ECF-100BC5-15-0039
Revision 0

Development of a Geologic Framework Model and Three Dimensional Contaminant Plumes to Support Fate and Transport Modeling Efforts in 100-BC Operable Unit of the Hanford Site, Washington

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

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

P.O. Box 1600
Richland, Washington 99352

Approved for Public Release;
Further Dissemination Unlimited

ECF-100BC5-15-0039
Revision 0

Development of a Geologic Framework Model and Three Dimensional Contaminant Plumes to Support Fate and Transport Modeling Efforts in 100-BC Operable Unit of the Hanford Site, Washington

Document Type: ENV Program/Project: EP&SP

T. B. Hammond
INTERA, Inc.

Date Published
October 2016

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

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

P.O. Box 1600
Richland, Washington 99352

APPROVED
By Lana Perry at 9:20 am, Oct 20, 2016

Release Approval Date

Approved for Public Release;
Further Dissemination Unlimited

TRADEMARK DISCLAIMER

Reference herein to any specific commercial product, process, or service by tradename, 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.

This report has been reproduced from the best available copy.

Printed in the United States of America

ENVIRONMENTAL CALCULATION COVER PAGE

Section 1: Completed by the Responsible Manager

Project: 100BC RI/FS

Date: 08/1/2015

Calculation Title & Description: Development of a Geologic Framework Model and Three Dimensional Contaminant Plumes to Support Fate and Transport Modeling Efforts in 100-BC Operable Unit of the Hanford Site, Washington

RELEASE / ISSUE

DATE: Oct 20, 2016 HANFORD RELEASE

Section 2: Completed by Preparer

Calculation No.: ECF-100BC5-15-0039 **Revision No.:** 0

Revision History

Revision No.	Description	Date	Affected Pages ADD ROW
0	Initial issue	12/07/2015	All

Section 3: Completed by the Responsible Manager

Document Control:

Is the document intended to be controlled within the Document Management Control System (DMCS)? ☒ Yes ☒ No MJH 5/9/16

Does document contain scientific and technical information intended for public use? ☒ Yes ☐ No

Does document contain controlled-use information? ☐ Yes ☒ No

Section 4: Document Review & Approval

TB Hammond Hydrogeologist (INTERA) **Preparer:**	(Name /Position)	Signature	5/5/16 Date
M Weber Hydrogeologist (INTERA) **Checker:**	(Name /Position)	Signature	5/5/16 Date
MJ Hartman Groundwater Scientist (CHPRC) **Senior Reviewer:**	(Name /Position)	Signature	9 May 2016 Date
AH Aly Risk & Model Integration Manager (CHPRC) **Responsible Manager:**	(Name /Position)	Signature ACTING FOR AH ALY	10 MAY 2016 Date

Section 5: Applicable if calculation is a risk assessment or uses an environmental model

PRIOR TO INITIATING MODELING:

Required training for modelers completed:

WE Nichols Modeling Team Leader (CHPRC) **Integration Lead**	(Name /Position)	Signature	10 MAY 2016 Date

Safety Software Approved:

WE Nichols Modeling Team Leader (CHPRC) **Integration Lead**	(Name /Position)	Signature	10 MAY 2016 Date

CALCULATION APPROVED:

AH Aly Risk & Model Integration Manager (CHPRC) **Risk/Modeling Integration Manager:**	(Name /Position)	Signature ACTING FOR AH ALY	10 MAY 2016 Date

Contents

1 Purpose **1**

2 Background **1**

3 Methodology **2**

3.1 Geologic Framework Model Development 2

3.2 Contaminant Data Compilation and Conditioning 4

3.2.1 Water Table Plume Data Compilation and Conditioning 4

3.2.2 Deep Plume Data Compilation and Conditioning 5

3.3 Data Interpolation in Leapfrog Geo 6

3.4 3D Plume Volume Refinement 11

4 Assumptions and Inputs **11**

5 Software Applications **12**

5.1 Approved Software 12

5.1.1 Description 12

5.1.2 Software Installation and Checkout 12

5.1.3 Statement of Valid Software Application 12

6 Calculation **13**

7 Results/Conclusions **13**

8 References **33**

Attachments

A. Well Information and Geologic Contacts Data Tables **35**

B. 2013 and 2014 Separate, Deep Cr(VI) Plume Data **107**

C. Software Installation and Checkout Form for Leapfrog Geo

146

Figures

Figure 1. 100-BC Geologic Framework and 3D Plumes Model Overview 16

Figure 2. Cr(VI) 2013 Water Table Plume Comparison 17

Figure 3. Cr(VI) 2013 Deep Plume Comparison 18
Figure 4. Plan View Cross Section Guide 19
Figure 5. Cross Section A – C: Comparison of 2013 Water Table and Deep Cr(VI) Plumes 20
Figure 6. Cross Section A – B: Comparison of 2013 Water Table and Deep Cr(VI) Plumes 21
Figure 7. Cr(VI) 2014 Average Water Table Plume Comparison 22
Figure 8. Cr(VI) 2014 Maximum Water Table Plume Comparison 23
Figure 9. Cr(VI) 2014 Deep Plume Comparison 24
Figure 10. Cross Section A – C: Comparison of 2014 Average Water Table and Deep Cr(VI) Plumes 25
Figure 11. Cross Section A – C: Comparison of 2014 Maximum Water Table and Deep Cr(VI) Plumes 26
Figure 12. Cross Section A – B: Comparison of 2014 Average Water Table and Deep Cr(VI) Plumes 27
Figure 13. Cross Section A – B: Comparison of 2014 Maximum Water Table and Deep Cr(VI) Plumes 28
Figure 14. Sr-90 2013 Water Table Plume Comparison 29
Figure 15. 2013 Sr-90 Plume Thickness 30
Figure 16. Sr-90 2014 Water Table Plume Comparison 31
Figure 17. 2014 Sr-90 Plume Thickness 32

Tables

Table 1. Wells for Depth Discrete Data 7
Table 2. Interpolation Parameters used for Water Table Cr(VI) Plume Interpolation in Leapfrog Geo 8
Table 3. Interpolation Parameters used for Deep Cr(VI) Plume Interpolation in Leapfrog Geo 9
Table 4. Interpolation Parameters used for Sr-90 Plume Interpolation in Leapfrog Geo 10
Table 5. Total Estimated Plume Contaminant Masses and Activities 15

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model 36
Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths) 62

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data 108
Table B-2: 2014 Separate, Deep Cr(VI) Plume Data 123

Terms

CHPRC	CH2M Hill Plateau Remediation Company
ECF	environmental calculation file
EMMA	Environmental Model Management Archive
GFM	geologic framework model
GIS	Geographic Information System
HEIS	Hanford Environmental Information System
HWIS	Hanford Well Information System
MCL	maximum contaminant level
WIDS	Waste Information Data System

1 Purpose

The purpose of this environmental calculation file (ECF) is to describe the construction of 3D geologic framework model (GFM) to serve as the conceptual setting for the plumes in the 100-BC operable unit (OU) and to present the methodology, input data, and results of the delineation of three-dimensional (3D) groundwater plumes for hexavalent chromium (Cr(VI)) and strontium-90 (Sr-90), and The 3D plume interpolation was carried out on the Leapfrog Geo®[1] geologic modeling platform, which includes an interpolation engine for analyzing 3D data.

Previously constructed two dimensional (2D) contaminant plume grids from the 2013 and 2014 Hanford Site Groundwater Monitoring Report, depth-discrete data, groundwater-monitoring well sampling data and hand-contoured plume concentration contours were used to estimate the 3D extents of the Cr(VI) and Sr-90 groundwater plumes beneath 100-BC. All interpolated plumes were reviewed by project scientists and site-specific expertise in the delineation of these plumes was incorporated.

Surfaces generated from the 100-Area GFM (ECF-Hanford-13-0020, *Process for Constructing a Three-dimensional Geological Framework Model of the Hanford Site,100 Area*), ground-proofed LIDAR-bathymetry data (Aero-Metric LiDAR, 2008; PNNL-19878, *Development of a High-Resolution Bathymetry Dataset for the Columbia River Through the Hanford Reach*) and top of basalt data (SGW-48478, *Interpretation and Integration of Seismic Data in the Gable Gap*) were used in construction of the 100-BC GFM.

2 Background

To provide a setting for 3D plume construction, a GFM for 100-BC was constructed. The 100-BC GFM is based on and uses the exact surface geometries of the broader 100-Area GFM (ECF-Hanford-13-0020) within the 100-BC Operable Unit. The geologic volumes created in the 100-BC GFM were interpolated using the extracted surfaces and not directly from drill hole data as per the 100-Area GFM. For a detailed description of the 100-Area GFM construction and data sources the reader is referred to ECF-Hanford-13-0020.

The 100-BC model domain is divided into three geologic units that are based on area specific geologic interpretations and publications (ECF-100NPL-11-0070, *100 Area Stratigraphic Database Development*). The three geologic units are:

1. Hanford formation (undifferentiated).
2. Ringold formation unit E (also known as the Ringold unit 5).
3. Ringold formation upper mud unit (also known as the RUM).

Three separate Cr(VI) plumes were created for both 2013 and 2014. For clarity, three separate Cr(VI) plumes were created for each year (2013 and 2014) for a total of six Cr(VI) plumes. The largest of the plumes are at the water table and are derived directly from the 2D plume grids and available depth discrete data (ECF-Hanford-14-0034, *Calculation and Depiction of Groundwater Contamination for the Calendar Year 2013 (CY2013) Hanford Site Groundwater Monitoring Report*; ECF-Hanford-15-0003, *Calculation and Depiction of Groundwater Contamination for the Calendar Year 2014 (CY2014) Hanford Site Groundwater Monitoring Report*) as mentioned above. Two separate, smaller, deep plumes were defined using depth discrete sampling data and concentration contours from the 2013 and 2014 Hanford Site Groundwater Monitoring Reports (DOE/RL-2014-32, *Hanford Site Groundwater*

[1] Leapfrog Geo is a registered trademark of ARANZ Geo Limited of Christchurch, New Zealand

Monitoring Report for 2013; DOE/RL-2015-07, *Hanford Site Groundwater Monitoring Report for 2014*), also referred to as the annual groundwater monitoring reports.

The Sr-90 plumes were created exclusively from 2D plume grids created for the annual groundwater reports (ECF-Hanford-14-0034; ECF-Hanford-15-0003). No depth discrete sampling data were available for use in combination with the 2D grids. Sr-90 3D plumes were created for both 2013 and 2014.

3 Methodology

The 100-BC GFM was constructed using the same general procedure as described in ECF-Hanford-13-0020. Plume construction required three major processes: data compilation and conditioning, data interpolation in Leapfrog Geo, and plume refinement. There are slight procedural variations between the processes of construction of the larger plumes closer to the water table versus the construction of the deeper, separate plumes. The steps for the 100-BC GFM and 3D plume construction were carried out following the methodology below.

All electronic files supporting this ECF have been archived in the Environmental Model Management Archive (EMMA) indexed to the ECF number (ECF-100BC5-15-0039, Revision 0), which is stored both at INTERA and on permanent disk space at CH2M Hill Plateau Remediation Company (CHPRC).

3.1 Geologic Framework Model Development

The sequence of steps and the input files required in each step for construction of the 100-BC GFM are described in this section. Attachment A to this ECF contains GFM drillhole input data that is formatted for import into Leapfrog Geo.

1. Open Leapfrog Geo software and create a new project.
2. Import borehole data by right clicking on the folder titled "Drillhole Data" and navigating to the comma separated value (.csv) table entitled "100AREA_collar_2015-01-06(050415).csv". Borehole vertical orientation information including dip and azimuth, are listed in 100AREA_collar_2015-01-06(050415).csv and are imported when prompted for inputting the survey information. In the "import data dialogue box" there will also be a section to import well lithology intervals. In this area, browse to the coma separated value tables entitled "100AREA_lith_2015-01-06(050415).csv". These inputs are compiled in Attachment A Tables A-1 and A-2. The borehole data was not used for interpolation but instead to provide information to the model end user. 100AREA_collar_2015-01-06(050415).csv and 100AREA_lith_2015-01-06(050415).csv are borehole data from the 100-Area GFM (ECF-Hanford-13-0020).
3. Follow the prompts in the Leapfrog Drillhole Data dialogue box entering the well name column from the .csv file as Hole ID, the x-coordinates column from the table as X data, the y-coordinates as Y data, the elevation as Z and the constructed depth as MAX DEPTH in the Leapfrog dialogue boxes respectively. Do the same for importing the lithology data following prompts for adding lithologic unit tops (“from” prompt) and depths (“to” prompt).
4. To add the upper surface of the model right click on the folder entitled "Topography" > "New Topography" > "Import Elevation Grid". Browse to the “Lidar_bath_new.tif” (Aero-Metric LiDAR 2008 and PNNL-19878) file, and import it (*note: Leapfrog will not accept the native 0.5 resolution due to the size of the file. Input 10 for the grid spacing*).
5. To add the lower surface of the model, right click on the "Meshes" folder, and "Import Elevation Grid", and navigate to “TOB_BC.asc” (SGW-48478) and import the file.

6. To add the Ringold E and RUM surfaces of the model, right click on the "Meshes" folder, and "Import Elevation Grid", and navigate to “RE_050715_100AM.asc” and “RUM_050715_100AM.asc” (ECF-Hanford-13-0020) and import both files.

7. Import the fiscal year 2014 water table surface by clicking on the "Meshes" folder, and "Import Elevation Grid", and navigate to “WT_2014_BC.asc” (DOE/RL-2015-07) and import it.

8. Import the surface “msrfc.asc” that will later as serve as the upper boundary for the water table 3D plumes. This surface is a mosaic of the FY 2014 water table and river bathymetry raster grid surfaces.

9. Using a surface resolution of 10 meters, create a new geologic model under the “Geologic Models” folder using the following inputs:

    a. For model horizontal boundary use the coordinates X-minimum 561493.25, Y-minimum 142109.32, X-maximum 567907.71 and Y-maximum 146567.25.

    b. “topo_BC.asc” (trimmed version of “Lidar_bath_new.tif”) as the topography and upper model boundary.

    c. “TOB_BC.asc” (trimmed version of site-wide TOB surface created from SGW-48478 data) as the base and lower model boundary.

    d. “RE_050715_100AM.asc” and “RUM_050715_100AM.asc” (ECF-Hanford-13-0020) as the surface chronology respectively.

10. Additional waste sites, well locations, plume extents and water table feature data prepared from the Waste Information Data System (WIDS), Hanford Well Information System (HWIS) and the annual groundwater reports respectively, are added to the GFM as reference points, and attributes of interest. The QMAP geospatial portal was accessed for boundary feature data. Particularly important are the waste sites (possible sources) and information for wells. The following feature data were added to the 100-BC Leapfrog scenes for view enhancement:

    a. Groundwater Operable Unit boundaries shape file from QMAP.

    b. Waste sites boundaries shape files “BC_wastesites” and “BC_pipelines” (from WIDS).

    c. All Wells (BC_All_Wells.csv) – Well names, and color-indicators, by category, of the well information provided at that location. Information may include well screen information, geologic information, or well status, i.e., well decommissioned. These file types (.csv) should be imported as points. This information was obtained from HWIS.

    d. Published two-dimensional groundwater plume extents shape files for Cr(VI) and Sr-90 (DOE/RL-2015-07).

    e. Published interpretations of water table contour lines shape file (DOE/RL-2015-07).

11. Additional control points were not needed for the 100-BC GFM since surface control had been previously integrated during the development of the broader 100-Area GFM.

3.2 Contaminant Data Compilation and Conditioning

3.2.1 Water Table Plume Data Compilation and Conditioning

1. Using the fall 2014 plumes from the annual report might underrepresent contaminant mass in the southern part of the plume because of the plume migrated northward during the year[2]. Consequently, new plume maps were created, based on 2014 maxima and 2014 averages (ECF-Hanford-15-0003). Section 4 provides additional detail about the data sets. The 2013 2D plume grids were received clipped and filtered to the aquatic protection standard of 10 µg/L for Cr(VI) (WAC 173-201A, *Water Quality Standards for Surface Waters of the State Of Washington*) and for the maximum contaminant level (MCL) of 8 pCi/L for Sr-90 (Code of Federal Regulations Title 40, *Maximum Contaminant Levels for Radionuclides*). The 2014 grids for Cr(VI) and Sr-90 were received unclipped and unfiltered. The process for filtering and clipping the 2014 grids is described below. All original 2D Cr(VI) and Sr-90 rasters only extended to the bank of the Columbia River excluding any bathymetry. Sampling from the river bed shows contaminated groundwater discharging into the river bottom. The Cr VI plumes were extended to incorporate this observation.

    a. Using a Geographic Information System (GIS), clip the 2014 chromium 2D grid "chromium_unfiltered_keepmax.asc" (ECF-Hanford-15-0003) to the GFM boundary (X-minimum 561493.25, Y-minimum 142109.32, X-maximum 567907.71 and Y-maximum 146567.25) using the coordinate system NAD 83 (HARN) WA South. Do the same for the Sr-90 2D grid "strontium_unfiltered_keepmax.asc" (ECF-Hanford-15-0003).

    b. After clipping to the coordinate dimensions stated in 3.2.1 a, filter the unfiltered 2014 2D chromium grid ("chromium_unfiltered_keepmax.asc" ECF-Hanford-15-0003) at the aquatic protection standard of 10 µg/L. Filter the 2014 Sr-90 2D grid "strontium_unfiltered_keepmax.asc" at the MCL of 8 µg/L.

2. Import all of the clipped and filtered grids into Leapfrog Geo.

    a. In Leapfrog Geo right click on the folder titled "GIS Data, Maps and Photos" and select "Import 2D Grid".

    b. Navigate to the file location of the desired plume grid and select it. Since plume grids were spatially projected in Step 1 above, their georeferencing data will already be included.

    c. A window will appear displaying the plume grid and georeferencing. Leave the box beside "Override original georeferencing data" unchecked and click "OK".

3. Assign elevation data from the FY 2014 water table to the plume grids in Leapfrog Geo.

    a. Right click on the grid and select "Set elevation".

    b. In the window that opens select "From surface" and in the drop-down box choose the file "WT_2014_BC" which is the FY 2014 water surface clipped to the boundaries of the 100-BC GFM.

4. Repeat Step 2 for all Cr(VI) and Sr-90 plume grids.

[2] Hartman, M, 2015, Personal communication received on 100-BC Cr(VI) plume migration in June 2015.

3.2.2 Deep Plume Data Compilation and Conditioning

Groundwater characterization and monitoring in 100-BC show that Sr-90 is limited to a thin, shallow plume, while Cr(VI) is present in separate shallow and deep plumes (DOE/RL-2014-32 and DOE/RL-2015-07). This section describes methods for creating the deep Cr(VI) plumes.

1. Depth discrete Cr(VI) data were obtained from the Hanford Environmental Information System (HEIS) for wells within the deep plume contours (Table 1).
    a. These data are all from saturated zone samples collected during well drilling.
    b. Only data from wells sampled in 2013 and 2014 were used for the respective plumes. Data within this timeframe were not available for all wells in Table 2. Wells 199-B4-18, 199-B5-11, 199-B5-13 and 199-B5-9 were the only wells from which depth discrete data were available.
    c. Data indicated in HEIS as questionable and/or not representative of their respective sampling intervals were omitted. Questionable and non-representative data are flagged in HEIS as being low confidence for various reasons and therefore caution should be exercised if using the flagged data.
    d. Depth discrete data were arranged in .csv format and included in the input files (see 100-BC_plumes.accdb) for plume interpolation.
2. Groundwater-monitoring well sampling data for separate deep Cr(VI) plumes were obtained from HEIS (Table 1).
    a. Data were compiled only for wells within the separate smaller plume extents.
    b. Only data from 2013 and 2014 were used for the respective plumes.
    c. Data indicated as questionable and/or not representative of their respective sampling intervals were omitted. Questionable and non-representative data are flagged in HEIS as being low confidence for various reasons and therefore caution should be exercised if using the flagged data.
3. Extract Cr(VI) values from 2013 and 2014 inferred deep plume contour intervals in their respective annual groundwater monitoring reports using GIS. This step involves modeling the separate, deep Cr(VI) plumes using the values of the contour lines directly.
    a. The nodes or vertices were extracted from the 10 µg/L and 20 µg/L contour shapefiles.
    b. X and Y coordinates of the nodes were added to the files' attributes.
    c. Point elevation values were added based on the cross-sectional extents, elevations and Cr(VI) concentration (10 and 20 µg/L) contours of the deep Cr(VI) plumes outlined in the 2013 and 2014 annual groundwater monitoring reports. Figures 5-6 and 10-13 illustrate the separate, deep plume cross sections (with elevation) as depicted in the annual groundwater reports.
    d. Values of 10 for all 10 µg/L contour vertices and values of 20 for all 20 µg/L vertices were added to the attributes.
4. Random sets of data points were created in GIS for interpolation between the 10 and 20 µg/L contours.

a. Extrapolated values of 15 and 30 µg/L and were assigned to the random points within the 10 and 20 µg/L contour intervals respectively.

b. Point elevation values were added based on the extents, elevations and Cr(VI) concentration contours of the Cr(VI) plumes outlined in the 2013 and 2014 annual groundwater monitoring reports.

5. Depth discrete, groundwater sampling and extracted Cr(VI) values from inferred deep plume contour intervals were combined and arranged in .csv format for use in Leapfrog Geo (see Table 1 for formatting example) for both 2013 and 2014. Depth discrete and routine data show that Sr-90 is not present deep in the aquifer.

3.3 Data Interpolation in Leapfrog Geo

Interpolation of both the water table plumes and the separate deep plumes follow the same steps listed below. Table 2, Table 3, and Table 4 show the interpolation parameters used for all plumes.

1. Import point value .csv files (section 3.2.1 and 3.2.2) into Leapfrog Geo.

    a. Right click the folder “Points” select “Import Points” then navigate to the file location of desired formatted .csv file and import it. Repeat this step for all data tables listed in Table X (this is the table I reference in a note above about which csv is used to create which plume)

2. Create a new interpolant from the imported contamination data.

    a. Right click on the “Interpolants” folder and select “New Interpolant”. Under “Values to Interpolate” select the desired values from the imported plume grids (water table plumes) or .csv files (deep plumes) for interpolation. For Cr(VI) initial conditions plumes, both maximum and average value plumes were generated 2014.

    b. Select the following coordinate combinations for each contaminant:

        i. Chromium (water table) – X-minimum 563427.55, Y-minimum 142847.04, X-maximum 566852.92 and Y-maximum 145759.26.

        ii. Sr-90 – X-minimum 563427.55, Y-minimum 142847.04, X-maximum 566852.92 and Y-maximum 146113.60.

        iii. Chromium (deep plume 1) – X-minimum 564407.38, Y-minimum 144626.97, X-maximum 565403.93 and Y-maximum 145473.28.

        iv. Chromium (deep plume 2) – X-minimum 564767.22, Y-minimum 144017.05, X-maximum 565514.04 and Y-maximum 144613.82.

    c. Choose a surface resolution of 10 meters and select “OK”. This will run the model and create an initial interpolant.

    d. Choose additional lateral extents by right clicking under each interpolant Boundary > New Lateral Extent > From Surface and select “RUM_050714_100AM.asc” which serve as the lower plume boundary. Repeat this process for the file “msrfc.asc” that will serve as the plume upper boundary.

Table 1. Wells for Depth Discrete Data

Well Name	Plume in Which Data was Used	Data Type	Comments
199-B2-14	2013 & 2014 Deep Plumes, 2013 GW Plume	Routine GW Sample	2013 and 2014 Routine data
199-B2-16	2013 & 2014 Deep Plumes, 2013 GW Plume	Routine GW Sample	2013 and 2014 Routine data
199-B3-51	2013 & 2014 Sr-90 Only for vertical distribution control. Not used in interpolation, 2013 GW Plume	DD* and Routine GW Sample	2013 and 2014 Routine data
199-B4-18	2013 & 2014 Deep Plumes, 2013 GW Plume	DD and Routine GW Samples	2013 DD and 2014 Routine data
199-B5-11	2013 & 2014 Deep Plumes, 2013 GW Plume	DD and Routine GW Samples	2013 DD and 2014 Routine data
199-B5-13	2013 & 2014 Deep Plumes, 2013 GW Plume	DD and Routine GW Samples	2013 DD and 2014 Routine data
199-B5-5	2013 & 2014 Deep Plumes, 2013 GW Plume	Routine GW Sample	2013 and 2014 Routine data
199-B5-6	2013 & 2014 Deep Plumes, 2013 GW Plume	Routine GW Sample	2013 and 2014 Routine data
199-B5-9	2014 Deep Plumes, 2013 GW Plume	DD and Routine GW Samples	2013 DD and 2014 Routine data

Notes:

GW = Groundwater

DD = depth discreet (collected during drilling)

"Routine" refers to data collected from completed wells. Data values are included in the plume input files in 100-BC_plumes.accdb.

*Sr-90 DD data from 2011 assume to represent vertical distribution in 2013 and 2014.

Table 2. Interpolation Parameters used for Water Table Cr(VI) Plume Interpolation in Leapfrog Geo

Trend				
Directions			**Ellipsoid Ratio**	
Dip	Degree	0	Maximum	20
Dip Azimuth	Degree	0	Intermediate	20
Pitch	Degree	0	Minimum	1
Interpolant				
Sill	Meters	100	Drift	Constant
Range	Meters	800		
Accuracy	Meters	0.200		
Value Transform		No		
Interpolant Type		Linear		
Nugget		0		
Isosurface and Volumes				
Intervals	µg/L	10; 20; 30, 40, 48		
Isosurface and Volumes				
Resolution	Meter	10		

Table 3. Interpolation Parameters used for Deep Cr(VI) Plume Interpolation in Leapfrog Geo

Trend				
Directions			**Ellipsoid Ratio**	
Dip	Degree	2.5016	Maximum	15
Dip Azimuth	Degree	224.8	Intermediate	15
Pitch	Degree	82.597	Minimum	1
Interpolant				
Sill	Meters	60	Drift	Constant
Range	Meters	300.00		
Accuracy	Meters	0.200		
Value Transform		No		
Interpolant Type		Linear		
Nugget		0		
Isosurface and Volumes				
Intervals	µg/L	10, 20		
Isosurface and Volumes				
Resolution	Meter	5		

Table 4. Interpolation Parameters used for Sr-90 Plume Interpolation in Leapfrog Geo

Trend				
Directions			**Ellipsoid Ratio**	
Dip	Degree	0	Maximum	20
Dip Azimuth	Degree	338.86	Intermediate	20
Pitch	Degree	0	Minimum	1
Interpolant				
Sill	Meters	50	Drift	Constant
Range	Meters	1000		
Accuracy	Meters	0.300		
Value Transform		No		
Interpolant Type		Linear		
Nugget		0		
Isosurface and Volumes				
Intervals	pCi/L	8; 20; 30		
Isosurface and Volumes				
Resolution	Meter	5		

3.4 3D Plume Volume Refinement

Interpolation parameters were selected to interpolate the data to provide the best correlation to existing information. These parameters include the locations of high depth-discrete data values, non-detects and groundwater plume contours. Plume volume control was added to the model in the form of control points. Control point locations were selected based on plume extents outlined in the 2013 and 2014 annual groundwater reports. All concentrations of control points were 0 unless values needed to be higher to properly control the shape of the plumes. All control point information is included in the input data tables in 100-BC_plumes.accdb. Ellipsoid ratios were varied until desired control of the structural trends of the plumes was obtained in order conform to vertical constraints in the form of depth discrete data and previous characterization efforts (DOE/RL-2014-32 and DOE/RL-2015-07). Ellipsoid ratios used in final plume interpolation are listed in Table 2, Table 3, and Table 4.

All input data (including control points) and files for water table Cr(VI) and Sr-90 plumes are included with this ECF in EMMA. This information represents the final inputs (including control points) used in final contaminant plume interpolation and represents data for the most current plume configurations.

4 Assumptions and Inputs

Inputs for the model are described in context of the methodology in Section 3. Assumptions for the 3D interpolations include:

1. All data used in interpolation is correct and accurate.
2. All contaminant extents and plume boundaries are accurate and represent the best estimate of Cr(VI) and Sr-90 concentration limits out to the stated regulatory levels of 10µg/L for Cr(VI) and 8 µg/L for Sr-90.
3. The process for deriving 2013 Cr(VI) values selected for 2D water table plume grids is explained in detail in ECF-Hanford-14-0034. The generalized process is as follows:
    a. All unfiltered total chromium measurements are removed from the dataset. All hexavalent chromium measurements, and all filtered total chromium measurements are retained.
    b. The concentration data are further reduced: for each measurement location, all concentrations measured during the most recent year available for the period 2011-2013 are selected.
    c. For each measurement location, either the maximum value or the average (mean) value of the concentration data is determined according to specific aggregation methods discussed in ECF-Hanford-14-0034.
4. The process for deriving 2014 Cr(VI) values selected for 2D water table plume grids is explained ECF-Hanford-15-0003. The generalized process is as follows:
    a. 2014 average – For each water table well, average all Cr(VI) and filtered total chromium values (multiple samples per date) by sample date, then average for all of 2014.
    b. 2014 maxima -- For each water table well, average all Cr(VI) and filtered total chromium values (multiple samples per date) by sample date, then select maximum of the daily average.

c. One total chromium outlier for 199-B4-7 was excluded (73.9 µg/L on 1/16/2015) for reasons explained in ECF-Hanford-15-0003.

5 Software Applications

The Leapfrog Geo, Microsoft Excel®[3] and ArcGIS®[4] software programs were used for this calculation. These software are used in compliance with the requirements of PRC-PRO-IRM-309, *Controlled Software Management*. Leapfrog Geo is approved calculation software. Microsoft Excel® and ArcGIS®10.3, software programs were used for this calculation as exempt software per PRC-PRO-IRM-309 (Section 1.3, Exemptions).

5.1 Approved Software

Leapfrog Geo is approved software as documented in the following CHPRC software quality assurance documents:

- CHPRC-01753, Leapfrog-Hydro and Leapfrog-Geo Software Management Plan
- CHPRC-01754, Leapfrog-Hydro and Leapfrog-Geo Software Test Plan
- CHPRC-01755, Leapfrog-Hydro and Leapfrog-Geo Acceptance Test Report: Leapfrog-Hydro Version 2.3.2 and Leapfrog-Geo Version 2.1.2

5.1.1 Description

For the approved calculation software used in this calculation, the required descriptions are provided here:

- Software Title: Leapfrog Geo
- Software Version: 2.1.2
- HISI Identification Number: 3592 (Safety Software, Level C)
- Workstation type and property number (from which software is run): Lenovo Work Station INTERA #00669

5.1.2 Software Installation and Checkout

A copy of the Software Installation and Checkout form for Leapfrog Geo on the workstation used is provided in Attachment C to this ECF.

5.1.3 Statement of Valid Software Application

- The preparer of this ECF attests that all required software testing for Leapfrog Geo has been performed with satisfactory results for acceptance testing as reported in CHPRC-01755 and installation testing as reported in the Software Installation and Checkout form provided in Attachment A to this ECF.
- The preparers of this calculation attest that the software identified above, and used for the calculations described in this calculation, are appropriate for this application and are used within the range of intended uses for which it was tested and accepted by CHPRC.

[3] Excel is a registered trademark of Microsoft Corporation in the United States and in other countries.

[4] ArcGIS is a registered trademark of ESRI in the United States and certain other countries.

6 Calculation

Total estimated contaminant masses or activities for each plume were determined by summing the Cr(VI) mass or Sr-90 activity calculated for each concentration interval. This was done by using a mean concentration value between intervals as an approximate means to cover the concentration range within a given interval.

$$\text{estimated mass (kg)} = \frac{\text{interval volume in m}^3 \times \text{approximate interval concentration } {}^{\text{mg}}/_{\text{m}^3} \times 0.18}{1{,}000{,}000 \ {}^{\text{mg}}/_{\text{kg}}}$$

Where 0.18 is assumed for the porosity of the Hanford formation and Ringold formation unit E sediments at 100-BC (PNNL-21845, *Investigation of Hexavalent Chromium Flux to Groundwater at the 100-C-7:1 Excavation Site*).

For Cr(VI) shallow plumes, the above calculation was done using the following approximate interval concentrations:

1. 10 – 20 µg/L at 15 µg/L
2. >20 – 48 µg/L at 34 µg/L
3. >48 –60 µg/L at 51 µg/L

The values of 15, 34 and 51 µg/L for intervals 1-3 are based on the mean concentration value for all values between the above stated interval concentration limits. For interval 3, the upper concentration limit is 60 µg/L which is the maximum concentration for the interval.

The deep Cr(VI) plume contaminant masses were only calculated for the 10 – 20 and 20 – 48 µg/L intervals as there were no values > 48 µg/L for those plumes. The masses for each interval (including shallow and deep plume intervals) for each respective year were then summed (Table 5).

For Sr-90 plumes, the estimated mass was calculated using the following approximate interval concentrations:

1. 8 – 20 pCi/L at 14 pCi/L
2. >20 – 30 pCi/L at 25 pCi/L
3. >30 pCi/L at 35 pCi/L

The values of 14 and 25 pCi/L for intervals 1-2 are based on the mean activity value for all values between the above stated interval concentration limits. The value of 35 pCi/L for interval 3 is an arbitrary value taken from values between 30 and 52 pCi/L which is the maximum concentration for the interval.

The masses for each Cr(VI) interval and activities for each Sr-90 interval for each respective year were then summed (Table 5).

7 Results/Conclusions

Results of the plume interpolations are shown in Figure 1 through Figure 17. Plume volumes are displayed from the water table to their maximum depths. Comparisons of the plume extents from the annual groundwater reports to those interpolated in Leapfrog are nearly identical. 3D interpolation at depth is also similar to the extents published in the annual groundwater reports.

Total Cr(VI) mass and Sr-90 activity calculations for the 2013 and 2014 plumes are presented in Table 5 below. Total Cr(VI) experienced an unexpected mass increase from 2013 to 2014 from 116 to 140 kg (average mass of max and avg conditions). The increase of 24 kg is most likely because of a larger >48 μg/L interval between from 2013 to 2014. Sr-90 demonstrated a decrease in total activity from 4.7 to 4.1 pCi/L. The 0.2 pCi/L decrease in Sr-90 mass is expected assuming a non-continuous source contribution and decay.

Table 5. Total Estimated Plume Contaminant Masses and Activities

Contaminant	Volume 2013 (m3)	Total Mass or Activity	Volume AVG 2014 (m3)	Volume MAX 2014 (m3)	Total Mass or Activity (AVG)	Total Mass or Activity (MAX)	Mass or Activity Change (AVG)	Mass or Activity Change (MAX)
Cr(VI) [a]	26,487,000	116 kg	30,597,100	33,732,100	130 kg	150 kg	14 kg	34 kg
Sr-90 [b]	1,839,300	5.3 pCi	1,608,900		5.1 pCi			-0.2 pCi

[a] Total Cr(VI) mass includes both shallow and deep plumes for each respective year.

[b] Sr-90 not configured for max and avg but only for conditions reflecting concentrations at yearly low water table elevations.

