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Revision 2

Calculation of Exposure Point Concentrations 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

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Environmental Calculation Cover Page

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Terms

CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CLT	Central Limit Theorem
DOE	U.S. Department of Energy
ECF	Environmental Calculation File
EPC	Exposure point concentration
FS	Feasibility Study
HEIS	Hanford Environmental Information System
MVUE	minimum-variance unbiased estimator
OSWER	Office of Solid Waste and Emergency Response (US EPA)
OU	Operable unit
ProUCL	Software used to calculate upper confidence limits
RI	Remedial Investigation
UCL	upper confidence limit of the arithmetic mean
95 UCL	95% upper confidence limit

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1 Purpose

This calculation brief describes the calculation of exposure point concentrations (EPCs) for the contaminants of potential concern (COPCs) that are identified for the 200-PO-1 Groundwater Operable Unit (OU). This calculation brief details the methodology implemented to calculate the EPCs and supports a separate brief addressing the process for selecting initial and final COPCs for the 200-PO-1 OU (ECF-200PO1-09-2018, *Contaminant of Potential Concern Selection for the 200-PO-1 Groundwater Operable Unit*). This calculation brief 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.

This calculation brief addresses a key element of the risk assessment process for groundwater: estimation of the concentration of a chemical in the environment.

2 Background

This calculation brief addresses a key element of the risk assessment process for hazardous exposure areas: estimation of the concentration of a chemical in the environment. The following section provides a brief definition of the EPC.

2.1 Exposure Point Concentration

An EPC is a conservative estimate of the contaminant concentration at an exposure point or in an exposure area where an exposed receptor may reasonably be assumed to move at random and where contact with an environmental medium (e.g., water) is equally likely at all locations within the exposure area. The rationale for use of exposure concentrations is explained in EPA/540/1-89/002, *Risk Assessment Guidance for Superfund Volume I Human Health Evaluation Manual (Part A): Interim Final*:

> "Although this concentration does not reflect the maximum concentration that could be contacted at any one time, it is regarded as a reasonable estimate of the concentration likely to be contacted over time. This is because in most situations, assuming long-term contact with the maximum concentration is not reasonable."

3 Methodology

Three separate exposure areas are identified for the 200-PO-1 groundwater OU including the near-field, far-field, and river. A detailed description about the spatial qualities of each exposure area along with the comparison of EPCs to action levels to identify final COPCs is provided in ECF-200PO1-09-2018.

The following provides an overview of the methodology used to process and reduce the data set, the tools used to calculate the 95%UCL for each analyte detected in groundwater, and the logic used to compute the EPC values for the analytes and exposure areas in the 200-PO-1 Groundwater OU.

1. Obtain a 5-year dataset and a 10-year dataset for each exposure area.
2. Process each exposure area data set through ProUCL 4.00.05 and obtain the UCL and raw statistics output files for both the 5-year and 10-year data sets.
3. Summarize the ProUCL 4.00.05 statistical results for detected analytes in each exposure area for both the 5-year and 10-year data set;

4. Compute the EPC for each detected analyte in each exposure area for both the 5-year and 10-year data sets.

3.1 Calculate EPCs for Each Exposure Area

The following subsections discuss the methodology used to determine the EPC for the detected analytes in the 200-PO-1 OU exposure areas.

3.1.1 ProUCL 4.00.05 Batch Processing

The exposure area-specific datasets contained in the Excel files are subsequently converted from a *.xlsx format to a *.xls format and then imported directly into ProUCL for the calculation of UCLs and summary statistics. Batch processing was implemented to facilitate this process, due to the multiple exposure areas, data sets, and the large number of analytes detected in the 200-PO-1 Groundwater OU. The batch processing steps performed for file conversion, ProUCL processing, and data extraction are listed below.

1. Batch conversion of the *.xlsx files to *.xls files for compatibility with ProUCL version 4.00.05.
2. Batch processing of the *.xls files through ProUCL to generate a raw statistics output file and a UCL output file for each exposure area.
3. Batch processing of the raw statistics and UCL output files to extract the following information (if available) into an *.xlsx file:
   - Exposure area name;
   - Analyte name and CAS Registry number;
   - Total number of sample results, total number of detects, and total number of nondetects;
   - Minimum and maximum detection limits for each detected analyte (when available)[1];
   - Minimum and maximum detected concentrations for each analyte;
   - Coefficient of variation for each analyte;
   - The UCL value, the UCL basis, and comments and/or warning statements for each analyte.

3.1.2 Selection of EPCs

Select the EPC for each detected analyte as follows:

- If a valid UCL can be calculated, the highest potential UCL value (if more than one potential UCL value is recommended) is selected.
- If the recommended UCL is greater than the maximum detected concentration, then the maximum detected concentration reported is selected.
- If a valid UCL cannot be calculated, then the maximum detected concentration is selected.

[1] Minimum and maximum detection limits are summarized in the ProUCL output only when a valid UCL can be calculated.

4 Assumptions and Inputs

The following provides the source of the inputs for the UCL calculations and supporting information for the assumptions made regarding calculation of 95 UCLs and the computation of EPCs.

4.1 Source of the Analytical Data Set

The groundwater data set used for the EPC calculations consists of sample analysis data for samples collected from groundwater wells located in the 200-PO-1 OU exposure areas over both a 5-year and 10-year period. All of these wells are either monitoring wells or compliance wells. The data set is composed of analytical results from the groundwater sampling and analysis activities performed per the requirements documented in DOE/RL-2007-31. The analytical data set is extracted from the Hanford Environmental Information System (HEIS) database. After extraction from HEIS, the analytical data are processed to obtain a single set of results per sampling location and date of collection. Analytical data set processing is described in ECF-200PO1-09-2018. The input data used for the 95 UCL calculations are provided in Appendix A.

4.2 Non-detect Results

Data sets that contain non-detect results are referred to as censored data sets. Usually, a substitution is made, using an estimate of the concentration in samples that were reported as non-detect. OSWER 9285.6-10 indicates that, because of the complicated formulas used to compute UCLs, there is no general rule about which substitution rule (half the detection limit or the full detection limit for non-detect results) will yield an appropriate UCL. OSWER 9285.6-10 further indicates that the appropriate method for calculating UCLs depends on the severity of the censoring, the size of the data set, and which assumptions are reasonable regarding the distribution of the data (e.g., normal, log-normal, etc.). OSWER 9285.6-10 also warns that if the proportion of non-detects is high (>75%), or the number of samples is small (n<5), no UCL calculation method will work well. In the UCL calculations presented in this environmental calculation, the (full) method detection limit is taken as the concentration of an analyte (i.e., the result) in non-detect samples.

4.3 Isotopic-based Total Uranium Concentrations

For a limited number of sampling locations and dates, uranium analytical data are reported as isotopic uranium (pCi/L) only and not as total uranium (μg/L). For these instances, a conversion is performed to calculate a mass-based total uranium concentration (μg/L) from the activity-based isotopic uranium concentrations (pCi/L) reported. The sampling locations and dates and the corresponding isotopic uranium results where this conversion is applied are summarized in Table 4-1.

Table 4-1. Sample Locations and Dates for Isotopic Uranium to Total Uranium Conversions

Exposure Area	Well Location	Sampling Date	Uranium-234 (pCi/L)	Uranium-235 (pCi/L)	Uranium-238 (pCi/L)
Far-Field	699-13-1A	08-Feb-00	2.77	-0.0104	1.29
Far-Field	699-13-2D	15-Nov-01	2.91	0.142	2.57
Far-Field	699-17-5	07-Feb-00	1.36	0.112	0.985
Far-Field	699-8-17	08-Feb-00	1.53	0.0432	1.32
Far-Field	699-9-E2	10-Feb-00	1.28	0.0715	1.13
Far-Field	699-21-6	07-Feb-00	1.56	-0.0111	0.958

The conversion entails extracting the uranium isotope analytical data for each sample, converting the data from activity- to mass-based concentrations, and then summing the converted values *for the detected isotopic concentrations* to produce a mass-based total uranium value. For samples where all uranium isotope results are reported as non-detects, the individual values are not summed, but the maximum value is retained and put in the ProUCL file, flagged as a non-detect.

The pCi/L to µg/L conversions and subsequent summations are performed using specific activities for the uranium isotopes and appropriate conversion factors, as shown in the calculation example provided in Table 4-2. Only detected concentrations are included in the summations. The calculated total uranium values are then combined with the analytical total uranium concentrations reported for the exposure area in a ProUCL input file (Appendix A) for the computation of the total uranium EPC.

