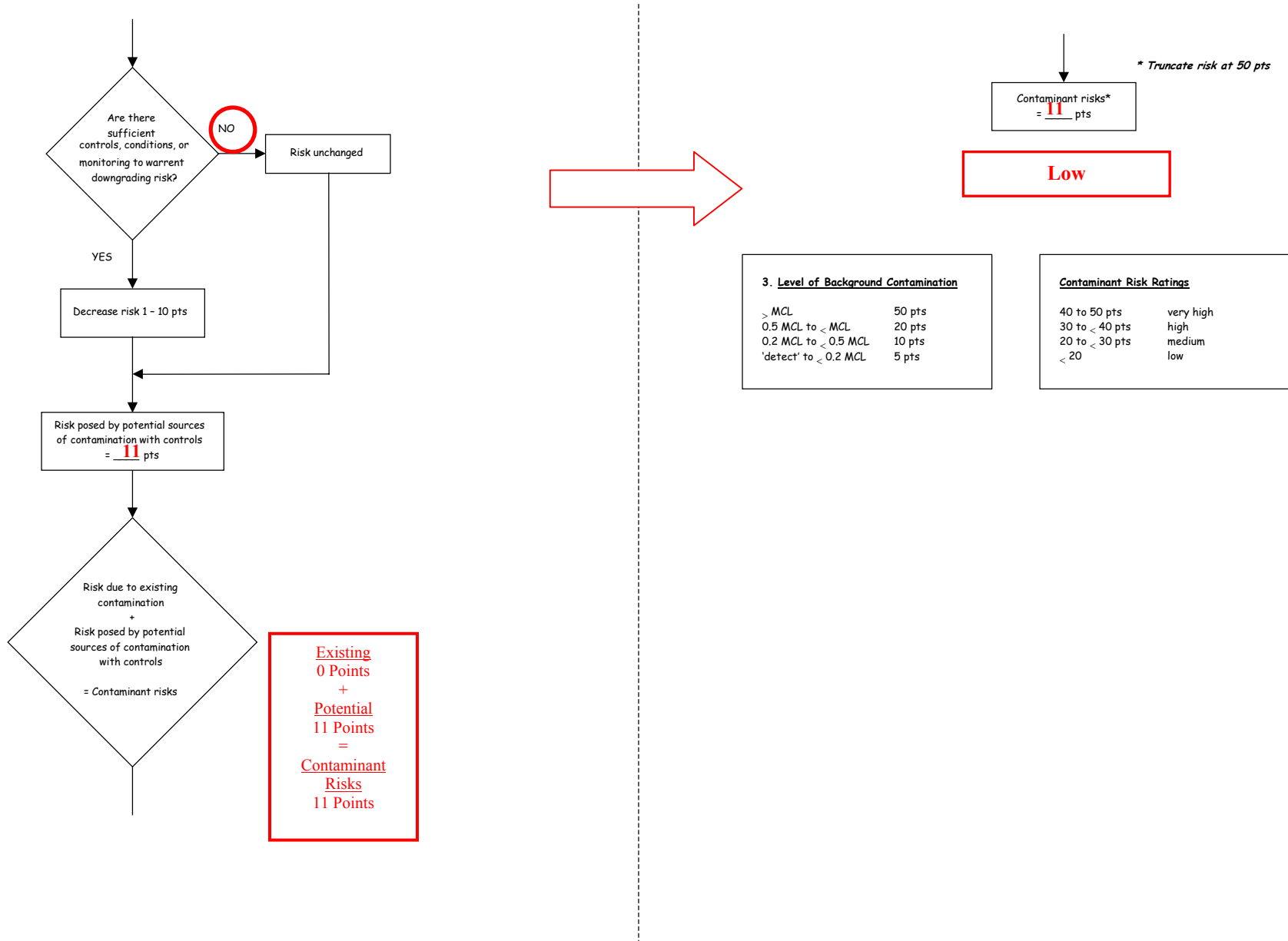


Table 6. Risk Matrix for Contaminant Sources for MOA Well #31 – Other Synthetic Organic Chemicals

Level of Risk Associated with the Highest Risk Sources

Next Highest Risk Sources(s)	5 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 Well #31 – Other Synthetic Organic Chemicals