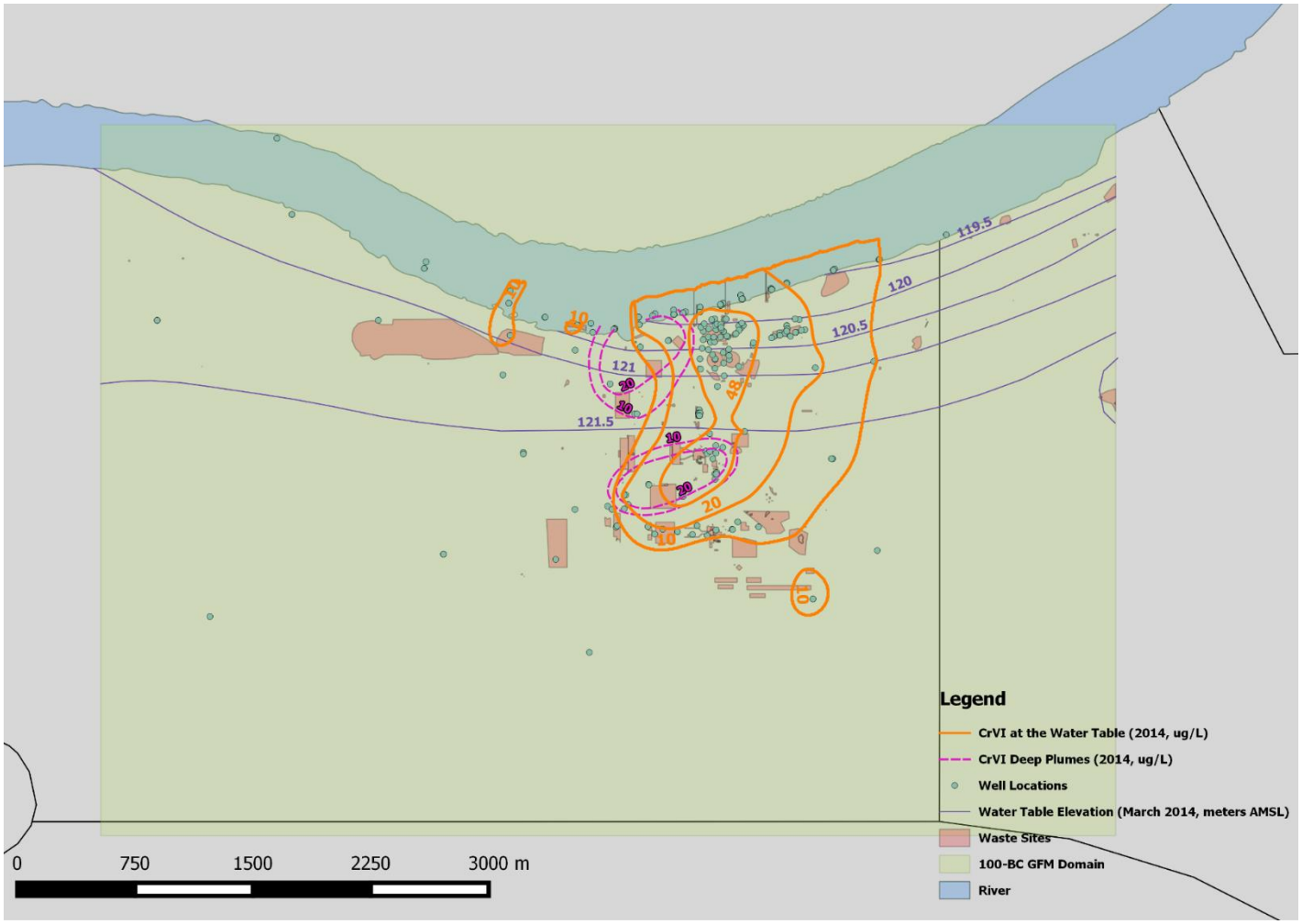


Figure 1. 100-BC Geologic Framework and 3D Plumes Model Overview

Note: This image presents the GFM boundary and 2014 MAX Cr(VI) extents. All plumes developed in this ECF are in the general vicinity of the 2014 Cr(VI) plume. Well locations (from HWIS) represent all wells within the 100-BC GFM domain and not necessarily borehole locations used in the 100-Area GFM interpolation or for groundwater sampling.

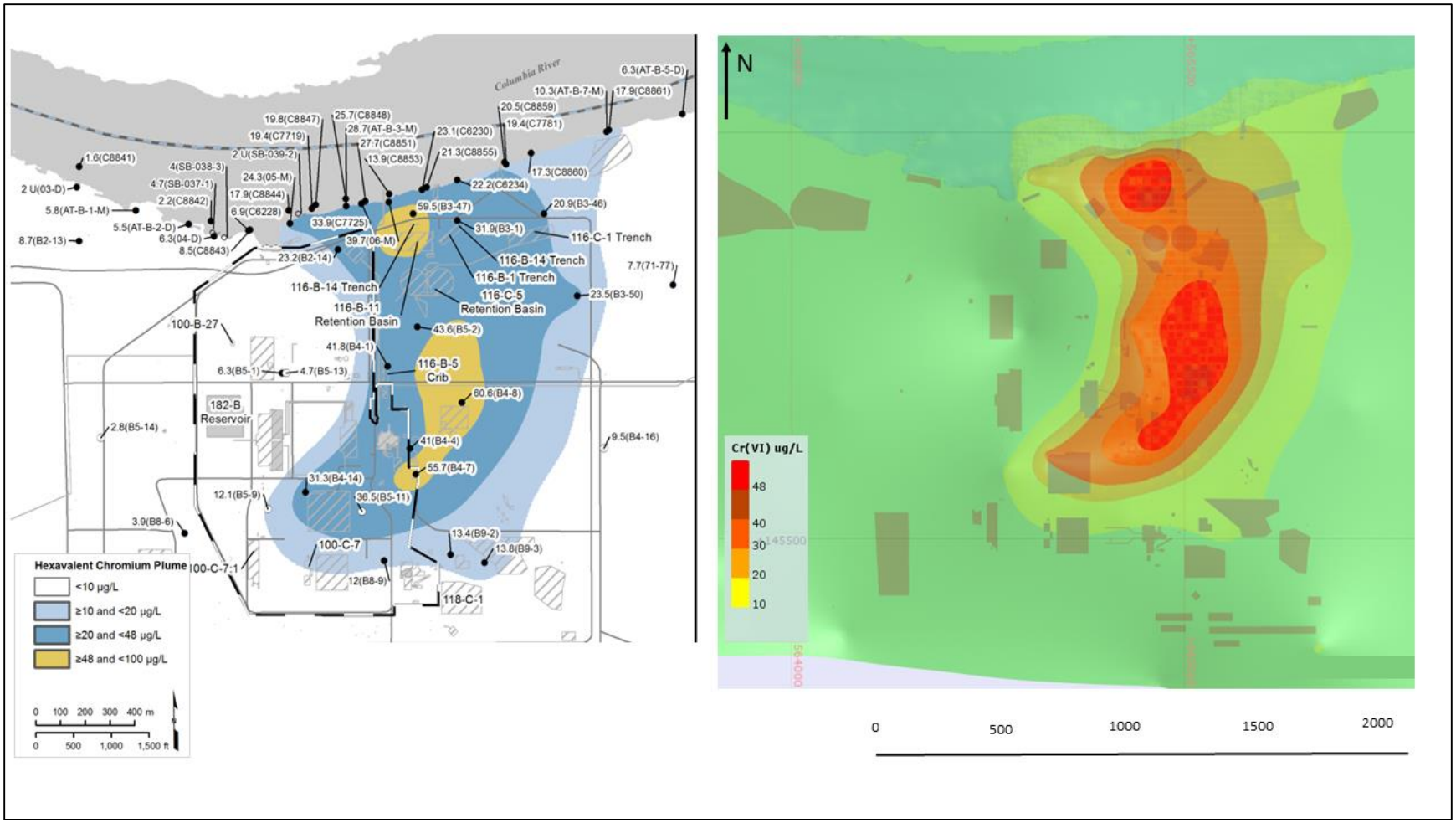


Figure 2. Cr(VI) 2013 Water Table Plume Comparison

Note: The image on the left represents the Cr(VI) (2013) plume as depicted in the 2013 annual groundwater report (DOE/RL-2014-32) and the image on the right depicts the 2013 Cr(VI) data as modeled in Leapfrog Geo for 100-BC.

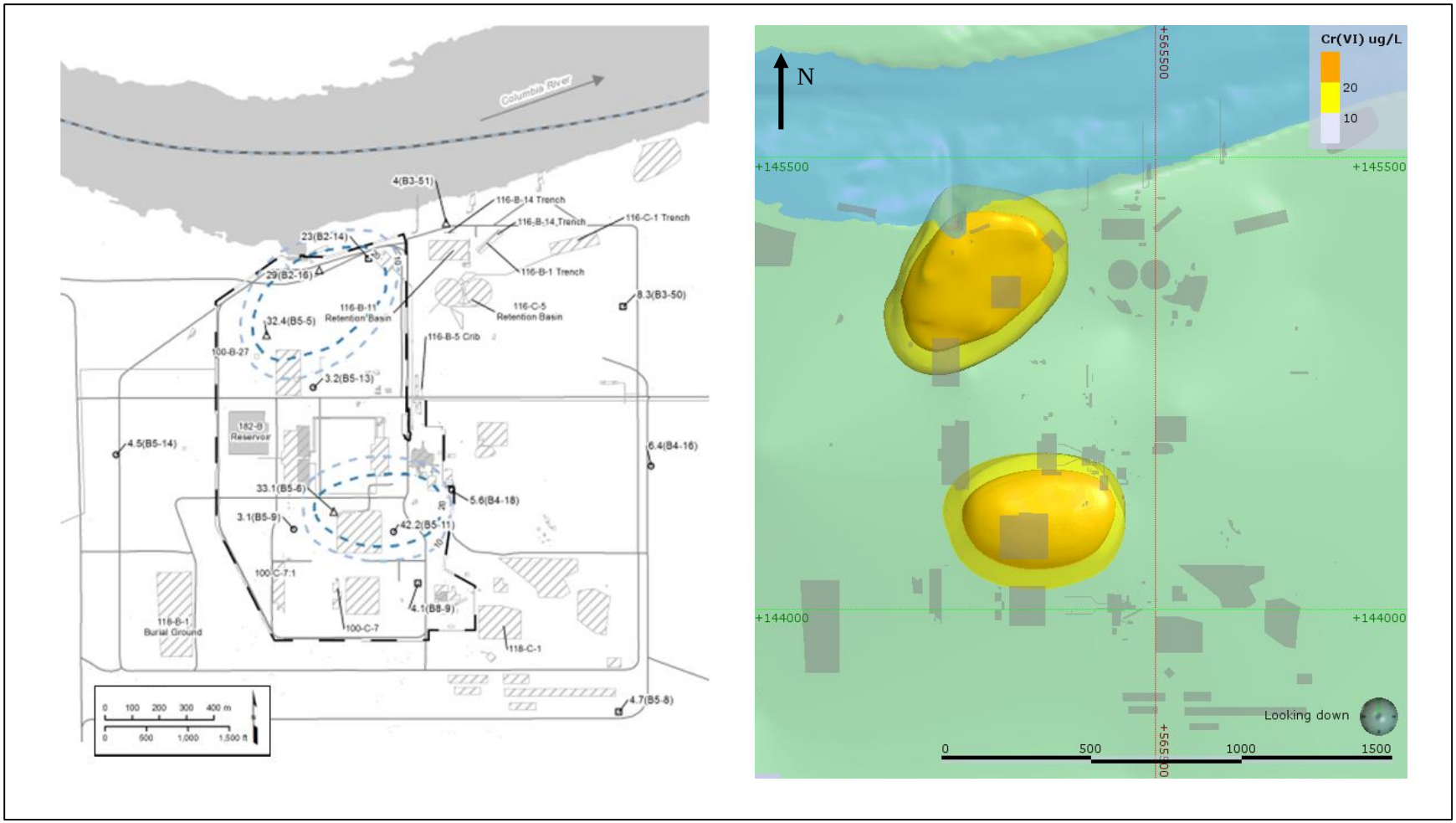


Figure 3. Cr(VI) 2013 Deep Plume Comparison

Note: The image on the left represents the deep Cr(VI) (2013) plume extents as depicted in the 2013 annual groundwater report (DOE/RL-2014-32) and the image on the right depicts the 2013 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC.

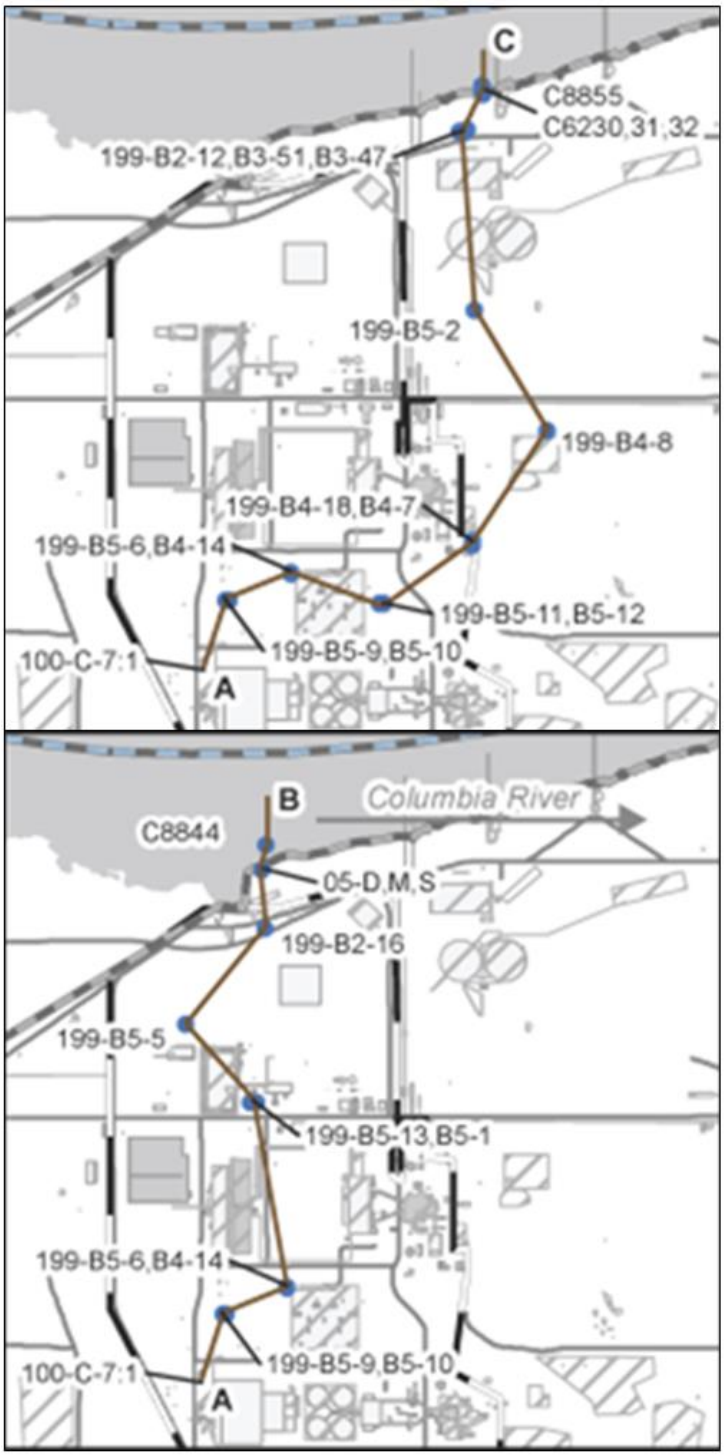


Figure 4. Plan View Cross Section Guide

Note: Cross sections for both 2013 and 2014 Cr(VI) plumes follow the same paths as depicted in this figure. Map from DOE/RL-2015-07.

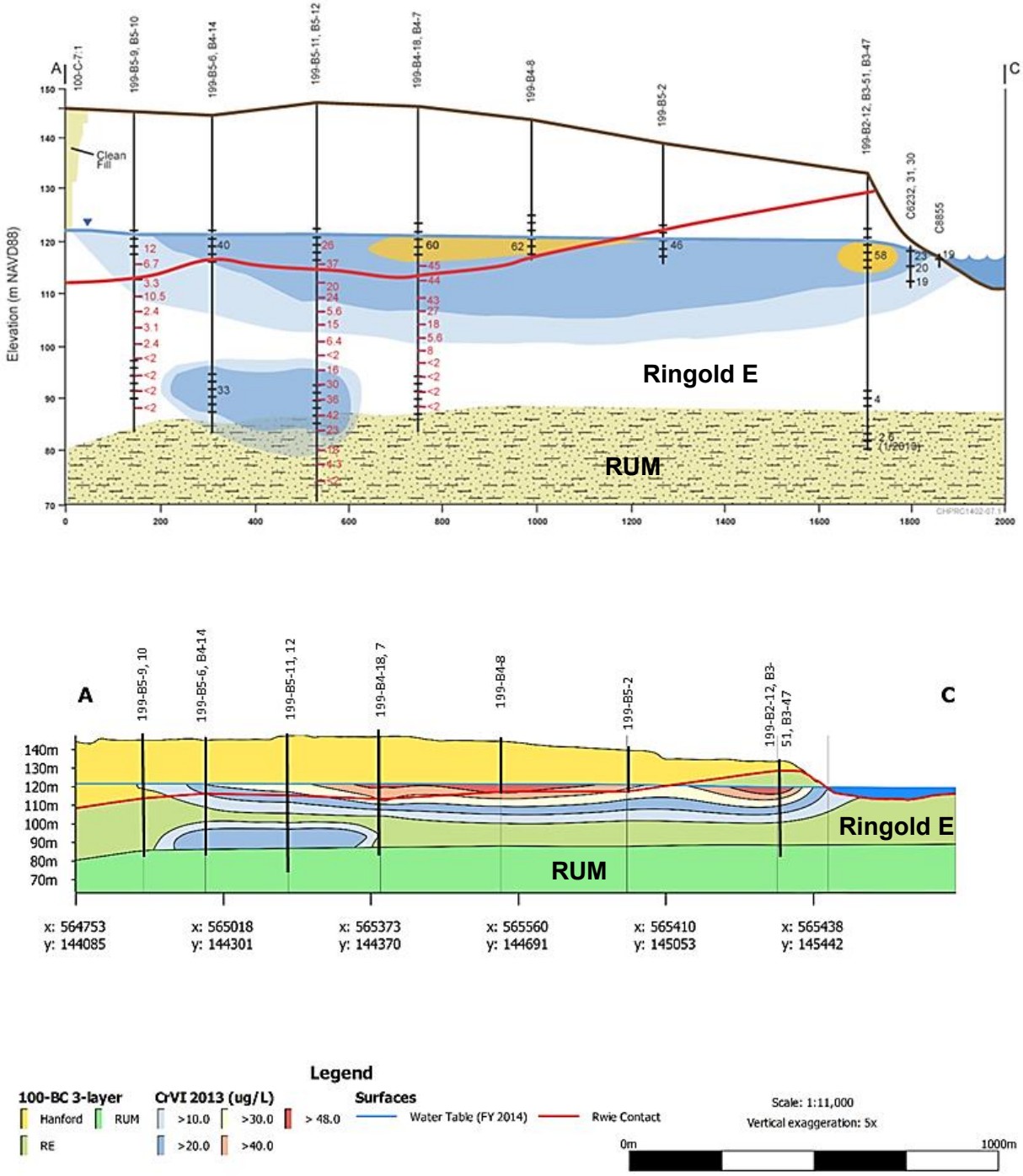


Figure 5. Cross Section A – C: Comparison of 2013 Water Table and Deep Cr(VI) Plumes

Note: The top image represents the 2013 Cr(VI) plume extents as depicted in the 2013 annual groundwater report (DOE/RL-2014-32) and the bottom image depicts the 2013 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC.

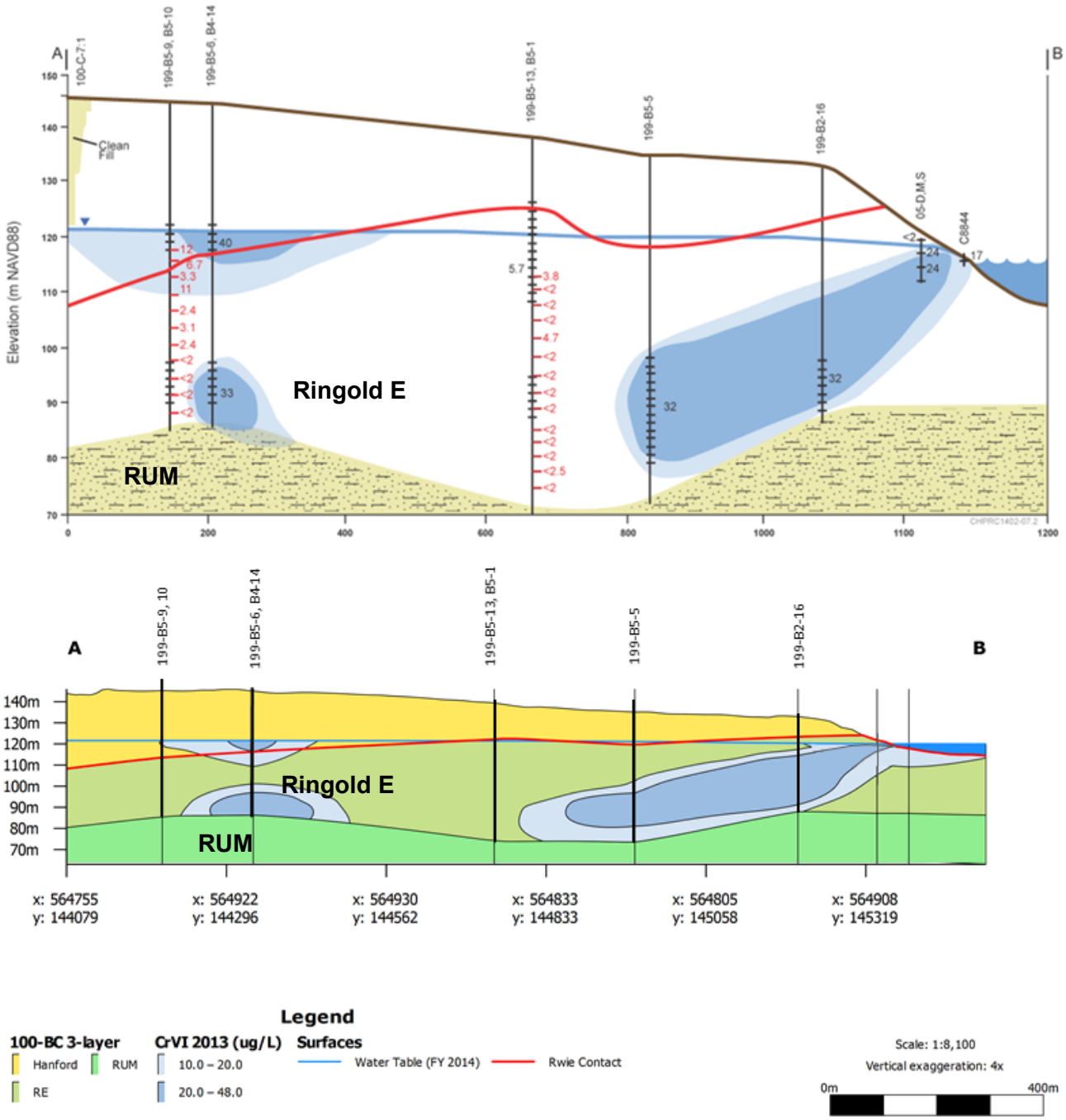


Figure 6. Cross Section A – B: Comparison of 2013 Water Table and Deep Cr(VI) Plumes

Note: The top image represents the Cr(VI) plume extents as depicted in the 2013 annual groundwater report (DOE/RL-2014-32) and the bottom image depicts the Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC.

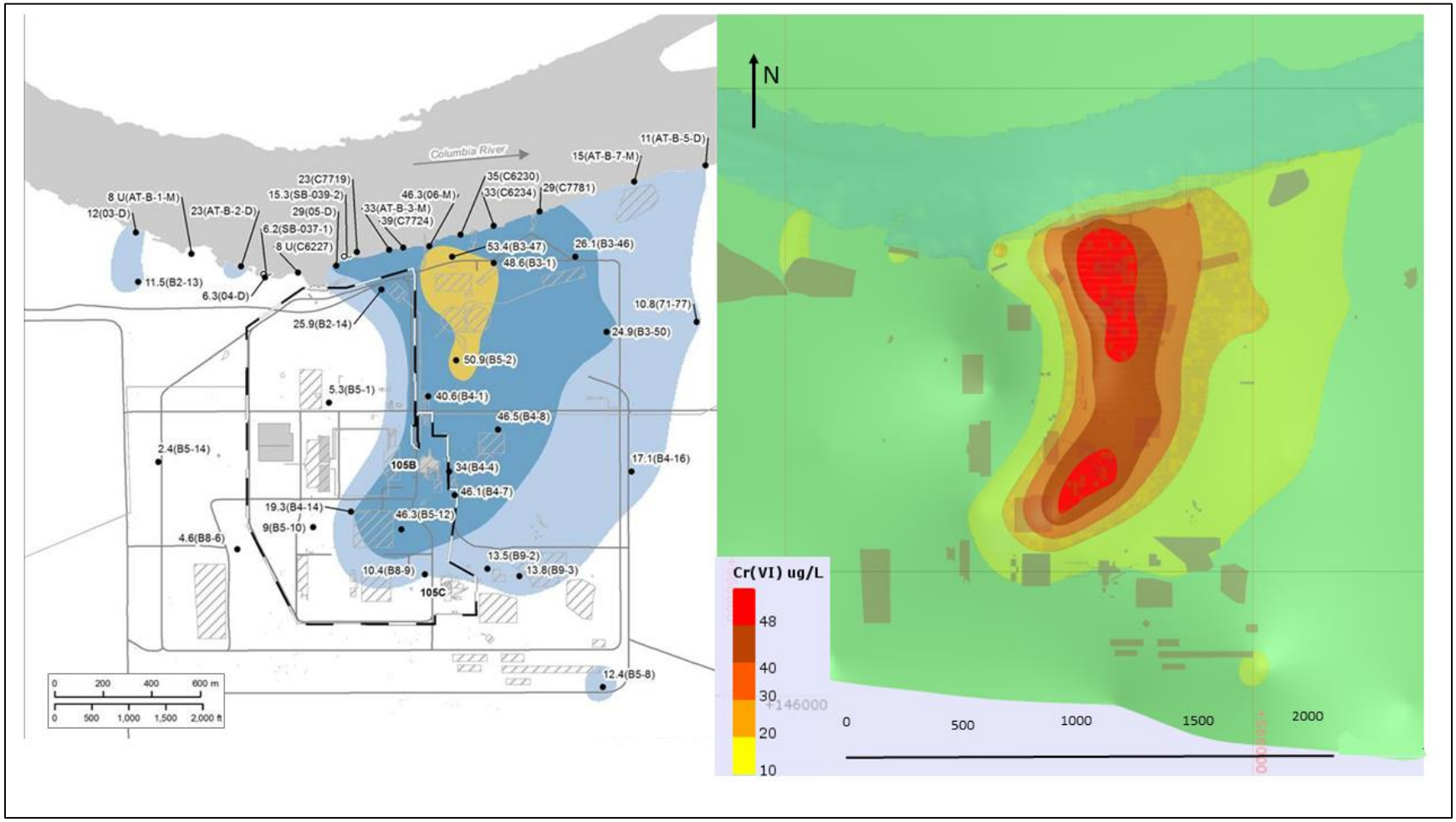


Figure 7. Cr(VI) 2014 Average Water Table Plume Comparison

Note: The image on the left represents the Cr(VI) (2014) plume as depicted in the 2014 annual groundwater report (DOE/RL-2015-07) and the image on the right depicts the 2014 Cr(VI) data as modeled in Leapfrog Geo for 100-BC. The continuity in the >48 μg/L interval in the 3D plume interpolated by Leapfrog Geo (right) is because of the software's radial basis function calculations

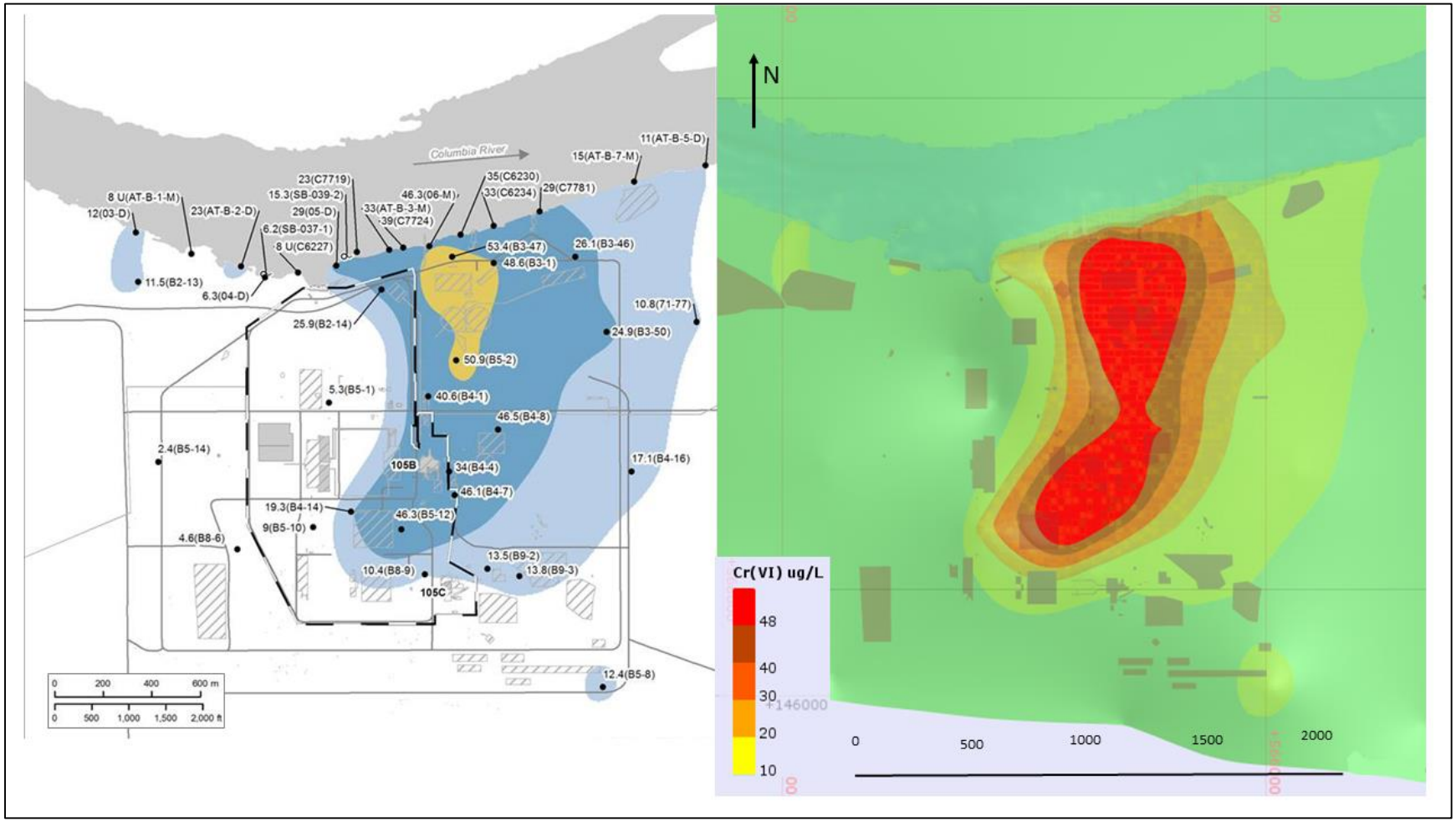


Figure 8. Cr(VI) 2014 Maximum Water Table Plume Comparison

Note: The image on the left represents the Cr(VI) (2014) plume as depicted in the 2014 annual groundwater report (DOE/RL-2015-07) and the image on the right depicts the 2014 Cr(VI) data as modeled in Leapfrog Geo for 100-BC. The continuity in the >48 μg/L interval in the 3D plume interpolated by Leapfrog Geo (right) is because of the software's radial basis function calculations.

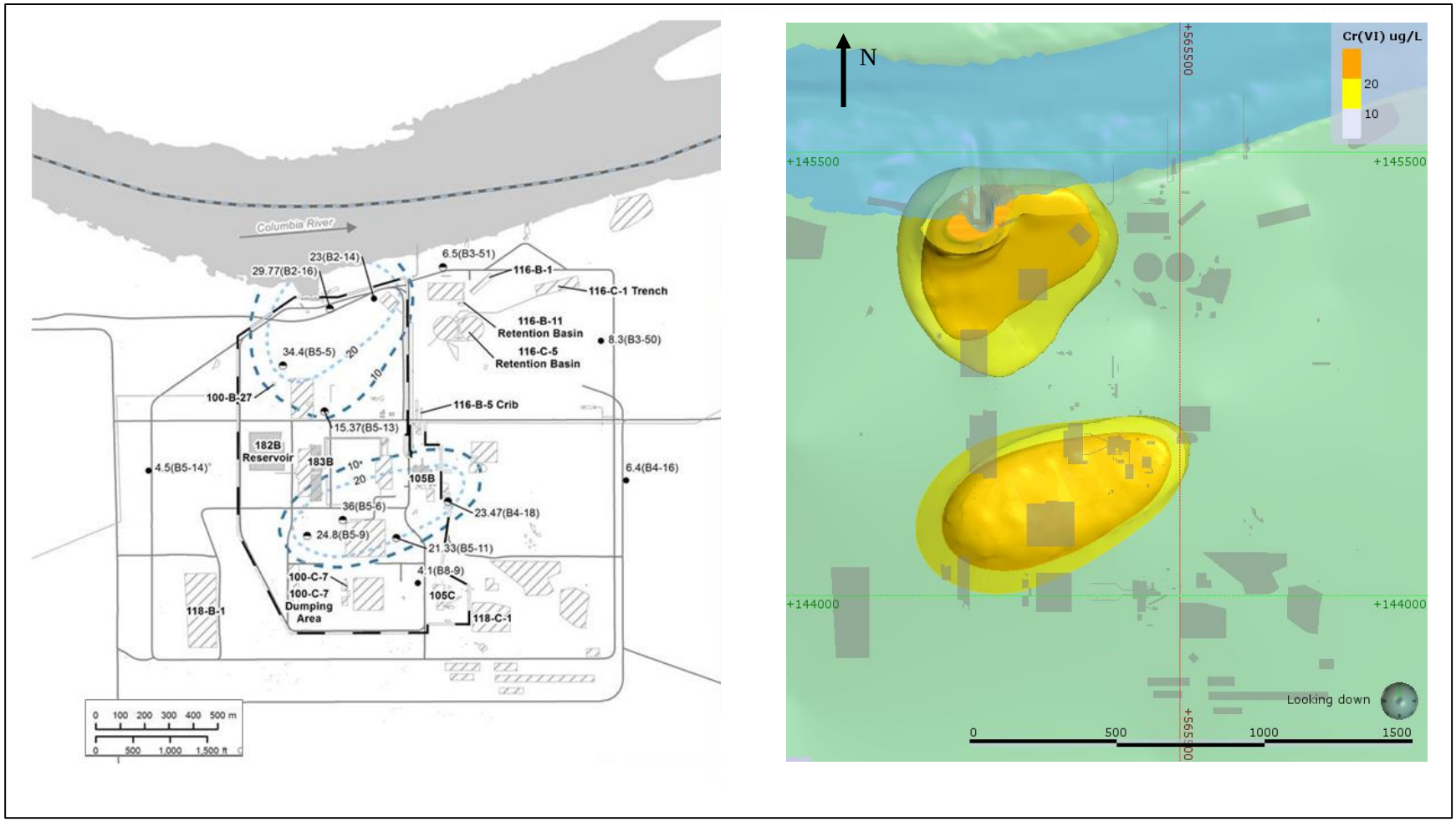


Figure 9. Cr(VI) 2014 Deep Plume Comparison

Note: The image on the left represents the deep Cr(VI) (2014) plume extents as depicted in the 2014 annual groundwater report (DOE/RL-2015-07) and the image on the right depicts the 2014 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC.