Table 4-2. Example Conversion from Activity- to Mass-Based Concentration (pCi/L to µg/L) for Uranium Isotopes and Summation to Produce a Mass-Based Total Uranium Concentration (µg/L)

Uranium Isotope	Measured Activity (pCi isotope/ L groundwater)[a] (ND or D)	Specific Activity (Bq isotope/ g isotope)[b]	Specific Activity (pCi isotope/ g isotope)[c]	Conversion Factor (µg isotope/ g isotope)	Calculated Concentration (µg isotope/ L groundwater)[d]
U-233/234	10.3 (D)	2.302E+08	6.222E+09	1,000,000	0.0017
U-235	0.581 (D)	7.995E+04	2.161E+06	1,000,000	0.27
U-238	13.7 (D)	1.243E+04	3.359E+05	1,000,000	41
Total Uranium Concentration (Total_U_Isotopes) (µg total uranium/L groundwater) =					41

a. Example analytical data shown for illustration purposes only.

b. *Table of Isotopes 8th Edition, 1995, Last update 12th April, 1998.*

c. Formula = specific activity (Bq/g) / 3.7E+10 Bq/Ci × 1.0E+12 pCi/Ci

d. Formula = measured activity (pCi/L) / specific activity (pCi/g) × conversion factor (µg/g)

ND = non-detect

D = detect

4.4 ProUCL Input Files

As described in Section 3.3.1, a ProUCL input file is generated for each exposure area for both the 5-year and 10-year data sets. The groundwater sampling results in the final data set are extracted into an Excel file for each exposure area for both the 5-year and 10-year data sets. These files are included as Appendix A to this ECF and a list of file names for the 200-PO-1 Groundwater OU is provided in Table 4-1.

Table 4-1. ProUCL Input Filenames for Each Exposure Area in the 200-PO-1 Groundwater Operable Unit

ProUCL_200PO1_05_FF_20110822.xls	ProUCL_200PO1_10_FF_20110822.xls
ProUCL_200PO1_05_NF_20110822.xls	ProUCL_200PO1_10_NF_20110822.xls
ProUCL_200PO1_05_RIV_20110822.xls	ProUCL_200PO1_10_RIV_20110822.xls
ProUCL_10Yr_FF.xls	

4.5 95% Upper Confidence Limits

OSWER 9285.6-10 is the most recent EPA guidance for UCL calculation and ProUCL 4.00.05 serves as the companion software package for this guidance ProUCL 4.00.05 contains rigorous parametric and nonparametric statistical methods (including bootstrap methods) that can be used on data sets without nondetects and on data sets with non-detect results. Both ProUCL and OSWER 9285.6-10 were used to calculate UCLs for the 200-PO-1 Groundwater OU.

There are two common methodologies used to calculate UCLs and include: 1) distributional methods and 2) distribution-free or nonparametric methods. OSWER 9285.6-10 recommends using a distributional method for computing UCLs if the data can be shown to reasonably fit a specific distribution. Distribution-free or nonparametric methods are applied if reasonable assumptions about the data distribution cannot be made. For the purposes of this environmental calculation, ProUCL 4.00.05 is used to determine the recommendations regarding reasonableness of the fit of data sets to various distributions.

4.5.1 Distributional Methods

Normal and lognormal are the most common data distributions for calculating UCLs. The following are brief descriptions of recommended UCL calculation methods for these distribution types, as described in OSWER 9285.6-10.

Normal Distribution. If the data are normally distributed, then the one-sided (1-α) UCL of the arithmetic mean should be computed using the Student's t-statistic.

Lognormal Distribution. EPA had recommended the Land method to compute the UCL of the arithmetic mean for lognormally distributed data. This method uses the H-statistic, tables for which were published by Land. Land's approach is known to be sensitive to deviations from lognormality, and to commonly yield estimated UCLs substantially larger than appropriate when distributions are not truly lognormal (i.e., if variance or skewness is large).

EPA also suggests the use of the Chebyshev inequality method to estimate UCLs which should be appropriate for a variety of distributions so long as the skewness is not very large. The one-sided version of the Chebyshev inequality is appropriate in this context. It can be applied to the sample mean to obtain a distribution-free estimate of the UCL for the population mean when the population variance or standard deviation are known. In practice, however, these values are not known and must be estimated from data.

For lognormally distributed data sets, use of the minimum-variance unbiased estimators (MVUE) for the mean and variance is suggested to obtain a UCL of the arithmetic mean. This approach may yield an estimated UCL that is more useful than that obtained from the Land method (when the underlying distribution of concentrations is lognormal). EPA points out that for highly skewed lognormal data with small sample size and large standard deviation, the Chebyshev 99% UCL may be more appropriate than the 95 UCL, because the Chebyshev 95 UCL may not provide adequate coverage of the mean. As skewness increases further, the Chebyshev method is not recommended.

4.5.2 Non-Parametric or Distribution-Free Methods

There are distribution-free approaches to computing UCLs that do not make specific assumptions about the shape of the underlying distribution of concentrations. The following are brief descriptions of recommended methods that are described in OSWER 9285.6-10.

Central Limit Theorem (Adjusted). If the sample size is sufficiently large, the Central Limit Theorem (CLT) implies that the mean will be normally distributed, no matter how complex the underlying distribution of concentrations might be. This is the case even if the underlying distribution is strongly

skewed, has outliers, or is a mixture of different populations, so long as it is stationary (not changing over time), has finite variance, and the samples are collected independently and randomly. However, the theorem does not say how many samples are sufficient for normality to hold. When sample size is moderate or small, the mean generally will not be normally distributed, and this non-normality is intensified by the skewness of the underlying distribution. Chen (1995) suggested an approach that accounts for positive skewness. Singh et al. (1997) and EPA (2000c) call this approach the "adjusted CLT" method. They suggest that it is an appropriate alternative to the distribution-specific Land's method, even if the distribution is lognormal, when the standard deviation is less than one and sample size is larger than 100.

Bootstrap Resampling. Bootstrap procedures are robust, nonparametric statistical methods that can be used to construct approximate confidence limits for the population mean. In these procedures, repeated samples of size n are drawn with replacement from a given set of observations. The process is repeated a large number of times (e.g., thousands), and each time an estimate of the desired unknown parameter (e.g., the sample mean) is computed. There are different variations of the bootstrap procedure available.

Jackknife Procedure. Like bootstrap, the jackknife technique is a robust procedure based on resampling. In this procedure repeated samples are drawn from a given set of observations by omitting each observation in turn, yielding n data sets of size n-1. An estimate of the desired unknown parameter (e.g., sample mean) is then computed for each sample. When the standard estimators are used for the mean and standard deviation, this procedure reduces to the UCL based on the Student's t statistic. However, when other estimators (such as MVUE) are used, this jackknife procedure does not reduce to the UCL based on Student's t statistic.

Chebyshev Inequality Method. EPA suggests the use of the Chebyshev inequality to estimate UCLs, which should be appropriate for a variety of distributions, as long as the skewness is not very large. The one-sided version of the Chebyshev inequality is appropriate in this context. It can be applied to the sample mean to obtain a distribution-free estimate of the UCL for the population mean, when the population variance or standard deviation are known. In practice, however, these values are not known and must be estimated from the data.

4.6 Minimum Data Set Size Requirements

Some decision statistics computed by ProUCL 4.00.05 require a minimum sample size. The following limitations of ProUCL apply to data sets with non-detects (i.e., censored data sets):

- A UCL is not calculated for datasets with less than five results.
- For data sets of at least five results, a UCL is not calculated when there is only one detected result in the data set;
- For data sets of at least five results, only Kaplan-Meier method-based UCLs are generated when there are only two detected results;
- For data sets of at least five results, most parametric and nonparametric (except for gamma distribution-based) UCLs are generated when there are at least three detected values;
- For data sets of at least five results, all parametric and nonparametric UCLs are generated when there are four or more detected values.

ProUCL generates warning messages for all small (sample size <8-10) data sets processed, informing the user about potential deficiencies in the data set.

4.7 Use of Maximum Detected Concentrations to Compute the EPC

As described in Section 3.3.2, the EPC defaults to the maximum detected concentration when the following conditions are met:

- When a UCL cannot be calculated due to small sample size;
- When the UCL is greater than the maximum detected concentration.

ProUCL notes that the EPC term represents the average exposure contracted by a receptor over a long exposure duration and this term should be estimated by an average value (such as the 95 UCL) and not by the maximum observed concentration. Use of maximum observed concentrations results in risk estimates that correspond to maximum possible exposures; such estimates effectively make the assumption that a drinking water well will be drilled at the location of the maximum detected concentration all of the time. The following provides additional information regarding when a maximum detected concentration is selected as the EPC in this environmental calculation.

OSWER 9285.7-081 states that for exposure units with limited amounts of data or extreme variability in measured or modeled data, the calculated UCL can be greater than the highest measured or modeled concentration. In these cases, if additional data cannot practicably be obtained, the highest measured or modeled value can be used as the concentration term. It further states that sampling data have shown that data sets with fewer than 10 samples per exposure area provide poor estimates of the mean concentration (i.e., there is a large difference between the sample mean and the UCL). As described above, ProUCL has minimum size requirements to compute decision statistics. For data sets of at least five results, a UCL is not calculated when there is only one detected result in the data set. ProUCL notes that in cases where the number of available detected samples is small (< 5), the estimation of the EPC term is decided upon on a site-specific basis. For small data sets, where a valid UCL cannot be calculated, the EPC defaults to the maximum detected concentration for the 200-PO-1 Groundwater OU. ProUCL generates warning messages regarding the potential deficiencies associated with a small data set.

