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Revision 2

Contaminant of Potential Concern Selection for the 200-PO-1 Groundwater Operable Unit

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company

P.O. Box 1600
Richland, Washington 99352

Approved for Public Release:
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Contents

1 Purpose

This calculation brief describes the selection of contaminants of potential concern (COPCs) for groundwater risk assessment at the 200-PO-1 Groundwater Operable Unit (OU). This evaluation supports the remedial investigation/feasibility study (RI/FS) process being conducted at the 200-PO-1 OU under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA). The process is currently at the RI stage of completion.

2 Background

Groundwater COPCs are potentially site-related analytes that are detected in groundwater at levels that represent a potential threat to human health or the environment and that have analytical data of sufficient quality for use in a quantitative baseline risk assessment. COPCs are selected based on a multi-step screening process. COPCs that pose a potentially unacceptable risk based on the baseline risk assessment are referred to as final COPCs and are carried forward to be addressed by the feasibility study (FS). The COPC defining process presented herein will serve as the baseline risk assessment for the 200-PO-1 OU. Any COPC with an exposure point concentration that is above an action level (e.g., Federal or State maximum contaminant levels [MCLs] or non-zero maximum contaminant level goals [MCLGs]) or water quality criteria established under section 304 or 303 of the Clean Water Act (where groundwater may impact surface water quality), will be maintained as a final COPC.

The approach used to identify final COPCs is consistent with EPA guidance provided in OSWER Directive 92831-33, *Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration*, which clarifies EPA's policies for determining whether a groundwater remedial action is warranted under CERCLA. In discussing the role of the baseline risk assessment, the EPA memorandum quotes the preamble to the National Oil and Hazardous Substance Pollution Contingency Plan (NCP):

- The results of the baseline risk assessment are used to determine whether remediation is necessary, to help provide justification for performing remedial action, and to assist in determining what exposure pathways need to be remediated.

The memorandum then goes on to clarify EPA's policy in this regard:

- Chemical-specific standards that define acceptable risk levels (e.g., non-zero MCLGs, MCLs) also may be used to determine whether an exposure is associated with an unacceptable risk to human health or the environment and whether remedial action under Section 104 or 106 is warranted. For ground water action, MCLs and non-zero MCLGs will generally be used to gauge whether remedial action is warranted.

Furthermore, the memorandum addresses groundwater impact to surface water:

- Where groundwater may impact surface water quality, "Water quality criteria established under established under section 304 or 303 of the Clean Water Act" may be relevant and appropriate standards consistent with CERCLA §121(d)(2)(A)(ii).

A preliminary COPC evaluation was conducted to support preparation of the 200-PO-1 OU work plan (DOE/RL-2007-31). The work plan effort evaluated groundwater analytical data collected over an 18-year period (1988 to 2006) and resulted in the identification of a proposed list of 44 COPCs (DOE/RL-2007-31, Table 4-5). The proposed list of COPCs identified in DOE/RL-2007-31 is provided in Table 2-1.

Table 2-1. Proposed List of Contaminants of Potential Concern in the 200-PO-1 Groundwater Operable Unit

Metals	Semivolatile Organic Compounds
Antimony	2,4-Dinitrophenol
Arsenic	Bis (2-ethylhexyl) phthalate
Cadmium	Nitrobenzene[b]
Chromium	Pentachlorophenol
Lead	**Radiological**
Manganese	Gross alpha[c]
Nickel	Iodine-129
Thallium	Neptunium-237[a]
Uranium	Protactinium-231[a]
Vanadium	Selenium-79[a]
Zinc	Strontium-90
Volatile Organic Compounds	Technetium-99
1,1,2,2-Tetrachloroethane	Tritium
1,2-Dichloroethane	Uranium-234
1,4-Dioxane[b]	Uranium-238
Benzene	**Pesticides**
Bromodichloromethane	Dieldrin
Carbon tetrachloride	Dimethoate
Dibromochloromethane	Heptachlor
Hexane[a]	Heptachlor epoxide
Methylene chloride	**Ions**
Tetrachloroethene	Fluoride
Trichloroethene	Nitrate
Vinyl chloride	Nitrite

a. Represents constituents found in historical process documents that have a potential to contribute to dose and have long half lives, or in the case of hexane, regulatory limits set due to U.S. Environmental Protection Agency listing as a possible carcinogen; these contaminant of potential concerns have not been previously analyzed in the 200-PO-1 Groundwater Operable Unit.

b. Represents constituents not found in historical process documents, but are found in the 200-PO-1 Groundwater Operable Unit.

c. Represent survey parameters

The present evaluation focuses on 1) validating and updating the results of the DOE/RL-2007-31 COPC evaluation using more recent groundwater analytical data (2004 to 2009), and 2) evaluating the selected COPCs to identify those that qualify as final COPCs. The present evaluation uses a rigorous screening methodology and incorporates updated action levels derived from a comprehensive set of chemical-specific applicable or relevant and appropriate requirements (ARARs) than what was used in the DOE/RL-2007-31 COPC evaluation.

Included in this calculation brief is a description of the 200-PO-1 OU COPC data evaluation process, a summary of the final COPC results, and a discussion of uncertainties.

3 Methodology

The evaluation methodology involves a sequence of three steps, consisting of 1) extracting and processing an OU-specific analytical data set, 2) screening the data for the entire 200-PO-1 groundwater OU to select analytes that qualify as initial COPCs for groundwater risk assessment, and 3) screening the initial COPCs for each exposure area to identify analytes that qualify as final COPCs. Each step is described in overview below; implementation details and results are presented in subsequent sections.

3.1 Analytical Data Processing

The analytical data set for the 200-PO-1 OU evaluation is extracted from the Hanford Environmental Information System (HEIS) database. Groundwater data from a total of 177 wells are extracted from HEIS and used for this evaluation. After extraction from HEIS, the analytical data are processed to obtain a single set of results per sampling location and time of collection. The data processing steps, number of records, and number of analytes associated with each step are depicted in Figure 3-1.

3.1.1 Unfiltered Sample Results

Only unfiltered nonradiological and radiological results are used for selecting COPCs. Use of unfiltered sampling results represents total concentrations of the analyte. Use of filtered sampling results may underestimate chemical and radiological concentrations in water from an unfiltered tap and are not used for the COPC selection process.

The *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A)* (EPA/540/1-89/002) provides guidance on the procedure to estimate exposure concentrations in groundwater. This guidance states the following:

> "While filtration of ground-water samples provides useful information for understanding chemical transport within an aquifer, the use of filtered samples for estimating exposure is very controversial because these data may underestimate chemical concentrations in water from an unfiltered tap. Therefore, data from unfiltered samples should be used to estimate exposure concentrations".

The uncertainties associated with the use of only unfiltered groundwater samples are discussed in Section 8.

3.1.2 Laboratory and Data Validation Flags

After receiving analytical data with data qualification flags from the laboratory, validation qualifiers are assigned during the data validation process. The following rules are applied to determine how the sample results can be used for selecting COPCs.

- All sample results flagged with a "U" qualifier or combination of qualifiers that include a "U," such as a "UJ," are considered a nondetected concentration.

- All sample results without a "U" qualifier are considered detected concentrations, including results without a qualifier or with a "J" qualifier.
- All sample results that are rejected and flagged with an "R" qualifier are not used for selecting COPCs.

3.1.3 Analytes Reported by Numerous Analytical Methods

An analyte often can be reported by more than one analytical method, resulting in multiple results for the same analyte from the same location. When analytes are reported by more than one analytical method, results are processed to select the method that provides the most reliable results. For example, the gamma spectroscopy method will provide concentration results for the uranium isotopes; however, uranium concentrations should be reported by a uranium-isotope-specific method.

3.1.4 Field Duplicate and Split Results

Field quality control samples (field duplicates and field splits) are collected in the field and analyzed by the laboratory as unique samples. The parent sample and quality control samples will be collected from the same location (i.e., monitoring well), resulting in more than one sample per location. The following criteria are used to reduce multiple sample results from one location to a single result.

- If two or more detections exist, the maximum concentration will be used.
- If at least one detection and one or more nondetections exist, the detected concentration will be used.
- If two or more nondetections exist, the lowest detection limit will be used.

3.2 Action Levels

Action levels are derived from readily available sources of chemical-specific ARARs or risk-based preliminary remediation goals (PRGs) developed using U.S. Environmental Protection agency (EPA) health criteria and default exposure assumptions. All sources of chemical-specific ARARs and PRGs for each of the 335 analytes reported are identified in Table 3-1. For the initial COPC selection process, the action level represents the lowest of the available values for each analyte evaluated. For the final COPC selection process, the action level represents the lowest of the available values that is appropriate for the exposure area. Groundwater in the far-field and river exposure areas has the potential for use as a drinking water source and to discharge to the Columbia River. Whereas, the groundwater in near-field exposure area will not likely move outside the boundaries of the exposure area resulting in the potential as a drinking water source only. A summary level description of the sources of available chemical-specific ARARs and PRGs is provided below. A detailed description of the derivation of action levels is provided in a separate calculation brief (ECF-200PO1-09-2026).

3.2.1 ARAR-Based Remediation Goals

Potential chemical-specific ARARs include concentration limits set by federal environmental regulations such as MCLs, secondary MCLs, and non-zero MCLGs established under the *Safe Drinking Water Act of 1974*, ambient water quality criteria established under the *Clean Water Act of 1977*, and Washington State regulations (WAC 173-340-720, "Groundwater Cleanup Standards"; WAC 173-340-730, "Surface Water Cleanup Standards"; WAC 246-290-310, "Maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs), and WAC 173-201A, "Water Quality Standards for Surface Waters of the State of Washington").

3.3 Initial COPC Identification Process

After extracting and processing the 200-PO-1 OU groundwater analytical data set, a multi-step screening process is used to identify the COPCs for groundwater risk assessment. The initial COPC identification

process steps, number of records, and number of analytes associated with each step are depicted in Figure 3-2. The steps are:

- Apply exclusion criteria
- Identify nondetected analytes
- Identify analytes with maximum detected concentrations less than their respective action levels;
- Identify analytes with maximum detected concentrations greater than their respective action levels.

3.3.1 Apply Exclusion Criteria

The first step in the groundwater COPC identification process is to apply certain exclusion criteria. Analytes that meet one or more of the exclusion criteria were eliminated as COPCs. Analytes that did not meet any of the exclusion criteria were carried forward into the next step. The exclusion criteria are:

- Naturally occurring radionuclides associated with background radiation
- Radionuclides that have half-lives of less than 3 years and are not significant daughter products
- Essential nutrients (minerals)
- Water quality parameters
- Analytes without action levels

3.3.2 Identify Nondetected Analytes

The next step in the groundwater COPC identification process was to identify nondetected analytes. Chemicals and radionuclides that have been analyzed for, but not detected in any sample (collected from appropriate locations, with adequate detection limits), are eliminated as COPCs. All analytes detected at least once were carried forward to the next step.

3.3.3 Identify Analytes with Maximum Detected Concentrations Less Than Action Levels

This step identifies analytes with maximum concentrations less than action levels. In this initial screening, the maximum concentration of each analyte detected in groundwater was compared to its action level, to identify analytes not likely to contribute significantly to overall risk. If the maximum detected concentration of an analyte was less than its action level, the analyte was eliminated as an initial COPC, unless the uncertainty analysis indicated otherwise.

Uncertainty Analysis. An additional evaluation was performed on those analytes that were detected at concentrations that were near but did not exceed their respective action level (i.e., the maximum detected concentration was at least greater than one-tenth the action level). This evaluation also included the additional analytes identified on the proposed list of COPCs in DOE/RL-2007-31, Table 4-5 (See Table 2-1).

The purpose of this evaluation is to determine if there is a potential for underestimating cumulative effects when the concentrations of analytes only slightly less than their action levels. Additionally, method detection limits (MDLs) associated with these analytes were evaluated, to determine if the limits are adequate for confirming presence or absence of the analytes near their respective action levels.

3.3.4 Identify Analytes with Maximum Detected Concentrations Greater Than Action Levels

This step identifies analytes with maximum concentrations greater than their respective action levels. Such analytes are likely to contribute to overall risk. If the maximum detected concentration of an analyte is greater than its action level, the analyte is identified as an initial COPC, unless the uncertainty analysis indicates otherwise.

Uncertainty Analysis. An additional evaluation was performed to distinguish two types of analytes that were detected infrequently:

- Analytes detected once, or a very few times, with high concentrations that are not consistent with the remainder of the dataset (are not reproducible). Such results can lead to overestimation of actual groundwater concentrations. Analytes with limited, non-reproducible results are not retained as initial COPCs.
- Analytes that were detected infrequently overall, but more frequently at one or more locations, and that are associated with a significant local trend or may be associated with a continuing vadose source. Such results indicate a potential risk, and these analytes are retained as initial COPCs.

3.4 Final COPC Identification

After selecting the initial 200-PO-1 OU groundwater COPCs, a multi-step screening process is applied to the COPC analytical data to identify final COPCs. The final COPCs are identified separately for each of three exposure areas comprising the 200-PO-1 OU, consisting of 1) near-field, 2) far-field, and 3) river exposure areas.

Final COPCs are identified by comparing exposure point concentrations to their respective action levels. The sequential steps in the final COPC identification process are:

- Identify unconfined aquifer monitoring wells in each exposure area
- Identify nondetected and detected COPCs in each exposure area
- Perform statistical calculations to estimate EPCs for COPCs detected in each exposure area
- Identify COPCs with EPCs less than action levels in each exposure area
- Identify COPCs with EPCs greater than action levels in each exposure area.

The final COPC screening process steps are depicted in Figures 3-3 and 3-4.

4 Assumptions and Inputs

4.1 Groundwater Data Set Used For COPC Selection

The groundwater data set used for COPC selection consists of sampling and analysis data collected from 177 monitoring wells from the 200-PO-1 OU. All of these wells are either monitoring wells or compliance wells. Although groundwater data collected from injection wells, extraction wells, and aquifer tubes can be used with monitoring and compliance data for purposes such as remedy selection and design, these other data are not used for risk assessment purposes. A comprehensive list of the monitoring wells used in this evaluation is provided in Table 4-1. Process of analytical results from the set of 177 wells identified that well 299-E32-29Q and well 299-E24-3 do not have analytical results that can be used for risk assessment purposes. The sampling and analysis data were collected over a 5-year period between January 13, 2004 and March 30, 2009. A total of 90,754 records were obtained from HEIS, and a total of 335 analytes are reported in this data set.

5 Software Applications

Software used for this analysis includes HEIS, Microsoft Access[1] database software, ProUCL statistical software[2] and Microsoft Excel[3]. HEIS is a central repository for storing and maintaining access to

1 Access is a trademark of Microsoft Corporation, Redmond, Washington.
2 ProUCL is a statistical software package developed by the U.S. Environmental Protection Agency, distributed free of charge, and made available for download at http://www.epa.gov/nerlesd1/tsc/TSC_form.htm.

environmental data collected and analyzed for the Hanford Site. Microsoft Access is used to query and sort the data downloaded from HEIS. ProUCL is used to perform statistical calculations that provide estimates of analyte exposure point concentrations (EPCs). Microsoft Excel is used to present the groundwater data and information in spreadsheets.

6 Calculation

Initial and final groundwater COPCs for the 200-PO-1 groundwater OU are identified using the methodology presented in Section 3 and the groundwater data set described in Section 4. Results for each step of the COPC identification process are summarized in the text and tables in Section 7.

7 Results/Conclusions

7.1 Identification of Initial Groundwater COPCs

This section summarizes the results of the initial COPC identification process.

7.1.1 Apply Exclusion Criteria

The following subsections summarize the results of the exclusion criteria screening step. A total of 77 of the 335 analytes meet the exclusion criteria and are listed in Table 7-1. Sampling dates, minimum and maximum detected concentrations, minimum and maximum method detection limits (MDLs), and the basis for their exclusion are provided in Table 7-1

7.1.1.1 Background Radiation

One naturally occurring radionuclide associated with background radiation (potassium-40) was measured in groundwater from the 200-PO-1 OU and is eliminated as a COPC.

7.1.1.2 Radionuclides with Half-lives of Less Than 3 Years

Radioisotopes with half-lives less than or equal to 3 years are eliminated from further consideration because only a small fraction of activity remains after 30 years of decay. A total of four radioisotopes meet this exclusion criterion (antimony-125, beryllium-7, cesium-134, and ruthenium-106) and are eliminated from further consideration as COPCs. Each of these radioisotopes were reported with non-detectable concentrations.

7.1.1.3 Essential Nutrients

Essential nutrients are those analytes considered essential for human nutrition. Essential nutrients (calcium, magnesium, potassium, and sodium) were measured in groundwater from the 200-PO-1 OU and are excluded from further consideration as COPCs.

7.1.1.4 Water Quality Parameters

Water quality parameters that represent physical and biological characteristics, such as temperature, pH, or turbidity, are eliminated as COPCs. In all cases, water quality parameters do not have available toxicological information and cannot be evaluated for exposure purposes. Twelve water quality parameters were measured in groundwater from the 200-PO-1 OU and are eliminated from further consideration as COPCs.

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3 Excel is a trademark of Microsoft Corporation, Redmond, Washington.

7.1.1.5 Analytes without Action Levels

Analytes without an action level are eliminated as COPCs because a promulgated chemical-specific ARAR is not published from the list of available sources cited in Section 5.1. Fifty-six analytes are eliminated because an action level is not available. Forty-one of the 56 are either dioxin/furans, volatile organic compounds (VOCs), or semivolatile organic compounds (SVOCs) that are opportunistically reported with an analytical suite and are not known to be associated with historical operations at the Hanford Site. Thirty-three of these 41 analytes have not been detected in any 200-PO-1 OU groundwater samples.

Six analytes without an action level are radiological analytes (gross beta, selenium-79, uranium-233/234, uranium-234, uranium-235, and uranium-238). Three of the six (selenium-79, uranium-234, and uranium-238) were included on the DOE/RL-2007-31 proposed list of COPCs (DOE/RL-2007-31, Table 4-5).

The standard for gross beta is based on 4 mrem/yr annual dose and is used to indicate the presence of a group of beta-emitters. Although this standard is available, it requires a conversion from activity levels (pCi/L) to an annual dose rate (mrem/yr). Rather, beta-emitting radioisotopes such as strontium-90, technetium-99, and tritium are compared to their isotope specific standard, which is based on a 4 mrem/yr annual dose and is considered more protective than the overall standard for gross beta. It should be noted that the gross beta standard provides a measure for the daughter products of uranium, which are beta emitters. Although the 4 mrem/yr standard for gross beta is available, it is not included on Table 5-1.

Selenium-79 was detected in 299-E25-93 (33 pCi/L) and 299-E13-4 (6 pCi/L) during July and December 2008, respectively. Selenium-79 was only analyzed once at each of these sample locations. Well 299-E5-83 is reported with concentrations of nitrate and technetium-99 above their respective action levels. Well 299-E13-4 is not reported with concentrations of analytes above action levels.

The uranium isotopes were detected at concentrations ranging from 0.14 to 34 pCi/L. Uranium-234, and uranium-238 are present in groundwater at concentrations above the proposed MCL value of 20 pCi/L. Uranium-235 concentrations are not greater than the proposed MCL value. Uranium isotopes are not identified as COPCs because the MCL for uranium (metal) is considered protective of kidney toxicity and carcinogenicity; total uranium (metal) is identified as a COPC for the 200-PO-1 groundwater OU (see Section 6.4). The following excerpt is taken from the National Primary Drinking Water Regulations to describe the basis for the uranium MCL:

"Exposure to uranium in drinking water may cause toxic effects to the kidney. In 1991, EPA proposed an MCL of 20 µg/L, which was determined to be as close as feasible to the maximum contaminant level goal (MCLG) of zero. Based on human kidney toxicity data collected since that time and on its estimate of the costs and benefits of regulating uranium in drinking water, EPA determined that the benefits of a uranium MCL of 20 µg/L did not justify the costs. Instead, EPA determined that 30 µg/L is the appropriate MCL, because it maximizes the net benefits (benefits minus costs), while being protective of kidney toxicity and carcinogenicity with an adequate margin of safety."

7.1.2 Identify Nondetected Analytes

The next step in the initial COPC identification process is to identify nondetected analytes. Analytes that have been collected from appropriate locations, have adequate detection limits, and that have not been detected in any of the groundwater samples within the 5-year time frame are eliminated as COPCs. All analytes detected at least once are carried forward to the next step of the process.

A total of 189 analytes have not been detected in the 200-PO-1 OU groundwater samples and are listed in Table 7-2. Table 7-2 also provides sampling dates, minimum and maximum MDLs, the action level, basis of the action level, and the level of exceedance. The action level in this table represents the lowest of available chemical-specific ARARs for protection of human and aquatic receptors. The minimum MDL is divided by the action level to determine the level of exceedance. The purpose of determining the level of exceedance associated with the minimum MDL is to identify those analytes with MDLs that have not met

the action level to date versus those analytes with MDLs that have met the action level at least some of the time.

Eleven dioxin/furans, 8 herbicides, 9 polychlorinated biphenyls (PCBs), 22 pesticides, 8 radioisotopes (americium-241, cesium-137, cobalt-60, europium-152, europium-154, europium-155, neptunium-237, and plutonium-238), 92 SVOCs, total petroleum hydrocarbons (TPH)-diesel range, 37 VOCs, and one wet chemistry parameters have not been detected and are not considered COPCs.

Twelve of the 189 nondetected analytes were included on the DOE/RL-2007-31 proposed list of COPCs (DOE/RL-2007-31, Table 4-5):

- 3 pesticides (dieldrin, heptachlor, and heptachlor epoxide)
- 1 radionuclide (neptunium-237)
- 4 SVOCs (2,4-dintrophenol, dimethoate, nitrobenzene, and pentachlorophenol)
- 4 VOCs (1,1,2,2-tetrachlorethane, bromodichloromethane, dibromochloromethane, and vinyl chloride)

Dieldrin, heptachlor, and heptachlor epoxide were reported with MDLs greater than their respective action levels. This indicates that EPA method 8081 was unable to detect these analytes at the action level. The MDLs for the three pesticides ranged from approximately 30 to 80 times greater than their action levels. Additionally, dieldrin, heptachlor, and heptachlor epoxide were not detected in any water sample collected from the 200-PO-1 OU over the past 10 years (1999 to 2009). Although the current analytical method cannot attain MDLs at the action level, there is no known release of pesticides within the boundaries of the 200-PO-1 OU and they have not been detected in groundwater over the past 10 years. Therefore, these pesticides are not identified as COPCs.

Neptunium-237 has only recently been analyzed for in 200-PO-1 OU groundwater (2008 and 2009), there have been zero detections at a total of 40 locations. All results were reported with MDLs less than the neptunium-237 action level of 15 pCi/L, which is considered sufficient to confirm its absence in groundwater. Neptunium-237 is therefore not identified as a COPC.

2,4-Dintrophenol, dimethoate, and nitrobenzene were reported with MDLs less than their respective action levels, which is considered sufficient to confirm their absence in groundwater. Additionally, 2,4-dintrophenol, dimethoate, and nitrobenzene were not detected in any water sample collected from the 200-PO-1 OU over the past 10 years. These results supports that these three analytes are not identified as COPCs.

Pentachlorophenol was reported with the MDLs slightly greater than the action level. MDLs for pentachlorophenol ranged from 0.58 to 4.8 µg/L and the action level is 0.27 µg/L. EPA Methods 8040 and 8270 were used to analyze for pentachlorophenol in groundwater. Although the MDLs cannot achieve the action level, a total of 88 locations were analyzed for pentachlorophenol and it was not detected using the methods that are currently available. Additionally, pentachlorophenol was not detected in any water sample collected from the 200-PO-1 OU over the past 10 years. Although the MDLs for pentachlorophenol cannot achieve the action level using the analytical methods that are currently available, pentachlorophenol has not been detected in groundwater and is not identified as a COPC.

Bromodichloromethane and dibromochloromethane were reported with all but one of the MDLs less than their respective action levels of 0.55 µg/L and 0.4 µ/L. Additionally, these VOCs were not detected in any water sample collected from the 200-PO-1 OU over the past 10 years. The results of this evaluation supports that these analytes are not COPCs.

1,1,2,2-Tetrachlorethane was reported with the all but one MDL greater than the action level of 0.17 µg/L. EPA Method 8260 is currently used to analyze 1,1,2,2-tetrachlorethane and it cannot attain an MDL at the action level, instead MDLs range between 0.14 µg/L and 1.0 µ/L. Additionally, this VOC has

not been detected in water sample collected from the 200-PO-1 OU over the past 10 years. Although the analytical method is unable to confirm the analytes' presence at or below the action level, it has not been detected and it is not retained as a COPC.

Vinyl chloride was reported with all MDLs greater than its action level of 0.025 µg/L. EPA Method 8260 is currently used to analyze vinyl chloride where MDLs range from 0.044 µg/L to 1.0 µg/L. An additional evaluation was conducted to determine whether vinyl chloride has been detected in the groundwater operable unit over the last 10 years (1999 to 2009). Vinyl chloride was detected in wells 699-23-34B (B0WX06) and 699-22-35 (B0WWY2) at concentrations of 1.5 µg/L and 1.8 µg/L on December 17, 1999 using EPA Method 8010. Vinyl chloride has been analyzed at 699-22-35 and 699-23-34B a total of 40 times at each location over the past 10 years with only a single occurrence using Method 8010. Although EPA method 8260 is unable to confirm the analytes' presence at or below the action level it has not consistently been observed at any one location and is not retained as a COPC. However, vinyl chloride is a degradation product of trichloroethene under anaerobic conditions. Therefore, vinyl chloride has the potential to be detected in groundwater in the future based on this degradation process.

7.1.3 Identify Analytes with Maximum Detected Concentrations Less than Action Levels

The next step in the initial COPC identification process is to identify analytes with maximum concentrations less than action levels. For purposes of the initial identification, maximum concentrations of analytes detected in groundwater are compared to action levels to identify analytes that are not likely to significantly contribute to overall risk. If the maximum detected concentration of an analyte is less than its action level, the analyte is eliminated as a COPC.

Twenty-nine analytes were detected at least once and their maximum detected concentrations are less than their respective action levels. A summary of the analytes with maximum detected concentrations less than their respective action level is presented in Table 7-3. Table 7-3 also provides sampling dates, minimum and maximum MDLs, minimum and maximum detected concentrations, the action level, basis of the action level, and the level of exceedance. The maximum detected concentration is divided by the action level to determine the amount the action level was not exceeded. The action level in this table represents the lowest of available chemical-specific ARARs for protection of human and aquatic receptors. The level the maximum detected concentration did not exceed the action level associated with this group of analytes ranged from 1.15E-04 to 0.47.

Uncertainty Analysis. An additional evaluation was performed on those analytes that were slightly less than their respective action level (i.e. greater than one-tenth the action level). This evaluation also included the analytes identified on the proposed list of COPCs (DOE/RL-2007-31, Table 4-5). The purpose of this evaluation is to determine if there is the potential for underestimating cumulative effects when concentrations of analytes are near but do not exceed the action level. Additionally, MDLs associated with these analytes are evaluated to determine if they are adequate for confirming their presence or absence at their respective action level.

1,2,3,4,6,7,8-Heptachlorodibenzofuran, 1,2,3,4,7,8-hexachlorodibenzofuran, barium, benzene, chloride, and nitrite were reported with maximum detected concentrations greater than one-tenth of their respective action level. Benzene was also reported with some MDLs greater than its respective action level. Protactinium-231, benzene, nitrite, and hexane were included on the DOE/RL-2007-31 proposed list of COPCs (DOE/RL-2007-31, Table 4-5).

