OFFICE OF RIVER PROTECTION
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

SEP 2 6 2017

17-ECD-0059

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Ms. Smith:

SUBMITTAL OF RESPONSE TO COMMENTS AND UPDATED SUPPLEMENTAL DOCUMENTS FOR THE STATE WASTE DISCHARGE PERMIT ST0004502 RENEWAL APPLICATION FOR THE TREATMENT EFFLUENT DISPOSAL FACILITY

Reference: Ecology letter from R. Skinnarland to K. Smith, ORP, "State Waste Discharge Permit No. ST0004502 Renewal Application—200 Area Treated Effluent Disposal Facility," 17-NWP-062, dated May 24, 2017.

This letter submits the additional information requested by your office per the Reference, for the renewal of the State Waste Discharge Permit ST0004502 for the 200 Area Treated Effluent Disposal Facility.

In conjunction with addressing the Review Comment Record (Attachment 1), as requested a site facility map (Attachment 2 and on CD), and a well diagram (Attachment 3) that clarifies the well numbers around the 200 Area Treated Effluent Disposal Facility are provided.

In response to your comments, the original permit application package Attachments 3 and 4 are revised and attached for your reference. These are documents RPP-CALA-60773, Rev. 01, Treated Effluent Disposal Facility Sample Results 2001to 2015 with Calculated Averages (Attachment 4), and RPP-ENV-59187, Rev. 01, State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (Treated Effluent Disposal Facility – Supplement Materials for the 2016 Permit Renewal Application (Attachment 5) respectively. Attachment 6 is the Certification Statement.

If you have any questions, please contact Chris Kemp, Director, Environmental Compliance Division, (509) 373-0649.

Kevin W. Smith
Manager

ECD:RLE

Attachments: (6)

cc w/attachs:
K. Hall, Ecology
S.N. Schleif, Ecology
R. Skinnarland, Ecology
E.T. Faust, RL
Administrative Record
Environmental Portal
WRPS Correspondence

cc w/o attachs:
R.S. Skeen, CTUIR
C.E. Cameron, EPA
S. Hudson, HAB
G. Bohnee, NPT
K. Niles, Oregon Energy
J.T. Hamilton, WRPS
J.A. Joyner, WRPS
R.D. Teel, WRPS
R. Jim, YN
D. Rowland, YN

Attachment 1
17-ECD-0059
(19 Pages Excluding Cover Sheet)

Washington State Department of Ecology Nuclear Waste Program,
Review Comment Record, dated January 20, 2017

Review Comment Record	Washington State Department of Ecology Nuclear Waste Program	Date: 1/20/2017 Page 1 of 19

Document Title(s)/Number(s):

State Waste Discharge Permit ST0004502 Renewal Application

Document Manager	Telephone Number	Project Manager	Telephone Number	Facility Site ID	Cleanup Site ID
Katie Wilson	(509) 372-7885	Stephanie Schleif	(509) 372-7929		

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
1.	Enclosure 3, Pg 3, Section 7, para 1, sent 2	What is the pivot table? Table 3 is not provided. Table 2 is not mentioned in the enclosure, nor provided.	Please provide table 3.	All referenced material needs to be provided to evaluate application.	A "pivot table" is a table in Microsoft Excel® that automatically calculates the minimum, average and maximum results of a data set. It is an easy way to do the calculations without risking formula errors. In Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*), Table A-2, Pivot Table of Sample Results was added to Appendix A (page A-54). Section 7.0 was revised as follow: "The data was copied from the pivot table (Appendix A, Table A-2). For simplicity, organic constituents in Table A-2 that are not required to be reported by the permit, and had no detectable results, were not included in Table 1"			

2.	Enclosure 3, Table 1	Analytes have minimum, average, and maximum values even when the results were non-detect or only one detected result. Please explain how minimums, averages, and maximums were obtained using non-detect results.	Clarify how non-detects were evaluated.	Clarification needed to evaluate application.	A description of how the averages were performed was added to Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*), Section 5.4. All available results for the five year time period were averaged. Both detected and non-detected results are included without adjustment. In the case of non-detected results (with "U" qualifiers), the method detection limit is reported and was used for the average. This was inserted into Section 5.4: "The averaging was performed as follows: • All results were used for averaging, including non-detected results (those having a "U" qualifier in Table A-1). • For non-detected results ("U" qualifier), the minimum detection limit is reported in Table A-1 and is used for the average in Table 1. This method differs from permit ST0004502, which says for calculating monthly averages, use one-half the detection level when averaging non-detected results with detected results. • If all results for the five-year period were non-detected, a "U" qualifier was included in Table 1. The average of the non-detected values is reported. This also differs from permit ST0004502, which says to report a zero value if all results in a reporting period were undetected. The intent of this document is to provide five years of sample results for easy presentation. The reason simple averages were used in Table 1 rather than the techniques described in permit ST0004502 is the techniques in the permit apply to reporting periods of one month or one quarter. The averages performed in Table 1 are applied to five years' worth of data. Because many of the results are undetected, using one-half the detection level on five years of data would skew the results. In some cases, it would report average values that are lower than the minimum results. Also, reporting a zero value on five years' worth of undetected data does not present useful information.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
					The calculations were performed in Microsoft® Excel® using a pivot table, which automatically generates the minimum, average, and maximum values. The pivot table results are presented in Appendix A, Table A-2"			
3.	Enclosure 3, Table 1	Comments for chloroform indicated seven results above limit and one exceedance. The permit limit and the WAC 173-200-040 criterion limit is the same. How is "above limit" and "exceedance" considered different?		WAC 173-200-040(2)(a), Table 1.	A note was added to Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*), Table 1, TEDF Sample Data Summary which states: "A result noted as "above the limit" means that one or more daily results were above the permit monthly average limit, but the monthly average was within limits because multiple samples were taken. A result noted as an "exceedance" means the monthly average result was above the limit and a permit noncompliance notification was made."			
4.	Enclosure 3, Table 1	Not all lab qualifiers are reported in "Lab Qualifier" column of Table 1. Is the column only meant to have a qualifier if the entire data set was non-detect (U qualifier)?	Clarify meaning of column.	Clarification needed to evaluate application.	Yes. Only "U" (non-detect) qualifiers were included, and only if all results were non-detect. A clarification was made to the note in Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*), Table 1, TEDF Sample Data Summary which now says: "U = All results during the 5-year reporting period were undetected."			
5.	Enclosure 3, Appendix A, Table A-1	Is the reported value of non-detects the detection level or ½ the detection value? ST0004502 pg 9 states to report single analytical values below detection as "< detection level" and to use either 0 or ½ the detection value if the parameter is reported below detection (nondetect) for calculating monthly averages. The bromide minimum value reported in Enclosure 3 Table 1 is 0.025 ug/mL, which is also the reported value in Enclosure 3, Appendix A, Table A-1. All bromide samples appear to be U flagged, non-detect, and the monthly averages would be 0.	Clarify the reported values and how non-detects are calculated in accordance with the permit.	Water Discharge Permit ST0004502, S2.A, pg 9.	Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*), Section 5.4: Added a description of the averaging technique and an explanation why the technique in the permit was not used – see response to comment #2. The intent of Attachment 3 was to provide five years of sample results in a manner that allowed for easy review. The averaging requirement in the permit applies to reporting periods of one month or one quarter. The author felt that, given a reporting period of five years instead of one month or one quarter, it was better to report the data as simple averages and without 0 values. For example, using ½ the undetected result would in some cases produce an average that was below the minimum. For example, the undetected values in Table 1 ("U" values) would have been reported as 0, which does not convey useful information.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
6.	Enclosure 3, Appendix A	Lab qualifiers should be defined at the end of the tables.	Define all lab qualifiers used in the tables.	Clarification needed to evaluate application.	Laboratory qualifiers, as applicable, were added to the Tables A-1 and B-1 in Appendix A and B of Attachment 3 (RPP-CAL-60773 Rev 01, *Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages*): B (inorganics), J (organics): value is between the method detection level and the required quantitation level and is therefore an estimate. B (organic), C (inorganic): contamination found in method blank. D (all): sample was diluted before analysis N (inorganic), T (organic): spiked sample outside QC limits O (all): Laboratory control sample result outside QC limits U (all): Analyzed but not detected in the sample X (all): special circumstance – see hardcopy of results.			
7.	Enclosure 3, Appendix B	Lab qualifiers should be defined at the end of the tables.	Define all lab qualifiers used in the tables.	Clarification needed to evaluate application.	See item #6 above.			
8.	Enclosure 3, Appendix B, Table B-2	According to ST0004502 S2.A pg 9, the reported value used for non-detect results should be 0 or ½ the detection level, depending on if another sample was detected in the reporting period.	Update the reported values or clarification of how reported values of non-detects are used to calculate the monthly averages. .	Water Discharge Permit ST0004502, S2.A, pg 9.	See item #6 above.			
9.	Enclosure 4, Appendix A, pg 5, bullet 5	Where is the end-of-pipe (or other AKART technologies) evaluation?			Best Available Technology/All Known Available and Reasonable Methods of Prevention, Control And Treatment (BAT/AKART) evaluations were performed on each stream before they were connected to the 200 Area Treated Effluent Disposal Facility (TEDF) and are available. Following application of BAT/AKART, these streams were approved for discharge to TEDF. Individually, these streams have not changed significantly over time, rather some streams have been eliminated as discussed in Attachment 4 (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)*, Appendix A.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
10.	Enclosure 4, Appendix A, Pg 5, Recommendation	"Develop pollutant loading limits and BMPs to replace concentration-based limits for effluents that don't require treatment. … Discrete/new effluents such as WTP effluents which require treatment, retention, and verification sampling can continue to be subject to concentration-based limits." How will TEDF execute this? Will there be separate sampling events? Will they be compared as separate events?	Clarify within response column.	Conflicting statements are not enforceable.	Attachment 4 (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)*, Appendix A, Page 5, Recommendation; The first paragraph was changed to: "Develop pollutant loading limits and BMPs to replace concentration-based limits for effluents. Continue effluent monitoring for qualitative parameters (pH, flow rate, and radioactivity). Sampling events will be completed to determine compliance with loading limits."			
11.	Enclosure 4, appendix B, pg 8, discussion, para 1, sent 2.	How are monthly samples averaged monthly? Both chloroform and total trihalomethane are sampled monthly using 24-hour composite samples. Does this mean the sample collected for the month is applied to the average daily flow rate? Does it mean that the value from the sampling is applied to the average daily flow?	Explain within response column.	Explanation needed to evaluate application.	The statement in Attachment 4 (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)*, Appendix B, page 8, Discussion paragraph, 3rd sentence was incorrect and changed to say: "The TEDF effluent is monitored for these pollutants using a grab sample, taken at the beginning of each month." The above correction does not affect the conclusions in this document. Because chloroform and TTHM are volatile organics, they are sampled monthly using the grab sample method. The 24-hour flow-proportional sampler is reserved for non-volatile pollutants such as nitrates and metals. The grab sample result is reported in the Discharge Monitoring Report (DMR) for the day the sample was taken. If multiple chloroform/TTHM grab samples are taken during the month, each result is reported in the DMR on the days the samples were taken. The monthly average is calculated and reported at the bottom of the DMR.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
12.	Enclosure 4, appendix B, pg 8, discussion, para 1, sent 3.	"The TEDF effluent is monitored for these pollutants using a 24-hr flow-proportional composite sample." The permit specifies that TTHM and chloroform are to be sampled using a grab sample collected over 15 minutes or less. Why are the samples being collected as a 24-hour composite?	Explain.	Permit No. ST0004502.	See response to Comment #11.			
13.	Enclosure 4, Appendix D, pg 1, para. 2, sent. 4	How was the prescribed tolerance determined?	Clarify in the response column how the tolerance for pH and conductivity drift was determined.	Clarification needed to evaluate application.	A brief description of how the tolerances were determined was added to Attachment 4 (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)*, Appendix D. The following was inserted: "The tolerance values of ± 0.5 for pH calibrations and ± 40 µS/cm for conductivity calibrations were established based on industry practices. The tolerances are limited by the accuracy of each part of the instrument loop (element, transmitter, readout, etc.) and the accuracy of the equipment used in performing the calibration (i.e., pH standard solutions and conductivity instrument used in the calibration). The pH readout is 0 to 14, so the tolerance is 0.5 / 14 x 100 = 3.6%. The conductivity readout for TEDF is 0 to 2000 µS/cm, to the tolerance is 40 / 2000 x 100 = 2%." Tolerance values are typically set at ± 5% or less. These were chosen as reasonable values for calibrating industrial instruments, accounting for condition of service and accuracy of the calibration standards. The tolerance for conductivity is ± 40 µmhos/cm on an instrument with a range of 0 to 2000 µmhos/cm. Tolerance is 40/2000 = 2%. The tolerance for pH is ± 0.5 on an instrument with a range of 0 to 14. Tolerance is 0.5/14 = 3.6%.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
14.	Enclosure 4, Appendix D, pg 1, para. 3	Enclosure 6 states that the combined pH measure is likely not as technically rigorous as the individual pH 4 and pH 10 and should only be used for informational purposes. The individual pH data sets should be used as the technical basis for reducing the calibrations.	Update the technical basis with the individual pH data sets.	More technically rigorous data is needed to evaluate the application.	The more rigorous approach was performed in Attachment 6 (RPP-CALC-60783 Rev 00, *Justification for TEDF pH and Conductivity Calibration Frequency Permit Modification*) using separate pH 4 and pH 10 evaluations. In Attachment 4, (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)* in Appendix D, the following sentence: "The pH instrument has two calibration points, one using a pH standard of 4.0 and one using a pH standard of 10.0." and a reference to "RPP-CALC-60783" was inserted into the paragraph that starts with "The SPS methodology…" The table in Attachment 4 in Appendix D, Page 16, Table 1 *Summary of TEDF Calibration Data,* was updated to match Table 2 *Center Line and Upper Control Limit Values* in Attachment 6.			
15.	Enclosure 4, Appendix D, pg 2, para. 2, sent. 3	States "it can also be noted from the data that the drift is not linear with time." There is no statement in either enclosure 4, appendix D alluding that the data is arranged in sequence of time. Actually, it appears with the combined pH that all pH 4 is listed first and then all pH 10 drift values. The tables and figures do not support the statement without explanation of the sequential order. Enclosure 6 data tables lists the dates associated with the drift values.	Clarify.	Clarification needed to evaluate application.	Attachment 4 (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application),* Appendix D is a summary based on the information in Attachment 6 (RPP-CALC-60783 Rev 00, *Justification for TEDF pH and Conductivity Calibration Frequency Permit Modification*). The figures in Attachment 6 show the results are based on time. The figures were removed from Attachment 4, Appendix D. In Attachment 4 page 16 the beginning of the 2nd paragraph was revised to say: "Figures 1 through 6 of Attachment 6 (RPP-CALC-60783) show the SPS charts for all the data evaluated. The x-axis values are week numbers/quarter numbers for the calibration dates while the y-axis values are the calculated drift, in the units of the instrument. As might be expected… "			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
16.	Enclosure 4, Appendix D, Figures 1 and 3	Is there an explanation for the spikes observed above the tolerance levels?	Explain, in the response column, pH and conductivity spike above the tolerance levels and what will be done if drift occurs above the tolerance level in any calibration event.	Clarification needed to evaluate application.	The figures that were in Attachment 4 (RPP-ENV-58187, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application)* on pages 16-18 were removed and the text now refers to Attachment 6. The following was added to Attachment 4, page 16: "Reference: RPP-CALC-60783, Revision 00, *Justification for TEDF pH and Conductivity Calibration Frequency Permit Modification*, Washington River Protection Solutions, LLC, Richland" The pH spike was a single out-of-tolerance event on January 3, 2013 on the pH 4.0 calibration out of 57 weekly events. The conductivity spike was a single out-of-tolerance event on November 29, 2012 out of 57 weekly events. In both cases, the instrument technician performing the calibration adjusted the transmitter reading so that the readout matched the calibration standard. This is the "as left" reading.			
17.	Enclosure 4, Appendix D	The application also requests to modify the sample frequency of the pH and conductivity probe to include an exception from continuous sampling during periods of insufficient flow (Enclosure 4, Appendix C). How has removing the pump from flow (or removing from power) affected the drift? Would the probes be additionally calibrated after periods of insufficient flow?	Clarify how insufficient flow could affect the drift and how calibrations will be handled during times of insufficient flow.	Clarification needed to evaluate application.	The pump that recirculates a portion of the TEDF stream through the pH and conductivity meters stops when there is less the 50 gal/min flow to TEDF, to protect the recirculation pump from being damaged. The pH and conductivity elements are installed in "wells" (low points in the recirculation line) so they remain wetted even when there is no recirculation flow. This protects them from possible damage from becoming dry. The flow to TEDF is always intermittent because the pump stations transfer in batches. There is no indication that intermittent flow affects drift.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
18.	Enclosure 4, Appendix D	Are monthly calibrations supported in instrument manuals?		Explanation needed to evaluate application.	The technical manuals do not give calibration frequencies. The required frequency is determined by the user based on conditions, data needs and past performance. For pH and conductivity instruments the type of solution being monitored can adversely affect the instrument, which is why calibrations are done weekly/monthly/quarterly rather than annually or every 5 years like pressure or flow meters. Unlike many wastewater facilities, the solutions at TEDF are primarily raw and sanitary waters, which are low in salts, oils, and solids, which can adversely affect the instruments.			
19.	Enclosure 5, pg 1, Section 1, para. 3, sent. 2	"The loading is calculated by multiplying the sample results by the volume discharged." What volume discharged is being referenced in this calculation? The volume discharged for the day it was sampled or the average daily discharge for the month?	In the response column, clarify how the mass loadings will be calculated.	Clarification needed to evaluate application.	In Attachment 7, *State Waste Discharge Permit Number ST0004502 Proposed Changes with Redline*, Section S1.A, the Note "a" of the table, discusses calculating the daily loading as: daily concentration multiplied by the daily volume discharged. The result would be reported in the Discharge Monitoring Report for the day the sample was taken. The average flow would not be used. If multiple samples were taken, the daily loading would be calculated for each day a sample was taken.			
20.	Enclosure 5, pg 2, Section 3, bullet 2	"For determine the minimum loading levels, the inputs are the permit detection levels in ST0004502." Detection levels (quantitation levels) are still a requirement of the lab to meet a specific concentration. As the lab will still be providing results in concentration, the lab will still need to meet the quantitation levels defined in the permit. Including "minimum loading levels" implies that there is a minimum amount of contaminant that must be discharged from the facility. This establishes an unnecessary condition.	Explain, in the response column, what the minimum loading level is used for.	Explanation needed to evaluate application.	The purpose of calculating a minimum loading is to provide the lowest level that could be used as a permit limit, based on the detection level of the sample analyses. For example, in Attachment 5, RPP-CALC-60774, Rev 00, *Calculations for Proposed Loading Limits for Treats Effluent Disposal Facility Discharge Permit ST0004502*, Table 5, the arsenic detection limit is 2 ug/L and the loading based on that level is 0.059 lbs/day. If a new permit was issued with an arsenic limit of 0.01 lbs/day, the permittee could not meet the limit because the analytical detection level for arsenic is not low enough. The recommended permit wording in Attachment 7, *State Waste Discharge Permit Number ST0004502 Proposed Changes with Redline* continues to set quantitation levels (Section S2.A).			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
21.	Enclosure 5, pg 2, Section 3, bullet 4	3.526 MGD This value is a reasonable volume if the evaporator was operating consistently. The average flow rate for the last 12 months of the exercise was 0.65 MGD, one fifth of the maximum observed flow and one tenth of the maximum design flow. How will the facility account for mass loading rates during times of lower flow like what has been typically seen to ensure that the overall concentration limits would not be exceeded?	Using the response column, explain how the typical flow seen at the facility will compare to the proposed mass loading rates.	Explanation needed to evaluate application.	The Permittee is confident that loading rates under low flow conditions will comply with the proposed loading rates because no changes are planned for the effluent streams that are discharged to TEDF. Trying to establish loading limits for TEDF is complicated by the large increase in flows when 242-A Evaporator is operating. The mass loading values proposed in Attachment 5, RPP-CALC-60774, Rev 00, *Calculations for Proposed Loading Limits for Treats Effluent Disposal Facility Discharge Permit ST0004502* are based on Evaporator flow rates because they represent the worst situation – large volumes discharged. If loading rates were established based on flowrates such as 0.65 Mgal/day, then the limits would likely be exceeded when the Evaporator is operating. Protection of ground water quality is assured by the application of Best Available Technology/All Known Available and Reasonable Methods of Prevention, Control And Treatment (BAT/AKART) and will be maintained through BMPs. The Permittee is not proposing to modify the treatment required under previous permits.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
22.	Enclosure 5, pg 3, Section 5, step 5	Why not compare the maximum concentration to the flow for the month it came from rather than the maximum flow the system has seen? April 2012 had 411 ug/L iron, with an average daily flow of 0.0564 MGD, which would be 0.19 lbs/day. This is only 2% of the proposed mass loading limit, but would exceed if it was concentration based (137% of the limit).	Using the response column, explain how the proposed mass loading rates will still allow the facility to be in compliance with groundwater discharge concentrations.	WAC 173-200-040	Proposed mass loading rates will still allow the facility to be in compliance with groundwater discharge concentrations because no changes are proposed for the effluent streams that are discharged to TEDF. Protection of ground water quality is assured by the application of Best Available Technology/All Known Available and Reasonable Methods of Prevention, Control And Treatment (BAT/AKART) and will be maintained through BMPs and permit conditions such as S6, S7 and S8 in the proposed permit. The Permittee is not proposing to modify the treatment required under previous permits. The Permittee is proposing a reduction in the overall permissible mass loading (Attachment 5, RPP-CALC-60774, Rev 00, *Calculations for Proposed Loading Limits for Treats Effluent Disposal Facility Discharge Permit ST0004502,* Section 7.0) and modification in the method for reporting mass loading. The decision to do the calculations based on limits and higher flowrates is discussed in Item #21. The approach used by the Permittee is representative of the effluent variability and based on actual conditions observed during previous permit cycles.			
23.	Enclosure 6, pg 1, section 3, para 2, sent 3	What determines the tolerance limits?	Use the response column to explain.	Explanation needed to evaluate application.	See response to item #13.			
24.	Enclosure 6, Appendix A	Does the order of the data have any effect on the SPC method? When combining the pH 4 and pH 10 plots?	Use the response column to explain.		The order of the data does not affect the SPC method, as it is based on the total number of sample events (i.e., the number of calibrations).			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
25.	Appendix A & B	Data provided suggests that a change to mass based loading limits will violate Groundwater Quality Criteria set for Chloroform under **WAC 173-200-040**.	Our records indicate an AKART (all known, available, and reasonable methods of prevention, control and treatment) was submitted for Chloroform but it only considered WTP discharges which is not yet on-line. Provide AKART for Chloroform considering current discharge/flow configuration.	**WAC 173-216-110 (1),(a)** Any permit issued by the department shall specify conditions necessary to prevent and control waste discharges into the waters of the state, including the following, whenever applicable: (a) All known, available, and reasonable methods of prevention, control, and treatment **WAC 173-200-050 (3)** All enforcement limits shall, at a minimum, be based on all known, available, and reasonable methods of prevention, control, and treatment.	Best Available Technology/All Known Available and Reasonable Methods of Prevention, Control And Treatment (BAT/AKART) was documented in WHC-SD-W049H_ER-003, "200 Area Treated Effluent Disposal Facility (Project W-049H) Wastewater Engineering Report." The WTP AKART is for the new waste stream and does not supersede WHC-SD-W049H_ER-003. Ecology's original 1995 Fact Sheet for ST4502 (AR D196241386) stated the following: "Total trihalomethanes are by-products of disinfecting water for drinking water purposes. The anticipated concentrations in the effluent do not exceed the levels considered acceptable for human consumption." This statement remains accurate today. The source of chloroform in TEDF effluent has been demonstrated to be from the potable water system. Monitoring of Hanford's potable water for chloroform is performed and reported to the Washington State Department of Health. See Attachment 4, (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application),* Appendix B.			

26.	Appendix A & B	Data provided suggests that a change to mass based loading limits will violate Groundwater Quality Criteria set for Chloroform under WAC 173-200-040.	Generally, mass based loadings are applied to surface water discharges where localized mixing/dilution occurs between the outfall and the stream which causes the concentration of the pollutant of concern to drop below surface water quality standards at an acceptable point downstream. TEDF discharges to groundwater with minimal to no localized mixing (dispersion). Prolonged discharges to TEDF which exceed current groundwater standards (while still falling within proposed loading limits) could potentially travel through the groundwater as a localized plume with concentrations exceeding established groundwater quality criteria. Provide evidence that proposed (concentration or loadings) will meet the conditions in 173-200-50(3), (b), (i) through (v) for exception. Provide worst case scenario for loadings where concentrations are highest (i.e. low flows but high concentrations) when providing evidence. Apply AKART as applicable.	**WAC 173-200—50.(3).(b)** (b) Where a criterion is established for a given contaminant, the enforcement limit shall not exceed the criterion except as follows: (i) When the natural ground water quality for a contaminant exceeds the criterion, the enforcement limit for that contaminant shall be equal to the natural level. (ii) When the background ground water quality exceeds a criterion, the enforcement limit at the point of compliance shall not exceed the background ground water quality for that criterion. Enforcement limits based on elevated background ground water quality shall in no way be construed to allow continued pollution of the receiving ground water. (iii) When a criterion is less than the practical quantification level, the enforcement limit shall be established in an alternate location to provide a realistic estimate that the criterion shall not be exceeded in the ground water. Evaluation For such enforcement limits shall be performed in accordance with WAC 173-200-080(5). (iv) When naturally nonpotable ground water exceeds a secondary contaminant criterion, an enforcement limit for a secondary contaminant may exceed a criterion when it can be demonstrated to the department's satisfaction that: (A) The environment is protected; (B) Human health is protected in consultation with the	Refer to #22 and #25 above.			

				Washington state department of health; (C) Existing and future beneficial uses are not harmed; and (D) All known, available, and reasonable methods of prevention, control, and treatment will not result in concentrations less than the secondary contaminant criteria. (v) Enforcement limits may exceed c isolated artificial or seasonal ground waters when all of the following conditions exist: (A) The isolated artificial or seasonal ground waters are of insufficient quantity for use as a drinking water source; (B) Established enforcement limits will not cause harm to existing and future beneficial uses including support of seasonal wetlands; (C) Accumulation of contaminants will not cause adverse acute or chronic effects to human health as determined in consultation with the Washington state department of health; (D) Accumulation of contaminants will not cause adverse acute or chronic effects to the environment. (vi) In rare circumstances the department may allow an enforcement limit to exceed a criterion for an activity for a period not to exceed five years without reconsideration of the evidence presented in subitems (A), (B), and (C) of this subdivision, and if all of the following conditions are met: (A) The permit holder or responsible person				

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
				demonstrates to the department's satisfaction that an enforcement limit that exceeds a criterion is necessary to provide greater benefit to the environment as a whole and to protect other media such as air, surface water, soil, or sediments; (B) The activity has been demonstrated to be in the overriding public interest of human health and the environment; (C) The department selects, from a variety of control technologies available for reducing and eliminating contamination from each potentially affected media, the technologies that minimize impacts to all affected media; and (D) The action has been approved by the director of the department or his/her designee.				

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
27.	Enclosure 2, page 65 of 78	Elevated levels of chromium, iron, nickel, and manganese should not be attributed to the corrosion of the well screen. WAC 173-160-201(2) states that the well material must be compatible with the formation.	Provide information that verifies the elevated levels of these constituents is a result of well screen corrosion, e.g. metallurgical evaluation of the casing, water samples, etc.		Based on the observations in well 699-42-37, it appears that the groundwater was getting more corrosive for stainless steel. The groundwater changes caused the increase in casing corrosion metal content found in the groundwater. It is difficult to know what the current status of this well is until another sample is collected and analyzed. The other wells (699-40-36 and 699-41-35) are 30-40 ft. deeper than 699-42-37 and generally have lower dissolved oxygen content with lower chromium, iron and nickel levels. It would appear that the aquifer conditions may be changing. 1) Field samples and metals results not collected or analyzed after October 2012 2) Dissolved oxygen increased from 2.77 to 6.33 mg/L between 2008 and 2012 3) pH increased from low- to mid-8 range to mid- to high-8 range 4) Metals (Cr, Fe and Ni) increased with increased DO 5) No TOC analyses found 6) Slight increase in major anions and cations 7) Slight increase in specific conductance 8) No detection of I-129 or Tritium 9) This well is a deeper well (>25 ft. below water table) The 200-Area TEDF does not currently have a groundwater monitoring requirement. These wells have been retained as part of the 200-BP-5 Groundwater Operable unit monitoring.			
28.	Enclosure 2, page 75 of 78, Figure G.5-7	What are the well numbers associated with the wells in this figure?	Provide an updated figure G.5-7 to Ecology including the well numbers.		Updated figure with wells identified is provided as an attachment.			
29.	Enclosure 3, table A-1	Are the sample results provided in table A-1 the monthly averages, or are these individual sample results?	Please clarify using the response column.		The data presented are individual sample results from the Hanford Environmental Information System (HEIS).			
30.	Draft Permit, Enclosure 7, Pg. 21 of 28	In which document is the determination of the loading capacity located?	Provide the location of the loading capacity information for TEDF.		See Attachment 9, *Cross-Walk of Proposed ST0004502 Changes for the 2106 Renewal Application*, page 16.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
31.	Draft Permit Section S3.E	Discussion with HQ and engineers has led to the determination that vacuum relief valves should not leak if they are functioning normally. If the valves are leaking regularly, we will need to quantify the rate of the leak and include that within the permit.	An average rate of leakage for the vacuum relief valves needs to be provided to Ecology.		See Attachment 9, *Cross-Walk of Proposed ST0004502 Changes for the 2106 Renewal Application*, page 9. See Attachment 4, (RPP-ENV-58187, Rev 01, *State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application,)*Appendix E, page 17.			
32.	Draft Permit Section S4.A	Where is the TEDF O&M Manual currently kept?			The TEDF systems are monitored in the Effluent Treatment Facility (ETF) Control Room (2025E). The O&M Manual is available electronically at ETF.			
33.	Draft Permit Section S5 & Enclosure 2, page 7 of 78	How can we guarantee there are no solids being discharged to TEDF? It is indicated that TEDF has a solid waste control plan. Why does TEDF have a Solid Waste Control Plan?	Please provide this plan to Ecology.		The primary sources of waters for TEDF are raw and sanitary water from the Columbia River. Both of these water types are filtered before use. Small amounts of solids from corrosion or storm water may enter TEDF, but there is no evidence of buildup in the system. TEDF uses the WRPS sitewide waste management basis document as a Solid Waste Control Plan for managing solid wastes generated during maintenance activities.			
34.	Fact Sheet	The current fact sheet estimates a travel time of approximately 120 to 300 years for the effluent to reach the Columbia River. Ecology HGs have reviewed this number and don't believe it to be accurate. Is there more recent modeling that may provide an update on the travel time?	Please provide the basis for the 120 to 300 year estimation. Please include whether this flow is in the Ringold Formation Unit A or the Hanford formation?		Once water arrives to the groundwater aquifer, it will flow into the Hanford channel (hydraulic conductivity of about 17,000 m/d) at a gradient of 1E-06 for a distance of about 20 km. This would put the travel distance at about 600 years. Under increased gradient conditions, this value can be as low as 60 years. Original information in the fact sheet is off of old modeling that is obsolete and at this time there is no new modeling for the supposed travel time of effluent.			
35.	Fact Sheet	The current fact sheet states that "The infiltration systems are capable of handling the planned design flows per WHC-SD-W049-ER-003, Revision 0…" Where is the approved design flow documented? Also, where is the approved design criteria (average monthly flow and average yearly flow) and loading capacity of the basins located?	Please list the sections of the documents that contain this information.		See Attachment 9, *Cross-Walk of Proposed ST0004502 Changes for the 2106 Renewal Application,* page 16.			
36.	Draft fact sheet	Please provide Ecology a copy-pastable facility location map of the Hanford Site and the location of TEDF within the Site. This figure will be placed within the Fact Sheet as Figure 1.	Provide this map to Ecology for inclusion within the updated Fact Sheet.		A facility location map of the Hanford Site and the location of TEDF within the Site is included as an attachment.			

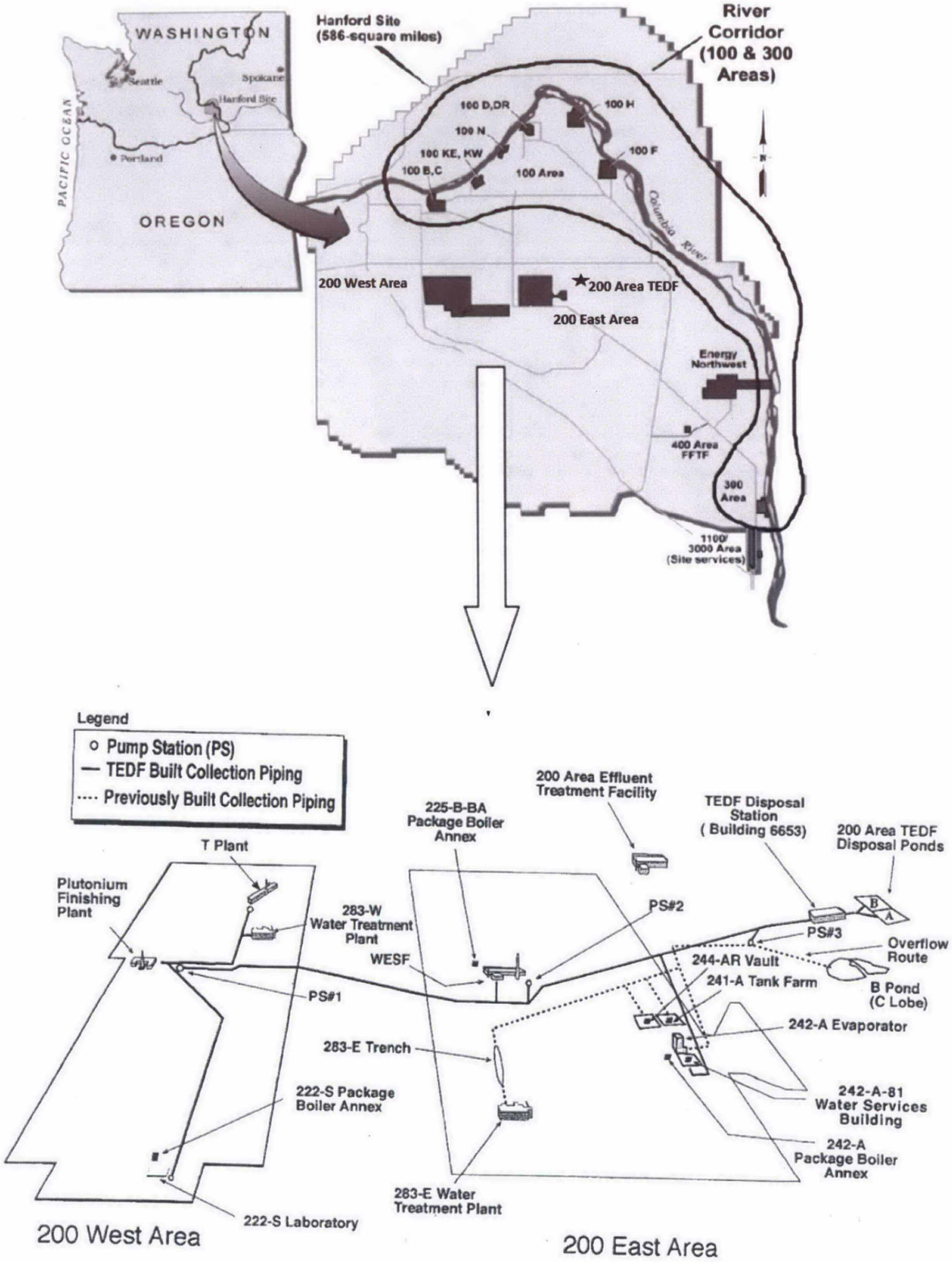
Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
37.	Draft fact sheet	Please provide the Address, Telephone number and fax number for the Responsible Official, Kevin Smith.	This information will be included in Table 1 of the updated Fact Sheet.		Kevin Smith, 2440 Stevens Center Place , Richland, WA 99354 (509) 372-2315; FAX (509) 372-0712			
38.	Draft fact sheet	Provide a range of values to help Ecology understand what "very high" is in reference to the hydraulic conductivity of the Hanford formation.			Per email from Ecology on August 23, 2017: Comment 38 may be disregarded as the language it is referring to (in the draft fact sheet) is repetitive. The sentence "The hydraulic conductivity (permeability) of this formation is very high" will be removed from the fact sheet.			
39.	Draft fact sheet	Provide what the unsaturated vertical hydraulic conductivity of the Hanford formation is.			For Hanford gravels and sands, the range of vertical hydraulic is 0.00202 to 0.0069 cm/s.			
40.	Draft fact sheet	Please provide the reasoning (in the response column) for listing both design capacity and loading capacity under the Design Criteria section.			See Attachment 9, *Cross-Walk of Proposed ST0004502 Changes for the 2106 Renewal Application,* page 16.			
41.	Draft fact sheet	Please provide a description of how flow is measured during times when the flow is too low for the pump to collect samples.			The flowmeter is located on the main pipeline to TEDF, while the pH and conductivity instruments are on a separate recirculation line. The flowmeter continues to provide flow readings when the recirculation line pump is stopped.			
42.	Permit, Intro section table, row 7	"Engineering Study for Water Treatment System for the Central Plateau," Rev.0, dated March 2, 2015 states that 283-W is still in service, but 283-E has been placed "out of service or in a dry lay-up condition in 1999." This makes it seem as though the facility can be reinstated. WHC-SD-LEF-EV-001 REV. 0, Appendix C, page C-7 shows the 284-W Power Plant package boiler was placed into a dry lay-up state, but was then brought back into service. Is this a possibility for the 283-E package boiler?	Please provide evidence that these boilers are permanently out of service to facilitate removal from the permit.		The permit intro table Row 7 is incorrect. The only package boiler still discharging to TEDF is 242-A Annex. 283-E and 283-W were taken out of service in 2010. Refer to Department of Energy, Richland Operations Office letter to Ecology, 10-EMD-0084, dated August 12, 2010.			
43.	Permit, Intro section table, row 7	The first map in enclosure 2 (the permit application) identifies 283-W as an authorized generator—is the package boiler the only part of the system that has been taken out of service? Does TEDF receive other effluent from this facility?	Provide explanation within response column.		The permit intro table is missing a row from the previous version of permit. In the permit issued in 2000, the Fact Sheet provided a table similar to the 2012 permit. There is a row in that table for the "284-W and 284-E Water Treatment Plants". With an effluent description of "Potable (treated water) and steam condensate." A more up-to-date description would be "283-W Water Treatment Plant," and, "Potable (treated) and raw water". Both raw and potable water systems discharge to TEDF. The 284-W and 284-E Buildings have been demolished and the 283-E system no longer discharges to TEDF.			