Some of the methods described in Section 4.4 can produce very high estimates of the UCL (particularly the Land method). OSWER 9285.6-10 acknowledges that the Land method can produce extremely high values for the UCL, when data exhibit high variance and the sample size is small. OSWER 9285.7-081 recognizes the problem of extremely high UCLs, and recommends defaulting to the maximum detected concentration when the calculated UCL exceeds this value. When the recommended UCL exceeds the maximum detected concentration, ProUCL, however, advises that an alternative UCL (i.e. Chebyshev inequality) to be selected instead of the maximum detected concentration for an EPC. For conservatism, the maximum detected value is selected as the EPC for the 200-PO-1 Groundwater OU when the recommended UCL is greater than the maximum. If subsequent risk characterization indicates over-estimation of risk based on this EPC, the appropriateness of the maximum detected concentration as the EPC will be re-evaluated. ProUCL generates a warning message when the recommended UCL exceeds the maximum observed concentration.

4.8 Multiple Recommended UCLs

For most data sets, ProUCL recommends a single UCL. However, for some data sets, ProUCL will recommend more than one UCL. When more than one UCL is identified, the following logic is used to select the decision statistic. The most conservative (i.e. health-protective) result is the goal.

- If more than one UCL is recommended and both are less than or equal to the maximum observed concentration, then the highest UCL is selected as the decision statistic.

- If more than one UCL is recommended and both are greater than the maximum observed concentration, then the maximum observed concentration is selected as the decision statistic.
- If more than one UCL is recommended and at least one is less than the maximum observed concentration and at least one is greater than the maximum observed concentration, then the maximum observed concentration is selected as the decision statistic.

5 Software Applications

Software used for this analysis includes the Microsoft Access[2] database software, ProUCL version 4.00.05 statistical software[3], and Microsoft Excel[4]. The following information is provided for ProUCL as an approved software package.

5.1 Description

The following presents the description of ProUCL used for this Environmental Calculation. See CHPRC-01270, Rev. 0, *ProUCL Software Management Plan* for further details regarding the use of this software:

- ProUCL,
- Version 4.00.05
- HISI Identification Number: 2831
- Workstation type and property number: WF23245.

5.2 Software Installation and Checkout

The software installation and checkout form for ProUCL is attached to this Environmental Calculation.

5.3 Statement of Valid Software Application

The following presents the statement that ProUCL is a valid software application.

- ProUCL was developed by EPA to provide statistical calculations in support of risk assessment activities.
- ProUCL as it has been used in this Environmental Calculation has been implemented within the range of its limitations. The input files used with and the output files generated by ProUCL are attached to this Environmental Calculation.

6 Calculation

EPCs are computed using the methodology presented in Section 3 and the inputs and assumptions described in Section 4. Results for each step of the process are summarized in the text and tables presented in Section 7.

7 Results/Conclusions

This section documents the data processing and EPC computation steps associated with the 200-PO-1 Groundwater OU sample results.

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2 Access is a trademark of Microsoft Corporation, Redmond, Washington.

3 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.

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

7.1 Identify Analytes for the UCL Calculation

This section summarizes the process of selecting analytes to process through ProUCL for the UCL and raw statistics calculations.

7.1.1 ProUCL Processing

Excel input files for each exposure area for both the 5-year and 10-year data sets were imported into ProUCL and corresponding raw statistic and UCL output files were generated as described in Section 3.3.1. The resulting raw statistics and UCL output files were converted to Excel for viewing purposes and are provided as Appendix B. The corresponding file names are listed in Table 7-1 for the raw statistics output files and Table 7-2 for the UCL output files.

Table 7-1. Raw Statistics Output Excel Filenames for the 200-PO-1 Groundwater Operable Unit

200PO1_05_FF_20110720_WNDRawStats.xls	200PO1_10_FF_20110721_WNDRawStats.xls
200PO1_05_NF_20110720_WNDRawStats.xls	200PO1_10_FF_20110822_WNDRawStats (lead only).xls
200PO1_05_RIV_20110720_WNDRawStats.xls	200PO1_10_NF_20110721_WNDRawStats.xls
10Yr_FF_WNDRawStats.xls	200PO1_10_RIV_20110721_WNDRawStats.xls

Table 7-2. 95 UCL Output Excel Filenames for the 200-PO-1 Groundwater Operable Unit

200PO1_05_FF_20110720_WNDStats.xls	200PO1_10_FF_20110822_WNDStats (lead only).xls
200PO1_05_NF_20110720_WNDStats.xls	200PO1_10_NF_20110721_WNDStats.xls
200PO1_05_RIV_20110720_WNDStats.xls	200PO1_10_RIV_20110721_WNDStats.xls
200PO1_10_FF_20110721_WNDStats.xls	10Yr_FF_WNDStats.xls

7.1.2 ProUCL Extraction

The selected statistical values listed in Section 3.3.1 are extracted from the ProUCL output files into an Excel spreadsheet. The extracted information is summarized in Appendix C.

7.2 Exposure Point Concentration Determination

Exposure point concentration are selected using the logic described in Section 3.1 and are summarized in Table 7-3 for the 200-PO-1 Groundwater OU 5-year Data Set and Table 7-4 for the 200-PO-1 Groundwater OU 10-year Data Set.

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_FF	non-Rad	1,1,1-Trichloroethane	71-55-6	365	180	185	49	ug/L	0.035	1.0	0.22	2.3	0.41	0.69	95% KM (t) UCL	--
200PO1_05_FF	non-Rad	1,1-Dichloroethane	75-34-3	365	125	240	34	ug/L	0.046	1.0	0.090	0.70	0.39	0.26	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_FF	non-Rad	1,1-Dichloroethene	75-35-4	303	23	280	7.6	ug/L	0.040	1.0	0.11	0.47	0.40	0.17	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_FF	non-Rad	1,2-Dichlorobenzene	95-50-1	10	1.0	9	10	ug/L	0.27	2.0	3.0	3.0	0	3.0	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2-Dichlorobenzene was not processed!
200PO1_05_FF	non-Rad	1,4-Dichlorobenzene	106-46-7	387	11	376	2.8	ug/L	0.047	2.4	0.12	0.46	0.53	0.13	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	1,4-Dioxane	123-91-1	307	1.0	306	0.33	ug/L	2.0	12	8.1	8.1	0	8.1	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,4-Dioxane was not processed!
200PO1_05_FF	non-Rad	2-Butanone	78-93-3	365	1.0	364	0.27	ug/L	0.10	1.8	0.55	0.55	0	0.55	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2-Butanone was not processed!
200PO1_05_FF	non-Rad	2-Pentanone, 4-Methyl	108-10-1	365	1.0	364	0.27	ug/L	0	0	0.64	0.64	0	0.64	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2-Pentanone, 4-Methyl was not processed!
200PO1_05_FF	non-Rad	Acetone	67-64-1	365	22	343	6.0	ug/L	0.21	1.0	0.65	37	1.7	1.5	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Arsenic	7440-38-2	66	65	1	98	ug/L	0.40	0.40	1.2	7.1	0.43	3.1	95% KM (Chebyshev) UCL	--
200PO1_05_FF	non-Rad	Barium	7440-39-3	133	133	0	100	ug/L	--	--	12	150	0.46	73	95% Approximate Gamma UCL	--

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_FF	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	61	1.0	60	1.6	ug/L	0.43	3.6	1.0	1.0	0	1.0	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Bis(2-ethylhexyl) phthalate was not processed!
200PO1_05_FF	non-Rad	Cadmium	7440-43-9	133	1.0	132	0.75	ug/L	0.45	4.0	4.5	4.5	0	4.5	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Cadmium was not processed!
200PO1_05_FF	non-Rad	Carbon disulfide	75-15-0	365	1.0	364	0.27	ug/L	0.029	1.0	0.21	0.21	0	0.21	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Carbon disulfide was not processed!
200PO1_05_FF	non-Rad	Carbon tetrachloride	56-23-5	365	25	340	6.9	ug/L	0.039	1.0	0.10	2.0	1.0	0.17	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Chloride	16887-00-6	553	552	1	100	ug/L	25	25	2,700	35,000	0.47	9,970	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Chloroform	67-66-3	365	141	224	39	ug/L	0.048	1.0	0.072	4.0	1.5	0.21	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Chromium	7440-47-3	133	45	88	34	ug/L	3.1	13	3.6	70	0.90	9.5	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Copper	7440-50-8	133	10	123	7.5	ug/L	4.0	6.0	4.0	31	0.97	4.9	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Fluoride	16984-48-8	553	547	6	99	ug/L	5.1	100	66	1,200	0.48	301	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Iron	7439-89-6	133	100	33	75	ug/L	9.0	25	12	877	1.2	121	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Lead	7439-92-1	12	6.0	6	50	ug/L	0.10	0.10	0.10	1.8	1.3	0.58	95% KM (t) UCL	Warning: There are only 6 Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_05_FF	non-Rad	Manganese	7439-96-5	133	30	103	23	ug/L	0.96	4.0	1.8	376	2.4	16	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Methylene chloride	75-09-2	365	11	354	3.0	ug/L	0.091	1.0	1.0	88	2.5	2.1	95% KM (BCA) UCL	--