1,2,3,4,6,7,8-Heptachlorodibenzofuran was detected in 8 of 10 samples (7 locations) between 2005 and 2007. 1,2,3,4,6,7,8-Heptachlorodibenzofuran concentrations ranged between 1.3E-06 µg/L and 1.2E-05 µg/L. Two results were flagged with a "J" indicating the results are estimated values, two results were flagged with a "BJ" indicating the results are estimated values and the analyte was detected in both the QC blank and the sample, one result was flagged with a "QJ" indicating the result is an estimated value because one of the qualitative estimation criteria is not met, and 3 results were qualified with a "QBJ". Results of this evaluation suggest the presence of 1,2,3,4,6,7,8-heptachlorodibenzofuran concentrations

are considered estimates or are the result of laboratory contamination. Therefore, elimination of this analyte as a COPC is not likely to underestimate overall cumulative effects.

1,2,3,4,7,8-Hexachlorodibenzofuran was detected in 1 of 7 samples (7 locations) in 2007. 1,2,3,4,7,8-Hexachlorodibenzofuran was detected at a concentration of 2.9E-06 µg/L and was flagged with a "QBJ" indicating the result is an estimated value and the analyte was detected in both the QC blank and the sample. Results of this evaluation suggest the presence of 1,2,3,4,7,8-hexachlorodibenzofuran is the result of laboratory contamination, therefore elimination of this analyte as a COPC is not likely to underestimate overall cumulative effects.

Barium was detected in 595 of 596 water samples analyzed (>99 percent frequency) between 2004 and 2009. All detected concentrations (4 to 150 µg/L) and MDLs are consistently below the action level of 1,000 µg/L. Results of this evaluation suggest the presence of barium is below the action level and elimination of this analyte would not likely underestimate overall cumulative effects.

Benzene was detected in 1 of 434 water samples (0.23 percent frequency) collected between 2004 and 2009. Benzene has been analyzed once at well 699-24-1P (B1W557) where it was detected at a concentration of 0.37 µg/L and flagged with a "J" qualifier indicating it is an estimated concentration. MDLs for 328 of the results were reported below the action level of 0.8 µg/L while the remaining were greater than the action level. An additional evaluation was conducted to determine whether benzene has been detected in the groundwater operable unit over the last 10 years (1999 to 2009). Benzene was detected in wells 699-22-35 (B0WWY2) and 699-24-33 (B17X25) at concentrations of 0.54 µg/L and 1.9 µg/L, respectively; these samples were analyzed in 1999 and 2003, respectively. Benzene has been analyzed at 699-22-35 and 699-24-33 a total of 39 times at each location over the past 10 years with only a single occurrence at each location. Results of this evaluation suggest that benzene is below the action level and has not been consistently observed at any location. Therefore, benzene is not identified as a COPC and is not likely to underestimate overall cumulative effects.

Hexane has only recently been analyzed for in 200-PO-1 OU groundwater and has been detected in 1 of 40 water samples (40 locations) collected in 2008 and 2009. Hexane was detected once at 699-13-1C (B1W545) at a concentration of 0.32 µg/L and flagged with a "J" qualifier indicating the result is an estimated concentration. All MDLs were reported below the hexane action level of 480 µg/L. Results of this evaluation suggest the presence of hexane is below the action level and elimination of this analyte as a COPC is not likely to underestimate overall cumulative effects.

Chloride was detected in 1,390 of 1,391 water samples analyzed (>99 percent frequency) between 2004 and 2009. All detected concentrations (1,200 to 91,600 µg/L) and MDLs are consistently below the action level of 230,000 µg/L. Results of this evaluation suggest the presence of chloride is below the action level and elimination of this analyte would not likely underestimate overall cumulative effects.

Nitrite was detected in 62 of 1,324 water samples analyzed (4.7 percent frequency) between 2004 and 2009. All detected concentrations (46 to 1,710 µg/L) and MDLs are consistently below the action level of 3,300 µg/L. Results of this evaluation suggest that the presence of nitrite is below the action level and elimination of this analyte would not likely underestimate overall cumulative effects.

Protactinium-231 has only recently been analyzed for in 200-PO-1 OU groundwater and has been detected in 4 of 39 water samples (39 locations) collected in 2008. Protactinium-231 was detected at 299-E13-17 (B1W4R0), 699-13-1C (B1W542), 699-33-56 (B1W5B2), and 699-46-21B (B1W5D6) at concentrations ranging from 0.13 to 0.31 pCi/L. All detected concentrations and MDLs were below the action level of 15 pCi/L. Results from this limited set of characterization data suggest the presence of protactinium-231 is below the action level and elimination of this analyte as a COPC is not likely to underestimate overall cumulative effects.

7.1.4 Identify Analytes with Maximum Detected Concentrations Greater than Action Levels

The next step in the initial COPC identification process is to identify analytes with maximum concentrations greater than action levels. Forty analytes were detected at least once and have maximum detected concentrations that are greater than their respective action levels. A summary of the analytes with maximum concentrations greater than their respective action levels is provided in Table 7-4. Table 7-4 also provides sampling dates, minimum and maximum MDLs, minimum and maximum detected concentrations, the action level, basis of the action level, and the level of exceedance. The action level in this table represents the lowest of available chemical-specific ARARs for protection of human and aquatic receptors. The level of exceedance is determined by dividing maximum detected concentration by the action level. Twenty-five of the 40 analytes were included on the DOE/RL-2007-31 proposed list of COPCs (DOE/RL-2007-31, Table 4-5) and include the following:

- 11 metals (antimony, arsenic, cadmium, chromium, lead, manganese, nickel, thallium, uranium, vanadium, and zinc)
- 5 radiological analytes (gross alpha, iodine-129, strontium-90, technetium-99, and tritium)
- 1 SVOC (bis(2-ethylhexyl) phthalate)
- 6 VOCs (1,2-dichloroethane, 1,4-dioxane, carbon tetrachloride, methylene chloride, tetrachloroethene, trichloroethene)
- 2 wet chemistry parameters (fluoride and nitrate)

With the exception of seven analytes (1,2,3,6,7,8-hexachlorodibenzofuran, 1,2-dichloroethane, 1,4-dioxane, antimony, bis(2-ethylhexyl) phthalate, nitrogen in nitrate and nitrite, and oil and grease) all of the analytes in Table 6-4 are identified as groundwater COPCs and carried forward to the final COPC identification process.

1,2,3,6,7,8-hexachlorodibenzofuran was detected in one of seven water samples collected in 2007 at a concentration of 2.10E-06 µg/L which exceeds the action level. However, the single detection was flagged with the "J" laboratory qualifier indicating that the concentration is an estimated concentration and is detected at a concentration lower than the required detection limit. Analysis of the other 51 results for dioxins and furans show that all results are either nondetects or estimated concentrations below action levels. Based on the uncertainties associated with the results for this analytical method, 1,2,3,6,7,8-hexachlorodibenzofuran is not carried through as an initial COPC.

1,2-dichloroethane was detected in 1 of 434 water samples (0.23 percent frequency) collected between 2004 and 2009. 1,2-Dichloroethane was reported once at 299-E17-25 (B1DB05) at a concentration of 0.64 µg/L, which is above the action level of 0.38 µg/L. 1,2-Dichloroethane was not detected at this well during a subsequent sampling round. MDLs for 105 of the 434 results were reported above the action level. Although 1,2-dichloroethane was reported at a concentration above the action level it is the only occurrence of this analyte within the 5-year time frame. A review of 1,2-dichloroethane results from the past 10 years indicate that 1,2-dichloroethane has been detected at 699-23-34B, 699-24-34B, and 699-26-35A at concentrations ranging between 0.11 and 1.0 µg/L during 1999 all of which were analyzed by EPA Method 8010. 1,2-Dichloroethane was analyzed a total of 40 times at well 699-23-34B and 699-24-34B and 39 times at well 699-26-35A between 1999 and 2009 with only the single occurrence at each location. Results of this evaluation suggest that 1,2-dichloroethane is below the action level and has not been consistently observed at any location. Therefore, 1,2-dichloroethane is not identified as an initial COPC and is not likely to underestimate overall cumulative effects.

1,4-dioxane was detected in 1 of 363 water samples (0.28 percent frequency) collected between 2004 and 2009. 1,4-Dioxane was reported at 699-24-33 at a concentration of 8.1 µg/L, which is greater than the action level of 4.0 µg/L. This result was flagged with a "JB" laboratory qualifier indicating the result is an

estimated value and the analyte was detected in both the QC blank and the sample. MDLs for 247 of the 363 results were reported above the action level. Results of this evaluation suggest the presence of 1,4-dioxane is the result of laboratory contamination therefore it is not identified as an initial COPC.

Antimony was detected in 22 of 589 water samples (3.74%) and all results were reported using EPA Method 6010. All detected results exceeded the action level. With the exception of one, all MDLs reported by Method 6010 were above the action level of 5.6 µg/L. Based on the data quality issues associated with the antimony results, antimony is not identified as an initial COPC.

Nitrogen in nitrate and nitrite was reported once at 299-E24-23 (B1MC66) at a concentration of 14,700 µg/L which exceeds the action level of 10,000 µg/L. However, nitrate and nitrite has been consistently analyzed for and reported throughout the operable unit and are both identified as individual groundwater COPCs. Risk associated with nitrogen in nitrate and nitrite will be captured by further evaluation of nitrate and nitrite as COPCs individually. As a result, nitrogen in nitrate and nitrite is not identified as an initial groundwater COPC.

Bis(2-ethylhexyl)phthalate (BEHP) was detected in 2 of 104 water samples (1.9 percent frequency) collected between 2004 and 2009. Bis(2-ethylhexyl) phthalate was detected once at 299-E25-39 (B1W521) at a concentration of 11 µg/L, this result was flagged with a "B" laboratory qualifier indicating the analyte was detected in both the QC blank and the sample. The only other result was reported at 699-32-22B (B1W593) at a concentration of 1 µg/L, which is below the action level of 1.2 µg/L. This result was flagged with a "J" indicating the result is an estimate. Results of this evaluation suggest the presence of BEHP in groundwater is the result of laboratory contamination and it is not identified as an initial groundwater COPC.

Oil and grease was detected in one of nine water samples (0.11 percent frequency) collected between 2004 and 2007. Oil and grease was detected once at monitoring well 299-E24-23 (B1MC66) at a concentration of 5,000 µg/L. All MDLs are 5,000 µg/L. The results of this evaluation suggest that the analytical methods used to measure oil and grease cannot achieve an MDL less than the action level. As a result, oil and grease is not identified as an initial groundwater COPC.

7.1.5 Results of the Initial COPC Identification Process

A summary of the groundwater COPCs is presented in Table 6-5. A total of 33 analytes have been identified as COPCs for groundwater at the 200-PO-1 OU. Twenty-two of the 33 analytes were included on the DOE/RL-2007-31 proposed list of COPCs (DOE/RL-2007-31, Table 4-5) and 12 analytes are identified based on the results of the present evaluation. Twenty of the analytes listed in DOE/RL-2007-31 were not selected as COPCs based on the results of this analysis. The list of COPCs presented in Table 7-5 are those that will be carried forward into the final COPC identification process for each exposure area.

7.2 Final COPC Identification Process

This step in the COPC evaluation sequence applies a multi-step screening process to the analytical data for the 33 groundwater COPCs from each exposure. The purpose of this step is to identify the final COPCs that will be carried forward for evaluation in the 200-PO-1 OU feasibility study. Final COPCs are identified separately for each of three exposure areas defined within the 200-PO-1 OU, consisting of 1) near-field, 2) far-field, and 3) river exposure areas. Final COPCs are identified by comparing exposure point concentrations (EPCs) to their respective action levels, similar to the process described in Section 6.0. For the final COPC selection process, the action level represents the lowest of the available chemical-specific ARARs that are appropriate for the exposure area. Groundwater in the far-field and river exposure areas has the potential for use as a drinking water source and to discharge to the Columbia River. Whereas, the groundwater in near-field exposure area will not likely move outside the boundaries of the exposure area resulting in the potential as a drinking water source only. Therefore, the EPCs for the

near-field exposure area are compared to the lowest of available chemical-specific ARARs for protection of human health (i.e., drinking water use) and the EPCs for the far-field and river exposure areas are compared to the lowest of available chemical-specific ARARs for protection of human health and aquatic receptors.

7.2.1 Identify Unconfined Aquifer Monitoring Wells in Each Exposure Area

The first step in the final COPC identification process is to identify monitoring wells that are screening in the unconfined aquifer monitoring wells for each exposure area. As discussed in Section 4.0, data from a total of 177 monitoring wells were considered in this evaluation (Table 4-1). Monitoring wells screened within the unconfined aquifer were selected for the final analysis because it is where contamination is present and represents the depth that a groundwater supply well might be screened. Of the 177 total wells included in the initial screening, 166 wells monitor the unconfined aquifer (9 wells monitor the confined or basalt aquifers and 2 wells had no available data). Of the 166 monitoring wells screened in the unconfined aquifer, 83 wells are located in the near-field exposure area, 71 wells are located in the far-field exposure area, and 12 wells are located in the river exposure area (Table 4-1). Of the 33 groundwater COPCs, one COPC (selenium) was not reported in the near-field exposure area, three COPCs (aluminum, hexavalent chromium, and mercury) were not reported in the far-field exposure area, and four COPCs (aluminum, hexavalent chromium, mercury, and selenium) were not reported in the river exposure area. Therefore, the COPCs that have not reported results are not carried forward into the next step of the analysis.

7.2.2 Identify Nondetected COPCs in Each Exposure Area

The next step in the final COPC screening process is to identify COPCs that have not been detected in each exposure area. This step is performed in the same manner as described in Section 7.1.2. COPCs that have not been detected in any of the groundwater samples from an exposure area over the 5-year time frame are eliminated as final COPCs. All COPCs detected at least once in an exposure area are carried forward to the next step of the process. Results of this screening step are presented in Table 7-6.

Table 7-6. Summary of COPCs That Were Not Detected in the 200-PO-1 Groundwater Operable Unit Exposure Areas

Near-Field Exposure Area	Far-Field Exposure Area	River Exposure Area
Mercury Methylene chloride Tetrachloroethene Thallium Tributyl phosphate Selenium*	Beryllium Cobalt Selenium Thallium Aluminum* Hexavalent chromium* Mercury*	Beryllium Cadmium Cobalt Iodine-129 Methylene chloride Silver Tetrachloroethene Tributyl Phosphate Trichloroethene Aluminum* Hexavalent chromium* Mercury* Selenium*

*No reported results

7.2.3 Calculate EPCs for Each COPC and Exposure Area

Final COPCs are identified by comparing statistical EPC estimates to action levels for each detected COPC and exposure area. EPCs are calculated as the 95 UCL for each COPC from the existing groundwater data set (i.e. the last 5 years). The MDL is used as the concentration for nondetect results in the 95 UCL calculations. A description of the methodology use to calculate the EPC is provided in a

separate calculation brief (ECF-200PO1-09-2027). Results of the statistical calculations are summarized in Tables 7-7, 7-8, and 7-9 for COPCs detected in the near-field, far-field, and river exposure areas, respectively.

7.2.4 Identify COPCs with Exposure Point Concentrations Less Than Action Levels In Each Exposure Area

Initial groundwater COPCs with EPCs that are less than action levels are discussed below for each of the three exposure areas. The EPCs for the near-field exposure area are compared to the lowest of available chemical-specific ARARs for protection of human health (i.e., drinking water use) and the EPCs for the far-field and river exposure areas are compared to the lowest of available chemical-specific ARARs for protection of human health and aquatic receptors. A summary of the COPCs with EPCs less than the action level for each exposure area is provided in Table 7-10.

Table 7-10. Summary of Groundwater COPCs with EPCs Less Than Action Level

Near-Field Exposure Area	Far-Field Exposure Area	River Exposure Area
Aluminum	Carbon Tetrachloride	Chromium
Beryllium	Chloroform	Chloroform
Cadmium	Chromium	Copper
Carbon tetrachloride	Copper	Fluoride
Chloroform	Fluoride	Gross alpha
Chromium	Gross alpha	Lead
Cobalt	Iron	Manganese
Copper	Lead	Nickel
Fluoride	Manganese	Nitrate
Gross alpha	Methylene chloride	Strontium-90
Iron	Nickel	Sulfate
Lead	Nitrate	Technetium-99
Manganese	Strontium-90	Uranium
Nickel	Sulfate	Vanadium
Nitrate	Technetium-99	Zinc
Silver	Trichloroethene	
Strontium-90	Uranium	
Sulfate	Vanadium	
Uranium	Zinc	
Vanadium		
Zinc		

7.2.4.1 Analyte Specific Evaluation

An additional evaluation step is conducted when the EPC is less than the action level but individual sample results are reported at concentrations greater than the action level. A flow-chart depicting this analyte specific evaluation is provided in Figure 3-4. This step is performed to confirm that the EPC has not inappropriately eliminated a COPC and takes into consideration specific attributes about the groundwater contamination plume as described below.

- Is an individual analyte collocated with a final COPC and have concentrations above the action level?
- Is an individual analyte associated with a significant local trend or continuing vadose source?
- Is an individual analyte associated with a discrete local exposure point and have concentrations above the action level?

Near-Field Exposure Area

A total of 21 COPCs have been detected at least once in groundwater in the near-field exposure area and their EPCs are less than their respective action levels (Table 7-10). Of these 21 COPCs, all but nitrate, strontium-90 and uranium (metal) are eliminated as final COPCs for the near-field exposure area.

The EPC for nitrate is 34,098 µg/L which is below the action level of 45,000 µg/L but it is identified as a final COPC. Nitrate was detected 155 times at 18 locations above the action level of 45,000 µg/L. Nitrate was detected at wells 299-E17-1, 299-E17-14, 299-E17-16, 299-E24-16, 299-E24-18, 299-E24-23, 299-E25-19, 299-E25-20, and 299-E25-36 where tritium concentrations exceed action levels as well. Nitrate is collocated with a final COPC.

Although the EPC for strontium-90 (4.3 pCi/L) is less than the MCL of 8 pCi/L it is identified as a final COPC. This is because strontium-90 concentrations are consistently above the action level of 8 pCi/L at well 299-E17-14 and there is a single detection at well 299-E24-16. Each of these monitoring wells is near plume sources that originate from the PUREX cribs.

Similarly, the EPC for uranium (20 µg/L) is less than the MCL of 30 µg/L and it is identified as a final COPC. This is because uranium concentrations at wells 299-E24-23 and 299-E25-36 are above the action level and iodine-129, nitrate, and tritium are also reported above their respective action levels at both wells. Each of these monitoring wells is near plume sources that originate from the PUREX cribs.

The EPCs for aluminum, iron, manganese and sulfate are below than their respective action levels but maximum detected concentrations that exceed action levels. The secondary MCL is the basis for the action levels, which address the aesthetic qualities relating to the public acceptance of drinking water. These regulations are not Federally enforceable but are intended as guidelines for the States. The EPCs are a reasonable estimates of groundwater concentrations and these analytes are not identified as a final COPC for the near-field exposure area.

The EPC for beryllium is 0.34 µg/L which is below the action level of 4.0 µg/L. The EPC for cadmium is 2.7 µg/L which is below the action level of 5.0 µg/L. Beryllium and cadmium were only detected once above their action levels of 4 and 5 µg/L, respectively. Beryllium and cadmium were detected in well 299-E17-1 (B1X8T4) at a concentration of 9.4 µg/L and 18 µg/L, both results were qualified with a laboratory qualifier of "B" and a review qualifier of "Y" indicating the results are both estimated and suspect. Well 299-E17-1 is reported with concentrations of iodine-129, nitrate, and tritium above their respective action levels. The results of this evaluation suggest that beryllium and cadmium are not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for carbon tetrachloride is 0.28 µg/L which is below the action level of 0.34 µg/L. Carbon tetrachloride was only detected once above the action level of 0.34 µg/L. It was detected in well 299-E24-23 (B1MC66) during April 2007. Carbon tetrachloride was analyzed again in November 2008 and was not detected at a concentration of 0.042 µg/L. Well 299-E24-23 is reported with concentrations of iodine-129, nitrate, and trichloroethene above their respective action levels. The results of this evaluation suggest that carbon tetrachloride is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for chromium is 15 µg/L which is below the action level of 100 µg/L. Chromium was detected at two locations above the action level of 100 µg/L. Chromium was detected at well 299-E25-40 (B1D264) at a concentration of 153 µg/L during June 2005, however concentrations were less than the action level in the one previous and six subsequent sampling rounds at this location. Chromium was detected at well 299-E18-1 at concentrations of 130 µg/L (B1K1P1) and 113 µg/L (B1T4V3) during September 2006 and February 2008. A total of 30 samples were analyzed for chromium at this location during the 5-year time frame, all but these two samples were less than the action level. The presence of chromium at these two locations does not appear to be measured above the action level on a consistent

basis. The results of this evaluation suggest that chromium is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for cobalt is 4.5 µg/L which is below the action level of 4.8 µg/L. Cobalt was detected at 19 locations above the action level of 4.8 µg/L; however, the remaining results and nondetected concentrations were less than the action level. The results of this evaluation suggest that cobalt is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for fluoride is 294 µg/L. Fluoride was detected in 689 of 703 samples analyzed with concentrations ranging between 54 and 820 µg/L. Background concentrations of vanadium in Hanford Site groundwater have been established for filtered (dissolved) concentrations of fluoride (DOE/RL-96-61, Rev 0). Minimum, maximum, and 90th percentile value concentrations for filtered concentrations of fluoride are 186, 417, and 1,185 µg/L, respectively. All reported fluoride concentrations are consistent are consistent with background values, therefore fluoride is not identified as a final COPC.

The EPC for gross alpha is 5.3 pCi/L which is below the action level of 15 pCi/L. Gross alpha was detected above the action level of 15 pCi/L at well 299-E17-14, 299-E24-16, 299-E24-23, and 299-E25-36 at concentrations ranging between 16 and 49 pCi/L. These wells are also reported with concentrations of iodine-129, nitrate, tritium, or uranium above their respective action levels. The results of this evaluation suggest that gross alpha is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for lead is 1.5 µg/L which is below the action level of 15 µg/L. Lead was only detected once above the action level of 15 µg/L. Lead was detected in well 299-E13-8 (B1W4W5) at a concentration of 35 µg/L. Only one sampling round was conducted at this well and no final COPCs were detected at concentrations above their action level at this location. The results of this evaluation suggest that lead is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for nickel is 12 µg/L which is below the action level of 100 µg/L. Nickel was detected at two locations above the action level of 100 µg/L. Nickel was detected at well 299-E25-40 and 299-E25-93 at concentrations of 667 and 153 µg/L, respectively. Both results were assigned a review qualifier of "Y". Well 299-E25-40 is reported with concentrations of iodine-129 above the action level and well 299-E25-93 is reported with concentrations of technetium-99 and nitrate above their respective action levels. The results of this evaluation suggest that nickel is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for vanadium is 22 µg/L. Vanadium was detected in 356 of 372 samples analyzed with concentrations ranging between 6 and 45 µg/L. Background concentrations of vanadium in Hanford Site groundwater have been established for filtered (dissolved) concentrations of vanadium (DOE/RL-96-61, Rev 0). Minimum, maximum, and 90th percentile value concentrations for filtered concentrations of vanadium are 2.5, 22, and 17 µg/L, respectively. Seventy three of the 372 (20 percent frequency) vanadium concentrations are reported above the 90th percentile background value. If unfiltered (total) vanadium concentrations had been analyzed in the groundwater background evaluation, they would likely be equal to or greater than the filtered concentrations. Vanadium concentrations observed within the entire groundwater operable unit are generally at or near the EPC value and are considered to be naturally occurring, therefore vanadium is not identified as a final COPC.

The EPC for zinc is 96 µg/L which is below the action level of 4,800 µg/L. Zinc was detected at one location above the action level of 4,800 µg/L. Zinc was detected at well 299-E13-16 (B1W4P3) at a concentration 10,200 µg/L. Only one sampling round was conducted at this well and no final COPCs were detected at concentrations above their action level at this location. Background concentrations of zinc in Hanford Site groundwater have been established for filtered (dissolved) concentrations of arsenic

(DOE/RL-96-61, Rev 0). Minimum, maximum, and 90th percentile value concentrations for filtered concentrations of arsenic are 2.5, 258, and 73 µg/L, respectively. While the EPC for zinc is slightly above the 90th percentile for filtered water samples, if unfiltered (total) zinc concentrations had been analyzed in the groundwater background evaluation, they would likely be equal to or greater than the filtered concentrations. Zinc concentrations observed within the entire groundwater operable unit are generally within observed background values are considered to be naturally occurring. In addition, the EPC values for zinc are always lower than their respective action levels in each area. Therefore, zinc is not identified as a final COPC.

Far-Field Exposure Area

A total of 19 COPCs have been detected at least once in groundwater in the far-field exposure area and their EPC are less than their respective action levels (Table 7-10). All but trichloroethene are eliminated as final COPCs for the far-field exposure area.

The EPC for trichloroethene is 0.43 µg/L which is below the action level of 0.49 µg/L but it is retained as a final COPC. Trichloroethene was detected 90 times at 14 locations above the action level of 0.49 µg/L. Trichloroethene concentrations were measured consistently at or above the action levels at the following wells: 699-23-34A, 699-24-33, 699-24-34A, 699-24-34B, 699-24-34C, 699-25-34A, 699-25-34B, 699-25-34D, and 699-26-33.

The EPCs for iron and manganese are below than their respective action levels but have maximum detected concentrations that exceed action levels. The secondary MCL is the basis for the action levels, which address the aesthetic qualities relating to the public acceptance of drinking water. These regulations are not Federally enforceable but are intended as guidelines for the States. The EPC are a reasonable estimates of groundwater concentrations and these analytes are not identified as a final COPC for the far-field exposure area.

The EPC for chromium is 9.5 µg/L which is less than the action level of 65 µg/L. Chromium was detected above the action level once with a concentration of 70 µg/L at well 699-33-56. The remaining 132 reported results were less than the action level. The results of this evaluation suggest that chromium is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for copper is 4.9 µg/L which is below the action level of 9.0 µg/L. Copper was detected at two locations above the action level of 9.0 µg/L. Copper was detected at well 499-S0-7 and 499-S1-8J at concentrations of 31 and 17 µg/L, respectively during April 2008. Both results were assigned a review qualifier of "Y". Copper was analyzed in March 2009 at both locations with concentrations below the action level. The presence of copper at these locations is not measured above the action level on a consistent basis. The results of this evaluation suggest that copper is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for fluoride is 301 µg/L which is below the action level of 960 µg/L. Fluoride was detected above the action level seven times at three locations (699-31-31, 699-S8-19, and 699-32-22B). The remaining 546 reported results were less than the action level. The results of this evaluation suggest the EPC is a reasonable estimate of groundwater concentrations.

The EPC for gross alpha is 6.4 pCi/L which is below the action level of 15 pCi/L. Gross alpha was detected at two locations above the action level of 15 pCi/L. Gross alpha was detected at 699-S6-E4A and 699-S6-E4L at concentrations ranging between 16 and 25 pCi/L. These wells are also reported with concentrations of nitrate, tritium, and uranium at concentrations above their respective action levels. The contaminants at these wells are related to releases from the 618-10 burial ground. An evaluation of remedial alternatives associated with this site will be addressed in the 600 Area subregion of the 300 Area RI/FS Report. Therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for methylene chloride is 2.1 µg/L which is below the action level of 4.6 µg/L. Methylene chloride was reported at three locations above the action level of 4.6 µg/L. Methylene chloride was detected at 699-S6-E4A (B1VMJ8) and 699-S6-E4L at concentrations of 6.3 and 9.0 µg/L, respectively. Both of these results were assigned a "B" laboratory qualifier and a "Y" review qualifier. Methylene chloride was detected at well 699-24-33 at a concentration of 88 µg/L. This result was assigned a "B" laboratory qualifier and is also associated with a suspect field blank. The presence of methylene chloride at these 3 locations is likely attributed to laboratory or field contamination. The results of this evaluation suggest that the presence of methylene chloride above the action level is the result of laboratory contamination; therefore the EPC likely overestimates groundwater concentrations.