Item No.	Pg. # Sec. # Para./Sent.	Comment or Question	Modification Needed	Basis/Justification	Permittee Response (submitted via 17-ECD-0059)	Ecology Response	Open/ Close	Reviewer Initials
44.	Permit, Intro section table, row 8	How has the cooling tower been closed? Is there potential for future discharges?	Provide explanation within response column.		The 241-A cooling water (technically, it's the 241-AY/241-AZ ventilation cooling towers) are still physically connected to TEDF via manhole #1.			
45.	Permit Section S2.E	How are pH measurements captured at TEDF? Are they manually collected as a grab sample, or is the pH instrument continuously sampling the effluent?	Provide explanation within response column.		The pH instrument is continuously sampling the effluent. See Response #17			
46.	Permit Section S2.E.5	The permit shell reads "Establish a calibration frequency for each device or instrument in the O&M manual that conforms to the frequency recommended by the manufacturer." Has WRPS attempted to find calibration recommendations for the equipment?	Provide explanation within response column.		See Response #18; The flowmeter is calibrated annually.			

Attachment 2
17-ECD-0059
(1 Page Excluding Cover Sheet

200 Area Treated Effluent Disposal Facility Site Map

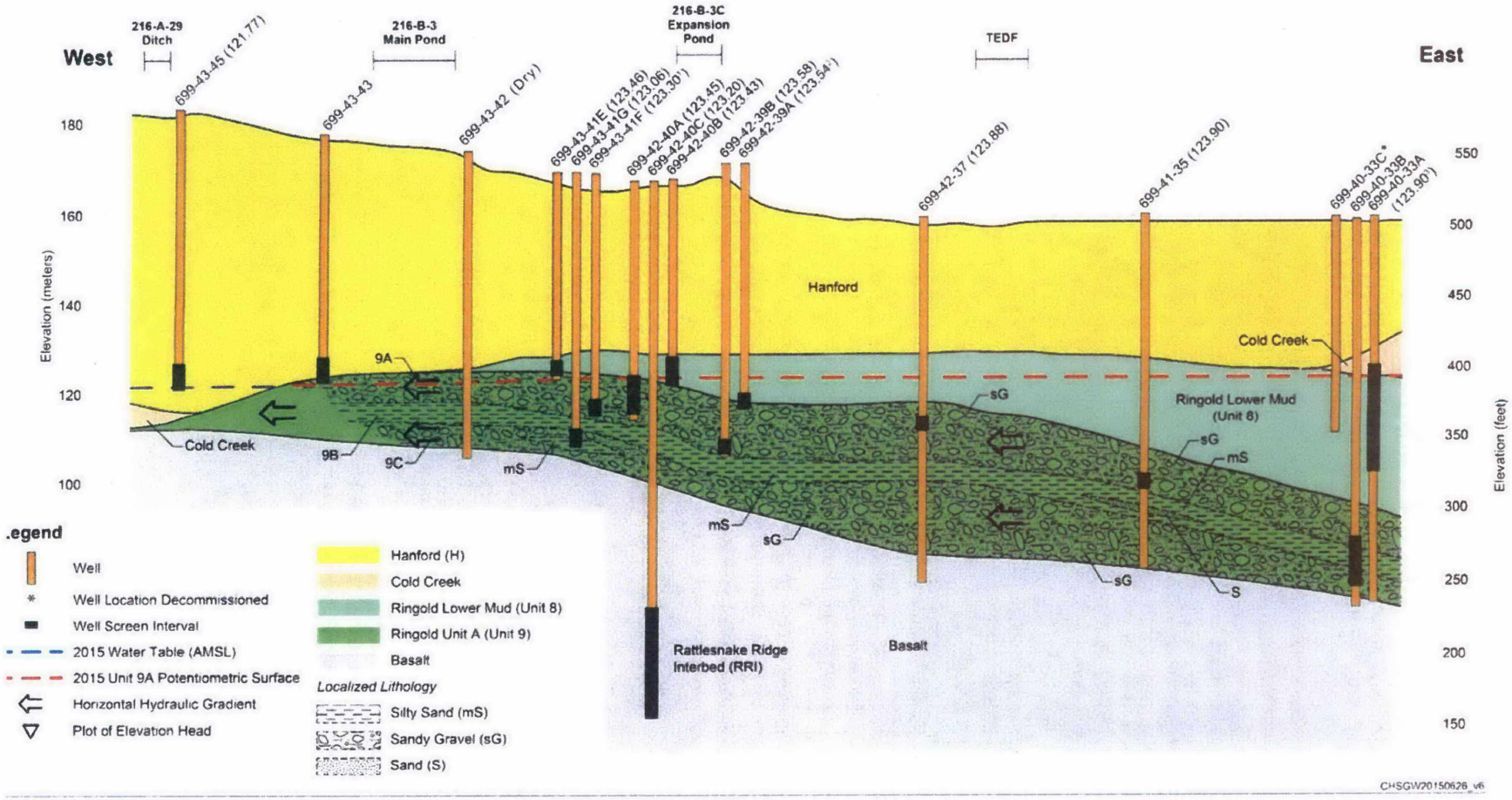
Figure 1 Facility Location Map



Attachment 3
17-ECD-0059
(1 Page Excluding Cover Sheet)

Treatment Effluent Disposal Facility Well Numbers Identified

TEDF Well Numbers Identified



Attachment 4
17-ECD-0059
(39 Pages Double-Sided Excluding Cover Sheet)

RPP-CALC-60773 Rev. 01, Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages

DOCUMENT RELEASE AND CHANGE FORM

Prepared For the U.S. Department of Energy, Assistant Secretary for Environmental Management
By Washington River Protection Solutions, LLC., PO Box 850, Richland, WA 99352
Contractor For U.S. Department of Energy, Office of River Protection, under Contract DE-AC27-08RV14800

TRADEMARK DISCLAIMER: Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof or its contractors or subcontractors. Printed in the United States of America.

Release Stamp

DATE: Sep 12, 2017 HANFORD RELEASE

1. Doc No: RPP-CALC-60773 **Rev.** 01

2. Title:
Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages

3. Project Number: ☒ N/A

4. Design Verification Required: ☐ Yes ☒ No

5. USQ Number: ☒ N/A RPP-27195

6. PrHA Number **Rev.** ☒ N/A

Clearance Review Restriction Type: public

7. Approvals

Title	Name	Signature	Date
Clearance Review	MEEGAN, ERIN C	*MEEGAN, ERIN C*	09/11/2017
Checker	STAMPER, LAVONNE J	*STAMPER, LAVONNE J*	08/29/2017
Document Control Approval	PORTER, MARY	*PORTER, MARY*	09/11/2017
Environmental Protection	TEEL, RACHEL D	*TEEL, RACHEL D*	08/29/2017
Originator	BOWMAN, MARK W	*BOWMAN, MARK W*	08/30/2017
Responsible Engineer	BOWMAN, MARK W	*BOWMAN, MARK W*	08/30/2017
Responsible Engineering Manager	RUTHERFORD, WALLY	*RUTHERFORD, WALLY*	09/05/2017

8. Description of Change and Justification

Minor technical changes were made in response to comments from the Washington State Department of Ecology.

A description of how the average values were calculated was added to Section 5.4. Descriptions of the laboratory qualifiers were added to the tables. The pivot table from the spreadsheet was inserted in Appendix A.

The calculations were not changed during this revision.

9. TBDs or Holds ☒ N/A

10. Related Structures, Systems, and Components

a. Related Building/Facilities ☐ N/A	b. Related Systems ☒ N/A	c. Related Equipment ID Nos. (EIN) ☒ N/A
TEDF FACILITIES		

11. Impacted Documents – Engineering ☒ N/A

Document Number	Rev.	Title

12. Impacted Documents (Outside SPF):
N/A

13. Related Documents ☒ N/A

Document Number	Rev.	Title

14. Distribution

Name	Organization

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part I: Background Information

Title: Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages

Publish to OSTI? ☐ Yes ☑ No

Information Category:
☐ Abstract ☐ Journal Article ☐ Summary
☐ Internet ☐ Visual Aid ☐ Software
☐ Full Paper ☑ Report ☐ Other

Trademark/Copyright "Right to Use" Information or Permission Documentation	Yes	NA
	☐	☑

Document Number: RPP-CALC-60773 Revision 01 Date: September 2017

Author: Bowman, Mark W

Part II: External/Public Presentation Information

Conference Name:

Sponsoring Organization(s): N/A

Date of Conference: Conference Location:

Will Material be Handed Out? ☐ Yes ☑ No Will Information be Published? ☐ Yes ☑ No *(If Yes, attach copy of Conference format instructions/guidance.)*

Part III: WRPS Document Originator Checklist

Description	*Yes*	*N/A*	*Print/Sign/Date*
Information Product meets requirements in TFC-BSM-AD-C-01?	☐	☑	
Document Release Criteria in TFC-ENG-DESIGN-C-25 completed? (Attach checklist)	☑	☐	Bowman, Mark W
If product contains pictures, safety review completed?	☐	☑	

Part IV: WRPS Internal Review

Function	*Organization*	*Date*	*Print Name/Signature/Date*
Subject Matter Expert	WRPS	9/11/2017	Bowman, Mark W IDMS Data File att.
Responsible Manager	WRPS	9/6/2017	Rutherford, Wally IDMS Data File att.
Other:			

Part V: IRM Clearance Services Review

Description	*Yes*	*No*	*Print Name/Signature*
Document Contains Classified Information?	☐	☒	If Answer is "Yes," ADC Approval Required Print Name/Signature/Date
Document Contains Information Restricted by DOE Operational Security Guidelines?	☐	☒	Reviewer Signature: Print Name/Signature/Date
Document is Subject to Release Restrictions? *If the answer is "Yes," please mark category at right and describe limitation or responsible organization below:*	☐	☒	Document contains: ☐ Applied Technology ☐ Protected CRADA ☐ Personal/Private ☐ Export Controlled ☐ Proprietary ☐ Procurement – Sensitive ☐ Patentable Info. ☐ OUO ☐ Predecisional Info. ☐ UCNI ☐ Restricted by Operational Security Guidelines ☐ Other (Specify)
Additional Comments from Information Clearance Specialist Review?	☐	☒	Information Clearance Specialist Approval APPROVED By Erin C. Meegan at 2:20 pm, Sep 11, 2017 Print Name/Signature/Date

When IRM Clearance Review is Complete – Return to WRPS Originator for Final Signature Routing (Part VI)

A-6003-508 (REV 4)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part VI: Final Review and Approvals

Description	*Approved for Release*		*Print Name/Signature*
	Yes	*N/A*	
WRPS External Affairs	☒	☐	IDMS Data File att. Cherry, Stephen B
WRPS Office of Chief Counsel	☒	☐	IDMS Data File att. Holloway, Jerry N
DOE – ORP Public Affairs/Communications	☒	☐	IDMS Data File att. Marshall, Richard A
Other:	☐	☐	
Other:	☐	☐	

Comments Required for WRPS-Indicate Purpose of Document:

This document will be submitted to State of Washington, Department of Ecology, as part of the permit renewal application for the 200 Area Treated Effluent Disposal Facility (TEDF) water permit ST0004502. The document provides results of sampling performed at TEDF for five years, for the Department of Ecology to use in the permit fact sheet for the renewed permit.

Revision 00 of this report was submitted by DOE-ORP to the Department of Ecology in June 2016 as part of the permit application (Letter 16-ECD-0025). Additional explanatory information was added in Revision 01 in response to Department of Ecology comments (Letter 17-NWP-062).

APPROVED
By Erin C. Meegan at 2:20 pm, Sep 11, 2017

Approved for Public Release; Further Dissemination Unlimited

Information Release Station

Was/Is Information Product Approved for Release? ☒ Yes ☐ No

If Yes, what is the Level of Releaser? ☑ Public/Unrestricted ☐ Other (Specify) _____

Date Information Product Stamped/Marked for Release: 9/11/2017

Was/Is Information Product Transferred to OSTI? ☐ Yes ☒ No

Forward Copies of Completed Form to WRPS Originator

```
- <workflow name="(ECM) Expedite - RPP-CALC-60773-R01_TEDF Sam ple Results"
    id="215073873">
  - <task name="Clearance Process" id="0" date-initiated="20170906T1237"
      performer="Erin C Meegan" performer-id="196316112" username="h8232327">
      <comments>EXPEDITE: Due Monday September 11, 2017 COB Please
        expedite review of RPP-CALC-60773, Rev 1 entitled "Treated Effluent
        Disposal Facility Sample Results 2011 to 2015 with Calculated Averages",
        submitted by Mark Bowman for public release. Thank you, Erin Meegan
        Information Clearance</comments>
    </task>
    <task name="Add XML" id="1" date-done="20170906T1237" />
    <task name="Expedite - Manager Approval" id="6" date-due="20170908T1237"
      date-done="20170906T1305" performer="Wally Rutherford" performer-
      id="8106939" username="h0093000" disposition="Approve"
      authentication="true" />
    <task name="Expedite - Document Reviewer2" id="17" date-
      due="20170908T1305" date-done="20170906T1608" performer="Stephen B
      Cherry" performer-id="1382719" username="h0374767" disposition="Public
      Release" authentication="true" />
    <task name="Expedite - Document Reviewer1" id="16" date-
      due="20170908T1305" date-done="20170907T1231" performer="Jerry N
      Holloway" performer-id="140435533" username="h0087835" disposition="Public
      Release" authentication="true" />
    <task name="Doc Owner Clearance Review" id="13" date-due="20170908T1231"
      date-done="20170907T1252" performer="Mark W Bowman" performer-
      id="6185614" username="h0047457" disposition="Send On"
      authentication="true" />
    <task name="Milestone 1" id="24" date-done="20170907T1252" />
  - <task name="ORP Document Reviewer1" id="57" date-due="20170911T1252"
      date-done="20170911T0923" performer="Richard A Marshall" performer-
      id="203862915" username="h4535783" disposition="Public Release"
      authentication="true">
      <reviewer performer="Bryan R Trimberger" performer-id="167391437"
        username="h2414684" />
      <comments>Reviewer's Comments Date: 09/11/2017 08:21 AM Step Name:
        RPP-CALC-60773 R1 Treated Effluent Disposal Facility Sample Results
        2011 to 2015 with Calculated Averages Performer: Trimberger, Bryan
        (h2414684) Reviewed with ECD SME with no comments.</comments>
    </task>
    <task name="Doc Owner Reviews ORP Comments" id="61" date-
      due="20170912T0923" date-done="20170911T0948" performer="Mark W
      Bowman" performer-id="6185614" username="h0047457" disposition="Send On"
      authentication="true" />
    <task name="Milestone 2" id="62" date-done="20170911T0948" />
    <task name="Verify Doc Consistency" id="4" date-due="20170912T0948" date-
      done="20170911T1330" performer="Erin C Meegan" performer-id="196316112"
      username="h8232327" disposition="Cleared" authentication="true" />
  </workflow>
```

Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages

Author Name:
M. W. Bowman

Richland, WA 99352
U.S. Department of Energy Contract DE-AC27-08RV14800

EDT/ECN:	DCRF	UC:	N/A
Cost Center:	2KM00	Charge Code:	
B&R Code:	N/A	Total Pages:	74

Key Words: Treated Effluent Disposal Facility, TEDF, ST0004502, Permit Application

Abstract: This document provide five years of TEDF sample results for use in the TEDF water discharge permit, ST0004502, re-application submittal. The sample data is retrieved from the HEIS database and from TEDF discharge monitoring reports. The data is loaded into a spreadsheet and minimum, average, and maximum values are calculated.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

APPROVED
By Erin C. Meegan at 6:11 am, Sep 12, 2017

Release Approval Date

DATE:
Sep 12, 2017
HANFORD RELEASE

Release Stamp

Approved For Public Release

TABLE OF CONTENTS

1.0 OBJECTIVE/PURPOSE 1

2.0 SUMMARY OF RESULTS 1

3.0 INPUT 1

4.0 ASSUMPTIONS 1

5.0 METHODOLOGY 1
- 5.1 Data Retrieval 1
- 5.2 Data Review 2
- 5.3 Special Calculations 2
- 5.4 Data Calculations 2

6.0 SOFTWARE USED 3

7.0 RESULTS 3

8.0 CONCLUSION 5

9.0 REFERENCES 5

A1.0 HEIS DATABASE SAMPLE RESULTS AND CONVERSION OF UNITS A-1

B1.0 SPECIAL CALCULATIONS B-1
- B1.1 Phosphate to Phosphorous in Phosphate B-1
- B1.2 Exclude Non-Detect Result for Tritium B-3

C1.0 TEDF FLOW, PH AND CONDUCTIVITY RESULTS FROM DISCHARGE MONITORING REPORTS C-1

D CALCULATION CHECKLIST D-1

1.0 OBJECTIVE/PURPOSE

The purpose of these calculations is to document sample data from the 200 Area Treated Effluent Disposal Facility (TEDF) for submittal to the State of Washington, Department of Ecology (Ecology) as part of a renewal of the TEDF discharge permit. Minimum, average, and maximum results for each constituent are calculated.

The TEDF system receives non-contact effluent from multiple facilities in the 200 Areas and discharges to two percolation basins east of the 200 East Area. Ecology issued the U.S. Department of Energy a State Waste Discharge Permit for TEDF, ST0004502, which includes specific requirements for monthly and quarterly sampling. The permit was issued in 2012 and a permit renewal application is required in 2016. As part of renewal, five years of sampling results are being submitted.

2.0 SUMMARY OF RESULTS

The minimum, average, and maximum results are presented in Table 1. Five constituents had results exceeding permit limits at least once during the five-year period (chloride, nitrogen in nitrate, iron, and chloroform).

3.0 INPUT

The primary input for these calculations is sample results downloaded from the Hanford Environmental Information System (HEIS), a database for environmental samples, including results of effluent samples taken at TEDF. The HEIS database is an Oracle database (Hanford Information Systems Inventory (HISI) #139) managed by CH2M HILL Plateau Remediation Company (CHPRC). This input provides all constituent concentration data. The HEIS data for TEDF for the last five years (2011 to 2015) is provided in Appendix A, Table A-1.

Continuous monitoring data (flow, pH, and conductivity) are obtained from the ETF Monitoring and Control System, the control system for TEDF. The data is loaded into utility calculations software spreadsheets (HISI #1826 and #1829) where monthly minimums, maximums, and averages are calculated. The monthly total volumes are divided by the number of days in the month to obtain units of Mega-gallon per day for reporting. This data is provided to Ecology in quarterly discharge monitoring reports. For this document, it was easier to retrieve pH and conductivity data from the discharge monitoring reports directly than from the spreadsheets. The monthly flow, pH, and conductivity data are provided in Table 2. Note that only minimum and maximum pH are provided. Per the discharge permit, pH results should not be averaged.

4.0 ASSUMPTIONS

No assumptions were made in performing these calculations.

5.0 METHODOLOGY

5.1 DATA RETRIEVAL

The sample data was retrieved from HEIS using a Microsoft® Access®[1] query and downloaded into Microsoft® Excel®[2]. The query retrieves data on sample location, sample number, constituent, sample result, units, sample date, analytical method, and detection level. The location, "6653" (TEDF Sample

[1] Microsoft and Access are registered trademarks of Micosoft Corporation., Redmond, Washington.
[2] Excel is a registered trademark of Microsoft Corporation, Redmond, Washington.

Building 6653, the only TEDF sample point) and the dates, "between 1/1/2011 and 12/31/2015" were used for the query.

The quarterly discharge monitoring reports were retrieved and the pH and conductivity data was manually entered into a spreadsheet in Appendix C. All pH results were rounded to $\pm$ 0.1, as specified in the discharge permit.

5.2 DATA REVIEW

Before performing the calculations, the data was reviewed for consistency. Some laboratories report results in units of micrograms per liter while other laboratories report results in units of milligrams per liter. To account for these analytes, columns were added to the retrieved data (Appendix A, columns Converted Value and Converted Units) and the results converted. The following analytes had some results converted to milligrams per liter: bromide, chloride, fluoride, nitrogen in nitrate, nitrogen in nitrite, phosphorous in phosphate, sulfate, and total dissolved solids. These are also highlighted in Appendix A for clarity.

The TEDF quality assurance plan requires field duplicates be performed at least every 20th sample set. Field duplicates were performed in December 2011, July 2013, and January 2015. In addition, some duplicate metals analyses were performed in June 2014. The results of the sample and field duplicate were compared, and the smaller value of the two was excluded from the calculations. Field duplicate samples are flagged in a column in the data in Appendix A.

Additionally, it was noted phosphate content was reported in different formats and values were given for tritium below the detection limit. Section 5.3 discusses handling of this data.

5.3 SPECIAL CALCULATIONS

Some laboratories report phosphate as, "phosphorous in phosphate," and some report phosphate. It is necessary to convert them for consistent results. Since most of the data was reported as, "phosphorous in phosphate," the following conversion factor was applied to results reported as phosphate:

To convert PO4 to P in PO4, multiply by:

$$\frac{\text{Atomic Weight of P}}{\text{Atomic Weight of PO4}} = \frac{31.0}{31.0 + (4 * 16.0)} = 0.3263$$

Where the atomic weight of phosphorous (P) and oxygen (O) are 31.0 and 16.0, respectively. The conversion and calculations are given in Appendix B.

Twenty-four tritium samples were analyzed and all results were non-detected, with most detection levels between 270 picocuries per liter (pCi/L) to 1200 pCi/L, depending on the laboratory performing the analyses. However, one analysis had a detection level of 14000 pCi/L. It's not clear why the lab reported a detection level over ten times higher than the others. Given that the reported value was below the cited detection limit and all other results were less than 1200 pCi/L, the result of 14000 pCi/L was excluded when performing the calculations (Appendix B).

The results of these calculations are presented in Table 1 below.

5.4 DATA CALCULATIONS

After the data was reviewed and adjusted as described above, the minimum, average, and maximum results were calculated and are presented in Table 1 below. The averaging was performed as follows:

- All results were used for averaging, including non-detected results (those having a "U" qualifier in Table A-1).

- For non-detected results ("U" qualifier), the minimum detection limit is reported in Table A-1 and is used for the average in Table 1. This method differs from permit ST0004502, which says for calculating monthly averages, use one-half the detection level when averaging non-detected results with detected results.
- If all results for the five-year period were non-detected, a "U" qualifier was included in Table 1. The average of the non-detected values is reported. This also differs from permit ST0004502, which says to report a zero value if all results in a reporting period were undetected.

The intent of this document is to provide five years of sample results for easy presentation. The reason simple averages were used in Table 1 rather than the techniques described in permit ST0004502 is the techniques in the permit apply to reporting periods of one month or one quarter. The averages performed in Table 1 are applied to five year's worth of data. Because many of the results are undetected, using one-half the detection level on five years of data would skew the results. In some cases, it would report average values that are lower than the minimum results. Also, reporting a zero value on five years worth of undetected data does not present useful information.

The calculations were performed in Microsoft® Excel® using a pivot table, which automatically generates the minimum, average, and maximum values. The pivot table results are presented in Appendix A, Table A-2.

For flow, pH and conductivity results, the minimum, average, and maximum results are previously calculated for the quarterly discharge monitoring reports and are presented in Appendix C. This data is gathered in Table 1 below.

6.0 SOFTWARE USED

Microsoft® Excel® 2013 was used for single-use spreadsheet calculations and to receive output from the HEIS database. The single-use spreadsheet file name is *Permit Revision – TEDF Results 2011 to 2015.xlsx*.

The HEIS database of environmental samples is registered in HISI with ID# 139. It is managed by CHPRC with *Environmental Data Integration - Software Management Plan*, HNF-28242, Revision 2.

7.0 RESULTS

The minimum, average, and maximum results are given in Table 1. The data was copied from the pivot table (Appendix A, Table A-2). For simplicity, organic constituents in Table A-2 that are not required to be reported by the permit, and had no detectable results, were not included in the Table 1.

Table 1 TEDF Sample Data Summary

Constituent/ Measurement	Type	Number of Samples	Minimum	Average	Maximum	Units	Results Undetected	Comments
Flow	Monitor	N/A	0.0221	0.3622	3.5260	Mgal/day		Monthly flows = total per month / days per month
Conductivity	Monitor	N/A	140	172	322	uS/cm		Monthly averages
pH	Monitor	N/A	6.3	NA	9.8			Monthly minimum and maximums
Bromide	Anion	58	0.025	0.088	0.22	mg/L		Only 1 detected result

Constituent/ Measurement	Type	Number of Samples	Minimum	Average	Maximum	Units	Results Undetected	Comments
Chloride	Anion	69	0.92	5.7	136	mg/L		One result above the limit - March 2015. Next highest value 16.6 mg/L.
Fluoride	Anion	69	0.023	0.056	0.221	mg/L		
Nitrogen in Nitrate	Anion	68	0.014	0.49	20.4	mg/L		One result above the limit - Dec 2012. Next highest value 0.60 mg/L
Nitrogen in Nitrite	Anion	68	0.0030	0.026	0.22	mg/L		
Phosphorous in Phosphate	Anion	64	0.025	0.438	15.1	mg/L		
Sulfate	Anion	69	8.71	20.7	80.1	mg/L		
Aluminum	Metal	2	108	804	1500	ug/L		
Arsenic	Metal	67	0.255	0.993	2.93	ug/L		
Barium	Metal	2	29.3	45.6	61.8	ug/L		
Beryllium	Metal	2	1.0	1.0	1.0	ug/L	U	
Cadmium	Metal	67	0.050	0.0822	0.340	ug/L		Only 6 detected results
Calcium	Metal	2	2.25E+04	3.30E+04	4.34E+04	ug/L		
Chromium	Metal	67	0.10	0.741	3.3	ug/L		
Cobalt	Metal	2	1.0	1.0	1.0	ug/L	U	
Iron	Metal	70	20	84.8	411	ug/L		One result above the limit - May 2012. Next highest value 222 ug/L.
Lead	Metal	67	0.050	0.360	1.81	ug/L		
Magnesium	Metal	2	4.76E+03	6.58E+03	8.40E+03	ug/L		
Manganese	Metal	71	0.446	6.01	20.5	ug/L		
Mercury	Metal	66	0.050	0.0627	0.530	ug/L		Only 4 detected results
Nickel	Metal	2	1.5	1.5	1.5	ug/L	U	
Potassium	Metal	2	1.33E+03	1.71E+03	2.08E+03	ug/L		
Silicon	Metal	2	1.99E+03	2.01E+03	2.02E+03	ug/L		
Silver	Metal	2	1.0	1.0	1.0	ug/L	U	
Sodium	Metal	2	3.76E+03	3.38E+04	6.38E+04	ug/L		
Thallium	Metal	2	5.0	5.0	5.0	ug/L	U	
Vanadium	Metal	2	1.0	1.0	1.0	ug/L	U	
Zinc	Metal	2	23.8	80.9	138	ug/L		
Total dissolved solids	TDS	69	22.9	118	427	mg/L		
Bis (2-ethylhexyl) phthalate	Organic	24	1.0	1.44	3.16	ug/L	U	
Bromodichloro-methane	Organic	37	0.25	0.99	3.7	ug/L		Only 6 detected results
Bromoform	Organic	37	0.30	0.81	1.0	ug/L		Only 1 detected result
Carbon tetrachloride	Organic	37	0.30	0.89	4.0	ug/L		Only 1 detected result

Constituent/ Measurement	Type	Number of Samples	Minimum	Average	Maximum	Units	Results Undetected	Comments
Chloroform	Organic	37	0.15	4.44	12.0	ug/L		Seven results above limit and one exceedence - July 2015.
Dibromo-chloromethane	Organic	37	0.30	0.84	2.0	ug/L		Only 4 detected results
Methylene chloride	Organic	37	1.0	1.4	4.81	ug/L		Only 5 detected results
Total Trihalomethanes	Organic	37	0.15	4.79	15.0	ug/L		
Oil and grease	O&G	24	0.99	2.9	5.7	mg/L	U	
Gross alpha	Rad	67	0.911	3.4	24	pCi/L		
Gross beta	Rad	67	1.84	5.7	35	pCi/L		
Tritium	Rad	24	270	541	1200	pCi/L	U	

U = All sample results during the five year period were undetected.

The minimum value may be a detection level or a detected result.

A result noted as "above the limit" means that one or more daily results were above the permit monthly average limit, but the monthly average was within limits because multiple samples were taken. A result noted as an "exceedance" means the monthly average result was above the limit and a permit noncompliance notification was made.

8.0 CONCLUSION

Four constituents had results exceeding permit limits (chloride, nitrogen in nitrate, iron, and chloroform) as reported in the Comments column of Table 1.

9.0 REFERENCES

CHPRC, *Quarterly Discharge Monitoring Reports for the 200 Area Effluent Treatment and Treated Effluent Disposal Facilities Covering the . . . through . . . Reporting Period*, CH2M HILL Plateau Remediation Company, Richland, Washington. The specific letters are:

Letter	Reporting Period	Date Letter Issued
CHPRC-1102245	January 2011 to March 2011	May 10, 2011
CHPRC-1103864	April 2011 to June 2011	August 10, 2011
CHPRC-1105426	July 2011 to September 2011	November 14, 2011
CHPRC-1200505	October 2011 to December 2011	February 14, 2012
CHPRC-1201772	January 2012 to March 2012	May 10, 2012
CHPRC-1203231	April 2012 to June 2012	August 14, 2012
CHPRC-1204563	July 2012 to September 2012	October 23, 2012

Ecology, ST0004502 (TEDF) Discharge Monitoring Reports, *Discharge Monitoring Reports Viewer, Permit and Reporting Information System*, State of Washington, Department of Ecology, Olympia, Washington. Refer to Attachment 1 – Monthly Min, Avg, Max. The specific links are:

Oct 2012 to Dec 2012 (manually submitted January 30, 2013, data uploaded April 25, 2013):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1422218

January 2013 to March 2013 (certified April 25, 2013):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1441943

April 2013 to June 2013 (certified July 25, 2013):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1438403
July 2013 to September 2013 (certified October 29, 2013):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1450030
October 2013 to December 2013 (certified January 29, 2014):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1461806
January 2014 to March 2014 (certified April 30, 2014, revised May 14, 2014):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1473519
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1488585
April 2014 to June 2014 (certified July 24, 2014):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1485070
July 2014 to September 2014 (certified October 30, 2014):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1496648
October 2014 to December 2014 (certified January 27, 2015):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1508446
January 2015 to March 2015 (certified April 29, 2015):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1520063
April 2015 to June 2015 (certified July 29, 2015):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1532311
July 2015 to September 2015 (certified October 27, 2015):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1544234
October 2015 to December 2015 (certified January 25, 2016):
https://fortress.wa.gov/ecy/webdmrview/ViewSubmittedDMR.aspx?id=1557720

HNF-28242, Rev. 2, *Environmental Data Integration - Software Management Plan*, February 2, 2015, CH2M HILL Plateau Remediation Co., Richland, Washington.

ST0004502, *State Waste Discharge Permit Number ST0004502* (for TEDF), June 25, 2012, State of Washington, Department of Ecology, Richland, Washington.