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_FF	non-Rad	Nickel	7440-02-0	133	28	105	21	ug/L	4.0	13	4.0	20	0.45	6.0	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Nitrate	14797-55-8	553	544	9.0	98	ug/L	18	487	41	113,000	0.73	23,864	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Nitrite	14797-65-0	533	37	496	6.9	ug/L	9.9	2,500	51	1,710	1.1	82	95% KM (t) UCL	--
200PO1_05_FF	non-Rad	Silver	7440-22-4	133	13	120	9.8	ug/L	5.0	6.0	5.3	13	0.29	5.8	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Strontium	7440-24-6	133	133	0	100	ug/L	--	--	22	788	0.41	384	95% Student's-t UCL	--
200PO1_05_FF	non-Rad	Sulfate	14808-79-8	553	550	3	99	ug/L	50	300	77	113,000	0.28	45,031	95% KM (BCA) UCL	--
200PO1_05_FF	non-Rad	Tetrachloroethene	127-18-4	365	208	157	57	ug/L	0.080	1.0	0.17	4.5	0.80	0.87	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Tributyl phosphate	126-73-8	61	14	47	23	ug/L	0.22	1.5	2.9	160	1.7	12	95% KM (t) UCL	--
200PO1_05_FF	non-Rad	Trichloroethene	79-01-6	365	193	172	53	ug/L	0.037	1.0	0.12	1.6	0.43	0.43	95% KM (% Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Trichloromonofluoromethane	75-69-4	16	1	15	6	ug/L	0.032	0.19	0.58	0.58	0	0.58	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Trichloromonofluoromethane was not processed!
200PO1_05_FF	non-Rad	Uranium	7440-61-1	158	154.0	4	97.5	ug/L	-1.13E-01	0.050	0.080	42	0.78	17	97.5% KM (Chebyshev) UCL	--
200PO1_05_FF	non-Rad	Vanadium	7440-62-2	133	74	59	56	ug/L	7.0	12	7.0	29	0.29	13	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_FF	non-Rad	Zinc	7440-66-6	133	42	91	32	ug/L	4.0	9.0	4.0	2,460	4.2	69	95% KM (BCA) UCL	--
200PO1_05_FF	Rad	Gross alpha	12587-46-1	267	201	66	75	pCi/L	-1.10E+00	2.7	1.1	26	0.74	6.4	97.5% KM (Chebyshev) UCL	--
200PO1_05_FF	Rad	Gross beta	12587-47-2	267	267	0	100	mrem/year	--	--	3.0	470	1.5	32	95% Chebyshev (Mean, Sd) UCL	--
200PO1_05_FF	Rad	Iodine-129	15046-84-1	133	23	110	17	pCi/L	-1.61E+00	5.6	1.1	7.9	0.49	2.0	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_FF	Rad	Nickel-63	13981-37-8	2	1	1	50	pCi/L	2.6	2.6	4.1	4.1	0	4.1	Maximum Detect	Warning: This data set only has 2 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Nickel-63 was not processed!
200PO1_05_FF	Rad	Protactinium-231	14331-85-2	11.0	2.0	9	18	pCi/L	-2.60E-02	0.20	0.19	0.31	0.35	0.31	Maximum Detect	Recommended UCL Exceeds Maximum Concentration: EPC defaults to Maximum Concentration.

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_FF	Rad	Strontium-90	10098-97-2	68	1.0	67.0	1	pCi/L	-3.17E+00	1.2	0.61	0.61	0	0.61	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Strontium-90 was not processed!
200PO1_05_FF	Rad	Technetium-99	14133-76-7	97	66.0	31	68.0	pCi/L	-1.00E+01	9.3	6.7	595	1.5	94	97.5% KM (Chebyshev) UCL	--
200PO1_05_FF	Rad	Tritium	10028-17-8	348	312	36	90	pCi/L	-1.72E+02	286	5.9	2.32E+06	2.2	264,107	97.5% KM (Chebyshev) UCL	--
200PO1_05_NF	non-Rad	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	35822-46-9	8	2	6	25	ug/L	7.70E-07	1.60E-06	2.20E-06	5.70E-06	0	3.73E-06	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_05_NF	non-Rad	1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	10.0	8.0	2	80	ug/L	1.90E-06	1.90E-06	1.30E-06	1.20E-05	0	5.66E-06	95% KM (BCA) UCL	Warning: There are only 8 Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_05_NF	non-Rad	1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	7	1.0	6	14	ug/L	0	0	2.90E-06	2.90E-06	0	2.90E-06	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2,3,4,7,8-Hexachlorodibenzofuran was not processed!
200PO1_05_NF	non-Rad	1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	7.0	1.0	6	14	ug/L	0	0	2.10E-06	2.10E-06	0	2.10E-06	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2,3,6,7,8-Hexachlorodibenzofuran was not processed!

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_NF	non-Rad	1,2-Dichloroethane	107-06-2	34.0	1.0	33	3	ug/L	0.090	1.0	0.64	0.64	0	0.64	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2-Dichloroethane was not processed!
200PO1_05_NF	non-Rad	2,3,4,6-Tetrachlorophenol	58-90-2	192	2.0	190	1.0	ug/L	1.0	4.8	7.7	7.7	0	7.7	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2,3,4,6-Tetrachlorophenol was not processed!
200PO1_05_NF	non-Rad	Aluminum	7429-90-5	38	25.0	13	65.8	ug/L	17	46	17	204	0.89	47	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Arsenic	7440-38-2	54	50	4	93	ug/L	0.40	1.9	0.79	11	0.50	5.8	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_NF	non-Rad	Barium	7440-39-3	372	372	0	100	ug/L	--	--	14	81	0.35	53	95% Student's-t UCL	--
200PO1_05_NF	non-Rad	Beryllium	7440-41-7	372	10	362	3	ug/L	0.18	4.0	0.19	9.4	2.3	0.34	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	31	1	30	3.2	ug/L	1.0	2.6	11	11	0	11	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Bis(2-ethylhexyl) phthalate was not processed!
200PO1_05_NF	non-Rad	Cadmium	7440-43-9	373	3.0	370	0.8	ug/L	0.10	7.1	2.6	18	1.0	2.7	95% KM (t) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_05_NF	non-Rad	Carbon tetrachloride	56-23-5	34	3.0	31	8.82	ug/L	0.042	0.15	0.13	1.8	1.3	0.28	95% KM (t) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_05_NF	non-Rad	Chloride	16887-00-6	703	703.0	0	100.0	ug/L	--	--	2,150	91,300	0.60	12,623	95% Chebyshev (Mean, Sd) UCL	--
200PO1_05_NF	non-Rad	Chloroform	67-66-3	34	17	17	50	ug/L	0.080	1.0	0.089	1.2	0.76	0.38	95% KM (t) UCL	--