The EPC for nitrate is 23,864 µg/L which is below the action level of 45,000 µg/L. Nitrate was detected 60 times at nine locations above the action level of 45,000 µg/L. Nitrate was detected at well 699-12-2C. 699-13-1E, 699-13-2D, 699-13-3A, and 699-21-6 where tritium concentrations exceed action levels as well. The nitrate concentrations at these wells are related to releases from the 618-10 and 618-11 burial grounds. An evaluation of remedial alternatives associated with this site will be addressed in the 600 Area subregion of the 300 Area RI/FS Report. Therefore, the EPC is a reasonable estimate of groundwater concentrations.

The EPC for carbon tetrachloride is 0.17 µg/L which is below the action level of 0.23 µg/L. Carbon tetrachloride was detected at concentrations above the action level of 0.23 µg/L 15 times at 12 wells. Carbon tetrachloride was not consistently detected at these wells. Additionally, the remaining 261 results and nondetected concentrations for the far-field exposure area were either nondetects or reported at concentrations less than the action level. The results of this evaluation suggest that carbon tetrachloride is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for uranium is 17 µg/L, which is less than the action level of 30 µg/L. Uranium was detected at concentrations above the action level at wells 699-S6-E4A and 699-S6-E4, which are downgradient from the 618-10 burial ground. The uranium concentrations at these wells are related to releases from the 618-10 burial ground and an evaluation of remedial alternatives associated with uranium will be addressed in the 300-FF-5 OU RI/FS Report. Therefore, the EPC is a reasonable estimate of groundwater concentrations.

The EPC for chloroform is 0.21 µg/L which is below the action level of 1.4 µg/L. Chloroform was detected at concentrations above the action level of 1.4 µg/L twice at a single location (699-13-0A). These are the only results for chloroform for this well. This well reports tritium as the only other COPC present above its action level. Additionally, the remaining results and nondetected concentrations for the far-field exposure area were less than the action level. The results of this evaluation suggest that chloroform is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

The EPC for zinc is 69 µg/L which is below the action level of 91 µg/L. Zinc was detected at five times at four wells (699-S6-E4D, 699-S6-E4A, 699-32-22B, 699-23-34A) above the action level of 91 µg/L. Well 699-S6-E4D reported only two rounds both of which exceeded the action level; the remaining three wells reported only one exceedance. The contaminants at 699-S6-E4D and 699-S6-E4A are related to releases from the 618-10 burial ground and an evaluation of remedial alternatives associated with uranium will be addressed in the 300-FF-5 OU RI/FS Report. The remaining 128 results from the far-field exposure area were less than the action level. Based on the results of this evaluation, the EPC is a reasonable estimate of groundwater concentrations. The results of this evaluation suggest that zinc is not associated with a trend or a local exposure point, therefore the EPC is a reasonable estimate of groundwater concentrations.

River Exposure Area
A total of 15 COPCs have been detected at least once in groundwater in the river exposure area and their EPCs are less than their respective action levels (Table 7-10).

The EPC for manganese is 42 μg/L, which is less than the action level of 50 μg/L but the maximum detected concentration exceeds the action level. The secondary MCL is the basis for the action level in this evaluation. This metal affects the aesthetic qualities relating to the public acceptance of drinking water. These regulations are not Federally enforceable but are intended as guidelines for the States. The EPC is a reasonable estimate of groundwater concentrations and these manganese is not identified as a final COPC for the river exposure area.

The EPC for chloroform is 0.81 μg/L which is below the action level of 1.4 μg/L. Chloroform was detected once at a concentration above the action level of 1.4 μg/L at a single location (2.3 μg/L at well 699-20-E120). Additionally, the presence of chloroform is associated with a suspect field blank. The remaining results for chloroform at this well were either below the action limit or the detection limit. Therefore the chloroform is not identified as a COPC for the river exposure area.

No additional COPCs were identified as a result of the analyte specific evaluation.

7.2.4.2 Conclusions from Analyte Specific Evaluation

The results of the analyte specific evaluation indicate that the EPC is a reasonable estimate of groundwater concentrations. All of the analytes with EPCs less than their action level do not appear to be related to a significant local trend. Strontium-90 and uranium are identified as final COPCs in the near-field area because wells near plume sources report concentrations above the action level.

7.2.5 Identify COPCs With Exposure Point Concentrations Greater Than Action Levels In Each Exposure Area

Initial groundwater COPCs with EPCs that are greater than action levels are discussed below for each of the three exposure areas. The EPCs for the near-field exposure area are compared to the lowest of available chemical-specific ARARs for protection of human health (i.e., drinking water use) and the EPCs for the far-field and river exposure areas are compared to the lowest of available chemical-specific ARARs for protection of human health and aquatic receptors.

A summary of the COPCs with EPCs greater than their action level for each exposure area is provided below.

7.2.5.1 Analyte Specific Evaluation

An analyte specific evaluation is performed on the groundwater COPCs with EPCs greater than the action level. This evaluation considers the effect of data quality, naturally occurring levels of metals, long-term trends, and action levels have on the selection of final COPCs.

Near-Field Exposure Area
A total of six COPCs have been detected at least once in groundwater in the near-field exposure area and have EPCs that are greater than their respective action levels Table 7-11. Of these six COPCs, all but arsenic and hexavalent chromium are identified as final COPCs for the near-field exposure area.

Table 7-11. Summary of Groundwater COPCs with EPCs Greater Than Action Level

Near-Field Exposure Area	Far-Field Exposure Area	River Exposure Area
Arsenic Hexavalent chromium Iodine-129 Technetium-99 Trichloroethene Tritium	Arsenic Cadmium Iodine-129 Silver Tetrachloroethene Tributyl phosphate Tritium	Arsenic Carbon Tetrachloride Iron Thallium Tritium

The EPC for arsenic is 5.8 µg/L, which is greater than the action level of 0.058 µg/L. The WAC 173-340-720 groundwater cleanup standard is the basis for the action level. Arsenic was detected in 190 of 197 samples analyzed with concentrations ranging between 0.43 and 11 µg/L. Background concentrations of arsenic in Hanford Site groundwater have been established for filtered (dissolved) concentrations of arsenic (DOE/RL-96-61, Rev 0). Minimum, maximum, and EPC concentrations for filtered concentrations of arsenic are 0.5, 8.8, and 7.85 µg/L, respectively. Only 12 of the 190 (6.3 percent frequency) arsenic concentrations are reported above the EPC. If unfiltered (total) arsenic concentrations had been analyzed in the groundwater background evaluation, they would likely be equal to or greater than the filtered concentrations. Arsenic concentrations observed within the entire groundwater operable unit are generally at or near the EPC and are considered to be naturally occurring, therefore arsenic is not identified as a final COPC.

There are a total of three hexavalent chromium measurements within the entire 200-PO-1 groundwater OU. Of these three measurements, there was a single detection of hexavalent chromium of 191 µg/L at well 299-E25-236 (B1XJH8) in October 2008. No other hexavalent or total chromium analyses were performed at this well. Hexavalent chromium was not identified as a proposed COPC in the work plan and is therefore not identified as a final COPC for the near-field exposure area.

Far-Field Exposure Area

A total of seven COPCs have been detected at least once in groundwater in the far-field exposure area and have EPCs that are greater than their respective action levels (Table 7-11). Of these seven COPCs, all but arsenic, cadmium, silver, and tributyl phosphate are identified as final COPCs for the far-field exposure area.

Arsenic is not identified as final COPCs as described in the previous section.

The EPC for cadmium is 4.5 µg/L, which is greater than the action level of 0.25 µg/L. The national recommended water quality criteria developed for chronic exposure to freshwater species is the basis for the action level. Cadmium is analyzed by two analytical methods including EPA Method 200.8 (ICP-MS) and EPA Method 6010 (ICP). All groundwater samples analyzed by EPA Method 200.8 were reported with nondetected concentrations less than the action level. All groundwater samples analyzed by EPA Method 6010 were reported with nondetected concentrations greater than the action level with one detected concentration near the MDL. Cadmium was detected at 699-S6-E4E (B1VMK4) at a concentration of 4.5 µg/L in December 2008. This sample result was also flagged with a "B" indicating that the sample concentration is considered an estimate. The results of this evaluation indicate that EPA Method 6010 cannot achieve an MDL less than the action level. Additionally, the single occurrence of

cadmium is considered an estimate and was not detected in other sampling rounds at the same location. Therefore, cadmium is not identified as a final COPC for the far-field exposure area.

The EPC for silver is 5.8 µg/L, which is greater than the action level of 2.6 µg/L. The WAC 173-201A acute criterion for freshwater bodies is the basis for the action level. Silver was detected in 13 of 120 water samples analyzed (11 locations) with concentrations ranging between 5.3 and 13 µg/L. Background concentrations of silver in Hanford Site groundwater have been established for filtered (dissolved) concentrations of silver (DOE/RL-96-61, Rev. 0). Minimum, maximum, and EPC concentrations of silver are 1.93, 5, and 5.28 µg/L, respectively. Of the 13 detected concentrations, 8 samples were reported with concentrations ranging between 5.3 and 6.1 µg/L, 4 samples were reported with concentrations ranging between 7 and 7.4 µg/L, and one sample was reported with a concentration of 13 µg/L. If unfiltered (total) silver concentrations had been analyzed in the groundwater background evaluations, they would likely be equal to or greater than the filtered concentrations. The majority of detected silver concentrations observed within the far-field exposure area range between 5.3 and 7.4 µg/L, which is slightly greater than the EPC. Therefore, silver is considered naturally occurring and is not identified as a final COPC.

The EPC for nitrate is 23,864 µg/L which is below the action level of 45,000 µg/L. Nitrate was detected at locations associated with the 618-10 burial grounds above the drinking water standard of 45,000 µg/L. These elevated concentrations are isolated within the 618-10 burial ground. An evaluation of remedial alternatives associated with this site will be addressed in the 600 Area subregion of the 300 Area RI/FS Report.

Tributyl phosphate detected in the far-field exposure area is not identified as a final COPC. Tributyl phosphate is related to releases from the 618-10 burial ground and an evaluation of remedial alternatives associated with tributyl phosphate will be addressed in the 600 Area subregion of the 300 Area RI/FS Report.

River Exposure Area

A total of five COPCs have been detected at least once in groundwater in the river exposure area and have EPCs that are greater than their respective action levels (Table 7-11). Of these five COPCs, tritium is identified as final COPCs and four analytes are eliminated as final COPCs (arsenic, iron, thallium, and carbon tetrachloride) for the river exposure area.

Arsenic is not identified as a final COPC as described in the previous section.

The EPC for iron is 611 µg/L, which is greater than the action level of 300 µg/L. The secondary MCL for iron is the basis for the action level in this evaluation. Iron was detected above the action level at well 699-20-E12O at concentrations of 1,010 and 1,150 µg/L. The presence of iron detected in this well is not the result of 200-PO-1 OU sources. Iron was also detected above the action level at well 699-S3-E12 at concentrations of 335 and 539 µg/L, respectively. This metal affects the aesthetic qualities relating to the public acceptance of drinking water. These regulations are not Federally enforceable but are intended as guidelines for the States. Therefore, iron is eliminated as a final COPC for the river exposure area.

Thallium and carbon tetrachloride concentrations greater than their respective action levels of 0.24 µg/L and 0.23 µg/L were measured at 699-20-E120. Well 699-20-E12O was constructed in September 1962, it is a BWIP piezometer well and has 6 piezometers set at different intervals, and this well is not screened. Neither thallium nor carbon tetrachloride is identified as a final COPC for the river exposure area because the contamination present in well 699-20-E12O is not associated with the 200-PO-1 groundwater operable unit sources. Further investigation is required to determine the source of contamination.

7.2.5.2 Conclusions from Analyte Specific Evaluation

Several metals and carbon tetrachloride were not identified as final COPCs. Table 7-12 provides a summary of the analytes that were not identified as final COPCs and the reason for its exclusion.

Table 7-12. Summary of Analytes Excluded as Final Groundwater COPCs for the 200-PO-1 Groundwater Operable Unit

COPC	Exposure Area	Reason for Exclusion as Final COPC.
Arsenic	Near-Field, Far-Field. River	Naturally occurring.
Cadmium	Far-Field	Data quality issues associated with the EPA Method 6010 .
Hexavalent chromium	Near-Field	Three results reported for entire operable unit; not identified as a proposed COPC in DOE/RL-2007-31, Table 4-5.
Iron	River	EPC is above secondary MCL value, regulation is not Federally enforceable but intended as guidelines for States.
Tributyl Phosphate	Far-Field	Presence associated with releases from the 618-10 burial ground.
Carbon tetrachloride and thallium	River	Presence in well 699-20-12O is not associated with the 200-PO-1 groundwater operable unit sources. Further investigation is required to determine the source of contamination.

7.2.6 Summary of Final COPCs

A summary of the final COPCs identified for the 200-PO-1 groundwater operable unit is presented in Table 7-13. This list of final COPCs represents the analytes most likely to contribute to overall risk within each 200-PO-1 OU exposure area. A list of the monitoring wells for each exposure area that reported concentrations greater than their respective action levels is provided in Tables 7-14, 7-15, and 7-16.

Table 7-13. Summary of Final Groundwater COPCs Identified for the 200-PO-1 Operable Unit

Near-Field Exposure Area	Far-Field Exposure Area	River Exposure Area
Iodine-129 Technetium-99 Tritium Nitrate Strontium-90 Trichloroethene Uranium	Iodine-129 Tritium Tetrachloroethene Trichloroethene	Tritium

7.2.6.1 Near-Field Exposure Area

The EPC for iodine-129 is 2.7 pCi/L which is greater than the action level of 1 pCi/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area, 39 monitoring wells were reported with iodine-129 concentrations greater than the MCL of 1 pCi/L.

The EPC for technetium-99 is 1,667 pCi/L which is greater than the action level of 900 pCi/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area, 2 monitoring wells were reported with technetium-99 concentrations greater than the MCL of 900 pCi/L.

The EPC for tritium is 156,901 pCi/L which is greater than the action level of 20,000 pCi/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area 25 monitoring wells were reported with tritium concentrations greater than the MCL of 20,000 pCi/L.

The EPC for nitrate is 34,098 μg/L which is less than the action level of 45,000 μg/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area, 18 monitoring wells were reported with nitrate concentrations greater that the WAC 173-340-720 groundwater cleanup standard of 45,000 μg/L.

The EPC for strontium-90 is 4.3 pCi/L which is less than the action level of 8 pCi/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area 2 monitoring wells were reported with strontium-90 concentrations greater than the MCL of 8 pCi/L.

The EPC for trichloroethene is 0.56 μg/L which is greater than the action level of 0.49 μg/L. WAC 173-340-720 groundwater cleanup standard is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area, 4 monitoring wells were reported with trichloroethene concentrations greater than the WAC 173-340-720 clean up standard of 0.49 μg/L.

The EPC for uranium 20 μg/L which is less than the action level of 30 μg/L. The federal MCL is the basis for the action level. Of the 83 monitoring wells in the near-field exposure area 2 monitoring wells were reported with uranium concentrations greater than the MCL 30 μg/L.

7.2.6.2 Far-Field Exposure Area

The EPC for iodine-129 is 2.0 pCi/L which is greater than the action level of 1 pCi/L. The federal MCL is the basis for the action level. Of the 71 monitoring wells in the far-field exposure area, 9 monitoring wells were reported with iodine-129 concentrations greater than the MCL of 1 pCi/L.

The EPC for tritium is 264,107 pCi/L which is greater than the action level of 20,000 pCi/L. The federal MCL is the basis for the action level. Of the 71 monitoring wells in the far-field exposure area, 25 monitoring wells were reported with tritium concentrations greater than the MCL of 20,000 pCi/L.

The EPC for tetrachloroethene is 0.87 μg/L which is greater than the action level of 0.081 μg/L. The WAC 173-340-720 groundwater cleanup standard is the basis for the action level. Of the 71 monitoring wells in the far-field exposure area, 16 monitoring wells were reported with tetrachloroethene concentrations greater than the WAC 173-340-720 cleanup standard of 0.081 μg/L.

The EPC for trichloroethene is 0.43 μg/L which is slightly less than the action level of 0.49 μg/L. WAC 173-340-720 groundwater cleanup standard is the basis for the action level. Of the 71 monitoring wells in the far-field exposure area, 14 monitoring wells were reported with trichloroethene concentrations greater than the WAC 173-340-720 cleanup standard of 0.49 μg/L.

7.2.6.3 River Exposure Area

The EPC for tritium is 70,724 pCi/L which is greater than the action level of 20,000 pCi/L. The federal MCL is the basis for the action level. Of the 12 monitoring wells in the river exposure area, 6 monitoring wells were reported with tritium concentrations greater than the MCL of 20,000 pCi/L.

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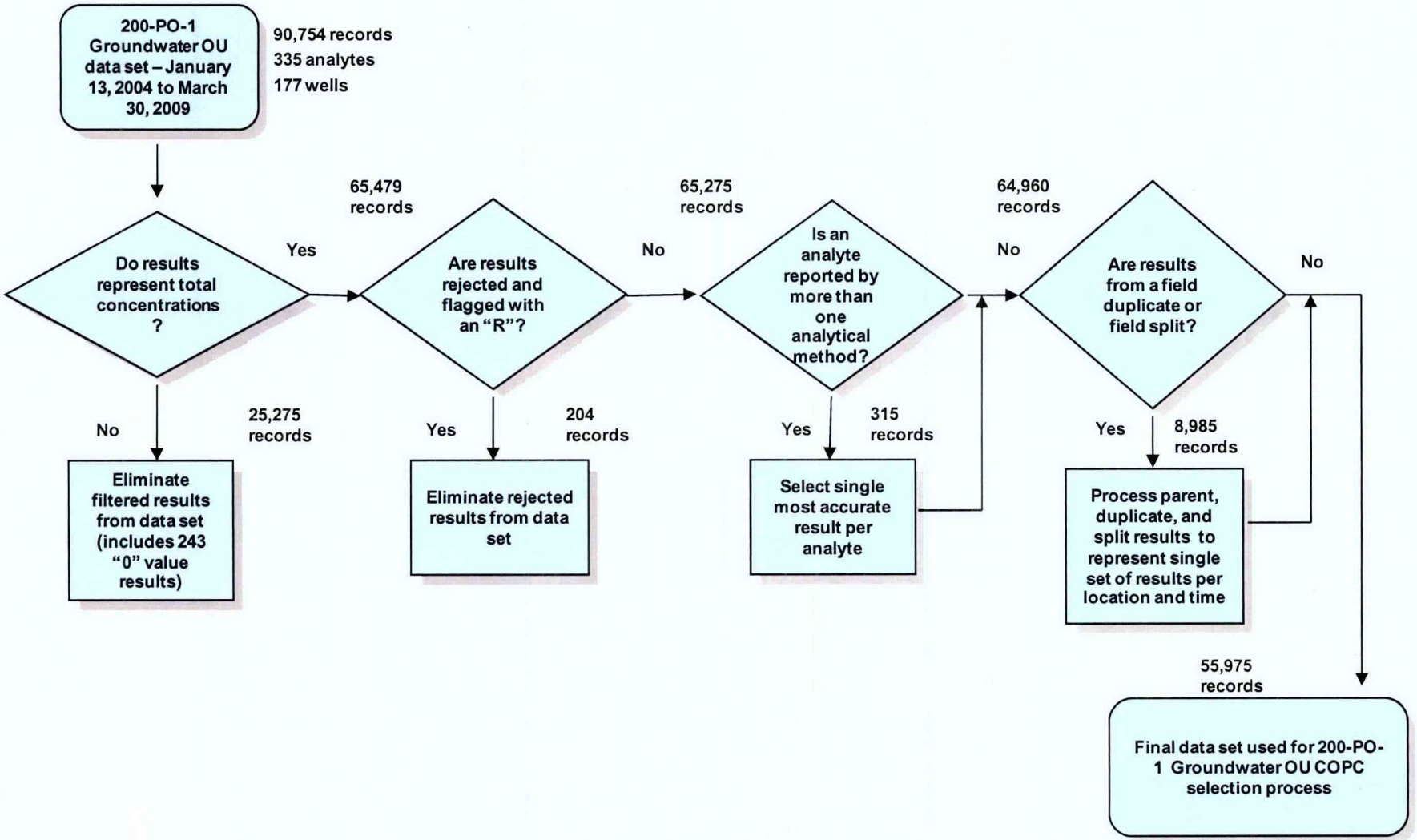


Figure 3-1. Analytical Data Processing for COPC Selection Process

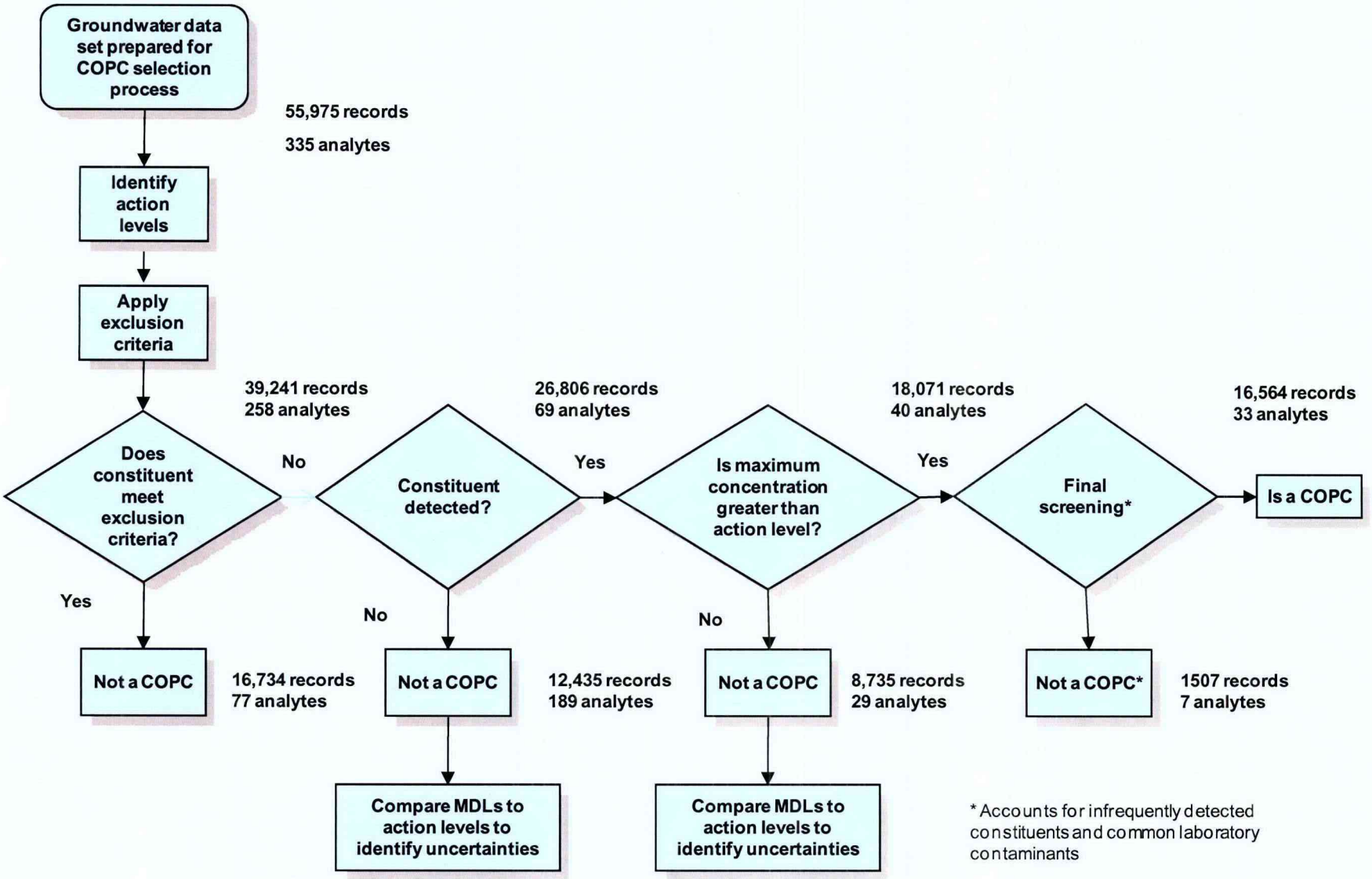
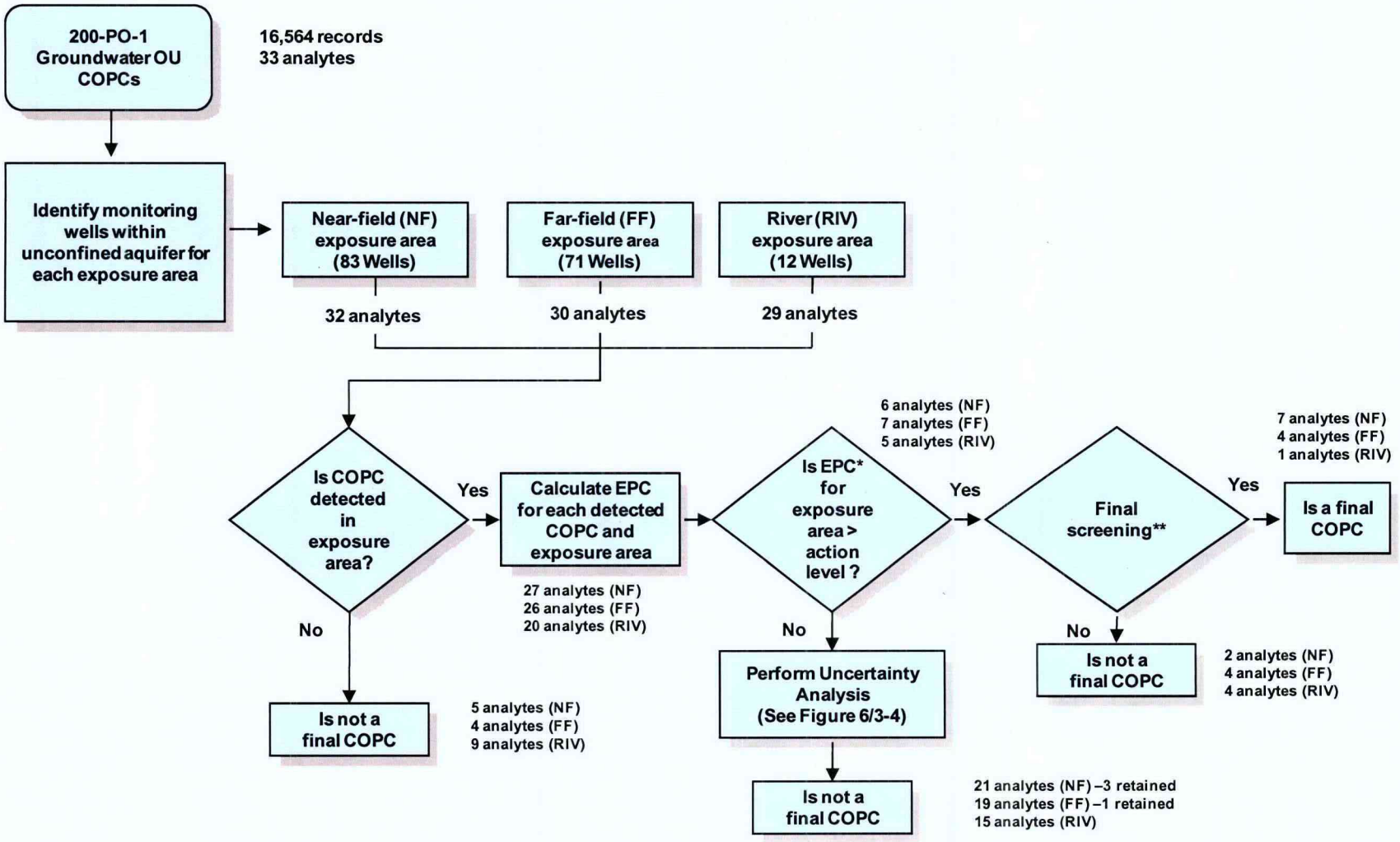
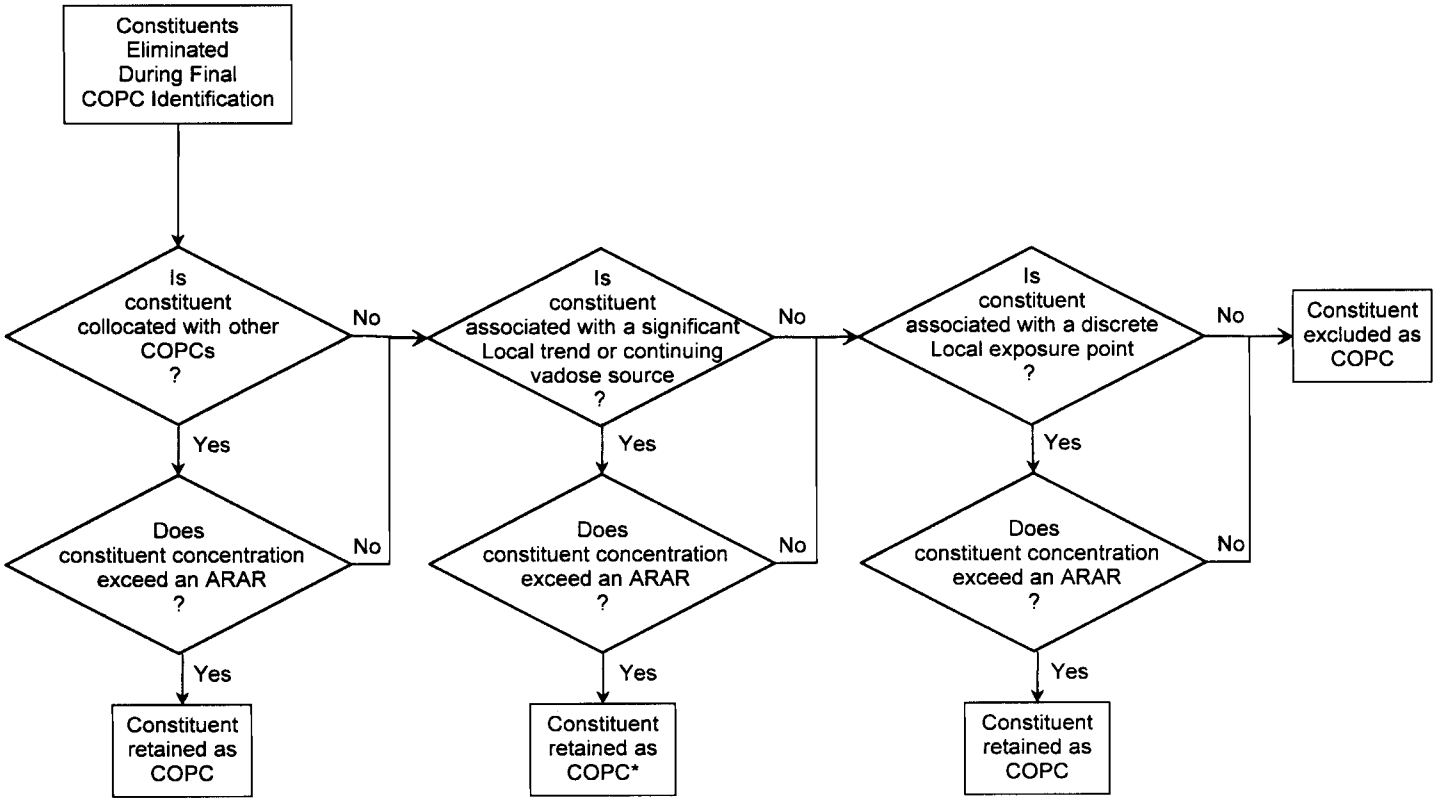


Figure 3-2. Identification of Initial Groundwater COPCs



* Exposure point concentrations (EPC) are the 95 UCL.
** Accounts for secondary MCLs and anomalous detections.