APPENDIX A

A1.0 HEIS DATABASE SAMPLE RESULTS AND CONVERSION OF UNITS

Table A-1 HEIS Database Sample Results and Conversion of Units

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2B441	Bromide	0.054	ug/mL	U	05-Jan-11				ANIONS	0.054	mg/L
B2BJR3	Bromide	0.054	ug/mL	U	11-Feb-11				ANIONS	0.054	mg/L
B2C680	Bromide	0.083	ug/mL	U	10-Mar-11				ANIONS	0.083	mg/L
B2CNV4	Bromide	0.083	ug/mL	U	06-Apr-11				ANIONS	0.083	mg/L
B2D2C0	Bromide	0.083	ug/mL	U	04-May-11				ANIONS	0.083	mg/L
B2DY29	Bromide	0.083	ug/mL	U	09-Jun-11				ANIONS	0.083	mg/L
B2FDM9	Bromide	0.083	ug/mL	U	06-Jul-11				ANIONS	0.083	mg/L
B2FPH0	Bromide	0.083	ug/mL	U	04-Aug-11				ANIONS	0.083	mg/L
B2H513	Bromide	0.083	ug/mL	U	08-Sep-11				ANIONS	0.083	mg/L
B2HTB5	Bromide	0.083	ug/mL	U	05-Oct-11				ANIONS	0.083	mg/L
B2J6B1	Bromide	0.025	mg/L	U	14-Nov-11				ANIONS	0.025	mg/L
B2JPJ5	Bromide	0.11	ug/mL	U	14-Dec-11			Y	ANIONS	0.11	mg/L
B2JPJ5DUP	Bromide	0.11	ug/mL	U	14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2KC79	Bromide	0.11	ug/mL	U	06-Jan-12				ANIONS	0.11	mg/L
B2KCF5	Bromide	0.112	ug/mL	B	08-Feb-12				ANIONS	0.112	mg/L
B2KD41	Bromide	0.11	ug/mL	U	15-Mar-12				ANIONS	0.11	mg/L
B2L2D3	Bromide	0.11	ug/mL	U	10-Apr-12				ANIONS	0.11	mg/L
B2L7L7	Bromide	0.11	ug/mL	U	09-May-12				ANIONS	0.11	mg/L
B2L7W2	Bromide	0.11	ug/mL	U	23-May-12				ANIONS	0.11	mg/L
B2LD50	Bromide	0.11	ug/mL	U	13-Jun-12				ANIONS	0.11	mg/L
B2LWH1	Bromide	0.11	ug/mL	U	18-Jul-12				ANIONS	0.11	mg/L
B2LYX2	Bromide	0.22	ug/mL	UD	15-Aug-12				ANIONS	0.22	mg/L
B2M066	Bromide	0.11	ug/mL	U	05-Sep-12				ANIONS	0.11	mg/L
B2M062	Bromide	0.11	ug/mL	U	03-Oct-12				ANIONS	0.11	mg/L
B2MBL0	Bromide	0.11	ug/mL	U	07-Nov-12				ANIONS	0.11	mg/L
B2N1P8	Bromide	0.11	ug/mL	U	05-Dec-12				ANIONS	0.11	mg/L
B2N8C1	Bromide	0.11	ug/mL	U	14-Dec-12				ANIONS	0.11	mg/L
B2NDM5	Bromide	0.11	ug/mL	U	09-Jan-13				ANIONS	0.11	mg/L
B2NF86	Bromide	0.11	ug/mL	U	06-Feb-13				ANIONS	0.11	mg/L
B2NPR0	Bromide	0.11	ug/mL	U	06-Mar-13				ANIONS	0.11	mg/L
B2NRL5	Bromide	0.11	ug/mL	U	03-Apr-13				ANIONS	0.11	mg/L
B2P559	Bromide	0.11	ug/mL	U	09-May-13				ANIONS	0.11	mg/L
B2PCY7	Bromide	0.11	ug/mL	U	06-Jun-13				ANIONS	0.11	mg/L
B2PDM5	Bromide	0.11	ug/mL	U	10-Jul-13			Y	ANIONS	0.11	mg/L
B2PDM5DUP	Bromide	0.11	ug/mL	U	10-Jul-13			Y	ANIONS	(duplicate)	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PV19	Bromide	0.11	ug/mL	U	14-Aug-13				ANIONS	0.11	mg/L
B2R189	Bromide	0.11	ug/mL	U	04-Sep-13				ANIONS	0.11	mg/L
B2RBV9	Bromide	0.11	ug/mL	U	09-Oct-13				ANIONS	0.11	mg/L
B2T4K8	Bromide	0.11	ug/mL	U	07-Nov-13				ANIONS	0.11	mg/L
B2TRM8	Bromide	0.11	ug/mL	U	10-Dec-13				ANIONS	0.11	mg/L
B2V4F0	Bromide	0.11	ug/mL	U	08-Jan-14				ANIONS	0.11	mg/L
B2VVR4	Bromide	0.11	ug/mL	U	12-Feb-14				ANIONS	0.11	mg/L
B2VWR2	Bromide	0.11	ug/mL	U	27-Feb-14				ANIONS	0.11	mg/L
B2W8M8	Bromide	0.11	ug/mL	U	19-Mar-14				ANIONS	0.11	mg/L
B2W9P0	Bromide	0.11	ug/mL	U	09-Apr-14				ANIONS	0.11	mg/L
B2WB53	Bromide	0.025	mg/L	U	14-May-14				ANIONS	0.025	mg/L
B2WM01	Bromide	0.025	mg/L	U	18-Jun-14				ANIONS	0.025	mg/L
B2X4J9	Bromide	0.025	mg/L	U	10-Jul-14				ANIONS	0.025	mg/L
B2XCH4	Bromide	0.025	mg/L	U	05-Aug-14				ANIONS	0.025	mg/L
B2XNF7	Bromide	0.025	mg/L	UN	13-Aug-14				ANIONS	0.025	mg/L
B2XNF5	Bromide	0.025	mg/L	U	09-Sep-14				ANIONS	0.025	mg/L
B2Y402	Bromide	0.025	mg/L	U	14-Oct-14				ANIONS	0.025	mg/L
B2YH32	Bromide	0.025	mg/L	U	05-Nov-14				ANIONS	0.025	mg/L
B2YRX0	Bromide	0.05	mg/L	U	02-Dec-14				ANIONS	0.050	mg/L
B30260	Bromide	0.025	mg/L	U	06-Jan-15			Y	ANIONS	0.025	mg/L
B30260DUP	Bromide	0.025	mg/L	U	06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Bromide	67	ug/L	U	04-Feb-15				ANIONS	0.067	mg/L
B30J35	Bromide	67	ug/L	U	11-Mar-15				ANIONS	0.067	mg/L
B2B441	Chloride	3.56	ug/mL		05-Jan-11				ANIONS	3.56	mg/L
B2BJR3	Chloride	3.2	ug/mL		11-Feb-11				ANIONS	3.2	mg/L
B2C680	Chloride	4.15	ug/mL		10-Mar-11				ANIONS	4.15	mg/L
B2CNV4	Chloride	2.73	ug/mL		06-Apr-11				ANIONS	2.73	mg/L
B2D2C0	Chloride	3.21	ug/mL		04-May-11				ANIONS	3.21	mg/L
B2DY29	Chloride	4.28	ug/mL		09-Jun-11				ANIONS	4.28	mg/L
B2FDM9	Chloride	3.09	ug/mL		06-Jul-11				ANIONS	3.09	mg/L
B2FPH0	Chloride	3.29	ug/mL		04-Aug-11				ANIONS	3.29	mg/L
B2H513	Chloride	3	ug/mL		08-Sep-11				ANIONS	3	mg/L
B2HTB5	Chloride	3.49	ug/mL		05-Oct-11				ANIONS	3.49	mg/L
B2J6B1	Chloride	2.7	mg/L	C	14-Nov-11				ANIONS	2.7	mg/L
B2JPJ5	Chloride	3.1	ug/mL		14-Dec-11			Y	ANIONS	3.1	mg/L
B2JPJ5DUP	Chloride	2.79	ug/mL		14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2KC79	Chloride	3.26	ug/mL		06-Jan-12				ANIONS	3.26	mg/L
B2KCF5	Chloride	4.67	ug/mL		08-Feb-12				ANIONS	4.67	mg/L
B2KD41	Chloride	1.73	ug/mL		15-Mar-12				ANIONS	1.73	mg/L
B2L2D3	Chloride	1.73	ug/mL		10-Apr-12				ANIONS	1.73	mg/L
B2L7L7	Chloride	2.25	ug/mL		09-May-12				ANIONS	2.25	mg/L
B2L7W2	Chloride	2.9	ug/mL		23-May-12				ANIONS	2.9	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2LD50	Chloride	3.11	ug/mL		13-Jun-12				ANIONS	3.11	mg/L
B2LWH1	Chloride	2.82	ug/mL		18-Jul-12				ANIONS	2.82	mg/L
B2LYX2	Chloride	3.15	ug/mL	D	15-Aug-12				ANIONS	3.15	mg/L
B2M066	Chloride	2.52	ug/mL		05-Sep-12				ANIONS	2.52	mg/L
B2M062	Chloride	5.1	ug/mL		03-Oct-12				ANIONS	5.1	mg/L
B2MBL0	Chloride	3.46	ug/mL		07-Nov-12				ANIONS	3.46	mg/L
B2N1P8	Chloride	16.6	ug/mL		05-Dec-12				ANIONS	16.6	mg/L
B2N8C1	Chloride	2.38	ug/mL		14-Dec-12				ANIONS	2.38	mg/L
B2NDM5	Chloride	13.4	ug/mL		09-Jan-13				ANIONS	13.4	mg/L
B2NF86	Chloride	2.52	ug/mL		06-Feb-13				ANIONS	2.52	mg/L
B2NPR0	Chloride	2.63	ug/mL		06-Mar-13				ANIONS	2.63	mg/L
B2NRL5	Chloride	2	ug/mL		03-Apr-13				ANIONS	2	mg/L
B2P559	Chloride	2.55	ug/mL		09-May-13				ANIONS	2.55	mg/L
B2PCY7	Chloride	3.18	ug/mL		06-Jun-13				ANIONS	3.18	mg/L
B2PDM5DUP	Chloride	4.36	ug/mL		10-Jul-13			Y	ANIONS	(duplicate)	mg/L
B2PDM5	Chloride	4.36	ug/mL		10-Jul-13			Y	ANIONS	4.36	mg/L
B2PV19	Chloride	2.78	ug/mL		14-Aug-13				ANIONS	2.78	mg/L
B2R189	Chloride	2.39	ug/mL		04-Sep-13				ANIONS	2.39	mg/L
B2RBV9	Chloride	1.36	ug/mL		09-Oct-13				ANIONS	1.36	mg/L
B2T4K8	Chloride	1.71	ug/mL	N	07-Nov-13				ANIONS	1.71	mg/L
B2TRM8	Chloride	3.04	ug/mL		10-Dec-13				ANIONS	3.04	mg/L
B2V4F0	Chloride	2.66	ug/mL		08-Jan-14				ANIONS	2.66	mg/L
B2VVR4	Chloride	3.02	ug/mL		12-Feb-14				ANIONS	3.02	mg/L
B2VWR2	Chloride	1.14	ug/mL		27-Feb-14				ANIONS	1.14	mg/L
B2W8M8	Chloride	9.14	ug/mL		19-Mar-14				ANIONS	9.14	mg/L
B2W9P0	Chloride	3.2	ug/mL		09-Apr-14				ANIONS	3.2	mg/L
B2WB53	Chloride	3.2	mg/L		14-May-14				ANIONS	3.2	mg/L
B2WM01	Chloride	3	mg/L		18-Jun-14				ANIONS	3.0	mg/L
B2X4J9	Chloride	3.2	mg/L		10-Jul-14				ANIONS	3.2	mg/L
B2XCH4	Chloride	4.7	mg/L		05-Aug-14				ANIONS	4.7	mg/L
B2XNF7	Chloride	4.4	mg/L	N	13-Aug-14				ANIONS	4.4	mg/L
B2XNF5	Chloride	8.2	mg/L	D	09-Sep-14				ANIONS	8.2	mg/L
B2Y402	Chloride	0.92	mg/L		14-Oct-14				ANIONS	0.92	mg/L
B2YH32	Chloride	3.8	mg/L	N	05-Nov-14				ANIONS	3.8	mg/L
B2YRX0	Chloride	3	mg/L	D	02-Dec-14				ANIONS	3.0	mg/L
B30260	Chloride	2.4	mg/L		06-Jan-15			Y	ANIONS	2.4	mg/L
B30260DUP	Chloride	1.9	mg/L		06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Chloride	4880	ug/L		04-Feb-15				ANIONS	4.88	mg/L
B30J35	Chloride	136000	ug/L	D	11-Mar-15				ANIONS	136	mg/L
B30T71	Chloride	1.31	mg/L	D	26-Mar-15				ANIONS	1.31	mg/L
B30T72	Chloride	1.13	mg/L	D	27-Mar-15				ANIONS	1.13	mg/L
B313W5	Chloride	3.92	mg/L		21-Apr-15				ANIONS	3.92	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B313X0	Chloride	4.86	mg/L		20-May-15				ANIONS	4.86	mg/L
B31NL1	Chloride	11.1	mg/L		09-Jun-15				ANIONS	11.1	mg/L
B31RB8	Chloride	4.19	mg/L		07-Jul-15				ANIONS	4.19	mg/L
B32201	Chloride	3.9	mg/L		11-Aug-15				ANIONS	3.9	mg/L
B325D0	Chloride	2.6	mg/L		09-Sep-15				ANIONS	2.6	mg/L
B32JY4	Chloride	1600	ug/L		05-Oct-15				ANIONS	1.6	mg/L
B331D4	Chloride	2500	ug/L		03-Nov-15				ANIONS	2.5	mg/L
B33JM2	Chloride	3300	ug/L		02-Dec-15				ANIONS	3.3	mg/L
B2B441	Fluoride	0.044	ug/mL	U	05-Jan-11				ANIONS	0.044	mg/L
B2BJR3	Fluoride	0.044	ug/mL	U	11-Feb-11				ANIONS	0.044	mg/L
B2C680	Fluoride	0.05	ug/mL	B	10-Mar-11				ANIONS	0.05	mg/L
B2CNV4	Fluoride	0.036	ug/mL	U	06-Apr-11				ANIONS	0.036	mg/L
B2D2C0	Fluoride	0.036	ug/mL	U	04-May-11				ANIONS	0.036	mg/L
B2DY29	Fluoride	0.036	ug/mL	U	09-Jun-11				ANIONS	0.036	mg/L
B2FDM9	Fluoride	0.036	ug/mL	U	06-Jul-11				ANIONS	0.036	mg/L
B2FPH0	Fluoride	0.036	ug/mL	U	04-Aug-11				ANIONS	0.036	mg/L
B2H513	Fluoride	0.036	ug/mL	U	08-Sep-11				ANIONS	0.036	mg/L
B2HTB5	Fluoride	0.036	ug/mL	U	05-Oct-11				ANIONS	0.036	mg/L
B2J6B1	Fluoride	0.065	mg/L	B	14-Nov-11				ANIONS	0.065	mg/L
B2JPJ5	Fluoride	0.023	ug/mL	U	14-Dec-11			Y	ANIONS	0.023	mg/L
B2JPJ5DUP	Fluoride	0.023	ug/mL	U	14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2KC79	Fluoride	0.023	ug/mL	B	06-Jan-12				ANIONS	0.023	mg/L
B2KCF5	Fluoride	0.038	ug/mL	B	08-Feb-12				ANIONS	0.038	mg/L
B2KD41	Fluoride	0.023	ug/mL	U	15-Mar-12				ANIONS	0.023	mg/L
B2L2D3	Fluoride	0.0522	ug/mL	B	10-Apr-12				ANIONS	0.0522	mg/L
B2L7L7	Fluoride	0.0392	ug/mL	B	09-May-12				ANIONS	0.0392	mg/L
B2L7W2	Fluoride	0.0748	ug/mL		23-May-12				ANIONS	0.0748	mg/L
B2LD50	Fluoride	0.0371	ug/mL	B	13-Jun-12				ANIONS	0.0371	mg/L
B2LWH1	Fluoride	0.023	ug/mL	U	18-Jul-12				ANIONS	0.023	mg/L
B2LYX2	Fluoride	0.046	ug/mL	UD	15-Aug-12				ANIONS	0.046	mg/L
B2M066	Fluoride	0.023	ug/mL	U	05-Sep-12				ANIONS	0.023	mg/L
B2M062	Fluoride	0.023	ug/mL	U	03-Oct-12				ANIONS	0.023	mg/L
B2MBL0	Fluoride	0.0327	ug/mL	B	07-Nov-12				ANIONS	0.0327	mg/L
B2N1P8	Fluoride	0.221	ug/mL		05-Dec-12				ANIONS	0.221	mg/L
B2N8C1	Fluoride	0.023	ug/mL	B	14-Dec-12				ANIONS	0.023	mg/L
B2NDM5	Fluoride	0.023	ug/mL	U	09-Jan-13				ANIONS	0.023	mg/L
B2NF86	Fluoride	0.023	ug/mL	UN	06-Feb-13				ANIONS	0.023	mg/L
B2NPR0	Fluoride	0.023	ug/mL	U	06-Mar-13				ANIONS	0.023	mg/L
B2NRL5	Fluoride	0.023	ug/mL	U	03-Apr-13				ANIONS	0.023	mg/L
B2P559	Fluoride	0.0413	ug/mL	B	09-May-13				ANIONS	0.0413	mg/L
B2PCY7	Fluoride	0.0395	ug/mL	B	06-Jun-13				ANIONS	0.0395	mg/L
B2PDM5	Fluoride	0.0491	ug/mL	B	10-Jul-13			Y	ANIONS	(duplicate)	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PDM5DUP	Fluoride	0.0502	ug/mL	B	10-Jul-13			Y	ANIONS	0.0502	mg/L
B2PV19	Fluoride	0.0547	ug/mL	B	14-Aug-13				ANIONS	0.0547	mg/L
B2R189	Fluoride	0.043	ug/mL	B	04-Sep-13				ANIONS	0.043	mg/L
B2RBV9	Fluoride	0.0497	ug/mL	B	09-Oct-13				ANIONS	0.0497	mg/L
B2T4K8	Fluoride	0.0687	ug/mL	B	07-Nov-13				ANIONS	0.0687	mg/L
B2TRM8	Fluoride	0.0338	ug/mL	B	10-Dec-13				ANIONS	0.0338	mg/L
B2V4F0	Fluoride	0.0571	ug/mL	B	08-Jan-14				ANIONS	0.0571	mg/L
B2VVR4	Fluoride	0.0412	ug/mL	B	12-Feb-14				ANIONS	0.0412	mg/L
B2VWR2	Fluoride	0.0386	ug/mL	B	27-Feb-14				ANIONS	0.0386	mg/L
B2W8M8	Fluoride	0.0324	ug/mL	BN	19-Mar-14				ANIONS	0.0324	mg/L
B2W9P0	Fluoride	0.025	ug/mL	B	09-Apr-14				ANIONS	0.025	mg/L
B2WB53	Fluoride	0.072	mg/L	B	14-May-14				ANIONS	0.072	mg/L
B2WM01	Fluoride	0.077	mg/L	B	18-Jun-14				ANIONS	0.077	mg/L
B2X4J9	Fluoride	0.064	mg/L	B	10-Jul-14				ANIONS	0.064	mg/L
B2XCH4	Fluoride	0.076	mg/L	B	05-Aug-14				ANIONS	0.076	mg/L
B2XNF7	Fluoride	0.057	mg/L	BN	13-Aug-14				ANIONS	0.057	mg/L
B2XNF5	Fluoride	0.1	mg/L		09-Sep-14				ANIONS	0.1	mg/L
B2Y402	Fluoride	0.07	mg/L	B	14-Oct-14				ANIONS	0.07	mg/L
B2YH32	Fluoride	0.045	mg/L	BC	05-Nov-14				ANIONS	0.045	mg/L
B2YRX0	Fluoride	0.062	mg/L	BD	02-Dec-14				ANIONS	0.062	mg/L
B30260	Fluoride	0.12	mg/L		06-Jan-15			Y	ANIONS	0.12	mg/L
B30260DUP	Fluoride	0.12	mg/L		06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Fluoride	70.7	ug/L	B	04-Feb-15				ANIONS	0.0707	mg/L
B30J35	Fluoride	56.4	ug/L	B	11-Mar-15				ANIONS	0.0564	mg/L
B30T71	Fluoride	0.112	mg/L	D	26-Mar-15				ANIONS	0.112	mg/L
B30T72	Fluoride	0.081	mg/L	DB	27-Mar-15				ANIONS	0.081	mg/L
B313W5	Fluoride	0.066	mg/L		21-Apr-15				ANIONS	0.066	mg/L
B313X0	Fluoride	0.071	mg/L		20-May-15				ANIONS	0.071	mg/L
B31NL1	Fluoride	0.114	mg/L		09-Jun-15				ANIONS	0.114	mg/L
B31RB8	Fluoride	0.096	mg/L		07-Jul-15				ANIONS	0.096	mg/L
B32201	Fluoride	0.085	mg/L		11-Aug-15				ANIONS	0.085	mg/L
B325D0	Fluoride	0.1	mg/L		09-Sep-15				ANIONS	0.1	mg/L
B32JY4	Fluoride	82	ug/L		05-Oct-15				ANIONS	0.082	mg/L
B331D4	Fluoride	90	ug/L		03-Nov-15				ANIONS	0.09	mg/L
B33JM2	Fluoride	94	ug/L		02-Dec-15				ANIONS	0.094	mg/L
B2B441	Nitrogen in Nitrate	0.187	ug/mL		05-Jan-11				ANIONS	0.187	mg/L
B2BJR3	Nitrogen in Nitrate	0.174	ug/mL		11-Feb-11				ANIONS	0.174	mg/L
B2C680	Nitrogen in Nitrate	0.173	ug/mL		10-Mar-11				ANIONS	0.173	mg/L
B2CNV4	Nitrogen in Nitrate	0.139	ug/mL		06-Apr-11				ANIONS	0.139	mg/L
B2D2C0	Nitrogen in Nitrate	0.146	ug/mL		04-May-11				ANIONS	0.146	mg/L
B2DY29	Nitrogen in Nitrate	0.226	ug/mL		09-Jun-11				ANIONS	0.226	mg/L
B2FDM9	Nitrogen in Nitrate	0.114	ug/mL		06-Jul-11				ANIONS	0.114	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2FPH0	Nitrogen in Nitrate	0.0913	ug/mL	B	04-Aug-11				ANIONS	0.0913	mg/L
B2H513	Nitrogen in Nitrate	0.117	ug/mL		08-Sep-11				ANIONS	0.117	mg/L
B2HTB5	Nitrogen in Nitrate	0.152	ug/mL		05-Oct-11				ANIONS	0.152	mg/L
B2J6B1	Nitrogen in Nitrate	0.19	mg/L		14-Nov-11				ANIONS	0.19	mg/L
B2JPJ5	Nitrogen in Nitrate	0.218	ug/mL		14-Dec-11			Y	ANIONS	0.218	mg/L
B2JPJ5DUP	Nitrogen in Nitrate	0.215	ug/mL		14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2KC79	Nitrogen in Nitrate	0.383	ug/mL		06-Jan-12				ANIONS	0.383	mg/L
B2KCF5	Nitrogen in Nitrate	0.179	ug/mL		08-Feb-12				ANIONS	0.179	mg/L
B2KD41	Nitrogen in Nitrate	0.19	ug/mL		15-Mar-12				ANIONS	0.19	mg/L
B2L2D3	Nitrogen in Nitrate	0.295	ug/mL		10-Apr-12				ANIONS	0.295	mg/L
B2L7L7	Nitrogen in Nitrate	0.153	ug/mL		09-May-12				ANIONS	0.153	mg/L
B2L7W2	Nitrogen in Nitrate	0.152	ug/mL		23-May-12				ANIONS	0.152	mg/L
B2LD50	Nitrogen in Nitrate	0.207	ug/mL		13-Jun-12				ANIONS	0.207	mg/L
B2LWH1	Nitrogen in Nitrate	0.122	ug/mL		18-Jul-12				ANIONS	0.122	mg/L
B2LYX2	Nitrogen in Nitrate	0.241	ug/mL	D	15-Aug-12				ANIONS	0.241	mg/L
B2M066	Nitrogen in Nitrate	0.144	ug/mL		05-Sep-12				ANIONS	0.144	mg/L
B2M062	Nitrogen in Nitrate	0.0937	ug/mL	B	03-Oct-12				ANIONS	0.0937	mg/L
B2MBL0	Nitrogen in Nitrate	0.185	ug/mL		07-Nov-12				ANIONS	0.185	mg/L
B2N1P8	Nitrogen in Nitrate	20.4	ug/mL	D	05-Dec-12				ANIONS	20.4	mg/L
B2N8C1	Nitrogen in Nitrate	0.175	ug/mL		14-Dec-12				ANIONS	0.175	mg/L
B2NDM5	Nitrogen in Nitrate	0.24	ug/mL		09-Jan-13				ANIONS	0.24	mg/L
B2NF86	Nitrogen in Nitrate	0.287	ug/mL		06-Feb-13				ANIONS	0.287	mg/L
B2NPR0	Nitrogen in Nitrate	0.191	ug/mL		06-Mar-13				ANIONS	0.191	mg/L
B2NRL5	Nitrogen in Nitrate	0.151	ug/mL		03-Apr-13				ANIONS	0.151	mg/L
B2P559	Nitrogen in Nitrate	0.155	ug/mL		09-May-13				ANIONS	0.155	mg/L
B2PCY7	Nitrogen in Nitrate	0.108	ug/mL		06-Jun-13				ANIONS	0.108	mg/L
B2PDM5	Nitrogen in Nitrate	0.127	ug/mL		10-Jul-13			Y	ANIONS	(duplicate)	mg/L
B2PDM5DUP	Nitrogen in Nitrate	0.129	ug/mL		10-Jul-13			Y	ANIONS	0.129	mg/L
B2PV19	Nitrogen in Nitrate	0.0787	ug/mL	B	14-Aug-13				ANIONS	0.0787	mg/L
B2R189	Nitrogen in Nitrate	0.104	ug/mL		04-Sep-13				ANIONS	0.104	mg/L
B2RBV9	Nitrogen in Nitrate	0.133	ug/mL		09-Oct-13				ANIONS	0.133	mg/L
B2T4K8	Nitrogen in Nitrate	0.116	ug/mL		07-Nov-13				ANIONS	0.116	mg/L
B2TRM8	Nitrogen in Nitrate	0.11	ug/mL		10-Dec-13				ANIONS	0.11	mg/L
B2V4F0	Nitrogen in Nitrate	0.203	ug/mL		08-Jan-14				ANIONS	0.203	mg/L
B2VVR4	Nitrogen in Nitrate	0.0886	ug/mL	B	12-Feb-14				ANIONS	0.0886	mg/L
B2VWR2	Nitrogen in Nitrate	0.465	ug/mL		27-Feb-14				ANIONS	0.465	mg/L
B2W8M8	Nitrogen in Nitrate	0.247	ug/mL		19-Mar-14				ANIONS	0.247	mg/L
B2W9P0	Nitrogen in Nitrate	0.136	ug/mL		09-Apr-14				ANIONS	0.136	mg/L
B2WB53	Nitrogen in Nitrate	0.11	mg/L		14-May-14				ANIONS	0.11	mg/L
B2WM01	Nitrogen in Nitrate	0.6	mg/L		18-Jun-14				ANIONS	0.6	mg/L
B2X4J9	Nitrogen in Nitrate	0.016	mg/L	B	10-Jul-14				ANIONS	0.016	mg/L
B2XNF7	Nitrogen in Nitrate	0.36	mg/L	N	13-Aug-14				ANIONS	0.36	mg/L