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_NF	non-Rad	Chromium	7440-47-3	373	252	121	68	ug/L	1.9	13	1.8	153	0.88	15	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Cobalt	7440-48-4	372	24	348	6	ug/L	1.7	7.0	4.0	24	0.60	4.5	95% KM (t) UCL	--
200PO1_05_NF	non-Rad	Copper	7440-50-8	373	24	349	6.4	ug/L	2.4	7.0	0.40	23	0.63	4.4	95% KM (% Bootstrap) UCL	--
200PO1_05_NF	non-Rad	Fluoride	16984-48-8	703	689	14	98.0	ug/L	40	250	54	820	0.37	294	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Hexavalent Chromium	18540-29-9	3	1	2	33	ug/L	2.0	2.0	191	191	0	191	Maximum Detect	Warning: This data set only has 3 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Hexavalent Chromium was not processed!
200PO1_05_NF	non-Rad	Iron	7439-89-6	372.0	235.0	137	63	ug/L	9.0	37	9.7	1,290	1.5	90	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Lead	7439-92-1	74	17	57	23	ug/L	0.10	1.3	0.10	35	3.6	1.5	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Manganese	7439-96-5	372	76	296	20	ug/L	0.84	4.0	0.85	186	1.7	6.2	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Nickel	7440-02-0	372	92	280	25	ug/L	4.0	14	4.0	667	3.4	12	95% KM (% Bootstrap) UCL	--
200PO1_05_NF	non-Rad	Nitrate	14797-55-8	703	701	2	100	ug/L	21	177	145	154,000	0.92	34,098	95% KM (Chebyshev) UCL	--
200PO1_05_NF	non-Rad	Nitrite	14797-65-0	658	21	637	3	ug/L	9.9	2,500	46	953	0.83	57	95% KM (t) UCL	--
200PO1_05_NF	non-Rad	Nitrogen in Nitrite and Nitrate	NO2+NO3-N	1	1	0	100.0	ug/L	--	--	14,700	14,700	0	14,700	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Nitrogen in Nitrite and Nitrate was not processed!
200PO1_05_NF	non-Rad	Octachlorodibenzofuran	39001-02-0	10.0	10.0	0	100	ug/L	--	--	2.20E-06	1.60E-05	0	9.96E-06	95% Student's-t UCL	--
200PO1_05_NF	non-Rad	Octachlorodibenzo-p-dioxin	3268-87-9	14	10	4	71	ug/L	1.60E-06	2.10E-06	2.90E-06	1.10E-05	0	5.81E-06	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_NF	non-Rad	Silver	7440-22-4	373	37	336	10	ug/L	0.10	11	5.0	26	0.52	5.7	95% KM (t) UCL	--
200PO1_05_NF	non-Rad	Strontium	7440-24-6	372	372	0	100.0	ug/L	--	--	110	602	0.28	269	95% Modified-t UCL	--
200PO1_05_NF	non-Rad	Sulfate	14808-79-8	703	703	0	100	ug/L	--	--	5,040	361,000	0.61	64,094	95% Chebyshev (Mean, Sd) UCL	--
200PO1_05_NF	non-Rad	Toluene	108-88-3	34	2	32	6	ug/L	0.029	1.0	0.029	0.065	0.54	0.036	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_NF	non-Rad	Total petroleum hydrocarbons - gasoline range	TPHGASOLINE	8	1.0	7	12.5	ug/L	20	20	50	50	0	50	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Total petroleum hydrocarbons - gasoline range was not processed!
200PO1_05_NF	non-Rad	Trichloroethene	79-01-6	34.0	11.0	23	32	ug/L	0.11	1.0	0.20	3.1	1.2	0.56	95% KM (% Bootstrap) UCL	--
200PO1_05_NF	non-Rad	Uranium	7440-61-1	79	78	1	99	ug/L	0.050	0.050	0.33	93	1.4	20	95% KM (Chebyshev) UCL	--
200PO1_05_NF	non-Rad	Vanadium	7440-62-2	372	356	16	96	ug/L	7.0	12	5.7	45	0.30	22	95% KM (BCA) UCL	--
200PO1_05_NF	non-Rad	Zinc	7440-66-6	372	168	204	45	ug/L	1.5	19	1.4	10,200	9.5	96	95% KM (BCA) UCL	--
200PO1_05_NF	Rad	Gross alpha	12587-46-1	357	206	151	58	pCi/L	-3.00E+00	5.7	1.2	49	1.0	5.3	97.5% KM (Chebyshev) UCL	--
200PO1_05_NF	Rad	Iodine-129	15046-84-1	290	130	160	45	pCi/L	-7.07E-01	5.6	0.67	10	0.49	2.7	95% KM (t) UCL	--
200PO1_05_NF	Rad	Plutonium-239/240	PU-239/240	1	1	0	100	pCi/L	--	--	0.029	0.029	0	0.029	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Plutonium-239/240 was not processed!
200PO1_05_NF	Rad	Protactinium-231	14331-85-2	16	1	15	6	pCi/L	-4.40E-02	0.29	0.28	0.28	0	0.28	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Protactinium-231 was not processed!
200PO1_05_NF	Rad	Strontium-90	10098-97-2	203.0	51.0	152	25	pCi/L	-3.40E+00	1.7	0.42	21	1.0	4.3	97.5% KM (Chebyshev) UCL	--
200PO1_05_NF	Rad	Technetium-99	14133-76-7	225	173.0	52	76.9	pCi/L	-7.60E+00	9.6	6.8	13,000	2.3	1,667	97.5% KM (Chebyshev) UCL	--
200PO1_05_NF	Rad	Tritium	10028-17-8	274	248	26	91	pCi/L	-1.70E+02	206	340	650,000	1.5	156,901	97.5% KM (Chebyshev) UCL	--
200PO1_05_RIV	non-Rad	Acetone	67-64-1	29	1	28	3	ug/L	0.56	1.0	1.1	1.1	0	1.1	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Acetone was not processed!