Figure 3-3. Final COPC Identification Process



*Strontium-90 and uranium are retained as final COPCs for the near-field exposure area due to localized contamination originating from the PUREX cribs.

**Trichloroethene is retained as a final COPCs for the far-field exposure area due to localized contamination.

Figure 3-4. Final COPC Identification Analyte Specific Evaluation Process

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
630-20-6	1,1,1,2-Tetrachloroethane	VOC	µg/L	--	--	--	--	--	1.7	--	6.2	1.7	WAC 340-720(4)(b)(iii)(A) and (B)
71-55-6	1,1,1-Trichloroethane	VOC	µg/L	200	--	--	--	--	16,000	--	925,926	200	40 CFR 141.61
79-34-5	1,1,2,2-Tetrachloroethane	VOC	µg/L	--	--	--	--	0.17	0.22	--	6.5	0.17	Human Health for the Consumption of Water + Organism
79-00-5	1,1,2-Trichloroethane	VOC	µg/L	5.0	--	--	--	0.59	0.77	--	25	0.59	Human Health for the Consumption of Water + Organism
75-34-3	1,1-Dichloroethane	VOC	µg/L	--	--	--	--	--	1600	--	161	1600	WAC 340-720(4)(b)(iii)(A) and (B)
75-35-4	1,1-Dichloroethene	VOC	µg/L	7.0	--	--	--	330	1600	--	23,148	7.0	40 CFR 141.61
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-05	--	--	6.73E-05	WAC 340-720(4)(b)(iii)(A) and (B)
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-05	--	--	6.73E-05	WAC 340-720(4)(b)(iii)(A) and (B)
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-05	--	1.78E-06	1.78E-06	WAC 340-730(3)(b)(iii)(A) and (B)
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	--	6.73E-06	WAC 340-720(4)(b)(iii)(A) and (B)
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	--	6.73E-06	WAC 340-720(4)(b)(iii)(A) and (B)
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	5.76E-08	5.76E-08	WAC 340-730(3)(b)(iii)(A) and (B)
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	5.90E-08	5.90E-08	WAC 340-730(3)(b)(iii)(A) and (B)
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	7.23E-08	7.23E-08	WAC 340-730(3)(b)(iii)(A) and (B)
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	5.90E-08	5.90E-08	WAC 340-730(3)(b)(iii)(A) and (B)
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	2.24E-05	--	4.41E-07	4.41E-07	WAC 340-730(3)(b)(iii)(A) and (B)
40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-07	--	--	6.73E-07	WAC 340-720(4)(b)(iii)(A) and (B)
96-18-4	1,2,3-Trichloropropane	VOC	µg/L	--	--	--	--	--	0.0015	--	0.017	0.0015	WAC 340-720(4)(b)(iii)(A) and (B)
95-94-3	1,2,4,5-Tetrachlorobenzene	SVOC	µg/L	--	--	--	--	0.97	4.8	--	0.28	0.28	WAC 340-730(3)(b)(iii)(A) and (B)
120-82-1	1,2,4-Trichlorobenzene	SVOC	µg/L	70	--	--	--	35	1.5	--	2.0	1.5	WAC 340-720(4)(b)(iii)(A) and (B)
96-12-8	1,2-Dibromo-3-chloropropane	VOC	µg/L	0.20	--	--	--	--	0.055	--	0.70	0.055	WAC 340-720(4)(b)(iii)(A) and (B)
106-93-4	1,2-Dibromoethane	VOC	µg/L	0.050	--	--	--	--	0.022	--	0.22	0.022	WAC 340-720(4)(b)(iii)(A) and (B)
95-50-1	1,2-Dichlorobenzene	VOC	µg/L	600	--	--	--	420	720	--	4,197	420	Human Health for the Consumption of Water + Organism
107-06-2	1,2-Dichloroethane	VOC	µg/L	5.0	--	--	--	0.38	0.48	--	59	0.38	Human Health for the Consumption of Water + Organism
540-59-0	1,2-Dichloroethene (Total)	VOC	µg/L	--	--	--	--	--	72	--	2,102	72	WAC 340-720(4)(b)(iii)(A) and (B)
78-87-5	1,2-Dichloropropane	VOC	µg/L	5.0	--	--	--	0.50	1.2	--	44	0.50	Human Health for the Consumption of Water + Organism
541-73-1	1,3-Dichlorobenzene	VOC	µg/L	--	--	--	--	320	--	--	--	320	Human Health for the Consumption of Water + Organism
106-46-7	1,4-Dichlorobenzene	SVOC	µg/L	75	--	--	--	63	8.1	--	22	8.1	WAC 340-720(4)(b)(iii)(A) and (B)
123-91-1	1,4-Dioxane	VOC	µg/L	--	--	--	--	--	4.0	--	--	4.0	WAC 340-720(4)(b)(iii)(A) and (B)
130-15-4	1,4-Naphthoquinone	SVOC	--	--	--	--	--	--	--	--	--	--	--
71-36-3	1-Butanol	VOC	µg/L	--	--	--	--	--	800	--	82,044	800	WAC 340-720(4)(b)(iii)(A) and (B)
872-50-4	1-Methyl-2-pyrrolidinone	SVOC	--	--	--	--	--	--	--	--	--	--	--
134-32-7	1-Naphthylamine	SVOC	--	--	--	--	--	--	--	--	--	--	--
93-65-2	2-(2-methyl-4-chlorophenoxy) propionic acid	HERB	µg/L	--	--	--	--	--	16	--	820	16	WAC 340-720(4)(b)(iii)(A) and (B)
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	5.26E-08	5.26E-08	WAC 340-730(3)(b)(iii)(A) and (B)
58-90-2	2,3,4,6-Tetrachlorophenol	SVOC	µg/L	--	--	--	--	--	480	--	--	480	WAC 340-720(4)(b)(iii)(A) and (B)
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	2.24E-06	--	4.41E-08	4.41E-08	WAC 340-730(3)(b)(iii)(A) and (B)
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--	--	6.73E-06	--	1.23E-07	1.23E-07	WAC 340-730(3)(b)(iii)(A) and (B)
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	3.00E-05	--	--	--	5.00E-09	6.73E-07	--	9.97E-09	5.00E-09	Human Health for the Consumption of Water + Organism
93-76-5	2,4,5-T(2,4,5-Trichlorophenoxyacetic acid)	HERB	µg/L	--	--	--	--	--	160	--	--	160	WAC 340-720(4)(b)(iii)(A) and (B)
93-72-1	2,4,5-TP(2-(2,4,5-Trichlorophenoxy)propionic acid)Silvex	HERB	µg/L	50	--	--	--	10	128	--	6,564	10	Human Health for the Consumption of Water + Organism
95-95-4	2,4,5-Trichlorophenol	SVOC	µg/L	--	--	--	--	1,800	800	--	486	486	WAC 340-730(3)(b)(iii)(A) and (B)
88-06-2	2,4,6-Trichlorophenol	SVOC	µg/L	--	--	--	--	1.4	4.0	--	3.9	1.4	Human Health for the Consumption of Water + Organism
94-75-7	2,4-D(2,4-Dichlorophenoxyacetic acid)	HERB	µg/L	70	--	--	--	100	160	--	--	70	40 CFR 141.61
94-82-6	2,4-DB(4-(2,4-Dichlorophenoxy)butanoic acid)	HERB	µg/L	--	--	--	--	--	128	--	6,564	128	WAC 340-720(4)(b)(iii)(A) and (B)
120-83-2	2,4-Dichlorophenol	SVOC	µg/L	--	--	--	--	77	24	--	191	24	WAC 340-720(4)(b)(iii)(A) and (B)
105-67-9	2,4-Dimethylphenol	SVOC	µg/L	--	--	--	--	380	160	--	553	160	WAC 340-720(4)(b)(iii)(A) and (B)
51-28-5	2,4-Dinitrophenol	SVOC	µg/L	--	--	--	--	69	32	--	3,457	32	WAC 340-720(4)(b)(iii)(A) and (B)

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
121-14-2	2,4-Dinitrotoluene	SVOC	µg/L	--	--	--	--	0.11	0.28	--	5.5	0.11	Human Health for the Consumption of Water + Organism
87-65-0	2,6-Dichlorophenol	SVOC	--	--	--	--	--	--	--	--	--	--	--
606-20-2	2,6-Dinitrotoluene	SVOC	µg/L	--	--	--	--	--	16	--	118	16	WAC 340-720(4)(b)(iii)(A) and (B)
53-96-3	2-Acetylaminofluorene	SVOC	µg/L	--	--	--	--	--	0.023	--	0.032	0.023	WAC 340-720(4)(b)(iii)(A) and (B)
78-93-3	2-Butanone	VOC	µg/L	--	--	--	--	--	4,800	--	492,264	4,800	WAC 340-720(4)(b)(iii)(A) and (B)
91-58-7	2-Chloronaphthalene	SVOC	µg/L	--	--	--	--	1,000	640	--	1,027	640	WAC 340-720(4)(b)(iii)(A) and (B)
95-57-8	2-Chlorophenol	SVOC	µg/L	--	--	--	--	81	40	--	97	40	WAC 340-720(4)(b)(iii)(A) and (B)
591-78-6	2-Hexanone	VOC	µg/L	--	--	--	--	--	80	--	3,429	80	WAC 340-720(4)(b)(iii)(A) and (B)
94-74-6	2-Methyl-4 chlorophenoxyacetic acid	HERB	µg/L	--	--	--	--	--	8.0	--	410	8.0	WAC 340-720(4)(b)(iii)(A) and (B)
91-57-6	2-Methylnaphthalene	SVOC	µg/L	--	--	--	--	--	32	--	139	32	WAC 340-720(4)(b)(iii)(A) and (B)
95-48-7	2-Methylphenol (cresol, o-)	SVOC	µg/L	--	--	--	--	--	400	--	12,115	400	WAC 340-720(4)(b)(iii)(A) and (B)
91-59-8	2-Naphthylamine	SVOC	µg/L	--	--	--	--	--	0.049	--	0.24	0.049	WAC 340-720(4)(b)(iii)(A) and (B)
88-74-4	2-Nitroaniline	SVOC	µg/L	--	--	--	--	--	160	--	2,593	160	WAC 340-720(4)(b)(iii)(A) and (B)
88-75-5	2-Nitrophenol	SVOC	--	--	--	--	--	--	--	--	--	--	--
108-10-1	2-Pentanone, 4-Methyl	VOC	µg/L	--	--	--	--	--	640	--	61,002	640	WAC 340-720(4)(b)(iii)(A) and (B)
109-06-8	2-Picoline	VOC	--	--	--	--	--	--	--	--	--	--	--
91-94-1	3,3'-Dichlorobenzidine	SVOC	µg/L	--	--	--	--	0.021	0.19	--	0.046	0.021	Human Health for the Consumption of Water + Organism
119-93-7	3,3'-Dimethylbenzidine	SVOC	µg/L	--	--	--	--	--	0.0080	--	0.013	0.0080	WAC 340-720(4)(b)(iii)(A) and (B)
65794-96-9	3+4 Methylphenol (cresol, m+p)	SVOC	--	--	--	--	--	--	--	--	--	--	--
56-49-5	3-Methylcholanthrene	SVOC	µg/L	--	--	--	--	--	0.0040	--	3.68E-05	3.68E-05	WAC 340-730(3)(b)(iii)(A) and (B)
99-09-2	3-Nitroaniline	SVOC	µg/L	--	--	--	--	--	4.2	--	103	4.2	WAC 340-720(4)(b)(iii)(A) and (B)
72-54-8	4,4'-DDD (Dichlorodiphenyldichloroethane)	PEST	µg/L	--	--	--	--	3.10E-04	0.36	--	5.04E-04	3.10E-04	Human Health for the Consumption of Water + Organism
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	PEST	µg/L	--	--	--	--	2.20E-04	0.26	--	3.56E-04	2.20E-04	Human Health for the Consumption of Water + Organism
50-29-3	4,4'-DDT (Dichlorodiphenyltrichloroethane)	PEST	µg/L	--	--	0.0010	0.0010	2.20E-04	0.26	--	3.56E-04	2.20E-04	Human Health for the Consumption of Water + Organism
534-52-1	4,6-Dinitro-2-methylphenol	SVOC	µg/L	--	--	--	--	13	1.6	--	90	1.6	WAC 340-720(4)(b)(iii)(A) and (B)
92-67-1	4-Aminobiphenyl	SVOC	µg/L	--	--	--	--	--	0.0042	--	0.0086	0.0042	WAC 340-720(4)(b)(iii)(A) and (B)
101-55-3	4-Bromophenylphenyl ether	SVOC	--	--	--	--	--	--	--	--	--	--	--
59-50-7	4-Chloro-3-methylphenol	SVOC	µg/L	--	--	--	--	--	1,600	--	30,501	1,600	WAC 340-720(4)(b)(iii)(A) and (B)
106-47-8	4-Chloroaniline	SVOC	µg/L	--	--	--	--	--	0.22	--	4.6	0.22	WAC 340-720(4)(b)(iii)(A) and (B)
7005-72-3	4-Chlorophenylphenyl ether	SVOC	--	--	--	--	--	--	--	--	--	--	--
106-44-5	4-Methylphenol (cresol, p-)	SVOC	µg/L	--	--	--	--	--	40	--	1,465	40	WAC 340-720(4)(b)(iii)(A) and (B)
100-01-6	4-Nitroaniline	SVOC	µg/L	--	--	--	--	--	4.4	--	81	4.4	WAC 340-720(4)(b)(iii)(A) and (B)
100-02-7	4-Nitrophenol	SVOC	µg/L	--	--	--	--	--	128	--	4,035	128	WAC 340-720(4)(b)(iii)(A) and (B)
56-57-5	4-Nitroquinoline-1-oxide	SVOC	--	--	--	--	--	--	--	--	--	--	--
99-55-8	5-Nitro-o-toluidine	SVOC	µg/L	--	--	--	--	--	2.7	--	25	2.7	WAC 340-720(4)(b)(iii)(A) and (B)
57-97-6	7,12-Dimethylbenz[a]anthracene	SVOC	µg/L	--	--	--	--	--	3.50E-04	--	8.31E-06	8.31E-06	WAC 340-730(3)(b)(iii)(A) and (B)
83-32-9	Acenaphthene	SVOC	µg/L	--	--	--	--	670	960	--	643	643	WAC 340-730(3)(b)(iii)(A) and (B)
208-96-8	Acenaphthylene	SVOC	--	--	--	--	--	--	--	--	--	--	--
67-64-1	Acetone	VOC	µg/L	--	--	--	--	--	7,200	--	738,397	7,200	WAC 340-720(4)(b)(iii)(A) and (B)
75-05-8	Acetonitrile	VOC	--	--	--	--	--	--	--	--	--	--	--
98-86-2	Acetophenone	SVOC	µg/L	--	--	--	--	--	800	--	194,932	800	WAC 340-720(4)(b)(iii)(A) and (B)
107-02-8	Acrolein	VOC	µg/L	--	--	--	3.0	6.0	4.0	--	--	3.0	Freshwater CCC
107-13-1	Acrylonitrile	VOC	µg/L	--	--	--	--	0.051	0.081	--	0.40	0.051	Human Health for the Consumption of Water + Organism
309-00-2	Aldrin	PEST	µg/L	--	--	0.0019	--	4.90E-05	0.0026	--	8.16E-05	4.90E-05	Human Health for the Consumption of Water + Organism
ALKALINITY	Alkalinity	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
107-05-1	Allyl chloride	VOC	µg/L	--	--	--	--	--	2.1	--	62	2.1	WAC 340-720(4)(b)(iii)(A) and (B)
122-09-8	alpha,alpha-Dimethylphenethylamine	SVOC	--	--	--	--	--	--	--	--	--	--	--
319-84-6	Alpha-BHC	PEST	µg/L	--	--	--	--	0.0026	0.014	--	0.0079	0.0026	Human Health for the Consumption of Water + Organism
7429-90-5	Aluminum	METAL	µg/L	50	--	--	87	--	16,000	--	5,185	50	40 CFR 143.3
14596-10-2	Americium-241	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
7664-41-7	Ammonia	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
14798-03-9	Ammonium ion	WET CHEM	--	--	--	--	--	--	--	--	--	--	--
62-53-3	Aniline	SVOC	µg/L	--	--	--	--	--	7.7	--	--	7.7	WAC 340-720(4)(b)(iii)(A) and (B)
120-12-7	Anthracene	SVOC	µg/L	--	--	--	--	8,300	4,800	--	25,926	4,800	WAC 340-720(4)(b)(iii)(A) and (B)
7440-36-0	Antimony	METAL	µg/L	6.0	6.0	--	--	5.6	6.4	--	1,037	5.6	Human Health for the Consumption of Water + Organism
14234-35-6	Antimony-125	RAD	pCi/L	300	--	--	--	--	--	--	--	300	40 CFR 141.66
140-57-8	Aramite	SVOC	µg/L	--	--	--	--	--	3.5	--	0.37	0.37	WAC 340-730(3)(b)(iii)(A) and (B)
12674-11-2	Aroclor-1016	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	1.1	--	0.0030	6.40E-05	Human Health for the Consumption of Water + Organism
11104-28-2	Aroclor-1221	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	0.0072	6.40E-05	Human Health for the Consumption of Water + Organism
11141-16-5	Aroclor-1232	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	0.0072	6.40E-05	Human Health for the Consumption of Water + Organism
53469-21-9	Aroclor-1242	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	1.28E-04	6.40E-05	Human Health for the Consumption of Water + Organism
12672-29-6	Aroclor-1248	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	1.20E-04	6.40E-05	Human Health for the Consumption of Water + Organism
11097-69-1	Aroclor-1254	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	1.04E-04	6.40E-05	Human Health for the Consumption of Water + Organism
11096-82-5	Aroclor-1260	PCB	µg/L	0.50	--	0.014	0.014	6.40E-05	0.044	--	2.63E-04	6.40E-05	Human Health for the Consumption of Water + Organism
37324-23-5	Aroclor-1262	PCB	µg/L	0.50	--	--	0.014	6.40E-05	--	--	--	6.40E-05	Human Health for the Consumption of Water + Organism
11100-14-4	Aroclor-1268	PCB	µg/L	0.50	--	--	0.014	6.40E-05	--	--	--	6.40E-05	Human Health for the Consumption of Water + Organism
7440-38-2	Arsenic	METAL	µg/L	10	10	190	150	0.018	0.058	--	0.098	0.018	Human Health for the Consumption of Water + Organism
103-33-3	Azobenzene	SVOC	µg/L	--	--	--	--	--	0.80	--	5.9	0.80	WAC 340-720(4)(b)(iii)(A) and (B)
7440-39-3	Barium	METAL	µg/L	2,000	2,000	--	--	1,000	3,200	--	129,630	1,000	Human Health for the Consumption of Water + Organism
71-43-2	Benzene	VOC	µg/L	5.0	--	--	--	2.2	0.80	--	23	0.80	WAC 340-720(4)(b)(iii)(A) and (B)
56-55-3	Benzo(a)anthracene	SVOC	µg/L	--	--	--	--	0.0038	0.12	--	0.30	0.0038	Human Health for the Consumption of Water + Organism
50-32-8	Benzo(a)pyrene	SVOC	µg/L	0.20	--	--	--	0.0038	0.012	--	0.030	0.0038	Human Health for the Consumption of Water + Organism
205-99-2	Benzo(b)fluoranthene	SVOC	µg/L	--	--	--	--	0.0038	0.12	--	0.30	0.0038	Human Health for the Consumption of Water + Organism
191-24-2	Benzo(ghi)perylene	SVOC	--	--	--	--	--	--	--	--	--	--	--
207-08-9	Benzo(k)fluoranthene	SVOC	µg/L	--	--	--	--	0.0038	0.12	--	0.30	0.0038	Human Health for the Consumption of Water + Organism
95-16-9	Benzothiazole	SVOC	--	--	--	--	--	--	--	--	--	--	--
100-51-6	Benzyl alcohol	SVOC	µg/L	--	--	--	--	--	800	--	189,240	800	WAC 340-720(4)(b)(iii)(A) and (B)
7440-41-7	Beryllium	METAL	µg/L	4.0	4.0	--	--	--	32	--	273	4.0	WAC 246-290-310
13966-02-4	Beryllium-7	RAD	--	--	--	--	--	--	--	--	--	--	--
319-85-7	beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	PEST	µg/L	--	--	--	--	0.0091	0.049	--	0.028	0.0091	Human Health for the Consumption of Water + Organism
108-60-1	Bis(2-chloro-1-methylethyl)ether	SVOC	µg/L	--	--	--	--	1,400	0.63	--	37	0.63	WAC 340-720(4)(b)(iii)(A) and (B)
111-91-1	Bis(2-Chloroethoxy)methane	SVOC	µg/L	--	--	--	--	--	48	--	2,343	48	WAC 340-720(4)(b)(iii)(A) and (B)
111-44-4	Bis(2-chloroethyl) ether	SVOC	µg/L	--	--	--	--	0.030	0.040	--	0.85	0.030	Human Health for the Consumption of Water + Organism
117-81-7	Bis(2-ethylhexyl) phthalate	SVOC	µg/L	6.0	--	--	--	1.2	6.3	--	3.6	1.2	Human Health for the Consumption of Water + Organism
24959-67-9	Bromide	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
75-27-4	Bromodichloromethane	VOC	µg/L	--	--	--	--	0.55	0.71	--	28	0.55	Human Health for the Consumption of Water + Organism
75-25-2	Bromoform	VOC	µg/L	--	--	--	--	4.3	5.5	--	219	4.3	Human Health for the Consumption of Water + Organism