RPP-CALC-60773 Rev. 01

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2XNF5	Nitrogen in Nitrate	0.054	mg/L		09-Sep-14				ANIONS	0.054	mg/L
B2Y402	Nitrogen in Nitrate	0.08	mg/L		14-Oct-14				ANIONS	0.08	mg/L
B2YH32	Nitrogen in Nitrate	0.16	mg/L		05-Nov-14				ANIONS	0.16	mg/L
B2YRX0	Nitrogen in Nitrate	0.18	mg/L	D	02-Dec-14				ANIONS	0.18	mg/L
B30260	Nitrogen in Nitrate	0.15	mg/L		06-Jan-15			Y	ANIONS	0.15	mg/L
B30260DUP	Nitrogen in Nitrate	0.14	mg/L		06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Nitrogen in Nitrate	191	ug/L	B	04-Feb-15				ANIONS	0.191	mg/L
B30J35	Nitrogen in Nitrate	181	ug/L	B	11-Mar-15				ANIONS	0.181	mg/L
B30T71	Nitrogen in Nitrate	0.09	mg/L	D	26-Mar-15				ANIONS	0.09	mg/L
B30T72	Nitrogen in Nitrate	0.092	mg/L	D	27-Mar-15				ANIONS	0.092	mg/L
B313W5	Nitrogen in Nitrate	0.087	mg/L		21-Apr-15				ANIONS	0.087	mg/L
B313X0	Nitrogen in Nitrate	0.069	mg/L		20-May-15				ANIONS	0.069	mg/L
B31NL1	Nitrogen in Nitrate	0.149	mg/L		09-Jun-15				ANIONS	0.149	mg/L
B31RB8	Nitrogen in Nitrate	0.162	mg/L		07-Jul-15				ANIONS	0.162	mg/L
B32201	Nitrogen in Nitrate	0.22	mg/L		11-Aug-15				ANIONS	0.22	mg/L
B325D0	Nitrogen in Nitrate	0.014	mg/L	U	09-Sep-15				ANIONS	0.014	mg/L
B32JY4	Nitrogen in Nitrate	420	ug/L		05-Oct-15				ANIONS	0.42	mg/L
B331D4	Nitrogen in Nitrate	210	ug/L		03-Nov-15				ANIONS	0.21	mg/L
B33JM2	Nitrogen in Nitrate	230	ug/L		02-Dec-15				ANIONS	0.23	mg/L
B2B441	Nitrogen in Nitrite	0.018	ug/mL	U	05-Jan-11				ANIONS	0.018	mg/L
B2BJR3	Nitrogen in Nitrite	0.018	ug/mL	U	11-Feb-11				ANIONS	0.018	mg/L
B2C680	Nitrogen in Nitrite	0.02	ug/mL	U	10-Mar-11				ANIONS	0.02	mg/L
B2CNV4	Nitrogen in Nitrite	0.02	ug/mL	U	06-Apr-11				ANIONS	0.02	mg/L
B2D2C0	Nitrogen in Nitrite	0.0254	ug/mL		04-May-11				ANIONS	0.0254	mg/L
B2DY29	Nitrogen in Nitrite	0.0289	ug/mL		09-Jun-11				ANIONS	0.0289	mg/L
B2FDM9	Nitrogen in Nitrite	0.0261	ug/mL	B	06-Jul-11				ANIONS	0.0261	mg/L
B2FPH0	Nitrogen in Nitrite	0.02	ug/mL	U	04-Aug-11				ANIONS	0.02	mg/L
B2H513	Nitrogen in Nitrite	0.0304	ug/mL	B	08-Sep-11				ANIONS	0.0304	mg/L
B2HTB5	Nitrogen in Nitrite	0.0208	ug/mL	B	05-Oct-11				ANIONS	0.0208	mg/L
B2J6B1	Nitrogen in Nitrite	0.003	mg/L	U	14-Nov-11				ANIONS	0.003	mg/L
B2JPJ5	Nitrogen in Nitrite	0.019	ug/mL	U	14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2JPJ5DUP	Nitrogen in Nitrite	0.0223	ug/mL	B	14-Dec-11			Y	ANIONS	0.0223	mg/L
B2KC79	Nitrogen in Nitrite	0.0847	ug/mL	B	06-Jan-12				ANIONS	0.0847	mg/L
B2KCF5	Nitrogen in Nitrite	0.022	ug/mL	B	08-Feb-12				ANIONS	0.022	mg/L
B2KD41	Nitrogen in Nitrite	0.0453	ug/mL	B	15-Mar-12				ANIONS	0.0453	mg/L
B2L2D3	Nitrogen in Nitrite	0.037	ug/mL	B	10-Apr-12				ANIONS	0.037	mg/L
B2L7L7	Nitrogen in Nitrite	0.0415	ug/mL	B	09-May-12				ANIONS	0.0415	mg/L
B2L7W2	Nitrogen in Nitrite	0.0273	ug/mL	B	23-May-12				ANIONS	0.0273	mg/L
B2LD50	Nitrogen in Nitrite	0.0264	ug/mL	B	13-Jun-12				ANIONS	0.0264	mg/L
B2LWH1	Nitrogen in Nitrite	0.019	ug/mL	U	18-Jul-12				ANIONS	0.019	mg/L
B2LYX2	Nitrogen in Nitrite	0.038	ug/mL	UD	15-Aug-12				ANIONS	0.038	mg/L
B2M066	Nitrogen in Nitrite	0.0228	ug/mL	B	05-Sep-12				ANIONS	0.0228	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2M062	Nitrogen in Nitrite	0.0257	ug/mL	B	03-Oct-12				ANIONS	0.0257	mg/L
B2MBL0	Nitrogen in Nitrite	0.019	ug/mL	U	07-Nov-12				ANIONS	0.019	mg/L
B2N1P8	Nitrogen in Nitrite	0.019	ug/mL	U	05-Dec-12				ANIONS	0.019	mg/L
B2N8C1	Nitrogen in Nitrite	0.0213	ug/mL	B	14-Dec-12				ANIONS	0.0213	mg/L
B2NDM5	Nitrogen in Nitrite	0.019	ug/mL	U	09-Jan-13				ANIONS	0.019	mg/L
B2NF86	Nitrogen in Nitrite	0.019	ug/mL	U	06-Feb-13				ANIONS	0.019	mg/L
B2NPR0	Nitrogen in Nitrite	0.0261	ug/mL	B	06-Mar-13				ANIONS	0.0261	mg/L
B2NRL5	Nitrogen in Nitrite	0.019	ug/mL	U	03-Apr-13				ANIONS	0.019	mg/L
B2P559	Nitrogen in Nitrite	0.02	ug/mL	U	09-May-13				ANIONS	0.02	mg/L
B2PCY7	Nitrogen in Nitrite	0.02	ug/mL	U	06-Jun-13				ANIONS	0.02	mg/L
B2PDM5	Nitrogen in Nitrite	0.02	ug/mL	U	10-Jul-13			Y	ANIONS	0.02	mg/L
B2PDM5DUP	Nitrogen in Nitrite	0.02	ug/mL	U	10-Jul-13			Y	ANIONS	(duplicate)	mg/L
B2PV19	Nitrogen in Nitrite	0.02	ug/mL	U	14-Aug-13				ANIONS	0.02	mg/L
B2R189	Nitrogen in Nitrite	0.02	ug/mL	U	04-Sep-13				ANIONS	0.02	mg/L
B2RBV9	Nitrogen in Nitrite	0.02	ug/mL	U	09-Oct-13				ANIONS	0.02	mg/L
B2T4K8	Nitrogen in Nitrite	0.02	ug/mL	U	07-Nov-13				ANIONS	0.02	mg/L
B2TRM8	Nitrogen in Nitrite	0.02	ug/mL	U	10-Dec-13				ANIONS	0.02	mg/L
B2V4F0	Nitrogen in Nitrite	0.02	ug/mL	U	08-Jan-14				ANIONS	0.02	mg/L
B2VVR4	Nitrogen in Nitrite	0.02	ug/mL	U	12-Feb-14				ANIONS	0.02	mg/L
B2VWR2	Nitrogen in Nitrite	0.02	ug/mL	U	27-Feb-14				ANIONS	0.02	mg/L
B2W8M8	Nitrogen in Nitrite	0.02	ug/mL	U	19-Mar-14				ANIONS	0.02	mg/L
B2W9P0	Nitrogen in Nitrite	0.02	ug/mL	U	09-Apr-14				ANIONS	0.02	mg/L
B2WB53	Nitrogen in Nitrite	0.003	mg/L	U	14-May-14				ANIONS	0.003	mg/L
B2WM01	Nitrogen in Nitrite	0.047	mg/L		18-Jun-14				ANIONS	0.047	mg/L
B2X4J9	Nitrogen in Nitrite	0.003	mg/L	U	10-Jul-14				ANIONS	0.003	mg/L
B2XNF7	Nitrogen in Nitrite	0.22	mg/L	N	13-Aug-14				ANIONS	0.22	mg/L
B2XNF5	Nitrogen in Nitrite	0.003	mg/L	UN	09-Sep-14				ANIONS	0.003	mg/L
B2Y402	Nitrogen in Nitrite	0.003	mg/L	UN	14-Oct-14				ANIONS	0.003	mg/L
B2YH32	Nitrogen in Nitrite	0.003	mg/L	UN	05-Nov-14				ANIONS	0.003	mg/L
B2YRX0	Nitrogen in Nitrite	0.006	mg/L	U	02-Dec-14				ANIONS	0.006	mg/L
B30260	Nitrogen in Nitrite	0.003	mg/L	UN	06-Jan-15			Y	ANIONS	0.003	mg/L
B30260DUP	Nitrogen in Nitrite	0.003	mg/L	UN	06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Nitrogen in Nitrite	38	ug/L	U	04-Feb-15				ANIONS	0.038	mg/L
B30J35	Nitrogen in Nitrite	84.6	ug/L	B	11-Mar-15				ANIONS	0.0846	mg/L
B30T71	Nitrogen in Nitrite	0.038	mg/L	UD	26-Mar-15				ANIONS	0.038	mg/L
B30T72	Nitrogen in Nitrite	0.038	mg/L	UD	27-Mar-15				ANIONS	0.038	mg/L
B313W5	Nitrogen in Nitrite	0.019	mg/L	U	21-Apr-15				ANIONS	0.019	mg/L
B313X0	Nitrogen in Nitrite	0.019	mg/L	U	20-May-15				ANIONS	0.019	mg/L
B31NL1	Nitrogen in Nitrite	0.019	mg/L	U	09-Jun-15				ANIONS	0.019	mg/L
B31RB8	Nitrogen in Nitrite	0.019	mg/L	U	07-Jul-15				ANIONS	0.019	mg/L
B32201	Nitrogen in Nitrite	0.019	mg/L	U	11-Aug-15				ANIONS	0.019	mg/L
B325D0	Nitrogen in Nitrite	0.019	mg/L	U	09-Sep-15				ANIONS	0.019	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B32JY4	Nitrogen in Nitrite	19	ug/L	U	05-Oct-15				ANIONS	0.019	mg/L
B331D4	Nitrogen in Nitrite	19	ug/L	U	03-Nov-15				ANIONS	0.019	mg/L
B33JM2	Nitrogen in Nitrite	19	ug/L	U	02-Dec-15				ANIONS	0.019	mg/L
B2WB53	Phosphate	0.95	mg/L	N	14-May-14				ANIONS	0.95	mg/L
B2WM01	Phosphate	1.4	mg/L	N	18-Jun-14				ANIONS	1.4	mg/L
B2X4J9	Phosphate	0.74	mg/L		10-Jul-14				ANIONS	0.74	mg/L
B2XNF7	Phosphate	1.2	mg/L		13-Aug-14				ANIONS	1.2	mg/L
B2XNF5	Phosphate	0.078	mg/L	U	09-Sep-14				ANIONS	0.078	mg/L
B2Y402	Phosphate	0.078	mg/L	UN	14-Oct-14				ANIONS	0.078	mg/L
B2YH32	Phosphate	0.42	mg/L	BN	05-Nov-14				ANIONS	0.42	mg/L
B2YRX0	Phosphate	0.24	mg/L	BD	02-Dec-14				ANIONS	0.24	mg/L
B30260	Phosphate	1.2	mg/L	N	06-Jan-15			Y	ANIONS	1.2	mg/L
B30260DUP	Phosphate	0.97	mg/L	N	06-Jan-15			Y	ANIONS	0.97	mg/L
B2B441	Phosphorus in phosphate	0.236	ug/mL	B	05-Jan-11				ANIONS	0.236	mg/L
B2BJR3	Phosphorus in phosphate	0.0851	ug/mL	B	11-Feb-11				ANIONS	0.0851	mg/L
B2C680	Phosphorus in phosphate	15.1	ug/mL		10-Mar-11				ANIONS	15.1	mg/L
B2CNV4	Phosphorus in phosphate	0.158	ug/mL	B	06-Apr-11				ANIONS	0.158	mg/L
B2D2C0	Phosphorus in phosphate	0.05	ug/mL	U	04-May-11				ANIONS	0.05	mg/L
B2DY29	Phosphorus in phosphate	0.113	ug/mL		09-Jun-11				ANIONS	0.113	mg/L
B2FDM9	Phosphorus in phosphate	0.0682	ug/mL	B	06-Jul-11				ANIONS	0.0682	mg/L
B2FPH0	Phosphorus in phosphate	0.567	ug/mL		04-Aug-11				ANIONS	0.567	mg/L
B2H513	Phosphorus in phosphate	0.29	ug/mL	B	08-Sep-11				ANIONS	0.29	mg/L
B2HTB5	Phosphorus in phosphate	0.0661	ug/mL	B	05-Oct-11				ANIONS	0.0661	mg/L
B2J6B1	Phosphorus in phosphate	1.8	mg/L		14-Nov-11				ANIONS	1.8	mg/L
B2JPJ5	Phosphorus in phosphate	0.115	ug/mL	B	14-Dec-11			Y	ANIONS	0.115	mg/L
B2JPJ5DUP	Phosphorus in phosphate	0.111	ug/mL	B	14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2KC79	Phosphorus in phosphate	0.0833	ug/mL	B	06-Jan-12				ANIONS	0.0833	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2KCF5	Phosphorus in phosphate	0.042	ug/mL	U	08-Feb-12				ANIONS	0.042	mg/L
B2KD41	Phosphorus in phosphate	0.0914	ug/mL	B	15-Mar-12				ANIONS	0.0914	mg/L
B2L2D3	Phosphorus in phosphate	0.042	ug/mL	U	10-Apr-12				ANIONS	0.042	mg/L
B2L7L7	Phosphorus in phosphate	0.042	ug/mL	U	09-May-12				ANIONS	0.042	mg/L
B2L7W2	Phosphorus in phosphate	0.042	ug/mL	U	23-May-12				ANIONS	0.042	mg/L
B2LD50	Phosphorus in phosphate	0.427	ug/mL		13-Jun-12				ANIONS	0.427	mg/L
B2LWH1	Phosphorus in phosphate	0.042	ug/mL	U	18-Jul-12				ANIONS	0.042	mg/L
B2LYX2	Phosphorus in phosphate	0.325	ug/mL	BD	15-Aug-12				ANIONS	0.325	mg/L
B2M066	Phosphorus in phosphate	0.17	ug/mL	B	05-Sep-12				ANIONS	0.17	mg/L
B2M062	Phosphorus in phosphate	0.042	ug/mL	U	03-Oct-12				ANIONS	0.042	mg/L
B2MBL0	Phosphorus in phosphate	0.192	ug/mL	B	07-Nov-12				ANIONS	0.192	mg/L
B2N1P8	Phosphorus in phosphate	0.0726	ug/mL	B	05-Dec-12				ANIONS	0.0726	mg/L
B2N8C1	Phosphorus in phosphate	0.0733	ug/mL	B	14-Dec-12				ANIONS	0.0733	mg/L
B2NDM5	Phosphorus in phosphate	0.042	ug/mL	U	09-Jan-13				ANIONS	0.042	mg/L
B2NF86	Phosphorus in phosphate	0.0635	ug/mL	B	06-Feb-13				ANIONS	0.0635	mg/L
B2NPR0	Phosphorus in phosphate	0.042	ug/mL	U	06-Mar-13				ANIONS	0.042	mg/L
B2NRL5	Phosphorus in phosphate	0.56	ug/mL		03-Apr-13				ANIONS	0.56	mg/L
B2P559	Phosphorus in phosphate	0.103	ug/mL	B	09-May-13				ANIONS	0.103	mg/L
B2PCY7	Phosphorus in phosphate	0.05	ug/mL	U	06-Jun-13				ANIONS	0.05	mg/L
B2PDM5	Phosphorus in phosphate	0.126	ug/mL	B	10-Jul-13			Y	ANIONS	0.126	mg/L
B2PDM5DUP	Phosphorus in phosphate	0.108	ug/mL	B	10-Jul-13			Y	ANIONS	(duplicate)	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PV19	Phosphorus in phosphate	0.05	ug/mL	U	14-Aug-13				ANIONS	0.05	mg/L
B2R189	Phosphorus in phosphate	0.05	ug/mL	U	04-Sep-13				ANIONS	0.05	mg/L
B2RBV9	Phosphorus in phosphate	0.05	ug/mL	U	09-Oct-13				ANIONS	0.05	mg/L
B2T4K8	Phosphorus in phosphate	0.602	ug/mL		07-Nov-13				ANIONS	0.602	mg/L
B2TRM8	Phosphorus in phosphate	0.05	ug/mL	B	10-Dec-13				ANIONS	0.05	mg/L
B2V4F0	Phosphorus in phosphate	0.17	ug/mL	B	08-Jan-14				ANIONS	0.17	mg/L
B2VVR4	Phosphorus in phosphate	0.05	ug/mL	U	12-Feb-14				ANIONS	0.05	mg/L
B2VWR2	Phosphorus in phosphate	0.05	ug/mL	U	27-Feb-14				ANIONS	0.05	mg/L
B2W8M8	Phosphorus in phosphate	0.0944	ug/mL	B	19-Mar-14				ANIONS	0.0944	mg/L
B2W9P0	Phosphorus in phosphate	0.05	ug/mL	U	09-Apr-14				ANIONS	0.05	mg/L
B308L5	Phosphorus in phosphate	67	ug/L	U	04-Feb-15				ANIONS	0.067	mg/L
B30J35	Phosphorus in phosphate	67	ug/L	U	11-Mar-15				ANIONS	0.067	mg/L
B31NL1	Phosphorus in phosphate	0.504	mg/L		09-Jun-15				ANIONS	0.504	mg/L
B31RB8	Phosphorus in phosphate	0.537	mg/L		07-Jul-15				ANIONS	0.537	mg/L
B32201	Phosphorus in phosphate	0.13	mg/L	U	11-Aug-15				ANIONS	0.13	mg/L
B325D0	Phosphorus in phosphate	0.19	mg/L	B	09-Sep-15				ANIONS	0.19	mg/L
B32JY4	Phosphorus in phosphate	230	ug/L	B	05-Oct-15				ANIONS	0.23	mg/L
B331D4	Phosphorus in phosphate	220	ug/L	B	03-Nov-15				ANIONS	0.22	mg/L
B33JM2	Phosphorus in phosphate	190	ug/L	B	02-Dec-15				ANIONS	0.19	mg/L
B2B441	Sulfate	24	ug/mL		05-Jan-11				ANIONS	24	mg/L
B2BJR3	Sulfate	17.6	ug/mL		11-Feb-11				ANIONS	17.6	mg/L
B2C680	Sulfate	28.3	ug/mL		10-Mar-11				ANIONS	28.3	mg/L
B2CNV4	Sulfate	20	ug/mL		06-Apr-11				ANIONS	20	mg/L
B2D2C0	Sulfate	27.6	ug/mL		04-May-11				ANIONS	27.6	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2DY29	Sulfate	22.6	ug/mL		09-Jun-11				ANIONS	22.6	mg/L
B2FDM9	Sulfate	23.9	ug/mL		06-Jul-11				ANIONS	23.9	mg/L
B2FPH0	Sulfate	24.2	ug/mL		04-Aug-11				ANIONS	24.2	mg/L
B2H513	Sulfate	24.7	ug/mL	N	08-Sep-11				ANIONS	24.7	mg/L
B2HTB5	Sulfate	18.7	ug/mL		05-Oct-11				ANIONS	18.7	mg/L
B2J6B1	Sulfate	15.5	mg/L		14-Nov-11				ANIONS	15.5	mg/L
B2JPJ5	Sulfate	19.3	ug/mL		14-Dec-11			Y	ANIONS	(duplicate)	mg/L
B2JPJ5DUP	Sulfate	19.6	ug/mL		14-Dec-11			Y	ANIONS	19.6	mg/L
B2KC79	Sulfate	19.4	ug/mL		06-Jan-12				ANIONS	19.4	mg/L
B2KCF5	Sulfate	23.7	ug/mL		08-Feb-12				ANIONS	23.7	mg/L
B2KD41	Sulfate	12.2	ug/mL		15-Mar-12				ANIONS	12.2	mg/L
B2L2D3	Sulfate	13.5	ug/mL		10-Apr-12				ANIONS	13.5	mg/L
B2L7L7	Sulfate	14.5	ug/mL		09-May-12				ANIONS	14.5	mg/L
B2L7W2	Sulfate	22.7	ug/mL		23-May-12				ANIONS	22.7	mg/L
B2LD50	Sulfate	19.1	ug/mL		13-Jun-12				ANIONS	19.1	mg/L
B2LWH1	Sulfate	21.3	ug/mL		18-Jul-12				ANIONS	21.3	mg/L
B2LYX2	Sulfate	20.6	ug/mL	D	15-Aug-12				ANIONS	20.6	mg/L
B2M066	Sulfate	21.1	ug/mL		05-Sep-12				ANIONS	21.1	mg/L
B2M062	Sulfate	22.6	ug/mL		03-Oct-12				ANIONS	22.6	mg/L
B2MBL0	Sulfate	23.7	ug/mL		07-Nov-12				ANIONS	23.7	mg/L
B2N1P8	Sulfate	80.1	ug/mL		05-Dec-12				ANIONS	80.1	mg/L
B2N8C1	Sulfate	23.9	ug/mL		14-Dec-12				ANIONS	23.9	mg/L
B2NDM5	Sulfate	20.6	ug/mL		09-Jan-13				ANIONS	20.6	mg/L
B2NF86	Sulfate	19.9	ug/mL		06-Feb-13				ANIONS	19.9	mg/L
B2NPR0	Sulfate	21.7	ug/mL		06-Mar-13				ANIONS	21.7	mg/L
B2NRL5	Sulfate	14.8	ug/mL		03-Apr-13				ANIONS	14.8	mg/L
B2P559	Sulfate	20.5	ug/mL		09-May-13				ANIONS	20.5	mg/L
B2PCY7	Sulfate	22.9	ug/mL		06-Jun-13				ANIONS	22.9	mg/L
B2PDM5	Sulfate	21.3	ug/mL		10-Jul-13			Y	ANIONS	(duplicate)	mg/L
B2PDM5DUP	Sulfate	21.5	ug/mL		10-Jul-13			Y	ANIONS	21.5	mg/L
B2PV19	Sulfate	17.2	ug/mL		14-Aug-13				ANIONS	17.2	mg/L
B2R189	Sulfate	20.1	ug/mL		04-Sep-13				ANIONS	20.1	mg/L
B2RBV9	Sulfate	11.2	ug/mL		09-Oct-13				ANIONS	11.2	mg/L
B2T4K8	Sulfate	12.6	ug/mL		07-Nov-13				ANIONS	12.6	mg/L
B2TRM8	Sulfate	23.1	ug/mL		10-Dec-13				ANIONS	23.1	mg/L
B2V4F0	Sulfate	21.3	ug/mL		08-Jan-14				ANIONS	21.3	mg/L
B2VVR4	Sulfate	19.7	ug/mL		12-Feb-14				ANIONS	19.7	mg/L
B2VWR2	Sulfate	10.4	ug/mL		27-Feb-14				ANIONS	10.4	mg/L
B2W8M8	Sulfate	21	ug/mL		19-Mar-14				ANIONS	21	mg/L
B2W9P0	Sulfate	22.9	ug/mL		09-Apr-14				ANIONS	22.9	mg/L
B2WB53	Sulfate	19.2	mg/L	D	14-May-14				ANIONS	19.2	mg/L
B2WM01	Sulfate	13.2	mg/L		18-Jun-14				ANIONS	13.2	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2X4J9	Sulfate	17.8	mg/L		10-Jul-14				ANIONS	17.8	mg/L
B2XCH4	Sulfate	39.1	mg/L	D	05-Aug-14				ANIONS	39.1	mg/L
B2XNF7	Sulfate	17.5	mg/L	D	13-Aug-14				ANIONS	17.5	mg/L
B2XNF5	Sulfate	8.9	mg/L		09-Sep-14				ANIONS	8.9	mg/L
B2Y402	Sulfate	9.2	mg/L		14-Oct-14				ANIONS	9.2	mg/L
B2YH32	Sulfate	19.9	mg/L		05-Nov-14				ANIONS	19.9	mg/L
B2YRX0	Sulfate	17	mg/L	D	02-Dec-14				ANIONS	17	mg/L
B30260	Sulfate	14	mg/L		06-Jan-15			Y	ANIONS	14	mg/L
B30260DUP	Sulfate	12	mg/L		06-Jan-15			Y	ANIONS	(duplicate)	mg/L
B308L5	Sulfate	19500	ug/L		04-Feb-15				ANIONS	19.5	mg/L
B30J35	Sulfate	23100	ug/L	D	11-Mar-15				ANIONS	23.1	mg/L
B30T71	Sulfate	9.39	mg/L	D	26-Mar-15				ANIONS	9.39	mg/L
B30T72	Sulfate	8.71	mg/L	D	27-Mar-15				ANIONS	8.71	mg/L
B313W5	Sulfate	20	mg/L		21-Apr-15				ANIONS	20	mg/L
B313X0	Sulfate	22.2	mg/L		20-May-15				ANIONS	22.2	mg/L
B31NL1	Sulfate	44.7	mg/L		09-Jun-15				ANIONS	44.7	mg/L
B31RB8	Sulfate	23.1	mg/L		07-Jul-15				ANIONS	23.1	mg/L
B32201	Sulfate	19	mg/L		11-Aug-15				ANIONS	19	mg/L
B325D0	Sulfate	17	mg/L		09-Sep-15				ANIONS	17	mg/L
B32JY4	Sulfate	15000	ug/L		05-Oct-15				ANIONS	15	mg/L
B331D4	Sulfate	22000	ug/L		03-Nov-15				ANIONS	22	mg/L
B33JM2	Sulfate	17000	ug/L		02-Dec-15				ANIONS	17	mg/L
B308L5	Aluminum	1500	ug/L		04-Feb-15				METALS	1500	ug/L
B30J35	Aluminum	108	ug/L		11-Mar-15				METALS	108	ug/L
B2B441	Arsenic	0.433	ug/L	B	05-Jan-11				METALS	0.433	ug/L
B2BJR3	Arsenic	0.457	ug/L	B	11-Feb-11				METALS	0.457	ug/L
B2C680	Arsenic	1.57	ug/L	B	10-Mar-11				METALS	1.57	ug/L
B2CNV4	Arsenic	0.552	ug/L	B	06-Apr-11				METALS	0.552	ug/L
B2D2C0	Arsenic	0.425	ug/L	B	04-May-11				METALS	0.425	ug/L
B2DY29	Arsenic	0.636	ug/L	B	09-Jun-11				METALS	0.636	ug/L
B2FDM9	Arsenic	0.472	ug/L	B	06-Jul-11				METALS	0.472	ug/L
B2FPH0	Arsenic	1.43	ug/L	BD	04-Aug-11				METALS	1.43	ug/L
B2H513	Arsenic	1.7	ug/L	BC	08-Sep-11				METALS	1.7	ug/L
B2HTB5	Arsenic	0.96	ug/L	B	05-Oct-11				METALS	0.96	ug/L
B2J6B1	Arsenic	0.95	ug/L	U	14-Nov-11				METALS	0.95	ug/L
B2JPJ5	Arsenic	0.496	ug/L	B	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2JPJ5DUP	Arsenic	0.51	ug/L	B	14-Dec-11			Y	METALS	0.510	ug/L
B2KC79	Arsenic	0.662	ug/L	B	06-Jan-12				METALS	0.662	ug/L
B2KCF5	Arsenic	0.582	ug/L	B	08-Feb-12				METALS	0.582	ug/L
B2KD41	Arsenic	0.416	ug/L	B	15-Mar-12				METALS	0.416	ug/L
B2L2D3	Arsenic	0.755	ug/L	B	10-Apr-12				METALS	0.755	ug/L
B2L7L7	Arsenic	0.392	ug/L	B	09-May-12				METALS	0.392	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2L7W2	Arsenic	2.1	ug/L		23-May-12				METALS	2.1	ug/L
B2LD50	Arsenic	1.01	ug/L	B	13-Jun-12				METALS	1.01	ug/L
B2LWH1	Arsenic	0.57	ug/L	B	18-Jul-12				METALS	0.57	ug/L
B2LYX2	Arsenic	0.589	ug/L	B	15-Aug-12				METALS	0.589	ug/L
B2M066	Arsenic	0.644	ug/L	B	05-Sep-12				METALS	0.644	ug/L
B2M062	Arsenic	0.894	ug/L	B	03-Oct-12				METALS	0.894	ug/L
B2MBL0	Arsenic	0.529	ug/L	B	07-Nov-12				METALS	0.529	ug/L
B2N1P8	Arsenic	1.59	ug/L	B	05-Dec-12				METALS	1.59	ug/L
B2N8C1	Arsenic	0.797	ug/L	B	14-Dec-12				METALS	0.797	ug/L
B2NDM5	Arsenic	0.455	ug/L	B	09-Jan-13				METALS	0.455	ug/L
B2NF86	Arsenic	0.58	ug/L	B	06-Feb-13				METALS	0.58	ug/L
B2NPR0	Arsenic	0.553	ug/L	B	06-Mar-13				METALS	0.553	ug/L
B2NRL5	Arsenic	0.547	ug/L	B	03-Apr-13				METALS	0.547	ug/L
B2P559	Arsenic	0.704	ug/L	B	09-May-13				METALS	0.704	ug/L
B2PCY7	Arsenic	2.93	ug/L		06-Jun-13				METALS	2.93	ug/L
B2PDM5	Arsenic	0.615	ug/L	B	10-Jul-13			Y	METALS	0.615	ug/L
B2PDM5DUP	Arsenic	0.569	ug/L	B	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Arsenic	0.301	ug/L	B	14-Aug-13				METALS	0.301	ug/L
B2R189	Arsenic	0.603	ug/L	B	04-Sep-13				METALS	0.603	ug/L
B2RBV9	Arsenic	0.542	ug/L	B	09-Oct-13				METALS	0.542	ug/L
B2T4K8	Arsenic	0.663	ug/L	B	07-Nov-13				METALS	0.663	ug/L
B2TRM8	Arsenic	0.331	ug/L	B	10-Dec-13				METALS	0.331	ug/L
B2V4F0	Arsenic	0.5	ug/L	B	08-Jan-14				METALS	0.5	ug/L
B2VVR4	Arsenic	0.255	ug/L	B	12-Feb-14				METALS	0.255	ug/L
B2VWR2	Arsenic	0.337	ug/L	B	27-Feb-14				METALS	0.337	ug/L
B2W8M8	Arsenic	0.36	ug/L	BN	19-Mar-14				METALS	0.36	ug/L
B2W9P0	Arsenic	0.636	ug/L	B	09-Apr-14				METALS	0.636	ug/L
B2WB53	Arsenic	1.2	ug/L	U	14-May-14				METALS	1.2	ug/L
B2WM01	Arsenic	1.2	ug/L	U	18-Jun-14			Y	METALS	(duplicate)	ug/L
B2WM01	Arsenic	1.2	ug/L	U	18-Jun-14			Y	METALS	1.2	ug/L
B2X4J9	Arsenic	1.2	ug/L	U	10-Jul-14				METALS	1.2	ug/L
B2XCH4	Arsenic	1.2	ug/L	U	05-Aug-14				METALS	1.2	ug/L
B2XNF5	Arsenic	1.2	ug/L	U	09-Sep-14				METALS	1.2	ug/L
B2Y402	Arsenic	1.2	ug/L	U	14-Oct-14				METALS	1.2	ug/L
B2YH32	Arsenic	1.2	ug/L	U	05-Nov-14				METALS	1.2	ug/L
B2YRX0	Arsenic	1.2	ug/L	U	02-Dec-14				METALS	1.2	ug/L
B30260	Arsenic	1.7	ug/L	U	06-Jan-15			Y	METALS	1.7	ug/L
B30260DUP	Arsenic	1.7	ug/L	U	06-Jan-15			Y	METALS	(duplicate)	ug/L
B308L5	Arsenic	1.7	ug/L	U	04-Feb-15				METALS	1.7	ug/L
B30J35	Arsenic	1.7	ug/L	U	11-Mar-15				METALS	1.7	ug/L
B313W6	Arsenic	1.7	ug/L	U	21-Apr-15				METALS	1.7	ug/L
B313X1	Arsenic	1.7	ug/L	U	20-May-15				METALS	1.7	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B31NL2	Arsenic	1.7	ug/L	U	09-Jun-15				METALS	1.7	ug/L
B31RB9	Arsenic	1.7	ug/L	U	07-Jul-15				METALS	1.7	ug/L
B32202	Arsenic	1.7	ug/L	U	11-Aug-15				METALS	1.7	ug/L
B325D1	Arsenic	1.7	ug/L	U	09-Sep-15				METALS	1.7	ug/L
B32JY5	Arsenic	1.7	ug/L	U	06-Oct-15				METALS	1.7	ug/L
B331D5	Arsenic	1.7	ug/L	U	03-Nov-15				METALS	1.7	ug/L
B33JM3	Arsenic	1.7	ug/L	U	02-Dec-15				METALS	1.7	ug/L
B308L5	Barium	29.3	ug/L		04-Feb-15				METALS	29.3	ug/L
B30J35	Barium	61.8	ug/L		11-Mar-15				METALS	61.8	ug/L
B308L5	Beryllium	1	ug/L	U	04-Feb-15				METALS	1	ug/L
B30J35	Beryllium	1	ug/L	U	11-Mar-15				METALS	1	ug/L
B2B441	Cadmium	0.1	ug/L	U	05-Jan-11				METALS	0.1	ug/L
B2BJR3	Cadmium	0.1	ug/L	U	11-Feb-11				METALS	0.1	ug/L
B2C680	Cadmium	0.136	ug/L	B	10-Mar-11				METALS	0.136	ug/L
B2CNV4	Cadmium	0.1	ug/L	U	06-Apr-11				METALS	0.1	ug/L
B2D2C0	Cadmium	0.1	ug/L	U	04-May-11				METALS	0.1	ug/L
B2DY29	Cadmium	0.1	ug/L	U	09-Jun-11				METALS	0.1	ug/L
B2FDM9	Cadmium	0.1	ug/L	U	06-Jul-11				METALS	0.1	ug/L
B2FPH0	Cadmium	0.1	ug/L	UD	04-Aug-11				METALS	0.1	ug/L
B2H513	Cadmium	0.14	ug/L	B	08-Sep-11				METALS	0.14	ug/L
B2HTB5	Cadmium	0.1	ug/L	U	05-Oct-11				METALS	0.1	ug/L
B2J6B1	Cadmium	0.1	ug/L	U	14-Nov-11				METALS	0.1	ug/L
B2JPJ5	Cadmium	0.05	ug/L	U	14-Dec-11			Y	METALS	0.05	ug/L
B2JPJ5DUP	Cadmium	0.05	ug/L	U	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2KC79	Cadmium	0.05	ug/L	U	06-Jan-12				METALS	0.05	ug/L
B2KCF5	Cadmium	0.05	ug/L	U	08-Feb-12				METALS	0.05	ug/L
B2KD41	Cadmium	0.05	ug/L	U	15-Mar-12				METALS	0.05	ug/L
B2L2D3	Cadmium	0.058	ug/L	B	10-Apr-12				METALS	0.058	ug/L
B2L7L7	Cadmium	0.05	ug/L	U	09-May-12				METALS	0.05	ug/L
B2L7W2	Cadmium	0.05	ug/L	U	23-May-12				METALS	0.05	ug/L
B2LD50	Cadmium	0.05	ug/L	U	13-Jun-12				METALS	0.05	ug/L
B2LWH1	Cadmium	0.05	ug/L	U	18-Jul-12				METALS	0.05	ug/L
B2LYX2	Cadmium	0.05	ug/L	U	15-Aug-12				METALS	0.05	ug/L
B2M066	Cadmium	0.05	ug/L	U	05-Sep-12				METALS	0.05	ug/L
B2M062	Cadmium	0.05	ug/L	U	03-Oct-12				METALS	0.05	ug/L
B2MBL0	Cadmium	0.05	ug/L	U	07-Nov-12				METALS	0.05	ug/L
B2N1P8	Cadmium	0.05	ug/L	U	05-Dec-12				METALS	0.05	ug/L
B2N8C1	Cadmium	0.05	ug/L	U	14-Dec-12				METALS	0.05	ug/L
B2NDM5	Cadmium	0.05	ug/L	U	09-Jan-13				METALS	0.05	ug/L
B2NF86	Cadmium	0.05	ug/L	U	06-Feb-13				METALS	0.05	ug/L
B2NPR0	Cadmium	0.05	ug/L	U	06-Mar-13				METALS	0.05	ug/L
B2NRL5	Cadmium	0.05	ug/L	U	03-Apr-13				METALS	0.05	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2P559	Cadmium	0.05	ug/L	U	09-May-13				METALS	0.05	ug/L
B2PCY7	Cadmium	0.0685	ug/L	B	06-Jun-13				METALS	0.0685	ug/L
B2PDM5	Cadmium	0.05	ug/L	U	10-Jul-13			Y	METALS	0.05	ug/L
B2PDM5DUP	Cadmium	0.05	ug/L	U	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Cadmium	0.05	ug/L	U	14-Aug-13				METALS	0.05	ug/L
B2R189	Cadmium	0.05	ug/L	U	04-Sep-13				METALS	0.05	ug/L
B2RBV9	Cadmium	0.05	ug/L	U	09-Oct-13				METALS	0.05	ug/L
B2T4K8	Cadmium	0.05	ug/L	U	07-Nov-13				METALS	0.05	ug/L
B2TRM8	Cadmium	0.05	ug/L	U	10-Dec-13				METALS	0.05	ug/L
B2V4F0	Cadmium	0.05	ug/L	U	08-Jan-14				METALS	0.05	ug/L
B2VVR4	Cadmium	0.05	ug/L	U	12-Feb-14				METALS	0.05	ug/L
B2VWR2	Cadmium	0.05	ug/L	U	27-Feb-14				METALS	0.05	ug/L
B2W8M8	Cadmium	0.05	ug/L	U	19-Mar-14				METALS	0.05	ug/L
B2W9P0	Cadmium	0.05	ug/L	U	09-Apr-14				METALS	0.05	ug/L
B2WB53	Cadmium	0.1	ug/L	U	14-May-14				METALS	0.1	ug/L
B2WM01	Cadmium	0.1	ug/L	U	18-Jun-14			Y	METALS	(duplicate)	ug/L
B2WM01	Cadmium	0.1	ug/L	U	18-Jun-14			Y	METALS	0.1	ug/L
B2X4J9	Cadmium	0.1	ug/L	U	10-Jul-14				METALS	0.1	ug/L
B2XCH4	Cadmium	0.1	ug/L	U	05-Aug-14				METALS	0.1	ug/L
B2XNF5	Cadmium	0.1	ug/L	U	09-Sep-14				METALS	0.1	ug/L
B2Y402	Cadmium	0.1	ug/L	U	14-Oct-14				METALS	0.1	ug/L
B2YH32	Cadmium	0.34	ug/L	B	05-Nov-14				METALS	0.34	ug/L
B2YRX0	Cadmium	0.1	ug/L	U	02-Dec-14				METALS	0.1	ug/L
B30260	Cadmium	0.11	ug/L	U	06-Jan-15			Y	METALS	0.11	ug/L
B30260DUP	Cadmium	0.11	ug/L	U	06-Jan-15			Y	METALS	(duplicate)	ug/L
B308L5	Cadmium	0.11	ug/L	U	04-Feb-15				METALS	0.11	ug/L
B30J35	Cadmium	0.11	ug/L	U	11-Mar-15				METALS	0.11	ug/L
B313W6	Cadmium	0.127	ug/L	B	21-Apr-15				METALS	0.127	ug/L
B313X1	Cadmium	0.11	ug/L	U	20-May-15				METALS	0.11	ug/L
B31NL2	Cadmium	0.11	ug/L	U	09-Jun-15				METALS	0.11	ug/L
B31RB9	Cadmium	0.11	ug/L	U	07-Jul-15				METALS	0.11	ug/L
B32202	Cadmium	0.11	ug/L	U	11-Aug-15				METALS	0.11	ug/L
B325D1	Cadmium	0.11	ug/L	U	09-Sep-15				METALS	0.11	ug/L
B32JY5	Cadmium	0.11	ug/L	U	06-Oct-15				METALS	0.11	ug/L
B331D5	Cadmium	0.11	ug/L	U	03-Nov-15				METALS	0.11	ug/L
B33JM3	Cadmium	0.11	ug/L	U	02-Dec-15				METALS	0.11	ug/L
B308L5	Calcium	22500	ug/L		04-Feb-15				METALS	22500	ug/L
B30J35	Calcium	43400	ug/L		11-Mar-15				METALS	43400	ug/L
B2B441	Chromium	0.785	ug/L	B	05-Jan-11				METALS	0.785	ug/L
B2BJR3	Chromium	0.5	ug/L	U	11-Feb-11				METALS	0.5	ug/L
B2C680	Chromium	0.5	ug/L	U	10-Mar-11				METALS	0.5	ug/L
B2CNV4	Chromium	0.5	ug/L	U	06-Apr-11				METALS	0.5	ug/L