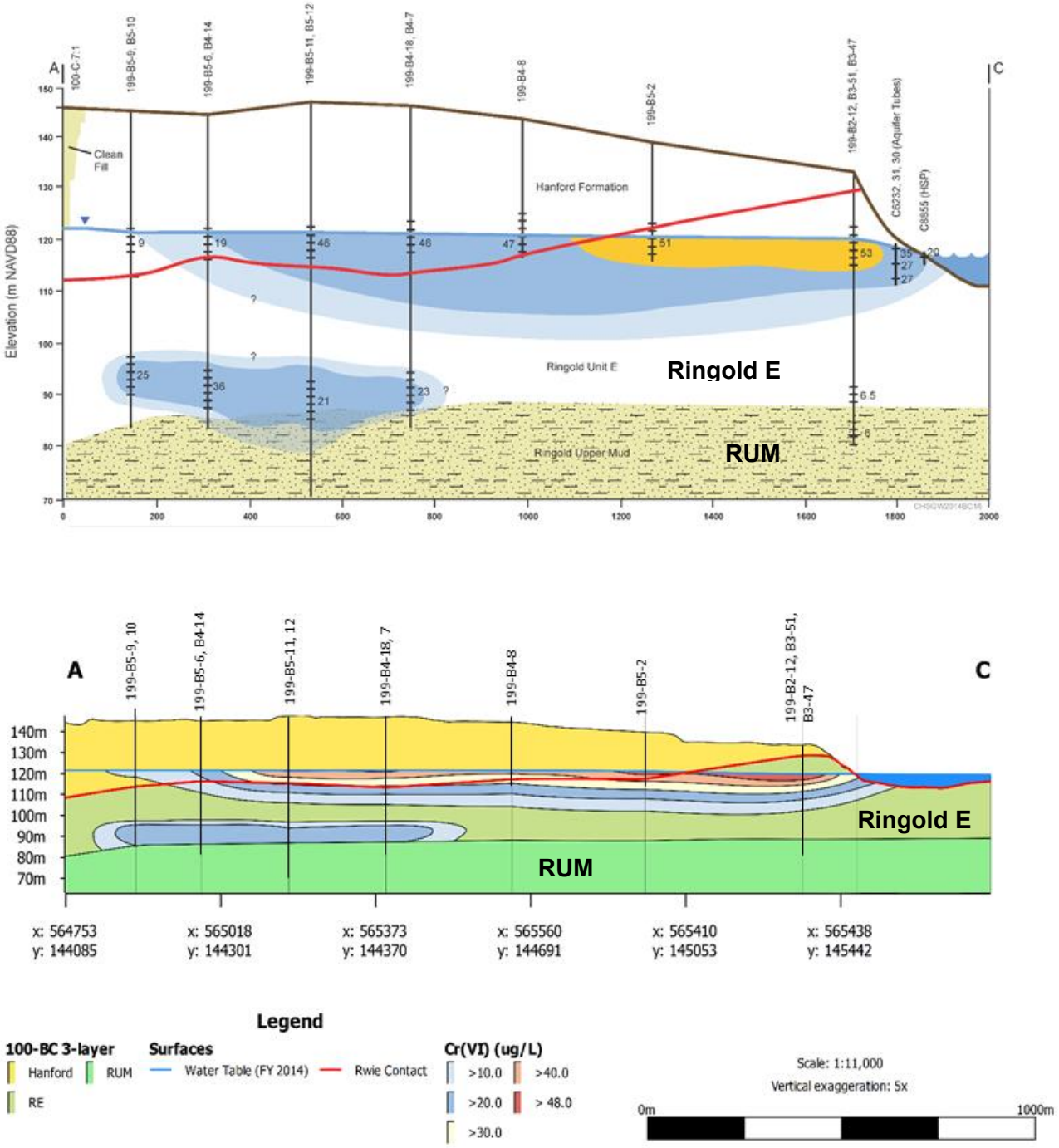


Figure 10. Cross Section A – C: Comparison of 2014 Average Water Table and Deep Cr(VI) Plumes

Note: The top image represents the 2014 Cr(VI) plume extents as depicted in the 2014 Annual Groundwater Report (based on fall 2014 data; DOE/RL-2015-07) and the bottom image depicts the 2014 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC (based on 2014 average concentrations).

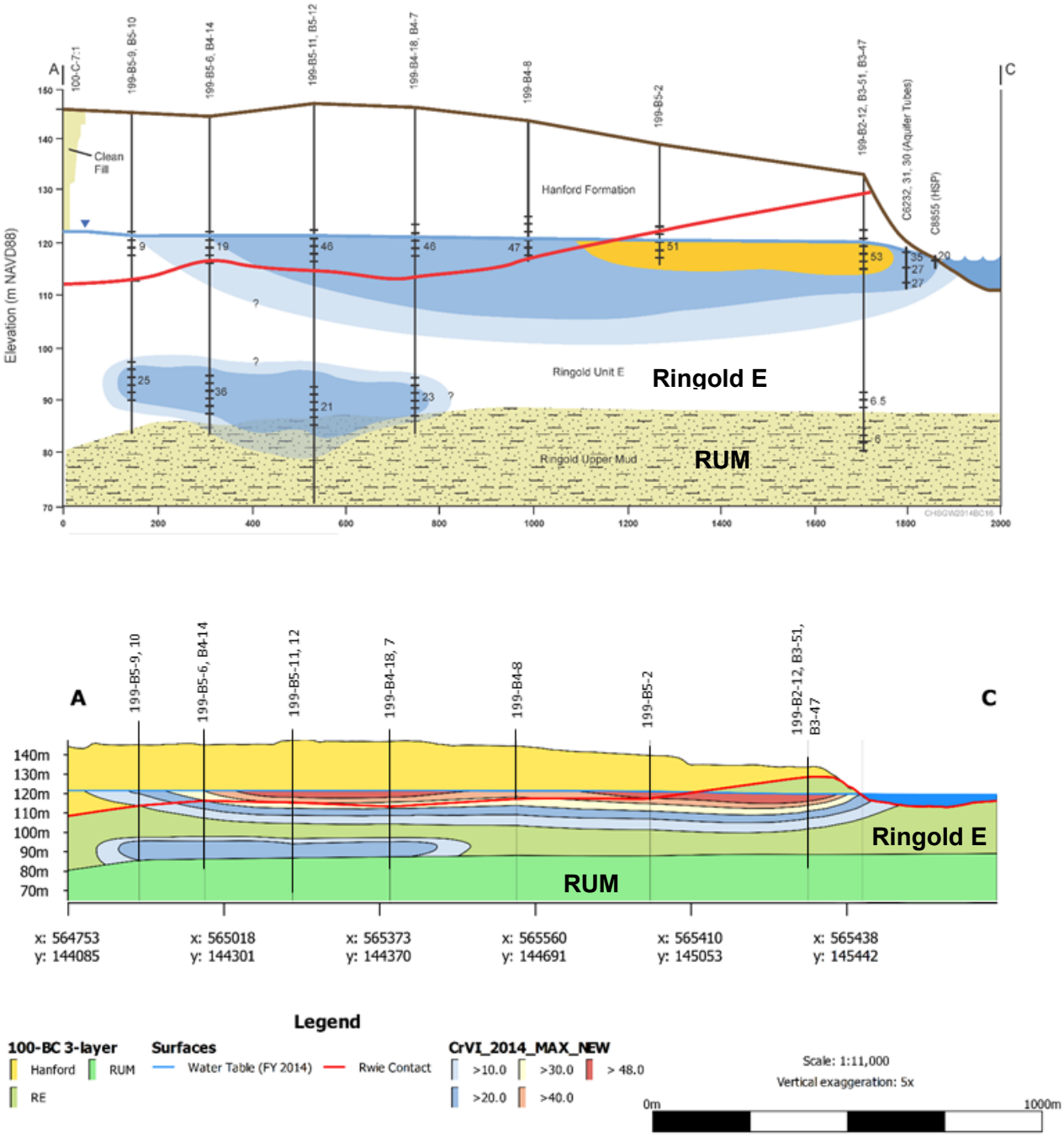
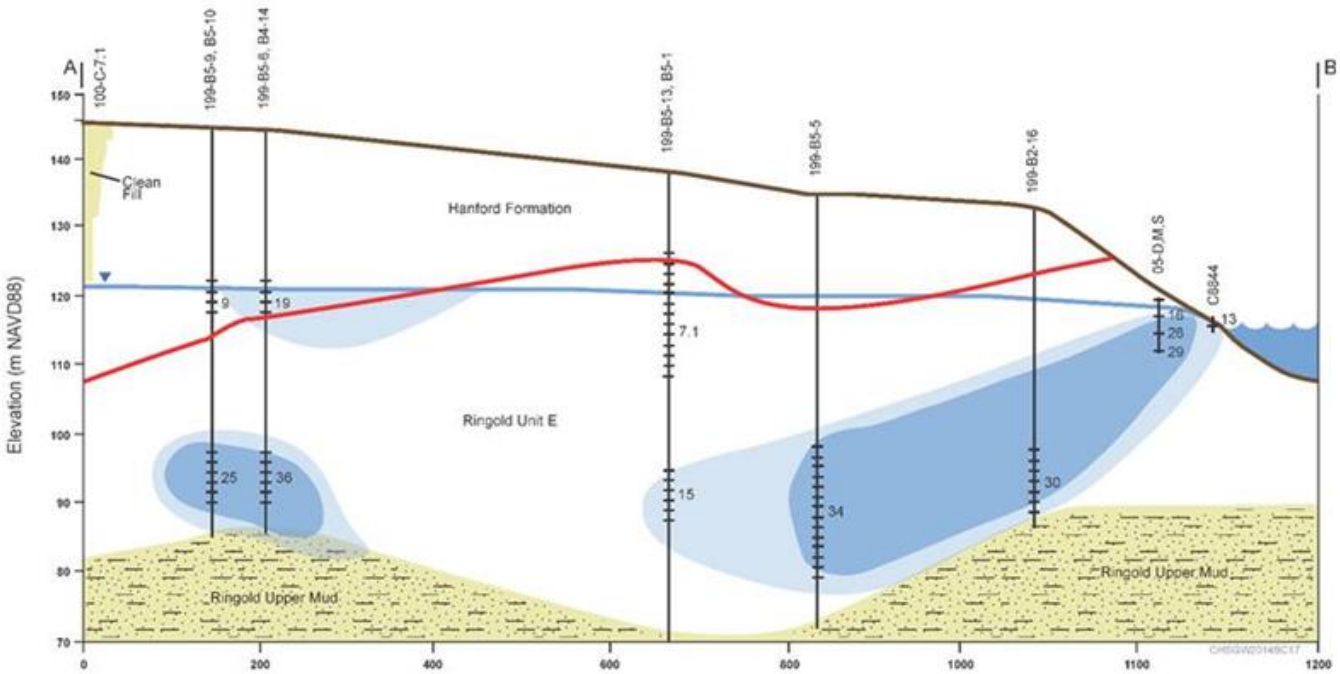


Figure 11. Cross Section A – C: Comparison of 2014 Maximum Water Table and Deep Cr(VI) Plumes

Note: The top image represents the 2014 Cr(VI) plume extents as depicted in the 2014 annual groundwater report (DOE/RL-2015-07); based on fall 2014 data) and the bottom image depicts the 2014 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC (based on 2014 maximum concentrations)



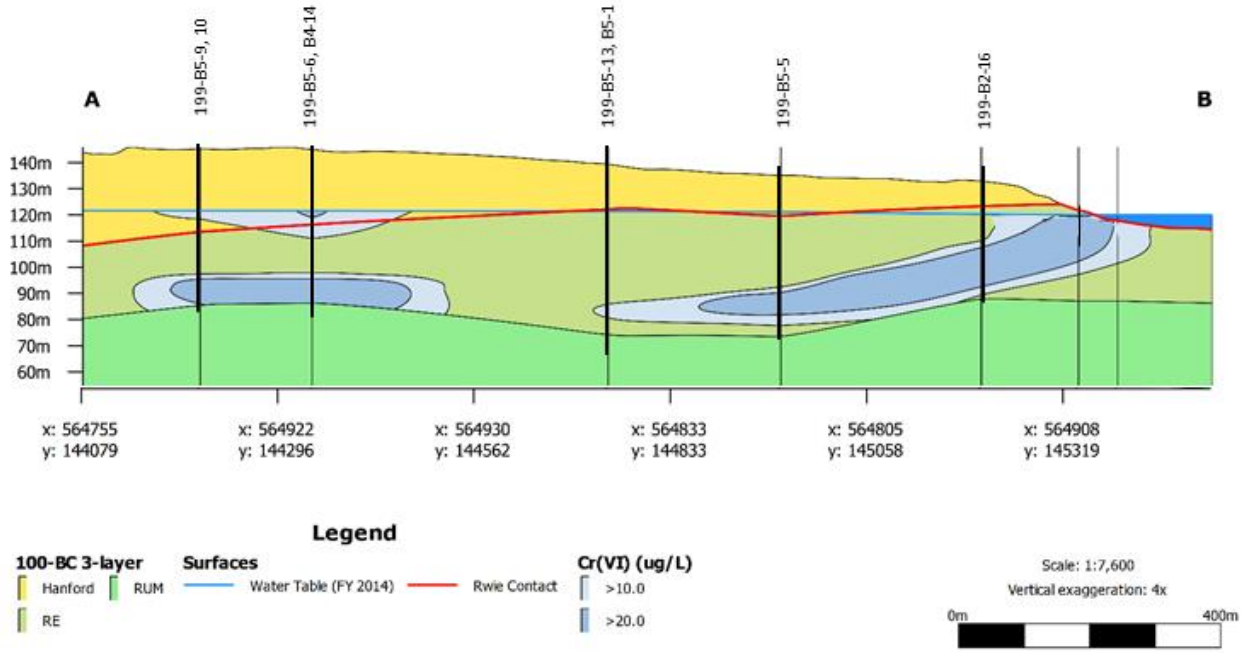
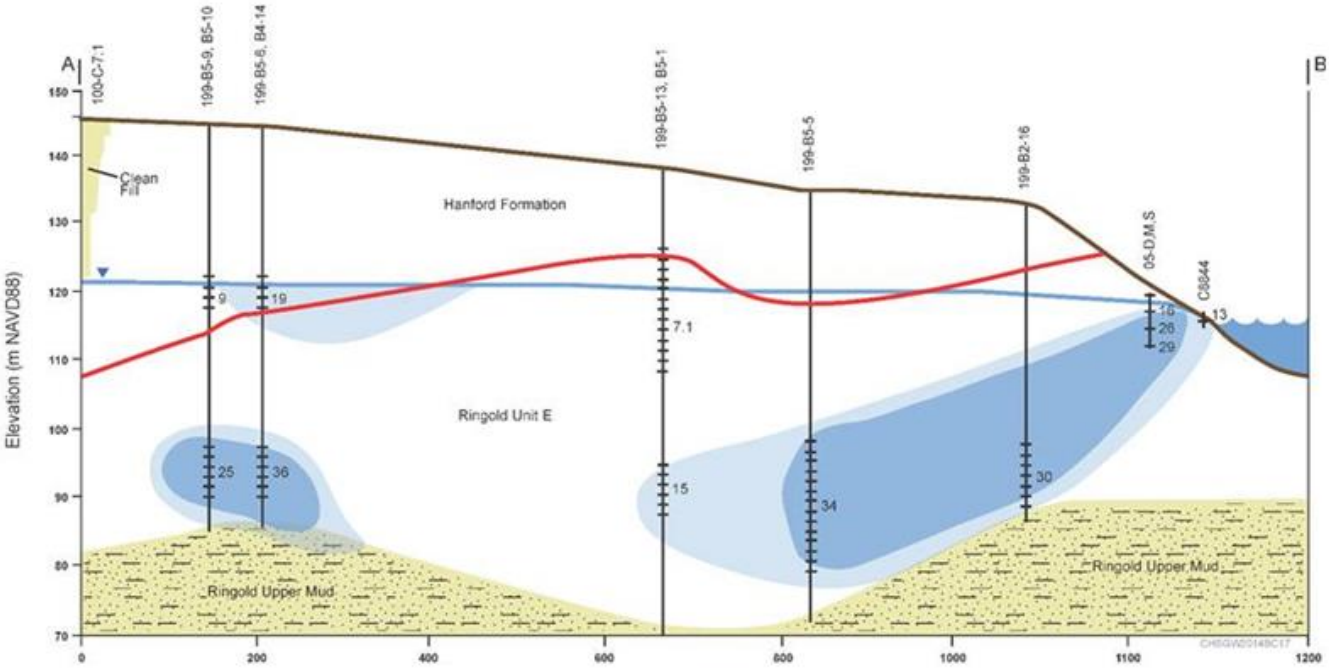


Figure 12. Cross Section A – B: Comparison of 2014 Average Water Table and Deep Cr(VI) Plumes

Note: The top image represents the 2014 Cr(VI) plume extents as depicted in the 2013 annual groundwater report (DOE/RL-2015-07) and the bottom image depicts the 2014 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC.



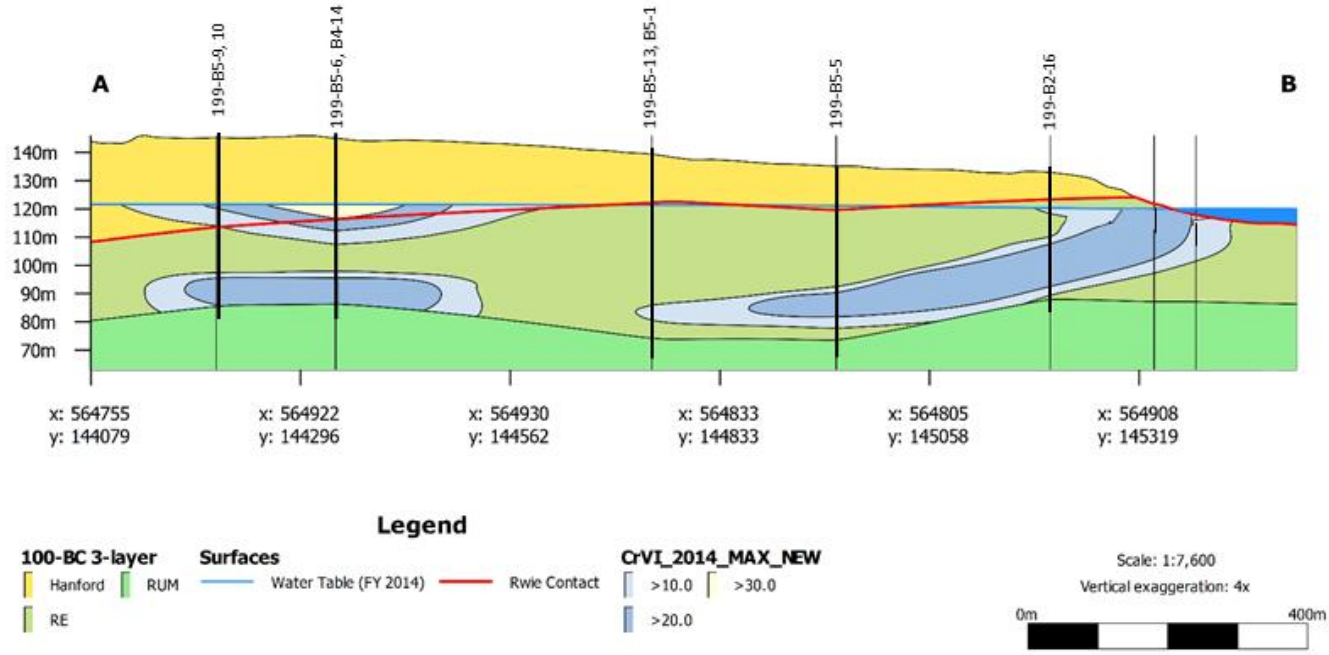


Figure 13. Cross Section A – B: Comparison of 2014 Maximum Water Table and Deep Cr(VI) Plumes

Note: The top image represents the 2014 Cr(VI) plume extents as depicted in the 2014 annual groundwater report (DOE/RL-2015-07) and the bottom image depicts the 2014 Cr(VI) deep plumes as modeled in Leapfrog Geo for 100-BC

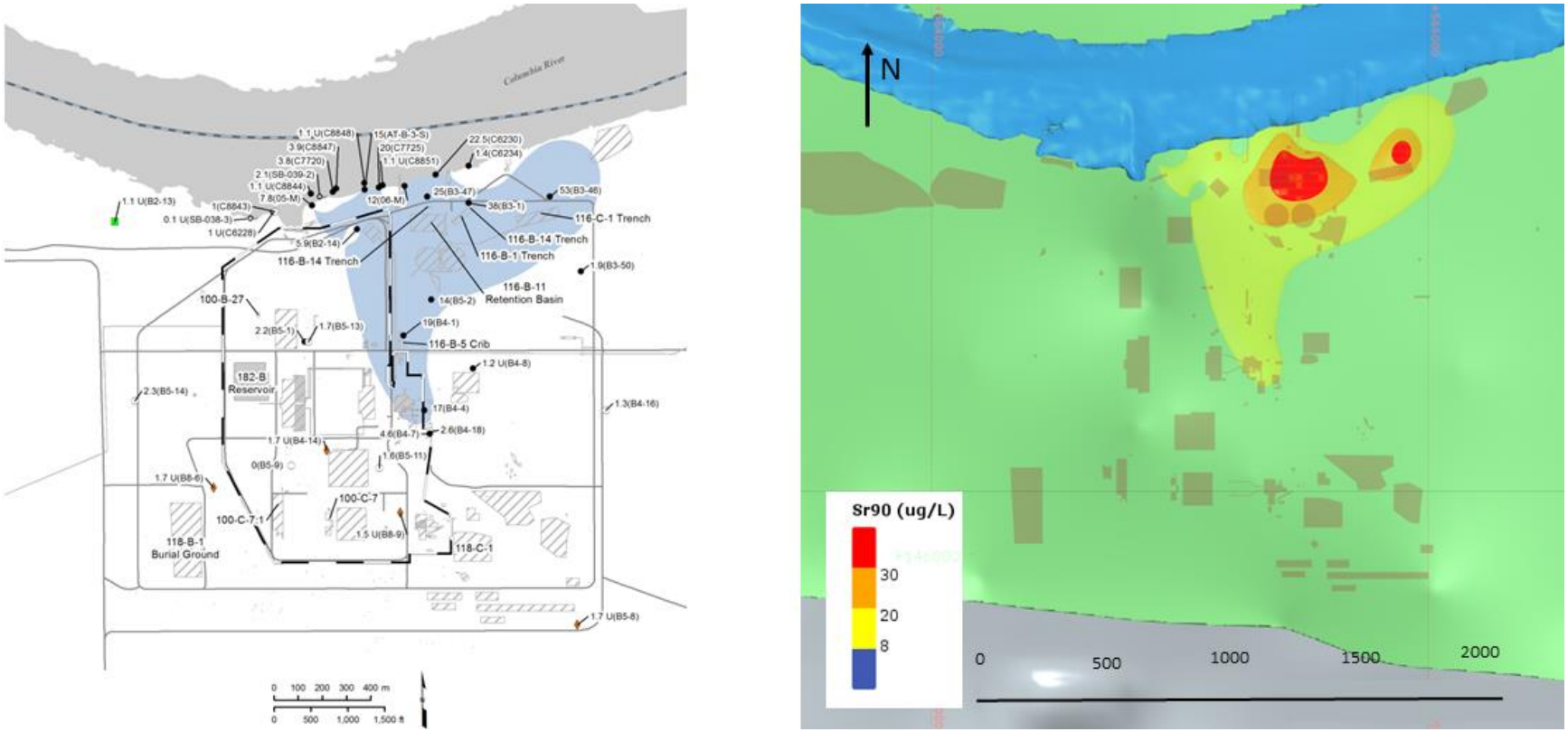


Figure 14. Sr-90 2013 Water Table Plume Comparison

Note: The image on the left represents the Sr-90 (2013) plume as depicted in the 2013 annual groundwater report (DOE/RL-2014-32) and the image on the right depicts the 2013 Sr-90 data as modeled in Leapfrog Geo for 100-BC.

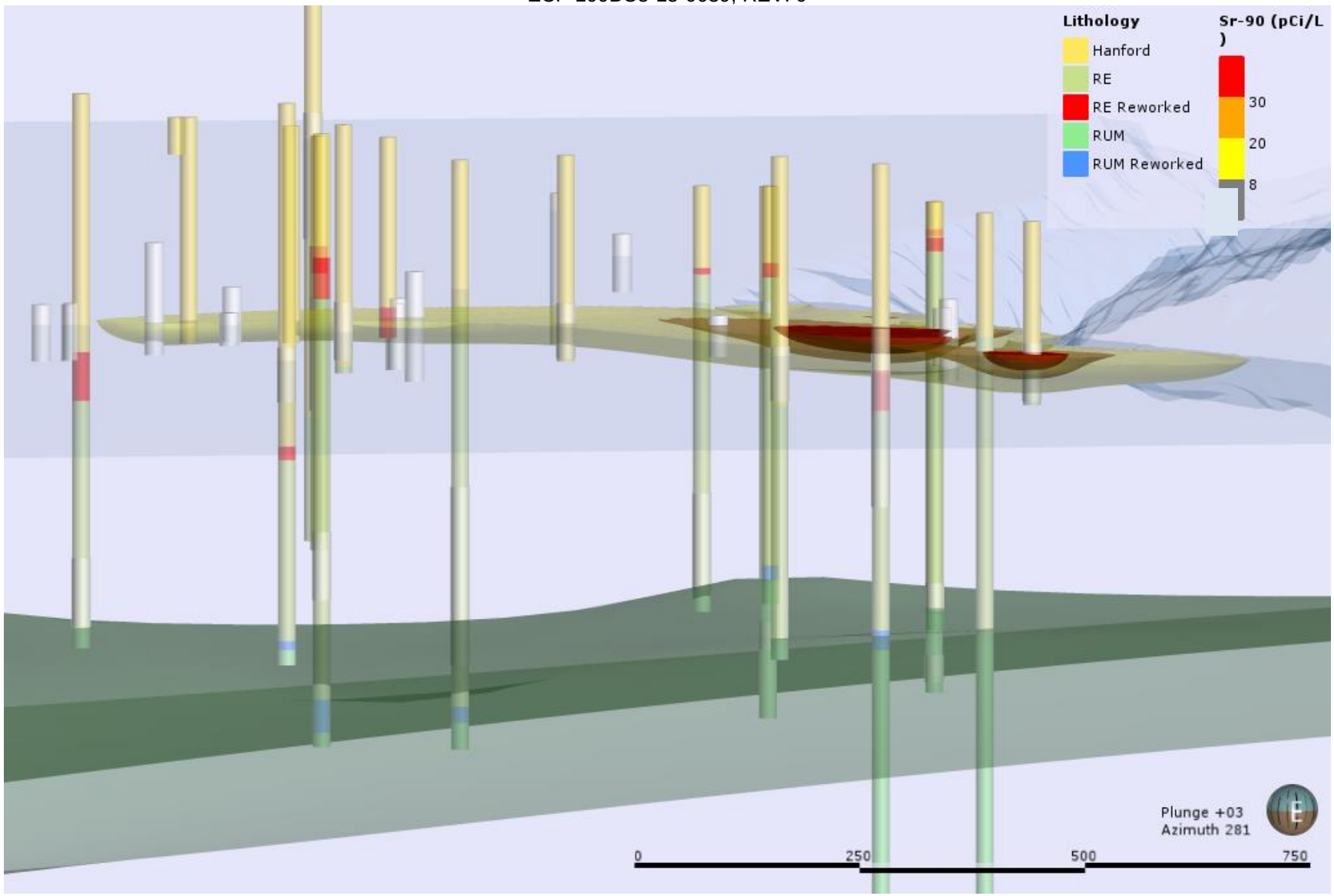


Figure 15. 2013 Sr-90 Plume Thickness

Note: This view is looking west at the 2013 Sr-90 plume. Leapfrog interpolation from the 2D grid data resulted in a maximum thickness of about 5 meters.

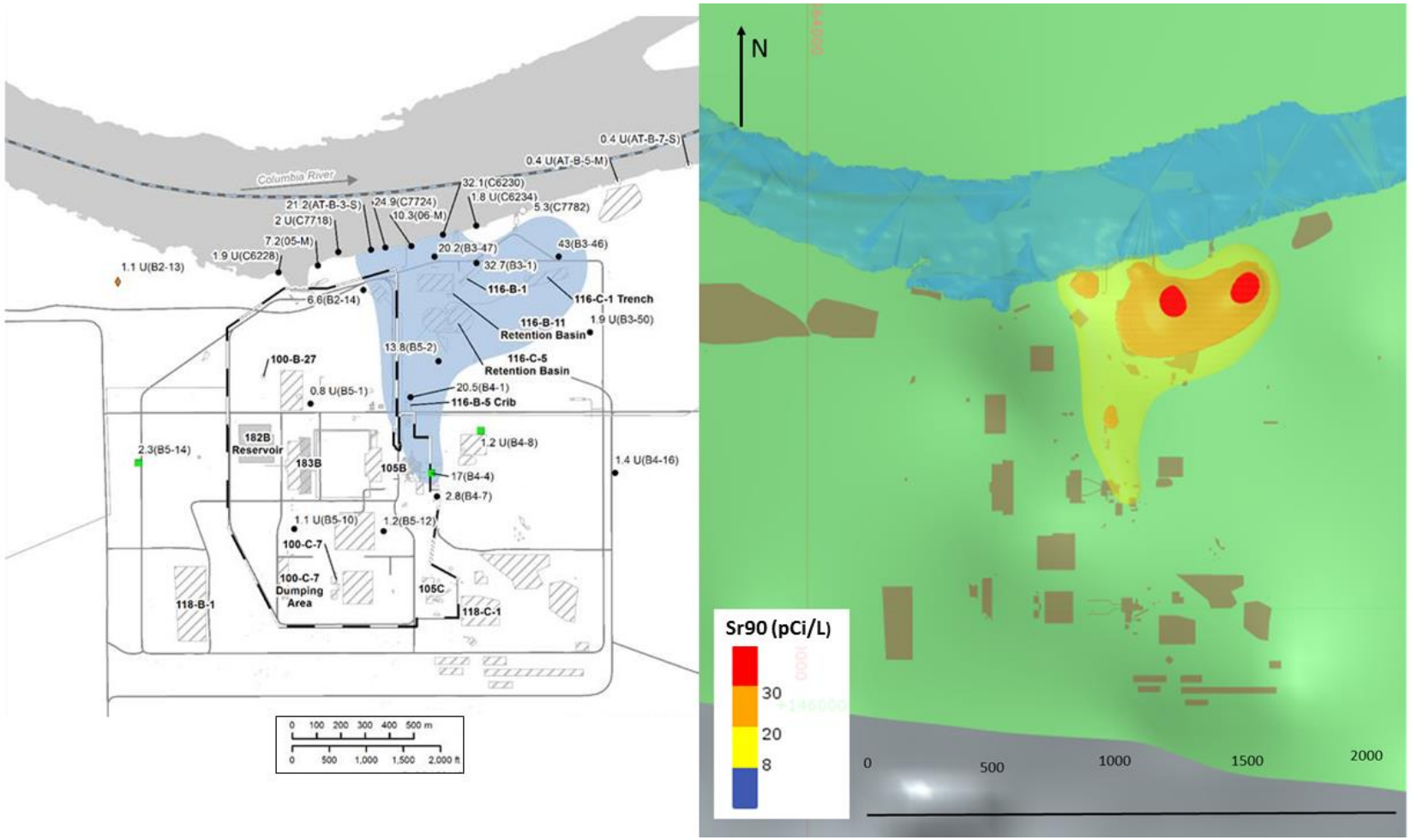


Figure 16. Sr-90 2014 Water Table Plume Comparison

Note: The image on the left represents the Sr-90 (2014) plume as depicted in the 2014 annual groundwater report (DOE/RL-2015-07) and the image on the right depicts the 2014 Sr-90 data as modeled in Leapfrog Geo for 100-BC

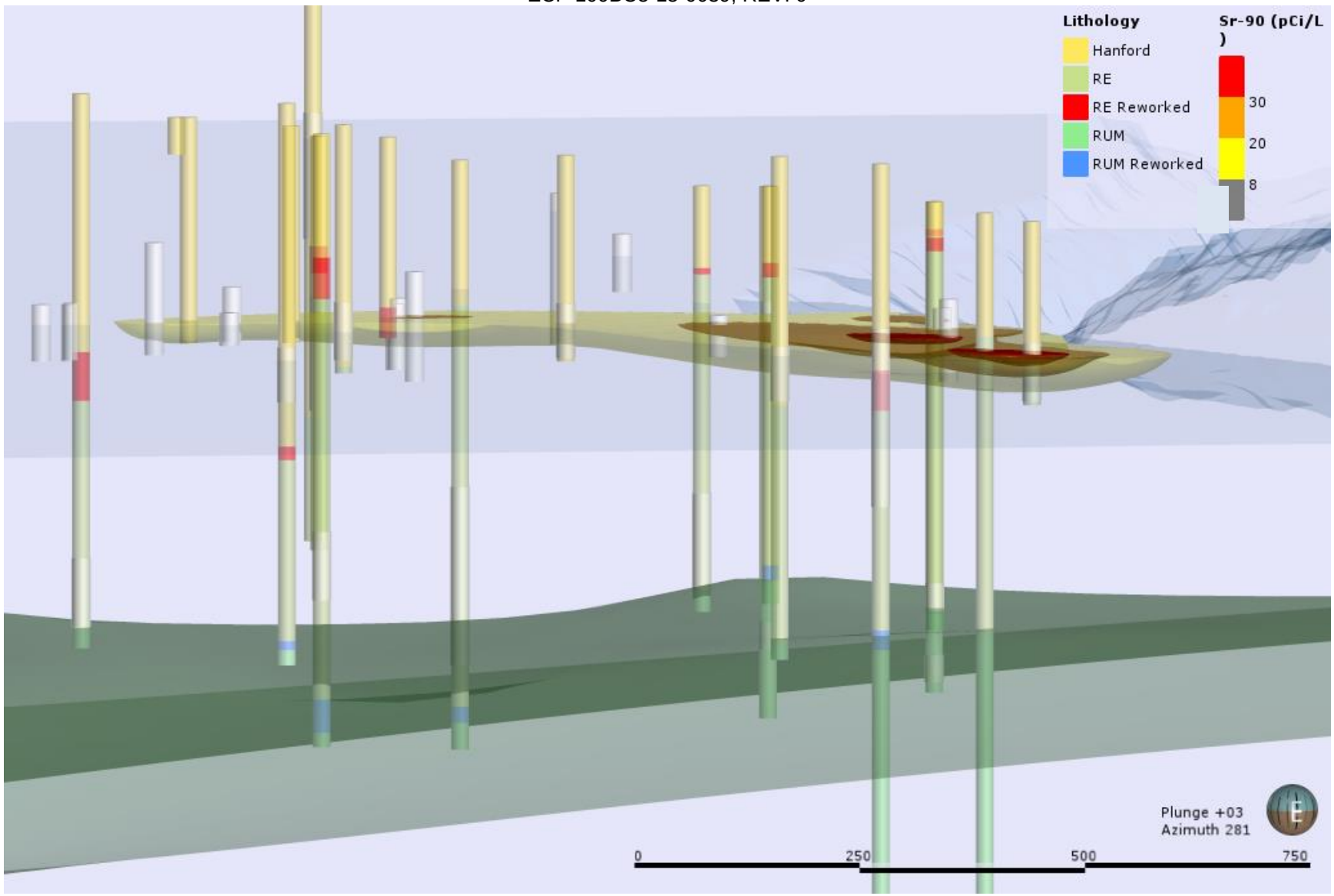


Figure 17. 2014 Sr-90 Plume Thickness

Note: This view is looking west at the 2014 Sr-90 plume. Leapfrog interpolation from the 2D grid data resulted in a maximum thickness of about 5 meters.