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
74-83-9	Bromomethane	VOC	µg/L	--	--	--	--	47	11	--	968	11	WAC 340-720(4)(b)(iii)(A) and (B)
85-68-7	Butylbenzylphthalate	SVOC	µg/L	--	--	--	--	1,500	46	--	8.2	8.2	WAC 340-730(3)(b)(iii)(A) and (B)
7440-43-9	Cadmium	METAL	µg/L	5.0	5.0	0.91	0.25	--	8.0	--	20	0.25	Freshwater CCC
7440-70-2	Calcium	METAL	--	--	--	--	--	--	--	--	--	--	--
86-74-8	Carbazole	SVOC	µg/L	--	--	--	--	--	4.4	--	1.9	1.9	WAC 340-730(3)(b)(iii)(A) and (B)
75-15-0	Carbon disulfide	VOC	µg/L	--	--	--	--	--	800	--	13,295	800	WAC 340-720(4)(b)(iii)(A) and (B)
56-23-5	Carbon tetrachloride	VOC	µg/L	5.0	--	--	--	0.23	0.34	--	2.7	0.23	Human Health for the Consumption of Water + Organism
13967-70-9	Cesium-134	RAD	pCi/L	80	--	--	--	--	--	--	--	80	40 CFR 141.66
10045-97-3	Cesium-137	RAD	µg/L	200	--	--	--	--	--	--	--	200	40 CFR 141.66
COD	Chemical Oxygen Demand	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
57-74-9	Chlordane	PEST	µg/L	2.0	--	0.0043	0.0043	8.00E-04	0.25	--	0.0013	8.00E-04	Human Health for the Consumption of Water + Organism
16887-00-6	Chloride	WET CHEM	µg/L	250,000	250,000	230,000	230,000	--	--	--	--	230,000	Freshwater CCC/WAC 173-201A
108-90-7	Chlorobenzene	VOC	µg/L	100	--	--	--	130	160	--	5,034	100	40 CFR 141.61
510-15-6	Chlorobenzilate	SVOC	µg/L	--	--	--	--	--	0.80	--	0.12	0.12	WAC 340-730(3)(b)(iii)(A) and (B)
67-66-3	Chloroform	VOC	µg/L	70	--	--	--	5.7	1.4	--	56	1.4	WAC 340-720(4)(b)(iii)(A) and (B)
75-00-3	Chloromethane	VOC	--	--	--	--	--	--	--	--	--	--	--
74-87-3	Chloromethane	VOC	--	--	--	--	--	--	--	--	--	--	--
126-99-8	Chloroprene	VOC	µg/L	--	--	--	--	--	160	--	2,412	160	WAC 340-720(4)(b)(iii)(A) and (B)
7440-47-3	Chromium	METAL	µg/L	100	100	156	65	--	24,000	--	19,444	65	Freshwater CCC
218-01-9	Chrysene	SVOC	µg/L	--	--	--	--	0.0038	1.2	--	3.0	0.0038	Human Health for the Consumption of Water + Organism
156-59-2	cis-1,2-Dichloroethylene	VOC	µg/L	70	--	--	--	--	80	--	2,336	70	40 CFR 141.61
10061-01-5	cis-1,3-Dichloropropene	VOC	µg/L	--	--	--	--	0.34	0.44	--	34	0.34	Human Health for the Consumption of Water + Organism
7440-48-4	Cobalt	METAL	µg/L	--	--	--	--	--	4.8	--	2.6	2.6	WAC 340-730(3)(b)(iii)(A) and (B)
10198-40-0	Cobalt-60	RAD	µg/L	100	--	--	--	--	--	--	--	100	40 CFR 141.66
COLIFORM	Coliform Bacteria	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
7440-50-8	Copper	METAL	µg/L	1,300	--	--	9.0	1,300	640	--	2,881	9.0	Freshwater CCC
57-12-5	Cyanide	WET CHEM	µg/L	200	200	5.2	5.2	140	320	--	51,852	5.2	Freshwater CCC/WAC 173-201A
75-99-0	Dalapon	HERB	µg/L	200	--	--	--	--	240	--	10,773	200	40 CFR 141.61
319-86-8	Delta-BHC	PEST	--	--	--	--	--	--	--	--	--	--	--
2303-16-4	Diallate	SVOC	µg/L	--	--	--	--	--	1.4	--	0.25	0.25	WAC 340-730(3)(b)(iii)(A) and (B)
53-70-3	Dibenz[a,h]anthracene	SVOC	µg/L	--	--	--	--	0.0038	0.12	--	0.30	0.0038	Human Health for the Consumption of Water + Organism
132-64-9	Dibenzofuran	SVOC	µg/L	--	--	--	--	--	16	--	1.7	1.7	WAC 340-730(3)(b)(iii)(A) and (B)
124-48-1	Dibromochloromethane	VOC	µg/L	60	--	--	--	0.40	0.52	--	21	0.40	Human Health for the Consumption of Water + Organism
74-95-3	Dibromomethane	VOC	µg/L	--	--	--	--	--	80	--	4,216	80	WAC 340-720(4)(b)(iii)(A) and (B)
1918-00-9	Dicamba	HERB	µg/L	--	--	--	--	--	480	--	24,613	480	WAC 340-720(4)(b)(iii)(A) and (B)
75-71-8	Dichlorodifluoromethane	VOC	µg/L	--	--	--	--	--	1,600	--	84,312	1,600	WAC 340-720(4)(b)(iii)(A) and (B)
120-36-5	Dichloroprop	HERB	--	--	--	--	--	--	--	--	--	--	--
60-57-1	Dieldrin	PEST	µg/L	--	--	0.0019	0.056	5.20E-05	0.0055	--	8.67E-05	5.20E-05	Human Health for the Consumption of Water + Organism
84-66-2	Diethylphthalate	SVOC	µg/L	--	--	--	--	17,000	12,800	--	28,412	12,800	WAC 340-720(4)(b)(iii)(A) and (B)
60-51-5	Dimethoate	SVOC	µg/L	--	--	--	--	--	3.2	--	324	3.2	WAC 340-720(4)(b)(iii)(A) and (B)
131-11-3	Dimethyl phthalate	SVOC	µg/L	--	--	--	--	270,000	--	--	--	270,000	Human Health for the Consumption of Water + Organism
84-74-2	Di-n-butylphthalate	SVOC	µg/L	--	--	--	--	2,000	1,600	--	2,913	1,600	WAC 340-720(4)(b)(iii)(A) and (B)
117-84-0	Di-n-octylphthalate	SVOC	--	--	--	--	--	--	--	--	--	--	--
88-85-7	Dinoseb(2-secButyl-4,6-dinitrophenol)	PEST	µg/L	7.0	--	--	--	--	16	--	--	7.0	40 CFR 141.61
DO	Dissolved oxygen	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
298-04-4	Disulfoton	PEST	µg/L	--	--	--	--	--	0.64	--	0.48	0.48	WAC 340-730(3)(b)(iii)(A) and (B)
959-98-8	Endosulfan I	PEST	µg/L	--	--	--	0.056	62	96	--	58	0.056	Freshwater CCC
33213-65-9	Endosulfan II	PEST	µg/L	--	--	--	0.056	62	96	--	58	0.056	Freshwater CCC
1031-07-8	Endosulfan sulfate	PEST	µg/L	--	--	--	--	62	--	--	--	62	Human Health for the Consumption of Water + Organism

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
72-20-8	Endrin	PEST	µg/L	2.0	--	0.0023	0.036	0.059	4.8	--	0.20	0.0023	WAC 173-201A
7421-93-4	Endrin aldehyde	PEST	µg/L	--	--	--	--	0.29	--	--	--	0.29	Human Health for the Consumption of Water + Organism
107-12-0	Ethyl cyanide	VOC	--	--	--	--	--	--	--	--	--	--	--
97-63-2	Ethyl methacrylate	VOC	µg/L	--	--	--	--	--	720	--	26,365	720	WAC 340-720(4)(b)(iii)(A) and (B)
62-50-0	Ethyl methanesulfonate	SVOC	--	--	--	--	--	--	--	--	--	--	--
100-41-4	Ethylbenzene	VOC	µg/L	700	--	--	--	530	4.0	--	16	4.0	WAC 340-720(4)(b)(iii)(A) and (B)
14683-23-9	Europium-152	RAD	µg/L	200	--	--	--	--	--	--	--	200	40 CFR 141.66
15585-10-1	Europium-154	RAD	µg/L	60	--	--	--	--	--	--	--	60	40 CFR 141.66
14391-16-3	Europium-155	RAD	µg/L	600	--	--	--	--	--	--	--	600	40 CFR 141.66
52-85-7	Famphur	SVOC	--	--	--	--	--	--	--	--	--	--	--
206-44-0	Fluoranthene	SVOC	µg/L	--	--	--	--	130	640	--	90	90	WAC 340-730(3)(b)(iii)(A) and (B)
86-73-7	Fluorene	SVOC	µg/L	--	--	--	--	1,100	640	--	3,457	640	WAC 340-720(4)(b)(iii)(A) and (B)
16984-48-8	Fluoride	WET CHEM	µg/L	4,000	4,000	--	--	--	960	--	--	960	WAC 340-720(4)(b)(iii)(A) and (B)
58-89-9	Gamma-BHC (Lindane)	PEST	µg/L	0.20	--	0.080	--	0.98	0.080	--	0.045	0.045	WAC 340-730(3)(b)(iii)(A) and (B)
12587-46-1	Gross alpha	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66
12587-47-2	Gross beta	RAD	--	--	--	--	--	--	--	--	--	--	--
76-44-8	Heptachlor	PEST	µg/L	0.40	--	0.0038	0.0038	7.90E-05	0.019	--	1.29E-04	7.90E-05	Human Health for the Consumption of Water + Organism
1024-57-3	Heptachlor epoxide	PEST	µg/L	0.20	--	--	0.0038	3.90E-05	0.0048	--	6.36E-05	3.90E-05	Human Health for the Consumption of Water + Organism
38998-75-3	Heptachlorodibenzofurans	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
37871-00-4	Heptachlorodibenzo-p-dioxins	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
118-74-1	Hexachlorobenzene	SVOC	µg/L	1.0	--	--	--	2.80E-04	0.055	--	4.66E-04	2.80E-04	Human Health for the Consumption of Water + Organism
87-68-3	Hexachlorobutadiene	SVOC	µg/L	--	--	--	--	0.44	0.56	--	30	0.44	Human Health for the Consumption of Water + Organism
77-47-4	Hexachlorocyclopentadiene	SVOC	µg/L	50	--	--	--	40	48	--	3,584	40	Human Health for the Consumption of Water + Organism
55684-94-1	Hexachlorodibenzofurans	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
34465-46-8	Hexachlorodibenzo-p-dioxin	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
67-72-1	Hexachloroethane	SVOC	µg/L	--	--	--	--	1.4	3.1	--	5.3	1.4	Human Health for the Consumption of Water + Organism
70-30-4	Hexachlorophene	SVOC	µg/L	--	--	--	--	--	4.8	--	--	4.8	WAC 340-720(4)(b)(iii)(A) and (B)
1888-71-7	Hexachloropropene	SVOC	--	--	--	--	--	--	--	--	--	--	--
110-54-3	Hexane	VOC	µg/L	--	--	--	--	--	480	--	894	480	WAC 340-720(4)(b)(iii)(A) and (B)
18540-29-9	Hexavalent Chromium	METAL	µg/L	--	--	10	11	--	48.00	--	486.00	10.00	WAC 173-201A
193-39-5	Indeno(1,2,3-cd)pyrene	SVOC	µg/L	--	--	--	--	0.0038	0.12	--	0.30	0.0038	Human Health for the Consumption of Water + Organism
15046-84-1	Iodine-129	RAD	µg/L	1.0	--	--	--	--	--	--	--	1.0	40 CFR 141.66
74-88-4	Iodomethane	VOC	--	--	--	--	--	--	--	--	--	--	--
7439-89-6	Iron	METAL	µg/L	300	300	--	1,000	300	11,200	--	9,074	300	Human Health for the Consumption of Water + Organism
78-83-1	Isobutyl alcohol	VOC	µg/L	--	--	--	--	--	2,400	--	246,132	2,400	WAC 340-720(4)(b)(iii)(A) and (B)
465-73-6	Isodrin	SVOC	--	--	--	--	--	--	--	--	--	--	--
78-59-1	Isophorone	VOC	µg/L	--	--	--	--	35	46	--	1,558	35	Human Health for the Consumption of Water + Organism
120-58-1	Isosafrole	SVOC	--	--	--	--	--	--	--	--	--	--	--
143-50-0	Kepone	SVOC	µg/L	--	--	--	--	--	0.0088	--	4.18E-04	4.18E-04	WAC 340-730(3)(b)(iii)(A) and (B)
7439-92-1	Lead	METAL	µg/L	15	--	2.1	2.5	--	--	15	--	2.1	WAC 173-201A
7439-95-4	Magnesium	METAL	--	--	--	--	--	--	--	--	--	--	--
7439-96-5	Manganese	METAL	µg/L	50	50	--	--	50	2,240	--	907	50	Human Health for the Consumption of Water + Organism/WAC 246-290-310
99-65-0	m-Dinitrobenzene	SVOC	µg/L	--	--	--	--	--	1.6	--	--	1.6	WAC 340-720(4)(b)(iii)(A) and (B)
7439-97-6	Mercury	METAL	µg/L	2.0	2.0	0.012	0.77	--	2.6	--	131	0.012	WAC 173-201A
126-98-7	Methacrylonitrile	VOC	µg/L	--	--	--	--	--	0.80	--	82	0.80	WAC 340-720(4)(b)(iii)(A) and (B)
91-80-5	Methapyrilene	SVOC	--	--	--	--	--	--	--	--	--	--	--
72-43-5	Methoxychlor	PEST	µg/L	40	--	--	0.030	100	80	--	8.4	0.030	Freshwater CCC

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
80-62-6	Methyl methacrylate	VOC	µg/L	--	--	--	--	--	11,200	--	960,219	11,200	WAC 340-720(4)(b)(iii)(A) and (B)
66-27-3	Methyl methanesulfonate	SVOC	µg/L	--	--	--	--	--	0.88	--	21	0.88	WAC 340-720(4)(b)(iii)(A) and (B)
298-00-0	Methyl parathion	PEST	µg/L	--	--	--	--	--	4.0	--	--	4.0	WAC 340-720(4)(b)(iii)(A) and (B)
75-09-2	Methylene chloride	VOC	µg/L	5.0	--	--	--	4.6	5.8	--	960	4.6	Human Health for the Consumption of Water + Organism
91-20-3	Naphthalene	SVOC	µg/L	--	--	--	--	--	160	--	4,938	160	WAC 340-720(4)(b)(iii)(A) and (B)
104-51-8	n-Butylbenzene	VOC	--	--	--	--	--	--	--	--	--	--	--
13994-20-2	Neptunium-237	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66
7440-02-0	Nickel	METAL	µg/L	--	100	137	52	610	320	--	1,103	52	Freshwater CCC
13981-37-8	Nickel-63	RAD	µg/L	50	--	--	--	--	--	--	--	50	40 CFR 141.66
14797-55-8	Nitrate	WET CHEM	µg/L	45,000	45,000	--	--	45,000	113,600	--	--	45000	40 CFR 141
14797-65-0	Nitrite	WET CHEM	µg/L	3,300	3,300	--	--	--	5,280	--	--	3300.0	40 CFR 141
98-95-3	Nitrobenzene	SVOC	µg/L	--	--	--	--	17	16	--	1,794	16	WAC 340-720(4)(b)(iii)(A) and (B)
NO2+NO3-N	Nitrogen in Nitrite and Nitrate	WET CHEM	µg/L	10,000	--	--	--	--	--	--	--	10,000	40 CFR 141.62
930-55-2	Nitrosopyrrolidine	SVOC	µg/L	--	--	--	--	0.016	0.021	--	0.98	0.016	Human Health for the Consumption of Water + Organism
55-18-5	n-Nitrosodiethylamine	SVOC	µg/L	--	--	--	--	8.00E-04	2.92E-04	--	0.014	2.92E-04	WAC 340-720(4)(b)(iii)(A) and (B)
62-75-9	n-Nitrosodimethylamine	SVOC	µg/L	--	--	--	--	6.90E-04	8.58E-04	--	4.9	6.90E-04	Human Health for the Consumption of Water + Organism
924-16-3	n-Nitrosodi-n-butylamine	SVOC	µg/L	--	--	--	--	0.0063	0.0081	--	--	0.0063	Human Health for the Consumption of Water + Organism
621-64-7	n-Nitrosodi-n-dipropylamine	SVOC	µg/L	--	--	--	--	0.0050	0.013	--	0.82	0.0050	Human Health for the Consumption of Water + Organism
86-30-6	n-Nitrosodiphenylamine	SVOC	µg/L	--	--	--	--	3.3	18	--	9.7	3.3	Human Health for the Consumption of Water + Organism
10595-95-6	n-Nitrosomethylethylamine	SVOC	µg/L	--	--	--	--	--	0.0040	--	0.093	0.0040	WAC 340-720(4)(b)(iii)(A) and (B)
59-89-2	n-Nitrosomorpholine	SVOC	µg/L	--	--	--	--	--	0.013	--	0.31	0.013	WAC 340-720(4)(b)(iii)(A) and (B)
100-75-4	n-Nitrosopiperidine	SVOC	µg/L	--	--	--	--	--	0.0093	--	0.22	0.0093	WAC 340-720(4)(b)(iii)(A) and (B)
126-68-1	O,O,O-Triethyl phosphorothioate	SVOC	--	--	--	--	--	--	--	--	--	--	--
297-97-2	O,O-Diethyl O-2-pyrazinyl phosphorothioate	SVOC	--	--	--	--	--	--	--	--	--	--	--
39001-02-0	Octachlorodibenzofuran	Dioxin/Furan	µg/L	--	--	--	--		0.0022	--	2.16E-04	2.16E-04	WAC 340-730(3)(b)(iii)(A) and (B)
3268-87-9	Octachlorodibenzo-p-dioxin	Dioxin/Furan	µg/L	--	--	--	--		0.0022	--	1.27E-04	1.27E-04	WAC 340-730(3)(b)(iii)(A) and (B)
OIL/GREASE	Oil and grease	Oil/Grease	µg/L	--	--	--	--	--	--	500	--	5.00E+02	WAC 340-900, Table 720-1
95-53-4	o-Toluidine	SVOC	--	--	--	--	--	--	--	--	--	--	--
EH	Oxidation Reduction Potential	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
56-38-2	Parathion	SVOC	µg/L	--	--	0.013	0.013	--	96	--	--	0.013	Freshwater CCC/WAC 173-201A
60-11-7	p-Dimethylaminoazobenzene	SVOC	µg/L	--	--	--	--	--	0.019	--	0.14	0.019	WAC 340-720(4)(b)(iii)(A) and (B)
608-93-5	Pentachlorobenzene	SVOC	µg/L	--	--	--	--	1.4	13	--	--	1.4	Human Health for the Consumption of Water + Organism
30402-15-4	Pentachlorodibenzofurans	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
36088-22-9	Pentachlorodibenzo-p-dioxins	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
76-01-7	Pentachloroethane	VOC	µg/L	--	--	--	--	--	0.97	--	1.2	0.97	WAC 340-720(4)(b)(iii)(A) and (B)
82-68-8	Pentachloronitrobenzene (PCNB)	SVOC	µg/L	--	--	--	--	--	0.34	--	0.046	0.046	WAC 340-730(3)(b)(iii)(A) and (B)
87-86-5	Pentachlorophenol	SVOC	µg/L	1.0	--	--	15	0.27	0.73	--	4.9	0.27	Human Health for the Consumption of Water + Organism
PH	pH Measurement	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
62-44-2	Phenacetin	SVOC	µg/L	--	--	--	--	--	40	--	98	40	WAC 340-720(4)(b)(iii)(A) and (B)
85-01-8	Phenanthrene	SVOC	--	--	--	--	--	--	--	--	--	--	--
108-95-2	Phenol	SVOC	µg/L	--	--	--	--	10,000	2,400	--	555,556	2,400	WAC 340-720(4)(b)(iii)(A) and (B)
298-02-2	Phorate	PEST	µg/L	--	--	--	--	--	3.2	--	5.0	3.2	WAC 340-720(4)(b)(iii)(A) and (B)
14265-44-2	Phosphate	WET CHEM	--	--	--	--	--	--	--	--	--	--	--
13981-16-3	Plutonium-238	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66
PU-239/240	Plutonium-239/240	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66
7440-09-7	Potassium	METAL	--	--	--	--	--	--	--	--	--	--	--
13966-00-2	Potassium-40	RAD	--	--	--	--	--	--	--	--	--	--	--
106-50-3	p-Phenylenediamine	SVOC	µg/L	--	--	--	--	--	3,040	--	155,884	3,040	WAC 340-720(4)(b)(iii)(A) and (B)
23950-58-5	Pronamide	SVOC	µg/L	--	--	--	--	--	1,200	--	2,285	1,200	WAC 340-720(4)(b)(iii)(A) and (B)
14331-85-2	Protactinium-231	RAD	µg/L	15	--	--	--	--	--	--	--	15	40 CFR 141.66

Table 3-1. Summary of Federal and State Water Quality Criteria and Action Levels for the 200-PO-1 Groundwater Operable Unit.

CAS NO.	Analyte Name	Analyte Class	Units	Federal MCL or MCLG	WAC 246-290-310 MCL or MRDL	WAC 173-201A Freshwater CCC	Freshwater CCC	Human Health Water + Organism	WAC 340-720 Method B Groundwater Cleanup Standards	WAC 340-900 Method A	WAC 340-730 Method B Surface Water Cleanup Standards	Action Level	Action Level Basis
129-00-0	Pyrene	SVOC	µg/L	--	--	--	--	830	480	--	2,593	480	WAC 340-720(4)(b)(iii)(A) and (B)
110-86-1	Pyridine	VOC	µg/L	--	--	--	--	--	8.0	--	820	8.0	WAC 340-720(4)(b)(iii)(A) and (B)
7440-14-4	Radium	METAL	--	--	--	--	--	--	--	--	--	--	--
13967-48-1	Ruthenium-106	RAD	pCi/L	30	--	--	--	--	--	--	--	30	40 CFR 141.66
94-59-7	Safrol	SVOC	µg/L	--	--	--	--	--	0.40	--	0.34	0.34	WAC 340-730(3)(b)(iii)(A) and (B)
7782-49-2	Selenium	METAL	µg/L	50	50	5.0	5.0	170	80	--	2,701	5.0	Freshwater CCC/WAC 173-201A
15758-45-9	Selenium-79	RAD	--	--	--	--	--	--	--	--	--	--	--
7440-21-3	Silicon	METAL	--	--	--	--	--	--	--	--	--	--	--
7440-22-4	Silver	METAL	µg/L	100	100	2.6	--	--	80	--	25,926	2.6	WAC 173-201A
7440-23-5	Sodium	METAL	--	--	--	--	--	--	--	--	--	--	--
CONDUCT	Specific Conductance	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
7440-24-6	Strontium	METAL	µg/L	--	--	--	--	--	9,600	--	25,926	9,600	WAC 340-720(4)(b)(iii)(A) and (B)
10098-97-2	Strontium-90	RAD	µg/L	8.0	--	--	--	--	--	--	--	8.0	40 CFR 141.66
100-42-5	Styrene	VOC	µg/L	100	--	--	--	--	1,600	--	38,409	100	40 CFR 141.61
14808-79-8	Sulfate	WET CHEM	µg/L	250,000	250,000	--	--	--	--	--	--	250,000	WAC 246-290-310
18496-25-8	Sulfide	WET CHEM	--	--	--	--	--	--	--	--	--	--	--
99-35-4	sym-Trinitrobenzene	SVOC	µg/L	--	--	--	--	--	480	--	27,877	480	WAC 340-720(4)(b)(iii)(A) and (B)
14133-76-7	Technetium-99	RAD	µg/L	900	--	--	--	--	--	--	--	900	40 CFR 141.66
TEMPERATURE	Temperature	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
55722-27-5	Tetrachlorodibenzofurans	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
41903-57-5	Tetrachlorodibenzo-p-dioxins	Dioxin/Furan	--	--	--	--	--	--	--	--	--	--	--
127-18-4	Tetrachloroethene	VOC	µg/L	5.0	--	--	--	0.69	0.081	--	0.39	0.081	WAC 340-720(4)(b)(iii)(A) and (B)
3689-24-5	Tetraethyl dithiopyrophosphate (Sulfotepp)	SVOC	µg/L	--	--	--	--	--	8.0	--	6.5	6.5	WAC 340-730(3)(b)(iii)(A) and (B)
109-99-9	Tetrahydrofuran	VOC	--	--	--	--	--	--	--	--	--	--	--
7440-28-0	Thallium	METAL	µg/L	2.0	2.0	--	--	0.24	--	--	--	0.24	Human Health for the Consumption of Water + Organism
7440-32-6	Titanium	METAL	µg/L	--	--	--	--	--	64,000	--	--	64,000	WAC 340-720(4)(b)(iii)(A) and (B)
108-88-3	Toluene	VOC	µg/L	1,000	--	--	--	1,300	640	--	19,384	640	WAC 340-720(4)(b)(iii)(A) and (B)
1319-77-3	Total cresols	SVOC	µg/L	--	--	--	--	--	1,600	--	24,230	1,600	WAC 340-720(4)(b)(iii)(A) and (B)
TDS	Total dissolved solids	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
TOC	Total organic carbon	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
59473-04-0	Total organic halides	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
TPHDIESEL	Total petroleum hydrocarbons - diesel range	TPH	µg/L	--	--	--	--	--	--	500	--	500	WAC 340-900, Table 720-1
TPHGASOLINE	Total petroleum hydrocarbons - gasoline range	TPH	µg/L	--	--	--	--	--	--	1,000	--	1,000	WAC 340-900, Table 720-1
TPHKEROSENE	Total petroleum hydrocarbons - kerosene range	SVOC	µg/L	--	--	--	--	--	--	500	--	500	WAC 340-900, Table 720-1
8001-35-2	Toxaphene	PEST	µg/L	3.0	--	2.00E-04	2.00E-04	2.80E-04	0.080	--	4.50E-04	2.00E-04	Freshwater CCC/WAC 173-201A
156-60-5	trans-1,2-Dichloroethylene	VOC	µg/L	100	--	--	--	140	160	--	32,818	100	40 CFR 141.61
10061-02-6	trans-1,3-Dichloropropene	VOC	µg/L	--	--	--	--	0.34	0.44	--	34	0.34	Human Health for the Consumption of Water + Organism
110-57-6	trans-1,4-Dichloro-2-butene	VOC	--	--	--	--	--	--	--	--	--	--	--
126-73-8	Tributyl phosphate	SVOC	µg/L	--	--	--	--	--	9.5	--	24	9.5	WAC 340-720(4)(b)(iii)(A) and (B)
79-01-6	Trichloroethene	VOC	µg/L	5.0	--	--	--	2.5	0.5	--	100	0.5	WAC 340-720(4)(b)(iii)(A) and (B)
75-69-4	Trichloromonofluoromethane	VOC	µg/L	--	--	--	--	--	2,400	--	--	2,400	WAC 340-720(4)(b)(iii)(A) and (B)
115-96-8	Tris-2-chloroethyl phosphate	SVOC	µg/L	--	--	--	--	--	4.4	--	249	4.4	WAC 340-720(4)(b)(iii)(A) and (B)
10028-17-8	Tritium	RAD	µg/L	20,000	--	--	--	--	--	--	--	20,000	40 CFR 141.66
TURBIDITY	Turbidity	WATER QUALITY	--	--	--	--	--	--	--	--	--	--	--
7440-61-1	Uranium	METAL	µg/L	30	--	--	--	--	48	--	778	30	40 CFR 141.62
U-233/234	Uranium-233/234	RAD	--	--	--	--	--	--	--	--	--	--	--
13966-29-5	Uranium-234	RAD	--	--	--	--	--	--	--	--	--	--	--
15117-96-1	Uranium-235	RAD	--	--	--	--	--	--	--	--	--	--	--
U-238	Uranium-238	RAD	--	--	--	--	--	--	--	--	--	--	--
7440-62-2	Vanadium and compounds	METAL	µg/L	--	--	--	--	--	80.0	--	--	80.0	WAC 340-720(4)(b)(iii)(A) and (B)
108-05-4	Vinyl acetate	VOC	µg/L	--	--	--	--	--	8,000	--	820,441	8,000	WAC 340-720(4)(b)(iii)(A) and (B)
75-01-4	Vinyl chloride	VOC	µg/L	2.0	--	--	--	0.025	0.061	--	7.7	0.025	Human Health for the Consumption of Water + Organism
1330-20-7	Xylenes (total)	VOC	µg/L	10,000	--	--	--	--	1,600	--	--	1,600	WAC 340-720(4)(b)(iii)(A) and (B)
7440-66-6	Zinc	METAL	µg/L	5,000	5,000	91	120	7,400	4,800	--	16,548	91	WAC 173-201A

Table 4-1. Summary of Groundwater Monitoring Wells in the 200-PO-1 Groundwater Operable Unit.

Well Name	Near-Field Wells	Far-Field Wells	River Wells	Comment*
229-E25-29Q	--	--	--	No data available from this well
299-E13-11	X	--	--	
299-E13-12	X	--	--	
299-E13-14	X	--	--	
299-E13-16	X	--	--	
299-E13-17	X	--	--	
299-E13-18	X	--	--	
299-E13-19	X	--	--	
299-E13-4	X	--	--	
299-E13-5	X	--	--	
299-E13-6	X	--	--	
299-E13-8	X	--	--	
299-E13-9	X	--	--	
299-E16-1	--	--	--	Hydrostratigraphic Unit 4
299-E16-2	X	--	--	
299-E17-1	X	--	--	
299-E17-12	X	--	--	
299-E17-13	X	--	--	
299-E17-14	X	--	--	
299-E17-16	X	--	--	
299-E17-18	X	--	--	
299-E17-19	X	--	--	
299-E17-21	X	--	--	
299-E17-22	X	--	--	
299-E17-23	X	--	--	
299-E17-25	X	--	--	
299-E17-26	X	--	--	
299-E18-1	X	--	--	
299-E23-1	X	--	--	
299-E24-16	X	--	--	
299-E24-18	X	--	--	
299-E24-20	X	--	--	
299-E24-21	X	--	--	
299-E24-22	X	--	--	
299-E24-23	X	--	--	
299-E24-24	X	--	--	
299-E24-3	--	--	--	No data available from this well
299-E24-33	X	--	--	
299-E24-5	X	--	--	
299-E25-17	X	--	--	
299-E25-18	X	--	--	
299-E25-19	X	--	--	
299-E25-2	X	--	--	
299-E25-20	X	--	--	
299-E25-22	X	--	--	
299-E25-236	X	--	--	
299-E25-25	X	--	--	
299-E25-26	X	--	--	
299-E25-28	X	--	--	
299-E25-29P	X	--	--	
299-E25-3	X	--	--	
299-E25-31	X	--	--	
299-E25-32P	X	--	--	

Table 4-1. Summary of Groundwater Monitoring Wells in the 200-PO-1 Groundwater Operable Unit.