RPP-CALC-60773 Rev. 01

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2D2C0	Chromium	0.5	ug/L	U	04-May-11				METALS	0.5	ug/L
B2DY29	Chromium	0.5	ug/L	U	09-Jun-11				METALS	0.5	ug/L
B2FDM9	Chromium	0.5	ug/L	U	06-Jul-11				METALS	0.5	ug/L
B2FPH0	Chromium	0.57	ug/L	BDC	04-Aug-11				METALS	0.57	ug/L
B2H513	Chromium	3.3	ug/L	U	08-Sep-11				METALS	3.3	ug/L
B2HTB5	Chromium	3.3	ug/L	U	05-Oct-11				METALS	3.3	ug/L
B2J6B1	Chromium	3.3	ug/L	U	14-Nov-11				METALS	3.3	ug/L
B2JPJ5	Chromium	0.82	ug/L	BC	14-Dec-11			Y	METALS	0.820	ug/L
B2JPJ5DUP	Chromium	0.229	ug/L	BC	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2KC79	Chromium	0.423	ug/L	B	06-Jan-12				METALS	0.423	ug/L
B2KCF5	Chromium	0.335	ug/L	BC	08-Feb-12				METALS	0.335	ug/L
B2KD41	Chromium	0.131	ug/L	BC	15-Mar-12				METALS	0.131	ug/L
B2L2D3	Chromium	0.365	ug/L	BC	10-Apr-12				METALS	0.365	ug/L
B2L7L7	Chromium	0.1	ug/L	U	09-May-12				METALS	0.1	ug/L
B2L7W2	Chromium	0.299	ug/L	B	23-May-12				METALS	0.299	ug/L
B2LD50	Chromium	0.189	ug/L	B	13-Jun-12				METALS	0.189	ug/L
B2LWH1	Chromium	0.157	ug/L	B	18-Jul-12				METALS	0.157	ug/L
B2LYX2	Chromium	0.132	ug/L	B	15-Aug-12				METALS	0.132	ug/L
B2M066	Chromium	0.25	ug/L	B	05-Sep-12				METALS	0.25	ug/L
B2M062	Chromium	0.289	ug/L	B	03-Oct-12				METALS	0.289	ug/L
B2MBL0	Chromium	0.217	ug/L	B	07-Nov-12				METALS	0.217	ug/L
B2N1P8	Chromium	1.28	ug/L		05-Dec-12				METALS	1.28	ug/L
B2N8C1	Chromium	0.521	ug/L	B	14-Dec-12				METALS	0.521	ug/L
B2NDM5	Chromium	0.149	ug/L	B	09-Jan-13				METALS	0.149	ug/L
B2NF86	Chromium	0.338	ug/L	B	06-Feb-13				METALS	0.338	ug/L
B2NPR0	Chromium	0.137	ug/L	B	06-Mar-13				METALS	0.137	ug/L
B2NRL5	Chromium	0.638	ug/L	B	03-Apr-13				METALS	0.638	ug/L
B2P559	Chromium	0.1	ug/L	U	09-May-13				METALS	0.1	ug/L
B2PCY7	Chromium	0.735	ug/L	B	06-Jun-13				METALS	0.735	ug/L
B2PDM5	Chromium	0.1	ug/L	U	10-Jul-13			Y	METALS	0.1	ug/L
B2PDM5DUP	Chromium	0.1	ug/L	U	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Chromium	0.1	ug/L	U	14-Aug-13				METALS	0.1	ug/L
B2R189	Chromium	0.255	ug/L	B	04-Sep-13				METALS	0.255	ug/L
B2RBV9	Chromium	0.346	ug/L	B	09-Oct-13				METALS	0.346	ug/L
B2T4K8	Chromium	0.251	ug/L	B	07-Nov-13				METALS	0.251	ug/L
B2TRM8	Chromium	0.1	ug/L	U	10-Dec-13				METALS	0.1	ug/L
B2V4F0	Chromium	0.196	ug/L	B	08-Jan-14				METALS	0.196	ug/L
B2VVR4	Chromium	0.147	ug/L	B	12-Feb-14				METALS	0.147	ug/L
B2VWR2	Chromium	0.146	ug/L	B	27-Feb-14				METALS	0.146	ug/L
B2W8M8	Chromium	0.703	ug/L	B	19-Mar-14				METALS	0.703	ug/L
B2W9P0	Chromium	0.186	ug/L	B	09-Apr-14				METALS	0.186	ug/L
B2WB53	Chromium	3.3	ug/L	U	14-May-14				METALS	3.3	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2WM01	Chromium	1	ug/L	U	18-Jun-14			Y	METALS	1	ug/L
B2WM01	Chromium	1	ug/L	U	18-Jun-14			Y	METALS	(duplicate)	ug/L
B2X4J9	Chromium	1	ug/L	U	10-Jul-14				METALS	1	ug/L
B2XCH4	Chromium	1	ug/L	U	05-Aug-14				METALS	1	ug/L
B2XNF5	Chromium	1	ug/L	U	09-Sep-14				METALS	1	ug/L
B2Y402	Chromium	1	ug/L	U	14-Oct-14				METALS	1	ug/L
B2YH32	Chromium	1	ug/L	U	05-Nov-14				METALS	1	ug/L
B2YRX0	Chromium	1	ug/L	U	02-Dec-14				METALS	1	ug/L
B30260DUP	Chromium	1	ug/L	U	06-Jan-15			Y	METALS	(duplicate)	ug/L
B30260	Chromium	1	ug/L	U	06-Jan-15			Y	METALS	1	ug/L
B308L5	Chromium	1	ug/L	U	04-Feb-15				METALS	1	ug/L
B30J35	Chromium	1	ug/L	U	11-Mar-15				METALS	1	ug/L
B313W6	Chromium	1	ug/L	U	21-Apr-15				METALS	1	ug/L
B313X1	Chromium	1	ug/L	U	20-May-15				METALS	1	ug/L
B31NL2	Chromium	1	ug/L	U	09-Jun-15				METALS	1	ug/L
B31RB9	Chromium	1	ug/L	U	07-Jul-15				METALS	1	ug/L
B32202	Chromium	1	ug/L	U	11-Aug-15				METALS	1	ug/L
B325D1	Chromium	1	ug/L	U	09-Sep-15				METALS	1	ug/L
B32JY5	Chromium	1	ug/L	U	06-Oct-15				METALS	1	ug/L
B331D5	Chromium	1	ug/L	U	03-Nov-15				METALS	1	ug/L
B33JM3	Chromium	1	ug/L	U	02-Dec-15				METALS	1	ug/L
B308L5	Cobalt	1	ug/L	U	04-Feb-15				METALS	1	ug/L
B30J35	Cobalt	1	ug/L	U	11-Mar-15				METALS	1	ug/L
B2B441	Iron	38	ug/L	U	05-Jan-11				METALS	38	ug/L
B2BJR3	Iron	76	ug/L	B	11-Feb-11				METALS	76	ug/L
B2C680	Iron	96	ug/L	B	10-Mar-11				METALS	96	ug/L
B2CNV4	Iron	80	ug/L	B	06-Apr-11				METALS	80	ug/L
B2D2C0	Iron	69	ug/L	B	04-May-11				METALS	69	ug/L
B2DY29	Iron	139	ug/L		09-Jun-11				METALS	139	ug/L
B2FDM9	Iron	44	ug/L	B	06-Jul-11				METALS	44	ug/L
B2FPH0	Iron	175	ug/L		04-Aug-11				METALS	175	ug/L
B2H513	Iron	179	ug/L		08-Sep-11				METALS	179	ug/L
B2H513	Iron	50.2	ug/L	B	08-Sep-11				METALS	50.2	ug/L
B2HTB5	Iron	140	ug/L		05-Oct-11				METALS	140	ug/L
B2J6B1	Iron	42.7	ug/L	B	14-Nov-11				METALS	42.7	ug/L
B2JPJ5	Iron	49.3	ug/L	B	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2JPJ5DUP	Iron	52.8	ug/L	B	14-Dec-11			Y	METALS	52.8	ug/L
B2KC79	Iron	42.6	ug/L	BC	06-Jan-12				METALS	42.6	ug/L
B2KCF5	Iron	91.2	ug/L	B	08-Feb-12				METALS	91.2	ug/L
B2KD41	Iron	28.5	ug/L	B	15-Mar-12				METALS	28.5	ug/L
B2L2D3	Iron	411	ug/L		10-Apr-12				METALS	411	ug/L
B2L7B6	Iron	33.7	ug/L	B	24-Apr-12				METALS	33.7	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2L7B7	Iron	35.1	ug/L	B	25-Apr-12				METALS	35.1	ug/L
B2L7B8	Iron	59.6	ug/L	B	26-Apr-12				METALS	59.6	ug/L
B2L7L7	Iron	22.3	ug/L	B	09-May-12				METALS	22.3	ug/L
B2L7W2	Iron	131	ug/L		23-May-12				METALS	131	ug/L
B2LD50	Iron	102	ug/L		13-Jun-12				METALS	102	ug/L
B2LWH1	Iron	96.6	ug/L		18-Jul-12				METALS	96.6	ug/L
B2LYX2	Iron	57.2	ug/L	B	15-Aug-12				METALS	57.2	ug/L
B2M066	Iron	73.4	ug/L	B	05-Sep-12				METALS	73.4	ug/L
B2M062	Iron	109	ug/L		03-Oct-12				METALS	109	ug/L
B2MBL0	Iron	72	ug/L	B	07-Nov-12				METALS	72	ug/L
B2N1P8	Iron	171	ug/L		05-Dec-12				METALS	171	ug/L
B2N8C1	Iron	61.4	ug/L	B	14-Dec-12				METALS	61.4	ug/L
B2NDM5	Iron	88.4	ug/L	B	09-Jan-13				METALS	88.4	ug/L
B2NF86	Iron	33.7	ug/L	B	06-Feb-13				METALS	33.7	ug/L
B2NPR0	Iron	35.1	ug/L	B	06-Mar-13				METALS	35.1	ug/L
B2NRL5	Iron	156	ug/L		03-Apr-13				METALS	156	ug/L
B2P559	Iron	24.9	ug/L	B	09-May-13				METALS	24.9	ug/L
B2PCY7	Iron	222	ug/L		06-Jun-13				METALS	222	ug/L
B2PDM5	Iron	90.6	ug/L	B	10-Jul-13			Y	METALS	90.6	ug/L
B2PDM5DUP	Iron	31.8	ug/L	B	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Iron	20	ug/L	U	14-Aug-13				METALS	20	ug/L
B2R189	Iron	20	ug/L	U	04-Sep-13				METALS	20	ug/L
B2RBV9	Iron	41.1	ug/L	B	09-Oct-13				METALS	41.1	ug/L
B2T4K8	Iron	63.3	ug/L	B	07-Nov-13				METALS	63.3	ug/L
B2TRM8	Iron	44.7	ug/L	B	10-Dec-13				METALS	44.7	ug/L
B2V4F0	Iron	182	ug/L		08-Jan-14				METALS	182	ug/L
B2VVR4	Iron	40	ug/L	U	12-Feb-14				METALS	40	ug/L
B2VWR2	Iron	40	ug/L	U	27-Feb-14				METALS	40	ug/L
B2W8M8	Iron	92	ug/L	C	19-Mar-14				METALS	92	ug/L
B2W9P0	Iron	103	ug/L		09-Apr-14				METALS	103	ug/L
B2WB53	Iron	44.9	ug/L	B	14-May-14				METALS	44.9	ug/L
B2WM01	Iron	64.3	ug/L	B	18-Jun-14				METALS	64.3	ug/L
B2X4J9	Iron	22.6	ug/L	BC	10-Jul-14				METALS	22.6	ug/L
B2XCH4	Iron	60.3	ug/L	B	05-Aug-14				METALS	60.3	ug/L
B2XNF5	Iron	20.8	ug/L	B	09-Sep-14				METALS	20.8	ug/L
B2Y402	Iron	32.3	ug/L	B	14-Oct-14				METALS	32.3	ug/L
B2YH32	Iron	82.7	ug/L	B	05-Nov-14				METALS	82.7	ug/L
B2YRX0	Iron	86.7	ug/L	B	02-Dec-14				METALS	86.7	ug/L
B30260	Iron	180	ug/L		06-Jan-15			Y	METALS	(duplicate)	ug/L
B30260DUP	Iron	208	ug/L		06-Jan-15			Y	METALS	208	ug/L
B308L5	Iron	62.4	ug/L	B	04-Feb-15				METALS	62.4	ug/L
B30J35	Iron	62.1	ug/L	B	11-Mar-15				METALS	62.1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B313W6	Iron	104	ug/L		21-Apr-15				METALS	104	ug/L
B313X1	Iron	92.3	ug/L	B	20-May-15				METALS	92.3	ug/L
B31NL2	Iron	108	ug/L		09-Jun-15				METALS	108	ug/L
B31RB9	Iron	55.1	ug/L	B	07-Jul-15				METALS	55.1	ug/L
B32202	Iron	35.5	ug/L	B	11-Aug-15				METALS	35.5	ug/L
B325D1	Iron	191	ug/L		09-Sep-15				METALS	191	ug/L
B32JY5	Iron	73.1	ug/L	B	06-Oct-15				METALS	73.1	ug/L
B331D5	Iron	94.2	ug/L	B	03-Nov-15				METALS	94.2	ug/L
B33JM3	Iron	108	ug/L		02-Dec-15				METALS	108	ug/L
B2B441	Lead	0.1	ug/L	U	05-Jan-11				METALS	0.1	ug/L
B2BJR3	Lead	0.1	ug/L	U	11-Feb-11				METALS	0.1	ug/L
B2C680	Lead	0.447	ug/L	B	10-Mar-11				METALS	0.447	ug/L
B2CNV4	Lead	0.223	ug/L	B	06-Apr-11				METALS	0.223	ug/L
B2D2C0	Lead	0.277	ug/L	B	04-May-11				METALS	0.277	ug/L
B2DY29	Lead	0.647	ug/L	B	09-Jun-11				METALS	0.647	ug/L
B2FDM9	Lead	0.112	ug/L	B	06-Jul-11				METALS	0.112	ug/L
B2FPH0	Lead	1.1	ug/L	BD	04-Aug-11				METALS	1.1	ug/L
B2H513	Lead	0.42	ug/L	B	08-Sep-11				METALS	0.42	ug/L
B2HTB5	Lead	0.26	ug/L	B	05-Oct-11				METALS	0.26	ug/L
B2J6B1	Lead	0.17	ug/L	U	14-Nov-11				METALS	0.17	ug/L
B2JPJ5	Lead	0.182	ug/L	B	14-Dec-11			Y	METALS	0.182	ug/L
B2JPJ5DUP	Lead	0.172	ug/L	B	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2KC79	Lead	0.237	ug/L	B	06-Jan-12				METALS	0.237	ug/L
B2KCF5	Lead	0.203	ug/L	B	08-Feb-12				METALS	0.203	ug/L
B2KD41	Lead	0.055	ug/L	B	15-Mar-12				METALS	0.055	ug/L
B2L2D3	Lead	1.81	ug/L		10-Apr-12				METALS	1.81	ug/L
B2L7L7	Lead	0.051	ug/L	B	09-May-12				METALS	0.051	ug/L
B2L7W2	Lead	0.446	ug/L	B	23-May-12				METALS	0.446	ug/L
B2LD50	Lead	0.271	ug/L	B	13-Jun-12				METALS	0.271	ug/L
B2LWH1	Lead	0.373	ug/L	B	18-Jul-12				METALS	0.373	ug/L
B2LYX2	Lead	0.224	ug/L	B	15-Aug-12				METALS	0.224	ug/L
B2M066	Lead	0.254	ug/L	B	05-Sep-12				METALS	0.254	ug/L
B2M062	Lead	0.659	ug/L		03-Oct-12				METALS	0.659	ug/L
B2MBL0	Lead	0.274	ug/L	B	07-Nov-12				METALS	0.274	ug/L
B2N1P8	Lead	0.103	ug/L	B	05-Dec-12				METALS	0.103	ug/L
B2N8C1	Lead	0.168	ug/L	B	14-Dec-12				METALS	0.168	ug/L
B2NDM5	Lead	0.163	ug/L	B	09-Jan-13				METALS	0.163	ug/L
B2NF86	Lead	0.104	ug/L	B	06-Feb-13				METALS	0.104	ug/L
B2NPR0	Lead	0.295	ug/L	B	06-Mar-13				METALS	0.295	ug/L
B2NRL5	Lead	0.662	ug/L		03-Apr-13				METALS	0.662	ug/L
B2P559	Lead	0.122	ug/L	B	09-May-13				METALS	0.122	ug/L
B2PCY7	Lead	0.863	ug/L		06-Jun-13				METALS	0.863	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PDM5	Lead	0.39	ug/L	B	10-Jul-13			Y	METALS	0.39	ug/L
B2PDM5DUP	Lead	0.05	ug/L	U	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Lead	0.05	ug/L	U	14-Aug-13				METALS	0.05	ug/L
B2R189	Lead	0.114	ug/L	B	04-Sep-13				METALS	0.114	ug/L
B2RBV9	Lead	0.083	ug/L	B	09-Oct-13				METALS	0.083	ug/L
B2T4K8	Lead	0.176	ug/L	B	07-Nov-13				METALS	0.176	ug/L
B2TRM8	Lead	0.05	ug/L	U	10-Dec-13				METALS	0.05	ug/L
B2V4F0	Lead	0.344	ug/L	B	08-Jan-14				METALS	0.344	ug/L
B2VVR4	Lead	0.051	ug/L	B	12-Feb-14				METALS	0.051	ug/L
B2VWR2	Lead	0.05	ug/L	U	27-Feb-14				METALS	0.05	ug/L
B2W8M8	Lead	0.343	ug/L	B	19-Mar-14				METALS	0.343	ug/L
B2W9P0	Lead	0.264	ug/L	B	09-Apr-14				METALS	0.264	ug/L
B2WB53	Lead	0.19	ug/L	B	14-May-14				METALS	0.19	ug/L
B2WM01	Lead	0.26	ug/L	B	18-Jun-14			Y	METALS	(duplicate)	ug/L
B2WM01	Lead	0.26	ug/L	B	18-Jun-14			Y	METALS	0.26	ug/L
B2X4J9	Lead	0.17	ug/L	U	10-Jul-14				METALS	0.17	ug/L
B2XCH4	Lead	0.7	ug/L	B	05-Aug-14				METALS	0.7	ug/L
B2XNF5	Lead	0.19	ug/L	B	09-Sep-14				METALS	0.19	ug/L
B2Y402	Lead	0.17	ug/L	B	14-Oct-14				METALS	0.17	ug/L
B2YH32	Lead	0.94	ug/L	B	05-Nov-14				METALS	0.94	ug/L
B2YRX0	Lead	0.32	ug/L	B	02-Dec-14				METALS	0.32	ug/L
B30260	Lead	0.5	ug/L	U	06-Jan-15			Y	METALS	0.5	ug/L
B30260DUP	Lead	0.5	ug/L	U	06-Jan-15			Y	METALS	(duplicate)	ug/L
B308L5	Lead	0.5	ug/L	U	04-Feb-15				METALS	0.5	ug/L
B30J35	Lead	0.5	ug/L	U	11-Mar-15				METALS	0.5	ug/L
B313W6	Lead	0.5	ug/L	U	21-Apr-15				METALS	0.5	ug/L
B313X1	Lead	0.5	ug/L	U	20-May-15				METALS	0.5	ug/L
B31NL2	Lead	0.5	ug/L	U	09-Jun-15				METALS	0.5	ug/L
B31RB9	Lead	0.5	ug/L	U	07-Jul-15				METALS	0.5	ug/L
B32202	Lead	0.5	ug/L	U	11-Aug-15				METALS	0.5	ug/L
B325D1	Lead	0.702	ug/L	B	09-Sep-15				METALS	0.702	ug/L
B32JY5	Lead	0.5	ug/L	U	06-Oct-15				METALS	0.5	ug/L
B331D5	Lead	0.743	ug/L	B	03-Nov-15				METALS	0.743	ug/L
B33JM3	Lead	0.508	ug/L	B	02-Dec-15				METALS	0.508	ug/L
B308L5	Magnesium	4760	ug/L		04-Feb-15				METALS	4760	ug/L
B30J35	Magnesium	8400	ug/L		11-Mar-15				METALS	8400	ug/L
B2B441	Manganese	6	ug/L	U	05-Jan-11				METALS	6	ug/L
B2BJR3	Manganese	6	ug/L	U	11-Feb-11				METALS	6	ug/L
B2C680	Manganese	6	ug/L	U	10-Mar-11				METALS	6	ug/L
B2CNV4	Manganese	6	ug/L	U	06-Apr-11				METALS	6	ug/L
B2D2C0	Manganese	6	ug/L	U	04-May-11				METALS	6	ug/L
B2DY29	Manganese	7	ug/L	B	09-Jun-11				METALS	7	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2FDM9	Manganese	4.1	ug/L	U	06-Jul-11				METALS	4.1	ug/L
B2FPH0	Manganese	15	ug/L	B	04-Aug-11				METALS	15	ug/L
B2H513	Manganese	6	ug/L	B	08-Sep-11				METALS	6	ug/L
B2H513	Manganese	5.6	ug/L	B	08-Sep-11				METALS	5.6	ug/L
B2HTB5	Manganese	4.5	ug/L	B	05-Oct-11				METALS	4.5	ug/L
B2J6B1	Manganese	1	ug/L	B	14-Nov-11				METALS	1	ug/L
B2JPJ5	Manganese	4	ug/L	U	14-Dec-11			Y	METALS	4	ug/L
B2JPJ5DUP	Manganese	4	ug/L	U	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2KC79	Manganese	4	ug/L	U	06-Jan-12				METALS	4	ug/L
B2KCF5	Manganese	5.6	ug/L	B	08-Feb-12				METALS	5.6	ug/L
B2KD41	Manganese	4	ug/L	U	15-Mar-12				METALS	4	ug/L
B2L2D3	Manganese	19.6	ug/L	B	10-Apr-12				METALS	19.6	ug/L
B2L7B6	Manganese	4	ug/L	U	24-Apr-12				METALS	4	ug/L
B2L7B7	Manganese	4	ug/L	U	25-Apr-12				METALS	4	ug/L
B2L7B8	Manganese	4	ug/L	U	26-Apr-12				METALS	4	ug/L
B2L7L7	Manganese	4	ug/L	U	09-May-12				METALS	4	ug/L
B2L7W2	Manganese	9.2	ug/L	B	23-May-12				METALS	9.2	ug/L
B2LD50	Manganese	4.6	ug/L	B	13-Jun-12				METALS	4.6	ug/L
B2LWH1	Manganese	4.67	ug/L		18-Jul-12				METALS	4.67	ug/L
B2LYX2	Manganese	5.41	ug/L		15-Aug-12				METALS	5.41	ug/L
B2M066	Manganese	3.43	ug/L		05-Sep-12				METALS	3.43	ug/L
B2M062	Manganese	10.8	ug/L		03-Oct-12				METALS	10.8	ug/L
B2MBL0	Manganese	5.87	ug/L		07-Nov-12				METALS	5.87	ug/L
B2N1P8	Manganese	0.511	ug/L	B	05-Dec-12				METALS	0.511	ug/L
B2N8C1	Manganese	2.32	ug/L		14-Dec-12				METALS	2.32	ug/L
B2NDM5	Manganese	2.66	ug/L		09-Jan-13				METALS	2.66	ug/L
B2NF86	Manganese	1.81	ug/L		06-Feb-13				METALS	1.81	ug/L
B2NPR0	Manganese	1.22	ug/L		06-Mar-13				METALS	1.22	ug/L
B2NRL5	Manganese	12.1	ug/L		03-Apr-13				METALS	12.1	ug/L
B2P559	Manganese	1.97	ug/L		09-May-13				METALS	1.97	ug/L
B2PCY7	Manganese	20.5	ug/L		06-Jun-13				METALS	20.5	ug/L
B2PDM5	Manganese	16.4	ug/L		10-Jul-13			Y	METALS	16.4	ug/L
B2PDM5DUP	Manganese	2.77	ug/L		10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Manganese	2.06	ug/L		14-Aug-13				METALS	2.06	ug/L
B2R189	Manganese	2.15	ug/L		04-Sep-13				METALS	2.15	ug/L
B2RBV9	Manganese	1.01	ug/L		09-Oct-13				METALS	1.01	ug/L
B2T4K8	Manganese	5.91	ug/L		07-Nov-13				METALS	5.91	ug/L
B2TRM8	Manganese	0.446	ug/L	B	10-Dec-13				METALS	0.446	ug/L
B2V4F0	Manganese	6.29	ug/L		08-Jan-14				METALS	6.29	ug/L
B2VVR4	Manganese	1.06	ug/L		12-Feb-14				METALS	1.06	ug/L
B2VWR2	Manganese	2.3	ug/L		27-Feb-14				METALS	2.3	ug/L
B2W8M8	Manganese	8.48	ug/L		19-Mar-14				METALS	8.48	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2W9P0	Manganese	7.94	ug/L		09-Apr-14				METALS	7.94	ug/L
B2WB53	Manganese	3.1	ug/L		14-May-14				METALS	3.1	ug/L
B2WM01	Manganese	2.3	ug/L		18-Jun-14			Y	METALS	(duplicate)	ug/L
B2WM01	Manganese	2.3	ug/L		18-Jun-14			Y	METALS	2.3	ug/L
B2X4J9	Manganese	2.1	ug/L		10-Jul-14				METALS	2.1	ug/L
B2XCH4	Manganese	8.8	ug/L		05-Aug-14				METALS	8.8	ug/L
B2XNF5	Manganese	3.7	ug/L		09-Sep-14				METALS	3.7	ug/L
B2Y402	Manganese	3.8	ug/L		14-Oct-14				METALS	3.8	ug/L
B2YH32	Manganese	8.7	ug/L		05-Nov-14				METALS	8.7	ug/L
B2YRX0	Manganese	6.6	ug/L		02-Dec-14				METALS	6.6	ug/L
B30260	Manganese	15.8	ug/L		06-Jan-15			Y	METALS	(duplicate)	ug/L
B30260DUP	Manganese	19.4	ug/L		06-Jan-15			Y	METALS	19.4	ug/L
B308L5	Manganese	4.13	ug/L	B	04-Feb-15				METALS	4.13	ug/L
B30J35	Manganese	7.25	ug/L		11-Mar-15				METALS	7.25	ug/L
B313W6	Manganese	7.21	ug/L		21-Apr-15				METALS	7.21	ug/L
B313X1	Manganese	7.17	ug/L		20-May-15				METALS	7.17	ug/L
B31NL2	Manganese	4.49	ug/L	B	09-Jun-15				METALS	4.49	ug/L
B31RB9	Manganese	3.8	ug/L	B	07-Jul-15				METALS	3.8	ug/L
B32202	Manganese	1.72	ug/L	B	11-Aug-15				METALS	1.72	ug/L
B325D1	Manganese	17.6	ug/L		09-Sep-15				METALS	17.6	ug/L
B32JY5	Manganese	3.99	ug/L	B	06-Oct-15				METALS	3.99	ug/L
B331D5	Manganese	7.58	ug/L		03-Nov-15				METALS	7.58	ug/L
B33JM3	Manganese	11.9	ug/L		02-Dec-15				METALS	11.9	ug/L
B2B441	Mercury	0.05	ug/L	U	05-Jan-11				METALS	0.05	ug/L
B2BJR3	Mercury	0.05	ug/L	U	11-Feb-11				METALS	0.05	ug/L
B2C680	Mercury	0.05	ug/L	U	10-Mar-11				METALS	0.05	ug/L
B2CNV4	Mercury	0.05	ug/L	U	06-Apr-11				METALS	0.05	ug/L
B2D2C0	Mercury	0.05	ug/L	U	04-May-11				METALS	0.05	ug/L
B2DY29	Mercury	0.05	ug/L	U	09-Jun-11				METALS	0.05	ug/L
B2FDM9	Mercury	0.05	ug/L	U	06-Jul-11				METALS	0.05	ug/L
B2FPH0	Mercury	0.06	ug/L	UD	04-Aug-11				METALS	0.06	ug/L
B2H513	Mercury	0.1	ug/L	BC	08-Sep-11				METALS	0.1	ug/L
B2HTB5	Mercury	0.06	ug/L	U	05-Oct-11				METALS	0.06	ug/L
B2J6B1	Mercury	0.06	ug/L	U	14-Nov-11				METALS	0.06	ug/L
B2JPJ5	Mercury	0.05	ug/L	U	14-Dec-11			Y	METALS	0.05	ug/L
B2JPJ5DUP	Mercury	0.05	ug/L	U	14-Dec-11			Y	METALS	(duplicate)	ug/L
B2KC79	Mercury	0.05	ug/L	U	06-Jan-12				METALS	0.05	ug/L
B2KCF5	Mercury	0.05	ug/L	U	08-Feb-12				METALS	0.05	ug/L
B2KD41	Mercury	0.05	ug/L	U	15-Mar-12				METALS	0.05	ug/L
B2L2D3	Mercury	0.05	ug/L	U	10-Apr-12				METALS	0.05	ug/L
B2L7L7	Mercury	0.05	ug/L	U	09-May-12				METALS	0.05	ug/L
B2L7W2	Mercury	0.05	ug/L	U	23-May-12				METALS	0.05	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2LD50	Mercury	0.05	ug/L	U	13-Jun-12				METALS	0.05	ug/L
B2LWH1	Mercury	0.05	ug/L	U	18-Jul-12				METALS	0.05	ug/L
B2LYX2	Mercury	0.05	ug/L	U	15-Aug-12				METALS	0.05	ug/L
B2M066	Mercury	0.05	ug/L	U	05-Sep-12				METALS	0.05	ug/L
B2M062	Mercury	0.05	ug/L	U	03-Oct-12				METALS	0.05	ug/L
B2MBL0	Mercury	0.05	ug/L	U	07-Nov-12				METALS	0.05	ug/L
B2N1P8	Mercury	0.05	ug/L	U	05-Dec-12				METALS	0.05	ug/L
B2N8C1	Mercury	0.05	ug/L	U	14-Dec-12				METALS	0.05	ug/L
B2NDM5	Mercury	0.05	ug/L	U	09-Jan-13				METALS	0.05	ug/L
B2NF86	Mercury	0.05	ug/L	U	06-Feb-13				METALS	0.05	ug/L
B2NPR0	Mercury	0.05	ug/L	U	06-Mar-13				METALS	0.05	ug/L
B2NRL5	Mercury	0.05	ug/L	U	03-Apr-13				METALS	0.05	ug/L
B2P559	Mercury	0.05	ug/L	U	09-May-13				METALS	0.05	ug/L
B2PCY7	Mercury	0.05	ug/L	U	06-Jun-13				METALS	0.05	ug/L
B2PDM5	Mercury	0.05	ug/L	U	10-Jul-13			Y	METALS	0.05	ug/L
B2PDM5DUP	Mercury	0.05	ug/L	U	10-Jul-13			Y	METALS	(duplicate)	ug/L
B2PV19	Mercury	0.05	ug/L	U	14-Aug-13				METALS	0.05	ug/L
B2R189	Mercury	0.05	ug/L	U	04-Sep-13				METALS	0.05	ug/L
B2RBV9	Mercury	0.05	ug/L	U	09-Oct-13				METALS	0.05	ug/L
B2T4K8	Mercury	0.05	ug/L	U	07-Nov-13				METALS	0.05	ug/L
B2TRM8	Mercury	0.05	ug/L	U	10-Dec-13				METALS	0.05	ug/L
B2V4F0	Mercury	0.05	ug/L	U	08-Jan-14				METALS	0.05	ug/L
B2VVR4	Mercury	0.05	ug/L	U	12-Feb-14				METALS	0.05	ug/L
B2VWR2	Mercury	0.05	ug/L	U	27-Feb-14				METALS	0.05	ug/L
B2W8M8	Mercury	0.05	ug/L	U	19-Mar-14				METALS	0.05	ug/L
B2W9P0	Mercury	0.05	ug/L	U	09-Apr-14				METALS	0.05	ug/L
B2WB53	Mercury	0.05	ug/L	U	14-May-14				METALS	0.05	ug/L
B2WM01	Mercury	0.05	ug/L	U	18-Jun-14				METALS	0.05	ug/L
B2X4J9	Mercury	0.05	ug/L	U	10-Jul-14				METALS	0.05	ug/L
B2XCH4	Mercury	0.05	ug/L	U	05-Aug-14				METALS	0.05	ug/L
B2XNF5	Mercury	0.05	ug/L	U	09-Sep-14				METALS	0.05	ug/L
B2Y402	Mercury	0.05	ug/L	U	14-Oct-14				METALS	0.05	ug/L
B2YH32	Mercury	0.53	ug/L		05-Nov-14				METALS	0.53	ug/L
B2YRX0	Mercury	0.05	ug/L	U	02-Dec-14				METALS	0.05	ug/L
B30260	Mercury	0.067	ug/L	U	06-Jan-15			Y	METALS	0.067	ug/L
B30260DUP	Mercury	0.067	ug/L	U	06-Jan-15			Y	METALS	(duplicate)	ug/L
B308L5	Mercury	0.069	ug/L	B	04-Feb-15				METALS	0.069	ug/L
B30J35	Mercury	0.067	ug/L	U	11-Mar-15				METALS	0.067	ug/L
B313W6	Mercury	0.067	ug/L	U	21-Apr-15				METALS	0.067	ug/L
B313X1	Mercury	0.067	ug/L	U	20-May-15				METALS	0.067	ug/L
B31NL2	Mercury	0.067	ug/L	U	09-Jun-15				METALS	0.067	ug/L
B31RB9	Mercury	0.067	ug/L	U	07-Jul-15				METALS	0.067	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B32202	Mercury	0.067	ug/L	U	11-Aug-15				METALS	0.067	ug/L
B325D1	Mercury	0.067	ug/L	U	09-Sep-15				METALS	0.067	ug/L
B32JY5	Mercury	0.101	ug/L	B	06-Oct-15				METALS	0.101	ug/L
B331D5	Mercury	0.067	ug/L	U	03-Nov-15				METALS	0.067	ug/L
B33JM3	Mercury	0.067	ug/L	U	02-Dec-15				METALS	0.067	ug/L
B308L5	Nickel	1.5	ug/L	U	04-Feb-15				METALS	1.5	ug/L
B30J35	Nickel	1.5	ug/L	U	11-Mar-15				METALS	1.5	ug/L
B308L5	Potassium	2080	ug/L		04-Feb-15				METALS	2080	ug/L
B30J35	Potassium	1330	ug/L	B	11-Mar-15				METALS	1330	ug/L
B308L5	Silicon	1990	ug/L		04-Feb-15				METALS	1990	ug/L
B30J35	Silicon	2020	ug/L		11-Mar-15				METALS	2020	ug/L
B308L5	Silver	1	ug/L	U	04-Feb-15				METALS	1	ug/L
B30J35	Silver	1	ug/L	U	11-Mar-15				METALS	1	ug/L
B308L5	Sodium	3760	ug/L		04-Feb-15				METALS	3760	ug/L
B30J35	Sodium	63800	ug/L		11-Mar-15				METALS	63800	ug/L
B308L5	Thallium	5	ug/L	U	04-Feb-15				METALS	5	ug/L
B30J35	Thallium	5	ug/L	U	11-Mar-15				METALS	5	ug/L
B308L5	Vanadium	1	ug/L	U	04-Feb-15				METALS	1	ug/L
B30J35	Vanadium	1	ug/L	U	11-Mar-15				METALS	1	ug/L
B308L5	Zinc	23.8	ug/L		04-Feb-15				METALS	23.8	ug/L
B30J35	Zinc	138	ug/L		11-Mar-15				METALS	138	ug/L
B2B440	Oil and grease	5	mg/L	U	05-Jan-11				O&G	5	mg/L
B2D2D0	Oil and grease	5	mg/L	UNX	04-May-11				O&G	5	mg/L
B2FDM8	Oil and grease	5.1	mg/L	U	06-Jul-11				O&G	5.1	mg/L
B2HTB6	Oil and grease	5	mg/L	U	05-Oct-11				O&G	5	mg/L
B2KC80	Oil and grease	5.7	mg/L	U	06-Jan-12				O&G	5.7	mg/L
B2L2D4	Oil and grease	5.3	mg/L	U	10-Apr-12				O&G	5.3	mg/L
B2LWH2	Oil and grease	5.4	mg/L	U	18-Jul-12				O&G	5.4	mg/L
B2MBL3	Oil and grease	5	mg/L	U	26-Sep-12				O&G	5	mg/L
B2M063	Oil and grease	5	mg/L	U	03-Oct-12				O&G	5	mg/L
B2NF87	Oil and grease	1	mg/L	U	20-Feb-13				O&G	1	mg/L
B2NRL6	Oil and grease	1	mg/L	U	03-Apr-13				O&G	1	mg/L
B2PDM6	Oil and grease	1	mg/L	U	10-Jul-13			Y	O&G	(duplicate)	mg/L
B2PDM6DUP	Oil and grease	1.1	mg/L	U	10-Jul-13			Y	O&G	1.1	mg/L
B2T4K9	Oil and grease	0.99	mg/L	UN	07-Nov-13				O&G	0.99	mg/L
B2V4F1	Oil and grease	1	mg/L	U	08-Jan-14				O&G	1	mg/L
B2VWR3	Oil and grease	1	mg/L	U	27-Feb-14				O&G	1	mg/L
B2W9P1	Oil and grease	1	mg/L	U	09-Apr-14				O&G	1	mg/L
B2WM06	Oil and grease	2.1	mg/L	UN	10-Jul-14				O&G	2.1	mg/L
B2Y404	Oil and grease	1.9	mg/L	U	14-Oct-14				O&G	1.9	mg/L
B30262	Oil and grease	2	mg/L	U	06-Jan-15			Y	O&G	2	mg/L
B30262DUP	Oil and grease	2	mg/L	U	06-Jan-15			Y	O&G	(duplicate)	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B313X2	Oil and grease	1.63	mg/L	U	09-Jun-15				O&G	1.63	mg/L
B31RC0	Oil and grease	1.52	mg/L	U	07-Jul-15				O&G	1.52	mg/L
B32JY8	Oil and grease	1.49	mg/L	U	06-Oct-15				O&G	1.49	mg/L
B2B440	Gross alpha	0.29	pCi/L	U	05-Jan-11	2.2			RAD	2.2	pCi/L
B2BJR2	Gross alpha	1.5	pCi/L	U	11-Feb-11	1.8			RAD	1.8	pCi/L
B2C679	Gross alpha	0.49	pCi/L	U	10-Mar-11	2			RAD	2.0	pCi/L
B2CNV3	Gross alpha	0.0049	pCi/L	U	06-Apr-11	1.7			RAD	1.7	pCi/L
B2D2B9	Gross alpha	-0.094	pCi/L	U	04-May-11	1.6			RAD	1.6	pCi/L
B2DY28	Gross alpha	0.3	pCi/L	U	09-Jun-11	1.1			RAD	1.1	pCi/L
B2FDM8	Gross alpha	0.92	pCi/L	U	06-Jul-11	1.9			RAD	1.9	pCi/L
B2FPF9	Gross alpha	1.2	pCi/L	U	04-Aug-11	1.6			RAD	1.6	pCi/L
B2H512	Gross alpha	4.4	pCi/L		08-Sep-11	1.8			RAD	4.4	pCi/L
B2HTB4	Gross alpha	2.8	pCi/L		05-Oct-11	2.1			RAD	2.8	pCi/L
B2J6B0	Gross alpha	-0.322	pCi/L	U	14-Nov-11	1.88			RAD	1.88	pCi/L
B2JPJ4DUP	Gross alpha	0.97	pCi/L	U	14-Dec-11	1.8		Y	RAD	(duplicate)	pCi/L
B2JPJ4	Gross alpha	0.0049	pCi/L	U	14-Dec-11	1.8		Y	RAD	1.8	pCi/L
B2KC78	Gross alpha	2.1	pCi/L		06-Jan-12	1.9			RAD	2.1	pCi/L
B2KCF4	Gross alpha	0.4	pCi/L	U	08-Feb-12	2			RAD	2	pCi/L
B2KD40	Gross alpha	0.2	pCi/L	U	15-Mar-12	1.7			RAD	1.7	pCi/L
B2L2D2	Gross alpha	2.1	pCi/L		10-Apr-12	1.2			RAD	2.1	pCi/L
B2L7M4	Gross alpha	2.1	pCi/L		27-Apr-12	1.8			RAD	2.1	pCi/L
B2L7L6	Gross alpha	0.098	pCi/L	U	09-May-12	2.2			RAD	2.2	pCi/L
B2L7W1	Gross alpha	1.2	pCi/L	U	23-May-12	1.7			RAD	1.7	pCi/L
B2LD49	Gross alpha	0.095	pCi/L	U	13-Jun-12	2			RAD	2	pCi/L
B2LWH0	Gross alpha	0.93	pCi/L	U	18-Jul-12	1.7			RAD	1.7	pCi/L
B2LYX1	Gross alpha	-0.49	pCi/L	U	15-Aug-12	2			RAD	2	pCi/L
B2M065	Gross alpha	-1.2	pCi/L	U	05-Sep-12	2.4			RAD	2.4	pCi/L
B2M061	Gross alpha	0.49	pCi/L	U	03-Oct-12	1.8			RAD	1.8	pCi/L
B2MBK9	Gross alpha	3.2	pCi/L		07-Nov-12	1.4			RAD	3.2	pCi/L
B2N1P7	Gross alpha	24	pCi/L		05-Dec-12	2.2			RAD	24	pCi/L
B2N8C0	Gross alpha	-0.4	pCi/L	U	14-Dec-12	2.2			RAD	2.2	pCi/L
B2NDM4	Gross alpha	0.49	pCi/L	U	09-Jan-13	1.6			RAD	1.6	pCi/L
B2NF85	Gross alpha	0.99	pCi/L	U	06-Feb-13	2.1			RAD	2.1	pCi/L
B2NPP9	Gross alpha	0.5	pCi/L	U	06-Mar-13	1.7			RAD	1.7	pCi/L
B2NRL4	Gross alpha	0.0051	pCi/L	U	03-Apr-13	1.9			RAD	1.9	pCi/L
B2P558	Gross alpha	1.9	pCi/L		09-May-13	1.7			RAD	1.9	pCi/L
B2PCY6	Gross alpha	2.1	pCi/L		06-Jun-13	1.6			RAD	2.1	pCi/L
B2PDM4	Gross alpha	0.75	pCi/L	U	10-Jul-13	1.5		Y	RAD	1.5	pCi/L
B2PDM4DUP	Gross alpha	0.77	pCi/L	U	10-Jul-13	1.5		Y	RAD	(duplicate)	pCi/L
B2PV18	Gross alpha	2	pCi/L		14-Aug-13	1.6			RAD	2	pCi/L
B2R188	Gross alpha	0.62	pCi/L	U	04-Sep-13	1.6			RAD	1.6	pCi/L
B2RBV8	Gross alpha	3.5	pCi/L		09-Oct-13	1.9			RAD	3.5	pCi/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2T4K7	Gross alpha	0.37	pCi/L	U	07-Nov-13	1.6			RAD	1.6	pCi/L
B2TRM7	Gross alpha	1.7	pCi/L	U	10-Dec-13	2			RAD	2	pCi/L
B2V4D9	Gross alpha	0.0051	pCi/L	U	08-Jan-14	1.8			RAD	1.8	pCi/L
B2VVR3	Gross alpha	-0.69	pCi/L	U	12-Feb-14	2			RAD	2	pCi/L
B2VWR1	Gross alpha	4.5	pCi/L		27-Feb-14	1.7			RAD	4.5	pCi/L
B2W8M7	Gross alpha	0.79	pCi/L	U	19-Mar-14	1.8			RAD	1.8	pCi/L
B2W9N9	Gross alpha	-0.21	pCi/L	U	09-Apr-14	2.5			RAD	2.5	pCi/L
B2WB52	Gross alpha	0.164	pCi/L	U	14-May-14	1.23			RAD	1.23	pCi/L
B2WM00	Gross alpha	-0.373	pCi/L	U	18-Jun-14	1.44			RAD	1.44	pCi/L
B2X4J8	Gross alpha	-0.188	pCi/L	U	10-Jul-14	1.21			RAD	1.21	pCi/L
B2XCH3	Gross alpha	0.196	pCi/L	U	05-Aug-14	1.04			RAD	1.04	pCi/L
B2XNF4	Gross alpha	0.121	pCi/L	U	09-Sep-14	0.956			RAD	0.956	pCi/L
B2Y401	Gross alpha	0.334	pCi/L	U	14-Oct-14	0.911			RAD	0.911	pCi/L
B2YH31	Gross alpha	-0.174	pCi/L	U	05-Nov-14	1.01			RAD	1.01	pCi/L
B2YRW9	Gross alpha	0.405	pCi/L	U	03-Dec-14	1.11			RAD	1.11	pCi/L
B30259	Gross alpha	0.613	pCi/L	U	06-Jan-15	1.05		Y	RAD	(duplicate)	pCi/L
B30259DUP	Gross alpha	1.41	pCi/L		06-Jan-15	1.3		Y	RAD	1.41	pCi/L
B308L4	Gross alpha	0.444	pCi/L	U	04-Feb-15	2.59			RAD	2.59	pCi/L
B30J34	Gross alpha	-0.0788	pCi/L	U	11-Mar-15	2.84			RAD	2.84	pCi/L
B313W4	Gross alpha	4.75	pCi/L	U	21-Apr-15	9.41			RAD	9.41	pCi/L
B313W9	Gross alpha	-1.41	pCi/L	U	20-May-15	12			RAD	12	pCi/L
B31NL0	Gross alpha	-1.34	pCi/L	U	09-Jun-15	10.8			RAD	10.8	pCi/L
B31RB7	Gross alpha	-2.45	pCi/L	U	07-Jul-15	9.28			RAD	9.28	pCi/L
B32200	Gross alpha	1.37	pCi/L	U	11-Aug-15	8.75			RAD	8.75	pCi/L
B325C9	Gross alpha	-1.63	pCi/L	U	09-Sep-15	9.95			RAD	9.95	pCi/L
B32JY3	Gross alpha	-3.12	pCi/L	U	06-Oct-15	9.57			RAD	9.57	pCi/L
B331D3	Gross alpha	-0.912	pCi/L	U	03-Nov-15	8.33			RAD	8.33	pCi/L
B33JM1	Gross alpha	-2.53	pCi/L	U	02-Dec-15	8.36			RAD	8.36	pCi/L
B2B440	Gross beta	6.3	pCi/L		05-Jan-11	2.9			RAD	6.3	pCi/L
B2BJR2	Gross beta	5	pCi/L		11-Feb-11	3.1			RAD	5	pCi/L
B2C679	Gross beta	2.2	pCi/L	U	10-Mar-11	3			RAD	3	pCi/L
B2CNV3	Gross beta	0.48	pCi/L	U	06-Apr-11	3.1			RAD	3.1	pCi/L
B2D2B9	Gross beta	2.1	pCi/L	U	04-May-11	2.7			RAD	2.7	pCi/L
B2DY28	Gross beta	3.4	pCi/L		09-Jun-11	3			RAD	3.4	pCi/L
B2FDM8	Gross beta	0.6	pCi/L	U	06-Jul-11	2.9			RAD	2.9	pCi/L
B2FPF9	Gross beta	6.9	pCi/L		04-Aug-11	3			RAD	6.9	pCi/L
B2H512	Gross beta	5.9	pCi/L		08-Sep-11	3.5			RAD	5.9	pCi/L
B2HTB4	Gross beta	4.1	pCi/L		05-Oct-11	3.2			RAD	4.1	pCi/L
B2J6B0	Gross beta	6.43	pCi/L		14-Nov-11	3.01			RAD	6.43	pCi/L
B2JPJ4	Gross beta	1.6	pCi/L	U	14-Dec-11	3		Y	RAD	3	pCi/L
B2JPJ4DUP	Gross beta	1.8	pCi/L	U	14-Dec-11	3		Y	RAD	(duplicate)	pCi/L
B2KC78	Gross beta	15	pCi/L		06-Jan-12	3.4			RAD	15	pCi/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2KCF4	Gross beta	1.9	pCi/L	U	08-Feb-12	3.1			RAD	3.1	pCi/L
B2KD40	Gross beta	0.66	pCi/L	U	15-Mar-12	3.2			RAD	3.2	pCi/L
B2L2D2	Gross beta	1.8	pCi/L	U	10-Apr-12	2.9			RAD	2.9	pCi/L
B2L7M4	Gross beta	0.77	pCi/L	U	27-Apr-12	3.4			RAD	3.4	pCi/L
B2L7L6	Gross beta	2	pCi/L	U	09-May-12	3.4			RAD	3.4	pCi/L
B2L7W1	Gross beta	5.7	pCi/L		23-May-12	3.4			RAD	5.7	pCi/L
B2LD49	Gross beta	2.9	pCi/L	U	13-Jun-12	3			RAD	3	pCi/L
B2LWH0	Gross beta	2.2	pCi/L	U	18-Jul-12	3.2			RAD	3.2	pCi/L
B2LYX1	Gross beta	2.8	pCi/L	U	15-Aug-12	3.4			RAD	3.4	pCi/L
B2M065	Gross beta	3	pCi/L		05-Sep-12	3			RAD	3	pCi/L
B2M061	Gross beta	-1.3	pCi/L	U	03-Oct-12	3.6			RAD	3.6	pCi/L
B2MBK9	Gross beta	4.2	pCi/L		07-Nov-12	3.5			RAD	4.2	pCi/L
B2N1P7	Gross beta	35	pCi/L		05-Dec-12	3.6			RAD	35	pCi/L
B2N8C0	Gross beta	0.16	pCi/L	U	14-Dec-12	3.4			RAD	3.4	pCi/L
B2NDM4	Gross beta	1.4	pCi/L	U	09-Jan-13	3.3			RAD	3.3	pCi/L
B2NF85	Gross beta	-0.86	pCi/L	U	06-Feb-13	3.6			RAD	3.6	pCi/L
B2NPP9	Gross beta	1.8	pCi/L	U	06-Mar-13	3.3			RAD	3.3	pCi/L
B2NRL4	Gross beta	8.6	pCi/L		03-Apr-13	3.7			RAD	8.6	pCi/L
B2P558	Gross beta	7.5	pCi/L		09-May-13	3.2			RAD	7.5	pCi/L
B2PCY6	Gross beta	-1.4	pCi/L	U	06-Jun-13	3.6			RAD	3.6	pCi/L
B2PDM4	Gross beta	1.3	pCi/L	U	10-Jul-13	3		Y	RAD	(duplicate)	pCi/L
B2PDM4DUP	Gross beta	0.1	pCi/L	U	10-Jul-13	3.1		Y	RAD	3.1	pCi/L
B2PV18	Gross beta	8	pCi/L		14-Aug-13	3.4			RAD	8	pCi/L
B2R188	Gross beta	1.2	pCi/L	U	04-Sep-13	3.6			RAD	3.6	pCi/L
B2RBV8	Gross beta	-3.1	pCi/L	U	09-Oct-13	4.3			RAD	4.3	pCi/L
B2T4K7	Gross beta	2.6	pCi/L		07-Nov-13	2.5			RAD	2.6	pCi/L
B2TRM7	Gross beta	8.3	pCi/L		10-Dec-13	3.2			RAD	8.3	pCi/L
B2V4D9	Gross beta	3.6	pCi/L		08-Jan-14	3.2			RAD	3.6	pCi/L
B2VVR3	Gross beta	4.4	pCi/L		12-Feb-14	3			RAD	4.4	pCi/L
B2VWR1	Gross beta	7.8	pCi/L		27-Feb-14	3			RAD	7.8	pCi/L
B2W8M7	Gross beta	5.6	pCi/L		19-Mar-14	3			RAD	5.6	pCi/L
B2W9N9	Gross beta	1.9	pCi/L	U	09-Apr-14	3.4			RAD	3.4	pCi/L
B2WB52	Gross beta	3.82	pCi/L		14-May-14	2			RAD	3.82	pCi/L
B2WM00	Gross beta	4.69	pCi/L		18-Jun-14	2.1			RAD	4.69	pCi/L
B2X4J8	Gross beta	0.803	pCi/L	U	10-Jul-14	2.11			RAD	2.11	pCi/L
B2XCH3	Gross beta	3.1	pCi/L		05-Aug-14	2.5			RAD	3.1	pCi/L
B2XNF4	Gross beta	1.06	pCi/L	U	09-Sep-14	1.97			RAD	1.97	pCi/L
B2Y401	Gross beta	1.44	pCi/L	U	14-Oct-14	2.57			RAD	2.57	pCi/L
B2YH31	Gross beta	1.29	pCi/L	U	05-Nov-14	1.84			RAD	1.84	pCi/L
B2YRW9	Gross beta	5.49	pCi/L		03-Dec-14	2.08			RAD	5.49	pCi/L
B30259	Gross beta	3.81	pCi/L		06-Jan-15	1.85		Y	RAD	3.81	pCi/L
B30259DUP	Gross beta	3.72	pCi/L		06-Jan-15	1.96		Y	RAD	(duplicate)	pCi/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B308L4	Gross beta	-0.205	pCi/L	U	04-Feb-15	2.64			RAD	2.64	pCi/L
B30J34	Gross beta	1.46	pCi/L	U	11-Mar-15	2.49			RAD	2.49	pCi/L
B313W4	Gross beta	1.04	pCi/L	U	21-Apr-15	10.8			RAD	10.8	pCi/L
B313W9	Gross beta	0.485	pCi/L	U	20-May-15	11.5			RAD	11.5	pCi/L
B31NL0	Gross beta	2.45	pCi/L	U	09-Jun-15	13.6			RAD	13.6	pCi/L
B31RB7	Gross beta	3.47	pCi/L	U	07-Jul-15	9.27			RAD	9.27	pCi/L
B32200	Gross beta	4.18	pCi/L	U	11-Aug-15	10.8			RAD	10.8	pCi/L
B325C9	Gross beta	-1.48	pCi/L	U	09-Sep-15	9.88			RAD	9.88	pCi/L
B32JY3	Gross beta	2.65	pCi/L	U	06-Oct-15	9.78			RAD	9.78	pCi/L
B331D3	Gross beta	2.84	pCi/L	U	03-Nov-15	10.6			RAD	10.6	pCi/L
B33JM1	Gross beta	4.91	pCi/L	U	02-Dec-15	10			RAD	10	pCi/L
B2B440	Tritium	-39	pCi/L	U	05-Jan-11	330			RAD	330	pCi/L
B2CNV3	Tritium	120	pCi/L	U	06-Apr-11	300			RAD	300	pCi/L
B2FDM8	Tritium	110	pCi/L	U	06-Jul-11	300			RAD	300	pCi/L
B2HTB6	Tritium	43.8	pCi/L	U	05-Oct-11	368			RAD	368	pCi/L
B2KC80	Tritium	-74	pCi/L	U	06-Jan-12	350			RAD	350	pCi/L
B2L2D4	Tritium	120	pCi/L	U	10-Apr-12	300			RAD	300	pCi/L
B2LWH2	Tritium	-230	pCi/L	U	18-Jul-12	1200			RAD	1200	pCi/L
B2M063	Tritium	520	pCi/L	U	03-Oct-12	1100			RAD	1100	pCi/L
B2N8C2	Tritium	120	pCi/L	U	14-Dec-12	1100			RAD	1100	pCi/L
B2NDM6	Tritium	4600	pCi/L	U	09-Jan-13	14000			RAD	14000	pCi/L
B2NRL6	Tritium	88	pCi/L	U	03-Apr-13	1100			RAD	1100	pCi/L
B2PDM6	Tritium	470	pCi/L	U	10-Jul-13	1000		Y	RAD	1000	pCi/L
B2PDM6DUP	Tritium	440	pCi/L	U	10-Jul-13	1000		Y	RAD	(duplicate)	pCi/L
B2T4K9	Tritium	120	pCi/L	U	07-Nov-13	300			RAD	300	pCi/L
B2V4F1	Tritium	-130	pCi/L	U	08-Jan-14	270			RAD	270	pCi/L
B2VWR3	Tritium	61	pCi/L	U	27-Feb-14	290			RAD	290	pCi/L
B2W9P1	Tritium	32	pCi/L	U	09-Apr-14	300			RAD	300	pCi/L
B2WM05	Tritium	-43	pCi/L	U	10-Jul-14	319			RAD	319	pCi/L
B2Y403	Tritium	167	pCi/L	U	14-Oct-14	281			RAD	281	pCi/L
B30261DUP	Tritium	38.9	pCi/L	U	06-Jan-15	295		Y	RAD	(duplicate)	pCi/L
B30261	Tritium	-50.5	pCi/L	U	06-Jan-15	298		Y	RAD	298	pCi/L
B313X2	Tritium	201	pCi/L	U	09-Jun-15	575			RAD	575	pCi/L
B31RC0	Tritium	13.7	pCi/L	U	07-Jul-15	636			RAD	636	pCi/L
B32JY8	Tritium	-427	pCi/L	U	06-Oct-15	641			RAD	641	pCi/L
B2KC80	1,2,4-Trichlorobenzene	1	ug/L	UTX	06-Jan-12				SVOA	1	ug/L
B2L2D4	1,2,4-Trichlorobenzene	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	1,2,4-Trichlorobenzene	1	ug/L	U	18-Jul-12				SVOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2M063	1,2,4-Trichlorobenzene	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	1,2,4-Trichlorobenzene	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	1,2,4-Trichlorobenzene	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	1,2,4-Trichlorobenzene	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	1,2,4-Trichlorobenzene	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	1,2,4-Trichlorobenzene	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	1,2,4-Trichlorobenzene	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	1,2,4-Trichlorobenzene	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	1,2,4-Trichlorobenzene	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	1,2,4-Trichlorobenzene	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	1,2,4-Trichlorobenzene	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	1,2,4-Trichlorobenzene	1.2	ug/L	U	14-Oct-14				SVOA	1.2	ug/L
B30262	1,2,4-Trichlorobenzene	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	1,2,4-Trichlorobenzene	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	1,4-Dichlorobenzene	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	1,4-Dichlorobenzene	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	1,4-Dichlorobenzene	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	1,4-Dichlorobenzene	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	1,4-Dichlorobenzene	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	1,4-Dichlorobenzene	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	1,4-Dichlorobenzene	1	ug/L	U	03-Apr-13				SVOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PDM6	1,4-Dichlorobenzene	1	ug/L	UT	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	1,4-Dichlorobenzene	1	ug/L	UT	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	1,4-Dichlorobenzene	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	1,4-Dichlorobenzene	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	1,4-Dichlorobenzene	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	1,4-Dichlorobenzene	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	1,4-Dichlorobenzene	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	1,4-Dichlorobenzene	1.2	ug/L	U	14-Oct-14				SVOA	1.2	ug/L
B30262	1,4-Dichlorobenzene	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	1,4-Dichlorobenzene	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	2,4-Dinitrotoluene	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	2,4-Dinitrotoluene	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	2,4-Dinitrotoluene	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	2,4-Dinitrotoluene	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	2,4-Dinitrotoluene	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	2,4-Dinitrotoluene	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	2,4-Dinitrotoluene	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	2,4-Dinitrotoluene	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	2,4-Dinitrotoluene	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	2,4-Dinitrotoluene	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	2,4-Dinitrotoluene	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	2,4-Dinitrotoluene	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	2,4-Dinitrotoluene	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	2,4-Dinitrotoluene	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	2,4-Dinitrotoluene	1.2	ug/L	UT	14-Oct-14				SVOA	1.2	ug/L
B30262	2,4-Dinitrotoluene	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	2,4-Dinitrotoluene	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	2-Chlorophenol	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	2-Chlorophenol	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	2-Chlorophenol	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	2-Chlorophenol	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	2-Chlorophenol	1	ug/L	U	14-Dec-12				SVOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2NDM6	2-Chlorophenol	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	2-Chlorophenol	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	2-Chlorophenol	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	2-Chlorophenol	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	2-Chlorophenol	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	2-Chlorophenol	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	2-Chlorophenol	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	2-Chlorophenol	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	2-Chlorophenol	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	2-Chlorophenol	1.2	ug/L	U	14-Oct-14				SVOA	1.2	ug/L
B30262	2-Chlorophenol	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	2-Chlorophenol	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	4-Chloro-3-methylphenol	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	4-Chloro-3-methylphenol	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	4-Chloro-3-methylphenol	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	4-Chloro-3-methylphenol	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	4-Chloro-3-methylphenol	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	4-Chloro-3-methylphenol	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	4-Chloro-3-methylphenol	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	4-Chloro-3-methylphenol	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	4-Chloro-3-methylphenol	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	4-Chloro-3-methylphenol	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	4-Chloro-3-methylphenol	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	4-Chloro-3-methylphenol	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	4-Chloro-3-methylphenol	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	4-Chloro-3-methylphenol	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	4-Chloro-3-methylphenol	1.2	ug/L	U	14-Oct-14				SVOA	1.2	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B30262	4-Chloro-3-methylphenol	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	4-Chloro-3-methylphenol	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	4-Nitrophenol	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	4-Nitrophenol	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	4-Nitrophenol	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	4-Nitrophenol	1	ug/L	UXT	03-Oct-12				SVOA	1	ug/L
B2N8C2	4-Nitrophenol	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	4-Nitrophenol	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	4-Nitrophenol	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	4-Nitrophenol	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	4-Nitrophenol	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	4-Nitrophenol	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	4-Nitrophenol	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	4-Nitrophenol	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	4-Nitrophenol	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	4-Nitrophenol	2.2	ug/L	U	10-Jul-14				SVOA	2.2	ug/L
B2Y404	4-Nitrophenol	2.3	ug/L	U	14-Oct-14				SVOA	2.3	ug/L
B30262	4-Nitrophenol	2.1	ug/L	U	06-Jan-15			Y	SVOA	2.1	ug/L
B30262DUP	4-Nitrophenol	2.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	Acenaphthene	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	Acenaphthene	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	Acenaphthene	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	Acenaphthene	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	Acenaphthene	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	Acenaphthene	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	Acenaphthene	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	Acenaphthene	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	Acenaphthene	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	Acenaphthene	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	Acenaphthene	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	Acenaphthene	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	Acenaphthene	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	Acenaphthene	1.1	ug/L	U	10-Jul-14				SVOA	1.1	ug/L
B2Y404	Acenaphthene	1.2	ug/L	U	14-Oct-14				SVOA	1.2	ug/L
B30262	Acenaphthene	1.1	ug/L	U	06-Jan-15			Y	SVOA	1.1	ug/L
B30262DUP	Acenaphthene	1.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2B4F6	Bis(2-ethylhexyl) phthalate	1.1	ug/L	U	05-Jan-11				SVOA	1.1	ug/L
B2CNV6	Bis(2-ethylhexyl) phthalate	1	ug/L	U	06-Apr-11				SVOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2FDN4	Bis(2-ethylhexyl) phthalate	1.3	ug/L	U	06-Jul-11				SVOA	1.3	ug/L
B2J4J0	Bis(2-ethylhexyl) phthalate	1	ug/L	U	14-Nov-11				SVOA	1	ug/L
B2KC80	Bis(2-ethylhexyl) phthalate	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	Bis(2-ethylhexyl) phthalate	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	Bis(2-ethylhexyl) phthalate	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	Bis(2-ethylhexyl) phthalate	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	Bis(2-ethylhexyl) phthalate	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	Bis(2-ethylhexyl) phthalate	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	Bis(2-ethylhexyl) phthalate	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	Bis(2-ethylhexyl) phthalate	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	Bis(2-ethylhexyl) phthalate	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	Bis(2-ethylhexyl) phthalate	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	Bis(2-ethylhexyl) phthalate	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	Bis(2-ethylhexyl) phthalate	1	ug/L	UOT	27-Feb-14				SVOA	1	ug/L
B2W9P1	Bis(2-ethylhexyl) phthalate	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	Bis(2-ethylhexyl) phthalate	2.1	ug/L	U	10-Jul-14				SVOA	2.1	ug/L
B2Y404	Bis(2-ethylhexyl) phthalate	2.1	ug/L	U	14-Oct-14				SVOA	2.1	ug/L
B30262	Bis(2-ethylhexyl) phthalate	2	ug/L	U	06-Jan-15			Y	SVOA	2	ug/L
B30262DUP	Bis(2-ethylhexyl) phthalate	2	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B313X2	Bis(2-ethylhexyl) phthalate	3	ug/L	U	09-Jun-15				SVOA	3	ug/L
B31RC0	Bis(2-ethylhexyl) phthalate	3	ug/L	U	07-Jul-15				SVOA	3	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B32JY8	Bis(2-ethylhexyl) phthalate	3.16	ug/L	U	06-Oct-15				SVOA	3.16	ug/L
B2KC80	n-Nitrosodi-n-dipropylamine	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	n-Nitrosodi-n-dipropylamine	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	n-Nitrosodi-n-dipropylamine	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	n-Nitrosodi-n-dipropylamine	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	n-Nitrosodi-n-dipropylamine	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	n-Nitrosodi-n-dipropylamine	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	n-Nitrosodi-n-dipropylamine	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	n-Nitrosodi-n-dipropylamine	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	n-Nitrosodi-n-dipropylamine	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	n-Nitrosodi-n-dipropylamine	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	n-Nitrosodi-n-dipropylamine	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	n-Nitrosodi-n-dipropylamine	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	n-Nitrosodi-n-dipropylamine	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	n-Nitrosodi-n-dipropylamine	1.7	ug/L	U	10-Jul-14				SVOA	1.7	ug/L
B2Y404	n-Nitrosodi-n-dipropylamine	1.7	ug/L	U	14-Oct-14				SVOA	1.7	ug/L
B30262	n-Nitrosodi-n-dipropylamine	1.6	ug/L	U	06-Jan-15			Y	SVOA	1.6	ug/L
B30262DUP	n-Nitrosodi-n-dipropylamine	1.6	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	Pentachlorophenol	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	Pentachlorophenol	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	Pentachlorophenol	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	Pentachlorophenol	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	Pentachlorophenol	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	Pentachlorophenol	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	Pentachlorophenol	1	ug/L	U	03-Apr-13				SVOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PDM6	Pentachlorophenol	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	Pentachlorophenol	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	Pentachlorophenol	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	Pentachlorophenol	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	Pentachlorophenol	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	Pentachlorophenol	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	Pentachlorophenol	1.4	ug/L	U	10-Jul-14				SVOA	1.4	ug/L
B2Y404	Pentachlorophenol	1.5	ug/L	U	14-Oct-14				SVOA	1.5	ug/L
B30262	Pentachlorophenol	1.3	ug/L	U	06-Jan-15			Y	SVOA	1.3	ug/L
B30262DUP	Pentachlorophenol	1.3	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	Phenol	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	Phenol	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	Phenol	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	Phenol	1	ug/L	UXT	03-Oct-12				SVOA	1	ug/L
B2N8C2	Phenol	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	Phenol	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	Phenol	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	Phenol	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	Phenol	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	Phenol	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	Phenol	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	Phenol	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	Phenol	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	Phenol	2.2	ug/L	U	10-Jul-14				SVOA	2.2	ug/L
B2Y404	Phenol	2.3	ug/L	U	14-Oct-14				SVOA	2.3	ug/L
B30262	Phenol	2.1	ug/L	U	06-Jan-15			Y	SVOA	2.1	ug/L
B30262DUP	Phenol	2.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2KC80	Pyrene	1	ug/L	U	06-Jan-12				SVOA	1	ug/L
B2L2D4	Pyrene	1	ug/L	U	10-Apr-12				SVOA	1	ug/L
B2LWH2	Pyrene	1	ug/L	U	18-Jul-12				SVOA	1	ug/L
B2M063	Pyrene	1	ug/L	U	03-Oct-12				SVOA	1	ug/L
B2N8C2	Pyrene	1	ug/L	U	14-Dec-12				SVOA	1	ug/L
B2NDM6	Pyrene	1	ug/L	U	09-Jan-13				SVOA	1	ug/L
B2NRL6	Pyrene	1	ug/L	U	03-Apr-13				SVOA	1	ug/L
B2PDM6	Pyrene	1	ug/L	U	10-Jul-13			Y	SVOA	1	ug/L
B2PDM6DUP	Pyrene	1	ug/L	U	10-Jul-13			Y	SVOA	(duplicate)	ug/L
B2T4K9	Pyrene	1	ug/L	U	07-Nov-13				SVOA	1	ug/L
B2V4F1	Pyrene	1	ug/L	U	08-Jan-14				SVOA	1	ug/L
B2VWR3	Pyrene	1	ug/L	U	27-Feb-14				SVOA	1	ug/L
B2W9P1	Pyrene	1	ug/L	U	09-Apr-14				SVOA	1	ug/L
B2WM06	Pyridine	2.2	ug/L	U	10-Jul-14				SVOA	2.2	ug/L
B2Y404	Pyridine	2.3	ug/L	U	14-Oct-14				SVOA	2.3	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B30262	Pyridine	2.1	ug/L	U	06-Jan-15			Y	SVOA	2.1	ug/L
B30262DUP	Pyridine	2.1	ug/L	U	06-Jan-15			Y	SVOA	(duplicate)	ug/L
B2NDM6	tris(1-chloro-2-propyl) phosphate	7.5	ug/L		09-Jan-13		Y		SVOA	7.5	ug/L
B2B441	Total dissolved solids	99	mg/L		05-Jan-11				TDS	99	mg/L
B2BJR3	Total dissolved solids	115	mg/L		11-Feb-11				TDS	115	mg/L
B2C680	Total dissolved solids	347	mg/L		10-Mar-11				TDS	347	mg/L
B2CNP7	Total dissolved solids	108	mg/L		25-Mar-11				TDS	108	mg/L
B2CNP8	Total dissolved solids	108	mg/L		28-Mar-11				TDS	108	mg/L
B2CNP9	Total dissolved solids	84	mg/L		29-Mar-11				TDS	84	mg/L
B2CNV4	Total dissolved solids	95	mg/L		06-Apr-11				TDS	95	mg/L
B2D2C0	Total dissolved solids	100	mg/L		04-May-11				TDS	100	mg/L
B2DY29	Total dissolved solids	114	mg/L		09-Jun-11				TDS	114	mg/L
B2FDM9	Total dissolved solids	89	mg/L		06-Jul-11				TDS	89	mg/L
B2FPH0	Total dissolved solids	109	mg/L		04-Aug-11				TDS	109	mg/L
B2H513	Total dissolved solids	110	mg/L		08-Sep-11				TDS	110	mg/L
B2HTB5	Total dissolved solids	96	mg/L		05-Oct-11				TDS	96	mg/L
B2J6B1	Total dissolved solids	108	mg/L		14-Nov-11				TDS	108	mg/L
B2JPJ5DUP	Total dissolved solids	98	mg/L		14-Dec-11			Y	TDS	(duplicate)	mg/L
B2JPJ5	Total dissolved solids	100	mg/L		14-Dec-11			Y	TDS	100	mg/L
B2KC79	Total dissolved solids	78	mg/L		06-Jan-12				TDS	78	mg/L
B2KCF5	Total dissolved solids	106	mg/L		08-Feb-12				TDS	106	mg/L
B2KD41	Total dissolved solids	119	mg/L		15-Mar-12				TDS	119	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2L2D3	Total dissolved solids	107	mg/L		10-Apr-12				TDS	107	mg/L
B2L7L7	Total dissolved solids	117	mg/L		09-May-12				TDS	117	mg/L
B2L7W2	Total dissolved solids	122	mg/L		23-May-12				TDS	122	mg/L
B2LD50	Total dissolved solids	114	mg/L		13-Jun-12				TDS	114	mg/L
B2LWH1	Total dissolved solids	106	mg/L		18-Jul-12				TDS	106	mg/L
B2LYX2	Total dissolved solids	107	mg/L		15-Aug-12				TDS	107	mg/L
B2M066	Total dissolved solids	97	mg/L		05-Sep-12				TDS	97	mg/L
B2M062	Total dissolved solids	98	mg/L		03-Oct-12				TDS	98	mg/L
B2MBL0	Total dissolved solids	113	mg/L		07-Nov-12				TDS	113	mg/L
B2N1P8	Total dissolved solids	417	mg/L		05-Dec-12				TDS	417	mg/L
B2N8C1	Total dissolved solids	91	mg/L		14-Dec-12				TDS	91	mg/L
B2NDM5	Total dissolved solids	112	mg/L		09-Jan-13				TDS	112	mg/L
B2NF86	Total dissolved solids	103	mg/L		06-Feb-13				TDS	103	mg/L
B2NPR0	Total dissolved solids	107	mg/L		06-Mar-13				TDS	107	mg/L
B2NRL5	Total dissolved solids	135	mg/L		03-Apr-13				TDS	135	mg/L
B2P559	Total dissolved solids	119	mg/L		09-May-13				TDS	119	mg/L
B2PCY7	Total dissolved solids	134	mg/L		06-Jun-13				TDS	134	mg/L
B2PDM5DUP	Total dissolved solids	109	mg/L		10-Jul-13			Y	TDS	109	mg/L
B2PDM5	Total dissolved solids	104	mg/L		10-Jul-13			Y	TDS	(duplicate)	mg/L
B2PV19	Total dissolved solids	98	mg/L		14-Aug-13				TDS	98	mg/L
B2R189	Total dissolved solids	113	mg/L		04-Sep-13				TDS	113	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2RBV9	Total dissolved solids	98	mg/L		09-Oct-13				TDS	98	mg/L
B2T4K8	Total dissolved solids	119	mg/L		07-Nov-13				TDS	119	mg/L
B2TRM8	Total dissolved solids	93	mg/L		10-Dec-13				TDS	93	mg/L
B2V4F0	Total dissolved solids	87	mg/L		08-Jan-14				TDS	87	mg/L
B2VVR4	Total dissolved solids	84	mg/L		12-Feb-14				TDS	84	mg/L
B2VWR2	Total dissolved solids	109	mg/L		27-Feb-14				TDS	109	mg/L
B2W8M8	Total dissolved solids	127	mg/L		19-Mar-14				TDS	127	mg/L
B2W9P0	Total dissolved solids	107	mg/L		09-Apr-14				TDS	107	mg/L
B2WB53	Total dissolved solids	113	mg/L		14-May-14				TDS	113	mg/L
B2WM01	Total dissolved solids	123	mg/L		18-Jun-14				TDS	123	mg/L
B2X4J9	Total dissolved solids	103	mg/L		10-Jul-14				TDS	103	mg/L
B2XCH4	Total dissolved solids	117	mg/L		05-Aug-14				TDS	117	mg/L
B2XNF5	Total dissolved solids	100	mg/L		09-Sep-14				TDS	100	mg/L
B2Y402	Total dissolved solids	87	mg/L		14-Oct-14				TDS	87	mg/L
B2YH32	Total dissolved solids	93	mg/L		05-Nov-14				TDS	93	mg/L
B2YRX0	Total dissolved solids	427	mg/L		02-Dec-14				TDS	427	mg/L
B30260	Total dissolved solids	103	mg/L		06-Jan-15			Y	TDS	103	mg/L
B30260DUP	Total dissolved solids	90	mg/L		06-Jan-15			Y	TDS	(duplicate)	mg/L
B308L5	Total dissolved solids	28600	ug/L		04-Feb-15				TDS	28.6	mg/L
B30J35	Total dissolved solids	321000	ug/L		11-Mar-15				TDS	321	mg/L
B313W6	Total dissolved solids	40000	ug/L		21-Apr-15				TDS	40	mg/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B313X1	Total dissolved solids	78600	ug/L		20-May-15				TDS	78.6	mg/L
B31NL2	Total dissolved solids	169000	ug/L		09-Jun-15				TDS	169	mg/L
B31RB9	Total dissolved solids	78600	ug/L		07-Jul-15				TDS	78.6	mg/L
B32202	Total dissolved solids	97100	ug/L		11-Aug-15				TDS	97.1	mg/L
B325D1	Total dissolved solids	22900	ug/L		09-Sep-15				TDS	22.9	mg/L
B32JY5	Total dissolved solids	68600	ug/L		06-Oct-15				TDS	68.6	mg/L
B331D5	Total dissolved solids	98600	ug/L		03-Nov-15				TDS	98.6	mg/L
B33JM3	Total dissolved solids	94300	ug/L		02-Dec-15				TDS	94.3	mg/L
B2B440	1,1-Dichloroethene	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	1,1-Dichloroethene	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	1,1-Dichloroethene	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	1,1-Dichloroethene	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	1,1-Dichloroethene	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	1,1-Dichloroethene	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	1,1-Dichloroethene	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	1,1-Dichloroethene	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	1,1-Dichloroethene	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	1,1-Dichloroethene	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	1,1-Dichloroethene	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	1,1-Dichloroethene	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	1,1-Dichloroethene	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	1,1-Dichloroethene	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	1,1-Dichloroethene	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	1,1-Dichloroethene	1	ug/L	U	26-Jul-13				VOA	(duplicate)	ug/L
B2T4K9	1,1-Dichloroethene	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	1,1-Dichloroethene	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	1,1-Dichloroethene	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	1,1-Dichloroethene	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	1,1-Dichloroethene	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	1,1-Dichloroethene	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	1,1-Dichloroethene	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	1,1-Dichloroethene	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	1,1-Dichloroethene	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	1,1-Dichloroethene	1	ug/L	U	09-Apr-14				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2WM06	1,1-Dichloroethene	0.37	ug/L	U	10-Jul-14				VOA	0.37	ug/L
B2XM15	1,1-Dichloroethene	0.37	ug/L	U	29-Jul-14				VOA	0.37	ug/L
B2XM17	1,1-Dichloroethene	0.37	ug/L	U	30-Jul-14				VOA	0.37	ug/L
B2Y404	1,1-Dichloroethene	0.37	ug/L	U	14-Oct-14				VOA	0.37	ug/L
B30262	1,1-Dichloroethene	0.37	ug/L	U	06-Jan-15			Y	VOA	0.37	ug/L
B30262DUP	1,1-Dichloroethene	0.37	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B2B440	Benzene	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Benzene	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Benzene	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Benzene	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Benzene	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Benzene	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Benzene	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Benzene	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Benzene	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Benzene	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Benzene	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Benzene	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Benzene	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Benzene	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	Benzene	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Benzene	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Benzene	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Benzene	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Benzene	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Benzene	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Benzene	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Benzene	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Benzene	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Benzene	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Benzene	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Benzene	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Benzene	0.25	ug/L	U	10-Jul-14				VOA	0.25	ug/L
B2XM15	Benzene	0.25	ug/L	U	29-Jul-14				VOA	0.25	ug/L
B2XM17	Benzene	0.25	ug/L	U	30-Jul-14				VOA	0.25	ug/L
B2Y404	Benzene	0.25	ug/L	U	14-Oct-14				VOA	0.25	ug/L
B30262	Benzene	0.25	ug/L	U	06-Jan-15			Y	VOA	0.25	ug/L
B30262DUP	Benzene	0.25	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B2B440	Bromodichloro-methane	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Bromodichloro-methane	1	ug/L	U	06-Apr-11				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2FDM8	Bromodichloro-methane	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Bromodichloro-methane	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Bromodichloro-methane	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Bromodichloro-methane	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Bromodichloro-methane	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Bromodichloro-methane	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Bromodichloro-methane	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Bromodichloro-methane	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Bromodichloro-methane	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Bromodichloro-methane	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Bromodichloro-methane	2	ug/L	J	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PDM6DUP	Bromodichloro-methane	2.2	ug/L	J	10-Jul-13			Y	VOA	2.2	ug/L
B2PW50	Bromodichloro-methane	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Bromodichloro-methane	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Bromodichloro-methane	3.7	ug/L	J	07-Nov-13				VOA	3.7	ug/L
B2TRX0	Bromodichloro-methane	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Bromodichloro-methane	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Bromodichloro-methane	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Bromodichloro-methane	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Bromodichloro-methane	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Bromodichloro-methane	1	ug/L	U	28-Jan-14				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2VWL3	Bromodichloro-methane	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Bromodichloro-methane	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Bromodichloro-methane	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Bromodichloro-methane	2.3	ug/L	J	10-Jul-14				VOA	2.3	ug/L
B2XM15	Bromodichloro-methane	0.25	ug/L	U	29-Jul-14				VOA	0.25	ug/L
B2XM17	Bromodichloro-methane	0.25	ug/L	U	30-Jul-14				VOA	0.25	ug/L
B2Y404	Bromodichloro-methane	0.25	ug/L	U	14-Oct-14				VOA	0.25	ug/L
B30262	Bromodichloro-methane	0.25	ug/L	U	06-Jan-15			Y	VOA	0.25	ug/L
B30262DUP	Bromodichloro-methane	0.25	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Bromodichloro-methane	0.3	ug/L	U	09-Jun-15				VOA	0.3	ug/L
B31RC0	Bromodichloro-methane	0.54	ug/L	J	07-Jul-15				VOA	0.54	ug/L
B325C7	Bromodichloro-methane	0.3	ug/L	U	28-Jul-15				VOA	0.3	ug/L
B32203	Bromodichloro-methane	1.11	ug/L	J	29-Jul-15				VOA	1.11	ug/L
B32JY8	Bromodichloro-methane	0.3	ug/L	U	06-Oct-15				VOA	0.3	ug/L
B2B440	Bromoform	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Bromoform	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Bromoform	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Bromoform	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Bromoform	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Bromoform	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Bromoform	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Bromoform	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Bromoform	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Bromoform	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Bromoform	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Bromoform	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Bromoform	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Bromoform	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PW50	Bromoform	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Bromoform	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Bromoform	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Bromoform	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Bromoform	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Bromoform	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Bromoform	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Bromoform	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Bromoform	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Bromoform	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Bromoform	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Bromoform	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Bromoform	0.37	ug/L	U	10-Jul-14				VOA	0.37	ug/L
B2XM15	Bromoform	0.37	ug/L	U	29-Jul-14				VOA	0.37	ug/L
B2XM17	Bromoform	0.37	ug/L	U	30-Jul-14				VOA	0.37	ug/L
B2Y404	Bromoform	0.37	ug/L	U	14-Oct-14				VOA	0.37	ug/L
B30262	Bromoform	0.37	ug/L	U	06-Jan-15			Y	VOA	0.37	ug/L
B30262DUP	Bromoform	0.37	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Bromoform	0.3	ug/L	U	09-Jun-15				VOA	0.3	ug/L
B31RC0	Bromoform	0.3	ug/L	U	07-Jul-15				VOA	0.3	ug/L
B325C7	Bromoform	0.3	ug/L	U	28-Jul-15				VOA	0.3	ug/L
B32203	Bromoform	0.39	ug/L	J	29-Jul-15				VOA	0.39	ug/L
B32JY8	Bromoform	0.3	ug/L	U	06-Oct-15				VOA	0.3	ug/L
B2B440	Carbon tetrachloride	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Carbon tetrachloride	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Carbon tetrachloride	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Carbon tetrachloride	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Carbon tetrachloride	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Carbon tetrachloride	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Carbon tetrachloride	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Carbon tetrachloride	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Carbon tetrachloride	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Carbon tetrachloride	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Carbon tetrachloride	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Carbon tetrachloride	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Carbon tetrachloride	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Carbon tetrachloride	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	Carbon tetrachloride	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Carbon tetrachloride	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Carbon tetrachloride	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Carbon tetrachloride	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Carbon tetrachloride	1	ug/L	U	21-Nov-13				VOA	1	ug/L