8 References

Aero-Metric LiDAR, 2008, *Digital Orthophotography & LiDAR Surveys Photogrammetric Report*, RCCC-Hanford Battelle/PNNL/DOE, Prepared by Aero-metric, Seattle, Washington.

Code of Federal Regulations Title 40, 2000, §141.66 *Maximum Contaminant Levels for Radionuclides*.

CHPRC-01753, 2015, *Leapfrog-Hydro and Leapfrog-Geo Software Management Plan*, Rev. 1, CH2M Hill Plateau Remediation Company, Richland, Washington.

CHPRC-01754, 2015, *Leapfrog-Hydro and Leapfrog-Geo Software Test Plan*, Rev. 1, CH2M Hill Plateau Remediation Company, Richland, Washington.

CHPRC-01755, 2015, *Leapfrog-Hydro and Leapfrog-Geo Acceptance Test Report: Leapfrog-Hydro Version 2.3.2 and Leapfrog-Geo Version 2.1.2*, Rev. 3, CH2M Hill Plateau Remediation Company, Richland, Washington.

DOE/RL-2014-32, 2013, *Hanford Site Groundwater Monitoring Report for 2013*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0084842.

DOE/RL-2015-07, 2014, *Hanford Site Groundwater Monitoring Report for 2014*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0080600H.

ECF-Hanford-13-0020, 2015, *Process for Constructing a Three-dimensional Geological Framework Model of the Hanford Site,100 Area*, Rev. 1. Prepared for the U.S. Department of Energy Assistant Secretary for Environmental Management, CH2M Hill Plateau Remediation Company, Richland, Washington.

ECF-Hanford-14-0034, 2014, *Calculation and Depiction of Groundwater Contamination for the Calendar Year 2013 (CY2013) Hanford Site Groundwater Monitoring Report*, Rev. 0, CH2M Hill Plateau Remediation Company, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0080140H.

ECF-Hanford-15-0003, 2015, *Calculation and Depiction of Groundwater Contamination for the Calendar Year 2014 (CY2014) Hanford Site Groundwater Monitoring Report*, Rev. 0. CH2M Hill Plateau Remediation Company, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0079509H.

ECF-100NPL-11-0070, 2014, *100 Area Stratigraphic Database Development*, Rev. 3, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0078188H.

PNNL-19878, 2010, *Development of a High-Resolution Bathymetry Dataset for the Columbia River Through the Hanford Reach*, Pacific Northwest National Laboratory, Richland, Washington. Available at: http://www.pnl.gov/main/publications/external/technical_reports/PNNL-19878.pdf.

PNNL-21845, 2012, *Investigation of Hexavalent Chromium Flux to Groundwater at the 100-C-7:1 Excavation Site*, Pacific Northwest National Laboratory, Richland, Washington. Available at: http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-21845.pdf.

PRC-PRO-IRM-309, 2014, *Controlled Software Management*, Rev. 5 Chg. 0, CH2M Hill Plateau Remediation Company, Richland, Washington.

SGW-48478, 2012, *Interpretation and Integration of Seismic Data in the Gable Gap*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington. Available at: http://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=1104140880.

WAC 173-201A, 2011, *Water Quality Standards for Surface Waters of the State Of Washington*. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201a.

Attachment A

Well Information and Geologic Contacts Data Tables

The data contained in Tables A-1 and A-2 represent the most accurate and currently available well location and interpreted geologic contact depths available. Table A-1 presents the format used for well location and elevation information (i.e. ground surface, top of casing, brass cap, etc.) used in Leapfrog Geo. The Z Coordinate in Table A-1 is best estimate of land surface elevation at the time of drilling; that information and the drill depth are derived from GeoContacts_100-Area_2015-01-06.xlsx. Surveyed X and Y coordinates are derived from the Hanford Well Information System. Table A-2 presents the geologic contact information derived from GeoContacts_100-Area_2015-01-06.xlsx used to generate geologic unit surfaces and interpolated volumes in the Leapfrog geologic framework model but also lists the reworked RE and RUM data. This data could not be excluded as doing so would introduce erroneous unit top elevations for RE and RUM in those particular wells. Table A-2 is formatted for use in Leapfrog Geo. Because the model uses surfaces that were interpolated for the broader 100-Area Model, all wells used in interpolation of the full 100-Area GFM were included.

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-B2-12	565368.4	145363.7	133.93	54.5
199-B2-13	564086.5	145264.6	128.6	35.2
199-B2-14	565096	145232.3	134.3	46.42
199-B2-15	565092.3	145230.5	134.27	59.07
199-B2-16	564915	145190.7	133.37	47.7
199-B3-1	565561.5	145342.1	134.882	60.5
199-B3-2	565847.6	145326.1	135.43	240.79
199-B3-2P	565847.6	145326.1	136.157	506
199-B3-2Q	565847.6	145326.1	135.981	642
199-B3-46	565899.6	145369	134.73	20.35
199-B3-47	565388.7	145369	134.766	62.7
199-B3-50	566028.9	145058.2	143.02	55.87
199-B3-51	565379.3	145362.4	134.04	47.61
199-B3-52	565391	145115	134.575	58.4
199-B4-1	565289.8	144791.5	141.6	90
199-B4-14	564969.3	144314	145.728	29.2
199-B4-15	565439.7	144552	144.111	25.69
199-B4-16	566132	144480	150.12	62.42
199-B4-18	565401	144392.2	147.22	61.57
199-B4-2	565283.8	144770.9	141.653	27.43
199-B4-3	565295.6	144771.1	141.758	27.74
199-B4-4	565377.1	144479.7	145.365	32
199-B4-5	565390.5	144349.2	147.964	29.62
199-B4-6	565388.9	144383	147.923	29.69
199-B4-7	565398.9	144382.8	147.99	29.42
199-B4-8	565578.5	144653.8	144.46	27.55
199-B4-9	565395.6	144563.9	144.723	28.29
199-B5-1	564878.2	144764.9	139.16	46.02
199-B5-10	564812	144250	145.2	30.69
199-B5-11	565188.3	144241	147.65	76.78
199-B5-12	565178.9	144240.9	147.2	31.82

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-B5-13	564893.4	144765	139.48	68.09
199-B5-14	564170	144520	140.13	70.44
199-B5-2	565405.4	144939.7	139.799	22.86
199-B5-5	564722	144955.5	135.42	65.47
199-B5-6	564967.7	144316.4	144.97	59.7
199-B5-8	566014	143587.7	153.93	70.29
199-B5-9	564822	144250	145.38	66.5
199-B8-6	564498.8	144157.8	145.928	27.74
199-B8-7	564760.9	144045.2	143.788	28.01
199-B8-8	565006.1	144001	150.224	34.14
199-B8-9	565276.4	144054.5	150.99	66.9
199-B9-1	565502	144029.7	152.253	35.66
199-B9-2	565534.8	144078.1	152.643	35.97
199-B9-3	565667.4	144046.7	151.313	33.22
199-D2-10	574470.9	153465.2	120.3	9.45
199-D2-11	573328.2	151120.7	143.45	34.75
199-D2-12	574343.5	153300	120.57	10.36
199-D2-5	573812.3	151148.2	140.51	28.96
199-D2-6	573000.2	151119.9	143.36	33.74
199-D2-8	573263.6	151208.6	143.61	30.75
199-D3-3	572482.5	151187	143.2	34.75
199-D3-4	572468.2	151171	143.25	34.81
199-D3-5	572787.7	150994.5	144.05	34.2
199-D4-1	572752.9	151558.9	143.25	32
199-D4-10	572750.3	151540.4	143.44	29.84
199-D4-101	572800.1	151425.9	143.61	33.5
199-D4-11	572768.9	151554.1	143.38	29.6
199-D4-12	572771.6	151562.1	143.5	30.08
199-D4-13	572665.9	151424.5	142.94	30.78
199-D4-14	572839.8	151641.6	143.47	31.06
199-D4-15	572936.6	151424.9	143.66	32

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D4-16	572756.7	151555.3	143.43	31
199-D4-17	572738.1	151558.4	143.37	31.36
199-D4-18	572726.3	151570.9	142.98	31.06
199-D4-19	572559.4	151282	143.12	33.68
199-D4-2	572768.4	151544	143.75	31.48
199-D4-20	572794	151257.5	143.56	32.77
199-D4-21	572778.9	151569.8	143.65	30.18
199-D4-22	572788.5	151539.3	144.03	30.78
199-D4-23	572672.5	151592.9	140.39	26.82
199-D4-24	572699.9	151471.4	143.2	30.78
199-D4-25	572711.4	151476.2	143.51	32.31
199-D4-26	572712.3	151488.9	143.46	32
199-D4-27	572724.2	151493.5	143.63	32
199-D4-28	572725.1	151506.1	143.52	31.09
199-D4-29	572736.9	151510.7	143.81	31.09
199-D4-3	572766.1	151546.1	143.67	31.09
199-D4-30	572737.4	151523.2	143.82	30.57
199-D4-31	572749.5	151528	143.88	29.87
199-D4-32	572790.9	151573.8	143.68	30.78
199-D4-33	572792.6	151585.9	143.71	31.39
199-D4-34	572804.6	151590	143.58	31.7
199-D4-35	572806.3	151602.3	143.52	31.09
199-D4-36	572818.2	151606.2	143.52	31.09
199-D4-37	572820.3	151618.6	143.52	31.09
199-D4-38	572671.3	151537.9	142.81	31.09
199-D4-39	572747.5	151650.8	143.19	31.09
199-D4-4	572754.6	151571.6	143.42	32.31
199-D4-40	572832.4	151622.6	143.57	30.66
199-D4-41	572834.1	151634.7	143.48	30.78
199-D4-42	572847.1	151642.4	143.51	31.95
199-D4-43	572849.7	151656.2	143.46	31.09

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D4-44	572856.1	151665.6	143.34	31.39
199-D4-45	572868	151671.8	143.28	32.31
199-D4-46	572868.9	151684.9	143.17	31.7
199-D4-47	572880.5	151690.1	143.16	31.15
199-D4-48	572881.3	151703.5	143	32.92
199-D4-49	572699.1	151458.7	143.24	30.51
199-D4-5	572740.5	151556.5	143.31	30.78
199-D4-50	572687.3	151454	143.12	29.9
199-D4-51	572686.6	151441.4	143.15	30.39
199-D4-52	572674.9	151436.7	143.17	30.39
199-D4-53	572674.1	151424.6	143.14	29.66
199-D4-54	572662.4	151419.7	143.17	30.39
199-D4-55	572659	151414.6	143.19	30.33
199-D4-56	572657.7	151402.3	143.1	29.72
199-D4-57	572645.9	151397.9	143.16	30.92
199-D4-58	572644.8	151385.4	143.34	32.52
199-D4-59	572633.3	151380.8	143.22	31.15
199-D4-6	572733.3	151577.9	143.28	30.78
199-D4-60	572632.4	151368.3	143.18	31.78
199-D4-61	572620.7	151363.7	143.1	32.09
199-D4-62	572619.5	151351.1	143.19	33.44
199-D4-63	572607.6	151346.8	143.29	33.89
199-D4-64	572607	151333.9	143.32	33.83
199-D4-65	572594.8	151329.7	143.32	34.14
199-D4-66	572594.3	151316.9	143.33	34.71
199-D4-67	572581.9	151312.8	143.28	34.83
199-D4-68	572581.3	151299.8	143.07	35.14
199-D4-69	572569	151295.7	143.08	34.53
199-D4-7	572760.9	151551.3	143.36	29.26
199-D4-70	572568.8	151282.7	143.13	34.68
199-D4-71	572556.3	151278.5	143.12	34.68

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D4-72	572554.4	151265.8	143	34.83
199-D4-73	572542.2	151262.7	143.15	34.99
199-D4-74	572539.8	151249.8	142.9	34.99
199-D4-75	572527.8	151247	143.07	35.44
199-D4-76	572526.1	151234.2	142.97	35.29
199-D4-77	572513.3	151231	142.93	34.83
199-D4-78	572511.3	151218.3	142.98	34.44
199-D4-79	572498.2	151214	143.63	35.08
199-D4-8	572763.3	151552.7	143.34	30.18
199-D4-80	572496.9	151202.6	143.43	34.44
199-D4-81	572484.4	151199.6	143.33	34.38
199-D4-82	572470.3	151183.9	143.23	35.05
199-D4-83	572859.4	151723.4	142.89	29.87
199-D4-84	572568	151433.5	143.63	31.55
199-D4-85	572486.2	151324.2	143.31	35.05
199-D4-86	572389.1	151202.1	142.6	34.29
199-D4-87	572757.1	151550	143.44	30.63
199-D4-88	572758.7	151553.2	143.4	29.87
199-D4-89	572759.6	151547.1	143.53	29.08
199-D4-9	572758.2	151543.3	143.6	29.72
199-D4-90	572823.2	151616.1	143.45	30.94
199-D4-91	572817.7	151621.1	143.45	30.94
199-D4-92	572714.1	151486.3	143.52	32.49
199-D4-93	572710.4	151491.2	143.33	32.08
199-D4-94	572712.9	151496.1	143.33	31.3
199-D4-95	572612.8	151226.7	143.37	37
199-D4-96	572777	151519.8	144.2	32.46
199-D4-97	572906.2	151625.3	143.87	33.53
199-D4-98	572574.5	151481.7	143.1	33.83
199-D4-99	572527.4	151377.1	143.2	35.42
199-D5-101	572943	151521.5	143.83	34.84

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D5-102	573428.2	151340.2	143.81	34.59
199-D5-103	573505.9	151460.9	143.61	35.66
199-D5-104	573265.5	151422.4	144.05	35.36
199-D5-106	573503.7	151598	143.67	32.67
199-D5-107	572932.4	151283.1	144.09	31.7
199-D5-108	572923.3	151222.9	144.38	32.31
199-D5-109	572917.4	151285.6	144.02	32.73
199-D5-110	572931.6	151277.6	144.12	31.24
199-D5-111	572943.2	151281.5	144.11	31
199-D5-112	572929.1	151289.9	143.99	35.05
199-D5-113	572927	151288.5	143.99	31.09
199-D5-114	572918	151223.8	144.36	31.79
199-D5-115	572923.2	151221.1	144.39	32
199-D5-116	572926.9	151222.4	144.42	31.85
199-D5-117	572922.9	151225.4	144.39	27.92
199-D5-118	572921	151224.5	144.37	31.85
199-D5-119	573306.2	151418	144.01	34.63
199-D5-12	573839.6	151557.2	143.74	27.74
199-D5-120	573377.2	151406.8	143.66	34.26
199-D5-121	573430.2	151399.3	143.77	34.08
199-D5-122	573300.3	151349.3	143.67	34.2
199-D5-123	573824.2	151639.4	144.17	37.7
199-D5-125	573667.4	151746.2	143.99	32.6
199-D5-126	573705.7	151843.3	143.63	34.78
199-D5-127	572992.3	151428.3	143.83	33.22
199-D5-128	573622.4	151237.4	143.15	32.49
199-D5-129	573735.5	151465.1	143.34	34.59
199-D5-13	573535.5	151955.2	143.65	29.66
199-D5-130	574039.2	151928.5	142.4	30.91
199-D5-131	573684.4	152006.8	143.75	35.48
199-D5-132	573875.4	151586.9	144.36	34.14

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D5-133	573731.6	151497.4	143.44	34.14
199-D5-134	573675.3	151862.5	143.68	82.3
199-D5-14	573789.6	151788	143.85	30.78
199-D5-140	573750.7	151778.8	143.95	34.41
199-D5-141	573243.4	151424.5	144.21	96.53
199-D5-142	573791.9	151563.3	143.16	27.37
199-D5-143	573701.5	151784.3	143.71	35.97
199-D5-144	573352	151404.8	143.77	34.08
199-D5-145	573215.5	151396.2	144.21	36.21
199-D5-146	573219.8	151345.6	144.04	35.57
199-D5-147	572993.3	151380.8	143.85	33.01
199-D5-148	573361.6	151083.2	143.02	35.14
199-D5-15	573738.6	151673.8	143.9	31.03
199-D5-153	573329.8	151992.8	142.6	33.22
199-D5-154	573632.3	151831.7	143.2	34.96
199-D5-155	573355.2	151346.7	121.12	10.58
199-D5-156	573335.2	151343.4	121.13	10.94
199-D5-157	573347.8	151358.8	121.07	10.41
199-D5-158	573358.3	151411.5	121.02	9.99
199-D5-16	573917.5	151652.5	144.45	29.87
199-D5-17	573730.5	151322.8	143.26	35.05
199-D5-18	573861.7	151325.2	142.58	30.63
199-D5-19	573849.1	151243.2	141.99	29.96
199-D5-20	573240	152030.2	142.97	31.49
199-D5-32	573372	151903.4	143.14	32.24
199-D5-33	573095	151714.5	143.41	31.75
199-D5-34	573240.4	151554.1	144.52	37.5
199-D5-36	572909.8	151746.3	143.12	31.39
199-D5-37	573092.2	151916.4	143.07	30.33
199-D5-38	572996.8	151545.6	143.96	33.53
199-D5-39	573142.9	151428.4	143.98	32.92

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D5-40	573003.3	151272	143.98	33.38
199-D5-41	573358.2	151792.2	143.43	33.38
199-D5-42	573479.8	151622.7	143.85	33.38
199-D5-43	573180	151269.4	143.84	34.29
199-D5-44	572993.6	151835.7	142.66	30.48
199-D5-92	573131.9	152009.8	142.48	30.21
199-D5-93	573350.2	151459.6	143.61	33.22
199-D5-97	573250.1	151302.5	143.72	34.59
199-D5-98	573369.6	151272.4	142.97	34.56
199-D5-99	573349.6	151402	143.99	35.05
199-D6-1	574129.9	151691.7	144.22	32.61
199-D6-2	574544.6	151970.2	133.72	24.51
199-D6-3	574159.1	151643.9	143.93	33.68
199-D7-3	574151.4	152363.4	135.38	27.22
199-D7-4	574377.1	152369.6	133.76	23.62
199-D7-5	574434.3	152678.7	131.43	19.35
199-D7-6	574429.2	152980.4	125.01	13.35
199-D8-4	573447.2	152090.2	143.22	32.7
199-D8-5	573537.2	152243.5	138.17	26.58
199-D8-53	573889.9	152452.3	132.89	21.17
199-D8-54A	573781.2	152408	134.93	23.77
199-D8-54B	573768.2	152398.7	134.92	43.89
199-D8-55	573621	152364.4	135.6	22.56
199-D8-68	573711.7	152427.1	134.82	24.38
199-D8-69	573843.6	152552.2	130.53	18.9
199-D8-70	573942.1	152508.7	131.95	22.56
199-D8-71	573837.1	152429.4	133.72	24.69
199-D8-72	573570.5	152211.8	140.75	28.96
199-D8-73	573388.7	152167.4	141.79	28.23
199-D8-88	573292.3	152141.3	141.1	29.83
199-D8-89	573478.6	152249.7	138.09	25.85

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-D8-90	573948.6	152646.2	125.96	17.19
199-D8-91	574036.9	152741.4	123.74	14.17
199-D8-93	574148.7	153085.8	120.4	6.4
199-D8-94	574047.8	152949.5	120.29	9.54
199-D8-95	573612	152160.6	141.81	31.82
199-D8-96	573706	152152.2	140.48	30.94
199-D8-97	573859.6	152087.4	140.85	31.79
199-D8-98	574013.1	152123	138.03	27.86
199-D8-99	574006.8	152364.4	136.54	27.1
199-F2-3	580496.2	148497.8	121.84	14.63
199-F5-1	581250.1	147736.9	124.27	21.42
199-F5-2	581076.3	147799.5	126.47	30.48
199-F5-3	581177	147754	125.13	28.43
199-F5-4	580583.2	147533.7	126.47	35.05
199-F5-43A	581183.9	147948.1	120.61	15.15
199-F5-43B	581170.9	147960.4	120.43	57.91
199-F5-45	580706.9	147683.9	126.37	16.03
199-F5-46	580841.3	147781.5	127.19	17.37
199-F5-47	580495.5	147508.5	127.84	19.35
199-F5-48	580517.6	147690.1	127.29	16.76
199-F5-49	581133.2	147705	126.42	10.9
199-F5-5	580971.3	147935.1	125.88	30.48
199-F5-52	580672.8	148143.8	127.62	22.49
199-F5-53	580978.5	148042.5	125.11	35.36
199-F5-54	581145.5	147576.4	126.62	23.59
199-F5-6	580901.7	148042	126.55	58.52
199-F6-1	581375.9	147564.5	123.6	17.15
199-F7-1	579687.2	147022.4	119.35	45.72
199-F7-3	579884.7	147112.5	120.49	10.06
199-F8-1	580335.3	147430.5	124.06	17.37
199-F8-2	580373.9	147468.5	125.45	17.76

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-F8-3	580254	147253.4	121.95	11.36
199-F8-4	580958.5	147123.5	125.37	15.48
199-F8-7	580242.9	147116.7	123.17	11.67
199-H1-1	576702.3	153384.5	123.52	12.53
199-H1-2	576451.1	153378.3	128.13	16.61
199-H1-20	575706	154183.6	121.11	17.59
199-H1-21	575896.8	154163.8	121.38	12.13
199-H1-25	576279.6	154070	122.96	13.04
199-H1-27	576403.9	154024.2	123.57	12.56
199-H1-3	576163	153372.2	128.56	14.78
199-H1-32	576767.1	153766	127.46	16.67
199-H1-33	576833.3	153716.2	126.09	13.72
199-H1-34	576883.1	153667.1	125.36	14.69
199-H1-35	576958.3	153628.1	125.57	15.63
199-H1-36	576885.6	153486.5	125.46	14.17
199-H1-37	577106.9	153641.6	126.05	14.14
199-H1-38	577161	153555	126.24	14.48
199-H1-39	577223.5	153533.4	125.57	13.41
199-H1-4	575826.8	153366.9	127.88	14.78
199-H1-40	577279.3	153500.2	125.95	13.53
199-H1-42	577127.2	153391.7	124.62	13.41
199-H1-43	577213.7	153384.3	125.35	14.94
199-H1-45	577241	153062.4	127.9	18.62
199-H1-5	574850.7	153090.3	123.99	14.17
199-H1-6	576037.8	153745.7	125.44	14.33
199-H1-7	577629.6	153172.1	124.8	11.28
199-H2-1	577752.3	153239.9	123.35	57.61
199-H3-1	577645	152437.9	129.13	22.86
199-H3-10	577545.1	152723.5	128.25	70.35
199-H3-25	577410.4	152978.5	127.79	18.68
199-H3-26	577440.8	152846.5	127.3	17.16

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-H3-27	577567.1	152811.1	128.36	18.87
199-H3-2A	577624.6	152750.1	128.05	17.07
199-H3-2B	577628.3	152757.2	128.01	17.68
199-H3-2C	577632.1	152750.3	128.02	47.24
199-H3-3	577562.1	152363.2	128.05	16.34
199-H3-4	577544.3	152293.2	126.46	14.94
199-H3-5	577454.7	152287.5	126.29	15.21
199-H3-6	578266.5	152425.3	128.53	18.78
199-H3-7	577931.7	152280	129.07	17.98
199-H3-9	578039.1	152913.6	126.36	66.48
199-H4-1	578148.5	152657.7	128.48	23.86
199-H4-10	577827.2	153155.8	123.7	13.58
199-H4-11	578141.9	152728.4	127.68	19.98
199-H4-12A	578009.2	152912.7	126.47	16.63
199-H4-12B	578004.4	152918.5	126.46	15.55
199-H4-12C	578011.8	152919.8	126.34	67.06
199-H4-13	578219.3	152595.3	127.98	19.59
199-H4-14	577803.8	152752.4	128.61	18.98
199-H4-15A	577904.3	153053.4	124.63	15.02
199-H4-15B	577899.6	153059.6	124.54	13.41
199-H4-15C	577907.7	153060	124.64	101.58
199-H4-16	577981.9	152591.6	129.82	19.59
199-H4-17	577779.2	153037.6	128.34	14.72
199-H4-18	578018.3	152756.5	129.1	15.54
199-H4-2	578093.6	152501.5	128.21	118.65
199-H4-3	577940.5	152858.5	128.48	17.59
199-H4-46	577883.9	152439.9	129.38	18.75
199-H4-48	577792.7	152620.2	129.97	19.9
199-H4-49	577713.8	152445.2	129.62	19.29
199-H4-5	577944.9	152939.8	127.33	19.29
199-H4-63	578185.8	152665.5	127.6	19.48

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-H4-64	577946.1	153010.6	125.29	17.22
199-H4-65	577998.3	152787.3	128.82	17.15
199-H4-69	578014.1	152686.7	129.39	19.46
199-H4-7	577804.1	152890.9	128.76	17.76
199-H4-70	578003.8	152646.5	129.6	18.71
199-H4-71	578010.6	152581.5	129.78	21.64
199-H4-72	578036.3	152500.1	128.39	18.67
199-H4-73	577940.6	152370	129.31	21.64
199-H4-74	577239.1	152268.8	125.36	14.02
199-H4-75	577212.4	152704.6	128.54	18.04
199-H4-76	576787.3	152976.9	129.66	18.19
199-H4-77	576487.8	152975.4	127.89	15.54
199-H4-78	576168.2	152166.1	129.54	19.54
199-H4-79	575659.1	151989.3	131.3	19.81
199-H4-8	577860.7	152921.7	128.6	17.76
199-H4-80	575239	152568.2	129.34	22.65
199-H4-81	575236.9	153035.4	124.79	13.53
199-H4-82	574907	152677.7	129.6	18.01
199-H4-85	577980	152880.7	128.03	15.97
199-H4-86	577705.1	152736.2	129.1	21.15
199-H4-9	577923.2	152893.9	128.28	16.54
199-H4-90	577922.9	152592.6	130.02	29.69
199-H4-91	578126.6	152524.1	128.22	29.8
199-H5-1A	577650.1	152257.7	128.17	18.37
199-H6-2	577886.5	152194.1	129.02	18.5
199-H6-3	578340.4	151929.4	128.4	21.54
199-H6-4	577771.6	151737.1	127.46	19.2
199-K-10	568912.8	146628.1	142.63	52.12
199-K-106A	568697.4	146502.4	142.55	57.91
199-K-107A	568579.9	146468.8	142.63	29.02
199-K-108A	568687.2	146396.1	142.77	28.5

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-K-109A	569122.2	146748.5	142.81	50.57
199-K-11	568938	146617.8	142.71	51.82
199-K-110A	569230	146677.9	142.97	28.38
199-K-111A	569308.2	146968.9	140.97	56.39
199-K-112A	570278.6	148503.4	126.49	16.46
199-K-113A	570098.1	148294.5	125.94	14.63
199-K-114A	570020.3	148280.6	125.73	15.54
199-K-115A	569940	148135.4	126.58	18.59
199-K-116A	569871.2	147960.5	129.94	28.22
199-K-117A	569702.6	147977	127.08	22.25
199-K-118A	569703.1	147865.9	130.06	24.69
199-K-119A	569661.8	147649.7	132.57	28.04
199-K-120A	569399.6	147518.5	125.21	30.78
199-K-121A	570017.2	147418.3	142.15	30.07
199-K-122A	569975.1	147172.9	142.43	30.78
199-K-123A	569931.1	147090.2	142.84	29.87
199-K-124A	569867.9	146991.7	143.02	30.76
199-K-125A	569712.9	147866	130.17	23.77
199-K-126	570574.7	148509.7	139.73	27.43
199-K-127	569539.2	147539	132.17	31.39
199-K-128	570009.5	147257.5	143.6	30.87
199-K-129	570283.7	148503.1	126.59	15.09
199-K-130	570479	148661.2	133.66	24.05
199-K-131	570662	148903.9	134.41	30.27
199-K-132	568495.1	146670.8	135.96	26.82
199-K-133	570560.1	148536.3	139.54	30.18
199-K-134	570600.1	148525.3	140.17	30.18
199-K-135	570589.3	148484.1	140.09	35.76
199-K-136	570549	148495	139.74	31.7
199-K-137	568653.4	146374.5	142.4	32.9
199-K-138	568395.2	146616.6	134.22	29.87

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-K-139	568551.4	146518.4	142.81	50.57
199-K-140	568493.1	146493.7	142.56	32.92
199-K-141	569024.2	146818.5	141.57	34.69
199-K-142	569104.3	146870.9	141.79	35.27
199-K-143	570934.4	148088.3	135.74	28.96
199-K-144	569163.3	147266	126.4	32.64
199-K-145	569284.6	147425.7	125.51	37.7
199-K-146	570197.6	148379.8	128.42	17.65
199-K-147	570411.6	148558.1	135.07	25.63
199-K-148	570584.7	148767.9	138.12	33.16
199-K-149	570778.3	148970.7	139.98	34.5
199-K-150	570787.7	149051.9	139.38	35.81
199-K-151	570941.3	148686.4	139.81	36.21
199-K-152	570736.3	148585.9	140.25	36.15
199-K-153	570530	148210.1	137.41	31.88
199-K-154	570321.1	148027	137.2	32.89
199-K-156	569674	147270.9	140.48	52.49
199-K-157	569432.2	147167.9	138.84	43.68
199-K-158	568627.5	146164.4	145.5	35.2
199-K-159	570911.7	149159.6	138.95	35.66
199-K-160	570919.6	149116	139.22	35.97
199-K-161	570004.6	148202.3	126.48	17.22
199-K-162	569340	147460	125.42	40.72
199-K-163	570230.7	147947.9	137.95	34.66
199-K-164	571202.2	148903.7	140.64	36.27
199-K-165	568675	146342.4	145.46	54.92
199-K-166	568594.6	146343	144.54	52.01
199-K-168	568544.4	146513.6	142.59	50.84
199-K-169	569989	147555	141.86	43.28
199-K-170	570009	147491.4	142.03	46.02
199-K-171	570544	147187.9	144.22	46.82

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-K-172	570871.7	147166.4	144.26	42.67
199-K-173	568674.1	146266.9	145.63	55.17
199-K-174	568915.4	146222.5	148.19	40.39
199-K-175	568882.7	146008.8	153.25	45.26
199-K-178	568963	146954.4	136.4	40.72
199-K-179	569847.3	147481.9	140.24	44.5
199-K-180	571116.1	147449.1	146.98	48.24
199-K-181	568849.8	146892.8	135.98	41.45
199-K-182	571185.3	148350.2	142.45	38.71
199-K-183	568302.3	146439.7	140.33	46.48
199-K-184	568618.7	146366.3	142.84	65.87
199-K-185	568574.9	146726.2	134.62	42.21
199-K-186	569209.7	146625.4	145.45	50.9
199-K-187	569499	146054.7	155.38	61.69
199-K-188	569386.8	146370.1	151.07	71.63
199-K-189	569150.3	146809.7	142.23	48.46
199-K-190	568835.3	146873.3	135.39	42.06
199-K-191	569711.2	146886.7	143.86	48.16
199-K-192	569393.2	147294.3	134.06	58.8
199-K-193	570642	146969.6	144.88	50.6
199-K-194	571315.7	147282	146.48	44.9
199-K-195	568850.1	146086.4	146.87	70.26
199-K-196	568433.3	146639.3	133.96	42.61
199-K-197	569348.8	147528.8	125.14	33.01
199-K-198	569304.2	147551.9	123.93	30.94
199-K-199	569339.8	147585.3	124.94	31.42
199-K-200	569426.1	147253.6	135.91	18.07
199-K-201	570092.1	148069.1	133.36	18.41
199-K-202	569097.4	146799.3	142.26	48.8
199-K-203	569212.9	146848.9	141.9	49.3
199-K-204	568649.5	146573.2	142.2	49.7

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-K-205	568845.6	146090.5	148.03	56.69
199-K-206	568734.2	146049.8	149.9	55.75
199-K-21	569769.9	147932.1	129.07	15.24
199-K-210	569058.1	147155.3	125.611	37.2
199-K-212	569954.4	148047.7	129.587	26.2
199-K-22	570023.7	148097.4	129.55	15.24
199-K-220	569356.3	146417.5	145.357	52.2
199-K-27	569156	146763.8	142.6	27.43
199-K-29	569205.1	146790.1	142.52	27.43
199-K-30	569238.1	146781	142.34	27.43
199-K-32A	569024.2	147006.7	135.47	21.03
199-K-32B	569012.4	147004.8	135.84	53.64
199-K-34	568605.8	146501.9	142.75	27.61
199-K-35	568832.3	146110.7	150.84	35.66
199-K-36	569373.6	146390.5	150.79	27.61
199-K-37	570216.2	148226.5	134.76	21.12
199-N-103A	571424.8	149903.7	140.32	32
199-N-104A	571778.3	149542.6	141.34	27.89
199-N-105A	571602.3	150025	139.62	29.87
199-N-106A	571737.6	150150.9	144.63	36.88
199-N-107A	571544.5	149812.5	141.26	23.16
199-N-109A	571898.2	149630.6	137.29	19.66
199-N-121	571368.3	149973.3	122.38	12.95
199-N-122	571318.5	149928.8	122.33	14.63
199-N-123	571282.9	149889.4	123.1	16.46
199-N-136	571337.2	149940.7	122.06	7.86
199-N-137	571344.4	149946.3	122	7.86
199-N-142	571310.2	149916.2	122.2	7.77
199-N-143	571316.5	149923	122.26	7.86
199-N-144	571322.8	149929.3	122.25	7.83
199-N-145	571329.9	149935.1	122.08	7.92

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-160	571333.4	149938	122.08	7.92
199-N-161	571326.5	149932.4	122.13	7.68
199-N-162	571319.7	149926.6	122.24	7.92
199-N-163	571313.3	149919.7	122.22	7.92
199-N-164	571307.1	149913.1	122.18	7.74
199-N-167	571296.8	149698.3	140.7	25.3
199-N-169	571294	149705.4	140.76	25.3
199-N-170	571288.5	149714.8	140.79	25.45
199-N-171	571296.7	149740.1	140.96	25.6
199-N-172	571263.3	149738.5	140.56	24.99
199-N-173	571193	149759.7	123.46	13.78
199-N-174	571346.8	149955.3	122.07	6.34
199-N-176	571349.2	149953.3	121.96	5.67
199-N-177	571350.4	149952.4	121.91	5.61
199-N-178	571348.7	149957.6	122.07	5.7
199-N-180	571350.9	149955.7	122	5.73
199-N-181	571352.3	149954.8	121.95	5.88
199-N-182	571428.7	149819.9	140.52	46.94
199-N-183	571269.7	149756	140.24	35.78
199-N-184	571430.7	149817.8	140.53	32.92
199-N-185	571546.3	150238	122.07	28.19
199-N-186	571480.9	149715.1	141.39	29.66
199-N-187	571565.9	149898	141.25	28.8
199-N-188	571906.9	149581.5	139.31	27.43
199-N-189	571431.7	148430.5	143.64	35.75
199-N-2	571476.2	149859.4	140.55	38.1
199-N-200	571196.2	149755.4	123.44	5.49
199-N-203	571203	149767.5	123.5	8.26
199-N-205	571207.2	149775.6	123.44	7.99
199-N-206	571209.4	149779.4	123.38	5.36
199-N-207	571211.6	149783.6	123.37	8.23