Well Name	Near-Field Wells	Far-Field Wells	River Wells	Comment*
299-E25-32Q	X	--	--	
299-E25-34	X	--	--	
299-E25-35	X	--	--	
299-E25-36	X	--	--	
299-E25-37	X	--	--	
299-E25-39	X	--	--	
299-E25-40	X	--	--	
299-E25-41	X	--	--	
299-E25-42	X	--	--	
299-E25-43	X	--	--	
299-E25-44	X	--	--	
299-E25-47	X	--	--	
299-E25-48	X	--	--	
299-E25-6	X	--	--	
299-E25-93	X	--	--	
299-E25-94	X	--	--	
299-E26-12	X	--	--	
299-E26-13	X	--	--	
299-E26-4	X	--	--	
499-S0-7	--	X	--	
499-S0-8	--	X	--	
499-S1-8J	--	X	--	
699-10-54A	--	X	--	
699-10-E12	--	--	X	
699-12-2C	--	X	--	
699-12-4D	--	X	--	
699-13-0A	--	X	--	
699-13-1A	--	X	--	
699-13-1C	--	--	--	Hydrostratigraphic Unit 4
699-13-1E	--	X	--	
699-13-2D	--	X	--	
699-13-3A	--	X	--	
699-14-38	--	X	--	
699-17-5	--	X	--	
699-19-43	--	X	--	
699-20-20	--	X	--	
699-20-E12O	--	--	X	
699-20-E12S	--	X	--	
699-20-E5A	--	X	--	
699-21-6	--	X	--	
699-22-35	--	X	--	
699-2-3	--	X	--	
699-23-34A	--	X	--	
699-23-34B	--	X	--	
699-24-1P	--	--	--	Hydrostratigraphic Unit 4
699-24-33	--	X	--	
699-24-34A	--	X	--	
699-24-34B	--	X	--	
699-24-34C	--	X	--	
699-24-35	--	X	--	
699-24-46	--	X	--	
699-25-33A	--	X	--	
699-25-34A	--	X	--	
699-25-34B	--	X	--	
699-25-34D	--	X	--	

Table 4-1. Summary of Groundwater Monitoring Wells in the 200-PO-1 Groundwater Operable Unit.

Well Name	Near-Field Wells	Far-Field Wells	River Wells	Comment*
699-26-15A	--	X	--	
699-26-33	--	X	--	
699-26-34A	--	X	--	
699-26-34B	--	X	--	
699-26-35A	--	X	--	
699-26-35C	--	X	--	
699-2-6A	--	X	--	
699-2-7	--	X	--	
699-28-40	--	X	--	
699-29-4	--	X	--	
699-31-11	--	X	--	
699-31-31	--	X	--	
699-32-22A	--	X	--	
699-32-22B	--	X	--	
699-32-43	--	X	--	
699-33-56	--	X	--	
699-34-41B	--	X	--	
699-34-42	--	X	--	
699-35-9	--	X	--	
699-37-43	X	--	--	
699-37-47A	X	--	--	
699-37-E4	--	--	X	
699-38-15	--	X	--	
699-39-39	X	--	--	
699-40-1	--	--	X	
699-40-33A	X	--	--	
699-40-36	--	--	--	Hydrostratigraphic Unit 3
699-41-1A	--	--	X	
699-41-23	--	X	--	
699-41-35	--	--	--	Hydrostratigraphic Unit 3
699-41-40	X	--	--	
699-41-42	X	--	--	
699-42-12A	--	X	--	
699-42-37	--	--	--	Hydrostratigraphic Unit 3
699-42-39A	X	--	--	
699-42-39B	X	--	--	
699-42-40A	X	--	--	
699-42-40C	--	--	--	Hydrostratigraphic Unit 4
699-42-42B	X	--	--	
699-43-3	--	--	X	
699-43-44	X	--	--	
699-43-45	X	--	--	
699-44-39B	X	--	--	
699-45-42	X	--	--	
699-46-21B	--	X	--	
699-46-4	--	--	X	
699-47-5	--	--	X	
699-48-7A	--	--	X	
699-49-13E	--	--	X	
699-50-28B	--	X	--	
699-52-19	--	X	--	
699-8-17	--	X	--	
699-8-25	--	X	--	
699-9-E2	--	X	--	
699-S11-E12AP	--	--	--	Hydrostratigraphic Unit 4

Table 4-1. Summary of Groundwater Monitoring Wells in the 200-PO-1 Groundwater Operable Unit.

Well Name	Near-Field Wells	Far-Field Wells	River Wells	Comment*
699-S12-3	--	X	--	
699-S19-E13	--	--	X	
699-S19-E14	--	X	--	
699-S2-34B	--	--	--	Hydrostratigraphic Unit 4
699-S3-25	--	X	--	
699-S3-E12	--	--	X	
699-S6-E14A	--	X	--	
699-S6-E4A	--	X	--	
699-S6-E4B	--	X	--	
699-S6-E4D	--	X	--	
699-S6-E4E	--	X	--	
699-S6-E4K	--	X	--	
699-S6-E4L	--	X	--	
699-S8-19	--	X	--	

*Hydrostatigraphic unit 3 wells monitor the confined aquifer. Hydrostratigraphic unit 4 wells monitor the basalt aquifer. All other wells monitor the unconfined aquifer.

total PO-1 wells = 177 NF unconf aq = 83 FF unconf aq = 71 RIV unconf aq = 12 total wells unconf aq = 167

Table 7-1. Summary of Groundwater Analytes that Meet Exclusion Criteria for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31)

Analyte Name	Analyte Class	Begin Samp Date	End Samp Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Basis for Exclusion
Potassium-40	RAD	1/15/2004	3/4/2009	192	4	0.021	ug/L	-1.83E+02	77	40	66	Background Radiation
Calcium	METAL	1/21/2004	3/16/2009	596	596	1.0	ug/L	--	--	879	132,000	Essential Nutrient
Magnesium	METAL	1/21/2004	3/16/2009	596	593	0.99	ug/L	50	146	36	26,200	Essential Nutrient
Potassium	METAL	1/21/2004	3/16/2009	596	592	0.99	ug/L	3,270	3,270	926	15,000	Essential Nutrient
Sodium	METAL	1/21/2004	3/16/2009	596	596	1.0	ug/L	--	--	3,720	130,000	Essential Nutrient
Antimony-125	RAD	1/15/2004	3/4/2009	188	0	0	ug/L	-7.40E+00	6.3	--	--	Half-Life less than 3 years
Beryllium-7	RAD	1/15/2004	3/4/2009	183	0	0	ug/L	-2.93E+01	73	--	--	Half-Life less than 3 years
Cesium-134	RAD	1/15/2004	3/4/2009	191	0	0	ug/L	-1.64E+01	3.2	--	--	Half-Life less than 3 years
Ruthenium-106	RAD	1/15/2004	3/4/2009	185	0	0	ug/L	-3.50E+01	35	--	--	Half-Life less than 3 years
Heptachlorodibenzofurans	Dioxin/Furan	7/5/2005	1/16/2007	10	8	0.80	ug/L	2.00E-06	2.00E-06	1.30E-06	1.20E-05	No Action Level
Heptachlorodibenzo-p-dioxins	Dioxin/Furan	7/5/2005	1/16/2007	8	2	0.25	ug/L	7.70E-07	1.60E-06	2.20E-06	5.70E-06	No Action Level
Hexachlorodibenzofurans	Dioxin/Furan	1/5/2007	1/16/2007	7	2	0.29	ug/L	7.30E-07	1.20E-06	1.10E-06	8.60E-06	No Action Level
Hexachlorodibenzo-p-dioxin	Dioxin/Furan	7/6/2005	1/16/2007	10	4	0.40	ug/L	1.10E-06	1.70E-06	1.30E-06	2.10E-06	No Action Level
Pentachlorodibenzofurans	Dioxin/Furan	1/5/2007	1/16/2007	7	2	0.29	ug/L	9.70E-07	1.30E-06	7.00E-07	2.90E-06	No Action Level
Pentachlorodibenzo-p-dioxins	Dioxin/Furan	7/6/2005	1/16/2007	8	2	0.25	ug/L	1.30E-06	1.90E-06	8.20E-07	2.90E-06	No Action Level
Tetrachlorodibenzofurans	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	ug/L	1.90E-06	3.00E-06	--	--	No Action Level
Tetrachlorodibenzo-p-dioxins	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	ug/L	3.00E-06	5.00E-06	--	--	No Action Level
Dichloroprop	HERB	1/29/2004	1/15/2007	16	0	0	ug/L	0.93	0.93	--	--	No Action Level
Radium	METAL	1/29/2004	12/27/2005	8	0	0	ug/L	-7.60E-02	0.24	--	--	No Action Level
Silicon	METAL	10/20/2004	1/28/2009	56	56	1.0	ug/L	--	--	19,200	28,300	No Action Level
Delta-BHC	PEST	1/29/2004	1/15/2009	63	0	0	ug/L	0.0032	0.030	--	--	No Action Level
Gross beta	RAD	1/13/2004	3/4/2009	795	788	0.99	ug/L	-3.60E-01	3.2	2.0	4,400	No Action Level
Selenium-79	RAD	7/10/2008	1/15/2009	39	2	0.051	ug/L	-1.71E+01	5.3	6.0	33	No Action Level
Uranium-233/234	RAD	4/10/2007	4/10/2007	1	1	1.0	pCi/L	--	--	23	23	No Action Level
Uranium-234	RAD	4/15/2004	1/15/2009	55	41	0.75	pCi/L	-4.43E-02	0.18	0.43	31	No Action Level
Uranium-235	RAD	4/15/2004	1/15/2009	56	11	0.20	pCi/L	-2.77E-02	0.15	0.14	2.1	No Action Level
Uranium-238	RAD	4/15/2004	1/15/2009	56	42	0.75	pCi/L	-5.54E-02	0.17	0.21	34	No Action Level
1,4-Naphthoquinone	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.86	2.3	--	--	No Action Level
1-Methyl-2-pyrrolidinone	SVOC	4/10/2007	4/10/2007	1	1	1.0	ug/L	--	--	5.5	5.5	No Action Level
1-Naphthylamine	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.76	2.3	--	--	No Action Level
2,6-Dichlorophenol	SVOC	1/13/2004	2/10/2009	257	0	0	ug/L	0.37	3.4	--	--	No Action Level
2-Nitrophenol	SVOC	1/13/2004	2/10/2009	335	0	0	ug/L	0.48	4.9	--	--	No Action Level
3+4 Methylphenol (cresol, m+p)	SVOC	1/14/2004	2/10/2009	301	0	0	ug/L	0.31	2.9	--	--	No Action Level
4-Bromophenylphenyl ether	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	0.30	1.9	--	--	No Action Level
4-Chlorophenylphenyl ether	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	0.32	2.0	--	--	No Action Level
4-Nitroquinoline-1-oxide	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	1.6	5.0	--	--	No Action Level
Acenaphthylene	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	0.23	1.8	--	--	No Action Level
alpha,alpha-Dimethylphenethylamine	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	12	20	--	--	No Action Level
Benzo(ghi)perylene	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	0.35	3.1	--	--	No Action Level
Benzothiazole	SVOC	10/26/2004	1/15/2009	86	0	0	ug/L	0.40	1.0	--	--	No Action Level
Di-n-octylphthalate	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	1.2	5.1	--	--	No Action Level
Ethyl methanesulfonate	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.28	1.0	--	--	No Action Level
Famphur	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	1.1	50	--	--	No Action Level
Hexachloropropene	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.64	2.5	--	--	No Action Level
Isodrin	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.21	1.0	--	--	No Action Level
Isosafrole	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	1.5	5.7	--	--	No Action Level
Methapyrilene	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.92	14	--	--	No Action Level

Table 7-1. Summary of Groundwater Analytes that Meet Exclusion Criteria for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31)

Analyte Name	Analyte Class	Begin Samp Date	End Samp Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Basis for Exclusion
O,O,O-Triethyl phosphorothioate	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.38	1.0	--	--	No Action Level
O,O-Diethyl O-2-pyrazinyl phosphorothioate	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.32	0.99	--	--	No Action Level
o-Toluidine	SVOC	6/25/2004	1/16/2007	18	0	0	ug/L	0.28	1.0	--	--	No Action Level
Phenanthrene	SVOC	6/25/2004	1/16/2007	19	0	0	ug/L	0.12	2.2	--	--	No Action Level
2-Picoline	VOC	6/25/2004	1/15/2009	104	0	0	ug/L	1.0	5.5	--	--	No Action Level
Acetonitrile	VOC	2/22/2006	2/4/2009	52	0	0	ug/L	1.5	4.2	--	--	No Action Level
Chloroethane	VOC	2/22/2006	2/4/2009	53	0	0	ug/L	0.050	1.0	--	--	No Action Level
Chloromethane	VOC	2/22/2006	2/4/2009	53	11	0.21	ug/L	0.036	1.0	0.058	0.86	No Action Level
Ethyl cyanide	VOC	1/29/2004	3/4/2009	433	0	0	ug/L	0.68	4.7	--	--	No Action Level
Iodomethane	VOC	2/22/2006	2/4/2009	52	0	0	ug/L	0.13	0.33	--	--	No Action Level
n-Butylbenzene	VOC	4/10/2007	4/10/2007	1	0	0	ug/L	1.0	1.0	--	--	No Action Level
Tetrahydrofuran	VOC	1/29/2004	3/4/2009	433	0	0	ug/L	1.2	3.2	--	--	No Action Level
trans-1,4-Dichloro-2-butene	VOC	2/22/2006	2/4/2009	52	0	0	ug/L	0.43	0.75	--	--	No Action Level
Ammonia	WATER QUALITY	1/13/2004	9/25/2007	203	16	0.079	ug/L	6.1	26	8.2	148	No Action Level
Bromide	WATER QUALITY	10/20/2004	1/28/2009	63	9	0.14	ug/L	30	250	56	279	No Action Level
Ammonium ion	WET CHEM	12/5/2006	3/4/2009	72	37	0.51	ug/L	2.6	240	7.3	43	No Action Level
Phosphate	WET CHEM	10/14/2004	1/28/2009	82	7	0.085	ug/L	86	920	130	1,100	No Action Level
Sulfide	WET CHEM	7/5/2005	1/16/2007	15	0	0	ug/L	180	730	--	--	No Action Level
Alkalinity	WATER QUALITY	1/13/2004	2/5/2009	799	799	1.0	ug/L	--	--	32,000	990,000	Water Quality
Chemical Oxygen Demand	WATER QUALITY	1/29/2004	1/19/2009	185	64	0.35	ug/L	3,000	14,400	5,000	285,000	Water Quality
Coliform Bacteria	WATER QUALITY	1/29/2004	3/17/2009	174	33	0.19	ug/L	0.0020	1.0	1.0	1,200	Water Quality
Dissolved oxygen	WATER QUALITY	1/22/2004	3/17/2009	288	288	1.0	ug/L	--	--	30	82,000	Water Quality
Oxidation Reduction Potential	WATER QUALITY	1/22/2004	3/17/2009	246	246	1.0	ug/L	--	--	-4.82E+02	804	Water Quality
pH Measurement	WATER QUALITY	1/13/2004	3/30/2009	1551	1551	1.0	ug/L	--	--	6.3	9.9	Water Quality
Specific Conductance	WATER QUALITY	1/13/2004	3/30/2009	1538	1538	1.0	ug/L	--	--	152	1,062	Water Quality
Temperature	WATER QUALITY	1/13/2004	3/30/2009	1535	1535	1.0	ug/L	--	--	9.6	31	Water Quality
Total dissolved solids	WATER QUALITY	1/21/2004	1/28/2009	66	66	1.0	ug/L	--	--	129,000	426,000	Water Quality
Total organic carbon	WATER QUALITY	1/15/2004	3/16/2009	783	394	0.50	ug/L	200	1,000	200	38,300	Water Quality
Total organic halides	WATER QUALITY	1/15/2004	3/16/2009	507	313	0.62	ug/L	2.2	5.0	2.2	70	Water Quality
Turbidity	WATER QUALITY	1/13/2004	3/30/2009	1534	1534	1.0	ug/L	--	--	0.070	772	Water Quality

Table 7-2. Summary of Groundwater Analytes that were not Detected for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class	Begin Sample Date	End Sample Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Action Level	Action Level Basis	Minimum MDL Level of Exceedence	Maximum MDL Level of Exceedence	Uncertainty
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.10E-06	2.20E-06	1.78E-06	WAC 340-730(3)(b)(iii)(A) and (B)	0.62	1.2	
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.10E-06	1.60E-06	6.73E-06	WAC 340-720(4)(b)(iii)(A) and (B)	0.16	0.24	
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.20E-06	1.90E-06	5.90E-08	WAC 340-730(3)(b)(iii)(A) and (B)	20	32	
1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	8.50E-07	1.50E-06	7.23E-08	WAC 340-730(3)(b)(iii)(A) and (B)	12	21	
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.00E-06	1.60E-06	5.90E-08	WAC 340-730(3)(b)(iii)(A) and (B)	17	27	
1,2,3,7,8-Pentachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	8.60E-07	1.40E-06	4.41E-07	WAC 340-730(3)(b)(iii)(A) and (B)	2.0	3.2	
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.20E-06	1.90E-06	6.73E-07	WAC 340-720(4)(b)(iii)(A) and (B)	1.8	2.8	
2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	7.20E-07	1.20E-06	5.26E-08	WAC 340-730(3)(b)(iii)(A) and (B)	14	23	
2,3,4,7,8-Pentachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	7.40E-07	1.30E-06	4.41E-08	WAC 340-730(3)(b)(iii)(A) and (B)	17	29	
2,3,7,8-Tetrachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	1.90E-06	3.00E-06	1.23E-07	WAC 340-730(3)(b)(iii)(A) and (B)	15	24	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	Dioxin/Furan	1/5/2007	1/16/2007	7	0	0	µg/L	3.00E-06	5.00E-06	5.00E-09	Human Health for the Consumption of Water + Organism	600	1,000	
2-(2-methyl-4-chlorophenoxy) propionic acid	HERB	1/29/2004	11/15/2005	13	0	0	µg/L	59	59	16	WAC 340-720(4)(b)(iii)(A) and (B)	3.7	3.7	
2,4,5-T(2,4,5-Trichlorophenoxyacetic acid)	HERB	1/29/2004	1/16/2007	23	0	0	µg/L	0.12	0.17	160	WAC 340-720(4)(b)(iii)(A) and (B)	7.50E-04	0.0011	
2,4,5-TP(2-(2,4,5-Trichlorophenoxy)propionic acid)Silvex	HERB	1/29/2004	1/16/2007	23	0	0	µg/L	0.085	0.15	10	Human Health for the Consumption of Water + Organism	0.0085	0.015	
2,4-D(2,4-Dichlorophenoxyacetic acid)	HERB	1/29/2004	1/16/2007	23	0	0	µg/L	0.73	1.3	70	40 CFR 141.61	0.010	0.019	
2,4-DB(4-(2,4-Dichlorophenoxy)butanoic acid)	HERB	1/29/2004	1/15/2007	16	0	0	µg/L	1.2	1.5	128	WAC 340-720(4)(b)(iii)(A) and (B)	0.0094	0.012	
2-Methyl-4 chlorophenoxyacetic acid	HERB	1/29/2004	12/27/2005	15	0	0	µg/L	84	84	8.0	WAC 340-720(4)(b)(iii)(A) and (B)	11	11	
Dalapon	HERB	1/29/2004	1/15/2007	16	0	0	µg/L	2.6	2.6	200	40 CFR 141.61	0.013	0.013	
Dicamba	HERB	1/29/2004	1/15/2007	16	0	0	µg/L	0.17	0.17	480	WAC 340-720(4)(b)(iii)(A) and (B)	3.54E-04	3.54E-04	
Aroclor-1016	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.44	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	6,875	
Aroclor-1221	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.20	0.44	6.40E-05	Human Health for the Consumption of Water + Organism	3,125	6,875	
Aroclor-1232	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.49	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	7,656	
Aroclor-1242	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.44	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	6,875	
Aroclor-1248	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.44	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	6,875	
Aroclor-1254	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.38	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	5,938	
Aroclor-1260	PCB	7/5/2005	4/10/2007	16	0	0	µg/L	0.098	0.30	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	4,688	
Aroclor-1262	PCB	4/10/2007	4/10/2007	1	0	0	µg/L	0.098	0.098	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	1,531	
Aroclor-1268	PCB	4/10/2007	4/10/2007	1	0	0	µg/L	0.098	0.098	6.40E-05	Human Health for the Consumption of Water + Organism	1,531	1,531	
4,4'-DDD (Dichlorodiphenyldichloroethane)	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0031	0.030	3.10E-04	Human Health for the Consumption of Water + Organism	10	97	
4,4'-DDE (Dichlorodiphenyldichloroethylene)	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0027	0.020	2.20E-04	Human Health for the Consumption of Water + Organism	12	91	
4,4'-DDT (Dichlorodiphenyltrichloroethane)	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0056	0.032	2.20E-04	Human Health for the Consumption of Water + Organism	25	145	
Aldrin	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0040	0.020	4.90E-05	Human Health for the Consumption of Water + Organism	82	408	
Alpha-BHC	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0025	0.030	0.0026	Human Health for the Consumption of Water + Organism	0.96	12	
beta-1,2,3,4,5,6-Hexachlorocyclohexane (beta-BHC)	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0065	0.030	0.0091	Human Health for the Consumption of Water + Organism	0.71	3.3	
Chlordane	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.032	0.24	8.00E-04	Human Health for the Consumption of Water + Organism	40	300	
Dieldrin	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0023	0.030	5.20E-05	Human Health for the Consumption of Water + Organism	44	577	All MDLs > AL
Dinoseb(2-secButyl-4,6-dinitrophenol)	PEST	1/13/2004	2/10/2009	258	0	0	µg/L	0.26	4.2	7.0	40 CFR 141.61	0.037	0.60	
Disulfoton	PEST	6/25/2004	1/16/2007	18	0	0	µg/L	0.25	1.0	0.48	WAC 340-730(3)(b)(iii)(A) and (B)	0.53	2.1	
Endosulfan I	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0025	0.030	0.056	Freshwater CCC	0.045	0.54	
Endosulfan II	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0032	0.043	0.056	Freshwater CCC	0.057	0.77	
Endosulfan sulfate	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0060	0.030	62	Human Health for the Consumption of Water + Organism	9.68E-05	4.84E-04	
Endrin	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0028	0.030	0.0023	WAC 173-201A	1.2	13	
Endrin aldehyde	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0027	0.030	0.29	Human Health for the Consumption of Water + Organism	0.0093	0.10	
Gamma-BHC (Lindane)	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0025	0.030	0.045	WAC 340-730(3)(b)(iii)(A) and (B)	0.055	0.66	
Heptachlor	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0025	0.034	7.90E-05	Human Health for the Consumption of Water + Organism	32	430	All MDLs > AL
Heptachlor epoxide	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0032	0.020	3.90E-05	Human Health for the Consumption of Water + Organism	82	513	All MDLs > AL
Methoxychlor	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.0050	0.053	0.030	Freshwater CCC	0.17	1.8	
Methyl parathion	PEST	6/25/2004	1/16/2007	18	0	0	µg/L	0.92	1.6	4.0	WAC 340-720(4)(b)(iii)(A) and (B)	0.23	0.40	
Phorate	PEST	6/25/2004	1/16/2007	18	0	0	µg/L	0.20	2.9	3.2	WAC 340-720(4)(b)(iii)(A) and (B)	0.063	0.91	
Toxaphene	PEST	1/29/2004	1/15/2009	63	0	0	µg/L	0.19	1.9	2.00E-04	Freshwater CCC/WAC 173-201A	950	9,500	
Americium-241	RAD	4/10/2007	4/10/2007	1	0	0	µg/L	-7.90E-02	-7.90E-02	15	40 CFR 141.66	-5.27E-03	-5.27E-03	
Cesium-137	RAD	1/15/2004	3/4/2009	192	0	0	µg/L	-3.39E+00	3.1	200	40 CFR 141.66	-1.70E-02	0.016	
Cobalt-60	RAD	1/15/2004	3/4/2009	192	0	0	µg/L	-2.61E+00	6.0	100	40 CFR 141.66	-2.61E-02	0.060	
Europium-152	RAD	1/15/2004	3/4/2009	177	0	0	µg/L	-8.48E+00	14	200	40 CFR 141.66	-4.24E-02	0.070	
Europium-154	RAD	1/15/2004	3/4/2009	192	0	0	µg/L	-7.88E+00	6.5	60	40 CFR 141.66	-1.31E-01	0.11	
Europium-155	RAD	1/15/2004	3/4/2009	192	0	0	µg/L	-9.63E+00	6.3	600	40 CFR 141.66	-1.61E-02	0.011	
Neptunium-237	RAD	4/15/2008	1/15/2009	40	0	0	µg/L	-8.60E-02	0.13	15	40 CFR 141.66	-5.73E-03	0.0087	All MDLs < AL
Plutonium-238	RAD	4/10/2007	4/10/2007	1	0	0	µg/L	0.071	0.071	15	40 CFR 141.66	0.0047	0.0047	
1,2,4,5-Tetrachlorobenzene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.21	1.0	0.28	WAC 340-730(3)(b)(iii)(A) and (B)	0.75	3.6	
1,2,4-Trichlorobenzene	SVOC	6/25/2004	1/13/2009	26	0	0	µg/L	0.30	2.2	1.5	WAC 340-720(4)(b)(iii)(A) and (B)	0.20	1.5	
2,4,5-Trichlorophenol	SVOC	1/13/2004	2/10/2009	258	0	0	µg/L	0.64	6.0	486	WAC 340-730(3)(b)(iii)(A) and (B)	0.0013	0.012	
2,4,6-Trichlorophenol	SVOC	1/13/2004	2/10/2009	258	0	0	µg/L	0.44	5.6	1.4	Human Health for the Consumption of Water + Organism	0.31	4.0	
2,4-Dichlorophenol	SVOC	1/14/2004	2/10/2009	333	0	0	µg/L	0.27	5.1	24	WAC 340-720(4)(b)(iii)(A) and (B)	0.011	0.21	
2,4-Dimethylphenol	SVOC	1/13/2004	2/10/2009	258	0	0	µg/L	0.24	5.3	160	WAC 340-720(4)(b)(iii)(A) and (B)	0.0015	0.033	
2,4-Dinitrophenol	SVOC	1/14/2004	2/10/2009	296	0	0	µg/L	1.7	10	32	WAC 340-720(4)(b)(iii)(A) and (B)	0.053	0.31	Not detected; all MDLs < AL
2,4-Dinitrotoluene	SVOC	6/25/2004	1/13/2009	26	0	0	µg/L	0.48	4.0	0.11	Human Health for the Consumption of Water + Organism	4.4	36	
2,6-Dinitrotoluene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.68	3.0	16	WAC 340-720(4)(b)(iii)(A) and (B)	0.043	0.19	
2-Acetylaminofluorene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.37	1.0	0.023	WAC 340-720(4)(b)(iii)(A) and (B)	16	43	
2-Chloronaphthalene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.27	1.8	640	WAC 340-720(4)(b)(iii)(A) and (B)	4.22E-04	0.0028	