RPP-CALC-60773 Rev. 01

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2TRX4	Carbon tetrachloride	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Carbon tetrachloride	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Carbon tetrachloride	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Carbon tetrachloride	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Carbon tetrachloride	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Carbon tetrachloride	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Carbon tetrachloride	4	ug/L		09-Apr-14				VOA	4	ug/L
B2WM06	Carbon tetrachloride	0.36	ug/L	U	10-Jul-14				VOA	0.36	ug/L
B2XM15	Carbon tetrachloride	0.36	ug/L	U	29-Jul-14				VOA	0.36	ug/L
B2XM17	Carbon tetrachloride	0.36	ug/L	U	30-Jul-14				VOA	0.36	ug/L
B2Y404	Carbon tetrachloride	0.36	ug/L	U	14-Oct-14				VOA	0.36	ug/L
B30262	Carbon tetrachloride	0.36	ug/L	U	06-Jan-15			Y	VOA	0.36	ug/L
B30262DUP	Carbon tetrachloride	0.36	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Carbon tetrachloride	0.3	ug/L	U	09-Jun-15				VOA	0.3	ug/L
B31RC0	Carbon tetrachloride	0.3	ug/L	U	07-Jul-15				VOA	0.3	ug/L
B325C7	Carbon tetrachloride	0.3	ug/L	U	28-Jul-15				VOA	0.3	ug/L
B32203	Carbon tetrachloride	0.3	ug/L	U	29-Jul-15				VOA	0.3	ug/L
B32JY8	Carbon tetrachloride	0.3	ug/L	U	06-Oct-15				VOA	0.3	ug/L
B2B440	Chlorobenzene	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Chlorobenzene	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Chlorobenzene	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Chlorobenzene	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Chlorobenzene	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Chlorobenzene	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Chlorobenzene	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Chlorobenzene	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Chlorobenzene	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Chlorobenzene	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Chlorobenzene	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Chlorobenzene	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Chlorobenzene	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Chlorobenzene	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	Chlorobenzene	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Chlorobenzene	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Chlorobenzene	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Chlorobenzene	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Chlorobenzene	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Chlorobenzene	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Chlorobenzene	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Chlorobenzene	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Chlorobenzene	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Chlorobenzene	1	ug/L	U	29-Jan-14				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2VWR3	Chlorobenzene	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Chlorobenzene	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Chlorobenzene	0.38	ug/L	U	10-Jul-14				VOA	0.38	ug/L
B2XM15	Chlorobenzene	0.38	ug/L	U	29-Jul-14				VOA	0.38	ug/L
B2XM17	Chlorobenzene	0.38	ug/L	U	30-Jul-14				VOA	0.38	ug/L
B2Y404	Chlorobenzene	0.38	ug/L	U	14-Oct-14				VOA	0.38	ug/L
B30262	Chlorobenzene	0.38	ug/L	U	06-Jan-15			Y	VOA	0.38	ug/L
B30262DUP	Chlorobenzene	0.38	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B2B440	Chloroform	3.1	ug/L	J	05-Jan-11				VOA	3.1	ug/L
B2CNV3	Chloroform	2.6	ug/L	J	06-Apr-11				VOA	2.6	ug/L
B2FDM8	Chloroform	7	ug/L		06-Jul-11				VOA	7	ug/L
B2HTB6	Chloroform	1.9	ug/L	J	05-Oct-11				VOA	1.9	ug/L
B2KC80	Chloroform	1.9	ug/L	J	06-Jan-12				VOA	1.9	ug/L
B2L2D4	Chloroform	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Chloroform	7.9	ug/L		18-Jul-12				VOA	7.9	ug/L
B2LXC7	Chloroform	4.7	ug/L	J	31-Jul-12				VOA	4.7	ug/L
B2M063	Chloroform	2.6	ug/L	J	03-Oct-12				VOA	2.6	ug/L
B2N8C2	Chloroform	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Chloroform	5.8	ug/L		09-Jan-13				VOA	5.8	ug/L
B2NRL6	Chloroform	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Chloroform	9.4	ug/L		10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PDM6DUP	Chloroform	10	ug/L		10-Jul-13			Y	VOA	10	ug/L
B2PW50	Chloroform	4.7	ug/L	J	24-Jul-13				VOA	4.7	ug/L
B2PW52	Chloroform	4.1	ug/L	J	26-Jul-13				VOA	4.1	ug/L
B2T4K9	Chloroform	12	ug/L		07-Nov-13				VOA	12	ug/L
B2TRX0	Chloroform	2.3	ug/L	J	20-Nov-13				VOA	2.3	ug/L
B2TRX2	Chloroform	2.4	ug/L	J	21-Nov-13				VOA	2.4	ug/L
B2TRX4	Chloroform	4.2	ug/L	J	25-Nov-13				VOA	4.2	ug/L
B2TRX6	Chloroform	6.3	ug/L		26-Nov-13				VOA	6.3	ug/L
B2V4F1	Chloroform	9	ug/L		08-Jan-14				VOA	9	ug/L
B2VWL1	Chloroform	5.7	ug/L		28-Jan-14				VOA	5.7	ug/L
B2VWL3	Chloroform	4.8	ug/L	J	29-Jan-14				VOA	4.8	ug/L
B2VWR3	Chloroform	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Chloroform	4.5	ug/L	J	09-Apr-14				VOA	4.5	ug/L
B2WM06	Chloroform	9.1	ug/L		10-Jul-14				VOA	9.1	ug/L
B2XM15	Chloroform	0.21	ug/L	J	29-Jul-14				VOA	0.21	ug/L
B2XM17	Chloroform	0.15	ug/L	U	30-Jul-14				VOA	0.15	ug/L
B2Y404	Chloroform	0.15	ug/L	U	14-Oct-14				VOA	0.15	ug/L
B30262	Chloroform	1.6	ug/L	J	06-Jan-15			Y	VOA	1.6	ug/L
B30262DUP	Chloroform	1.6	ug/L	J	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Chloroform	3.37	ug/L		09-Jun-15				VOA	3.37	ug/L
B31RC0	Chloroform	7.54	ug/L		07-Jul-15				VOA	7.54	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B325C7	Chloroform	6.31	ug/L		28-Jul-15				VOA	6.31	ug/L
B32203	Chloroform	11.8	ug/L		29-Jul-15				VOA	11.8	ug/L
B32JY8	Chloroform	3.73	ug/L		06-Oct-15				VOA	3.73	ug/L
B2B440	Dibromo-chloromethane	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Dibromo-chloromethane	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Dibromo-chloromethane	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Dibromo-chloromethane	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Dibromo-chloromethane	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Dibromo-chloromethane	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Dibromo-chloromethane	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Dibromo-chloromethane	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Dibromo-chloromethane	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Dibromo-chloromethane	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Dibromo-chloromethane	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Dibromo-chloromethane	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Dibromo-chloromethane	1.9	ug/L	J	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PDM6DUP	Dibromo-chloromethane	2	ug/L	J	10-Jul-13			Y	VOA	2	ug/L
B2PW50	Dibromo-chloromethane	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Dibromo-chloromethane	1	ug/L	J	26-Jul-13				VOA	1	ug/L
B2T4K9	Dibromo-chloromethane	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Dibromo-chloromethane	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Dibromo-chloromethane	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Dibromo-chloromethane	1	ug/L	U	25-Nov-13				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2TRX6	Dibromo-chloromethane	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Dibromo-chloromethane	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Dibromo-chloromethane	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Dibromo-chloromethane	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Dibromo-chloromethane	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Dibromo-chloromethane	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Dibromo-chloromethane	0.33	ug/L	U	10-Jul-14				VOA	0.33	ug/L
B2XM15	Dibromo-chloromethane	0.33	ug/L	U	29-Jul-14				VOA	0.33	ug/L
B2XM17	Dibromo-chloromethane	0.33	ug/L	U	30-Jul-14				VOA	0.33	ug/L
B2Y404	Dibromo-chloromethane	0.33	ug/L	U	14-Oct-14				VOA	0.33	ug/L
B30262	Dibromo-chloromethane	0.33	ug/L	U	06-Jan-15			Y	VOA	0.33	ug/L
B30262DUP	Dibromo-chloromethane	0.33	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Dibromo-chloromethane	0.3	ug/L	U	09-Jun-15				VOA	0.3	ug/L
B31RC0	Dibromo-chloromethane	0.3	ug/L	U	07-Jul-15				VOA	0.3	ug/L
B325C7	Dibromo-chloromethane	0.3	ug/L	U	28-Jul-15				VOA	0.3	ug/L
B32203	Dibromo-chloromethane	0.54	ug/L	J	29-Jul-15				VOA	0.54	ug/L
B32JY8	Dibromo-chloromethane	0.3	ug/L	U	06-Oct-15				VOA	0.3	ug/L
B2B440	Methylene chloride	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Methylene chloride	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Methylene chloride	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Methylene chloride	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Methylene chloride	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Methylene chloride	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Methylene chloride	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Methylene chloride	1.8	ug/L	J	31-Jul-12				VOA	1.8	ug/L
B2M063	Methylene chloride	1	ug/L	U	03-Oct-12				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2N8C2	Methylene chloride	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Methylene chloride	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Methylene chloride	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Methylene chloride	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Methylene chloride	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	Methylene chloride	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Methylene chloride	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Methylene chloride	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Methylene chloride	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Methylene chloride	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Methylene chloride	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Methylene chloride	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Methylene chloride	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Methylene chloride	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Methylene chloride	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Methylene chloride	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Methylene chloride	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Methylene chloride	1.7	ug/L	U	10-Jul-14				VOA	1.7	ug/L
B2XM15	Methylene chloride	1.7	ug/L	U	29-Jul-14				VOA	1.7	ug/L
B2XM17	Methylene chloride	1.7	ug/L	U	30-Jul-14				VOA	1.7	ug/L
B2Y404	Methylene chloride	1.7	ug/L	U	14-Oct-14				VOA	1.7	ug/L
B30262	Methylene chloride	1.7	ug/L	UT	06-Jan-15			Y	VOA	1.7	ug/L
B30262DUP	Methylene chloride	1.7	ug/L	UT	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Methylene chloride	2.19	ug/L	J	09-Jun-15				VOA	2.19	ug/L
B31RC0	Methylene chloride	1.9	ug/L	BJ	07-Jul-15				VOA	1.9	ug/L
B325C7	Methylene chloride	4.24	ug/L	J	28-Jul-15				VOA	4.24	ug/L
B32203	Methylene chloride	4.81	ug/L	J	29-Jul-15				VOA	4.81	ug/L
B32JY8	Methylene chloride	1.6	ug/L	U	06-Oct-15				VOA	1.6	ug/L
B2B440	Toluene	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Toluene	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Toluene	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Toluene	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Toluene	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Toluene	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Toluene	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Toluene	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Toluene	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Toluene	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Toluene	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Toluene	1	ug/L	U	03-Apr-13				VOA	1	ug/L
B2PDM6	Toluene	1	ug/L	U	10-Jul-13			Y	VOA	1	ug/L
B2PDM6DUP	Toluene	1	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PW50	Toluene	1	ug/L	U	24-Jul-13				VOA	1	ug/L
B2PW52	Toluene	1	ug/L	U	26-Jul-13				VOA	1	ug/L
B2T4K9	Toluene	1	ug/L	U	07-Nov-13				VOA	1	ug/L
B2TRX0	Toluene	1	ug/L	U	20-Nov-13				VOA	1	ug/L
B2TRX2	Toluene	1	ug/L	U	21-Nov-13				VOA	1	ug/L
B2TRX4	Toluene	1	ug/L	U	25-Nov-13				VOA	1	ug/L
B2TRX6	Toluene	1	ug/L	U	26-Nov-13				VOA	1	ug/L
B2V4F1	Toluene	1	ug/L	U	08-Jan-14				VOA	1	ug/L
B2VWL1	Toluene	1	ug/L	U	28-Jan-14				VOA	1	ug/L
B2VWL3	Toluene	1	ug/L	U	29-Jan-14				VOA	1	ug/L
B2VWR3	Toluene	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Toluene	1	ug/L	U	09-Apr-14				VOA	1	ug/L
B2WM06	Toluene	1	ug/L	U	10-Jul-14				VOA	1	ug/L
B2XM15	Toluene	1	ug/L	U	29-Jul-14				VOA	1	ug/L
B2XM17	Toluene	1	ug/L	U	30-Jul-14				VOA	1	ug/L
B2Y404	Toluene	1	ug/L	U	14-Oct-14				VOA	1	ug/L
B30262	Toluene	1	ug/L	U	06-Jan-15			Y	VOA	1	ug/L
B30262DUP	Toluene	1	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L
B2B440	Total Trihalomethanes	3.1	ug/L	J	05-Jan-11				VOA	3.1	ug/L
B2CNV3	Total Trihalomethanes	2.6	ug/L	J	06-Apr-11				VOA	2.6	ug/L
B2FDM8	Total Trihalomethanes	7	ug/L		06-Jul-11				VOA	7	ug/L
B2HTB6	Total Trihalomethanes	1.9	ug/L	J	05-Oct-11				VOA	1.9	ug/L
B2KC80	Total Trihalomethanes	1.9	ug/L	J	06-Jan-12				VOA	1.9	ug/L
B2L2D4	Total Trihalomethanes	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Total Trihalomethanes	7.9	ug/L		18-Jul-12				VOA	7.9	ug/L
B2LXC7	Total Trihalomethanes	4.7	ug/L	J	31-Jul-12				VOA	4.7	ug/L
B2M063	Total Trihalomethanes	2.6	ug/L	J	03-Oct-12				VOA	2.6	ug/L
B2N8C2	Total Trihalomethanes	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Total Trihalomethanes	6.5	ug/L		09-Jan-13				VOA	6.5	ug/L
B2NRL6	Total Trihalomethanes	1	ug/L	U	03-Apr-13				VOA	1	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2PDM6	Total Trihalomethanes	13	ug/L		10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PDM6DUP	Total Trihalomethanes	15	ug/L		10-Jul-13			Y	VOA	15	ug/L
B2PW50	Total Trihalomethanes	4.7	ug/L	J	24-Jul-13				VOA	4.7	ug/L
B2PW52	Total Trihalomethanes	5.8	ug/L		26-Jul-13				VOA	5.8	ug/L
B2T4K9	Total Trihalomethanes	15	ug/L		07-Nov-13				VOA	15	ug/L
B2TRX0	Total Trihalomethanes	2.3	ug/L	J	20-Nov-13				VOA	2.3	ug/L
B2TRX2	Total Trihalomethanes	2.4	ug/L	J	21-Nov-13				VOA	2.4	ug/L
B2TRX4	Total Trihalomethanes	4.2	ug/L	J	25-Nov-13				VOA	4.2	ug/L
B2TRX6	Total Trihalomethanes	6.3	ug/L		26-Nov-13				VOA	6.3	ug/L
B2V4F1	Total Trihalomethanes	9	ug/L		08-Jan-14				VOA	9	ug/L
B2VWL1	Total Trihalomethanes	5.7	ug/L		28-Jan-14				VOA	5.7	ug/L
B2VWL3	Total Trihalomethanes	4.8	ug/L	J	29-Jan-14				VOA	4.8	ug/L
B2VWR3	Total Trihalomethanes	1	ug/L	U	27-Feb-14				VOA	1	ug/L
B2W9P1	Total Trihalomethanes	4.5	ug/L	J	09-Apr-14				VOA	4.5	ug/L
B2WM06	Total Trihalomethanes	11	ug/L		10-Jul-14				VOA	11	ug/L
B2XM15	Total Trihalomethanes	0.21	ug/L	J	29-Jul-14				VOA	0.21	ug/L
B2XM17	Total Trihalomethanes	0.15	ug/L	U	30-Jul-14				VOA	0.15	ug/L
B2Y404	Total Trihalomethanes	0.15	ug/L	U	14-Oct-14				VOA	0.15	ug/L
B30262	Total Trihalomethanes	1.6	ug/L	J	06-Jan-15			Y	VOA	1.6	ug/L
B30262DUP	Total Trihalomethanes	1.6	ug/L	J	06-Jan-15			Y	VOA	(duplicate)	ug/L
B313X2	Total Trihalomethanes	3.37	ug/L	J	09-Jun-15				VOA	3.37	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B31RC0	Total Trihalomethanes	7.54	ug/L	J	07-Jul-15				VOA	7.54	ug/L
B325C7	Total Trihalomethanes	6.31	ug/L	J	28-Jul-15				VOA	6.31	ug/L
B32203	Total Trihalomethanes	11.8	ug/L		29-Jul-15				VOA	11.8	ug/L
B32JY8	Total Trihalomethanes	3.73	ug/L	J	06-Oct-15				VOA	3.73	ug/L
B2B440	Trichloroethene	1	ug/L	U	05-Jan-11				VOA	1	ug/L
B2CNV3	Trichloroethene	1	ug/L	U	06-Apr-11				VOA	1	ug/L
B2FDM8	Trichloroethene	1	ug/L	U	06-Jul-11				VOA	1	ug/L
B2HTB6	Trichloroethene	1	ug/L	U	05-Oct-11				VOA	1	ug/L
B2KC80	Trichloroethene	1	ug/L	U	06-Jan-12				VOA	1	ug/L
B2L2D4	Trichloroethene	1	ug/L	U	10-Apr-12				VOA	1	ug/L
B2LWH2	Trichloroethene	1	ug/L	U	18-Jul-12				VOA	1	ug/L
B2LXC7	Trichloroethene	1	ug/L	U	31-Jul-12				VOA	1	ug/L
B2M063	Trichloroethene	1	ug/L	U	03-Oct-12				VOA	1	ug/L
B2N8C2	Trichloroethene	1	ug/L	U	14-Dec-12				VOA	1	ug/L
B2NDM6	Trichloroethene	1	ug/L	U	09-Jan-13				VOA	1	ug/L
B2NRL6	Trichloroethene	0.5	ug/L	U	03-Apr-13				VOA	0.5	ug/L
B2PDM6	Trichloroethene	0.5	ug/L	U	10-Jul-13			Y	VOA	0.5	ug/L
B2PDM6DUP	Trichloroethene	0.5	ug/L	U	10-Jul-13			Y	VOA	(duplicate)	ug/L
B2PW50	Trichloroethene	0.5	ug/L	U	24-Jul-13				VOA	0.5	ug/L
B2PW52	Trichloroethene	0.5	ug/L	U	26-Jul-13				VOA	0.5	ug/L
B2T4K9	Trichloroethene	0.5	ug/L	U	07-Nov-13				VOA	0.5	ug/L
B2TRX0	Trichloroethene	0.5	ug/L	U	20-Nov-13				VOA	0.5	ug/L
B2TRX2	Trichloroethene	0.5	ug/L	U	21-Nov-13				VOA	0.5	ug/L
B2TRX4	Trichloroethene	0.5	ug/L	U	25-Nov-13				VOA	0.5	ug/L
B2TRX6	Trichloroethene	0.5	ug/L	U	26-Nov-13				VOA	0.5	ug/L
B2V4F1	Trichloroethene	0.5	ug/L	U	08-Jan-14				VOA	0.5	ug/L
B2VWL1	Trichloroethene	0.5	ug/L	U	28-Jan-14				VOA	0.5	ug/L
B2VWL3	Trichloroethene	0.5	ug/L	U	29-Jan-14				VOA	0.5	ug/L
B2VWR3	Trichloroethene	0.5	ug/L	U	27-Feb-14				VOA	0.5	ug/L
B2W9P1	Trichloroethene	0.5	ug/L	U	09-Apr-14				VOA	0.5	ug/L
B2WM06	Trichloroethene	0.29	ug/L	U	10-Jul-14				VOA	0.29	ug/L
B2XM15	Trichloroethene	0.29	ug/L	U	29-Jul-14				VOA	0.29	ug/L
B2XM17	Trichloroethene	0.29	ug/L	U	30-Jul-14				VOA	0.29	ug/L
B2Y404	Trichloroethene	0.29	ug/L	U	14-Oct-14				VOA	0.29	ug/L
B30262	Trichloroethene	0.29	ug/L	U	06-Jan-15			Y	VOA	0.29	ug/L
B30262DUP	Trichloroethene	0.29	ug/L	U	06-Jan-15			Y	VOA	(duplicate)	ug/L