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-208	571213.8	149787.7	123.42	4.94
199-N-209	571216.1	149791.7	123.44	8.11
199-N-210	571218.7	149795.4	123.46	5.03
199-N-211	571221.3	149799	123.47	7.99
199-N-212	571224.1	149802.7	123.44	4.88
199-N-213	571226.8	149806.3	123.4	7.99
199-N-214	571229.8	149810	123.32	4.88
199-N-215	571232.7	149813.5	123.25	8.29
199-N-216	571235.6	149816.8	123.23	4.97
199-N-217	571238.8	149820.2	123.14	8.14
199-N-220	571246.5	149831.5	123.23	8.1
199-N-221	571249.3	149835.3	123.3	8.2
199-N-222	571251.4	149838.5	123.13	5.3
199-N-223	571254.3	149843	123.17	8.14
199-N-224	571256.7	149846.4	123.26	5.33
199-N-225	571259.5	149850.5	123.4	8.17
199-N-227	571265.4	149857.5	123.31	8.38
199-N-228	571268.4	149861.3	123.23	4.91
199-N-231	571276.7	149871.8	123.09	7.99
199-N-232	571279.7	149875.7	123.07	4.97
199-N-234	571286.7	149883.1	123.21	5.12
199-N-235	571348.3	149950.8	121.94	4.94
199-N-236	571351.1	149954.5	121.97	8.11
199-N-238	571356.5	149961.9	122.12	8.14
199-N-239	571359.2	149965.8	122.17	5.15
199-N-241	571364.4	149973.3	122.25	5
199-N-242	571366.9	149976.8	122.24	4.43
199-N-243	571370	149979.9	122.28	5.15
199-N-244	571373.1	149982.8	122.28	7.99
199-N-245	571376.2	149986.8	122.27	5.27
199-N-246	571378.9	149990.6	122.28	8.23

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-247	571381.4	149994.1	122.26	5.49
199-N-248	571383.9	149997.9	122.22	8.17
199-N-249	571386.4	150001.6	122.17	5.21
199-N-250	571388.9	150005.6	122.14	8.23
199-N-251	571391.9	150009.7	122.11	5.18
199-N-252	571394.1	150013.2	122.08	8.08
199-N-254	571398.9	150020.8	121.93	8.08
199-N-255	571401.3	150024.8	121.9	5.24
199-N-256	571403.8	150028.6	121.84	8.26
199-N-262	571418.5	150051.2	121.88	8.02
199-N-263	571421.2	150055.5	121.88	5.39
199-N-264	571423.6	150058.8	121.86	8.11
199-N-266	571428.8	150067.1	121.87	8.2
199-N-267	571430.9	150070.7	121.86	5.21
199-N-268	571433.5	150074.6	121.87	8.2
199-N-273	571444.6	150093.7	121.93	5.39
199-N-275	571448.7	150102.9	121.95	5.33
199-N-276	571450.7	150106.6	121.93	8.02
199-N-277	571452.4	150110.8	121.83	5.46
199-N-278	571454.1	150114.4	121.76	8.05
199-N-279	571455.7	150118.6	121.73	5.39
199-N-280	571457.9	150122.8	121.69	8.23
199-N-281	571459.6	150127.4	121.66	5.52
199-N-282	571461.9	150131.4	121.67	8.17
199-N-283	571463.5	150135.7	121.62	5.39
199-N-284	571465.6	150139.9	121.61	7.89
199-N-285	571467.4	150144.4	121.65	5.39
199-N-286	571468.8	150148.7	121.68	8.35
199-N-287	571471.2	150152.3	121.65	5.36
199-N-288	571474	150155.5	121.67	8.26
199-N-289	571477.5	150158.9	121.74	5.18

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-290	571480.7	150161.9	121.79	8.38
199-N-292	571488.1	150167.8	121.81	8.38
199-N-293	571491.9	150170.6	121.8	5.36
199-N-294	571495.1	150173.7	121.86	8.26
199-N-295	571498.3	150176.5	121.92	5.46
199-N-296	571501.6	150179.5	121.93	8.02
199-N-297	571504.8	150182.7	121.95	5.46
199-N-298	571508	150186.2	121.97	8.35
199-N-299	571511	150189.4	121.97	5.49
199-N-300	571513.9	150192.9	121.96	8.29
199-N-303	571523.1	150203.4	122	5.15
199-N-304	571525.9	150206.9	121.98	8.5
199-N-305	571528.7	150210.6	121.99	5.46
199-N-306	571531.7	150214.1	121.95	8.41
199-N-307	571534.3	150217.5	121.95	8.41
199-N-308	571537.2	150221.2	121.97	8.2
199-N-309	571540.1	150224.7	122	5.43
199-N-310	571542.8	150228.4	121.99	8.38
199-N-311	571545.6	150232.1	121.94	5.36
199-N-312	571548.2	150235.7	121.89	8.53
199-N-313	571550.8	150239.6	121.85	5.24
199-N-314	571553.3	150243.4	121.87	8.2
199-N-315	571555.9	150247.5	121.89	5.33
199-N-318	571563.7	150258.7	121.88	8.17
199-N-319	571565.9	150262.6	121.88	5.15
199-N-320	571568.1	150266.5	121.88	8.32
199-N-321	571570.4	150270.1	121.91	5.46
199-N-322	571572.7	150274.3	121.91	8.11
199-N-323	571575.3	150278.2	122.02	5.24
199-N-324	571577.9	150282.5	122.08	8.17
199-N-326	571582.3	150290.3	122.09	8.08

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-327	571584.2	150294.2	122.09	5.46
199-N-328	571586.2	150298.4	122.1	7.92
199-N-329	571588.5	150302.3	122.12	5.12
199-N-330	571590.6	150306.2	122.09	7.89
199-N-331	571593.1	150310.1	122.09	5.67
199-N-332	571595.4	150314.3	122.14	8.02
199-N-333	571597.4	150318.2	122.16	5.27
199-N-334	571600.3	150322	122.15	8.02
199-N-335	571602.7	150325.5	122.13	5.27
199-N-336	571605.8	150329.4	122.14	8.17
199-N-337	571608.9	150333.1	122.13	5.3
199-N-338	571611.9	150336.3	122.1	8.23
199-N-340	571618.1	150342.7	122.08	7.89
199-N-341	571621.3	150346.4	122.15	5.21
199-N-342	571623.9	150349.5	122.2	8.66
199-N-343	571627.2	150353.3	122.25	5.3
199-N-344	571629.9	150356.8	122.27	8.35
199-N-345	571632.6	150360.4	122.21	5.52
199-N-346	571203.3	149780.2	123.61	8.17
199-N-347	571231.3	149822.2	123.13	8.17
199-N-348	571248.3	149845.2	123.19	8.08
199-N-349	571267.2	149866.1	123.17	8.14
199-N-350	571356.7	149966.3	122.16	8.2
199-N-351	571373.2	149987.1	122.3	8.2
199-N-352	571388.7	150009	122.18	8.23
199-N-353	571403.3	150031.6	121.92	8.05
199-N-354	571418.6	150055.1	121.93	8.2
199-N-355	571431.7	150077	121.96	8.11
199-N-357	571456.4	150125.4	121.83	8.17
199-N-358	571466.3	150148.7	121.73	8.08
199-N-359	571484.2	150168.8	121.93	8.2

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
199-N-360	571504	150186.9	122.09	8.08
199-N-361	571522	150207	122.08	8.23
199-N-362	571538.6	150228.1	122.11	8.26
199-N-363	571554.7	150249.9	121.99	8.2
199-N-364	571569.7	150273.5	121.91	8.11
199-N-366	571594.9	150317.8	122.17	7.77
199-N-367	571611.4	150340.4	122.21	8.26
199-N-41	572182.2	149965.3	139.9	23.77
199-N-43	572366.2	150140	137.13	23.77
199-N-5	571405.7	149675.2	139.37	38.1
199-N-50	572090.9	150298.8	141.75	26.21
199-N-52	572302.9	149466.2	141.9	23.16
199-N-54	571363.8	149633.7	139.77	22.25
199-N-57	571413.2	149542.1	140.06	23.16
199-N-61	571355.9	149156.7	141.3	20.57
199-N-62	571725.6	149483.1	141.82	23.93
199-N-66	571636.9	149684.1	142.42	24.38
199-N-69	571483.9	149804.8	140.61	31.7
199-N-70	572042	149878	138.91	31.82
199-N-71	571588.8	148982.2	141.23	26.52
199-N-75	571523.6	150060.7	139.33	27.31
199-N-77	571309.8	149243.1	139.94	31.39
199-N-80	571477.6	149950.9	139.61	38.25
199-N-8P	571326.9	149924.2	124.46	30.48
199-N-91A	571730	150500	122.55	17.98
199-N-92A	571647.4	150383.5	122.1	14.63
199-N-93A	571560	150260	120.79	13.11
199-N-94A	571466.1	150154.2	121.6	12.13
199-N-95A	571360	149970	121.61	14.94
199-N-96A	571213.5	149800.8	123.64	21.64
199-N-97A	571140	149650	120.85	19.28

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
699-100-43B	576675.9	154008.7	122.18	10.7
699-101-45	576032.4	154124.2	121.81	9.39
699-52-17	584666.4	139410.5	122.23	115.82
699-52-18A	584261.8	139367.3	125.49	27.43
699-52-18C	584270.8	139299.9	125.42	32.61
699-54-18C	584471.5	139998.6	123.56	108.2
699-54-18E	584297.4	139984.5	121.22	27.43
699-57-16	584953.5	140807.6	117.29	12.5
699-57-25B	582109.4	140801.5	126.79	24.69
699-57-29B	581138.3	140904	127.27	26.69
699-60-32	580115.1	141902	129.67	25.91
699-60-57	572623.5	141870.3	143.44	47.24
699-60-60	571588.6	141763.9	156.36	39.01
699-61-26A	581874.9	142105	125.12	110.64
699-61-41	577344.6	142188.4	130.82	15.85
699-62-31	580302.6	142532.5	132.42	25.6
699-62-43A	576809.6	142363.9	132.2	23.77
699-62-43F	576858.1	142481.1	129.31	24.69
699-63-25A	582315.5	142798	121.23	33.53
699-63-51	574446.8	142553.7	129.48	10.97
699-63-55	573094.4	142562.3	130.19	38.1
699-63-58	572262.7	142583.1	150.1	40.54
699-63-89	562902.1	142577	156.24	67.06
699-63-90	562367.2	142612.4	156.28	77.11
699-63-92	561559.7	142637.4	152.63	56.69
699-63-95	560914.6	142650.8	148.776	215.49
699-64-27	581375.5	142946.1	127.04	25.6
699-65-50	574590.8	143187.9	142.57	178.31
699-65-72	567883.7	143107.9	165.676	48
699-65-83	564590.5	143249.1	149.047	36.88
699-66-23	582864.8	143617.2	119.03	30.48

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
699-66-38	578294	143607.7	133.3	45.72
699-66-39	577847.2	143636.3	138.47	27.43
699-66-91	562174.8	143476.8	143.566	57.91
699-67-51	574178.9	143933.2	160.21	76.2
699-67-86	563661.7	143873.1	144.47	142.34
699-67-98	559944	143714.7	139.17	56.39
699-68-105	557803.3	144206.1	139.45	28.65
699-69-45	576157.4	144556.3	148.66	91.44
699-71-30	580603.4	145226.9	122.67	45.72
699-71-52	573907.9	145214.8	159.94	64.01
699-71-77	566402	145098.6	144.23	91.44
699-72-73	567551.5	145418.8	147.55	60.96
699-72-88	563247.3	145359.9	133.099	26.82
699-72-92	561839.4	145359.8	137.51	60.96
699-73-61	571420.8	145781.5	162.5	45.72
699-74-23	582756.4	146203.2	114.9	15.24
699-74-44	576393.1	146098.8	136.28	45.72
699-74-48	575237.7	146037.7	148.88	45.72
699-75-23A	582750.3	146233.7	115.69	12.67
699-75-23B	582744.1	146264.2	115.98	12.97
699-77-36	578847.2	146868.9	126.09	45.72
699-77-54	573386	146854.8	146.92	47.33
699-78-62	570877.3	147166.2	143.62	45.72
699-80-39B	578418.4	147763.3	123.87	16.15
699-80-43P	576703.9	147729.9	126.68	137.16
699-80-43Q	576703.2	147745	126.41	70.71
699-80-43R	576702.5	147760.3	126.45	42.67
699-80-43S	576701.9	147774.7	125.28	15.24
699-81-58	572185.4	148173.4	134.5	45.72
699-81-62	570943	148103.1	134.86	308.15
699-83-47	575492	148705.3	133.16	45.72

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
699-84-35A	579193.1	149093.7	129.24	24.384
699-84-59	571758	149179.8	140.61	305.1
699-86-60	571625.7	149600.8	138.41	161.85
699-87-55	572969.8	149904	140.33	28.65
699-89-35	579121.7	150543.5	121.77	22.86
699-93-48A	575094.1	151795.3	133.54	25.3
699-94-41	577223.1	152111.7	124.96	12.23
699-94-43	576625.6	152087.9	129.81	18.5
699-95-45	576257	152556.3	128.54	15.36
699-95-48	575253.4	152323.1	130.69	19.62
699-95-51	574439.5	152528.6	132.29	21.73
699-96-41	576770.6	152607.6	129.18	18.96
699-96-42	576773.2	152612.6	129.21	15.85
699-96-43	576761.5	152605.3	128.71	16.18
699-96-44	576773.1	152608.2	129.24	18.18
699-96-45	576768.2	152607	129.19	18.26
699-96-49	574851.3	152858.1	128.26	30.48
699-96-52B	573910.2	152656.2	123.56	14.02
699-97-41	577217.5	153090.4	127.59	17.89
699-97-43	576671.9	153090.3	129.08	30.48
699-97-43B	576859.8	152981.3	129.34	16.28
699-97-43C	576857.3	152980.7	129.41	38.4
699-97-45	576051.7	152979	126.03	13.93
699-97-45B	576049.3	152979.4	125.99	36.7
699-97-48B	575247.6	152909.8	129.02	18.05
699-97-48C	575245.4	152909.7	129.07	37.49
699-98-43	576863.2	153371.4	122.44	12.04
699-98-46	575726.9	153365.6	127.37	13.9
699-98-51	574339.3	153302.7	120.4	9.17
699-99-41	577284	153590.7	125.63	13.9
699-99-42B	577010.2	153761	127.12	15.73

Table A-1. Well Names, Locations, Maximum Drill Depths, and Surface Elevations Used in the Model

Well Name	X-Coordinate	Y-Coordinate	Z-Coordinate	Drill Depth
699-99-44	576458.8	153592.4	124.16	11.43
B2539	571898.2	149630.6	138.34	19.66
C6446	573597.5	151590	139.71	16.76
C6447	573592	151559.5	139.85	12.19
C6449	573590.5	151525.6	140.05	16.46
C6450	573579.9	151524.1	138.61	15.24
C7855	573841.7	151608.2	144.13	27.8
C7971	580158.6	147192.8	122.14	10.21
C8205	569405.1	146619.8	144.32	56.81
control_1	573314.4	154147.4	121.01	101
control_10	578207.1	154782.4	198.79	101
control_11	578624.8	154534.8	200.85	101
control_12	579021.7	154247.5	203.18	101
control_13	579341.8	153651.1	156.98	101
control_2	573763.9	154399.2	126.61	101
control_3	573764.2	155458	192.24	101
control_4	574318.8	155752	195.62	101
control_5	575156.4	155729.9	203.26	101
control_6	575685.5	155688.3	208.94	101
control_7	576352	155586.3	204.51	101
control_8	576940.3	155286.6	200.76	101
control_9	577647.8	155044.8	193.5	101

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-B2-12	0.00	2.96	Hanford
199-B2-12	2.96	3.81	RE Reworked
199-B2-12	3.81	45.51	RE
199-B2-12	45.51	45.72	RUM
199-B2-14	0.00	8.53	Hanford
199-B2-14	8.53	10.06	RE Reworked
199-B2-14	10.06	42.06	RE
199-B2-14	42.06	43.80	RUM
199-B2-15	0.00	9.45	Hanford
199-B2-15	9.45	43.80	RE
199-B2-15	43.80	58.80	RUM
199-B2-16	0.00	9.14	Hanford
199-B2-16	9.14	9.75	RE Reworked
199-B2-16	9.75	44.81	RE
199-B2-16	44.81	47.70	RUM
199-B3-2	0.00	13.72	Hanford
199-B3-2	13.72	46.63	RE
199-B3-2	46.63	240.50	RUM
199-B3-46	0.00	15.24	Hanford
199-B3-50	0.00	27.74	Hanford
199-B3-50	27.74	53.95	RE
199-B3-51	0.00	3.96	Hanford
199-B3-51	3.96	5.49	RE Reworked
199-B3-51	5.49	45.57	RE
199-B4-16	0.00	38.10	Hanford
199-B4-16	38.10	39.62	RE Reworked
199-B4-16	39.62	60.66	RE
199-B4-16	60.66	62.41	RUM
199-B4-18	0.00	28.65	Hanford
199-B4-18	28.65	34.14	RE Reworked
199-B4-18	34.14	59.44	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-B4-8	0.00	26.82	Hanford
199-B5-1	0.00	12.19	Hanford
199-B5-1	12.19	15.24	RE Reworked
199-B5-11	0.00	32.00	Hanford
199-B5-11	32.00	60.35	RE
199-B5-11	60.35	76.77	RUM
199-B5-13	0.00	13.72	Hanford
199-B5-13	13.72	18.29	RE Reworked
199-B5-13	18.29	62.79	RE
199-B5-13	62.79	66.45	RUM
199-B5-14	0.00	16.76	Hanford
199-B5-14	16.76	21.34	RE Reworked
199-B5-14	21.34	68.52	RE
199-B5-14	68.52	70.20	RUM
199-B5-5	0.00	16.15	Hanford
199-B5-5	16.15	60.66	RE
199-B5-5	60.66	62.48	RUM
199-B5-6	0.00	28.35	Hanford
199-B5-6	28.35	56.39	RE
199-B5-6	56.39	59.60	RUM
199-B5-8	0.00	59.74	Hanford
199-B5-8	59.74	67.06	RE
199-B5-8	67.06	67.82	RUM
199-B5-9	0.00	32.00	Hanford
199-B5-9	32.00	58.83	RE
199-B5-9	58.83	66.50	RUM
199-B8-9	0.00	37.19	Hanford
199-B8-9	37.19	43.89	RE Reworked
199-B8-9	43.89	64.47	RE
199-B8-9	64.47	66.70	RUM
199-D2-10	0.00	7.92	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D2-11	0.00	24.84	Hanford
199-D2-11	24.84	27.45	RE Reworked
199-D2-11	27.45	32.92	RE
199-D2-12	0.00	8.60	Hanford
199-D2-5	0.00	21.64	Hanford
199-D2-5	21.64	26.21	RE
199-D2-6	0.00	22.86	Hanford
199-D2-6	22.86	31.36	RE
199-D2-8	0.00	15.40	Hanford
199-D3-3	0.00	19.51	Hanford
199-D3-3	19.51	33.99	RE
199-D3-3	33.99	34.59	RUM
199-D3-4	0.00	20.60	Hanford
199-D3-4	20.60	33.83	RE
199-D3-4	33.83	34.44	RUM
199-D3-5	0.00	26.52	Hanford
199-D3-5	26.52	30.94	RE
199-D3-5	30.94	31.70	RUM
199-D4-1	0.00	16.76	Hanford
199-D4-1	16.76	28.96	RE
199-D4-1	28.96	29.87	RUM
199-D4-10	0.00	16.46	Hanford
199-D4-10	16.46	28.96	RE
199-D4-101	0.00	19.20	Hanford
199-D4-101	19.20	31.09	RE
199-D4-101	31.09	32.00	RUM
199-D4-11	0.00	17.07	Hanford
199-D4-11	17.07	28.96	RE
199-D4-12	0.00	18.29	Hanford
199-D4-12	18.29	21.03	RE Reworked
199-D4-12	21.03	29.57	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-13	0.00	15.54	Hanford
199-D4-13	15.54	27.74	RE
199-D4-14	0.00	13.11	Hanford
199-D4-14	13.11	29.57	RE
199-D4-14	29.57	29.87	RUM
199-D4-15	0.00	15.24	Hanford
199-D4-15	15.24	30.48	RE
199-D4-16	0.00	17.07	Hanford
199-D4-16	17.07	28.96	RE
199-D4-16	28.96	29.57	RUM
199-D4-17	0.00	17.68	Hanford
199-D4-17	17.68	29.26	RE
199-D4-17	29.26	29.56	RUM
199-D4-18	0.00	11.58	Hanford
199-D4-18	11.58	16.46	RE Reworked
199-D4-18	16.46	25.60	RE
199-D4-18	25.60	29.11	RUM
199-D4-19	0.00	18.75	Hanford
199-D4-19	18.75	33.53	RE
199-D4-2	29.72	31.30	RUM
199-D4-20	0.00	16.76	Hanford
199-D4-20	16.76	19.20	RE Reworked
199-D4-20	19.20	32.00	RE
199-D4-21	0.00	12.19	Hanford
199-D4-21	12.19	14.94	RE Reworked
199-D4-21	14.94	29.72	RE
199-D4-22	0.00	17.68	Hanford
199-D4-22	17.68	29.87	RE
199-D4-23	0.00	13.72	Hanford
199-D4-23	13.72	25.30	RE
199-D4-24	0.00	14.33	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-24	14.33	15.39	RE Reworked
199-D4-24	15.39	30.02	RE
199-D4-25	0.00	15.70	Hanford
199-D4-25	15.70	30.94	RE
199-D4-26	0.00	17.98	Hanford
199-D4-26	17.98	30.78	RE
199-D4-27	0.00	17.07	Hanford
199-D4-27	17.07	30.78	RE
199-D4-28	0.00	17.07	Hanford
199-D4-28	17.07	29.26	RE
199-D4-28	29.26	30.02	RUM
199-D4-29	0.00	17.68	Hanford
199-D4-29	17.68	29.11	RE
199-D4-29	29.11	29.87	RUM
199-D4-3	0.00	15.85	Hanford
199-D4-3	15.85	17.37	RE Reworked
199-D4-3	17.37	29.87	RE
199-D4-30	0.00	16.46	Hanford
199-D4-30	16.46	29.26	RE
199-D4-30	29.26	29.57	RUM
199-D4-31	0.00	16.46	Hanford
199-D4-31	16.46	29.41	RE
199-D4-31	29.41	29.57	RUM
199-D4-32	0.00	15.85	Hanford
199-D4-32	15.85	29.87	RE
199-D4-33	0.00	15.24	Hanford
199-D4-33	15.24	30.33	RE
199-D4-34	0.00	17.07	Hanford
199-D4-34	17.07	29.26	RE
199-D4-34	29.26	30.33	RUM
199-D4-35	0.00	17.68	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-35	17.68	28.96	RE
199-D4-35	28.96	29.57	RUM
199-D4-36	0.00	17.22	Hanford
199-D4-36	17.22	29.26	RE
199-D4-36	29.26	29.57	RUM
199-D4-37	0.00	16.76	Hanford
199-D4-37	16.76	29.87	RE
199-D4-38	0.00	16.61	Hanford
199-D4-38	16.61	29.87	RE
199-D4-39	0.00	15.24	Hanford
199-D4-39	15.24	29.41	RE
199-D4-39	29.41	29.72	RUM
199-D4-4	0.00	17.31	Hanford
199-D4-4	17.31	29.72	RE
199-D4-40	0.00	15.24	Hanford
199-D4-40	15.24	16.46	RE Reworked
199-D4-40	16.46	29.57	RE
199-D4-40	29.57	29.87	RUM
199-D4-41	0.00	16.46	Hanford
199-D4-41	16.46	29.41	RE
199-D4-41	29.41	30.05	RUM
199-D4-42	0.00	14.33	Hanford
199-D4-42	14.33	30.63	RE
199-D4-43	0.00	16.46	Hanford
199-D4-43	16.46	28.96	RE
199-D4-43	28.96	30.48	RUM
199-D4-44	0.00	17.07	Hanford
199-D4-44	17.07	29.57	RE
199-D4-44	29.57	30.63	RUM
199-D4-45	0.00	16.76	Hanford
199-D4-45	16.76	29.26	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-45	29.26	29.57	RUM
199-D4-46	0.00	16.15	Hanford
199-D4-46	16.15	28.96	RE
199-D4-46	28.96	30.78	RUM
199-D4-47	0.00	17.07	Hanford
199-D4-47	17.07	28.96	RE
199-D4-47	28.96	30.48	RUM
199-D4-48	0.00	17.37	Hanford
199-D4-48	17.37	29.26	RE
199-D4-48	29.26	31.70	RUM
199-D4-49	0.00	17.68	Hanford
199-D4-49	17.68	19.20	RE Reworked
199-D4-49	19.20	27.43	RE
199-D4-49	27.43	29.87	RUM
199-D4-5	0.00	17.37	Hanford
199-D4-5	17.37	29.32	RE
199-D4-50	0.00	17.37	Hanford
199-D4-50	17.37	29.72	RE
199-D4-51	0.00	16.76	Hanford
199-D4-51	16.76	18.29	RE Reworked
199-D4-51	18.29	29.87	RE
199-D4-52	0.00	18.14	Hanford
199-D4-52	18.14	29.26	RE
199-D4-52	29.26	29.87	RUM
199-D4-53	0.00	14.33	Hanford
199-D4-53	14.33	17.37	RE Reworked
199-D4-53	17.37	27.74	RE
199-D4-53	27.74	29.57	RUM
199-D4-54	0.00	17.98	Hanford
199-D4-54	17.98	28.65	RE
199-D4-54	28.65	29.72	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-55	0.00	18.59	Hanford
199-D4-55	18.59	28.04	RE
199-D4-55	28.04	29.87	RUM
199-D4-56	0.00	16.15	Hanford
199-D4-56	16.15	17.37	RE Reworked
199-D4-57	29.57	29.92	RUM
199-D4-58	0.00	22.86	Hanford
199-D4-58	22.86	29.41	RE
199-D4-58	29.41	31.30	RUM
199-D4-59	0.00	19.81	Hanford
199-D4-59	19.81	29.87	RE
199-D4-59	29.87	30.48	RUM
199-D4-6	0.00	16.31	Hanford
199-D4-6	16.31	29.26	RE
199-D4-60	0.00	18.90	Hanford
199-D4-60	18.90	30.78	RE
199-D4-61	0.00	18.90	Hanford
199-D4-61	18.90	29.26	RE
199-D4-61	29.26	31.09	RUM
199-D4-62	0.00	15.54	Hanford
199-D4-62	15.54	18.59	RE Reworked
199-D4-62	18.59	24.69	RE
199-D4-62	24.69	33.22	RUM
199-D4-63	0.00	16.15	Hanford
199-D4-63	16.15	18.59	RE Reworked
199-D4-63	18.59	28.04	RE
199-D4-63	28.04	33.53	RUM
199-D4-64	0.00	19.81	Hanford
199-D4-64	19.81	30.48	RE
199-D4-64	30.48	33.68	RUM
199-D4-65	0.00	16.15	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-65	16.15	18.90	RE Reworked
199-D4-65	18.90	33.83	RE
199-D4-66	0.00	19.05	Hanford
199-D4-66	19.05	33.71	RE
199-D4-67	0.00	17.37	Hanford
199-D4-67	17.37	18.59	RE Reworked
199-D4-67	18.59	31.70	RE
199-D4-67	31.70	33.83	RUM
199-D4-68	0.00	16.46	Hanford
199-D4-68	16.46	18.29	RE Reworked
199-D4-68	18.29	31.70	RE
199-D4-68	31.70	34.14	RUM
199-D4-69	0.00	17.98	Hanford
199-D4-69	17.98	31.39	RE
199-D4-69	31.39	33.53	RUM
199-D4-7	0.00	17.07	Hanford
199-D4-70	0.00	16.76	Hanford
199-D4-70	16.76	18.59	RE Reworked
199-D4-70	18.59	32.61	RE
199-D4-70	32.61	33.68	RUM
199-D4-71	0.00	17.07	Hanford
199-D4-71	17.07	18.29	RE Reworked
199-D4-71	18.29	33.38	RE
199-D4-71	33.38	33.68	RUM
199-D4-72	0.00	17.98	Hanford
199-D4-72	17.98	33.83	RE
199-D4-73	0.00	18.44	Hanford
199-D4-73	18.44	33.99	RE
199-D4-74	0.00	18.29	Hanford
199-D4-74	18.29	33.99	RE
199-D4-75	0.00	15.39	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-75	15.39	18.14	RE Reworked
199-D4-75	18.14	34.44	RE
199-D4-76	0.00	14.63	Hanford
199-D4-76	14.63	18.44	RE Reworked
199-D4-76	18.44	34.29	RE
199-D4-77	0.00	17.98	Hanford
199-D4-77	17.98	18.44	RE Reworked
199-D4-77	18.44	33.68	RE
199-D4-77	33.68	33.83	RUM
199-D4-78	0.00	18.59	Hanford
199-D4-78	18.59	33.68	RE
199-D4-78	33.68	34.14	RUM
199-D4-79	0.00	19.20	Hanford
199-D4-79	19.20	33.53	RE
199-D4-79	33.53	34.44	RUM
199-D4-8	0.00	16.92	Hanford
199-D4-8	16.92	29.26	RE
199-D4-80	0.00	18.59	Hanford
199-D4-81	0.00	18.75	Hanford
199-D4-81	18.75	33.83	RE
199-D4-81	33.83	34.27	RUM
199-D4-82	0.00	19.81	Hanford
199-D4-82	19.81	34.29	RE
199-D4-82	34.29	34.59	RUM
199-D4-83	0.00	16.76	Hanford
199-D4-83	16.76	25.91	RE
199-D4-83	25.91	28.96	RUM
199-D4-84	0.00	21.03	Hanford
199-D4-84	21.03	29.87	RE
199-D4-84	29.87	30.94	RUM
199-D4-85	0.00	18.90	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-85	18.90	32.61	RE
199-D4-85	32.61	33.83	RUM
199-D4-86	0.00	18.90	Hanford
199-D4-86	18.90	33.53	RE
199-D4-86	33.53	33.99	RUM
199-D4-87	0.00	19.81	Hanford
199-D4-87	19.81	29.63	RE
199-D4-88	0.00	18.29	Hanford
199-D4-89	0.00	19.81	Hanford
199-D4-9	0.00	17.37	Hanford
199-D4-9	17.37	29.11	RE
199-D4-9	29.11	29.41	RUM
199-D4-90	0.00	17.37	Hanford
199-D4-90	17.37	30.18	RE
199-D4-91	0.00	17.13	Hanford
199-D4-91	17.13	28.96	RE
199-D4-91	28.96	29.64	RUM
199-D4-92	0.00	17.28	Hanford
199-D4-92	17.28	31.24	RE
199-D4-93	0.00	17.37	Hanford
199-D4-93	17.37	31.01	RE
199-D4-94	0.00	17.37	Hanford
199-D4-94	17.37	30.02	RE
199-D4-95	0.00	20.42	Hanford
199-D4-95	20.42	35.20	RE
199-D4-96	0.00	15.24	Hanford
199-D4-96	15.24	17.37	RE Reworked
199-D4-96	17.37	30.48	RE
199-D4-97	0.00	13.72	Hanford
199-D4-97	13.72	15.24	RE Reworked
199-D4-97	15.24	31.85	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D4-98	0.00	17.98	Hanford
199-D4-98	17.98	31.33	RE
199-D4-98	31.33	32.31	RUM
199-D4-99	0.00	18.59	Hanford
199-D4-99	18.59	33.38	RE
199-D5-101	0.00	17.07	Hanford
199-D5-101	17.07	32.92	RE
199-D5-101	32.92	33.80	RUM
199-D5-102	32.92	34.30	RUM
199-D5-103	0.00	18.29	Hanford
199-D5-103	18.29	33.74	RE
199-D5-104	33.62	35.10	RUM
199-D5-106	0.00	16.46	Hanford
199-D5-107	0.00	18.29	Hanford
199-D5-107	18.29	19.81	RE Reworked
199-D5-107	19.81	30.78	RE
199-D5-108	0.00	19.81	Hanford
199-D5-108	19.81	22.86	RE Reworked
199-D5-108	22.86	31.39	RE
199-D5-109	0.00	18.29	Hanford
199-D5-109	18.29	22.25	RE Reworked
199-D5-109	22.25	31.18	RE
199-D5-109	31.18	31.73	RUM
199-D5-110	0.00	19.81	Hanford
199-D5-110	19.81	20.73	RE Reworked
199-D5-110	20.73	30.18	RE
199-D5-110	30.18	30.63	RUM
199-D5-111	0.00	18.29	Hanford
199-D5-111	18.29	21.34	RE Reworked
199-D5-111	21.34	30.48	RE
199-D5-112	0.00	16.76	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D5-112	16.76	20.73	RE Reworked
199-D5-113	0.00	18.90	Hanford
199-D5-113	18.90	20.73	RE Reworked
199-D5-113	20.73	30.63	RE
199-D5-114	0.00	22.25	Hanford
199-D5-115	0.00	22.25	Hanford
199-D5-115	22.25	31.70	RE
199-D5-116	0.00	22.56	Hanford
199-D5-116	22.56	31.70	RE
199-D5-117	0.00	21.95	Hanford
199-D5-117	21.95	22.40	RE Reworked
199-D5-118	0.00	22.40	Hanford
199-D5-118	22.40	31.70	RE
199-D5-119	31.70	33.53	RUM
199-D5-12	0.00	14.63	Hanford
199-D5-12	14.63	27.13	RE
199-D5-121	19.20	32.61	RE
199-D5-121	32.61	33.90	RUM
199-D5-122	32.83	33.13	RUM
199-D5-123	0.00	13.72	Hanford
199-D5-123	13.72	18.29	RE Reworked
199-D5-123	18.29	32.92	RE
199-D5-125	0.00	14.94	Hanford
199-D5-125	14.94	32.00	RE
199-D5-125	32.00	32.55	RUM
199-D5-126	0.00	15.24	Hanford
199-D5-126	15.24	16.76	RE Reworked
199-D5-126	16.76	31.39	RE
199-D5-126	31.39	33.53	RUM
199-D5-127	0.00	19.51	Hanford
199-D5-127	19.51	21.34	RE Reworked