Table 7-2. Summary of Groundwater Analytes that were not Detected for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class	Begin Sample Date	End Sample Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Action Level	Action Level Basis	Minimum MDL Level of Exceedence	Maximum MDL Level of Exceedence	Uncertainty
2-Chlorophenol	SVOC	1/13/2004	2/10/2009	265	0	0	µg/L	0.20	3.2	40	WAC 340-720(4)(b)(iii)(A) and (B)	0.0050	0.080	
2-Methylnaphthalene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.31	2.2	32	WAC 340-720(4)(b)(iii)(A) and (B)	0.0097	0.069	
2-Methylphenol (cresol, o-)	SVOC	1/13/2004	2/10/2009	335	0	0	µg/L	0.24	4.1	400	WAC 340-720(4)(b)(iii)(A) and (B)	6.00E-04	0.010	
2-Naphthylamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.35	1.0	0.049	WAC 340-720(4)(b)(iii)(A) and (B)	7.2	21	
2-Nitroaniline	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.65	5.8	160	WAC 340-720(4)(b)(iii)(A) and (B)	0.0041	0.036	
3,3'-Dichlorobenzidine	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.35	2.6	0.021	Human Health for the Consumption of Water + Organism	17	124	
3,3'-Dimethylbenzidine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.74	10	0.0080	WAC 340-720(4)(b)(iii)(A) and (B)	93	1,257	
3-Methylcholanthrene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.23	1.0	3.68E-05	WAC 340-730(3)(b)(iii)(A) and (B)	6,245	27,154	
3-Nitroaniline	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.56	1.7	4.2	WAC 340-720(4)(b)(iii)(A) and (B)	0.13	0.41	
4,6-Dinitro-2-methylphenol	SVOC	1/14/2004	2/10/2009	256	0	0	µg/L	0.53	5.0	1.6	WAC 340-720(4)(b)(iii)(A) and (B)	0.33	3.1	
4-Aminobiphenyl	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.24	1.0	0.0042	WAC 340-720(4)(b)(iii)(A) and (B)	58	240	
4-Chloro-3-methylphenol	SVOC	1/14/2004	2/10/2009	263	0	0	µg/L	0.37	4.8	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	2.31E-04	0.0030	
4-Chloroaniline	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.28	1.8	0.22	WAC 340-720(4)(b)(iii)(A) and (B)	1.3	8.2	
4-Methylphenol (cresol, p-)	SVOC	6/25/2004	1/16/2007	44	0	0	µg/L	1.0	7.1	40	WAC 340-720(4)(b)(iii)(A) and (B)	0.025	0.18	
4-Nitroaniline	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.84	1.9	4.4	WAC 340-720(4)(b)(iii)(A) and (B)	0.19	0.43	
4-Nitrophenol	SVOC	1/14/2004	2/10/2009	263	0	0	µg/L	0.81	5.0	128	WAC 340-720(4)(b)(iii)(A) and (B)	0.0063	0.039	
5-Nitro-o-toluidine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.25	1.0	2.7	WAC 340-720(4)(b)(iii)(A) and (B)	0.094	0.38	
7,12-Dimethylbenz[a]anthracene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.80	1.4	8.31E-06	WAC 340-730(3)(b)(iii)(A) and (B)	96,274	168,480	
Acenaphthene	SVOC	6/25/2004	1/13/2009	26	0	0	µg/L	0.26	2.5	643	WAC 340-730(3)(b)(iii)(A) and (B)	4.04E-04	0.0039	
Acetophenone	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.36	1.0	800	WAC 340-720(4)(b)(iii)(A) and (B)	4.50E-04	0.0013	
Aniline	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.28	1.4	7.7	WAC 340-720(4)(b)(iii)(A) and (B)	0.036	0.18	
Anthracene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.39	2.2	4,800	WAC 340-720(4)(b)(iii)(A) and (B)	8.13E-05	4.58E-04	
Aramite	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.0	5.0	0.37	WAC 340-730(3)(b)(iii)(A) and (B)	2.7	13	
Azobenzene	SVOC	6/25/2004	7/10/2006	9	0	0	µg/L	0.26	1.9	0.80	WAC 340-720(4)(b)(iii)(A) and (B)	0.33	2.4	
Benzo(a)anthracene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.13	2.3	0.0038	Human Health for the Consumption of Water + Organism	34	605	
Benzo(a)pyrene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.34	4.0	0.0038	Human Health for the Consumption of Water + Organism	89	1,053	
Benzo(b)fluoranthene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.37	4.3	0.0038	Human Health for the Consumption of Water + Organism	97	1,132	
Benzo(k)fluoranthene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.39	4.8	0.0038	Human Health for the Consumption of Water + Organism	103	1,263	
Benzyl alcohol	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.26	1.0	800	WAC 340-720(4)(b)(iii)(A) and (B)	3.25E-04	0.0013	
Bis(2-chloro-1-methylethyl)ether	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.26	1.1	0.63	WAC 340-720(4)(b)(iii)(A) and (B)	0.42	1.8	
Bis(2-Chloroethoxy)methane	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.30	1.8	48	WAC 340-720(4)(b)(iii)(A) and (B)	0.0063	0.038	
Bis(2-chloroethyl) ether	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.25	1.9	0.030	Human Health for the Consumption of Water + Organism	8.3	63	
Butylbenzylphthalate	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.48	2.9	8.2	WAC 340-730(3)(b)(iii)(A) and (B)	0.058	0.35	
Carbazole	SVOC	12/20/2004	12/20/2004	1	0	0	µg/L	1.5	1.5	1.9	WAC 340-730(3)(b)(iii)(A) and (B)	0.79	0.79	
Chlorobenzilate	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.29	1.0	0.12	WAC 340-730(3)(b)(iii)(A) and (B)	2.4	8.2	
Chrysene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.14	2.3	0.0038	Human Health for the Consumption of Water + Organism	37	605	
Diallate	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.0	2.5	0.25	WAC 340-730(3)(b)(iii)(A) and (B)	4.0	10	
Dibenz[a,h]anthracene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.35	2.7	0.0038	Human Health for the Consumption of Water + Organism	92	711	
Dibenzofuran	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.30	2.0	1.7	WAC 340-730(3)(b)(iii)(A) and (B)	0.18	1.2	
Diethylphthalate	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.13	3.6	12,800	WAC 340-720(4)(b)(iii)(A) and (B)	1.02E-05	2.81E-04	
Dimethoate	SVOC	6/25/2004	1/15/2009	58	0	0	µg/L	0.24	1.1	3.2	WAC 340-720(4)(b)(iii)(A) and (B)	0.075	0.34	All MDLs < AL
Dimethyl phthalate	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.27	2.1	270,000	Human Health for the Consumption of Water + Organism	1.00E-06	7.78E-06	
Di-n-butylphthalate	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.14	3.6	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	8.75E-05	0.0023	
Fluoranthene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.32	2.4	90	WAC 340-730(3)(b)(iii)(A) and (B)	0.0035	0.027	
Fluorene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.31	2.0	640	WAC 340-720(4)(b)(iii)(A) and (B)	4.84E-04	0.0031	
Hexachlorobenzene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.28	1.8	2.80E-04	Human Health for the Consumption of Water + Organism	1,000	6,429	
Hexachlorobutadiene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.29	4.4	0.44	Human Health for the Consumption of Water + Organism	0.66	10	
Hexachlorocyclopentadiene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	2.4	2.5	40	Human Health for the Consumption of Water + Organism	0.060	0.063	
Hexachloroethane	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.24	2.4	1.4	Human Health for the Consumption of Water + Organism	0.17	1.7	
Hexachlorophene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.7	10	4.8	WAC 340-720(4)(b)(iii)(A) and (B)	0.35	2.1	
Indeno(1,2,3-cd)pyrene	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.48	2.6	0.0038	Human Health for the Consumption of Water + Organism	126	684	
Kepone	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	2.3	20	4.18E-04	WAC 340-730(3)(b)(iii)(A) and (B)	5,500	47,829	
m-Dinitrobenzene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.55	1.0	1.6	WAC 340-720(4)(b)(iii)(A) and (B)	0.34	0.63	
Methyl methanesulfonate	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.70	5.0	0.88	WAC 340-720(4)(b)(iii)(A) and (B)	0.79	5.7	
Naphthalene	SVOC	6/25/2004	1/15/2009	104	0	0	µg/L	0.28	2.0	160	WAC 340-720(4)(b)(iii)(A) and (B)	0.0018	0.013	
Nitrobenzene	SVOC	6/25/2004	1/15/2009	59	0	0	µg/L	0.13	2.0	16	WAC 340-720(4)(b)(iii)(A) and (B)	0.0081	0.13	All MDLs < AL
Nitrosopyrrolidine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.42	1.0	0.016	Human Health for the Consumption of Water + Organism	26	63	
n-Nitrosodiethylamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.44	1.0	2.92E-04	WAC 340-720(4)(b)(iii)(A) and (B)	1,509	3,429	
n-Nitrosodimethylamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.46	2.0	6.90E-04	Human Health for the Consumption of Water + Organism	667	2,899	
n-Nitrosodi-n-butylamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.21	1.0	0.0063	Human Health for the Consumption of Water + Organism	33	159	
n-Nitrosodi-n-dipropylamine	SVOC	6/25/2004	1/13/2009	26	0	0	µg/L	0.31	2.4	0.0050	Human Health for the Consumption of Water + Organism	62	480	
n-Nitrosodiphenylamine	SVOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.23	2.1	3.3	Human Health for the Consumption of Water + Organism	0.070	0.64	
n-Nitrosomethylethylamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.0	1.1	0.0040	WAC 340-720(4)(b)(iii)(A) and (B)	251	277	
n-Nitrosomorpholine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.36	0.96	0.013	WAC 340-720(4)(b)(iii)(A) and (B)	28	74	
n-Nitrosopiperidine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.24	1.0	0.0093	WAC 340-720(4)(b)(iii)(A) and (B)	26	107	
Parathion	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.25	1.0	0.013	Freshwater CCC/WAC 173-201A	19	77	
p-Dimethylaminoazobenzene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.24	1.0	0.019	WAC 340-720(4)(b)(iii)(A) and (B)	13	53	
Pentachlorobenzene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.23	2.7	1.4	Human Health for the Consumption of Water + Organism	0.16	1.9	
Pentachloronitrobenzene (PCNB)	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.26	1.1	0.046	WAC 340-730(3)(b)(iii)(A) and (B)	5.7	24	

Table 7-2. Summary of Groundwater Analytes that were not Detected for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class	Begin Sample Date	End Sample Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Action Level	Action Level Basis	Minimum MDL Level of Exceedence	Maximum MDL Level of Exceedence	Uncertainty
Pentachlorophenol	SVOC	1/13/2004	2/10/2009	336	0	0	µg/L	0.58	4.8	0.27	Human Health for the Consumption of Water + Organism	2.1	18	Not detected; all MDLs > AL
Phenacetin	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.35	0.94	40	WAC 340-720(4)(b)(iii)(A) and (B)	0.0088	0.024	
Phenol	SVOC	1/14/2004	2/10/2009	334	0	0	µg/L	0.26	4.0	2,400	WAC 340-720(4)(b)(iii)(A) and (B)	1.08E-04	0.0017	
p-Phenylenediamine	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.51	100	3,040	WAC 340-720(4)(b)(iii)(A) and (B)	1.68E-04	0.033	
Pronamide	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.33	1.0	1,200	WAC 340-720(4)(b)(iii)(A) and (B)	2.75E-04	8.33E-04	
Pyrene	SVOC	6/25/2004	1/13/2009	26	0	0	µg/L	0.30	2.3	480	WAC 340-720(4)(b)(iii)(A) and (B)	6.25E-04	0.0048	
Safrol	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.20	1.0	0.34	WAC 340-730(3)(b)(iii)(A) and (B)	0.59	3.0	
sym-Trinitrobenzene	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.6	5.0	480	WAC 340-720(4)(b)(iii)(A) and (B)	0.0033	0.010	
Tetraethyl dithiopyrophosphate (Sulfotepp)	SVOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.24	1.0	6.5	WAC 340-730(3)(b)(iii)(A) and (B)	0.037	0.15	
Total cresols	SVOC	1/24/2007	1/31/2007	2	0	0	µg/L	0.95	0.95	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	5.94E-04	5.94E-04	
Total petroleum hydrocarbons - kerosene range	SVOC	4/10/2007	4/10/2007	1	0	0	µg/L	120	120	500	WAC 340-900, Table 720-1	0.24	0.24	
Tris-2-chloroethyl phosphate	SVOC	10/26/2004	1/15/2009	86	0	0	µg/L	0.24	1.2	4.4	WAC 340-720(4)(b)(iii)(A) and (B)	0.055	0.27	
Total petroleum hydrocarbons - diesel range	TPH	6/25/2004	4/10/2007	16	0	0	µg/L	50	120	500	WAC 340-900, Table 720-1	0.10	0.24	
1,1,1,2-Tetrachloroethane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.045	0.15	1.7	WAC 340-720(4)(b)(iii)(A) and (B)	0.027	0.089	
1,1,2,2-Tetrachloroethane	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.14	1.0	0.17	Human Health for the Consumption of Water + Organism	0.82	5.9	Not detected; 52 MDLs > AL
1,1,2-Trichloroethane	VOC	1/29/2004	3/4/2009	434	0	0	µg/L	0.050	1.0	0.59	Human Health for the Consumption of Water + Organism	0.085	1.7	
1,2,3-Trichloropropane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.22	0.27	0.0015	WAC 340-720(4)(b)(iii)(A) and (B)	151	185	
1,2-Dibromo-3-chloropropane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.38	0.55	0.055	WAC 340-720(4)(b)(iii)(A) and (B)	6.9	10	
1,2-Dibromoethane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.13	0.23	0.022	WAC 340-720(4)(b)(iii)(A) and (B)	5.9	11	
1,2-Dichloroethene (Total)	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.056	1.0	72	WAC 340-720(4)(b)(iii)(A) and (B)	7.78E-04	0.014	
1,2-Dichloropropane	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.077	1.0	0.50	Human Health for the Consumption of Water + Organism	0.15	2.0	
1,3-Dichlorobenzene	VOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.24	2.3	320	Human Health for the Consumption of Water + Organism	7.50E-04	0.0072	
1-Butanol	VOC	1/29/2004	3/4/2009	418	0	0	µg/L	1.1	100	800	WAC 340-720(4)(b)(iii)(A) and (B)	0.0014	0.13	
2-Hexanone	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.080	1.0	80	WAC 340-720(4)(b)(iii)(A) and (B)	0.0010	0.013	
Acrolein	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.44	1.4	3.0	Freshwater CCC	0.15	0.47	
Acrylonitrile	VOC	1/5/2007	1/16/2007	8	0	0	µg/L	0.78	0.78	0.051	Human Health for the Consumption of Water + Organism	15	15	
Allyl chloride	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.047	0.27	2.1	WAC 340-720(4)(b)(iii)(A) and (B)	0.023	0.13	
Bromodichloromethane	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.064	1.0	0.55	Human Health for the Consumption of Water + Organism	0.12	1.8	Not detected; 1 MDL > AL
Bromoform	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.12	1.0	4.3	Human Health for the Consumption of Water + Organism	0.028	0.23	
Bromomethane	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.085	1.0	11	WAC 340-720(4)(b)(iii)(A) and (B)	0.0076	0.089	
Chlorobenzene	VOC	2/22/2006	3/4/2009	157	0	0	µg/L	0.027	1.0	100	40 CFR 141.61	2.70E-04	0.010	
Chloroprene	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.046	0.20	160	WAC 340-720(4)(b)(iii)(A) and (B)	2.88E-04	0.0013	
cis-1,2-Dichloroethylene	VOC	1/29/2004	3/4/2009	434	0	0	µg/L	0.048	1.0	70	40 CFR 141.61	6.86E-04	0.014	
cis-1,3-Dichloropropene	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.050	1.0	0.34	Human Health for the Consumption of Water + Organism	0.15	2.9	
Dibromochloromethane	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.11	1.0	0.40	Human Health for the Consumption of Water + Organism	0.28	2.5	Not detected; 1 MDL > AL
Dibromomethane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.12	0.23	80	WAC 340-720(4)(b)(iii)(A) and (B)	0.0015	0.0029	
Dichlorodifluoromethane	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.045	0.27	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	2.81E-05	1.69E-04	
Ethyl methacrylate	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.19	0.66	720	WAC 340-720(4)(b)(iii)(A) and (B)	2.64E-04	9.17E-04	
Ethylbenzene	VOC	1/29/2004	3/4/2009	374	0	0	µg/L	0.061	1.0	4.0	WAC 340-720(4)(b)(iii)(A) and (B)	0.015	0.25	
Isobutyl alcohol	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	5.7	29	2,400	WAC 340-720(4)(b)(iii)(A) and (B)	0.0024	0.012	
Isophorone	VOC	6/25/2004	1/16/2007	19	0	0	µg/L	0.23	1.8	35	Human Health for the Consumption of Water + Organism	0.0066	0.051	
Methacrylonitrile	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.30	2.1	0.80	WAC 340-720(4)(b)(iii)(A) and (B)	0.38	2.6	
Methyl methacrylate	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.60	0.84	11,200	WAC 340-720(4)(b)(iii)(A) and (B)	5.36E-05	7.50E-05	
Pentachloroethane	VOC	6/25/2004	1/16/2007	18	0	0	µg/L	0.42	1.0	0.97	WAC 340-720(4)(b)(iii)(A) and (B)	0.43	1.0	
Pyridine	VOC	6/25/2004	1/16/2007	18	0	0	µg/L	1.7	5.0	8.0	WAC 340-720(4)(b)(iii)(A) and (B)	0.21	0.63	
trans-1,2-Dichloroethylene	VOC	1/29/2004	3/4/2009	434	0	0	µg/L	0.016	1.0	100	40 CFR 141.61	1.60E-04	0.010	
trans-1,3-Dichloropropene	VOC	2/22/2006	2/4/2009	53	0	0	µg/L	0.080	1.0	0.34	Human Health for the Consumption of Water + Organism	0.24	2.9	
Vinyl acetate	VOC	2/22/2006	2/4/2009	52	0	0	µg/L	0.22	0.72	8,000	WAC 340-720(4)(b)(iii)(A) and (B)	2.75E-05	9.00E-05	
Vinyl chloride	VOC	1/29/2004	3/4/2009	434	0	0	µg/L	0.044	1.0	0.025	Human Health for the Consumption of Water + Organism	1.8	40	Not detected; all MDLs > AL
Xylenes (total)	VOC	1/29/2004	3/4/2009	434	0	0	µg/L	0.13	1.6	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	8.13E-05	0.0010	
Cyanide	WET CHEM	4/14/2005	6/4/2008	25	0	0	µg/L	2.0	4.0	5.2	Freshwater CCC/WAC 173-201A	0.38	0.77	

Table 7-3. Summary of Groundwater Analytes that do not Exceed an Action Level for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analytes Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class	Begin Sample Date	End Sample Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Action Level	Action Level Basis	Max Detect Level of Exceedence
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	Dioxin/Furan	7/5/2005	1/16/2007	8.0	2.0	25.00%	µg/L	7.70E-07	1.60E-06	2.20E-06	5.70E-06	6.73E-05	WAC 340-720(4)(b)(iii)(A) and (B)	8.47E-02
1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxin/Furan	7/5/2005	1/16/2007	10	8	80.00%	µg/L	1.90E-06	1.90E-06	1.30E-06	1.20E-05	6.73E-05	WAC 340-720(4)(b)(iii)(A) and (B)	0.18
1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	1	14.29%	µg/L	6.70E-07	1.20E-06	2.90E-06	2.90E-06	6.73E-06	WAC 340-720(4)(b)(iii)(A) and (B)	0.43
Octachlorodibenzofuran	Dioxin/Furan	7/5/2005	1/16/2007	10	10	100.00%	µg/L	--	--	2.20E-06	1.60E-05	2.16E-04	WAC 340-730(3)(b)(iii)(A) and (B)	0.074
Octachlorodibenzo-p-dioxin	Dioxin/Furan	7/5/2005	1/16/2007	14	10	71.43%	µg/L	1.60E-06	2.10E-06	2.90E-06	1.10E-05	1.27E-04	WAC 340-730(3)(b)(iii)(A) and (B)	0.087
Barium	METAL	1/21/2004	3/16/2009	596	595	99.83%	µg/L	8.6	8.6	4.0	150	1,000	Human Health for the Consumption of Water + Organism	0.15
Strontium	METAL	1/21/2004	3/16/2009	540	538	99.63%	µg/L	4.0	4.0	2.5	788	9,600	WAC 340-720(4)(b)(iii)(A) and (B)	0.082
Titanium	METAL	10/20/2004	1/28/2009	56	4.0	7.14%	µg/L	1.4	14	5.8	15	64,000	WAC 340-720(4)(b)(iii)(A) and (B)	2.31E-04
Nickel-63	RAD	1/22/2004	4/10/2007	3.0	1.0	33.33%	µg/L	0.30	2.6	4.1	4.1	50	40 CFR 141.66	0.081
Plutonium-239/240	RAD	4/10/2007	4/10/2007	1.0	1.0	100.00%	µg/L	--	--	0.029	0.029	15	40 CFR 141.66	0.0019
Protactinium-231	RAD	4/15/2008	12/8/2008	39	4.0	10.26%	µg/L	-4.40E-02	0.29	0.13	0.31	15	40 CFR 141.66	0.021
1,4-Dichlorobenzene	SVOC	1/29/2004	3/4/2009	456	11	2.41%	µg/L	0.047	2.4	0.12	0.46	8.1	WAC 340-720(4)(b)(iii)(A) and (B)	0.057
2,3,4,6-Tetrachlorophenol	SVOC	1/13/2004	2/10/2009	257	2.0	0.78%	µg/L	0.41	4.8	7.7	7.7	480	WAC 340-720(4)(b)(iii)(A) and (B)	0.016
Total petroleum hydrocarbons - gasoline range	TPH	6/25/2004	4/10/2007	16	1.0	6.25%	µg/L	20	50	50	50	1,000	WAC 340-900, Table 720-1	0.050
1,1,1-Trichloroethane	VOC	1/29/2004	3/4/2009	434	180	41.47%	µg/L	0.035	1.0	0.22	2.3	200	40 CFR 141.61	0.012
1,1-Dichloroethane	VOC	1/29/2004	3/4/2009	434	125	28.80%	µg/L	0.046	1.0	0.090	0.70	1,600	WAC 340-720(4)(b)(iii)(A) and (B)	0.000
1,1-Dichloroethene	VOC	1/29/2004	3/4/2009	372	23	6.18%	µg/L	0.040	1.0	0.11	0.47	7.0	40 CFR 141.61	0.067
1,2-Dichlorobenzene	VOC	6/25/2004	1/16/2007	18	1.0	5.56%	µg/L	0.27	2.0	3.0	3.0	420	Human Health for the Consumption of Water + Organism	0.0071
2-Butanone	VOC	1/29/2004	3/4/2009	434	1.0	0.23%	µg/L	0.10	1.8	0.55	0.55	4,800	WAC 340-720(4)(b)(iii)(A) and (B)	1.15E-04
2-Pentanone, 4-Methyl	VOC	1/29/2004	3/4/2009	434	1.0	0.23%	µg/L	0.10	1.0	0.64	0.64	640	WAC 340-720(4)(b)(iii)(A) and (B)	0.0010
Acetone	VOC	1/29/2004	3/4/2009	434	23	5.30%	µg/L	0.21	1.0	0.65	37	7,200	WAC 340-720(4)(b)(iii)(A) and (B)	0.0051
Benzene	VOC	1/29/2004	3/4/2009	434	1	0.23%	µg/L	0.032	1.0	0.37	0.37	0.80	WAC 340-720(4)(b)(iii)(A) and (B)	0.47
Carbon disulfide	VOC	1/29/2004	3/4/2009	434	1.0	0.23%	µg/L	0.029	1.0	0.21	0.21	800	WAC 340-720(4)(b)(iii)(A) and (B)	2.63E-04
Hexane	VOC	4/15/2008	1/15/2009	40	1	2.50%	µg/L	0.16	0.16	0.32	0.32	480	WAC 340-720(4)(b)(iii)(A) and (B)	6.67E-04
Styrene	VOC	2/22/2006	2/4/2009	53	1.0	1.89%	µg/L	0.044	1.0	0.81	0.81	100	40 CFR 141.61	0.0081
Toluene	VOC	1/29/2004	3/4/2009	434	4.0	0.92%	µg/L	0.025	1.0	0.029	0.75	640	WAC 340-720(4)(b)(iii)(A) and (B)	0.0012
Trichloromonofluoromethane	VOC	2/22/2006	2/4/2009	52	1.0	1.92%	µg/L	0.032	0.19	0.58	0.58	2,400	WAC 340-720(4)(b)(iii)(A) and (B)	2.42E-04
Chloride	WET CHEM	1/13/2004	3/4/2009	1391	1390	99.93%	µg/L	25	25	1,200	91,600	230,000	Freshwater CCC/WAC 173-201A	0.40
Nitrite	WET CHEM	1/13/2004	3/4/2009	1324	62	4.68%	µg/L	9.9	2,500	46	1,710	3,300	40 CFR 141	1.1