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_RIV	non-Rad	Arsenic	7440-38-2	6	6	0	100	ug/L	--	--	2.7	6.8	0.34	5.8	95% Student's-t UCL	Warning: There are only 6 Values in this data Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions
200PO1_05_RIV	non-Rad	Barium	7440-39-3	17	17.0	0	100.0	ug/L	--	--	18	64	0.33	49	95% Student's-t UCL	--
200PO1_05_RIV	non-Rad	Carbon tetrachloride	56-23-5	29.0	2.0	27	7	ug/L	0.039	1.0	0.27	0.28	0.026	0.27	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_05_RIV	non-Rad	Chloride	16887-00-6	51	51	0	100	ug/L	--	--	1,200	18,100	0.37	11,373	95% Student's-t UCL	--
200PO1_05_RIV	non-Rad	Chloroform	67-66-3	29	2.0	27	6.9	ug/L	0.048	1.0	0.62	2.3	0.81	0.81	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_05_RIV	non-Rad	Chromium	7440-47-3	17	3	14	18	ug/L	4.0	13	8.9	14	0.25	10.0	95% KM (t) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_05_RIV	non-Rad	Copper	7440-50-8	17	2.0	15	11.8	ug/L	4.0	6.0	5.9	6.3	0.046	6.0	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_05_RIV	non-Rad	Fluoride	16984-48-8	51	49.0	2	96	ug/L	50	50	21	470	0.30	287	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_RIV	non-Rad	Iron	7439-89-6	17	14.0	3	82	ug/L	20	25	36	1,150	1.2	611	95% KM (Chebyshev) UCL	--
200PO1_05_RIV	non-Rad	Lead	7439-92-1	6	4	2	67	ug/L	0.10	0.10	0.10	1.2	1.3	0.68	95% KM (BCA) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_RIV	non-Rad	Manganese	7439-96-5	17	7	10	41	ug/L	4.0	4.0	4.7	86	0.75	42	95% KM (Percentile Bootstrap) UCL	Warning: There are only 7 Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_05_RIV	non-Rad	Nickel	7440-02-0	17.0	1.0	16	6	ug/L	4.0	6.0	5.6	5.6	0	5.6	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Nickel was not processed!
200PO1_05_RIV	non-Rad	Nitrate	14797-55-8	51	51.0	0	100	ug/L	--	--	1,110	39,800	0.56	28,582	95% Chebyshev (Mean, Sd) UCL	--
200PO1_05_RIV	non-Rad	Nitrite	14797-65-0	50	3.0	47	6.0	ug/L	9.9	131	62	460	1.1	460	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_05_RIV	non-Rad	Strontium	7440-24-6	17	17	0	100	ug/L	--	--	81	734	0.56	390	95% Student's-t UCL	--
200PO1_05_RIV	non-Rad	Sulfate	14808-79-8	51	51.0	0	100.0	ug/L	--	--	5,360	61,400	0.49	42,560	95% Chebyshev (Mean, Sd) UCL	--
200PO1_05_RIV	non-Rad	Thallium	7440-28-0	6	1	5	17	ug/L	0.050	0.050	0.37	0.37	0	0.37	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Thallium was not processed!
200PO1_05_RIV	non-Rad	Uranium	7440-61-1	6	6	0	100	ug/L	--	--	0.32	6.2	0.74	5.6	95% Student's-t UCL	Warning: There are only 6 Values in this data Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions
200PO1_05_RIV	non-Rad	Vanadium	7440-62-2	17.0	10.0	7	59	ug/L	7.0	12	12	23	0.22	17	95% KM (Percentile Bootstrap) UCL	--
200PO1_05_RIV	non-Rad	Zinc	7440-66-6	17.0	2.0	15	12	ug/L	4.0	9.0	6.4	6.9	0.053	6.7	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Table 7-3. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (5-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_05_RIV	Rad	Gross alpha	12587-46-1	40.0	19.0	21	48	pCi/L	0.0040	3.2	1.0	7.4	0.47	2.4	95% KM (t) UCL	--
200PO1_05_RIV	Rad	Gross beta	12587-47-2	40	39	1	98	mrem/year	0.94	0.94	3.0	68	0.82	31	95% KM (Chebyshev) UCL	--
200PO1_05_RIV	Rad	Strontium-90	10098-97-2	39	3.0	36	8	pCi/L	-3.40E+00	0.98	1.0	2.6	0.48	2.6	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_05_RIV	Rad	Technetium-99	14133-76-7	14	10	4	71	pCi/L	-1.10E+00	3.4	18	121	0.62	121	Maximum Detect	Recommended UCL Exceeds Maximum Concentration: EPC defaults to Maximum Concentration.
200PO1_05_RIV	Rad	Tritium	10028-17-8	52	47	5	90	pCi/L	-1.55E+01	1,700	980	94,000	0.86	70,724	99% KM (Chebyshev) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_FF	non-Rad	(m+p)-Xylene	179601-23-1	132	1.0	131	0.76	ug/L	0.060	0.47	0.50	0.50	0	0.50	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable (m+p)-Xylene was not processed!
200PO1_10_FF	non-Rad	1,1,1-Trichloroethane	71-55-6	652	402	250	62	ug/L	0.035	5.0	0.22	7.0	0.67	1.2	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	1,1-Dichloroethane	75-34-3	652	282	370	43	ug/L	0.046	5.0	0.090	3.0	0.74	0.39	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	1,1-Dichloroethene	75-35-4	351	24	327	6.8	ug/L	0.040	5.0	0.11	0.47	0.40	0.16	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_FF	non-Rad	1,2-Dichlorobenzene	95-50-1	26	1.0	25	3.9	ug/L	0.27	10	3.0	3.0	0	3.0	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2-Dichlorobenzene was not processed!
200PO1_10_FF	non-Rad	1,2-Dichloroethane	107-06-2	652	5.0	647	0.77	ug/L	0.020	5.0	0.11	1.0	0.90	0.31	95% KM (Percentile Bootstrap) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_FF	non-Rad	1,4-Dichlorobenzene	106-46-7	672	32	640	4.8	ug/L	0.030	10	0.11	0.87	0.78	0.13	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	1,4-Dioxane	123-91-1	420	1.0	419	0.24	ug/L	2.0	500	8.1	8.1	0	8.1	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,4-Dioxane was not processed!
200PO1_10_FF	non-Rad	2-Butanone	78-93-3	567	2.0	565	0.35	ug/L	0.10	20	0.55	2.9	0.96	2.9	95% KM (BCA) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_FF	non-Rad	2-Pentanone, 4-Methyl	108-10-1	567	1.0	566	0.18	ug/L	0	0	0.64	0.64	0	0.64	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2-Pentanone, 4-Methyl was not processed!
200PO1_10_FF	non-Rad	Acetone	67-64-1	567	93	474	16	ug/L	0.21	20	0.60	37	2.0	1.3	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Aluminum	7429-90-5	66	24	42	36	ug/L	17	125	18	129	0.51	42	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Arsenic	7440-38-2	75	73	2.0	97	ug/L	0.40	3.4	1.2	7.1	0.46	3.1	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Barium	7440-39-3	206	206	0	100	ug/L	--	--	12	150	0.43	68	95% Approximate Gamma UCL	--
200PO1_10_FF	non-Rad	Benzene	71-43-2	635	2.0	633	0.31	ug/L	0.032	5.0	0.54	1.9	0.79	1.9	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_FF	non-Rad	Benzyl alcohol	100-51-6	26	1.0	25	3.9	ug/L	0.26	10	2.7	2.7	0	2.7	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Benzyl alcohol was not processed!
200PO1_10_FF	non-Rad	Beryllium	7440-41-7	207	12	195	5.8	ug/L	0.053	4.0	0.17	2.1	0.75	0.36	95% KM (t) UCL	--
200PO1_10_FF	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	81	4.0	77	4.9	ug/L	0.43	10	1.0	6.9	0.87	1.3	95% KM (t) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_FF	non-Rad	Cadmium	7440-43-9	207	3.0	204	1.5	ug/L	0.15	4.3	2.6	4.5	0.28	4.5	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_FF	non-Rad	Carbon disulfide	75-15-0	567	2.0	565	0.35	ug/L	0.029	5.0	0.21	0.39	0.42	0.39	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_FF	non-Rad	Carbon tetrachloride	56-23-5	652	37	615	5.7	ug/L	0.020	5.0	0.10	2.0	0.94	0.16	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Chloride	16887-00-6	994	993	1.0	100	ug/L	25	25	83	35,000	0.50	9,821	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Chlorobenzene	108-90-7	122	1.0	121	0.82	ug/L	0.027	5.0	0.41	0.41	0	0.41	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Chlorobenzene was not processed!
200PO1_10_FF	non-Rad	Chloroform	67-66-3	652	250	402	38	ug/L	0.030	5.0	0.071	4.0	1.3	0.22	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Chromium	7440-47-3	207	100	107	48	ug/L	3.1	13	0.85	70	1.00	7.5	95% KM (t) UCL	--
200PO1_10_FF	non-Rad	cis-1,2-Dichloroethylene	156-59-2	649	1.0	648	0.15	ug/L	0.020	2.0	0.20	0.20	0	0.20	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable cis-1,2-Dichloroethylene was not processed!
200PO1_10_FF	non-Rad	Copper	7440-50-8	207	36	171	17	ug/L	0.80	8.2	1.1	31	1.0	3.0	95% KM (t) UCL	--
200PO1_10_FF	non-Rad	Fluoride	16984-48-8	994	981	13	99	ug/L	5.1	2,500	66	1,300	0.42	329	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Iron	7439-89-6	199	166	33	83	ug/L	9.0	25	12	6,250	2.1	473	95% KM (Chebyshev) UCL	--
200PO1_10_FF	non-Rad	Lead	7439-92-1	69	15	54	22	ug/L	0.10	1.9	0.10	5.7	0.96	0.71	95% KM (t) UCL	--
200PO1_10_FF	non-Rad	Lithium	7439-93-2	1.0	1.0	0	100	ug/L	--	--	8.3	8.3	0	8.3	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Lithium was not processed!
200PO1_10_FF	non-Rad	Manganese	7439-96-5	199	94	105	47	ug/L	0.96	4.0	0.64	376	3.0	11	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Methanol	67-56-1	2.0	1.0	1.0	50	ug/L	1,000	1,000	1,100	1,100	0	1,100	Maximum Detect	Warning: This data set only has 2 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Methanol was not processed!
200PO1_10_FF	non-Rad	Methylene chloride	75-09-2	652	86	566	13	ug/L	0.091	5.0	0.26	88	3.6	0.85	95% KM (% Bootstrap) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_FF	non-Rad	Molybdenum	7439-98-7	1.0	1.0	0	100	ug/L	--	--	1.5	1.5	0	1.5	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Molybdenum was not processed!
200PO1_10_FF	non-Rad	Nickel	7440-02-0	207	42	165	20	ug/L	0.97	38	1.1	20	0.62	3.6	95% KM (t) UCL	--
200PO1_10_FF	non-Rad	Nitrate	14797-55-8	994	981	13	99	ug/L	8.9	487	41	134,000	0.81	23,757	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Nitrite	14797-65-0	974	59	915	6.1	ug/L	6.6	2,500	43	4,270	1.6	79	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	o-Xylene	95-47-6	134	2.0	132	1.5	ug/L	0.050	5.0	0.21	0.23	0.064	0.21	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_FF	non-Rad	Silver	7440-22-4	207	17	190	8.2	ug/L	0.90	8.0	0.94	13	0.43	5.3	95% KM (% Bootstrap) UCL	--
200PO1_10_FF	non-Rad	Strontium	7440-24-6	207	207	0	100	ug/L	--	--	22	788	0.38	364	95% Approximate Gamma UCL	--
200PO1_10_FF	non-Rad	Sulfate	14808-79-8	994	991	3.0	100	ug/L	50	300	77	119,000	0.28	45,070	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Tetrachloroethene	127-18-4	652	424	228	65	ug/L	0.030	5.0	0.17	7.0	0.65	0.99	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Toluene	108-88-3	635	5.0	630	0.79	ug/L	0.025	5.0	0.20	1.0	0.78	0.27	95% KM (Percentile Bootstrap) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_FF	non-Rad	Tributyl phosphate	126-73-8	81	22	59	27	ug/L	0.22	21	2.9	720	2.1	41	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Trichloroethene	79-01-6	652	407	245	62	ug/L	0.030	5.0	0.12	2.0	0.41	0.49	95% KM (BCA) UCL	--
200PO1_10_FF	non-Rad	Trichloromonofluoromethane	75-69-4	26	1	25	4	ug/L	0.032	10	0.58	0.58	0	0.58	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Trichloromonofluoromethane was not processed!
200PO1_10__FF	non-Rad	Uranium	7440-61-1	241	235	6	97.51	ug/L	-1.13E-01	0.050	0.025	101	0.96	16	97.5% KM (Chebyshev) UCL	--
200PO1_10_FF	non-Rad	Vanadium	7440-62-2	199	135	64.0	68	ug/L	7.0	13	6.2	51	0.41	13	95% KM (Percentile Bootstrap) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_FF	non-Rad	Vinyl chloride	75-01-4	652	2	650	0	ug/L	0.044	10	1.5	1.8	0.13	1.8	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_FF	non-Rad	Zinc	7440-66-6	199	106.0	93	53.27	ug/L	3.5	9.0	2.5	2,460	2.6	109	95% KM (Chebyshev) UCL	--
200PO1_10_FF	Rad	Carbon-14	14762-75-5	3	3	0	100	pCi/L	--	--	10	15	0.20	15	Maximum Detect	Warning: This data set only has 3 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Carbon-14 was not processed!
200PO1_10_FF	Rad	Gross alpha	12587-46-1	509.0	396.0	113	78	pCi/L	-1.10E+00	2.8	1.1	45	0.77	6.0	97.5% KM (Chebyshev) UCL	--
200PO1_10_FF	Rad	Gross beta	12587-47-2	509	509	0	100	mrem/year	--	--	3.0	470	1.4	27	95% Chebyshev (Mean, Sd) UCL	--
200PO1_10_FF	Rad	Iodine-129	15046-84-1	217	32	185	15	pCi/L	-1.02E+01	5.6	1.1	19	0.73	1.8	95% KM (t) UCL	--
200PO1_10_FF	Rad	Nickel-63	13981-37-8	8	4	4	50	pCi/L	-4.03E+00	2.6	4.1	8.9	0.36	7.7	95% KM (Percentile Bootstrap) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_FF	Rad	Protactinium-231	14331-85-2	11.0	2.0	9.0	18	pCi/L	-2.60E-02	0.20	0.19	0.31	0.35	0.31	Maximum Detect	Recommended UCL Exceeds Maximum Concentration: EPC defaults to Maximum Concentration.
200PO1_10_FF	Rad	Strontium-90	10098-97-2	110	1.0	109.0	1	pCi/L	-3.17E+00	1.2	0.61	0.61	0	0.61	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Strontium-90 was not processed!
200PO1_10_FF	Rad	Technetium-99	14133-76-7	155	101.0	54	65.16	pCi/L	-1.00E+01	10	6.7	595	1.4	76	97.5% KM (Chebyshev) UCL	--
200PO1_10_FF	Rad	Tritium	10028-17-8	734	664	70	90	pCi/L	-1.72E+02	286	5.9	8.38E+06	3.7	497,900	97.5% KM (Chebyshev) UCL	--
200PO1_10_NF	non-Rad	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	35822-46-9	8	2	6	25	ug/L	7.70E-07	1.60E-06	2.20E-06	5.70E-06	0	3.73E-06	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_NF	non-Rad	1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	10.0	8.0	2.0	80	ug/L	1.90E-06	1.90E-06	1.30E-06	1.20E-05	0	5.60E-06	95% KM (BCA) UCL	Warning: There are only 8 Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_NF	non-Rad	1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	7	1.0	6.0	14	ug/L	0	0	2.90E-06	2.90E-06	0	2.90E-06	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2,3,4,7,8-Hexachlorodibenzofuran was not processed!
200PO1_10_NF	non-Rad	1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	7.0	1.0	6.0	14	ug/L	0	0	2.10E-06	2.10E-06	0	2.10E-06	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2,3,6,7,8-Hexachlorodibenzofuran was not processed!
200PO1_10_NF	non-Rad	1,2-Dichloroethane	107-06-2	34.0	1.0	33.0	3	ug/L	0.090	1.0	0.64	0.64	0	0.64	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 1,2-Dichloroethane was not processed!
200PO1_10_NF	non-Rad	2,3,4,6-Tetrachlorophenol	58-90-2	411	2.0	409	0.5	ug/L	1.0	4.9	7.7	7.7	0	7.7	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2,3,4,6-Tetrachlorophenol was not processed!
200PO1_10_NF	non-Rad	2-Methylphenol (cresol, o-)	95-48-7	427	1.0	426	0.23	ug/L	1.2	4.0	7.5	7.5	0	7.5	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 2-Methylphenol (cresol, o-) was not processed!