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D5-127	21.34	30.18	RE
199-D5-127	30.18	32.31	RUM
199-D5-128	0.00	18.90	Hanford
199-D5-128	18.90	21.34	RE Reworked
199-D5-128	21.34	29.87	RE
199-D5-128	29.87	30.48	RUM
199-D5-129	0.00	16.76	Hanford
199-D5-129	16.76	18.29	RE Reworked
199-D5-129	18.29	30.48	RE
199-D5-129	30.48	32.16	RUM
199-D5-13	0.00	15.54	Hanford
199-D5-130	0.00	13.41	Hanford
199-D5-130	13.41	14.63	RE Reworked
199-D5-130	14.63	28.96	RE
199-D5-130	28.96	30.18	RUM
199-D5-131	0.00	16.76	Hanford
199-D5-131	16.76	32.31	RE
199-D5-131	32.31	33.22	RUM
199-D5-132	0.00	15.54	Hanford
199-D5-132	15.54	32.00	RE
199-D5-132	32.00	32.31	RUM
199-D5-133	0.00	14.02	Hanford
199-D5-133	14.02	16.15	RE Reworked
199-D5-133	16.15	31.55	RE
199-D5-133	31.55	32.16	RUM
199-D5-134	0.00	17.07	Hanford
199-D5-134	17.07	18.75	RE Reworked
199-D5-134	18.75	33.07	RE
199-D5-134	33.07	34.14	RUM
199-D5-14	0.00	16.15	Hanford
199-D5-140	0.00	13.41	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D5-140	13.41	14.63	RE Reworked
199-D5-140	14.63	32.31	RE
199-D5-140	32.31	32.92	RUM
199-D5-141	34.29	35.05	RUM
199-D5-142	0.00	14.02	Hanford
199-D5-143	0.00	14.33	Hanford
199-D5-143	14.33	17.07	RE Reworked
199-D5-143	17.07	31.70	RE
199-D5-145	32.92	34.59	RUM
199-D5-146	33.53	34.14	RUM
199-D5-147	0.00	16.92	Hanford
199-D5-147	16.92	31.09	RE
199-D5-147	31.09	31.55	RUM
199-D5-148	0.00	26.67	Hanford
199-D5-148	26.67	32.61	RE
199-D5-15	0.00	15.15	Hanford
199-D5-153	0.00	14.63	Hanford
199-D5-153	14.63	30.18	RE
199-D5-153	30.18	31.24	RUM
199-D5-154	0.00	15.24	Hanford
199-D5-154	15.24	30.48	RE
199-D5-154	30.48	32.16	RUM
199-D5-155	3.66	10.09	RE
199-D5-156	3.66	10.06	RE
199-D5-157	4.27	10.24	RE
199-D5-158	2.80	9.69	RE
199-D5-16	0.00	16.76	Hanford
199-D5-17	0.00	23.77	Hanford
199-D5-17	23.77	31.55	RE
199-D5-17	31.55	34.80	RUM
199-D5-18	0.00	15.24	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D5-18	15.24	30.02	RE
199-D5-18	30.02	30.18	RUM
199-D5-19	28.65	28.80	RUM
199-D5-20	0.00	16.76	Hanford
199-D5-20	16.76	30.48	RE
199-D5-20	30.48	30.78	RUM
199-D5-32	0.00	14.94	Hanford
199-D5-32	14.94	32.00	RE
199-D5-32	32.00	32.10	RUM
199-D5-33	0.00	16.76	Hanford
199-D5-33	16.76	31.09	RE
199-D5-33	31.09	31.39	RUM
199-D5-34	0.00	16.46	Hanford
199-D5-34	16.46	32.00	RE
199-D5-34	32.00	37.50	RUM
199-D5-36	0.00	14.33	Hanford
199-D5-36	14.33	29.26	RE
199-D5-36	29.26	29.87	RUM
199-D5-37	0.00	14.02	Hanford
199-D5-37	14.02	28.65	RE
199-D5-37	28.65	28.80	RUM
199-D5-38	0.00	15.24	Hanford
199-D5-38	15.24	16.46	RE Reworked
199-D5-38	16.46	31.70	RE
199-D5-38	31.70	32.00	RUM
199-D5-39	0.00	13.72	Hanford
199-D5-39	13.72	15.24	RE Reworked
199-D5-39	15.24	31.39	RE
199-D5-39	31.39	32.70	RUM
199-D5-40	0.00	22.56	Hanford
199-D5-40	22.56	30.33	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D5-40	30.33	32.31	RUM
199-D5-41	0.00	14.63	Hanford
199-D5-41	14.63	15.24	RE Reworked
199-D5-41	15.24	31.39	RE
199-D5-41	31.39	31.85	RUM
199-D5-42	0.00	13.72	Hanford
199-D5-42	13.72	14.63	RE Reworked
199-D5-42	14.63	32.31	RE
199-D5-43	0.00	14.48	Hanford
199-D5-43	14.48	32.61	RE
199-D5-43	32.61	34.10	RUM
199-D5-44	0.00	12.19	Hanford
199-D5-44	12.19	14.48	RE Reworked
199-D5-44	14.48	28.35	RE
199-D5-44	28.35	29.02	RUM
199-D5-92	0.00	16.76	Hanford
199-D5-92	16.76	29.87	RE
199-D5-93	20.42	31.90	RE
199-D5-97	33.22	33.40	RUM
199-D5-98	0.00	17.37	Hanford
199-D5-98	17.37	32.92	RE
199-D5-98	32.92	33.53	RUM
199-D6-1	0.00	18.90	Hanford
199-D6-1	18.90	30.78	RE
199-D6-2	0.00	13.41	Hanford
199-D6-2	13.41	22.25	RE
199-D6-2	22.25	23.47	RUM
199-D6-3	0.00	18.29	Hanford
199-D6-3	18.29	30.97	RE
199-D7-3	0.00	24.99	Hanford
199-D7-3	24.99	26.21	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D7-4	0.00	10.36	Hanford
199-D7-4	10.36	22.56	RE
199-D7-5	0.00	16.46	Hanford
199-D7-5	16.46	17.37	RUM
199-D7-6	0.00	6.10	Hanford
199-D7-6	6.10	11.13	RE
199-D8-4	0.00	15.24	Hanford
199-D8-4	15.24	31.09	RE
199-D8-4	31.09	31.70	RUM
199-D8-5	0.00	13.53	Hanford
199-D8-5	13.53	24.38	RE
199-D8-5	24.38	25.30	RUM
199-D8-53	0.00	12.19	Hanford
199-D8-53	12.19	20.27	RE
199-D8-53	20.27	21.03	RUM
199-D8-54A	0.00	11.43	Hanford
199-D8-54A	19.81	23.16	RE
199-D8-54B	0.00	10.67	Hanford
199-D8-54B	10.67	23.16	RE
199-D8-55	0.00	10.67	Hanford
199-D8-55	10.67	21.03	RE
199-D8-55	21.03	21.34	RUM
199-D8-68	22.25	22.86	RUM
199-D8-69	0.00	17.53	Hanford
199-D8-70	0.00	21.64	Hanford
199-D8-71	23.16	23.47	RUM
199-D8-72	0.00	15.70	Hanford
199-D8-72	15.70	23.47	RE
199-D8-72	23.47	28.50	RUM
199-D8-73	0.00	16.00	Hanford
199-D8-73	16.00	27.28	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-D8-88	0.00	15.09	Hanford
199-D8-88	15.09	15.85	RE Reworked
199-D8-88	15.85	26.52	RE
199-D8-88	26.52	29.26	RUM
199-D8-89	0.00	15.24	Hanford
199-D8-89	15.24	15.85	RE Reworked
199-D8-89	15.85	23.47	RE
199-D8-89	23.47	23.77	RUM
199-D8-90	0.00	15.54	Hanford
199-D8-91	0.00	12.19	Hanford
199-D8-91	12.19	12.80	RUM
199-D8-93	4.88	6.30	RUM
199-D8-94	8.02	9.30	RUM
199-D8-95	0.00	16.76	Hanford
199-D8-95	16.76	17.68	RE Reworked
199-D8-95	17.68	29.57	RE
199-D8-95	29.57	30.78	RUM
199-D8-96	0.00	15.24	Hanford
199-D8-96	15.24	27.74	RE
199-D8-96	27.74	29.57	RUM
199-D8-97	0.00	20.73	Hanford
199-D8-97	20.73	28.65	RE
199-D8-97	28.65	29.87	RUM
199-D8-98	0.00	25.91	Hanford
199-D8-99	0.00	17.37	Hanford
199-D8-99	17.37	24.69	RE
199-D8-99	24.69	25.60	RUM
199-F2-3	0.00	14.23	Hanford
199-F5-1	18.29	21.30	RUM
199-F5-2	0.00	22.86	Hanford
199-F5-2	22.86	23.16	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-F5-2	23.16	25.91	RUM
199-F5-3	0.00	22.25	Hanford
199-F5-3	22.25	27.43	RE
199-F5-4	0.00	14.94	Hanford
199-F5-4	14.94	22.86	RUM
199-F5-43A	0.00	14.48	Hanford
199-F5-43B	0.00	13.11	Hanford
199-F5-45	0.00	15.54	Hanford
199-F5-45	15.54	15.70	RUM
199-F5-46	0.00	17.07	Hanford
199-F5-46	17.07	17.22	RUM
199-F5-47	0.00	3.66	Hanford
199-F5-47	3.66	7.92	RE Reworked
199-F5-47	7.92	19.05	RE
199-F5-48	0.00	5.49	Hanford
199-F5-48	5.49	7.62	RE Reworked
199-F5-48	7.62	15.85	RE
199-F5-48	15.85	16.31	RUM
199-F5-5	0.00	21.95	Hanford
199-F5-5	21.95	22.86	RUM
199-F5-52	0.00	20.12	Hanford
199-F5-53	0.00	9.45	Hanford
199-F5-53	9.45	16.61	RE Reworked
199-F5-53	16.61	20.73	RUM
199-F5-54	0.00	21.28	Hanford
199-F5-54	21.28	21.64	RUM
199-F5-6	0.00	10.36	Hanford
199-F5-6	10.36	21.03	RE Reworked
199-F5-6	21.03	58.30	RUM
199-F6-1	15.24	17.00	RUM
199-F7-1	7.32	9.14	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-F7-3	0.00	5.18	Hanford
199-F7-3	5.18	8.53	RE
199-F7-3	8.53	8.84	RUM
199-F8-1	0.00	7.62	Hanford
199-F8-1	7.62	13.72	RE
199-F8-2	16.46	17.50	RUM
199-F8-3	6.10	9.14	RE Reworked
199-F8-4	13.87	15.30	RUM
199-F8-7	8.84	9.75	RUM
199-H1-1	0.00	7.92	Hanford
199-H1-1	7.92	10.30	RE
199-H1-2	0.00	13.90	Hanford
199-H1-2	13.90	14.63	RUM
199-H1-20	0.00	11.58	Hanford
199-H1-21	0.00	4.88	Hanford
199-H1-21	4.88	9.75	RE
199-H1-21	9.75	10.36	RUM
199-H1-25	9.75	10.36	RUM
199-H1-27	0.00	10.67	Hanford
199-H1-27	10.67	10.97	RUM
199-H1-3	12.80	14.17	RUM
199-H1-32	13.11	13.72	RUM
199-H1-33	11.89	13.60	RUM
199-H1-34	11.58	14.50	RUM
199-H1-35	12.50	13.11	RUM
199-H1-36	0.00	7.62	Hanford
199-H1-36	7.62	9.14	RE Reworked
199-H1-36	9.14	11.89	RE
199-H1-37	0.00	12.50	Hanford
199-H1-37	12.50	13.11	RUM
199-H1-38	0.00	12.80	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-H1-38	12.80	13.72	RUM
199-H1-39	0.00	11.58	Hanford
199-H1-39	11.58	12.19	RUM
199-H1-4	0.00	12.50	Hanford
199-H1-40	0.00	11.73	Hanford
199-H1-42	0.00	8.53	Hanford
199-H1-42	8.53	10.97	RE Reworked
199-H1-42	10.97	11.89	RE
199-H1-42	11.89	12.50	RUM
199-H1-43	0.00	13.11	Hanford
199-H1-43	13.11	13.72	RUM
199-H1-45	0.00	12.50	Hanford
199-H1-45	12.50	16.92	RE
199-H1-45	16.92	18.50	RUM
199-H1-5	0.00	12.95	Hanford
199-H1-5	12.95	14.10	RE
199-H1-6	0.00	11.13	Hanford
199-H1-7	0.00	9.60	Hanford
199-H2-1	0.00	11.28	Hanford
199-H2-1	11.28	12.19	RUM
199-H3-1	0.00	17.07	Hanford
199-H3-10	0.00	16.76	Hanford
199-H3-25	0.00	16.76	Hanford
199-H3-25	16.76	17.07	RUM
199-H3-26	0.00	15.54	Hanford
199-H3-26	15.54	15.85	RUM
199-H3-27	0.00	17.37	Hanford
199-H3-2A	0.00	16.46	Hanford
199-H3-2B	0.00	17.37	Hanford
199-H3-2C	0.00	16.76	Hanford
199-H3-2C	16.76	19.51	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-H3-3	0.00	14.94	Hanford
199-H3-4	0.00	13.72	Hanford
199-H3-5	0.00	9.45	Hanford
199-H3-5	9.45	10.06	RE Reworked
199-H3-5	10.06	13.41	RE
199-H3-5	13.41	13.87	RUM
199-H3-6	0.00	16.61	Hanford
199-H3-7	0.00	16.00	Hanford
199-H3-9	0.00	13.11	Hanford
199-H3-9	13.11	18.29	RUM
199-H4-1	16.76	23.50	RUM
199-H4-10	11.58	13.40	RUM
199-H4-11	17.37	17.98	RUM
199-H4-12A	15.24	15.40	RUM
199-H4-12B	15.24	15.40	RUM
199-H4-12C	14.94	24.38	RUM
199-H4-13	16.46	17.98	RUM
199-H4-14	16.46	17.98	RUM
199-H4-15A	12.50	13.41	RUM
199-H4-15B	13.11	13.30	RUM
199-H4-15C	13.41	14.02	RUM
199-H4-16	0.00	18.29	Hanford
199-H4-16	18.29	18.59	RUM
199-H4-17	0.00	13.41	Hanford
199-H4-17	13.41	13.72	RUM
199-H4-18	0.00	14.94	Hanford
199-H4-18	14.94	15.24	RUM
199-H4-2	17.98	117.70	RUM
199-H4-3	0.00	15.24	Hanford
199-H4-3	15.24	17.50	RE
199-H4-46	18.59	18.70	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-H4-48	0.00	12.19	Hanford
199-H4-48	12.19	18.90	RE
199-H4-49	16.76	19.00	RUM
199-H4-5	14.63	18.29	RUM
199-H4-63	0.00	9.75	Hanford
199-H4-63	9.75	10.97	RE Reworked
199-H4-63	10.97	17.22	RE
199-H4-63	17.22	17.37	RUM
199-H4-64	0.00	10.67	Hanford
199-H4-64	10.67	14.63	RE
199-H4-64	14.63	16.50	RUM
199-H4-65	15.24	17.00	RUM
199-H4-69	0.00	17.68	Hanford
199-H4-69	17.68	18.29	RUM
199-H4-7	16.46	17.50	RUM
199-H4-70	0.00	17.07	Hanford
199-H4-71	0.00	18.90	Hanford
199-H4-72	0.00	17.07	Hanford
199-H4-73	0.00	18.90	Hanford
199-H4-73	18.90	21.34	RUM
199-H4-74	0.00	9.14	Hanford
199-H4-74	9.14	11.58	RE
199-H4-74	11.58	12.95	RUM
199-H4-75	0.00	12.19	Hanford
199-H4-75	12.19	15.24	RE
199-H4-76	13.72	15.24	RUM
199-H4-77	0.00	12.95	Hanford
199-H4-78	0.00	2.59	Hanford
199-H4-78	2.59	17.83	RE
199-H4-79	0.00	13.41	Hanford
199-H4-79	13.41	16.15	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-H4-79	16.15	18.14	RUM
199-H4-8	14.63	17.50	RUM
199-H4-80	0.00	12.19	Hanford
199-H4-80	12.19	20.42	RE
199-H4-80	20.42	21.34	RUM
199-H4-81	0.00	8.23	Hanford
199-H4-81	8.23	11.89	RE
199-H4-85	0.00	10.67	Hanford
199-H4-85	10.67	14.48	RE
199-H4-85	14.48	15.50	RUM
199-H4-86	0.00	12.95	Hanford
199-H4-86	12.95	13.72	RE Reworked
199-H4-86	13.72	18.44	RE
199-H4-86	18.44	18.90	RUM
199-H4-9	13.11	14.17	RUM
199-H4-90	0.00	18.29	Hanford
199-H4-90	18.29	19.20	RUM
199-H4-91	16.46	17.22	RUM
199-H5-1A	15.85	18.00	RUM
199-H6-2	0.00	13.72	Hanford
199-H6-2	13.72	15.54	RE
199-H6-2	15.54	16.76	RUM
199-H6-3	0.00	18.29	Hanford
199-H6-3	18.29	19.50	RUM
199-H6-4	0.00	7.32	Hanford
199-H6-4	7.32	10.06	RE Reworked
199-H6-4	10.06	16.76	RE
199-H6-4	16.76	17.37	RUM
199-K-10	0.00	14.33	Hanford
199-K-10	14.33	49.99	RE
199-K-106A	0.00	6.40	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-106A	6.40	49.53	RE
199-K-107A	0.00	5.79	Hanford
199-K-108A	0.00	9.14	Hanford
199-K-109A	0.00	11.73	Hanford
199-K-109A	11.73	47.24	RE
199-K-11	0.00	13.72	Hanford
199-K-11	13.72	50.29	RE
199-K-110A	0.00	10.82	Hanford
199-K-111A	0.00	7.92	Hanford
199-K-111A	7.92	47.34	RE
199-K-112A	0.00	7.92	Hanford
199-K-112A	7.92	14.63	RE
199-K-113A	0.00	6.71	Hanford
199-K-113A	6.71	12.50	RE
199-K-114A	0.00	6.40	Hanford
199-K-114A	6.40	7.32	RE Reworked
199-K-114A	7.32	12.50	RE
199-K-115A	0.00	4.88	Hanford
199-K-115A	4.88	16.46	RE
199-K-116A	0.00	11.58	Hanford
199-K-116A	11.58	26.52	RE
199-K-116A	26.52	27.70	RUM
199-K-117A	0.00	4.27	Hanford
199-K-117A	4.27	20.73	RE
199-K-118A	0.00	5.79	Hanford
199-K-118A	5.79	23.01	RE
199-K-119A	0.00	4.88	Hanford
199-K-119A	4.88	27.13	RE
199-K-120A	0.00	0.91	Hanford
199-K-120A	0.91	29.26	RE
199-K-121A	0.00	16.46	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-122A	0.00	11.89	Hanford
199-K-122A	11.89	30.48	RE
199-K-123A	0.00	11.58	Hanford
199-K-124A	0.00	10.97	Hanford
199-K-125A	0.00	8.84	Hanford
199-K-125A	8.84	22.86	RE
199-K-126	0.00	12.80	Hanford
199-K-127	0.00	8.53	Hanford
199-K-128	13.72	29.87	RE
199-K-129	0.00	7.32	Hanford
199-K-129	7.32	14.63	RE
199-K-130	0.00	8.53	Hanford
199-K-131	0.00	9.14	Hanford
199-K-131	9.14	29.87	RE
199-K-132	0.00	8.23	Hanford
199-K-133	0.00	15.70	Hanford
199-K-134	0.00	18.29	Hanford
199-K-135	0.00	15.24	Hanford
199-K-135	15.24	34.56	RE
199-K-136	0.00	14.94	Hanford
199-K-138	0.00	9.14	Hanford
199-K-141	0.00	10.67	Hanford
199-K-141	10.67	13.41	RE Reworked
199-K-142	0.00	10.06	Hanford
199-K-143	0.00	8.23	Hanford
199-K-144	0.00	3.35	Hanford
199-K-144	3.35	28.96	RE
199-K-144	28.96	29.57	RUM
199-K-145	0.00	1.22	Hanford
199-K-145	1.22	35.97	RE
199-K-146	0.00	8.23	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-146	8.23	16.15	RE
199-K-147	0.00	8.23	Hanford
199-K-147	8.23	23.47	RE
199-K-147	23.47	24.08	RUM
199-K-148	0.00	13.72	Hanford
199-K-148	13.72	15.24	RE Reworked
199-K-148	15.24	30.48	RE
199-K-149	0.00	16.15	Hanford
199-K-149	16.15	32.31	RE
199-K-150	0.00	16.46	Hanford
199-K-150	16.46	34.14	RE
199-K-151	0.00	15.24	Hanford
199-K-151	15.24	35.05	RE
199-K-152	0.00	16.76	Hanford
199-K-152	16.76	35.36	RE
199-K-153	0.00	12.19	Hanford
199-K-153	12.19	13.72	RE Reworked
199-K-153	13.72	30.48	RE
199-K-154	0.00	12.19	Hanford
199-K-154	12.19	31.09	RE
199-K-156	0.00	9.14	Hanford
199-K-156	9.14	50.60	RE
199-K-157	0.00	8.23	Hanford
199-K-157	8.23	42.37	RE
199-K-159	0.00	15.24	Hanford
199-K-159	15.24	22.86	RE Reworked
199-K-159	22.86	33.53	RE
199-K-160	0.00	16.76	Hanford
199-K-160	16.76	22.86	RE Reworked
199-K-160	22.86	34.44	RE
199-K-161	0.00	8.53	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-161	8.53	14.94	RE
199-K-161	14.94	15.54	RUM
199-K-162	0.00	9.14	Hanford
199-K-162	9.14	39.01	RE
199-K-163	0.00	12.19	Hanford
199-K-163	12.19	33.53	RE
199-K-164	0.00	19.81	Hanford
199-K-164	19.81	34.14	RE
199-K-165	0.00	8.78	Hanford
199-K-165	8.78	52.43	RE
199-K-165	52.43	53.64	RUM
199-K-166	0.00	16.76	Hanford
199-K-166	16.76	50.60	RE
199-K-166	50.60	51.28	RUM
199-K-169	0.00	21.34	Hanford
199-K-169	21.34	40.23	RE
199-K-170	0.00	13.72	Hanford
199-K-170	13.72	43.59	RE
199-K-170	43.59	45.42	RUM
199-K-171	0.00	18.29	Hanford
199-K-171	18.29	19.81	RE Reworked
199-K-171	19.81	45.11	RE
199-K-172	0.00	18.29	Hanford
199-K-172	18.29	19.81	RE Reworked
199-K-172	19.81	40.23	RE
199-K-174	0.00	15.24	Hanford
199-K-175	0.00	21.34	Hanford
199-K-178	0.00	9.14	Hanford
199-K-178	9.14	10.67	RE Reworked
199-K-178	10.67	39.32	RE
199-K-178	39.32	40.54	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-179	0.00	12.19	Hanford
199-K-179	12.19	42.98	RE
199-K-179	42.98	43.28	RUM
199-K-180	0.00	19.81	Hanford
199-K-180	19.81	46.33	RE
199-K-180	46.33	47.24	RUM
199-K-181	0.00	6.10	Hanford
199-K-181	6.10	39.93	RE
199-K-182	0.00	15.24	Hanford
199-K-182	15.24	37.49	RE
199-K-183	0.00	7.01	Hanford
199-K-183	7.01	10.21	RE Reworked
199-K-183	10.21	44.20	RE
199-K-183	44.20	44.96	RUM
199-K-185	0.00	13.11	Hanford
199-K-185	13.11	40.69	RE
199-K-186	0.00	14.17	Hanford
199-K-186	14.17	19.51	RE Reworked
199-K-186	19.51	49.38	RE
199-K-187	0.00	20.88	Hanford
199-K-187	20.88	60.20	RE
199-K-188	0.00	18.29	Hanford
199-K-188	18.29	55.78	RE
199-K-189	0.00	10.97	Hanford
199-K-189	10.97	46.94	RE
199-K-189	46.94	47.55	RUM
199-K-190	0.00	8.84	Hanford
199-K-190	8.84	40.54	RE
199-K-191	0.00	12.50	Hanford
199-K-191	12.50	12.80	RE Reworked
199-K-191	12.80	46.73	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-192	43.28	44.81	RUM
199-K-193	0.00	14.02	Hanford
199-K-193	14.02	49.07	RE
199-K-194	0.00	18.29	Hanford
199-K-194	18.29	19.81	RE Reworked
199-K-194	19.81	43.10	RE
199-K-195	0.00	14.63	Hanford
199-K-195	14.63	15.24	RE Reworked
199-K-195	15.24	54.32	RE
199-K-196	0.00	9.75	Hanford
199-K-196	9.75	10.67	RE Reworked
199-K-196	10.67	40.39	RE
199-K-198	28.04	28.53	RUM
199-K-200	0.00	10.06	Hanford
199-K-201	0.00	7.92	Hanford
199-K-202	0.00	12.19	Hanford
199-K-202	12.19	46.94	RE
199-K-202	46.94	48.79	RUM
199-K-203	0.00	10.40	Hanford
199-K-203	10.40	47.50	RE
199-K-203	47.50	49.20	RUM
199-K-204	0.00	7.00	Hanford
199-K-204	7.00	47.90	RE
199-K-204	47.90	49.20	RUM
199-K-205	0.00	16.76	Hanford
199-K-205	16.76	55.17	RE
199-K-206	0.00	18.59	Hanford
199-K-206	18.59	53.64	RE
199-K-21	0.00	7.62	Hanford
199-K-210	0.00	5.20	Hanford
199-K-210	5.20	35.50	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-K-210	35.50	37.10	RUM
199-K-212	0.00	4.00	Hanford
199-K-212	4.00	23.50	RE
199-K-212	23.50	26.10	RUM
199-K-22	0.00	7.01	Hanford
199-K-220	0.00	18.30	Hanford
199-K-220	18.30	50.20	RE
199-K-220	50.20	52.10	RUM
199-K-27	0.00	5.49	Hanford
199-K-29	0.00	12.19	Hanford
199-K-30	0.00	12.19	Hanford
199-K-32A	0.00	8.23	Hanford
199-K-32B	0.00	10.97	Hanford
199-K-32B	10.97	41.45	RE
199-K-34	0.00	6.71	Hanford
199-K-35	0.00	23.47	Hanford
199-K-36	0.00	18.90	Hanford
199-K-37	0.00	9.30	Hanford
199-N-104A	0.00	17.37	Hanford
199-N-105A	0.00	13.11	Hanford
199-N-105A	13.11	28.04	RE
199-N-105A	28.04	29.26	RUM
199-N-106A	0.00	17.68	Hanford
199-N-106A	17.68	36.27	RE
199-N-107A	0.00	11.58	Hanford
199-N-107A	11.58	12.80	RE Reworked
199-N-109A	0.00	13.41	Hanford
199-N-121	0.00	2.44	Hanford
199-N-121	2.44	12.50	RE
199-N-122	0.00	4.27	Hanford
199-N-122	4.27	13.56	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-123	0.00	3.51	Hanford
199-N-123	3.51	16.08	RE
199-N-136	0.00	3.66	Hanford
199-N-137	0.00	3.66	Hanford
199-N-142	0.00	4.27	Hanford
199-N-143	0.00	3.05	Hanford
199-N-144	0.00	4.27	Hanford
199-N-145	0.00	3.05	Hanford
199-N-160	0.00	4.57	Hanford
199-N-161	0.00	4.27	Hanford
199-N-162	0.00	4.57	Hanford
199-N-163	0.00	4.27	Hanford
199-N-164	0.00	3.96	Hanford
199-N-167	0.00	14.94	Hanford
199-N-169	0.00	13.11	Hanford
199-N-170	0.00	12.80	Hanford
199-N-171	0.00	13.72	Hanford
199-N-171	13.72	15.39	RE Reworked
199-N-172	0.00	13.41	Hanford
199-N-173	0.00	2.74	Hanford
199-N-173	2.74	13.72	RE
199-N-174	0.00	4.27	Hanford
199-N-176	0.00	4.88	Hanford
199-N-177	0.00	4.42	Hanford
199-N-178	0.00	4.88	Hanford
199-N-180	0.00	4.72	Hanford
199-N-181	0.00	1.98	Hanford
199-N-181	1.98	4.57	RE Reworked
199-N-182	0.00	14.02	Hanford
199-N-182	14.02	17.37	RE Reworked
199-N-182	17.37	31.09	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-183	0.00	15.24	Hanford
199-N-183	15.24	16.76	RE Reworked
199-N-183	16.76	33.25	RE
199-N-184	0.00	16.76	Hanford
199-N-184	16.76	18.29	RE Reworked
199-N-184	18.29	30.48	RE
199-N-184	30.48	30.78	RUM
199-N-186	0.00	15.24	Hanford
199-N-186	15.24	28.35	RE
199-N-187	0.00	12.19	Hanford
199-N-187	12.19	15.24	RE Reworked
199-N-188	0.00	9.14	Hanford
199-N-189	0.00	15.24	Hanford
199-N-189	15.24	17.98	RE Reworked
199-N-189	17.98	32.00	RE
199-N-189	32.00	32.61	RUM
199-N-2	0.00	10.67	Hanford
199-N-2	10.67	30.48	RE
199-N-2	30.48	32.00	RUM
199-N-200	0.00	0.15	Hanford
199-N-203	0.00	0.15	Hanford
199-N-203	0.15	3.05	RE Reworked
199-N-205	0.00	0.15	Hanford
199-N-205	0.15	2.29	RE Reworked
199-N-206	0.00	0.15	Hanford
199-N-206	0.15	2.13	RE Reworked
199-N-207	0.00	0.15	Hanford
199-N-208	0.00	0.15	Hanford
199-N-208	0.15	2.44	RE Reworked
199-N-209	0.00	2.59	Hanford
199-N-210	0.00	0.61	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-211	0.00	0.61	Hanford
199-N-211	0.61	1.83	RE Reworked
199-N-212	0.00	2.13	Hanford
199-N-213	0.00	2.44	Hanford
199-N-214	0.00	0.30	Hanford
199-N-214	0.30	3.05	RE Reworked
199-N-215	0.00	1.83	Hanford
199-N-216	0.00	3.66	Hanford
199-N-217	0.00	4.88	Hanford
199-N-220	0.00	4.57	Hanford
199-N-221	0.00	3.66	Hanford
199-N-222	0.00	4.57	Hanford
199-N-223	0.00	1.83	Hanford
199-N-224	0.00	1.83	Hanford
199-N-225	0.00	1.83	Hanford
199-N-227	0.00	0.61	Hanford
199-N-228	0.00	0.30	Hanford
199-N-228	0.30	4.27	RE Reworked
199-N-231	0.00	0.30	Hanford
199-N-231	0.30	3.96	RE Reworked
199-N-232	0.00	3.05	Hanford
199-N-234	0.00	0.91	Hanford
199-N-234	0.91	2.44	RE Reworked
199-N-235	0.00	0.91	Hanford
199-N-235	0.91	2.74	RE Reworked
199-N-236	0.00	0.61	Hanford
199-N-236	0.61	3.05	RE Reworked
199-N-238	0.00	0.61	Hanford
199-N-238	0.61	4.88	RE Reworked
199-N-239	0.00	3.05	Hanford
199-N-241	0.00	3.05	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-242	0.00	0.91	Hanford
199-N-243	0.00	2.44	Hanford
199-N-244	0.00	0.61	Hanford
199-N-244	0.61	3.66	RE Reworked
199-N-245	0.00	0.91	Hanford
199-N-246	0.00	3.05	Hanford
199-N-247	0.00	1.52	Hanford
199-N-248	0.00	1.83	Hanford
199-N-249	0.00	0.61	Hanford
199-N-250	0.00	0.61	Hanford
199-N-251	0.00	1.52	Hanford
199-N-252	0.00	1.83	Hanford
199-N-254	0.00	0.61	Hanford
199-N-255	0.00	0.61	Hanford
199-N-256	0.00	0.61	Hanford
199-N-262	0.00	2.13	Hanford
199-N-263	0.00	0.61	Hanford
199-N-264	0.00	0.61	Hanford
199-N-267	0.00	0.30	Hanford
199-N-268	0.00	0.61	Hanford
199-N-273	0.00	0.61	Hanford
199-N-275	0.00	0.91	Hanford
199-N-276	0.00	0.61	Hanford
199-N-277	0.00	0.61	Hanford
199-N-278	0.00	0.61	Hanford
199-N-279	0.00	0.30	Hanford
199-N-281	0.00	1.22	Hanford
199-N-282	0.00	1.22	Hanford
199-N-283	0.00	1.37	Hanford
199-N-284	0.00	1.22	Hanford
199-N-285	0.00	0.91	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-286	0.00	1.52	Hanford
199-N-287	0.00	1.22	Hanford
199-N-288	0.00	1.37	Hanford
199-N-289	0.00	0.91	Hanford
199-N-290	0.00	0.61	Hanford
199-N-292	0.00	1.22	Hanford
199-N-293	0.00	1.52	Hanford
199-N-294	0.00	1.83	Hanford
199-N-295	0.00	1.83	Hanford
199-N-296	0.00	0.61	Hanford
199-N-296	0.61	3.05	RE Reworked
199-N-297	0.00	2.13	Hanford
199-N-298	0.00	1.52	Hanford
199-N-299	0.00	1.83	Hanford
199-N-303	0.00	0.91	Hanford
199-N-304	0.00	1.22	Hanford
199-N-304	1.22	7.32	RE Reworked
199-N-305	0.00	1.83	Hanford
199-N-306	0.00	1.52	Hanford
199-N-307	0.00	0.91	Hanford
199-N-308	0.00	0.91	Hanford
199-N-309	0.00	0.61	Hanford
199-N-310	0.00	3.05	Hanford
199-N-310	3.05	5.79	RE Reworked
199-N-311	0.00	0.91	Hanford
199-N-312	0.00	1.83	Hanford
199-N-313	0.00	0.61	Hanford
199-N-314	0.00	1.22	Hanford
199-N-315	0.00	0.91	Hanford
199-N-318	0.00	0.61	Hanford
199-N-319	0.00	0.61	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-320	0.00	0.91	Hanford
199-N-321	0.00	0.91	Hanford
199-N-322	0.00	1.83	Hanford
199-N-323	0.00	0.61	Hanford
199-N-324	0.00	0.61	Hanford
199-N-326	0.00	0.61	Hanford
199-N-327	0.00	0.61	Hanford
199-N-328	0.00	0.91	Hanford
199-N-329	0.00	0.91	Hanford
199-N-330	0.00	0.91	Hanford
199-N-331	0.00	1.07	Hanford
199-N-332	0.00	0.76	Hanford
199-N-333	0.00	0.61	Hanford
199-N-334	0.00	0.61	Hanford
199-N-335	0.00	0.91	Hanford
199-N-336	0.00	1.22	Hanford
199-N-337	0.00	0.91	Hanford
199-N-338	0.00	0.91	Hanford
199-N-340	0.00	0.91	Hanford
199-N-340	0.91	1.83	RE Reworked
199-N-340	1.83	7.32	RE
199-N-341	0.00	0.91	Hanford
199-N-342	0.00	0.91	Hanford
199-N-342	0.91	3.05	RE Reworked
199-N-343	0.00	0.91	Hanford
199-N-344	0.00	0.61	Hanford
199-N-344	0.61	6.10	RE
199-N-345	0.00	0.91	Hanford
199-N-346	0.00	2.13	Hanford
199-N-347	0.00	2.13	Hanford
199-N-348	0.00	0.61	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-348	0.61	1.83	RE Reworked
199-N-349	0.00	0.30	Hanford
199-N-349	0.30	2.74	RE Reworked
199-N-350	0.00	3.51	Hanford
199-N-351	0.00	1.83	Hanford
199-N-352	0.00	0.61	Hanford
199-N-352	0.61	1.22	RE Reworked
199-N-353	0.00	0.61	Hanford
199-N-354	0.00	0.91	Hanford
199-N-355	0.00	0.30	Hanford
199-N-358	0.00	1.22	Hanford
199-N-359	0.00	3.05	Hanford
199-N-360	0.00	1.83	Hanford
199-N-361	0.00	1.83	Hanford
199-N-361	1.83	3.05	RE Reworked
199-N-362	0.00	1.22	Hanford
199-N-363	0.00	1.22	Hanford
199-N-364	0.00	1.22	Hanford
199-N-366	0.00	1.22	Hanford
199-N-367	0.00	0.91	Hanford
199-N-41	0.00	13.72	Hanford
199-N-43	0.00	11.58	Hanford
199-N-5	32.00	35.05	RUM
199-N-50	0.00	17.98	Hanford
199-N-52	0.00	18.90	Hanford
199-N-54	0.00	14.94	Hanford
199-N-57	0.00	17.37	Hanford
199-N-61	0.00	17.98	Hanford
199-N-62	0.00	19.51	Hanford
199-N-66	0.00	16.15	Hanford
199-N-69	0.00	12.80	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
199-N-69	12.80	30.78	RE
199-N-70	0.00	11.28	Hanford
199-N-70	11.28	31.70	RE
199-N-71	0.00	16.76	Hanford
199-N-75	0.00	17.07	Hanford
199-N-75	17.07	18.29	RE Reworked
199-N-77	29.57	31.10	RUM
199-N-80	0.00	11.89	Hanford
199-N-80	11.89	29.87	RE
199-N-8P	15.85	30.20	RUM
199-N-91A	0.00	0.61	Hanford
199-N-91A	0.61	13.41	RE
199-N-92A	0.00	0.61	Hanford
199-N-92A	0.61	12.80	RE
199-N-93A	0.00	2.13	Hanford
199-N-93A	2.13	9.14	RE
199-N-93A	9.14	10.09	RUM
199-N-94A	0.00	4.11	Hanford
199-N-94A	4.11	10.52	RE
199-N-94A	10.52	11.13	RUM
199-N-95A	0.00	4.27	Hanford
199-N-95A	4.27	11.73	RE
199-N-96A	0.00	5.79	Hanford
199-N-96A	5.79	18.28	RE
199-N-97A	0.00	1.37	Hanford
199-N-97A	1.37	18.28	RE
699-100-43B	8.99	10.50	RUM
699-101-45	7.77	9.19	RUM
699-52-17	27.43	115.62	RUM
699-52-18A	26.82	27.23	RUM
699-52-18C	30.48	32.41	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
699-54-18C	22.86	108.00	RUM
699-54-18E	24.08	27.23	RUM
699-57-16	11.58	12.30	RUM
699-57-25B	24.08	24.49	RUM
699-57-29B	24.69	26.49	RUM
699-60-32	19.81	25.71	RUM
699-60-57	29.26	47.04	RUM
699-60-60	0.00	18.29	Hanford
699-60-60	18.29	29.87	RE
699-61-26A	0.00	13.41	Hanford
699-61-26A	13.41	22.56	RE
699-61-41	12.19	15.30	RUM
699-62-31	22.86	25.40	RUM
699-62-43A	20.12	23.57	RUM
699-62-43F	21.34	24.49	RUM
699-63-25A	18.90	33.33	RUM
699-63-51	7.62	10.77	RUM
699-63-55	0.00	19.81	Hanford
699-63-55	19.81	24.99	RE
699-63-58	0.00	33.53	Hanford
699-63-89	0.00	48.16	Hanford
699-63-90	0.00	41.15	Hanford
699-63-90	41.15	42.98	RE
699-64-27	22.56	25.40	RUM
699-65-50	35.05	178.11	RUM
699-66-23	16.76	30.28	RUM
699-66-38	8.23	45.52	RUM
699-66-39	12.80	27.23	RUM
699-67-51	0.00	44.20	Hanford
699-67-51	44.20	64.01	RE
699-67-86	75.29	142.00	RUM