Sample Number	Constituent Name	Reported Value	Reported Units	Lab Qualifier	Sample Date	Minimum Detectable Activity	TIC Flag	Duplicate	Type	Converted Value	Converted Units
B2VWL1	Trichloromono-fluoromethane	2.8	ug/L		28-Jan-14		Y		VOA	2.8	ug/L

Result converted from µg/L to mg/L

Detected organic results

Lab qualifiers:

B (inorganics), J (organics):	Value is between the method detection level and the required quantitation level and is therefore an estimate.
C (inorganic), B (organic):	Contamination was found in quality control method blank standard sample.
D (all):	Sample was diluted before analysis.
N (inorganic), T (organic):	Spiked sample was outside quality control levels.
O (all):	Laboratory control standard sample result outside quality control levels
U (all):	Analyzed but not detected in the sample.
X (all):	Special circumstance – see hardcopy of results.

Table A-2 Pivot Table of Sample Results

Constituent	Count of Analyses	Minimum of Converted Results	Average of Converted Results	Maximum of Converted Results
1,1-Dichloroethene	32	0.37	0.89	1.0
1,2,4-Trichlorobenzene	17	1.0	1.0	1.2
1,4-Dichlorobenzene	17	1.0	1.0	1.2
2,4-Dinitrotoluene	17	1.0	1.0	1.2
2-Chlorophenol	17	1.0	1.0	1.2
4-Chloro-3-methylphenol	17	1.0	1.0	1.2
4-Nitrophenol	17	1.0	1.2	2.3
Acenaphthene	17	1.0	1.0	1.2
Aluminum	2	108	804	1500
Arsenic	67	0.255	0.993	2.93
Barium	2	29.3	45.6	61.8
Benzene	32	0.25	0.88	1.0
Beryllium	2	1.0	1.0	1.0
Bis(2-ethylhexyl) phthalate	24	1.0	1.44	3.16
Bromide	58	0.025	0.088	0.22
Bromodichloromethane	37	0.25	0.99	3.7
Bromoform	37	0.30	0.81	1.0
Cadmium	67	0.050	0.0822	0.340
Calcium	2	2.25E+04	3.30E+04	4.34E+04
Carbon tetrachloride	37	0.30	0.89	4.0
Chloride	69	0.92	5.7	136
Chlorobenzene	32	0.38	0.90	1.0
Chloroform	37	0.15	4.44	12.0
Chromium	67	0.10	0.741	3.3
Cobalt	2	1.0	1.0	1.0
Dibromochloromethane	37	0.30	0.84	2.0
Fluoride	69	0.023	0.056	0.22
Gross alpha	67	0.911	3.4	24
Gross beta	67	1.84	5.7	35
Iron	70	20	84.8	411
Lead	67	0.050	0.360	1.81
Magnesium	2	4.76E+03	6.58E+03	8.40E+03
Manganese	71	0.446	6.01	20.5
Mercury	66	0.050	0.0627	0.530
Methylene chloride	37	1.0	1.4	4.81
Nickel	2	1.5	1.5	1.5
Nitrogen in Nitrate	68	0.014	0.49	20.4
Nitrogen in Nitrite	68	0.0030	0.026	0.22
n-Nitrosodi-n-dipropylamine	17	1.0	1.1	1.7
Oil and grease	24	0.99	2.9	5.7
Pentachlorophenol	17	1.0	1.1	1.5
Phenol	17	1.0	1.2	2.3
Phosphate	10	0.078	0.728	1.4
Phosphorus in phosphate	54	0.042	0.474	15.1
Potassium	2	1.33E+03	1.71E+03	2.08E+03
Pyrene	13	1.0	1.0	1.0
Pyridine	4	2.1	2.2	2.3
Silicon	2	1.99E+03	2.01E+03	2.02E+03
Silver	2	1.0	1.0	1.0
Sodium	2	3.76E+03	3.38E+04	6.38E+04
Sulfate	69	8.71	20.7	80.1
Thallium	2	5.0	5.0	5.0

Constituent	Count of Analyses	Minimum of Converted Results	Average of Converted Results	Maximum of Converted Results
Toluene	32	1.0	1.0	1.0
Total dissolved solids	69	22.9	118	427
Total Trihalomethanes	37	0.15	4.79	15.0
Trichloroethene	32	0.29	0.65	1
Trichloromonofluoromethane	1	2.8	2.8	2.8
tris(1-chloro-2-propyl) phosphate	1	7.5	7.5	7.5
Tritium	24	270	1153	14000
Vanadium	2	1.0	1.0	1.0
Zinc	2	23.8	80.9	138

A "pivot table" is a table generated in Microsoft Excel® that automatically calculates the minimum, average and maximum results of a data set. This pivot table was generated using the data from Table A-1.

Units:

- Bromide, chloride, fluoride, nitrogen in nitrate, nitrogen in nitrite, phosphate, phosphorous in phosphate, sulfate, total dissolved solids, and oil and grease are in units of mg/L.
- Gross alpha, gross beta, and tritium are in units of pCi/L.
- All other constituents have units of µg/L.

See Appendix B for special calculations of phosphate and tritium

APPENDIX B

B1.0 SPECIAL CALCULATIONS

B1.1 Phosphate to Phosphorous in Phosphate

Phosphate is reported by some laboratories as "phosphate" and by other laboratories as "phosphorous in phosphate". To calculate the minimum, average and maximum, the results must be standardized. Because most of the results are reported as "phosphorous in phosphate", the others will be converted. The atomic weight of P is 31.0 and of O is 16.0. The conversion factor is: PO4 --> P in PO4 = 31.0 / (31.0 + 4 * 16.0) = 0.3263. Some results must be converted to mg/L before converted to phosphorous in phosphate.

Table B-1 Phosphate to Phosphorous in Phosphate

Constituent	Sample Date	Reported Value	Reported Units	Lab Qualifier	Converted to mg/L	Conversion Factor	Converted to P in PO_4 (mg/L)	Units
Phosphorus in phosphate	05-Jan-11	0.236	ug/mL	B	0.236	1	0.236	mg/L
Phosphorus in phosphate	11-Feb-11	0.0851	ug/mL	B	0.0851	1	0.0851	mg/L
Phosphorus in phosphate	10-Mar-11	15.1	ug/mL		15.1	1	15.1	mg/L
Phosphorus in phosphate	06-Apr-11	0.158	ug/mL	B	0.158	1	0.158	mg/L
Phosphorus in phosphate	04-May-11	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	09-Jun-11	0.113	ug/mL		0.113	1	0.113	mg/L
Phosphorus in phosphate	06-Jul-11	0.0682	ug/mL	B	0.0682	1	0.0682	mg/L
Phosphorus in phosphate	04-Aug-11	0.567	ug/mL		0.567	1	0.567	mg/L
Phosphorus in phosphate	08-Sep-11	0.29	ug/mL	B	0.29	1	0.29	mg/L
Phosphorus in phosphate	05-Oct-11	0.0661	ug/mL	B	0.0661	1	0.0661	mg/L
Phosphorus in phosphate	14-Nov-11	1.8	mg/L		1.8	1	1.8	mg/L
Phosphorus in phosphate	14-Dec-11	0.115	ug/mL	B	0.115	1	0.115	mg/L
Phosphorus in phosphate	14-Dec-11	0.111	ug/mL	B	(duplicate)	1	N/A	mg/L
Phosphorus in phosphate	06-Jan-12	0.0833	ug/mL	B	0.0833	1	0.0833	mg/L
Phosphorus in phosphate	08-Feb-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	15-Mar-12	0.0914	ug/mL	B	0.0914	1	0.0914	mg/L
Phosphorus in phosphate	10-Apr-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	09-May-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	23-May-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	13-Jun-12	0.427	ug/mL		0.427	1	0.427	mg/L
Phosphorus in phosphate	18-Jul-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	15-Aug-12	0.325	ug/mL	BD	0.325	1	0.325	mg/L
Phosphorus in phosphate	05-Sep-12	0.17	ug/mL	B	0.17	1	0.17	mg/L
Phosphorus in phosphate	03-Oct-12	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	07-Nov-12	0.192	ug/mL	B	0.192	1	0.192	mg/L
Phosphorus in phosphate	05-Dec-12	0.0726	ug/mL	B	0.0726	1	0.0726	mg/L

Constituent	Sample Date	Reported Value	Reported Units	Lab Qualifier	Converted to mg/L	Conversion Factor	Converted to P in PO_4 (mg/L)	Units
Phosphorus in phosphate	14-Dec-12	0.0733	ug/mL	B	0.0733	1	0.0733	mg/L
Phosphorus in phosphate	09-Jan-13	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	06-Feb-13	0.0635	ug/mL	B	0.0635	1	0.0635	mg/L
Phosphorus in phosphate	06-Mar-13	0.042	ug/mL	U	0.042	1	0.042	mg/L
Phosphorus in phosphate	03-Apr-13	0.56	ug/mL		0.56	1	0.56	mg/L
Phosphorus in phosphate	09-May-13	0.103	ug/mL	B	0.103	1	0.103	mg/L
Phosphorus in phosphate	06-Jun-13	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	10-Jul-13	0.126	ug/mL	B	0.126	1	0.126	mg/L
Phosphorus in phosphate	10-Jul-13	0.108	ug/mL	B	(duplicate)	1	N/A	mg/L
Phosphorus in phosphate	14-Aug-13	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	04-Sep-13	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	09-Oct-13	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	07-Nov-13	0.602	ug/mL		0.602	1	0.602	mg/L
Phosphorus in phosphate	10-Dec-13	0.05	ug/mL	B	0.05	1	0.05	mg/L
Phosphorus in phosphate	08-Jan-14	0.17	ug/mL	B	0.17	1	0.17	mg/L
Phosphorus in phosphate	12-Feb-14	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	27-Feb-14	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphorus in phosphate	19-Mar-14	0.0944	ug/mL	B	0.0944	1	0.0944	mg/L
Phosphorus in phosphate	09-Apr-14	0.05	ug/mL	U	0.05	1	0.05	mg/L
Phosphate	14-May-14	0.95	mg/L	N	0.95	0.3263	0.31	mg/L
Phosphate	18-Jun-14	1.4	mg/L	N	1.4	0.3263	0.46	mg/L
Phosphate	10-Jul-14	0.74	mg/L		0.74	0.3263	0.24	mg/L
Phosphate	13-Aug-14	1.2	mg/L		1.2	0.3263	0.39	mg/L
Phosphate	09-Sep-14	0.078	mg/L	U	0.078	0.3263	0.025	mg/L
Phosphate	14-Oct-14	0.078	mg/L	UN	0.078	0.3263	0.025	mg/L
Phosphate	05-Nov-14	0.42	mg/L	BN	0.42	0.3263	0.14	mg/L
Phosphate	02-Dec-14	0.24	mg/L	BD	0.24	0.3263	0.078	mg/L
Phosphate	06-Jan-15	1.2	mg/L	N	1.2	0.3263	0.39	mg/L
Phosphate	06-Jan-15	0.97	mg/L	N	(duplicate)	0.3263	N/A	mg/L
Phosphorus in phosphate	04-Feb-15	67	ug/L	U	0.067	1	0.067	mg/L
Phosphorus in phosphate	11-Mar-15	67	ug/L	U	0.067	1	0.067	mg/L
Phosphorus in phosphate	09-Jun-15	0.504	mg/L		0.504	1	0.504	mg/L
Phosphorus in phosphate	07-Jul-15	0.537	mg/L		0.537	1	0.537	mg/L
Phosphorus in phosphate	11-Aug-15	0.13	mg/L	U	0.13	1	0.13	mg/L
Phosphorus in phosphate	09-Sep-15	0.19	mg/L	B	0.19	1	0.19	mg/L
Phosphorus in phosphate	05-Oct-15	230	ug/L	B	0.23	1	0.23	mg/L
Phosphorus in phosphate	03-Nov-15	220	ug/L	B	0.22	1	0.22	mg/L

Constituent	Sample Date	Reported Value	Reported Units	Lab Qualifier	Converted to mg/L	Conversion Factor	Converted to P in PO_4 (mg/L)	Units
Phosphorus in phosphate	02-Dec-15	190	ug/L	B	0.19	1	0.19	mg/L
						MINIMUM:	0.025	mg/L
						AVERAGE:	0.438	mg/L
						MAXIMUM:	15.1	mg/L

= Results reported in ug/L

Lab qualifiers:
B (inorganics): Value is between the method detection level and the required quantitation level and is therefore an estimate.
D (all): Sample was diluted before analysis.
N (inorganic): Spiked sample was outside quality control levels.
U (all): Analyzed but not detected in the sample.

B1.2 Exclude Non-Detect Result for Tritium

Laboratories subtract background radiation counts from the sample counts to get the reported results. For TEDF, the activity levels are so low the background counts produce odd results. The reported detection level (called the minimum detectable activity) is used as the result, with a "U" qualifier. For example, the January 2011 results is reported as < 330 pCi/L. The tritium result from January 2013 has a very high detection level which is skewing the average and maximum results. Based on the other 23 results, the tritium result of < 14000 pCi/L was excluded from calculations of minimum, maximum and average.

Table B-2 Tritium Non-Detect Results

Constituent	Sample Date	Sample Result	Units	Lab Qualifier	Detection Level	Reported Result	Reported Units
Tritium	05-Jan-11	-39	pCi/L	U	330	330	pCi/L
Tritium	06-Apr-11	120	pCi/L	U	300	300	pCi/L
Tritium	06-Jul-11	110	pCi/L	U	300	300	pCi/L
Tritium	05-Oct-11	43.8	pCi/L	U	368	368	pCi/L
Tritium	06-Jan-12	-74	pCi/L	U	350	350	pCi/L
Tritium	10-Apr-12	120	pCi/L	U	300	300	pCi/L
Tritium	18-Jul-12	-230	pCi/L	U	1200	1200	pCi/L
Tritium	03-Oct-12	520	pCi/L	U	1100	1100	pCi/L
Tritium	14-Dec-12	120	pCi/L	U	1100	1100	pCi/L
Tritium	09-Jan-13	4600	pCi/L	U	14000	(excluded)	pCi/L
Tritium	03-Apr-13	88	pCi/L	U	1100	1100	pCi/L
Tritium	10-Jul-13	470	pCi/L	U	1000	1000	pCi/L
Tritium	10-Jul-13	440	pCi/L	U	1000	(duplicate)	pCi/L
Tritium	07-Nov-13	120	pCi/L	U	300	300	pCi/L
Tritium	08-Jan-14	-130	pCi/L	U	270	270	pCi/L
Tritium	27-Feb-14	61	pCi/L	U	290	290	pCi/L
Tritium	09-Apr-14	32	pCi/L	U	300	300	pCi/L
Tritium	10-Jul-14	-43	pCi/L	U	319	319	pCi/L
Tritium	14-Oct-14	167	pCi/L	U	281	281	pCi/L
Tritium	06-Jan-15	38.9	pCi/L	U	295	(duplicate)	pCi/L

Constituent	Sample Date	Sample Result	Units	Lab Qualifier	Detection Level	Reported Result	Reported Units
Tritium	06-Jan-15	-50.5	pCi/L	U	298	298	pCi/L
Tritium	09-Jun-15	201	pCi/L	U	575	575	pCi/L
Tritium	07-Jul-15	13.7	pCi/L	U	636	636	pCi/L
Tritium	06-Oct-15	-427	pCi/L	U	641	641	pCi/L
					MINIMUM:	270	pCi/L
					AVERAGE:	541	pCi/L
					MAXIMUM:	1200	pCi/L

Lab qualifier: U – Analyzed but not detected in the sample.

APPENDIX C

C1.0 TEDF FLOW, PH AND CONDUCTIVITY RESULTS FROM DISCHARGE MONITORING REPORTS

Data in the following table is from quarterly discharge monitoring reports which are provided to Ecology.

Table C-1 TEDF Flow, pH and Conductivity Results from Discharge Monitoring Reports

Month	Flow			Conductivity	pH Minimum	pH Maximum
	Mgal/month	Days in Month	Mgal/day			
January-11	0.8941	31	0.0288	267	7.2	8.2
February-11	1.2243	28	0.0437	169	7.4	8.4
March-11	1.0334	31	0.0333	176	7.2	8.4
April-11	1.0475	30	0.0349	161	7.3	8.0
May-11	1.7866	31	0.0576	160	7.0	8.1
June-11	1.6950	30	0.0565	168	7.1	8.1
July-11	1.0512	31	0.0339	167	7.5	7.9
August-11	1.4977	31	0.0483	161	7.5	8.0
September-11	1.0208	30	0.0340	179	7.5	8.0
October-11	1.0470	31	0.0338	168	7.5	8.1
November-11	0.9732	30	0.0324	162	7.6	8.1
December-11	0.9421	31	0.0304	155	7.4	8.0
January-12	1.1098	31	0.0358	231	6.7	8.2
February-12	0.6417	29	0.0221	191	6.6	8.1
March-12	0.9862	31	0.0318	173	7.1	8.0
April-12	1.6934	30	0.0564	158	7.1	7.8
May-12	2.2546	31	0.0727	164	7.3	8.0
June-12	2.4139	30	0.0805	171	7.2	8.1
July-12	2.6049	31	0.0840	147	7.2	8.3
August-12	2.2013	31	0.0710	154	7.2	8.4
September-12	1.7758	30	0.0592	178	7.3	8.1
October-12	2.3911	31	0.0771	155	6.8	8.2
November-12	1.8686	30	0.0623	166	7.1	8.5
December-12	1.8254	31	0.0589	190	6.5	8.4
January-13	1.5349	31	0.0495	230	6.7	8.3
February-13	1.3481	28	0.0481	163	6.5	8.2
March-13	1.9778	31	0.0638	200	6.3	8.1
April-13	1.6780	30	0.0559	172	7.1	8.2
May-13	2.0003	31	0.0645	173	7.0	8.3
June-13	2.6210	30	0.0874	160	6.7	8.0
July-13	2.5369	31	0.0818	170	7.1	8.2
August-13	3.0120	31	0.0972	161	6.9	8.3

RPP-CALC-60773 Rev. 01

Month	Flow			Conductivity	pH Minimum	pH Maximum
	Mgal/month	Days in Month	Mgal/day			
September-13	3.3558	30	0.1119	162	7.3	8.3
October-13	2.5382	31	0.0819	159	7.3	8.1
November-13	2.6959	30	0.0899	159	7.4	8.1
December-13	2.4762	31	0.0799	157	7.1	8.2
January-14	1.9240	31	0.0621	168	7.1	8.2
February-14	45.4230	28	1.6223	177	7.2	8.2
March-14	52.4755	31	1.6928	170	7.2	8.5
April-14	2.2089	30	0.0736	172	7.3	8.1
May-14	1.9888	31	0.0642	167	7.3	8.4
June-14	1.9017	30	0.0634	177	7.5	8.1
July-14	67.6225	31	2.1814	140	7.3	8.4
August-14	1.8226	31	0.0588	159	7.0	8.1
September-14	105.7790	30	3.5260	148	7.3	9.6*
October-14	74.1649	31	2.3924	141	7.0	9.4*
November-14	1.6416	30	0.0547	159	7.2	9.0*
December-14	1.7069	31	0.0551	181	6.6	8.0
January-15	2.1032	31	0.0678	152	7.0	8.0
February-15	1.5465	28	0.0552	159	6.6	8.1
March-15	22.5204	31	0.7265	322	6.7	8.5
April-15	6.4419	30	0.2147	157	7.2	8.6
May-15	53.8924	31	1.7385	147	7.0	9.7*
June-15	37.3335	30	1.2445	151	6.7	9.8*
July-15	55.4502	31	1.7887	154	7.2	9.2*
August-15	1.6856	31	0.0544	156	7.3	9.4*
September-15	52.3334	30	1.7444	155	7.1	9.2*
October-15	1.6728	31	0.0540	162	6.7	7.8
November-15	1.4205	30	0.0474	183	7.1	8.2
December-15	1.7317	31	0.0559	225	6.9	8.1
		MINIMUM:	0.0221	140	6.3	
		AVERAGE:	0.3622	172		
		MAXIMUM:	3.5260	322		9.8*

*Includes pH spikes likely due to instrument errors

APPENDIX D
CALCULATION CHECKLIST – REV 00

Calculation Title/Subject:	Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages		
Scope of Review:	Entire document		
Engineer/Analyst	M.W. Bowman (See DCRF for approval)	Date:	(See DCRF)
Organization Manager	W.W. Rutherford (See DCRF for approval)	Date:	(See DCRF)

Yes	No*	NA*		
[X]	[ ]	[ ]	a.	The objective/purpose of the calculation is clearly stated and the problem is completely defined by the purpose statement.
[X]	[ ]	[ ]	b.	Analytical and technical approaches and results are reasonable and appropriate.
[X]	[ ]	[ ]	c.	Input data are adequately described, referenced to their source, and checked for consistency with original source information.
[X]	[ ]	[ ]	d.	Necessary assumptions are reasonable, explicitly stated, and supported. Assumptions requiring verification prior to use are clearly stated and identified/tracked using TBD/HOLD numbers.
[ ]	[ ]	[X]	e.	For both qualitative and quantitative data, uncertainties are recognized and discussed and the data is presented in a manner to minimize design interpretations.
[X]	[ ]	[ ]	f.	Mathematical derivations were checked, including dimensional consistency of results.
[X]	[ ]	[ ]	g.	Calculations are sufficiently detailed such that a technically qualified person can understand the analysis without requiring outside information.
[ ]	[ ]	[X]	h.	Hand and MathCAD® calculations were verified, including review that correct input data are used, formulae correctly interpret intended expressions, correct units are used, and results are reasonable and appropriate.
[X]	[ ]	[ ]	i.	Software applications used are identified by the program name and version/release number as required by Attachment A (Section 7, Use of Computer Software).
[X]	[ ]	[ ]	j.	Software input data is identified and/or attached/included, the input data is correct, and consistent with the calculation document.
[X]	[ ]	[ ]	k.	Software output is consistent with the input and with the results reported in the calculation document.
[ ]	[ ]	[X]	l.	Software verification and validation are addressed adequately in accordance with TFC-BSM-IRM_HS-C-01. Software verification documentation, (typically the Software Management Plan or Test Report), is included in the calculation document, or a reference is provided as required by Attachment A (Section 7, Use of Computer Software).
[ ]	[ ]	[X]	m.	Software verification show that software produces correct solution for the encoded mathematical model within defined limits for each parameter employed and the software is used within its limits.
[X]	[ ]	[ ]	n.	The encoded mathematical model (method), produces a valid solution to the physical problem associated with the particular application (i.e., the methodology used is applicable to the problem being solved).
[X]	[ ]	[ ]	o.	Multiple-Use spreadsheets used in the calculation are identified, verified, and documented in accordance with TFC-ENG-DESIGN-C-32. Reference to the corresponding Software Management Plan or Spreadsheet Verification Form (for legacy spreadsheets) is included in calculation as required by Attachment A (Section 7, Use of Computer Software).
[X]	[ ]	[ ]	p.	Single-Use spreadsheets used in the calculation are identified, verified, and documented as part of the calculation or other technical document as prescribed in TFC-ENG-DESIGN-C-10.
[X]	[ ]	[ ]	q.	Data or results presented in tables and graphs have been checked against original source.
[X]	[ ]	[ ]	r.	The number of significant digits is appropriate and consistent.
[X]	[ ]	[ ]	s.	Limits/criteria/guidelines applied to the analysis results are appropriate and referenced. Limits/criteria/guidelines were checked against references.
[X]	[ ]	[ ]	t.	Conclusions are consistent with analytical results and applicable limits.
[X]	[ ]	[ ]	u.	Results and conclusions address all points in the purpose.
[X]	[ ]	[ ]	v.	Referenced documents are retrievable or otherwise available and the version or revision of each reference is cited.
[X]	[ ]	[ ]	w.	The calculation was prepared in accordance with Attachment A, "Calculation Format and Preparation Instructions," of TFC-ENG-DESIGN-C-10.
[X]	[ ]	[ ]	x.	Impacts on requirements have been assessed and change documentation initiated to incorporate revisions to affected documents, as appropriate.
[X]	[ ]	[ ]	y.	All checker comments have been dispositioned.
[ ]	[ ]	[X]	z.	The design media matches the calculations.

* If less than the entire calculation was checked, the scope of the check should be discussed. If any blocks are checked "No" or "NA", an explanation must be provided here or attached.

Notes:

e. The calculation is not used for design.
h. No hand or MathCAD calculations are used.
l,m. Microsoft Excel is COTS software.
z. The calculation is not used for design.

D.L. Halgren (See DCRF for approval)	(See DCRF)
Checker (printed name and signature)	Date

* If less than the entire calculation was checked, the scope of the check should be discussed. If any blocks are checked "No" or "NA", an explanation must be provided here or attached.

APPENDIX D
CALCULATION CHECKLIST – REV 01

Calculation Title/Subject:	Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages
Scope of Review:	Changes performed for Revision 01 (did not affect the calculations)
Engineer/Analyst	M.W. Bowman (See DCRF for approval) Date: (See DCRF)
Organization Manager	W.W. Rutherford (See DCRF for approval) Date: (See DCRF)

Yes	No*	NA*		
[ ]	[ ]	[X]	a.	The objective/purpose of the calculation is clearly stated and the problem is completely defined by the purpose statement.
[ ]	[ ]	[X]	b.	Analytical and technical approaches and results are reasonable and appropriate.
[ ]	[ ]	[X]	c.	Input data are adequately described, referenced to their source, and checked for consistency with original source information.
[ ]	[ ]	[X]	d.	Necessary assumptions are reasonable, explicitly stated, and supported. Assumptions requiring verification prior to use are clearly stated and identified/tracked using TBD/HOLD numbers.
[ ]	[ ]	[X]	e.	For both qualitative and quantitative data, uncertainties are recognized and discussed and the data is presented in a manner to minimize design interpretations.
[ ]	[ ]	[X]	f.	Mathematical derivations were checked, including dimensional consistency of results.
[ ]	[ ]	[X]	g.	Calculations are sufficiently detailed such that a technically qualified person can understand the analysis without requiring outside information.
[ ]	[ ]	[X]	h.	Hand and MathCAD® calculations were verified, including review that correct input data are used, formulae correctly interpret intended expressions, correct units are used, and results are reasonable and appropriate.
[ ]	[ ]	[X]	i.	Software applications used are identified by the program name and version/release number as required by Attachment A (Section 7, Use of Computer Software).
[ ]	[ ]	[X]	j.	Software input data is identified and/or attached/included, the input data is correct, and consistent with the calculation document.
[ ]	[ ]	[X]	k.	Software output is consistent with the input and with the results reported in the calculation document.
[ ]	[ ]	[X]	l.	Software verification and validation are addressed adequately in accordance with TFC-BSM-IRM_HS-C-01. Software verification documentation, (typically the Software Management Plan or Test Report), is included in the calculation document, or a reference is provided as required by Attachment A (Section 7, Use of Computer Software).
[ ]	[ ]	[X]	m.	Software verification show that software produces correct solution for the encoded mathematical model within defined limits for each parameter employed and the software is used within its limits.
[ ]	[ ]	[X]	n.	The encoded mathematical model (method), produces a valid solution to the physical problem associated with the particular application (i.e., the methodology used is applicable to the problem being solved).
[ ]	[ ]	[X]	o.	Multiple-Use spreadsheets used in the calculation are identified, verified, and documented in accordance with TFC-ENG-DESIGN-C-32. Reference to the corresponding Software Management Plan or Spreadsheet Verification Form (for legacy spreadsheets) is included in calculation as required by Attachment A (Section 7, Use of Computer Software).
[ ]	[ ]	[X]	p.	Single-Use spreadsheets used in the calculation are identified, verified, and documented as part of the calculation or other technical document as prescribed in TFC-ENG-DESIGN-C-10.
[ ]	[ ]	[X]	q.	Data or results presented in tables and graphs have been checked against original source.
[ ]	[ ]	[X]	r.	The number of significant digits is appropriate and consistent.
[ ]	[ ]	[X]	s.	Limits/criteria/guidelines applied to the analysis results are appropriate and referenced. Limits/criteria/guidelines were checked against references.
[ ]	[ ]	[X]	t.	Conclusions are consistent with analytical results and applicable limits.
[ ]	[ ]	[X]	u.	Results and conclusions address all points in the purpose.
[ ]	[ ]	[X]	v.	Referenced documents are retrievable or otherwise available and the version or revision of each reference is cited.
[ ]	[ ]	[X]	w.	The calculation was prepared in accordance with Attachment A, "Calculation Format and Preparation Instructions." of TFC-ENG-DESIGN-C-10.
[ ]	[ ]	[X]	x.	Impacts on requirements have been assessed and change documentation initiated to incorporate revisions to affected documents, as appropriate.
[ ]	[ ]	[X]	y.	All checker comments have been dispositioned.
[ ]	[ ]	[X]	z.	The design media matches the calculations.

* If less than the entire calculation was checked, the scope of the check should be discussed. If any blocks are checked "No" or "NA", an explanation must be provided here or attached.

Notes:

a. through z.: The changes made to Revision 01 did not involve changes to the calculations and are considered minor changes to the document:

- Section 5.1: Added trademark footnotes
- Section 5.4: Added a description of how the averages were calculated and revised the wording to refer to the pivot table included as Table A-2.
- Section 7.0: Added reference to Table 1-2 and referred to Table 1 explicitly. Added Table 1 footnote clarification and additional information.
- Table A-1: Included a list of all laboratory qualifiers and their definitions.
- Table A-2: Inserted Table A-2, which is the pivot table from Excel®, used to calculate the minimum, average, and maximum values of the sample results.
- Table B-1 and B-2: Included a list of all applicable laboratory qualifiers and their definitions

L. J. Stamper (See DCRF for approval)	(See DCRF)
Checker (printed name and signature)	Date

* If less than the entire calculation was checked, the scope of the check should be discussed. If any blocks are checked "No" or "NA", an explanation must be provided here or attached.

Attachment 5
17-ECD-0059
(11 Pages Double-Sided Excluding Cover Sheet)

RPP-ENV-59187, Rev. 01, State of Waste Discharge Permit ST0004502, 200 East Area Treated Effluent Disposal Facility – Supplemental Materials for the 2016 Permit Renewal Application

DOCUMENT RELEASE AND CHANGE FORM

Prepared For the U.S. Department of Energy, Assistant Secretary for Environmental Management
By Washington River Protection Solutions, LLC., PO Box 850, Richland, WA 99352
Contractor For U.S. Department of Energy, Office of River Protection, under Contract DE-AC27-08RV14800

TRADEMARK DISCLAIMER: Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof or its contractors or subcontractors. Printed in the United States of America.

Release Stamp

DATE: Sep 11, 2017 HANFORD RELEASE

1. Doc No: RPP-ENV-59187 **Rev.** 01

2. Title:
State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application

3. Project Number: ☒ N/A

4. Design Verification Required: ☐ Yes ☒ No

5. USQ Number: ☒ N/A RPP-27195

6. PrHA Number **Rev.** ☒ N/A

Clearance Review Restriction Type: public

7. Approvals

Title	Name	Signature	Date
Clearance Review	MEEGAN, ERIN C	*MEEGAN, ERIN C*	09/11/2017
Document Control Approval	PORTER, MARY	*PORTER, MARY*	09/11/2017
Originator	TEEL, RACHEL D	*TEEL, RACHEL D*	08/23/2017
Responsible Manager	BORNEMAN, LUCINDA E	*BORNEMAN, LUCINDA E*	08/30/2017

8. Description of Change and Justification

Revision 1 corrects the recomendation section of Appendix A. Also, Revision 1 removes tables in Appendix D and correctly references the tables to be in RPP-CALC-60783.