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_NF	non-Rad	4-Nitrophenol	100-02-7	410	1.0	409	0.24	ug/L	0.90	5.0	7.2	7.2	0	7.2	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable 4-Nitrophenol was not processed!
200PO1_10_NF	non-Rad	Aluminum	7429-90-5	59	36.0	23	61.02	ug/L	11	46	13	1,110	2.2	112	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Arsenic	7440-38-2	54	50	4	93	ug/L	0.40	1.9	0.79	11	0.50	5.8	95% KM (t) UCL	--
200PO1_10_NF	non-Rad	Barium	7440-39-3	393	393	0.0	100	ug/L	--	--	14	143	0.38	53	95% Student's-t UCL	--
200PO1_10_NF	non-Rad	Beryllium	7440-41-7	393	11	382	3	ug/L	0.18	40	0.19	9.4	2.2	0.34	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Bis(2-ethylhexyl) phthalate	117-81-7	31	1	30	3.2	ug/L	1.0	2.6	11	11	0	11	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Bis(2-ethylhexyl) phthalate was not processed!
200PO1_10_NF	non-Rad	Cadmium	7440-43-9	394	3.0	391	0.8	ug/L	0.10	7.1	2.6	18	1.0	18	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_10_NF	non-Rad	Carbon tetrachloride	56-23-5	34	3.0	31	8.82	ug/L	0.042	0.15	0.13	1.8	1.3	1.8	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_10_NF	non-Rad	Chloride	16887-00-6	1030	1030.0	0	100.0	ug/L	--	--	1,990	91,300	0.71	11,440	95% Chebyshev (Mean, Sd) UCL	--
200PO1_10_NF	non-Rad	Chloroform	67-66-3	0,034	0,017	17	50	ug/L	0.080	1.0	0.089	1.2	0.76	0.38	95% KM (t) UCL	--
200PO1_10_NF	non-Rad	Chromium	7440-47-3	394	271	123	69	ug/L	1.9	13	1.8	153	0.90	16	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Cobalt	7440-48-4	393	29	364	7	ug/L	1.6	7.0	3.0	24	0.65	4.4	95% KM (% Bootstrap) UCL	--
200PO1_10_NF	non-Rad	Copper	7440-50-8	394	31	363	7.9	ug/L	1.4	7.0	0.40	23	0.58	4.5	95% KM (% Bootstrap) UCL	--
200PO1_10_NF	non-Rad	Dinoseb(2-secButyl-4,6-dinitrophenol)	88-85-7	412	5	407	1.2	ug/L	0.26	4.2	5.5	6.0	0.040	5.5	95% KM (t) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_NF	non-Rad	Fluoride	16984-48-8	1030	1016.0	14	98.6	ug/L	40	250	54	820	0.36	317	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Hexavalent Chromium	18540-29-9	0,003	0,001	2	33	ug/L	2.0	2.0	191	191	0	191	Maximum Detect	Warning: This data set only has 3 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Hexavalent Chromium was not processed!
200PO1_10_NF	non-Rad	Iron	7439-89-6	393.0	256.0	137.0	65	ug/L	9.0	37	9.7	2,210	1.8	144	95% KM (Chebyshev) UCL	--
200PO1_10_NF	non-Rad	Lead	7439-92-1	82	17	65	21	ug/L	0.10	1.3	0.10	35	3.6	1.4	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Manganese	7439-96-5	393	97	296	25	ug/L	0.84	4.0	0.85	511	2.6	9.6	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Nickel	7440-02-0	393	99	294	25	ug/L	4.0	16	1.6	667	3.4	11	95% KM (% Bootstrap) UCL	--
200PO1_10_NF	non-Rad	Nitrate	14797-55-8	1030	1027	3	100	ug/L	21	177	142	154,000	1.0	31,205	95% KM (Chebyshev) UCL	--
200PO1_10_NF	non-Rad	Nitrite	14797-65-0	0,985	0,025	960.0	3	ug/L	6.6	2,500	26	953	0.93	34	95% KM (t) UCL	--
200PO1_10_NF	non-Rad	Nitrogen in Nitrite and Nitrate	NO2+NO3-N	1	1	0	100.0	ug/L	--	--	14,700	14,700	0	14,700	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Nitrogen in Nitrite and Nitrate was not processed!
200PO1_10_NF	non-Rad	Octachlorodibenzofuran	39001-02-0	10.0	10.0	0	100	ug/L	--	--	2.20E-06	1.60E-05	0	9.96E-06	95% Student's-t UCL	--
200PO1_10_NF	non-Rad	Octachlorodibenzo-p-dioxin	3268-87-9	14	10	4	71	ug/L	1.60E-06	2.10E-06	2.90E-06	1.10E-05	0	5.69E-06	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_NF	non-Rad	Silver	7440-22-4	394	37	357.0	9	ug/L	0.10	11	5.0	26	0.52	5.7	95% KM (t) UCL	--
200PO1_10_NF	non-Rad	Strontium	7440-24-6	393	393	0	100.0	ug/L	--	--	110	602	0.28	265	95% Modified-t UCL	--
200PO1_10_NF	non-Rad	Sulfate	14808-79-8	1030	1030	0	100	ug/L	--	--	5,040	361,000	0.69	56,164	95% Chebyshev (Mean, Sd) UCL	--
200PO1_10_NF	non-Rad	Toluene	108-88-3	0,034	0,002	32	6	ug/L	0.029	1.0	0.029	0.065	0.54	0.065	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_NF	non-Rad	Total petroleum hydrocarbons - gasoline range	TPHGASOLINE	8	1.0	7	12.5	ug/L	20	20	50	50	0	50	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Total petroleum hydrocarbons - gasoline range was not processed!
200PO1_10_NF	non-Rad	Trichloroethene	79-01-6	34.0	11.0	23.0	32	ug/L	0.11	1.0	0.20	3.1	1.2	0.57	95% KM (% Bootstrap) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_NF	non-Rad	Uranium	7440-61-1	114	113	1.0	99	ug/L	0.050	0.050	0.33	93	1.7	15	95% KM (Chebyshev) UCL	--
200PO1_10_NF	non-Rad	Vanadium	7440-62-2	393	377	16	96	ug/L	7.0	12	5.7	45	0.31	22	95% KM (BCA) UCL	--
200PO1_10_NF	non-Rad	Zinc	7440-66-6	393	186	207.0	47	ug/L	1.3	19	1.4	10,200	9.7	92	95% KM (BCA) UCL	--
200PO1_10_NF	Rad	Gross alpha	12587-46-1	575	359	216	62	pCi/L	-3.00E+00	5.7	1.2	49	0.90	4.9	97.5% KM (Chebyshev) UCL	--
200PO1_10_NF	Rad	Iodine-129	15046-84-1	489	234	255	48	pCi/L	-7.07E-01	5.6	0.67	12	0.48	3.2	95% KM (t) UCL	--
200PO1_10_NF	Rad	Plutonium-239/240	PU-239/240	1	1	0	100	pCi/L	--	--	0.029	0.029	0	0.029	Maximum Detect	Warning: This data set only has 1 observations! Data set is too small to compute reliable and meaningful statistics and estimates! The data set for variable Plutonium-239/240 was not processed!
200PO1_10_NF	Rad	Protactinium-231	14331-85-2	16	1	15	6	pCi/L	-4.40E-02	0.29	0.28	0.28	0	0.28	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Protactinium-231 was not processed!
200PO1_10_NF	Rad	Strontium-90	10098-97-2	363.0	123.0	240	34	pCi/L	-3.40E+00	1.7	0.36	21	0.98	4.6	97.5% KM (Chebyshev) UCL	--
200PO1_10_NF	Rad	Technetium-99	14133-76-7	259	193.0	66	74.5	pCi/L	-7.60E+00	12	6.8	13,100	2.4	1,568	97.5% KM (Chebyshev) UCL	--
200PO1_10_NF	Rad	Tritium	10028-17-8	483	448	35	93	pCi/L	-1.70E+02	305	314	882,000	1.4	192,558	97.5% KM (Chebyshev) UCL	--
200PO1_10_RIV	non-Rad	Acetone	67-64-1	30	1	29	3	ug/L	0.56	4.0	1.1	1.1	0	1.1	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Acetone was not processed!
200PO1_10_RIV	non-Rad	Arsenic	7440-38-2	6	6	0	100	ug/L	--	--	2.7	6.8	0.34	5.8	95% Student's-t UCL	Warning: There are only 6 Values in this data Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_RIV	non-Rad	Barium	7440-39-3	17	17.0	0	100.0	ug/L	--	--	18	64	0.33	49	95% Student's-t UCL	--
200PO1_10_RIV	non-Rad	Carbon tetrachloride	56-23-5	30.0	2.0	28	7	ug/L	0.039	1.0	0.27	0.28	0.026	0.28	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_RIV	non-Rad	Chloride	16887-00-6	91	91	0	100	ug/L	--	--	1,200	19,200	0.40	12,545	95% Chebyshev (Mean, Sd) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_RIV	non-Rad	Chloroform	67-66-3	30	2.0	28	6.7	ug/L	0.048	1.0	0.62	2.3	0.81	2.3	95% KM (% Bootstrap) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_RIV	non-Rad	Chromium	7440-47-3	17	3	14	18	ug/L	4.0	13	8.9	14	0.25	14	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_10_RIV	non-Rad	Copper	7440-50-8	17	2.0	15	11.8	ug/L	4.0	6.0	5.9	6.3	0.046	6.0	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_RIV	non-Rad	Fluoride	16984-48-8	91	89.0	2	98	ug/L	50	50	21	480	0.26	306	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_RIV	non-Rad	Iron	7439-89-6	17	14.0	3	82	ug/L	20	25	36	1,150	1.2	611	95% KM (Chebyshev) UCL	--
200PO1_10_RIV	non-Rad	Lead	7439-92-1	6	4	2.0	67	ug/L	0.10	0.10	0.10	1.2	1.3	0.66	95% KM (BCA) UCL	Warning: There are only 4 Distinct Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_RIV	non-Rad	Manganese	7439-96-5	17	7	10.0	41	ug/L	4.0	4.0	4.7	86	0.75	41	95% KM (Percentile Bootstrap) UCL	Warning: There are only 7 Detected Values in this data Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_RIV	non-Rad	Nickel	7440-02-0	17.0	1.0	16.0	6	ug/L	4.0	6.0	5.6	5.6	0	5.6	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Nickel was not processed!
200PO1_10_RIV	non-Rad	Nitrate	14797-55-8	91	91.0	0	100	ug/L	--	--	1,110	39,800	0.43	28,952	95% Chebyshev (Mean, Sd) UCL	--