Table 7-4. Summary of Groundwater Analytes that Exceed an Action Level for the 200-PO-1 Groundwater Operable Unit (Shading Indicates Analyte Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class	Begin Sample Date	End Sample Date	Total Samples	Total Detects	Frequency of Detection	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Action Level	Action Level Basis	Level of Exceedence	COPC?
1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxin/Furan	1/5/2007	1/16/2007	7	1	14.29%	µg/L	6.90E-07	1.10E-06	2.10E-06	2.10E-06	5.76E-08	WAC 340-730(3)(b)(iii)(A) and (B)	36	No
Aluminum	METAL	1/21/2004	1/28/2009	104	59	56.73%	µg/L	17	270	17	296	50	40 CFR 143.3	5.9	Yes
Antimony	METAL	1/21/2004	3/16/2009	589	22	3.74%	µg/L	4.0	250	4.1	82	5.6	Human Health for the Consumption of Water + Organism	15	Yes
Arsenic	METAL	1/21/2004	2/19/2009	197	190	96.45%	µg/L	0.40	1.9	0.43	11	0.018	Human Health for the Consumption of Water + Organism	617	Yes
Beryllium	METAL	1/21/2004	3/16/2009	596	13	2.18%	µg/L	0.18	5.0	0.19	9.4	4.0	WAC 246-290-310	2.4	Yes
Cadmium	METAL	1/21/2004	3/16/2009	597	5	0.84%	µg/L	0.040	7.1	0.050	18	0.25	Freshwater CCC	72	Yes
Chromium	METAL	1/21/2004	3/16/2009	597	360	60.30%	µg/L	1.9	13	1.1	153	65	Freshwater CCC	2.4	Yes
Cobalt	METAL	1/21/2004	3/16/2009	596	26	4.36%	µg/L	1.2	12	1.9	24	2.6	WAC 340-730(3)(b)(iii)(A) and (B)	9.3	Yes
Copper	METAL	1/21/2004	3/16/2009	590	74	12.54%	µg/L	0.10	7.0	0.12	31	9.0	Freshwater CCC	3.4	Yes
Hexavalent Chromium	METAL	4/10/2007	10/28/2008	3	1	33.33%	µg/L	2.0	2.0	191	191	10	WAC 173-201A	19	Yes
Iron	METAL	1/21/2004	3/16/2009	596	417	69.97%	µg/L	9.0	55	9.7	1,290	300	Human Health for the Consumption of Water + Organism	4.3	Yes
Lead	METAL	1/21/2004	1/28/2009	163	46	28.22%	µg/L	0.050	1.3	0.061	35	2.1	WAC 173-201A	16	Yes
Manganese	METAL	1/21/2004	3/16/2009	596	163	27.35%	µg/L	0.80	8.0	0.85	376	50	Health for the Consumption of Water + Organism/WAC 246-2	7.5	Yes
Mercury	METAL	1/21/2004	1/28/2009	76	8	10.53%	µg/L	0.040	0.10	0.046	0.086	0.012	WAC 173-201A	7.2	Yes
Nickel	METAL	1/21/2004	3/16/2009	596	152	25.50%	µg/L	1.4	14	1.6	667	52	Freshwater CCC	13	Yes
Selenium	METAL	10/20/2004	8/25/2008	50	31	62.00%	µg/L	0.30	0.48	0.32	6.7	5.0	Freshwater CCC/WAC 173-201A	1.3	Yes
Silver	METAL	1/21/2004	3/16/2009	597	58	9.72%	µg/L	0.10	18	2.0	92	2.6	WAC 173-201A	35	Yes
Thallium	METAL	10/20/2004	1/28/2009	96	19	19.79%	µg/L	0.050	200	0.082	211	0.24	Human Health for the Consumption of Water + Organism	879	Yes
Uranium	METAL	1/15/2004	3/4/2009	298	291	97.65%	µg/L	-1.13E-01	0.050	0.080	93	30	40 CFR 141.62	3.1	Yes
Vanadium and compounds	METAL	1/21/2004	3/16/2009	596	506	84.90%	µg/L	5.0	29	5.7	117	80.0	WAC 340-720(4)(b)(iii)(A) and (B)	1.5	Yes
Zinc	METAL	1/21/2004	3/16/2009	596	249	41.78%	µg/L	1.5	30	1.4	10,200	91	WAC 173-201A	112	Yes
Oil and grease	Oil/Grease	6/25/2004	4/10/2007	9	1	0.11	µg/L	5,000	5,000	5,000	5,000	500	WAC 340-900, Table 720-1	10	No
Gross alpha	RAD	1/13/2004	3/4/2009	742	486	65.50%	µg/L	-3.00E+00	5.7	1.0	49	15	40 CFR 141.66	3.3	Yes
Iodine-129	RAD	1/13/2004	3/19/2009	467	153	32.76%	µg/L	-1.61E+00	5.6	0.67	10	1.0	40 CFR 141.66	10	Yes
Strontium-90	RAD	1/13/2004	3/4/2009	316	55	17.41%	µg/L	-3.40E+00	1.7	0.42	21	8.0	40 CFR 141.66	2.6	Yes
Technetium-99	RAD	1/15/2004	3/4/2009	342	249	72.81%	µg/L	-1.00E+01	9.6	6.7	13,000	900	40 CFR 141.66	14	Yes
Tritium	RAD	1/13/2004	3/4/2009	709	611	86.18%	µg/L	-1.72E+02	1,700	5.9	2.32E+06	20,000	40 CFR 141.66	116	Yes
Bis(2-ethylhexyl) phthalate	SVOC	6/25/2004	1/15/2009	104	2	1.92%	µg/L	0.43	3.6	1.0	11	1.2	Human Health for the Consumption of Water + Organism	9.2	No
Tributyl phosphate	SVOC	6/25/2004	1/15/2009	105	14	13.33%	µg/L	0.22	1.5	2.9	160	9.5	WAC 340-720(4)(b)(iii)(A) and (B)	17	Yes
1,2-Dichloroethane	VOC	1/29/2004	3/4/2009	434	1	0.23%	µg/L	0.080	1.0	0.64	0.64	0.38	Human Health for the Consumption of Water + Organism	1.7	No
1,4-Dioxane	VOC	1/29/2004	2/4/2009	363	1	0.28%	µg/L	2.0	12	8.1	8.1	4.0	WAC 340-720(4)(b)(iii)(A) and (B)	2.0	No
Carbon tetrachloride	VOC	1/29/2004	3/4/2009	434	30	6.91%	µg/L	0.039	1.0	0.10	2.0	0.23	Human Health for the Consumption of Water + Organism	8.7	Yes
Chloroform	VOC	1/29/2004	3/4/2009	434	161	37.10%	µg/L	0.048	1.0	0.072	4.0	1.4	WAC 340-720(4)(b)(iii)(A) and (B)	2.8	Yes
Methylene chloride	VOC	1/29/2004	3/4/2009	434	11	2.53%	µg/L	0.091	1.0	1.0	88	4.6	Human Health for the Consumption of Water + Organism	19	Yes
Tetrachloroethene	VOC	1/29/2004	3/4/2009	434	208	47.93%	µg/L	0.080	1.0	0.17	4.5	0.081	WAC 340-720(4)(b)(iii)(A) and (B)	56	Yes
Trichloroethene	VOC	1/29/2004	3/4/2009	434	204	47.00%	µg/L	0.037	1.0	0.12	3.1	0.5	WAC 340-720(4)(b)(iii)(A) and (B)	6.3	Yes
Fluoride	WET CHEM	1/13/2004	3/4/2009	1391	1369	98.42%	µg/L	5.1	250	21	9,140	960	WAC 340-720(4)(b)(iii)(A) and (B)	19	Yes
Nitrate	WET CHEM	1/13/2004	3/4/2009	1391	1358	97.63%	µg/L	18	487	41	154,000	45000	40 CFR 141	6.0	Yes
Nitrogen in Nitrite and Nitrate	WET CHEM	4/10/2007	4/10/2007	1	1	100.00%	µg/L	--	--	14,700	14,700	10,000	40 CFR 141.62	1.5	No
Sulfate	WET CHEM	1/13/2004	3/4/2009	1391	1380	99.21%	µg/L	50	300	55	361,000	250,000	WAC 246-290-310	1.4	Yes

Table 7-5. Summary of Groundwater COPCs Selected for the Final COPC Evaluation (Shading Indictes Analyte Identified as Proposed COPC in DOE/RL-2007-31).

Analyte Name	Analyte Class
Aluminum	METAL
Arsenic	METAL
Beryllium	METAL
Cadmium	METAL
Chromium	METAL
Cobalt	METAL
Copper	METAL
Hexavalent Chromium	METAL
Iron	METAL
Lead	METAL
Manganese	METAL
Mercury	METAL
Nickel	METAL
Selenium	METAL
Silver	METAL
Thallium	METAL
Uranium	METAL
Vanadium	METAL
Zinc	METAL
Gross alpha	RAD
Iodine-129	RAD
Strontium-90	RAD
Technetium-99	RAD
Tritium	RAD
Tributyl phosphate	SVOC
Carbon tetrachloride	VOC
Chloroform	VOC
Methylene chloride	VOC
Tetrachloroethene	VOC
Trichloroethene	VOC
Fluoride	WET CHEM
Nitrate	WET CHEM
Sulfate	WET CHEM

Table 7-7. COPC Summary Statistics and Comparison of EPCs to Action Levels for the Near-Field Exposure Area.

Contaminant of Potential Concern[1]	Number of Detects	Number of Nondetects	Frequency of Nondetects	Units	Minimum Detected Value	Maximum Detected Value	Mean	Median	Standard Deviation	MAD/0.675	Skewness	Coefficient of Variation	EPC Basis[2]	Exposure Point Concentration	Action Level	Action Level Basis (Human Health Protection)	EPC > Action Level?
95 ULC EPC Exceeds Action Level																	
Arsenic	50	4	7.41%	ug/L	0.79	11	5.4	5.5	2.7	3.5	0.22	0.50	95% KM (Percentile Bootstrap) UCL	5.8	0.058	Groundwater Method B	Yes
Hexavalent Chromium	1	2	66.67%	ug/L	191	191	191	191	N/A	0	N/A	N/A	Maximum Detect	191	48	Groundwater Method B	Yes
Iodine-129	130	160	55.17%	pCi/L	0.67	10	4.6	4.4	2.3	2.4	0.47	0.49	95% KM (t) UCL	2.7	1.0	Federal MCL	Yes
Technetium-99	173	52	23.11%	pCi/L	6.8	13,000	1,018	118	2,369	156	2.8	2.3	97.5% KM (Chebyshev) UCL	1,667	900	Federal MCL	Yes
Trichloroethene	11	23	67.65%	ug/L	0.20	3.1	0.75	0.38	0.89	0.27	2.3	1.2	95% KM (% Bootstrap) UCL	0.56	0.49	Groundwater Method B	Yes
Tritium	248	26	9.49%	pCi/L	340	650,000	108,039	17,750	161,216	24,092	1.6	1.5	97.5% KM (Chebyshev) UCL	156,901	20,000	Federal MCL	Yes
95 UCL EPC Does Not Exceed Action Level																	
Aluminum	25	13	34.21%	ug/L	17	204	44	29	39	15	3.1	0.90	95% KM (BCA) UCL	47	50	Federal MCL	No
Beryllium	10	362	97.31%	ug/L	0.19	9.4	1.3	0.32	2.9	0.13	3.1	2.3	95% KM (BCA) UCL	0.34	4.0	Federal MCL	No
Cadmium	3	370	99.20%	ug/L	2.6	18	8.2	4.1	8.5	2.2	1.7	1.0	95% KM (t) UCL	2.7	5.0	Federal MCL	No
Carbon tetrachloride	3	31	91.18%	ug/L	0.13	1.8	0.72	0.24	0.93	0.16	1.7	1.3	95% KM (t) UCL	0.28	0.34	Groundwater Method B	No
Chloroform	17	17	50.00%	µg/L	0.09	1.2	0.48	0.26	0.36	0.21	0.9	0.8	95% KM (t) UCL	0.38	1.4	Groundwater Method B	No
Chromium	252	121	32.44%	ug/L	1.8	153	18	15	16	11	4.6	0.88	95% KM (BCA) UCL	15	100	Federal MCL	No
Cobalt	24	348	93.55%	ug/L	4.0	24	9.1	6.9	5.5	3.9	1.3	0.60	95% KM (t) UCL	4.5	4.8	Groundwater Method B	No
Copper	24	349	93.57%	ug/L	0.40	23	7.9	6.4	5.0	2.3	1.7	0.63	95% KM (% Bootstrap) UCL	4.4	640	Groundwater Method B	No
Fluoride	689	14	1.99%	ug/L	54	820	291	277	108	108	0.81	0.37	95% KM (BCA) UCL	294	960	Groundwater Method B	No
Gross alpha	206	151	42.30%	ug/L	1.2	49	5.5	3.7	5.7	2.5	3.9	1.0	97.5% KM (Chebyshev) UCL	5.3	15	Federal MCL	No
Iron	235	137	36.83%	ug/L	9.7	1,290	116	58	171	48	4.1	1.5	95% KM (BCA) UCL	90	300	Federal MCL	No
Lead	17	57	77.03%	ug/L	0.10	35	2.3	0.16	8.3	0.082	4.1	3.6	95% KM (BCA) UCL	1.5	15	Federal MCL	No
Manganese	76	296	79.57%	ug/L	0.85	186	19	6.9	33	6.7	3.6	1.7	95% KM (BCA) UCL	6.2	50	Federal MCL	No
Nickel	92	280	75.27%	ug/L	4.0	667	21	8.6	70	4.9	8.8	3.4	95% KM (% Bootstrap) UCL	12	100	WAC 246-290	No
Nitrate	701	2	0.28%	ug/L	145	154,000	29,704	23,000	27,231	24,907	1.5	0.92	95% KM (Chebyshev) UCL	34,098	45,000	Federal MCL	No
Silver	37	336	90.08%	ug/L	5.0	26	10.0	8.5	5.2	3.7	1.6	0.53	95% KM (t) UCL	5.7	80	Groundwater Method B	No
Strontium-90	51	152	74.88%	pCi/L	0.42	21	7.4	4.1	7.4	4.3	0.83	1.0	97.5% KM (Chebyshev) UCL	4.3	8.0	Federal MCL	No
Sulfate	703	0	0.00%	ug/L	5,040	361,000	58,224	53,800	35,704	29,948	2.3	0.61	95% Chebyshev (Mean, Sd) UCL	64,094	250,000	Federal MCL	No
Uranium	78	1	1.27%	ug/L	0.33	93	12	3.3	17	2.1	2.9	1.4	95% KM (Chebyshev) UCL	20	30	Federal MCL	No
Vanadium	356	16	4.30%	ug/L	5.7	45	22	21	6.6	5.0	0.69	0.30	95% KM (BCA) UCL	22	80	Groundwater Method B	No
Zinc	168	204	54.84%	ug/L	1.4	10,200	85	7.3	804	5.4	12	9.5	95% KM (BCA) UCL	96	4,800	Groundwater Method B	No

(1) = Selenium is a groundwater COPC for the 200-PO-1 operable unit but was not reported in the near-field exposure area.
(2) = EPC 95% UCL values calculated using ProUCL Version 4.00.05
COPC = contaminant of potential concern.
EPC = exposure point concentration.

Table 7-8. COPC Summary Statistics and Comparison of EPCs to Action Levels for the Far-Field Exposure Area.

Contaminant of Potential Concern[1]	Number of Detects	Number of Nondetects	Frequency of Nondetects	Units	Minimum Detected Value	Maximum Detected Value	Mean	Median	Standard Deviation	MAD/0.675	Skewness	Coefficient of Variation	EPC Basis[2]	Exposure Point Concentration	Action Level	Action Level Basis (Human Health & Aquatic Protection)	EPC > Action Level?
95 UCL EPC Exceeds Action Level																	
Arsenic	65	1	1.52%	ug/L	1.2	7.1	2.6	2.2	1.1	0.59	2.1	0.43	95% KM (Chebyshev) UCL	3.1	0.018	Human Health Water + Organism	Yes
Cadmium	1	132	99.25%	ug/L	4.5	4.5	4.5	4.5	N/A	0	N/A	N/A	Maximum Detect	4.5	0.25	Freshwater CCC	Yes
Iodine-129	23	110	82.71%	pCi/L	1.1	7.9	3.8	3.7	1.9	2.1	0.43	0.49	95% KM (Percentile Bootstrap) UCL	2.0	1.0	Federal MCL	Yes
Silver	13	120	90.23%	ug/L	5.3	13	6.7	5.9	1.9	0.74	2.8	0.29	95% KM (% Bootstrap) UCL	5.8	2.6	WAC 173-201A	Yes
Tetrachloroethene	208	157	43.01%	ug/L	0.17	4.5	1.2	0.86	0.94	0.50	2.1	0.80	95% KM (% Bootstrap) UCL	0.87	0.081	Groundwater Method B	Yes
Tributyl phosphate	14	47	77.05%	ug/L	2.9	160	24	11	41	12	3.2	1.7	95% KM (t) UCL	12	9.5	Groundwater Method B	Yes
Tritium	312	36	10.34%	pCi/L	5.9	2.32E+06	165,509	20,650	361,155	26,901	3.6	2.2	97.5% KM (Chebyshev) UCL	264,107	20,000	Federal MCL	Yes
95 UCL EPC Does Not Exceed Action Level																	
Carbon tetrachloride	25	340	93.15%	ug/L	0.10	2.0	0.48	0.27	0.49	0.16	1.9	1.0	95% KM (% Bootstrap) UCL	0.17	0.23	Human Health Water + Organism	No
Chloroform	141	224	61.37%	ug/L	0.072	4.00	0.30	0.24	0.45	0.13	7.29	1.51	95% KM (% Bootstrap) UCL	0.21	1.4	Groundwater Method B	No
Chromium	45	88	66.17%	ug/L	3.6	70	13	10	12	5.6	3.2	0.90	95% KM (% Bootstrap) UCL	9.5	65	Freshwater CCC	No
Copper	10	123	92.48%	ug/L	4.0	31	8.7	5.0	8.5	1.3	2.3	0.97	95% KM (% Bootstrap) UCL	4.9	9.0	Freshwater CCC	No
Fluoride	547	6	1.08%	ug/L	66	1,200	293	280	140	74	3.3	0.48	95% KM (BCA) UCL	301	960	Groundwater Method B	No
Gross alpha	201	66	24.72%	pCi/L	1.1	26	5.9	4.8	4.4	2.5	2.2	0.74	97.5% KM (Chebyshev) UCL	6.4	15	Federal MCL	No
Iron	100	33	24.81%	ug/L	12	877	127	74	149	62	2.4	1.2	95% KM (BCA) UCL	121	300	Federal MCL	No
Lead	6	6	50.00%	ug/L	0.10	1.8	0.53	0.18	0.66	0.099	1.7	1.3	95% KM (t) UCL	0.58	2.1	WAC 173-201A	No
Manganese	30	103	77.44%	ug/L	1.8	376	29	9.2	70	7.5	4.7	2.4	95% KM (BCA) UCL	16	50	Federal MCL	No
Methylene chloride	11	354	96.99%	ug/L	1.0	88	10	1.6	26	0.45	3.3	2.5	95% KM (BCA) UCL	2.1	4.6	Human Health Water + Organism	No
Nickel	28	105	78.95%	ug/L	4.0	20	10	9.1	4.6	5.6	0.48	0.46	95% KM (Percentile Bootstrap) UCL	6.0	52	Freshwater CCC	No
Nitrate	544	9	1.63%	ug/L	41	113,000	23,046	17,950	16,823	6,894	2.0	0.73	95% KM (BCA) UCL	23,864	45,000	Federal MCL	No
Strontium-90	1	67	98.53%	pCi/L	0.61	0.61	0.61	0.61	N/A	0	N/A	N/A	Maximum Detect	0.61	8.0	Federal MCL	No
Sulfate	550	3	0.54%	ug/L	77	113,000	44,325	43,850	12,593	8,970	-2.53E-01	0.28	95% KM (BCA) UCL	45,031	250,000	Federal MCL	No
Technetium-99	66	31	31.96%	pCi/L	6.7	595	61	29	91	9.7	3.8	1.5	97.5% KM (Chebyshev) UCL	94	900	Federal MCL	No
Trichloroethene	193	172	47.12%	ug/L	0.12	1.6	0.53	0.48	0.23	0.16	2.2	0.43	95% KM (% Bootstrap) UCL	0.43	0.49	Groundwater Method B	No
Uranium	154	4	2.53%	ug/L	0.080	42	12	9.1	9.5	5.0	1.5	0.78	97.5% KM (Chebyshev) UCL	17	30	Federal MCL	No
Vanadium	74	59	44.36%	ug/L	7.0	29	15	15	4.4	4.0	0.74	0.29	95% KM (Percentile Bootstrap) UCL	13	80	Groundwater Method B	No
Zinc	42	91	68.42%	ug/L	4.0	2,460	91	11	379	6.1	6.3	4.2	95% KM (BCA) UCL	69	91	WAC 173-201A	No

(1) = Aluminum, hexavalent chromium, and mercury are goundwater COPCs for the 200-PO-1 operable unit but were not reported in the far-field exposure area.
(2) = EPC 95% UCL values calculated using ProUCL Version 4.00.05
COPC = contaminant of potential concern.
EPC = exposure point concentration.

Table 7-9. COPC Summary Statistics and Comparison of EPCs to Action Levels for the River Exposure Area.

Contaminant of Potential Concern[1]	Number of Detects	Number of Nondetects	Frequency of Nondetects	Units	Minimum Detected Value	Maximum Detected Value	Mean	Median	Standard Deviation	MAD/0.675	Skewness	Coefficient of Variation	EPC Basis[2]	Exposure Point Concentration	Action Level	Action Level Basis (Human Health & Aquatic Protection)	EPC > Action Level?
95 UCL EPC Exceeds Action Level																	
Arsenic	6	0	0.00%	ug/L	2.7	6.8	4.5	4.3	1.5	1.5	0.40	0.34	95% Student's-t UCL	5.8	0.018	Human Health Water + Organism	Yes
Carbon tetrachloride	2	27	93.10%	ug/L	0.27	0.28	0.28	0.28	0.0071	0.0074	N/A	0.026	95% KM (t) UCL	0.27	0.23	Human Health Water + Organism	Yes
Iron	14	3	17.65%	ug/L	36	1,150	294	151	361	134	1.8	1.2	95% KM (Chebyshev) UCL	611	300	Federal MCL	Yes
Thallium	1	5	83.33%	ug/L	0.37	0.37	0.37	0.37	N/A	0	N/A	N/A	Maximum Detect	0.37	0.24	Human Health Water + Organism	Yes
Tritium	47	5	9.62%	pCi/L	980	94,000	33,584	16,500	28,952	21,646	0.43	0.86	99% KM (Chebyshev) UCL	70,724	20,000	Federal MCL	Yes
95 UCL EPC Does Not Exceed Action Level																	
Chloroform	2	27	93.10%	ug/L	0.6	2	1	1	1.2	1.2	N/A	0.81	95% KM (t) UCL	0.81	1.41	Groundwater Method B	No
Chromium	3	14	82.35%	ug/L	8.9	14	11	10	2.7	1.6	1.4	0.25	95% KM (t) UCL	10.0	65	Freshwater CCC	No
Copper	2	15	88.24%	ug/L	5.9	6.3	6.1	6.1	0.28	0.30	N/A	0.046	95% KM (t) UCL	6.0	9.0	Freshwater CCC	No
Fluoride	49	2	3.92%	ug/L	21	470	273	260	81	74	-4.12E-02	0.30	95% KM (Percentile Bootstrap) UCL	287	960	Groundwater Method B	No
Gross alpha	19	21	52.50%	pCi/L	1.0	7.4	3.0	2.9	1.4	0.73	1.6	0.47	95% KM (t) UCL	2.4	15	Federal MCL	No
Lead	4	2	33.33%	ug/L	0.10	1.2	0.40	0.17	0.51	0.075	2.0	1.3	95% KM (BCA) UCL	0.68	2.1	WAC 173-201A	No
Manganese	7	10	58.82%	ug/L	4.7	86	37	41	27	13	0.59	0.75	95% KM (Percentile Bootstrap) UCL	42	50	Federal MCL	No
Nickel	1	16	94.12%	ug/L	5.6	5.6	5.6	5.6	N/A	0	N/A	N/A	Maximum Detect	5.6	52	Freshwater CCC	No
Nitrate	51	0	0.00%	ug/L	1,110	39,800	21,334	25,300	11,875	9,785	-5.78E-01	0.56	95% Chebyshev (Mean, Sd) UCL	28,582	45,000	Federal MCL	No
Strontium-90	3	36	92.31%	pCi/L	1.0	2.6	1.7	1.5	0.81	0.64	1.2	0.48	95% KM (Percentile Bootstrap) UCL	2.6	8.0	Federal MCL	No
Sulfate	51	0	0.00%	ug/L	5,360	61,400	32,788	36,400	16,010	6,227	-3.60E-01	0.49	95% Chebyshev (Mean, Sd) UCL	42,560	250,000	Federal MCL	No
Technetium-99	10	4	28.57%	pCi/L	18	121	69	84	43	47	-2.44E-01	0.62	Maximum Detect	121	900	Federal MCL	No
Uranium	6	0	0.00%	ug/L	0.32	6.2	3.5	3.9	2.6	3.1	-3.84E-01	0.74	95% Student's-t UCL	5.6	30	Federal MCL	No
Vanadium	10	7	41.18%	ug/L	12	23	17	16	3.7	3.6	0.52	0.22	95% KM (Percentile Bootstrap) UCL	17	80	Groundwater Method B	No
Zinc	2	15	88.24%	ug/L	6.4	6.9	6.7	6.7	0.35	0.37	N/A	0.053	95% KM (t) UCL	6.7	91	WAC 173-201A	No

(1) = Aluminum, hexavalent chromium, mercury, and selenium are groundwater COPCs for the 200-PO-1 operable unit but were not reported in the river exposure area.

(2) = EPC 95% UCL values calculated using ProUCL Version 4.00.05

COPC = contaminant of potential concern.

EPC = exposure point concentration.

Table 7-14. Monitoring Well Locations Reported with Concentrations of Final COPCs Greater Than Action Level for the 200-PO-1 Operable Unit Near-Field Exposure Area

Well Name	Iodine-129	Technetium-99	Tritium	Strontium-90	Uranium	Trichloroethene	Nitrate
Action Level	1 pCi/L	900 pCi/L	20,000 pCi/L	8 pCi/L	30 µg/L	0.49 µg/L	45,000 µg/L
299-E13-11							
299-E13-14							
299-E13-16							
299-E13-18							
299-E13-19							
299-E13-5							
299-E13-6							
299-E13-8						x	
299-E13-9							
299-E16-2							
299-E17-1	x		x				x
299-E17-12			x				
299-E17-13			x				
299-E17-14	x		x	x		x	x
299-E17-16	x		x				x
299-E17-18	x		x				
299-E17-19	x		x				x
299-E17-21							
299-E17-22							x
299-E17-23							
299-E17-25			x				
299-E17-26						x	
299-E18-1							
299-E23-1			x			x	x
299-E24-16	x		x	x			x
299-E24-18			x				x
299-E24-20	x						x
299-E24-21							x
299-E24-22	x						
299-E24-23	x		x		x		x
299-E24-24							x
299-E24-33		x					
299-E24-5	x						
299-E25-17	x						
299-E25-18	x						
299-E25-19	x		x				x
299-E25-2							
299-E25-20	x		x				x
299-E25-22	x						
299-E25-25			x				
299-E25-26	x						
299-E25-28	x						
299-E25-29P	x						x
299-E25-3	x						
299-E25-31	x						
299-E25-32P	x						
299-E25-34	x						
299-E25-35	x						
299-E25-36	x		x		x		x
299-E25-37	x						
299-E25-39			x				
299-E25-40	x						
299-E25-41	x						
299-E25-42	x						
299-E25-43	x						
299-E25-47	x		x				
299-E25-48							
299-E25-6	x						
299-E25-93	x	x					x
299-E25-94	x						
299-E26-12							
299-E26-13							
299-E26-4	x		x				
699-37-47A	x		x				
699-39-39							x
699-41-40			x				

699-41-42			x				
699-42-39B			x				
699-42-40A			x				
699-42-42B	x		x				
699-43-44	x						
699-43-45	x						
699-44-39B							
699-45-42	x						

Table 7-15. Monitoring Well Locations Reported with Concentrations of Final COPCs Greater Than Action Level for the 200-PO-1 Operable Unit Far-Field Exposure Area

Well Name	Iodine-129	Tritium	Trichloroethene	Tetrachloroethene
Action Level	1 pCi/L	20,000 pCi/L	0.49 µg/L	0.081 µg/L
499-S0-7				
499-S0-8				
499-S1-8J				
699-10-54A				
699-12-2C		x		
699-12-4D				
699-13-0A		x		
699-13-1A		x		
699-13-1E		x		
699-13-2D		x		
699-13-3A		x		
699-14-38				
699-17-5				
699-19-43				
699-20-20	x	x	x	
699-20-E12S				
699-20-E5A		x	x	
699-21-6		x		
699-22-35			x	x
699-2-3		x	x	
699-23-34A			x	x
699-23-34B			x	x
699-24-33			x	x
699-24-34A				x
699-24-34B				x
699-24-34C			x	x
699-24-35			x	x
699-24-46			x	
699-25-33A				
699-25-34A			x	x
699-25-34B			x	x
699-25-34D				x
699-26-15A	x	x	x	
699-26-33		x		x
699-26-34A				x
699-26-34B				x
699-26-35A	x	x		x
699-26-35C				
699-2-6A		x		
699-2-7				
699-28-40				
699-29-4		x		
699-31-11	x	x		
699-31-31				
699-32-22A	x	x		

699-32-22B				
699-32-43	x	x		
699-33-56				
699-34-41B	x	x		
699-34-42	x	x		
699-35-9		x		
699-38-15		x		
699-41-23	x			
699-42-12A		x		
699-46-21B		x		
699-50-28B				
699-52-19				
699-8-17		x	x	
699-8-25				
699-9-E2				
699-S12-3				
699-S19-E14				
699-S3-25				
699-S6-E14A				
699-S6-E4A				
699-S6-E4B				
699-S6-E4D				
699-S6-E4E				
699-S6-E4K				
699-S6-E4L				x
699-S8-19				

Table 7-16. Monitoring Well Locations Reported with Concentrations of Final COPCs Greater Than Action Level for the 200-PO-1 Operable Unit River Exposure Area

Well Name	Tritium
Action Level	20,000 pCi/L
699-10-E12	
699-20-E12O	
699-37-E4	X
699-40-1	X
699-41-1A	X
699-43-3	X
699-46-4	X
699-47-5	X
699-48-7A	
699-49-13E	
699-S19-E13	
699-S3-E12	