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
699-69-45	41.15	91.24	RUM
699-71-30	0.00	9.14	Hanford
699-71-30	9.14	11.28	RE
699-71-52	53.34	63.81	RUM
699-71-77	0.00	22.86	Hanford
699-71-77	22.86	27.43	RE Reworked
699-71-77	27.43	51.82	RE
699-71-77	51.82	53.95	RUM
699-72-73	0.00	27.43	Hanford
699-72-73	27.43	50.90	RE
699-72-92	0.00	47.24	Hanford
699-73-61	0.00	12.19	Hanford
699-74-23	7.62	15.04	RUM
699-74-44	16.76	45.52	RUM
699-74-48	37.80	45.52	RUM
699-75-23A	10.67	12.47	RUM
699-75-23B	10.97	12.77	RUM
699-77-36	0.00	6.10	Hanford
699-77-36	6.10	15.24	RE
699-77-54	0.00	28.96	Hanford
699-77-54	28.96	46.33	RE
699-78-62	0.00	13.41	Hanford
699-80-39B	13.11	15.95	RUM
699-80-43P	14.02	136.96	RUM
699-80-43Q	13.72	70.51	RUM
699-80-43R	0.00	12.80	Hanford
699-80-43R	12.80	13.72	RE
699-80-43S	12.19	15.04	RUM
699-81-58	28.96	45.52	RUM
699-81-62	0.00	13.72	Hanford
699-81-62	13.72	32.00	RE

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
699-83-47	0.00	10.67	Hanford
699-83-47	10.67	28.96	RE
699-84-35A	0.00	13.72	Hanford
699-84-35A	13.72	20.73	RE
699-84-35A	20.73	24.38	RUM
699-86-60	0.00	16.76	Hanford
699-86-60	16.76	29.26	RE
699-87-55	0.00	18.59	Hanford
699-89-35	0.00	13.72	Hanford
699-89-35	13.72	16.76	RE
699-93-48A	0.00	4.21	Hanford
699-93-48A	4.21	4.66	RE Reworked
699-93-48A	4.66	22.25	RE
699-94-41	0.00	9.91	Hanford
699-94-41	9.91	10.82	RE
699-94-43	0.00	6.71	Hanford
699-94-43	6.71	8.69	RE Reworked
699-94-43	8.69	16.92	RE
699-95-45	0.00	8.84	Hanford
699-95-45	8.84	9.14	RE Reworked
699-95-45	9.14	13.81	RE
699-95-48	0.00	8.99	Hanford
699-95-48	8.99	17.98	RE
699-95-51	0.00	8.53	Hanford
699-95-51	8.53	11.73	RE Reworked
699-95-51	11.73	20.12	RE
699-96-41	0.00	5.79	Hanford
699-96-41	5.79	14.20	RE
699-96-42	0.00	7.92	Hanford
699-96-42	7.92	15.70	RE
699-96-43	0.00	9.14	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
699-96-43	9.14	13.72	RE
699-96-43	13.72	14.02	RUM
699-96-49	0.00	18.59	Hanford
699-96-49	18.59	21.34	RE
699-96-49	21.34	24.38	RUM
699-96-52B	0.00	12.19	Hanford
699-97-41	0.00	16.46	Hanford
699-97-43	15.24	30.10	RUM
699-97-43B	0.00	14.63	Hanford
699-97-43C	0.00	14.94	Hanford
699-97-43C	14.94	15.39	RUM
699-97-45	12.16	13.73	RUM
699-97-45B	12.07	36.50	RUM
699-97-48B	0.00	16.46	Hanford
699-97-48C	16.76	37.29	RUM
699-98-43	0.00	10.36	Hanford
699-98-43	10.36	11.90	RUM
699-98-46	0.00	12.34	Hanford
699-98-46	12.34	13.69	RUM
699-98-51	0.00	7.62	Hanford
699-98-51	7.62	9.00	RUM
699-99-41	0.00	12.19	Hanford
699-99-41	12.19	13.69	RUM
699-99-42B	0.00	13.87	Hanford
699-99-42B	13.87	15.52	RUM
699-99-44	0.00	6.10	Hanford
699-99-44	6.10	7.01	RE Reworked
699-99-44	7.01	9.91	RE
699-99-44	9.91	11.23	RUM
B2539	0.00	13.41	Hanford
C6446	0.00	10.06	Hanford

Table A-2. Current Lithologic Unit Selections from GeoContacts_100-Area_2015-01-06. .xlsx for Wells used in the Model (See Table A-1 for well locations and depths)

Well Name	From (m bgs)	To (m bgs)	Lithology
C6446	10.06	11.28	RE Reworked
C6447	0.00	8.84	Hanford
C6447	8.84	11.58	RE Reworked
C6449	0.00	6.71	Hanford
C6449	6.71	11.58	RE Reworked
C6450	0.00	10.97	Hanford
C7855	0.00	14.33	Hanford
C7855	14.33	15.24	RE Reworked
C7971	0.00	8.84	Hanford
C8205	0.00	14.94	Hanford
C8205	14.94	16.15	RE Reworked
C8205	16.15	51.82	RE
C8205	51.82	56.80	RUM
control_1	8.80	100.00	RUM
control_10	86.50	100.00	RUM
control_11	88.50	100.00	RUM
control_12	91.67	100.00	RUM
control_13	45.97	100.00	RUM
control_2	15.60	100.00	RUM
control_3	85.24	100.00	RUM
control_4	89.61	100.00	RUM
control_5	97.25	100.00	RUM
control_6	100.00	101.00	RUM
control_7	93.50	100.00	RUM
control_8	87.75	100.00	RUM
control_9	80.50	100.00	RUM

Attachment B

2013 and 2014 Separate, Deep Cr(VI) Plume Data

The following data tables contain point location and concentration information used in the interpolation of the 2013 and 2014 separate, deep Cr(VI) plumes.

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565095.99	145232.26	117.721928	25	mg/L	north	199-B2-14, routine/HEIS
565095.99	145232.26	117.72	25	mg/L	north	199-B2-14, routine/HEIS
564915	145190.68	93.878588	29	mg/L	north	199-B2-16, routine/HEIS
564915	145190.68	93.86	29	mg/L	north	199-B2-16, routine/HEIS
565379.25	145362.36	90.182328	4	mg/L	south	199-B3-51, routine/HEIS
565401.02	144392.22	118.69	44.5	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	116.1	43.5	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	112.78	43.2	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	110.278	27.1	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	106.68	17.6	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	103.63	5.6	mg/L	south	199-B4-18, DD/HEIS
565401.02	144392.22	97.72	2	mg/L	south	199-B4-18, DD/HEIS
565188.9	144241.27	116.2129	36.5	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	112.9302	20.1	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	110.3181	24.1	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	107.2549	5.6	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	104.6305	15	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	101.2869	6.4	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	95.9712	15.8	mg/L	south	199-B5-11, DD/HEIS
564893.41	144764.86	117.87	3.8	mg/L	north	199-B5-13, DD/HEIS
564893.41	144764.86	105.708	4.7	mg/L	north	199-B5-13, DD/HEIS
564893.41	144764.86	99.643	2.1	mg/L	north	199-B5-13, DD/HEIS
564893.41	144764.86	96.686	3.2	mg/L	north	199-B5-13, DD/HEIS
564893.41	144764.86	78.337	2.5	mg/L	north	199-B5-13, DD/HEIS
564893.41	144764.86	91.5	4.7	mg/L	north	199-B5-13, DD/HEIS
564721.99	144955.49	89.198604	32.4	mg/L	north	199-B5-5, routine/HEIS
564967.7	144316.44	90.88324	39.5	mg/L	north	199-B5-6, routine/HEIS
564821.98	144250.05	119.17	12.1	mg/L	south	199-B5-9, DD/HEIS
564821.98	144250.05	116.12	6.7	mg/L	south	199-B5-9, DD/HEIS
564821.98	144250.05	113.07	3.3	mg/L	south	199-B5-9, DD/HEIS
564821.98	144250.05	109.932	10.5	mg/L	south	199-B5-9, DD/HEIS

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564821.98	144250.05	106.579	2.4	mg/L	south	199-B5-9, DD/HEIS
564821.98	144250.05	103.287	3.1	mg/L	south	199-B5-9, DD/HEIS
564821.98	144250.05	100.88	2.4	mg/L	south	199-B5-9, DD/HEIS
564580.23	145011.45	95	0	mg/L	north	Contour Control
564580.23	144913.06	90	0	mg/L	north	Contour Control
564596.98	145095.18	95	0	mg/L	north	Contour Control
564611.63	144831.42	90	0	mg/L	north	Contour Control
564622.1	145172.63	107.5	0	mg/L	north	Contour Control
564625.11	144964.32	90	10	mg/L	north	Contour Control
564627.17	145008.72	90.5	10	mg/L	north	Contour Control
564636.29	145025.77	81.4	15	mg/L	north	Contour Control
564639.56	145062.42	91.5	10	mg/L	north	Contour Control
564642.66	144894.11	90	10	mg/L	north	Contour Control
564651.95	144875.52	90	10	mg/L	north	Contour Control
564652.99	145109.91	95	10	mg/L	north	Contour Control
564654.23	144927	79.27	15	mg/L	north	Contour Control
564662.92	144913.58	90	15	mg/L	north	Contour Control
564668.4	144990.63	103.83	5	mg/L	north	Contour Control
564669.51	144979.81	90	20	mg/L	north	Contour Control
564671.57	145146.05	100	10	mg/L	north	Contour Control
564673.64	144842.48	90	10	mg/L	north	Contour Control
564673.64	144946.77	90	20	mg/L	north	Contour Control
564674.67	145025.24	91.5	30	mg/L	north	Contour Control
564675.86	144892.49	98.79	5	mg/L	north	Contour Control
564680.71	145237.53	107.5	0	mg/L	north	Contour Control
564686.03	144918.89	90	20	mg/L	north	Contour Control
564687.06	145069.64	95	30	mg/L	north	Contour Control
564692.22	144867.53	90	15	mg/L	north	Contour Control
564695.36	144766.52	90	0	mg/L	north	Contour Control
564696.83	145124.14	84.94	0	mg/L	north	Contour Control
564697.39	145185.29	105	10	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564702.55	144821.83	90	10	mg/L	north	Contour Control
564702.55	144898.24	90	20	mg/L	north	Contour Control
564710.81	145115.08	95	30	mg/L	north	Contour Control
564722	144955.03	90	32	mg/L	north	Contour Control
564724.23	144875.52	90	20	mg/L	north	Contour Control
564726.79	144836.59	96.26	5	mg/L	north	Contour Control
564728.62	145120.91	113.7	5	mg/L	north	Contour Control
564728.86	144982.14	90	30	mg/L	north	Contour Control
564730.43	144806.34	90	10	mg/L	north	Contour Control
564731.92	144925.63	100.92	5	mg/L	north	Contour Control
564734.44	144974.67	103.49	15	mg/L	north	Contour Control
564737.23	145032.38	95	30	mg/L	north	Contour Control
564738.27	145175.67	87.91	0	mg/L	north	Contour Control
564739.15	145237.72	91.14	0	mg/L	north	Contour Control
564740.37	144839.27	90	15	mg/L	north	Contour Control
564741.01	145183.65	82.34	0	mg/L	north	Contour Control
564741.7	145104.93	110.3	22.5	mg/L	north	Contour Control
564747.7	144929.81	92.5	30	mg/L	north	Contour Control
564747.91	145099.21	113.7	5	mg/L	north	Contour Control
564749.01	145240.02	110	15	mg/L	north	Contour Control
564749.01	145158.45	100	30	mg/L	north	Contour Control
564749.12	145158.29	117.1	5	mg/L	north	Contour Control
564755.82	145032.52	106.64	15	mg/L	north	Contour Control
564759.59	144890.41	99.3	5	mg/L	north	Contour Control
564761.41	144864.16	92.5	20	mg/L	north	Contour Control
564762.35	145103.55	99	30	mg/L	north	Contour Control
564766.79	145303.39	84.74	0	mg/L	north	Contour Control
564770.72	144984.23	90	30	mg/L	north	Contour Control
564775.86	144797.05	90	10	mg/L	north	Contour Control
564777.33	145290.08	113.03	15	mg/L	north	Contour Control
564777.88	145331.38	96.28	0	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564791.72	145265.03	86.93	0	mg/L	north	Contour Control
564792.38	145194.59	107.5	30	mg/L	north	Contour Control
564794.84	145364.62	88.12	0	mg/L	north	Contour Control
564796.51	144867.26	92.5	20	mg/L	north	Contour Control
564797.94	144745.59	90	0	mg/L	north	Contour Control
564797.94	144834.03	90	15	mg/L	north	Contour Control
564802.88	145274.13	93.49	0	mg/L	north	Contour Control
564808.4	145063.78	100	30	mg/L	north	Contour Control
564808.4	145120.3	102.5	30	mg/L	north	Contour Control
564809.94	144797.05	90	10	mg/L	north	Contour Control
564810.03	145176.98	114.54	25	mg/L	north	Contour Control
564810.5	144923.53	92.5	30	mg/L	north	Contour Control
564812.59	144377.16	93	0	mg/L	south	Contour Control
564813.02	145140.2	117.1	5	mg/L	north	Contour Control
564817.16	145278.22	120.5	10	mg/L	north	Contour Control
564818.87	144324.83	93	0	mg/L	south	Contour Control
564820.18	145409.28	90.62	0	mg/L	north	Contour Control
564820.84	145212.54	120.43	5	mg/L	north	Contour Control
564820.96	144251.56	93	0	mg/L	south	Contour Control
564823.73	144959.58	103.35	15	mg/L	north	Contour Control
564826.24	145001.08	105.53	15	mg/L	north	Contour Control
564826.36	145367.35	112	15	mg/L	north	Contour Control
564831.62	145224.53	114.6	25	mg/L	north	Contour Control
564837.56	145038.81	107.57	15	mg/L	north	Contour Control
564837.81	144876.55	90	20	mg/L	north	Contour Control
564839.8	144980.05	95	30	mg/L	north	Contour Control
564842.71	145420.78	101.4	0	mg/L	north	Contour Control
564850.27	144442.05	93	0	mg/L	south	Contour Control
564850.84	145093.18	113.7	5	mg/L	north	Contour Control
564851.24	145292.68	120.5	10	mg/L	north	Contour Control
564852.27	144801.18	90	10	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564854.46	144169.92	93	0	mg/L	south	Contour Control
564854.97	145362.8	98.48	0	mg/L	north	Contour Control
564855.17	144897.96	100.39	5	mg/L	north	Contour Control
564855.37	144331.36	93	10	mg/L	south	Contour Control
564855.37	144370.6	93	10	mg/L	south	Contour Control
564857.23	144849.01	97.86	0	mg/L	north	Contour Control
564858.47	144290.06	93	10	mg/L	south	Contour Control
564862.72	145164.57	114.28	22.5	mg/L	north	Contour Control
564863.63	144267.34	93	10	mg/L	south	Contour Control
564863.63	144402.61	93	10	mg/L	south	Contour Control
564864.93	144844.5	90	15	mg/L	north	Contour Control
564865.75	145332.64	90.98	0	mg/L	north	Contour Control
564866.53	144338.51	96.8	7.5	mg/L	south	Contour Control
564869.82	144885.85	90	20	mg/L	north	Contour Control
564871.89	144242.56	93	10	mg/L	south	Contour Control
564873.3	145126.58	105	30	mg/L	north	Contour Control
564873.35	144284.8	96.8	7.5	mg/L	south	Contour Control
564875.51	145250.38	88.24	0	mg/L	north	Contour Control
564876.98	144308.52	93	15	mg/L	south	Contour Control
564878.46	144397.34	96.8	7.5	mg/L	south	Contour Control
564879.44	144366.09	93	15	mg/L	south	Contour Control
564880.32	144975.93	104.61	15	mg/L	north	Contour Control
564881.67	145034.47	100	30	mg/L	north	Contour Control
564883.46	145440.17	92.69	0	mg/L	north	Contour Control
564884.28	144429.45	93	10	mg/L	south	Contour Control
564885.31	144220.88	93	10	mg/L	south	Contour Control
564885.39	145439.38	102.67	0	mg/L	north	Contour Control
564886.35	144811.5	90	10	mg/L	north	Contour Control
564891.51	145249.31	115	25	mg/L	north	Contour Control
564892.14	144952.83	92.5	30	mg/L	north	Contour Control
564892.73	144263.25	93	15	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564894.23	145189.38	100	30	mg/L	north	Contour Control
564894.66	144234.5	96.8	7.5	mg/L	south	Contour Control
564895.99	144335.52	93	20	mg/L	south	Contour Control
564896.81	144316.42	93	20	mg/L	south	Contour Control
564897.02	144315.9	93	20	mg/L	south	Contour Control
564897.41	145224.6	120.31	5	mg/L	north	Contour Control
564898.51	144308.77	93	20	mg/L	south	Contour Control
564900.8	144356.14	93	20	mg/L	south	Contour Control
564901.64	144301.85	93	20	mg/L	south	Contour Control
564902.61	144494.39	93	0	mg/L	south	Contour Control
564903.44	145159.49	117.1	5	mg/L	north	Contour Control
564904.04	144318.91	100	7.5	mg/L	south	Contour Control
564906.01	144410.86	93	15	mg/L	south	Contour Control
564906.79	144766.52	90	0	mg/L	north	Contour Control
564907	144448.04	93	10	mg/L	south	Contour Control
564907	144201.26	93	10	mg/L	south	Contour Control
564907.52	144289.56	93	20	mg/L	south	Contour Control
564908.27	145093.18	113.7	5	mg/L	north	Contour Control
564908.97	145332.41	112	15	mg/L	north	Contour Control
564911.71	144358.12	100	7.5	mg/L	south	Contour Control
564912.16	144372.66	93	20	mg/L	south	Contour Control
564913.02	145008.63	106.55	15	mg/L	north	Contour Control
564913.07	144134.33	93	0	mg/L	south	Contour Control
564913.42	144438.26	96.8	7.5	mg/L	south	Contour Control
564914.87	145190.22	95	32	mg/L	north	Contour Control
564918.36	144898.24	90	20	mg/L	north	Contour Control
564919.39	144824.93	90	10	mg/L	north	Contour Control
564920.42	144273.54	93	20	mg/L	south	Contour Control
564920.56	145285.63	89.48	0	mg/L	north	Contour Control
564921.09	144274.57	100	7.5	mg/L	south	Contour Control
564923.52	144458.37	93	10	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564926.19	144229.3	93	15	mg/L	south	Contour Control
564927.73	144866.48	90	15	mg/L	north	Contour Control
564928.76	144204.67	96.8	7.5	mg/L	south	Contour Control
564929.37	144939.46	103.08	15	mg/L	north	Contour Control
564930.88	145384.19	100.14	0	mg/L	north	Contour Control
564931.42	145279.65	120.5	10	mg/L	north	Contour Control
564931.78	144389.18	93	20	mg/L	south	Contour Control
564937.97	144254.95	93	20	mg/L	south	Contour Control
564938.19	145084.71	105	30	mg/L	north	Contour Control
564939.01	144182.67	93	10	mg/L	south	Contour Control
564940.04	144466.63	93	10	mg/L	south	Contour Control
564950.36	144909.6	90	20	mg/L	north	Contour Control
564950.36	144400.54	93	20	mg/L	south	Contour Control
564950.75	145227.06	100	30	mg/L	north	Contour Control
564950.75	144349.95	93	30	mg/L	south	Contour Control
564951.78	144402.45	100	7.5	mg/L	south	Contour Control
564952.43	145264.8	115	30	mg/L	north	Contour Control
564954.94	145170.54	95	30	mg/L	north	Contour Control
564958.63	144240.49	93	20	mg/L	south	Contour Control
564960.69	144844.55	90	10	mg/L	north	Contour Control
564960.81	145041.32	108.6	15	mg/L	north	Contour Control
564961.16	144237.06	100	7.5	mg/L	south	Contour Control
564962.76	144479.02	93	10	mg/L	south	Contour Control
564963.73	145231.83	120.3	5	mg/L	north	Contour Control
564965.41	144529.98	93	0	mg/L	south	Contour Control
564965.41	144287.15	93	30	mg/L	south	Contour Control
564968.5	144446.28	93	15	mg/L	south	Contour Control
564972.44	144199.78	93	15	mg/L	south	Contour Control
564973.78	145295.62	107.5	15	mg/L	north	Contour Control
564974.11	144920.96	90	20	mg/L	north	Contour Control
564974.32	145309.81	88.48	0	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564976.18	144412.93	93	20	mg/L	south	Contour Control
564976.99	145107.65	113.7	5	mg/L	north	Contour Control
564980.99	145019.4	100	25	mg/L	north	Contour Control
564982.1	144324.77	101.5	10	mg/L	south	Contour Control
564982.19	145082.83	110.91	15	mg/L	north	Contour Control
564985.19	144892.49	101.05	0	mg/L	north	Contour Control
564985.88	144175.68	96.8	7.5	mg/L	south	Contour Control
564986.26	145424.99	102.66	0	mg/L	north	Contour Control
564986.34	144326.92	93	30	mg/L	south	Contour Control
564987.22	144991.02	106.18	5	mg/L	north	Contour Control
564987.72	145331.43	91.81	0	mg/L	north	Contour Control
564988.43	144795.83	90	0	mg/L	north	Contour Control
564988.43	145132.86	109	30	mg/L	north	Contour Control
564989.54	145148.57	87	10	mg/L	north	Contour Control
564992.62	144105.02	93	0	mg/L	south	Contour Control
564992.7	144489.34	93	10	mg/L	south	Contour Control
564992.7	144158.92	93	10	mg/L	south	Contour Control
564992.97	145281.76	120.5	5	mg/L	north	Contour Control
564993.73	144220.88	93	20	mg/L	south	Contour Control
564996.81	145377.78	120.5	0	mg/L	north	Contour Control
564996.81	144902.07	92.5	15	mg/L	north	Contour Control
564997.82	144476.62	96.8	7.5	mg/L	south	Contour Control
564999.93	144421.19	93	20	mg/L	south	Contour Control
565000.96	145272.03	115	25	mg/L	north	Contour Control
565003.09	144270.4	93	30	mg/L	south	Contour Control
565005.92	145182.4	117.1	5	mg/L	north	Contour Control
565007.27	145220.78	110	30	mg/L	north	Contour Control
565009.22	145336.05	120.5	0	mg/L	north	Contour Control
565011.29	144950.9	92.5	20	mg/L	north	Contour Control
565011.46	144381.35	93	30	mg/L	south	Contour Control
565015.42	144873.46	90	10	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565019.5	145395	101.35	0	mg/L	north	Contour Control
565019.83	145095.18	103.5	30	mg/L	north	Contour Control
565019.98	144210.63	100	7.5	mg/L	south	Contour Control
565021.61	144498.64	93	10	mg/L	south	Contour Control
565024.01	145237.86	120.28	5	mg/L	north	Contour Control
565025.81	144259.11	101.5	7.5	mg/L	south	Contour Control
565026.77	144430.49	93	20	mg/L	south	Contour Control
565027.13	144424.69	100	7.5	mg/L	south	Contour Control
565028.84	144205.39	93	20	mg/L	south	Contour Control
565030.3	145028.19	100.5	27.5	mg/L	north	Contour Control
565031.83	145375.29	90.4	0	mg/L	north	Contour Control
565032.39	145164.26	107.5	25	mg/L	north	Contour Control
565032.45	145153.43	116	5	mg/L	north	Contour Control
565036.4	144174.2	93	15	mg/L	south	Contour Control
565038.78	145036.29	108.9	5	mg/L	north	Contour Control
565039.17	144146.53	93	10	mg/L	south	Contour Control
565040.77	144553	93	0	mg/L	south	Contour Control
565042.3	144469.9	93	15	mg/L	south	Contour Control
565042.86	144293.43	93	30	mg/L	south	Contour Control
565046.41	144322.32	102	10	mg/L	south	Contour Control
565048.09	145301.9	107.5	15	mg/L	north	Contour Control
565048.37	145338.42	98.62	0	mg/L	north	Contour Control
565048.44	145275.13	115	25	mg/L	north	Contour Control
565054.37	144943.94	92.5	15	mg/L	north	Contour Control
565054.65	144902.37	90	10	mg/L	north	Contour Control
565055.42	145227.06	115	30	mg/L	north	Contour Control
565055.69	144990.14	95	20	mg/L	north	Contour Control
565056.72	144508.96	93	10	mg/L	south	Contour Control
565056.72	144196.09	93	20	mg/L	south	Contour Control
565057.32	145295.87	90.47	0	mg/L	north	Contour Control
565059.61	144241.09	93	30	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565059.82	145336.05	120.5	10	mg/L	north	Contour Control
565059.87	144375.32	101.5	7.5	mg/L	south	Contour Control
565061.88	144440.81	93	20	mg/L	south	Contour Control
565063.46	144150.96	96.8	7.5	mg/L	south	Contour Control
565063.79	144356.23	93	30	mg/L	south	Contour Control
565067.18	144990.63	106.74	5	mg/L	north	Contour Control
565067.98	144841.88	90	0	mg/L	north	Contour Control
565067.98	145130.77	107.5	30	mg/L	north	Contour Control
565071.48	145109.23	112.93	10	mg/L	north	Contour Control
565071.99	144497.94	96.8	7.5	mg/L	south	Contour Control
565073.44	145228.22	120.28	5	mg/L	north	Contour Control
565076.25	144193.38	100	7.5	mg/L	south	Contour Control
565076.35	144396	93	30	mg/L	south	Contour Control
565079.47	145182.4	117.1	5	mg/L	north	Contour Control
565080.54	144084.09	93	0	mg/L	south	Contour Control
565080.54	145204.03	111	30	mg/L	north	Contour Control
565084.6	144137.24	93	10	mg/L	south	Contour Control
565086.66	144190.93	93	20	mg/L	south	Contour Control
565089.76	144445.97	93	20	mg/L	south	Contour Control
565091.01	145097.27	102.5	30	mg/L	north	Contour Control
565092.86	145029.37	97	20	mg/L	north	Contour Control
565093.89	144944.7	90	10	mg/L	north	Contour Control
565093.89	144513.09	93	10	mg/L	south	Contour Control
565095.19	145373.6	120.5	0	mg/L	north	Contour Control
565099.27	144263.38	101.5	7.5	mg/L	south	Contour Control
565100.43	144987.9	95	15	mg/L	north	Contour Control
565102.82	144164.85	93	15	mg/L	south	Contour Control
565104.22	145331.92	107.5	10	mg/L	north	Contour Control
565105.66	144557.19	93	0	mg/L	south	Contour Control
565106.27	144481.71	93	15	mg/L	south	Contour Control
565106.28	145259.64	112	20	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565106.71	145291.43	107.5	15	mg/L	north	Contour Control
565107.75	144278.77	93	30	mg/L	south	Contour Control
565108.35	144188.87	93	20	mg/L	south	Contour Control
565111.91	145239.1	119.96	5	mg/L	north	Contour Control
565116.13	145147.51	107.5	25	mg/L	north	Contour Control
565116.13	144232.72	93	30	mg/L	south	Contour Control
565116.13	144329.01	93	30	mg/L	south	Contour Control
565119.71	145057.25	100	20	mg/L	north	Contour Control
565120.6	145102.44	112.93	10	mg/L	north	Contour Control
565122.41	144404.37	93	30	mg/L	south	Contour Control
565122.8	144136.2	93	10	mg/L	south	Contour Control
565122.8	144450.1	93	20	mg/L	south	Contour Control
565126.59	144902.59	90	0	mg/L	north	Contour Control
565127.97	144982.91	90	10	mg/L	north	Contour Control
565130.54	145206.8	118.42	5	mg/L	north	Contour Control
565130.85	144451.83	100	7.5	mg/L	south	Contour Control
565134.16	145321.59	107.5	10	mg/L	north	Contour Control
565135.19	145237.95	111	20	mg/L	north	Contour Control
565136.78	144190.17	100	7.5	mg/L	south	Contour Control
565137.06	144362.51	93	30	mg/L	south	Contour Control
565138.29	144188.87	93	20	mg/L	south	Contour Control
565140.36	144516.19	93	10	mg/L	south	Contour Control
565140.36	145085.13	100	20	mg/L	north	Contour Control
565140.4	144316.9	102	10	mg/L	south	Contour Control
565146.48	145058.02	95	15	mg/L	north	Contour Control
565149.65	145217.3	110	20	mg/L	north	Contour Control
565154.81	145016.98	95	10	mg/L	north	Contour Control
565156.88	145187.36	107.5	20	mg/L	north	Contour Control
565156.88	145117.14	102.5	20	mg/L	north	Contour Control
565159.8	144144.14	96.8	7.5	mg/L	south	Contour Control
565159.98	145304.04	107.5	10	mg/L	north	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565159.98	145148.12	105	20	mg/L	north	Contour Control
565160.09	145253.75	107.5	15	mg/L	north	Contour Control
565162.04	144451.14	93	20	mg/L	south	Contour Control
565163.34	144484.17	93	15	mg/L	south	Contour Control
565164.27	144389.72	93	30	mg/L	south	Contour Control
565168.46	144324.83	93	30	mg/L	south	Contour Control
565168.65	144384.54	101.5	7.5	mg/L	south	Contour Control
565170.3	144136.2	93	10	mg/L	south	Contour Control
565170.3	144188.87	93	20	mg/L	south	Contour Control
565173.4	145057.25	95	10	mg/L	north	Contour Control
565174.74	144561.38	93	0	mg/L	south	Contour Control
565178.93	145350.57	107.5	0	mg/L	north	Contour Control
565179.58	144164.36	93	15	mg/L	south	Contour Control
565179.59	145283.39	107.5	10	mg/L	north	Contour Control
565179.97	145127.1	95	15	mg/L	north	Contour Control
565181.02	145210.84	107.5	15	mg/L	north	Contour Control
565183.11	144965.39	90	0	mg/L	north	Contour Control
565183.11	145173.16	107.5	15	mg/L	north	Contour Control
565187.3	144077.81	93	0	mg/L	south	Contour Control
565187.3	144226.44	93	30	mg/L	south	Contour Control
565190.95	145105.78	95	10	mg/L	north	Contour Control
565191.99	144512.06	93	10	mg/L	south	Contour Control
565196.12	145254.47	107.5	10	mg/L	north	Contour Control
565198.18	144191.96	93	20	mg/L	south	Contour Control
565199.21	145152.25	100.5	10	mg/L	north	Contour Control
565200.25	144452.17	93	20	mg/L	south	Contour Control
565201	144252.53	101.5	7.5	mg/L	south	Contour Control
565204.38	145228.66	107.5	10	mg/L	north	Contour Control
565204.38	145194.59	107.5	10	mg/L	north	Contour Control
565214.36	144498.79	96.8	7.5	mg/L	south	Contour Control
565218.7	144370.88	93	30	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565218.83	144142.4	93	10	mg/L	south	Contour Control
565220.8	145032.38	95	0	mg/L	north	Contour Control
565222.96	144196.09	93	20	mg/L	south	Contour Control
565227.15	144199.55	100	7.5	mg/L	south	Contour Control
565229.27	144479.25	93	15	mg/L	south	Contour Control
565229.82	144325.36	102	10	mg/L	south	Contour Control
565231.26	145285.68	107.5	0	mg/L	north	Contour Control
565232.54	144447.53	100	7.5	mg/L	south	Contour Control
565233.97	144155.22	96.8	7.5	mg/L	south	Contour Control
565235.45	144259.93	93	30	mg/L	south	Contour Control
565237.54	144563.47	93	0	mg/L	south	Contour Control
565240.52	144449.07	93	20	mg/L	south	Contour Control
565241.55	144505.86	93	10	mg/L	south	Contour Control
565248.01	145116.11	95	0	mg/L	north	Contour Control
565248.01	145204.03	107.5	0	mg/L	north	Contour Control
565248.78	144204.35	93	20	mg/L	south	Contour Control
565252.2	144343.67	93	30	mg/L	south	Contour Control
565254.86	144176.66	93	15	mg/L	south	Contour Control
565258.69	144443.38	100	7.5	mg/L	south	Contour Control
565262.66	144385.53	93	30	mg/L	south	Contour Control
565267.34	144383.68	101.5	7.5	mg/L	south	Contour Control
565268.94	144280.87	93	30	mg/L	south	Contour Control
565271.48	144219.16	100	7.5	mg/L	south	Contour Control
565271.49	144152.73	93	10	mg/L	south	Contour Control
565272.53	144212.61	93	20	mg/L	south	Contour Control
565279.17	144292.36	101.5	7.5	mg/L	south	Contour Control
565279.75	144441.84	93	20	mg/L	south	Contour Control
565282.56	144477.48	96.8	7.5	mg/L	south	Contour Control
565283.6	144098.74	93	0	mg/L	south	Contour Control
565285.95	144492.44	93	10	mg/L	south	Contour Control
565286.84	144465.97	93	15	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565296.27	144223.97	93	20	mg/L	south	Contour Control
565303.88	144429.73	100	7.5	mg/L	south	Contour Control
565305.57	144431.52	93	20	mg/L	south	Contour Control
565306.44	144179.09	96.8	7.5	mg/L	south	Contour Control
565306.62	144534.16	93	0	mg/L	south	Contour Control
565312.8	144166.15	93	10	mg/L	south	Contour Control
565313.9	144201.26	93	15	mg/L	south	Contour Control
565314.86	144234.3	93	20	mg/L	south	Contour Control
565315	144303.89	93	30	mg/L	south	Contour Control
565315	144364.6	93	30	mg/L	south	Contour Control
565318.37	144412.68	100	7.5	mg/L	south	Contour Control
565323.12	144479.02	93	10	mg/L	south	Contour Control
565327.25	144416.03	93	20	mg/L	south	Contour Control
565327.75	144252.41	100	7.5	mg/L	south	Contour Control
565331.38	144252.88	93	20	mg/L	south	Contour Control
565331.61	144440.87	93	15	mg/L	south	Contour Control
565337.58	144182.67	93	10	mg/L	south	Contour Control
565342.74	144400.54	93	20	mg/L	south	Contour Control
565342.74	144271.47	93	20	mg/L	south	Contour Control
565344.8	144387.11	100	7.5	mg/L	south	Contour Control
565344.8	144439.96	96.8	7.5	mg/L	south	Contour Control
565347.36	144217.45	96.8	7.5	mg/L	south	Contour Control
565348.34	144234.72	93	15	mg/L	south	Contour Control
565348.94	144460.43	93	10	mg/L	south	Contour Control
565351.91	144297.65	100	7.5	mg/L	south	Contour Control
565354.1	144201.26	93	10	mg/L	south	Contour Control
565355.13	144292.12	93	20	mg/L	south	Contour Control
565356.16	144381.96	93	20	mg/L	south	Contour Control
565356.86	144115.49	93	0	mg/L	south	Contour Control
565360.14	144341.92	100	7.5	mg/L	south	Contour Control
565363.1	144405.94	93	15	mg/L	south	Contour Control