Table 7-4. 200-PO-1 Source Operable Unit Exposure Point Concentration Summary (10-Year Data Set)

Exposure Area	Analyte Group	Analyte	CAS No.	Total Samples	Total Detects	Total Non-Detects	Frequency of Detection (%)	Units	Minimum Detection Limit	Maximum Detection Limit	Minimum Detected Result	Maximum Detected Result	Coefficient of Variation	Exposure Point Concentration	Exposure Point Concentration Basis	Comment
200PO1_10_RIV	non-Rad	Nitrite	14797-65-0	90	3.0	87	3.3	ug/L	6.6	131	62	460	1.1	460	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_10_RIV	non-Rad	Strontium	7440-24-6	17	17	0	100	ug/L	--	--	81	734	0.56	390	95% Student's-t UCL	--
200PO1_10_RIV	non-Rad	Sulfate	14808-79-8	91	91.0	0	100.0	ug/L	--	--	5,360	62,500	0.45	41,899	95% Chebyshev (Mean, Sd) UCL	--
200PO1_10_RIV	non-Rad	Thallium	7440-28-0	6	1	5	17	ug/L	0.050	0.050	0.37	0.37	0	0.37	Maximum Detect	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set! It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV). The data set for variable Thallium was not processed!
200PO1_10_RIV	non-Rad	Uranium	7440-61-1	8	8	0	100	ug/L	0	0	0.32	6.2	0.60	5.5	95% Student's-t UCL	Warning: There are only 8 Values in this data Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions
200PO1_10_RIV	non-Rad	Vanadium	7440-62-2	17.0	10.0	7.0	59	ug/L	7.0	12	12	23	0.22	17	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_RIV	non-Rad	Zinc	7440-66-6	17.0	2.0	15.0	12	ug/L	4.0	9.0	6.4	6.9	0.053	6.7	95% KM (t) UCL	Warning: Data set has only 2 Distinct Detected Values. This may not be adequate enough to compute meaningful and reliable test statistics and estimates. The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).
200PO1_10_RIV	Rad	Gross alpha	12587-46-1	72.0	46.0	26	64	pCi/L	0.0040	3.2	1.0	7.4	0.35	2.8	95% KM (Percentile Bootstrap) UCL	--
200PO1_10_RIV	Rad	Gross beta	12587-47-2	72	71	1.0	99	mrem/year	0.94	0.94	3.0	68	0.70	22	95% KM (BCA) UCL	--
200PO1_10_RIV	Rad	Strontium-90	10098-97-2	69	3.0	66	4	pCi/L	-3.40E+00	0.98	1.0	2.6	0.48	2.6	95% KM (Percentile Bootstrap) UCL	Warning: There are only 3 Distinct Detected Values in this data set The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods. Those methods will return a 'N/A' value on your output display!
200PO1_10_RIV	Rad	Technetium-99	14133-76-7	45	38	7	84	pCi/L	-1.10E+00	9.9	15	131	0.67	115	99% KM (Chebyshev) UCL	--
200PO1_10_RIV	Rad	Tritium	10028-17-8	90	83	7.0	92	pCi/L	-2.09E+02	1,700	980	118,000	0.88	59,534	97.5% KM (Chebyshev) UCL	--

8 References

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CHPRC SOFTWARE INSTALLATION AND CHECKOUT FORM

Software Owner Instructions:

Complete Fields 1-13, then run test cases in Field 14. Compare test case results listed in Field 15 to corresponding Tes. Report outputs. If results are the same, sign and date Field 19. If not, resolve differences and repeat above steps.

Software Subject Matter Expert Instructions:

Assign test personnel. Approve the installation of the code by signing and dating Field 21, then maintain form as part of the software support documentation.

GENERAL INFORMATION:

1. Software Name: ProUCL Version 4.00.05 Software Version No.: 4.0

EXECUTABLE INFORMATION:

2. Executable Name (include path):

   Path:
   Executable Name: "ProUCL.exe"

3. Executable Size (bytes): 1,240 KB

COMPILATION INFORMATION:

4. Hardware System (i.e., property number or ID):

   Acquired software: compiled by vendor

5. Operating System (include version number):

   Acquired software: compiled by vendor

INSTALLATION AND CHECKOUT INFORMATION.

6. Hardware System (i.e., property number or ID):

   WF23245

7. Operating System (include version number):

   Windows XP Professional Version 2002 SP3

8. Open Problem Report? ◉ No ○ Yes PR/CR No.

TEST CASE INFORMATION:

9. Directory/Path:

   C:\$_Programs\ProUCLv4.00.05

10. Procedure(s):

    CHPRC-01270 Rev. 0, Section 13.5.3.3 (Software Test Plan)

11. Libraries:

    N/A

12. Input Files:

    ProUCL InstallationTestCase.xls

13. Output Files:

    to screen

14. Test Cases:

    ProUCL-ITC-1, Installation Test Problem

15. Test Case Results:

    Passed

16. Test Performed By Randy Dockter

17. Test Results: ◉ Satisfactory, Accepted for Use ○ Unsatisfactory

CHPRC SOFTWARE INSTALLATION AND CHECKOUT FORM (continued)

1. Software Name: PROUCL Version 4.00.05 Software Version No: 4.0

18. Disposition (Include HISI update): INSTALLATION ADDED TO AUTHORIZED USERS LIST IN HISI.

Prepared By:

19.	Software Owner (Signature)	WD Nichols Print	25 APR 2011 Date

20 Test Personnel:

Sign	Randy Dockter Print	4-25-11 Date
Sign	Print	Date
Sign	Print	Date

Approved By:

21.	Software SME (Signature)	N/A per CP2KC-01279 Rev 7 Print	Date