9. TBDs or Holds ☒ N/A

10. Related Structures, Systems, and Components

a. Related Building/Facilities ☐ N/A	b. Related Systems ☒ N/A	c. Related Equipment ID Nos. (EIN) ☒ N/A
6653 TEDF FACILITIES		

11. Impacted Documents – Engineering ☒ N/A

Document Number	Rev.	Title

12. Impacted Documents (Outside SPF):

N/A

13. Related Documents ☒ N/A

Document Number	Rev.	Title

14. Distribution

Name	Organization
ALLEN, CLYDE P	BASE OPS ENV COMPLIANCE
BOWMAN, MARK W	
FOSTER, JAMES	
HALGREN, DALE L	ETF ENGINEERING
JOYNER, JESSICA A	ENVIRONMENTAL PROTECTION
SZELMECZKA, ROGER W	
TEEL, RACHEL D	
VOOGD, JEFFRY A	BASE OPS ENV COMPLIANCE

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part I: Background Information

Title: State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) - Supplemental Materials for the 2016 Permit Renewal Application

Publish to OSTI? ☐ Yes ☑ No

Information Category:
☐ Abstract ☐ Journal Article ☐ Summary
☐ Internet ☐ Visual Aid ☐ Software
☐ Full Paper ☑ Report ☐ Other

Trademark/Copyright "Right to Use" Information or Permission Documentation	Yes	NA
	☐	☑

Document Number: RPP-ENV-59187 Revision 01 Date: August 2017

Author: Teel, Rachel D

Part II: External/Public Presentation Information

Conference Name:

Sponsoring Organization(s): N/A

Date of Conference: Conference Location:

Will Material be Handed Out? ☐ Yes ☑ No Will Information be Published? ☐ Yes ☑ No *(If Yes, attach copy of Conference format instructions/guidance.)*

Part III: WRPS Document Originator Checklist

Description	*Yes*	*N/A*	*Print/Sign/Date*
Information Product meets requirements in TFC-BSM-AD-C-01?	☐	☑	
Document Release Criteria in TFC-ENG-DESIGN-C-25 completed? (Attach checklist)	☐	☑	
If product contains pictures, safety review completed?	☐	☑	

Part IV: WRPS Internal Review

Function	*Organization*	*Date*	*Print Name/Signature/Date*
Subject Matter Expert	WRPS	9/11/2017	Teel, Rachel D IDMS Data File att.
Responsible Manager	WRPS	8/31/2017	Borneman, Lucinda E IDMS Data File att.
Other:			

Part V: IRM Clearance Services Review

Description	*Yes*	*No*	*Print Name/Signature*
Document Contains Classified Information?	☐	☒	If Answer is "Yes," ADC Approval Required Print Name/Signature/Date
Document Contains Information Restricted by DOE Operational Security Guidelines?	☐	☒	Reviewer Signature: Print Name/Signature/Date
Document is Subject to Release Restrictions? *If the answer is "Yes," please mark category at right and describe limitation or responsible organization below:*	☐	☒	Document contains: ☐ Applied Technology ☐ Protected CRADA ☐ Personal/Private ☐ Export Controlled ☐ Proprietary ☐ Procurement – Sensitive ☐ Patentable Info. ☐ OUO ☐ Predecisional Info. ☐ UCNI ☐ Restricted by Operational Security Guidelines ☐ Other (Specify)
Additional Comments from Information Clearance Specialist Review?	☐	☒	Information Clearance Specialist Approval APPROVED By Erin C. Meegan at 12:53 pm, Sep 11, 2017 Print Name/Signature/Date

When IRM Clearance Review is Complete – Return to WRPS Originator for Final Signature Routing (Part VI)

A-6003-508 (REV 4)

INFORMATION CLEARANCE REVIEW AND RELEASE APPROVAL

Part VI: Final Review and Approvals

Description	Approved for Release		Print Name/Signature	
	Yes	N/A		
WRPS External Affairs	☒	☐	IDMS Data File att.	Holloway, Jerry N
WRPS Office of Chief Counsel	☒	☐	IDMS Data File att.	Cherry, Steven B
DOE – ORP Public Affairs/Communications	☒	☐	IDMS Data File att.	Marshall, Richard
Other:	☐	☐		
Other:	☐	☐		

Comments Required for WRPS-Indicate Purpose of Document:

State Waste Discharge Permit ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) - Supplemental Materials for the 2016 Permit Renewal Application. Revision 1 corrects the recommendation section of Appendix A. Also, Revision 1 removes tables in Appendix D and correctly references the tables to be in RPP-CALC-60783.

Approved for Public Release; Further Dissemination Unlimited

APPROVED
By Erin C. Meegan at 12:53 pm, Sep 11, 2017

Information Release Station

Was/Is Information Product Approved for Release? ☒ Yes ☐ No

If Yes, what is the Level of Releaser? ☑ Public/Unrestricted ☐ Other (Specify) _____

Date Information Product Stamped/Marked for Release: 9/11/2017

Was/Is Information Product Transferred to OSTI? ☐ Yes ☒ No

Forward Copies of Completed Form to WRPS Originator

```
- <workflow name="(ECM) Expedite - RPP-ENV-59187-R1_State Permit ST0004502"
    id="215041201">
  - <task name="Clearance Process" id="0" date-initiated="20170831T1624"
      performer="Erin C Meegan" performer-id="196316112" username="h8232327">
      <comments>EXPEDITE: Due September 6, 2017 COB Please expedite review
        of RPP-ENV-59187, Rev 1 entitled "State Waste Discharge Permit
        ST0004502 200 East Area Treated Effluent Disposal Facility (TEDF) -
        Supplemental Materials for the 2016 Permit Renewal Application" for
        public release. Thank you, Erin Meegan Information
        Clearance</comments>
    </task>
    <task name="Add XML" id="1" date-done="20170831T1624" />
  - <task name="Expedite - Manager Approval" id="6" date-due="20170904T1624"
      date-done="20170831T1649" performer="Lucinda E Borneman" performer-
      id="1083261" username="h0094679" disposition="Approve"
      authentication="true">
      <comments>Approved with no comments.</comments>
    </task>
    <task name="Expedite - Document Reviewer1" id="16" date-
      due="20170904T1649" date-done="20170905T0742" performer="Jerry N
      Holloway" performer-id="140435533" username="h0087835" disposition="Public
      Release" authentication="true" />
    <task name="Expedite - Document Reviewer2" id="17" date-
      due="20170904T1649" date-done="20170906T1615" performer="Stephen B
      Cherry" performer-id="1382719" username="h0374767" disposition="Public
      Release" authentication="true" />
    <task name="Doc Owner Clearance Review" id="13" date-due="20170907T1615"
      date-done="20170906T1621" performer="Rachel D Teel" performer-
      id="209206573" username="h9745365" disposition="Send On"
      authentication="true" />
    <task name="Milestone 1" id="24" date-done="20170906T1621" />
  - <task name="ORP Document Reviewer1" id="57" date-due="20170908T1621"
      date-done="20170911T0921" performer="Richard A Marshall" performer-
      id="203862915" username="h4535783" disposition="Public Release"
      authentication="true">
      <reviewer performer="Bryan R Trimberger" performer-id="167391437"
        username="h2414684" />
      <comments>Reviewer's Comments Date: 09/11/2017 09:00 AM Step Name:
        RPP-ENV-59187 R1 State Waste Discharge Permit ST0004502 200 East
        Area Treated Effluent Disposal Facility (TEDF) - Supplemental Materials
        for the 2016 Permit Renewal Application Performer: Trimberger, Bryan
        (h2414684) Reviewed with ECD SME and comments addressed by WRPS.
        Ensure that PDF is updated to include changes made to
        document.</comments>
    </task>
    <task name="Doc Owner Reviews ORP Comments" id="61" date-
      due="20170912T0921" date-done="20170911T1125" performer="Rachel D
      Teel" performer-id="209206573" username="h9745365" disposition="Send On"
      authentication="true" />
    <task name="Milestone 2" id="62" date-done="20170911T1125" />
    <task name="Verify Doc Consistency" id="4" date-due="20170912T1125" date-
      done="20170911T1213" performer="Erin C Meegan" performer-id="196316112"
      username="h8232327" disposition="Cleared" authentication="true" />
  </workflow>
```

State Waste Discharge Permit ST0004502, 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application

Author Name:
R.D. Teel

Richland, WA 99352
U.S. Department of Energy Contract DE-AC27-08RV14800

EDT/ECN:	N/A	UC:	N/A
Cost Center:	N/A	Charge Code:	N/A
B&R Code:	N/A	Total Pages:	21

Key Words: TEDF, ST0004502, ST0004511, ST4502, discharge permit, permit renewal

Abstract: This document provides required suplemental technical materials and data being provided to the State of Washington Department of Ecology in support of the 2016 ST0004502 State Waste Discharge Permit renewal application.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

DATE:
Sep 11, 2017
HANFORD RELEASE

APPROVED
By Erin C. Meegan at 1:55 pm, Sep 11, 2017

Release Approval Date Release Stamp

Approved For Public Release

State Waste Discharge Permit ST0004502, 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental Materials for the 2016 Permit Renewal Application

Background

State Waste Discharge Permit ST0004502 (ST 4502) permit condition S6 requires a permittee to submit a renewal application to the State of Washington, Department of Ecology (Ecology) at least one year prior to the expiration date of the current permit. The current ST 4502 permit expires June 30, 2017, meaning the renewal application is due to Ecology by June 30, 2016.

As part of the 2016 renewal application package, both administrative and technical changes are being requested. Administrative changes are to correct heading and wording typos, general editorial corrections, improve clarity, etc.; and technical. A diverse array of technical changes have also been requested that run the gamut for example from changes and reductions to monitoring and calibration frequencies, to updating the facility loading limits, and converting existing effluent limits from being concentration based to a mass based loading limit.

The requested permit changes are being made to align the permit with;

1. Current and known or readily foreseeable future operational needs and requirements for TEDF;
2. To resolve documented and known conflicts between ST 4502 and State Waste Discharge Permit ST0004511;
3. Resolve conflicts between ST 4502 effluent limits and the Federal and State potable drinking water requirements and standards.

ST 4502 permit condition S2.G, "Request for reduction in monitoring" states

"The Permittee may request a reduction of the sampling frequency after twelve (12) months of monitoring. Ecology will review each request and at its discretion grant the request when it reissues the permit or by a permit modification.

The Permittee must:
1. Provide a written request.
2. Clearly state the parameters for which it is requesting reduced monitoring.
3. Clearly state the justification for the reduction."

In accordance with this permit condition and well as WAC 173-216-110(5), the following supplemental materials are being submitted to Ecology as part of the 2016 ST 4502 renewal

application in order to provide the necessary basis and data for the requested technical changes.

- APPENDIX A – Loading Limits
- APPENDIX B – Chloroform & Total Trihalomethane (TTHM)
- APPENDIX C – Basis for Change to Continuous Footnote in S2.A & S.8
- APPENDIX D – Reduction pH and Conductivity Calibrations
- APPENDIX E – Vacuum Air Relief Valves – Normal Operational Discharge vs. Break

APPENDIX A – Loading Limits

Problem Statement

Concentration-based effluent limits in State Waste Discharge Permit ST0004502 (ST 4502) hinder the receipt of discharges which are otherwise acceptable under State Waste Discharge Permit ST0004511 (ST 4511) and it discourages the pursuit of water-conservation measures.

Discussion

Significant changes have occurred in the wastewater generating facilities over the 20-year operating history of the 200 Area Treated Effluent Disposal Facility (TEDF). The volume, number of wastewaters, and pollutant loading discharged to TEDF has decreased significantly. Some of the changes that have occurred at the end-of-pipe as a result of these reductions include:

- Reliance on daily sampling when continuous pH and conductivity monitoring is not possible due to insufficient flow.
- Use of grab samples when the sampling pump cannot acquire representative composite samples due to low flow rates.
- Increased reporting of "no discharge" during intermittent periods when flow rates drop below online flow monitoring capability.

The Hanford Site has eliminated many of the wastewater streams originally collected by TEDF. In fact, all the major waste streams that required treatment and/or retention prior to discharge have been permanently withdrawn through facility upgrade projects, water conservation measures, and facility deactivation. Until the Waste Treatment Plant comes online, TEDF will remain a collection and discharge system for non-contact industrial wastewaters that should only need application of Best Management Practices (BMPs) prior to disposal.

The Hanford Site is evaluating water conservation measures which will further reduce water demand across the Site. Examples of measures being evaluated include replacement of aging water distribution pipes and installing a cooling tower on the supply line for the 242-A Evaporator to recycle and re-use the facility's non-contact cooling water. If implemented, these types of conservation projects would significantly reduce water usage and decrease the volume of industrial wastewater being discharged to the environment via TEDF. Reducing the quantity of raw water used increases the contribution of potable water in the TEDF discharge. This

results in higher concentration of potable water pollutants which jeopardizes continued compliance with concentration-based permit requirements.

Cooling towers are a costly but sustainable upgrade that significantly reduces water demand and provides productivity increases when the cooling water is provided at a lowered temperature. The cooling tower allows the water to be recycled and re-used multiple times, thus reducing the water demand in contrast to the current single-pass cooling system. Evaporative cooling towers also concentrate the constituents present in the source water every time the water is re-used, and this can be a problem when dealing with concentration-based pollutant limits.

This dilemma presents a growing concern about the potential impacts from future water conservation projects. Ecology's Water Quality Permit Writer's Manual, Publication 92-109 dated January 2015, acknowledges this dilemma and presents a solution:

> ***"Incorporating concentration limits might discourage a facility from practicing water conservation. By reducing water usage in a process while continuing to provide good waste treatment the mass discharge might be reduced but the concentrations exceed monthly and daily limits, therefore, a permit writer who places concentration limits in a permit in addition to the mass limits, should allow some exclusion from those concentration limits if there is a demonstration of water conservation."***
>
> *-- Ecology Publication 92-109, Section 1.5*

Concentration-based limits also impose a burden on Permit ST 4511 discharges because these effluents cannot be accepted into the TEDF collection system until generators acquire analytical data to demonstrate compliance with the concentration-based limits. This burden is a dis-incentive to using the TEDF as a central collection system to manage miscellaneous discharges from the 200 Area.

Conclusion

Concentration-based limits have become more difficult to achieve as water conservation measures are employed. As low pollutant loads such as raw water are reduced in the collection system, sources with higher pollutant loads like potable water become more problematic to manage. Concentration-based limits also present a disincentive to collecting miscellaneous discharges throughout the 200 Area, even though Permit ST 4511 encourages generators to seek TEDF for disposal.

The Site has considered several options to address the identified conflicts. Evaluated options included;

- Do nothing and accept the risk of enforcement action for repeat violations of permit limits. This alternative is not legally acceptable because the Site cannot knowingly engage in activities that violate a permit limit.
- Oppose and discourage all future water conservation projects which reduce the demand for raw water or exchange raw water use for potable water. This is contrary to both the goals and certain legal requirements of the Federal government as well as the State, both of which encourage and in some cases require, the pursuit and implementation of various water conservation measures.
- Request effluent loading limits which will be compatible with water conservation upgrades and will encourage generators to bring ST 4511 discharges to TEDF.
- Move point of permit compliance in ST 4502 and resume groundwater monitoring. This would require time and funding to conduct a study to locate suitable groundwater well locations, locate the correct aquifer, establish a groundwater baseline (if technically feasible), etc. This change would be expensive both near and long-term and may not be technically feasible or readily implemented. ST 4502 permit limits would also need to be increased to allow for acceptance and discharge of potable water.
- Install end-of-pipe treatment at TEDF to remove pollutants that originated from either source water or potable water. This would require study, design, and significant funding to implement and likely would not be complete before the water distribution piping is upgraded and other, water conservation measures are implemented. The project may also be difficult to justify as historical sample data for TEDF and its infiltration ponds have shown there's been no recognizable adverse ecological or groundwater quality impact due to past discharges, including potable water discharges, to date. Permit limits would also still need to be adjusted to allow TEDF to accept potable water and higher pollutant concentrations to begin with.

Recommendation

Develop pollutant loading limits and BMPs to replace concentration-based limits for effluents. Continue effluent monitoring for qualitative parameters (pH, flow rate, and radioactivity). Sampling events will be completed to determine compliance with loading limits.

The Permittee proposes the following BMPs to augment the use of mass loading limits at TEDF end-of-pipe:

- Allowable source waters include raw Columbia River water, raw groundwater, potable water (treated Columbia River water or groundwater), condensate formed from ambient air, industrial stormwater, or demineralized water.

- Water conditioning chemicals used in processes such as cooling towers to prevent corrosion, scale buildup, or biological growth shall not contribute pollutants in excess of groundwater protection standard.

Proposed effluent loading limits for ST 4502 were generated and documented within RPP-CALC-60774 Revision 00, "Calculations for Proposed Loading Limits for Treated Effluent Disposal Facility Discharge Permit ST0004502". Ecology's Water Quality Permit Writer's Manual, Publication 92-109 cautions, *"Effluent limits expressed as mass (pounds or kilograms per day) create an opportunity for inefficient operation of a treatment process."* During periods of reduced flow, a discharger could throttle back on the efficiency of treatment works while remaining within the allowable pollutant loading. For this reason, Ecology in its manual advises permit writers to consider using concentration limits in addition to mass limits. This concern is not applicable to TEDF as TEDF is a collection and disposal system for specifically-approved, non-contact industrial wastewaters. It does not contain or provide any treatment, there is therefore, no treatment system that can be altered, making this potential concern irrelevant. It should therefore be acceptable to directly convert the existing ST 4502 concentration limits to loading limits without any reductions.

The proposed loading limits contained within RPP-CALC-60774 were reduced to 80% of the current maximum levels. It was determined that with a shift to mass loading limits, given existing wastewater streams and known pollutant concentrations sampled at TEDF to date, the actual loading would not be expected to exceed 80% of the current levels now or in the reasonably foreseeable future.

Shifting to mass loading limits from concentration based limits in ST 4502 would be beneficial for both the Site, the environment, and Washington State for the following reasons:

- This change would continue to encourage and support the Site in its ongoing and future water conservation efforts. Reduced water use by the Site in turn means a reduction in the volume of water withdrawn from the Columbia River, which is also ecologically beneficial.
- This change would remove barriers that discourage generators from disposing of ST 4511 discharges into the TEDF collection system and reduce surface discharges which may be proximal to underground contamination.
- Although the artificial perched water table created by the TEDF discharge is an isolated and artificial groundwater and is insufficient in quantity to be used in the future as a source of drinking water, enabling water conservation measures will reduce the overall loading discharged to the ground.

- Implementation of the proposed BMPs could be quickly implemented because the wastewater generators are experienced with applying these measures under Permit ST 4511.

APPENDIX B – Chloroform & Total Trihalomethane (TTHM)

Problem Statement

The 200 Area Treated Effluent Disposal Facility (TEDF) commonly reaches or exceeds the effluent limit in State Waste Discharge Permit ST0004502 (ST 4502) for chloroform and is at risk of an exceedance of the total trihalomethane (TTHM) limit. TTHM (comprised of chloroform, bromoform, bromodichlormethane, and dibromochloromethane) are byproducts of the potable water treatment process used by the Hanford Site Water Department which makes raw water from the Columbia River safe for human consumption. These chemical byproducts are commonly found in chlorinated public drinking water systems and are regulated by the Washington State Department of Health. Dual regulation puts the permittee in double jeopardy because these chemicals are regulated as byproducts and pollutants by different Washington State regulations which are in conflict. TEDF's permit exceedances for chloroform as well as increases in TTHM have been confirmed to be directly tied to the receipt of wastewaters that have potable water, typically non-contact potable water, as the source.

Discussion

In addition to being inclusive to TTHM, chloroform is also analyzed and monitored separately as a pollutant under Permit ST 4502. The ST 4502 effluent discharge limit for chloroform and TTHM is 7 µg/l (7 ppb) and 20 µg/l (20 ppb) respectively, both averaged monthly. The TEDF effluent is monitored for these pollutants using a grab sample, taken at the beginning of each month. TEDF sample results for chloroform and TTHM have been observed to peak during the months of July and August.

The only source of TTHM and chloroform is the Hanford's Water Department, which produces and distributes the Site's potable water supply. The process of producing potable water involves chlorination of raw water pumped from the Columbia River. Disinfectant byproducts can form in water when disinfectants used to control microbial pathogens combine with naturally occurring materials found in source water (Columbia River). TEDF wastewater generators that utilize potable water for their process source water therefore produce wastewaters that contain TTHM and chloroform. The Best Available Technology (BAT)/All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment (AKART) report for TEDF concluded that potable water is an acceptable wastewater for disposal in the TEDF system.

The U.S. Environmental Protection Agency (EPA) regulates drinking water "disinfection byproducts" and the Washington State Department of Health (WDOH) requires monitoring and reporting of chloroform and TTHM in public drinking water systems. The Hanford Water Department regularly monitors the potable water system in accordance with EPA's Stage II Disinfection/Disinfectant Byproducts Rule. Washington Administrative Code (WAC) 246-290-

310(4)(b) provides acceptable levels for TTHM in public drinking water at 0.080 mg/l (80 ppb) and does not provide a separate enforcement level for chloroform. Chloroform and TTHM are not regulated in drinking water as "contaminants."

The National Primary Drinking Water Regulations set a Maximum Contaminant Level (MCL) for TTHM from disinfection byproducts in public drinking water at 0.080 mg/l (80 ppb) [40 CFR §141.64(b)]. The MCL is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCL goals as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards. There is no MCL for chloroform, although 40 CFR §141.53 establishes a Maximum Contaminant Level Goal (MCLG) of 0.070 mg/l (70 ppb) for disinfection byproducts, which does include chloroform. A MCLG is defined as *the level of a contaminant in drinking water at which no known or anticipated health risk of persons would occur* and which allows an adequate martin of safety. MCLG are *non-enforceable* health goals. The World Health Organization (WHO) guideline for chloroform in drinking water is 200 µg/L (200 ppb).

The Hanford Water Department implements Federal and Washington State recommended operating practices, including sedimentation and coagulation, to minimize formation of disinfection byproducts. There is a large delta between the limits set in permit ST 4502 for TEDF for TTHM and chloroform versus the limits the Hanford Water Department operates the potable water supply under. This delta results in the production of potable water that is fully compliant with all state and federal drinking water standards and requirements, yet exceeds the discharge limits in ST 4502. Disinfectant byproduct sample results are averaged over a rolling period of several months to account for seasonal fluctuations. Figure 1 below provides an illustrated summary of four years' worth of chloroform data from the 200 Area potable water supply. This figure shows that chloroform levels in the potable water are typically well above the ST 4502 limit, but at the same time remain well below the WHO guideline, and are often below the EPA guideline as well.

The data clusters in Figure 1 also shows a wide variation from samples collected at different locations on the same date. This is a result of the distance of the sample point from the water treatment plant which results in increasing contact time as water moves through the supply pipe. The Hanford Water Department maintains residual disinfectant concentrations in the potable water in accordance with WDOH guidelines to ensure it remains drinkable at the 'end of pipe', and increased contact time also results in increased disinfectant byproduct production. The increase in disinfectant byproduct concentration is due to water stagnation in the pipelines, driven by the large size and extensive length of the Hanford potable water supply pipelines coupled with shrinking demand.

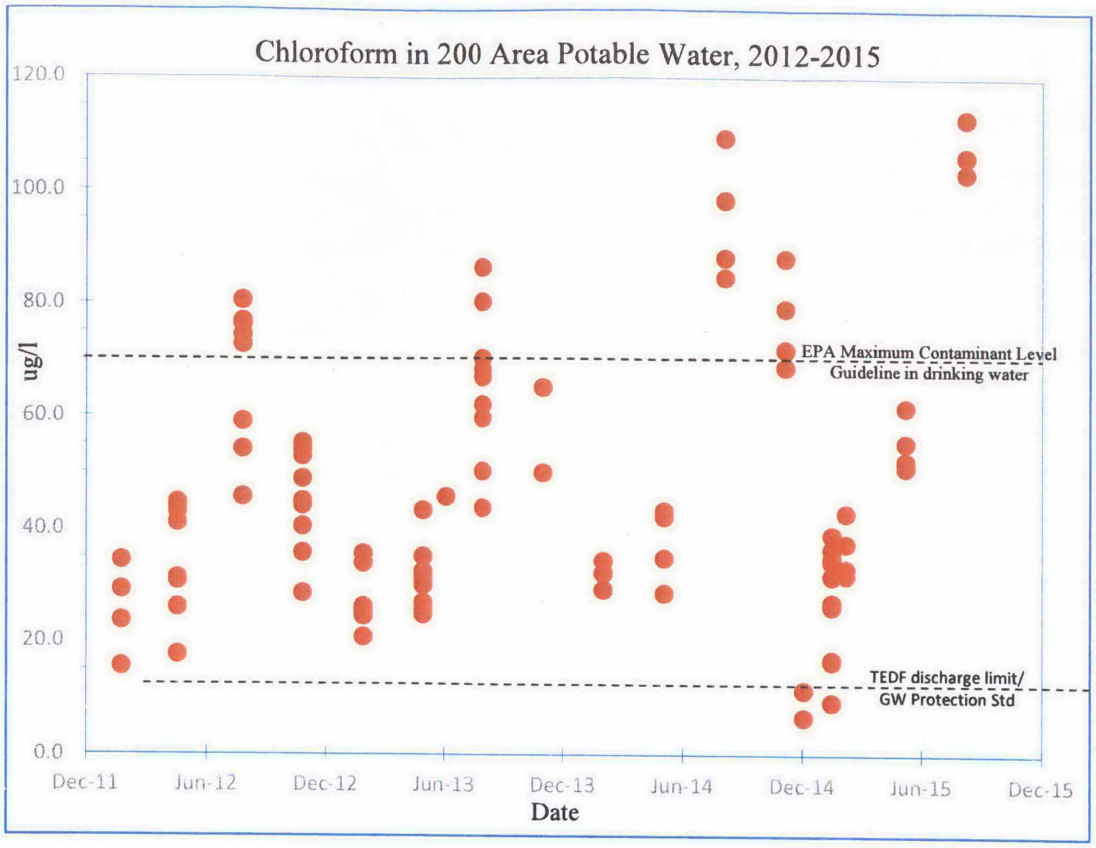


Figure 1. A summary of four years of chloroform data for the 200 Area potable water supply.

The Hanford Site has eliminated many of the industrial wastewater streams originally collected by the TEDF. In fact, existing waste streams that required treatment prior to discharge have been permanently withdrawn through water conservation projects, process shutdowns, and facility deactivations. Present day, the TEDF collection system handles only non-contact wastewaters that do not require treatment prior to disposal. When the Waste Treatment Plant comes online its industrial wastewaters will be treated, retained, sampled, and verified to meet discharge criteria before they are discharged to the TEDF collection system. The Waste Treatment Plant will provide treatment for TTHM and chloroform in their wastewaters, so that discharge is not expected to increase the TTHM or chloroform levels in the TEDF discharge.

The Site has been successful in reducing water usage through reduction of the overall operational footprint and manpower. A side effect of these reductions is a corresponding reduction in the discharge flow rates through TEDF. This in turn results in increased contact times in the distribution pipelines and increased formation of disinfectant byproducts like chloroform, due to the increased water stagnation. Currently proposed, future projects involve replacement of select, existing potable water supply piping with smaller diameter pipe which could potentially reduce contact time. The overall size of the potable water supply distribution system coupled with restrictions on the water supply system distribution line flushing imposed

by State Waste Discharge Permit ST0004511 (ST 4511), are still factors that will continue to contribute to elevated TTHM and chloroform levels in the potable water supply.

The Permittee is also continuing to evaluate future water conservation measures which will further reduce water demand in the 200 Areas. Future measures presently being evaluated include replacement of aging water distribution pipes, switching source waters from raw (Columbia River) to potable in support installation of cooling towers that can recycle and re-use non-contact cooling water. If implemented, these types of water conservation measures would further reduce water consumption and decrease the volume of industrial wastewater discharged to the ground.

Water conservation measures that would increase potable source water usage while reducing raw water usage will also change the contribution percentages of the source term in wastewaters received at TEDF. Historically, when potable water is the greater contributing source water (vs. raw water), it results in a higher concentration of chloroform and TTHM, which in turn jeopardizes compliance with permit enforcement limits. This dilemma presents a growing concern about the potential impacts from water conservation projects. To date, while there have been chloroform exceedances, there has not yet been a TTHM exceedance in the 200 Area TEDF discharge; but the levels are trending upward as water-conservation projects continue to be implemented.

Conclusion

Ecology regulates TTHM and chloroform in the TEDF discharge as pollutants at levels which are an order-of-magnitude below the threshold where EPA believes there are no known or expected health risks in drinking water. Ecology applies a 1-in-1,000,000 cancer risk for protecting prospective sources of drinking water, whereas EPA uses a 1-in-100,000 cancer risk for protecting known sources of drinking water. TEDF has been in operation in 20 years and the TTHM and chloroform levels in the groundwater have never approached the groundwater protection standard.

In addition, another one of the Site's discharge permits, ST 4511, requires a generator to discharge wastewaters covered under that permit to TEDF whenever feasible, instead of directly to the ground. If the proposed ST 4511 discharge is potable water or had potable water as its source water, the chloroform levels can exceed what TEDF can discharge under ST 4502. That means the only remaining disposal option is to discharge that wastewater directly to the ground via ST 4511.

The Site has considered several options to address the conflicts between the potable water and ST 4502 limits. Evaluated options included;

- Do nothing and accept the risk of enforcement action for repeat violations of ST 4502 permit limits based on groundwater protection standards. This is not acceptable because the trend is toward increasing chloroform levels due to water conservation

measures, and the violations would be based upon receipt and discharge to ground of legally compliant (per drinking water standards and requirements) potable water.

- Move point of permit compliance in ST 4502 and resume groundwater monitoring for drinking water disinfection byproducts. This would require time and funding to conduct a study to locate suitable groundwater well locations, locate the correct aquifer, establish a groundwater baseline (if technically feasible), etc. This change would be expensive both near and long-term and may not be technically feasible or readily implemented. ST 4502 permit limits would also need to be increased to allow for acceptance and discharge of potable water.
- Install end-of-pipe treatment at TEDF to remove disinfectant byproducts from wastewaters prior to their discharge in the ground. This would require study, design, and significant funding to implement and likely would not be complete before the water distribution piping is upgraded and other, water conservation measures are implemented. The project may also be difficult to justify as historical sample data for TEDF and its infiltration ponds have shown there's been no recognizable adverse ecological or groundwater quality impact due to past discharges, including potable water discharges, to date. Permit limits would also still need to be adjusted to allow TEDF to accept potable water and higher constituent concentrations to begin with.
- Oppose and discourage all future water conservation projects which reduce the demand for raw water or exchange raw water use for potable water. This is contrary to both the goals and certain legal requirements of the Federal government as well as the State, both of which encourage and in some cases require, the pursuit and implementation of various water conservation measures.
- Change TTHM and chloroform monitoring to "Report Only" in ST 4502 in place of the existing effluent limits. This would allow the Site to continue to monitor and report in the quarterly discharge monitoring reports required by ST 4502 both TTHM and chloroform that is present in the wastewaters being discharged, and it would also allow for the discharge of potable water with acceptable levels of disinfectant byproducts.

Recommendation

Request a permit change to remove the discharge limits for TTHM and chloroform in ST 4502 and continue to monitor them as "Report Only" constituents. This change would beneficial for both the Site, the environment, and Washington State for the following reasons:

- This solution eliminates the conflict between potable water regulations and ST 4502 permit limits, and would allow TEDF to readily accept potable water sourced wastewaters for discharge.
- This solution would eliminate a conflict between ST 4511 and ST 4502 and would allow TEDF to accept ST 4511 discharges that have potable water as a source in accordance with ST 4511.

- This change would continue to encourage and support the Site in its ongoing and future water conservation efforts. Reduced water use by the Site in turn means a reduction in water volume withdrawn from the Columbia River (the Site's potable water source), which is ecologically beneficial as well.
- TEDF sample and monitoring data collected and reported to date per ST 4502 show there's been no identifiable increase in TTHM and chloroform in the groundwater beneath the TEDF infiltration basins. Additionally, the artificial perched water table created by the TEDF discharge is an isolated and artificial groundwater and is insufficient in quantity to be used in the future as a source of drinking water.
- Potable water quality discharges will not cause harm to the existing or future uses of the groundwater; which is accordance and in compliance with WAC 173-216-020.
- TTHM and chloroform concentrations in the potable water on Site are monitored and remain legally complaint with applicable WDOH and EPA requirements for public drinking water.

APPENDIX C – Basis for Change to Continuous Footnote in S2.A & S.8

Technical Basis

The 200 East Area Treated Effluent Disposal Facility (TEDF) pH and conductivity effluent monitoring devices are mounted in a recirculation line supplied by a pump with a suction leg inserted through the top of the main TEDF pipeline. The suction leg extends to near the bottom of the pipe and has a strainer on the end to prevent solids from being sucked up and damaging the equipment. Since the main TEDF pipeline is large (14" diameter), it will have a minimal water level in the pipe when TEDF flow is low. The pump would be damaged if allowed to operate when the level at the bottom of the pipe is too low for it to effectively draw water. At approximately 50 gpm, the pump supplying the instrument recirculation line automatically shuts down. The monitoring instruments remain active even when there is no flow past the elements. The pump automatically restarts when the TEDF pipe water level corresponding to a flow of approximately 50 gpm is reached.

APPENDIX D – Reduction pH and Conductivity Calibrations

Technical Basis

Changes to permit condition S2.E of current State Waste Discharge Permit ST0004502 (ST 4502) have been proposed to reduce the pH and conductivity calibration frequencies from a weekly to monthly requirement. Weekly calibration frequency has been conducted since the permit went into effect in July 2012. ST 4502 permit condition S2.E includes the provision that the weekly frequency applied *"unless it can (be) demonstrate(d) a longer period is sufficient based on monitoring record."* To support the request to reduce the calibration frequency to monthly, historical pH and conductivity from 2009 through July of 2013 were analyzed. Monitoring system configuration remained the same for the period of analysis. The analysis was performed using PTC MathCad® 15.0 software and the results were then graphed in Microsoft Excel®.

The analysis is based on applying statistical process control (SPC) principles to the instrument drift between calibration events. The drift is the magnitude in which the instrument reading varies from the true (standard) value over a period of time. In this case the drift is calculated as the magnitude of the difference between the as-found reading and the post adjustment as-left reading from the previous calibration at a specific standard. The calibration frequency is used to try and control drift within the prescribed tolerance for the system. A high drift directly affects the instrument accuracy and can put it outside the acceptable tolerance.

The tolerance values of $\pm$ 0.5 for pH calibrations and $\pm$ 40 µS/cm for conductivity calibrations were established based on industry practices. The tolerances are limited by the accuracy of each part of the instrument loop (element, transmitter, readout, etc.) and the accuracy of the equipment used in performing the calibration (i.e., pH standard solutions and conductivity instrument used in the calibration). The pH readout is 0 to 14, so the tolerance is 0.5 / 14 x 100 = 3.6%. The conductivity readout for TEDF is 0 to 2000 µS/cm, to the tolerance is 40 / 2000 x 100 = 2%.

The SPC methodology is a tool to assess if the process is capable of meeting the requirements given the random variability inherent in all systems have or if the process is being impacted by other assignable causes. Here the pH and conductivity instrument data from the past year of weekly calibrations is evaluated using SPC functions and compared to the same evaluation on data from the previous two and a half years of quarterly calibrations. The pH instrument has two calibration points, one using a pH standard of 4.0 and one using a pH standard of 10.0. The SPC evaluation shows that both the weekly and quarterly frequencies are capable of meeting the system requirements as the Upper Control Limit (UCL) is less than the calibration tolerance limit for all cases as shown in Table 1, taken from RPP-CALC-60783. The UCL provides a

statistically high level of assurance (99.73%) that based on the normal behavior of the system the measured result will fall within the control limit range.

Table 1. Summary of TEDF Calibration Data

		pH 4	pH 10	Conductivity (µS/cm)
	Tolerance:	0.5	0.5	40
Upper Control Limit	Quarterly	0.436	0.343	33.09
	Weekly	0.241	0.171	21.75
Centerline	Quarterly	0.13	0.088	8.98
	Weekly	0.072	0.059	6.14

Quarterly data was obtained from 1/20/2009 through 6/15/2012. Weekly data represented the time period from 7/2/2012 through 7/30/2013. Weekly conductivity data on 1/15/2013 and 1/21/2013 were excluded from the analysis due to a damaged flex connector on the conductivity probe. It is considered a non-typical repair and the resulting data gathered considered to be non-representative of normal operations.

Figures 1 through 6 of Enclosure 6 (RPP-CALC-60783) show the SPC charts for all the data evaluated. The x-axis values are week numbers/quarter numbers for the calibration dates while the y-axis values are the calculated drift, in the units of the instrument. As might be expected there is some decrease in instrument reading drift with the change from quarterly to weekly calibrations. It can also be noted from the data that the drift is not linear with time. It is likely that a significant portion of the variability is associated with the conditions, setup, and execution of the calibration activity and the actual instrument drift is relatively small per unit time.

The characteristics of the TEDF wastewater support a longer calibration period. The wastewater is clean, does not include things that would coat or foul the instrument probes, and the characteristics are expected to remain stable over the long term.

Based on the evaluation of the pH and conductivity data, modification of the required calibration frequency to one month is justified. This frequency will continue to provide accurate and reliable monitoring data.

Reference: RPP-CALC-60783, Revision 00, *Justification for TEDF pH and Conductivity Calibration Frequency Permit Modification*, Washington River Protection Solutions, LLC, Richland

APPENDIX E – Air Vacuum & Vent Valves: Normal Operational Discharges vs. Breaks

Technical Basis

The TEDF pipeline design includes a combination of air vacuum/vent valves in accordance with accepted engineering practices. These valves prevent damage to the line from water surges or vacuum conditions during pumping cycles, and they also purge air from the line for efficient pumping operation. During the float actuated opening and closing cycle of these valves it is not uncommon for some wastewater dripping from the vent opening to occur.

Dripping of treated wastewater from the combination air valve opening is not a valve failure or system break, and is therefore not considered a reportable spill or leak under State Waste Discharge Permit ST0004502 (ST 4502). Minor drips of wastewater under these conditions that still comply with soil discharge criteria do not warrant system shutdown or emergency response and cleanup. A failure of the valve that would be considered a reportable event under ST 4502 would be one that results in a continuous flow of water. This type of event would be reported under existing ST 4502 permit condition S3.E in the same manner as a line break or failure (i.e. breach of designed containment) of the TEDF pipeline system.

Attachment 6
17-ECD-0059
(1 Page Excluding Cover Sheet)

Certification

CERTIFICATION FOR

Submittal of Revised 2016 State Waste Discharge Permit ST0004502 Renewal Application Supporting Documents- RPP-CALC-60773, Revision 01, "Treated Effluent Disposal Facility Sample Results 2011 to 2015 with Calculated Averages" and RPP-ENV-59187, Revision 01 "State Waste Discharge Permit ST0004502, 200 East Area Treated Effluent Disposal Facility (TEDF) – Supplemental" CONTRACT NUMBER DE-AC27-08RV14800

I certify under penalty of law, that this document and all attachments that were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

R D Cantwell

9/19/17

R. D. Cantwell, Manager
ESH&Q
Washington River Protection Solutions LLC

Date