Table B-1: 2013 Separate, Deep Cr (VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565363.39	144315.87	93	20	mg/L	south	Contour Control
565365.46	144360.27	93	20	mg/L	south	Contour Control
565365.46	144342.72	93	20	mg/L	south	Contour Control
565366.49	144434.62	93	10	mg/L	south	Contour Control
565368.67	144407.57	96.8	7.5	mg/L	south	Contour Control
565369.01	144275.06	93	15	mg/L	south	Contour Control
565369.59	144226.04	93	10	mg/L	south	Contour Control
565375.7	144486.01	93	0	mg/L	south	Contour Control
565377.2	144280.54	96.8	7.5	mg/L	south	Contour Control
565379.91	144407.77	93	10	mg/L	south	Contour Control
565380.32	144318.36	93	15	mg/L	south	Contour Control
565381.31	144361.17	93	15	mg/L	south	Contour Control
565384.04	144262.18	93	10	mg/L	south	Contour Control
565386.57	144336.81	96.8	7.5	mg/L	south	Contour Control
565393.34	144300.38	93	10	mg/L	south	Contour Control
565394.37	144366.47	93	10	mg/L	south	Contour Control
565397.47	144342.72	93	10	mg/L	south	Contour Control
565397.47	144321.03	93	10	mg/L	south	Contour Control
565401.02	144392.22	91.44	2	mg/L	south	Contour Control
565401.02	144392.22	88.39	2	mg/L	south	Contour Control
565407.1	144182.48	93	0	mg/L	south	Contour Control
565432.22	144435.77	93	0	mg/L	south	Contour Control
565442.69	144253.65	93	0	mg/L	south	Contour Control
565463.62	144318.55	93	0	mg/L	south	Contour Control
565463.62	144383.44	93	0	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565095.99	145232.26	117.721928	27	mg/L	north	199-B2-14, routine/HEIS
565401.02	144392.22	91.80736	22	mg/L	south	199-B4-18, routine/HEIS
565188.9	144241.27	92.999	30.2	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	90.165	29.8	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	90.165	30	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	87.117	42.2	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	80.914	18.1	mg/L	south	199-B5-11, DD/HEIS
565188.9	144241.27	89.11316	22	mg/L	south	199-B5-11, routine/HEIS
564893.41	144764.86	91.50448	17	mg/L	north	199-B5-13, routine/HEIS
564721.99	144955.49	89.198604	35	mg/L	north	199-B5-5, routine/HEIS
564967.7	144316.44	90.88324	41	mg/L	south	199-B5-6, routine/HEIS
564821.98	144250.05	92.40576	25	mg/L	south	199-B5-9, routine/HEIS
564915	145190.68	93.878588	31	mg/L	north	199-B6-12, routine/HEIS
564614.71	145329.92	119.63	0	mg/L	north	Contour Control
564585.22	145270.94	119.58	0	mg/L	north	Contour Control
564555.73	145202.14	106.5	0	mg/L	north	Contour Control
564545.9	145101.89	97.47	0	mg/L	north	Contour Control
564549.84	145017.36	94.43	0	mg/L	north	Contour Control
564573.42	144928.9	88	0	mg/L	north	Contour Control
564620.6	144854.2	84.08	0	mg/L	north	Contour Control
564689.41	144777.53	84.24	0	mg/L	north	Contour Control
564771.97	144732.32	84.58	0	mg/L	north	Contour Control
564864.36	144704.8	83.85	0	mg/L	north	Contour Control
564958.72	144714.63	83.71	0	mg/L	north	Contour Control
565047.18	144763.77	84.38	0	mg/L	north	Contour Control
565112.05	144826.68	84.83	0	mg/L	north	Contour Control
565159.22	144891.55	83.54	0	mg/L	north	Contour Control
565202.47	144966.25	84.01	0	mg/L	north	Contour Control
565241.79	145038.98	83.57	0	mg/L	north	Contour Control
565288.97	145129.41	88.92	0	mg/L	north	Contour Control
565302.73	145208.04	95.63	0	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565300.76	145300.43	101.57	0	mg/L	north	Contour Control
565283.07	145359.4	112.9	0	mg/L	north	Contour Control
565251.62	145406.58	119.5	0	mg/L	north	Contour Control
565220.16	145445.9	120.33	0	mg/L	north	Contour Control
565241.79	145038.98	84.68	0	mg/L	north	Contour Control
564661.88	144256.6	93.83	0	mg/L	south	Contour Control
565208.37	144624.2	92.39	0	mg/L	south	Contour Control
564595.12	145348.92	80.66	5	mg/L	north	Contour Control
564597.02	145323.28	79.56	5	mg/L	north	Contour Control
564611.15	145001.16	75.51	5	mg/L	north	Contour Control
564608.88	145085.47	100.6	5	mg/L	north	Contour Control
564614.78	145414.48	84.99	5	mg/L	north	Contour Control
564625.93	144914.96	75.01	5	mg/L	north	Contour Control
564638.84	145451.1	88.01	5	mg/L	north	Contour Control
564656.03	145289.31	80.48	5	mg/L	north	Contour Control
564657.88	145353.88	83.85	5	mg/L	north	Contour Control
564666.13	145325.29	82.75	5	mg/L	north	Contour Control
564668.13	145372.54	85.3	5	mg/L	north	Contour Control
564668.56	145059.89	99.49	5	mg/L	north	Contour Control
564673.21	145466.48	90.42	5	mg/L	north	Contour Control
564678.79	145022.38	97.01	5	mg/L	north	Contour Control
564685.61	144846.76	74.95	5	mg/L	north	Contour Control
564685.61	144966.11	93.19	5	mg/L	north	Contour Control
564685.61	145383.44	117.35	5	mg/L	north	Contour Control
564687.15	145404.62	87.86	5	mg/L	north	Contour Control
564768.16	144887.82	76.4	5	mg/L	north	Contour Control
564712.89	145460.58	117.18	5	mg/L	north	Contour Control
564713.92	145294.79	83.4	5	mg/L	north	Contour Control
564852.34	144959.59	78.39	5	mg/L	north	Contour Control
564718.28	145350.45	86.5	5	mg/L	north	Contour Control
564729.07	145339.82	86.45	5	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564736.12	145436.32	91.8	5	mg/L	north	Contour Control
564736.37	145245.39	82.05	5	mg/L	north	Contour Control
564741.56	145433.4	91.9	5	mg/L	north	Contour Control
564745.29	145054.77	99.97	5	mg/L	north	Contour Control
564748.7	145000.21	96.24	5	mg/L	north	Contour Control
564755.07	145392.31	90.4	5	mg/L	north	Contour Control
564864.63	144874.82	77.74	5	mg/L	north	Contour Control
564757.18	145431.05	92.51	5	mg/L	north	Contour Control
564757.54	145334.2	87.49	5	mg/L	north	Contour Control
564758.93	144972.93	94.47	5	mg/L	north	Contour Control
564765.75	144950.77	93.01	5	mg/L	north	Contour Control
564769.16	144800.72	75.69	5	mg/L	north	Contour Control
564772.55	145285.06	85.64	5	mg/L	north	Contour Control
564772.73	145410.62	92.18	5	mg/L	north	Contour Control
564779.06	145236.86	83.44	5	mg/L	north	Contour Control
564786.21	144930.3	91.82	5	mg/L	north	Contour Control
564787.53	145353.37	89.89	5	mg/L	north	Contour Control
564789.99	145436.39	94.32	5	mg/L	north	Contour Control
564794.68	145408.5	93.09	5	mg/L	north	Contour Control
564794.85	145366.14	90.9	5	mg/L	north	Contour Control
565206.37	145311.59	102.38	5	mg/L	north	Contour Control
564798.15	144925.19	91.6	5	mg/L	north	Contour Control
564811.79	145076.94	102.23	5	mg/L	north	Contour Control
564818.61	145037.72	99.6	5	mg/L	north	Contour Control
564819.35	145433.92	95.57	5	mg/L	north	Contour Control
564826.63	145335.79	90.81	5	mg/L	north	Contour Control
564826.71	145402.17	94.26	5	mg/L	north	Contour Control
564830.65	145369.67	92.76	5	mg/L	north	Contour Control
564832.25	145003.62	97.39	5	mg/L	north	Contour Control
564838.68	145221.76	85.45	5	mg/L	north	Contour Control
564845.89	144979.75	95.89	5	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564847.59	144914.96	91.43	5	mg/L	north	Contour Control
564849.68	145265.39	88.23	5	mg/L	north	Contour Control
564859.88	145339.45	92.55	5	mg/L	north	Contour Control
564866.35	145104.22	104.71	5	mg/L	north	Contour Control
564840.81	145151.05	113.34	5	mg/L	north	Contour Control
564871.46	145070.12	102.41	5	mg/L	north	Contour Control
564874.87	145470.81	114.9	5	mg/L	north	Contour Control
564876.58	144914.96	91.75	5	mg/L	north	Contour Control
564877.95	145437.49	98.5	5	mg/L	north	Contour Control
564886.4	145369.26	95.34	5	mg/L	north	Contour Control
564886.81	145056.48	101.64	5	mg/L	north	Contour Control
564890.22	144971.23	95.79	5	mg/L	north	Contour Control
564895.33	144918.37	92.19	5	mg/L	north	Contour Control
564898.97	145284.84	91.55	5	mg/L	north	Contour Control
565214.64	145243.36	93.67	5	mg/L	north	Contour Control
564900.98	145207.24	87.53	5	mg/L	north	Contour Control
564875.35	144800.91	76.35	5	mg/L	north	Contour Control
564902.59	145244.22	89.61	5	mg/L	north	Contour Control
564903.25	145438.4	99.73	5	mg/L	north	Contour Control
564904.41	145397.91	97.68	5	mg/L	north	Contour Control
564742.72	145142.94	110.64	5	mg/L	north	Contour Control
564915	145190.68	116.74	5	mg/L	north	Contour Control
564915.79	145172.42	109.96	5	mg/L	north	Contour Control
564924.32	144925.19	92.98	5	mg/L	north	Contour Control
564926.02	145063.3	102.54	5	mg/L	north	Contour Control
564926.02	145116.16	106.19	5	mg/L	north	Contour Control
564927.73	145191.18	111.39	5	mg/L	north	Contour Control
564929.01	145289.25	93.18	5	mg/L	north	Contour Control
564930.1	145177.16	87.94	5	mg/L	north	Contour Control
564930.5	145366.03	97.24	5	mg/L	north	Contour Control
564932.84	145267.91	116.74	5	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564938.85	145431.37	101.03	5	mg/L	north	Contour Control
564940.54	145187.6	88.44	5	mg/L	north	Contour Control
564941.68	145392.39	99.13	5	mg/L	north	Contour Control
564942.98	145333.26	96.12	5	mg/L	north	Contour Control
564944.78	144979.75	96.97	5	mg/L	north	Contour Control
564951.6	144947.36	94.81	5	mg/L	north	Contour Control
564951.6	145126.39	107.17	5	mg/L	north	Contour Control
564954.78	145242.78	91.97	5	mg/L	north	Contour Control
564963.54	145138.32	108.13	5	mg/L	north	Contour Control
564964.94	145430.65	102.21	5	mg/L	north	Contour Control
564967.07	145224.1	91.58	5	mg/L	north	Contour Control
564967.68	145342.22	97.74	5	mg/L	north	Contour Control
564968.65	145088.88	104.77	5	mg/L	north	Contour Control
564975.62	145312.55	96.57	5	mg/L	north	Contour Control
564977.18	145155.37	109.46	5	mg/L	north	Contour Control
564978.68	145256.53	93.8	5	mg/L	north	Contour Control
564984	145470.81	115.76	5	mg/L	north	Contour Control
564987.41	145182.65	111.45	5	mg/L	north	Contour Control
564987.41	145199.7	112.63	5	mg/L	north	Contour Control
564987.41	145230.4	114.75	5	mg/L	north	Contour Control
564988.7	145354.78	99.38	5	mg/L	north	Contour Control
564989.11	145013.85	99.81	5	mg/L	north	Contour Control
564990.82	144967.82	96.65	5	mg/L	north	Contour Control
564990.82	145114.45	106.78	5	mg/L	north	Contour Control
564992.34	145371.15	100.4	5	mg/L	north	Contour Control
564992.52	144897.91	91.84	5	mg/L	north	Contour Control
564999.83	145256.05	94.77	5	mg/L	north	Contour Control
565002.75	145032.61	101.26	5	mg/L	north	Contour Control
565004.46	145146.85	109.17	5	mg/L	north	Contour Control
565008.63	145430.14	104.23	5	mg/L	north	Contour Control
565008.86	145413.11	103.35	5	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565013.94	145333.05	99.43	5	mg/L	north	Contour Control
565014.09	145297.93	97.61	5	mg/L	north	Contour Control
565016.39	144856.99	89.28	5	mg/L	north	Contour Control
565021.51	145001.92	99.34	5	mg/L	north	Contour Control
565024.92	144923.48	93.96	5	mg/L	north	Contour Control
565026.62	145187.77	112.23	5	mg/L	north	Contour Control
565033.44	145226.99	115.02	5	mg/L	north	Contour Control
565037.33	145349.49	101.38	5	mg/L	north	Contour Control
565039.4	145414.83	104.87	5	mg/L	north	Contour Control
565044.29	145325.21	100.44	5	mg/L	north	Contour Control
565045.38	145085.47	105.37	5	mg/L	north	Contour Control
565047.08	145030.9	101.62	5	mg/L	north	Contour Control
565048.06	145436.76	106.42	5	mg/L	north	Contour Control
565058.58	145411.78	105.61	5	mg/L	north	Contour Control
565060.72	144967.82	97.42	5	mg/L	north	Contour Control
565062.43	145467.4	114.86	5	mg/L	north	Contour Control
565062.59	145435	107.01	5	mg/L	north	Contour Control
565072.66	145153.67	110.38	5	mg/L	north	Contour Control
565186.01	145286.82	97.29	5	mg/L	north	Contour Control
565076.19	145398.7	105.76	5	mg/L	north	Contour Control
565079.48	144911.55	93.74	5	mg/L	north	Contour Control
565079.48	145201.41	113.75	5	mg/L	north	Contour Control
565079.55	145343.73	103.06	5	mg/L	north	Contour Control
565081.19	145233.81	116.01	5	mg/L	north	Contour Control
565084.6	145080.35	105.45	5	mg/L	north	Contour Control
565087.39	145438.6	108.35	5	mg/L	north	Contour Control
565119.95	145285.14	97.16	5	mg/L	north	Contour Control
565096.53	145003.62	100.28	5	mg/L	north	Contour Control
565103.35	145104.22	107.3	5	mg/L	north	Contour Control
565105.8	145365.88	105.44	5	mg/L	north	Contour Control
565111.67	145400.19	107.49	5	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565113.58	145128.09	109.06	5	mg/L	north	Contour Control
565117.73	145386.06	107.04	5	mg/L	north	Contour Control
565125.52	145180.95	112.85	5	mg/L	north	Contour Control
565127.22	145051.36	103.91	5	mg/L	north	Contour Control
565128.93	145225.28	115.94	5	mg/L	north	Contour Control
565135.75	144986.57	99.53	5	mg/L	north	Contour Control
565137.45	145462.29	115.61	5	mg/L	north	Contour Control
565139.16	145068.41	105.22	5	mg/L	north	Contour Control
565149.56	145325.47	105.38	5	mg/L	north	Contour Control
565165.36	145390.69	109.51	5	mg/L	north	Contour Control
565173.14	145351.47	107.84	5	mg/L	north	Contour Control
565173.26	145133.21	110.07	5	mg/L	north	Contour Control
565185.19	145187.77	113.97	5	mg/L	north	Contour Control
565188.6	145071.82	106	5	mg/L	north	Contour Control
565229.53	145163.9	112.81	5	mg/L	north	Contour Control
565234.64	145226.99	117.22	5	mg/L	north	Contour Control
564769.21	144303.05	100.85	5	mg/L	south	Contour Control
564775.12	144269.6	100.81	5	mg/L	south	Contour Control
564779.7	144303.96	99.21	5	mg/L	south	Contour Control
564785.27	144319.32	99.07	5	mg/L	south	Contour Control
564788.87	144285.93	99.34	5	mg/L	south	Contour Control
564791.85	144303.32	99.72	5	mg/L	south	Contour Control
564797.28	144301.25	100.44	5	mg/L	south	Contour Control
564799.85	144306.76	99.13	5	mg/L	south	Contour Control
564802.43	144330.83	100.24	5	mg/L	south	Contour Control
564807.09	144296	100.27	5	mg/L	south	Contour Control
564809.65	144340.74	100.99	5	mg/L	south	Contour Control
564812.9	144313.8	100.82	5	mg/L	south	Contour Control
564815.31	144271.39	100.25	5	mg/L	south	Contour Control
564818.54	144242.31	100.85	5	mg/L	south	Contour Control
564821.4	144232.41	99.52	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564823.87	144195.22	100.76	5	mg/L	south	Contour Control
564827.21	144340.89	99.25	5	mg/L	south	Contour Control
564829.41	144202.35	100.3	5	mg/L	south	Contour Control
564831.26	144319.14	100.33	5	mg/L	south	Contour Control
564833.97	144378.86	99.23	5	mg/L	south	Contour Control
564836.37	144317.3	100.46	5	mg/L	south	Contour Control
564839.27	144372.41	99.71	5	mg/L	south	Contour Control
564841.49	144326.08	100.13	5	mg/L	south	Contour Control
564843.73	144280.13	100.38	5	mg/L	south	Contour Control
564845.82	144275.14	100.38	5	mg/L	south	Contour Control
564848.51	144213.67	99.83	5	mg/L	south	Contour Control
564850.61	144328.41	100.49	5	mg/L	south	Contour Control
564853.3	144366.92	99.98	5	mg/L	south	Contour Control
564854.86	144337.63	100.63	5	mg/L	south	Contour Control
564857.53	144390.97	100.19	5	mg/L	south	Contour Control
564859.54	144391.4	99.26	5	mg/L	south	Contour Control
564861.25	144278.82	100.14	5	mg/L	south	Contour Control
564863.79	144213.45	99.8	5	mg/L	south	Contour Control
564866.41	144364.7	100.13	5	mg/L	south	Contour Control
564868.21	144397.31	100.63	5	mg/L	south	Contour Control
564870.27	144382.02	99.95	5	mg/L	south	Contour Control
564872.24	144200.61	99.48	5	mg/L	south	Contour Control
564874.33	144180.18	99.09	5	mg/L	south	Contour Control
564876.57	144180.3	100.56	5	mg/L	south	Contour Control
564877.91	144293.74	100.88	5	mg/L	south	Contour Control
564880.46	144289.48	100.88	5	mg/L	south	Contour Control
564882.05	144420.06	100.9	5	mg/L	south	Contour Control
564883.96	144197.65	99.07	5	mg/L	south	Contour Control
564886.5	144343.1	99.82	5	mg/L	south	Contour Control
564888.39	144258.23	99.45	5	mg/L	south	Contour Control
564889.84	144333.51	100.68	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564892.2	144272.17	99.8	5	mg/L	south	Contour Control
564896.1	144368.56	99.38	5	mg/L	south	Contour Control
564898.13	144409.47	100.4	5	mg/L	south	Contour Control
564901.11	144251.95	100.73	5	mg/L	south	Contour Control
564902.77	144363.33	99.62	5	mg/L	south	Contour Control
564907.15	144262.22	99.63	5	mg/L	south	Contour Control
564909.19	144369.58	99.26	5	mg/L	south	Contour Control
564912.33	144233.35	100.42	5	mg/L	south	Contour Control
564914.59	144239.04	99.67	5	mg/L	south	Contour Control
564919.77	144186.83	99.47	5	mg/L	south	Contour Control
564925.46	144359.72	99.38	5	mg/L	south	Contour Control
564929.18	144403.19	99.5	5	mg/L	south	Contour Control
564934.35	144442.16	99.58	5	mg/L	south	Contour Control
564944.97	144222.11	99.66	5	mg/L	south	Contour Control
564948.84	144438.68	99.01	5	mg/L	south	Contour Control
564952.11	144451.41	99.2	5	mg/L	south	Contour Control
564955.71	144419.66	99.81	5	mg/L	south	Contour Control
564957.38	144373.92	100.56	5	mg/L	south	Contour Control
564959.12	144452.01	100.04	5	mg/L	south	Contour Control
564960.41	144403.59	99.5	5	mg/L	south	Contour Control
564962.34	144182.71	99.87	5	mg/L	south	Contour Control
564963.94	144410.56	100.96	5	mg/L	south	Contour Control
564965.46	144237.86	100.7	5	mg/L	south	Contour Control
564971.06	144423.01	99.46	5	mg/L	south	Contour Control
564972.48	144398.29	100.36	5	mg/L	south	Contour Control
564975.66	144386.57	100.21	5	mg/L	south	Contour Control
564981.18	144237.59	99.56	5	mg/L	south	Contour Control
564982.39	144199.67	99.25	5	mg/L	south	Contour Control
564984.15	144403.45	99.25	5	mg/L	south	Contour Control
564987.39	144416.87	99.92	5	mg/L	south	Contour Control
564989.45	144210.31	99.95	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564990.41	144401.55	100.25	5	mg/L	south	Contour Control
564994.31	144226.27	100.75	5	mg/L	south	Contour Control
565002.78	144453.58	99.27	5	mg/L	south	Contour Control
565004.43	144395.09	100.52	5	mg/L	south	Contour Control
565007.48	144417.6	100.85	5	mg/L	south	Contour Control
565010.86	144229.3	99.94	5	mg/L	south	Contour Control
565012.36	144212.81	100.56	5	mg/L	south	Contour Control
565014.29	144181.64	100.37	5	mg/L	south	Contour Control
565017.98	144185.08	99.66	5	mg/L	south	Contour Control
565019.43	144239.88	99.55	5	mg/L	south	Contour Control
565022.92	144475.74	100.41	5	mg/L	south	Contour Control
565024.36	144225.63	100.31	5	mg/L	south	Contour Control
565026.53	144409.55	99.12	5	mg/L	south	Contour Control
565032.69	144225.16	99.87	5	mg/L	south	Contour Control
565034.43	144206.43	100.36	5	mg/L	south	Contour Control
565040.88	144466.59	100.6	5	mg/L	south	Contour Control
565042.87	144186.45	99.38	5	mg/L	south	Contour Control
565047.75	144445.7	100.95	5	mg/L	south	Contour Control
565049.57	144467.52	100.03	5	mg/L	south	Contour Control
565051.08	144248.14	99.3	5	mg/L	south	Contour Control
565052.8	144457.23	99.98	5	mg/L	south	Contour Control
565056.62	144197.68	100.89	5	mg/L	south	Contour Control
565059.48	144411.92	99.25	5	mg/L	south	Contour Control
565062.88	144200.86	99.82	5	mg/L	south	Contour Control
565067.38	144443.48	99.77	5	mg/L	south	Contour Control
565072.39	144215.21	99.68	5	mg/L	south	Contour Control
565075.98	144450.64	99.41	5	mg/L	south	Contour Control
565084.86	144451.09	99.82	5	mg/L	south	Contour Control
565087.5	144259.33	99.8	5	mg/L	south	Contour Control
565094.95	144232.21	100.84	5	mg/L	south	Contour Control
565096.55	144225.21	99.06	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565105.02	144422.3	99.63	5	mg/L	south	Contour Control
565108.28	144227.05	100.85	5	mg/L	south	Contour Control
565110.14	144235.89	100.5	5	mg/L	south	Contour Control
565114.91	144235.76	100.54	5	mg/L	south	Contour Control
565117.02	144431.62	99.29	5	mg/L	south	Contour Control
565118.47	144207.04	100	5	mg/L	south	Contour Control
565120.48	144468.07	100.59	5	mg/L	south	Contour Control
565123.47	144246.57	99	5	mg/L	south	Contour Control
565125.46	144236.2	100.94	5	mg/L	south	Contour Control
565130.53	144435.24	99.92	5	mg/L	south	Contour Control
565131.85	144473.08	99.02	5	mg/L	south	Contour Control
565133.83	144246.23	99.73	5	mg/L	south	Contour Control
565135.13	144436.67	99.14	5	mg/L	south	Contour Control
565137.03	144432.66	99.71	5	mg/L	south	Contour Control
565144.17	144222.24	100.2	5	mg/L	south	Contour Control
565145.41	144221.45	100.08	5	mg/L	south	Contour Control
565147.25	144255.46	99.67	5	mg/L	south	Contour Control
565151.4	144510.1	99.3	5	mg/L	south	Contour Control
565152.67	144287.41	99.17	5	mg/L	south	Contour Control
565155.95	144273.16	100.18	5	mg/L	south	Contour Control
565157.68	144247.81	100.66	5	mg/L	south	Contour Control
565164.74	144497.34	99.74	5	mg/L	south	Contour Control
565168.16	144444.49	100.96	5	mg/L	south	Contour Control
565169.96	144253.93	99.65	5	mg/L	south	Contour Control
565171.64	144265.54	99.89	5	mg/L	south	Contour Control
565173.37	144511.45	99.98	5	mg/L	south	Contour Control
565174.92	144496.89	99.75	5	mg/L	south	Contour Control
565176.97	144277.86	100.26	5	mg/L	south	Contour Control
565180.66	144450.26	100.43	5	mg/L	south	Contour Control
565184.14	144462.66	99.62	5	mg/L	south	Contour Control
565187.23	144280.13	99.44	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565197.97	144262.73	99.64	5	mg/L	south	Contour Control
565202.1	144484.32	99.39	5	mg/L	south	Contour Control
565203.76	144500.76	100.19	5	mg/L	south	Contour Control
565205.62	144256.32	99.12	5	mg/L	south	Contour Control
565207.9	144457.86	100.68	5	mg/L	south	Contour Control
565209.25	144252.18	99.34	5	mg/L	south	Contour Control
565213.14	144288.39	99.32	5	mg/L	south	Contour Control
565218.2	144481.51	99.34	5	mg/L	south	Contour Control
565222.14	144322.39	100.4	5	mg/L	south	Contour Control
565223.57	144311.1	100.26	5	mg/L	south	Contour Control
565225.64	144262.29	99.13	5	mg/L	south	Contour Control
565227.84	144472.84	100.81	5	mg/L	south	Contour Control
565229.41	144285.46	99.69	5	mg/L	south	Contour Control
565232.97	144313.08	99.92	5	mg/L	south	Contour Control
565240.57	144317.84	100.98	5	mg/L	south	Contour Control
565242.22	144489.27	100.92	5	mg/L	south	Contour Control
565246.3	144279.63	100.16	5	mg/L	south	Contour Control
565248.32	144477.58	99.73	5	mg/L	south	Contour Control
565250.02	144325.08	99.41	5	mg/L	south	Contour Control
565251.61	144490.2	100.78	5	mg/L	south	Contour Control
565253.9	144333.65	100.86	5	mg/L	south	Contour Control
565255.63	144516.91	100.06	5	mg/L	south	Contour Control
565258.28	144336.97	99.63	5	mg/L	south	Contour Control
565263.87	144474.13	100.71	5	mg/L	south	Contour Control
565267.38	144491.63	99.87	5	mg/L	south	Contour Control
565269.53	144337.21	100.61	5	mg/L	south	Contour Control
565271.24	144524.7	99.97	5	mg/L	south	Contour Control
565275.03	144312.49	99.29	5	mg/L	south	Contour Control
565281.36	144492.5	100.94	5	mg/L	south	Contour Control
565283.16	144320.62	100.66	5	mg/L	south	Contour Control
565287.64	144483.56	100.72	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565289.65	144504.36	99.96	5	mg/L	south	Contour Control
565291.8	144300.84	100.61	5	mg/L	south	Contour Control
565308.47	144345.45	100.48	5	mg/L	south	Contour Control
565310.46	144301.62	99.82	5	mg/L	south	Contour Control
565316.12	144494.59	100.43	5	mg/L	south	Contour Control
565320.27	144337.03	99.47	5	mg/L	south	Contour Control
565322.89	144370.52	100.24	5	mg/L	south	Contour Control
565325.28	144326.95	100.82	5	mg/L	south	Contour Control
565327.41	144535.34	100.82	5	mg/L	south	Contour Control
565333.72	144523.63	99.15	5	mg/L	south	Contour Control
565351.05	144538.42	99.03	5	mg/L	south	Contour Control
565353.45	144333.22	99.01	5	mg/L	south	Contour Control
565355.61	144541.64	100.89	5	mg/L	south	Contour Control
565357.35	144362.53	99.55	5	mg/L	south	Contour Control
565362.93	144508.04	99.7	5	mg/L	south	Contour Control
565364.67	144482.63	99.32	5	mg/L	south	Contour Control
565367.04	144394.08	99.97	5	mg/L	south	Contour Control
565369.22	144379.37	99.76	5	mg/L	south	Contour Control
565374.1	144428.36	99.18	5	mg/L	south	Contour Control
565376.21	144541.67	99.91	5	mg/L	south	Contour Control
565378.65	144495.93	99.27	5	mg/L	south	Contour Control
565380.74	144354.27	99.67	5	mg/L	south	Contour Control
565382.81	144412.4	100.99	5	mg/L	south	Contour Control
565385.99	144366.41	99.21	5	mg/L	south	Contour Control
565388.3	144412.97	99.33	5	mg/L	south	Contour Control
565391.07	144424.56	100.94	5	mg/L	south	Contour Control
565393.29	144411.4	100.37	5	mg/L	south	Contour Control
565396.22	144485.97	99.57	5	mg/L	south	Contour Control
565398.3	144401.3	100.91	5	mg/L	south	Contour Control
565401.6	144480.07	100.08	5	mg/L	south	Contour Control
565403.37	144389.21	99.72	5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565406.85	144426.75	99.9	5	mg/L	south	Contour Control
565409.5	144463.97	100.64	5	mg/L	south	Contour Control
565412.15	144490.4	99.05	5	mg/L	south	Contour Control
565414.9	144430.5	99.61	5	mg/L	south	Contour Control
565417.65	144392.61	99.81	5	mg/L	south	Contour Control
565421.88	144452.71	99.8	5	mg/L	south	Contour Control
565424.57	144526.71	100.27	5	mg/L	south	Contour Control
565428.19	144504.85	99.37	5	mg/L	south	Contour Control
565431.79	144504.4	100.95	5	mg/L	south	Contour Control
565435.34	144431.42	99.75	5	mg/L	south	Contour Control
565438.6	144512.6	100.23	5	mg/L	south	Contour Control
565443.17	144428.31	99.75	5	mg/L	south	Contour Control
565447.4	144510.03	99.82	5	mg/L	south	Contour Control
565451.86	144495.73	100.69	5	mg/L	south	Contour Control
565457.78	144484.79	99.83	5	mg/L	south	Contour Control
564594.22	145004.67	95.87	7.5	mg/L	north	Contour Control
564627.72	144898.1	88.22	7.5	mg/L	north	Contour Control
564665.75	144853.38	89.1	7.5	mg/L	north	Contour Control
564894.09	144282.33	99.81	7.5	mg/L	south	Contour Control
564899.48	144326.45	100.57	7.5	mg/L	south	Contour Control
564905.5	144312.57	99.58	7.5	mg/L	south	Contour Control
564910.8	144278.81	100.58	7.5	mg/L	south	Contour Control
564916.57	144333.58	99.32	7.5	mg/L	south	Contour Control
564918.18	144298.49	99.22	7.5	mg/L	south	Contour Control
564921.48	144270.8	100.39	7.5	mg/L	south	Contour Control
564923.2	144335.08	100.71	7.5	mg/L	south	Contour Control
564927.05	144267.35	100.33	7.5	mg/L	south	Contour Control
564930.99	144330.46	100.17	7.5	mg/L	south	Contour Control
564932.37	144345.19	100.42	7.5	mg/L	south	Contour Control
564936.52	144249.86	100.21	7.5	mg/L	south	Contour Control
564938.18	144279.67	99.33	7.5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564939.69	144343.31	99.65	7.5	mg/L	south	Contour Control
564941.5	144302.45	100.11	7.5	mg/L	south	Contour Control
564943.4	144299.25	99.93	7.5	mg/L	south	Contour Control
564947.25	144280.49	100.11	7.5	mg/L	south	Contour Control
564949.97	144249.14	100.82	7.5	mg/L	south	Contour Control
564953.88	144264.59	99.35	7.5	mg/L	south	Contour Control
564967.11	144295.43	100.44	7.5	mg/L	south	Contour Control
564969.14	144367.14	99.94	7.5	mg/L	south	Contour Control
564974.28	144352.97	99.68	7.5	mg/L	south	Contour Control
564977.73	144320.92	99.61	7.5	mg/L	south	Contour Control
564979.34	144245.05	100.93	7.5	mg/L	south	Contour Control
564986	144254.14	100.95	7.5	mg/L	south	Contour Control
564992.87	144325.06	100.97	7.5	mg/L	south	Contour Control
564996	144324.5	99.38	7.5	mg/L	south	Contour Control
564997.72	144334.14	100.08	7.5	mg/L	south	Contour Control
564999.41	144382.62	100.7	7.5	mg/L	south	Contour Control
565001.25	144248.73	100.07	7.5	mg/L	south	Contour Control
565005.93	144314.72	100.43	7.5	mg/L	south	Contour Control
565009.33	144283.75	100.06	7.5	mg/L	south	Contour Control
565016.89	144332.79	100.75	7.5	mg/L	south	Contour Control
565021.52	144372.46	100.35	7.5	mg/L	south	Contour Control
565027.95	144344.34	99.63	7.5	mg/L	south	Contour Control
565029.42	144385.07	100.15	7.5	mg/L	south	Contour Control
565031.08	144283.21	100.64	7.5	mg/L	south	Contour Control
565035.68	144315.63	99.95	7.5	mg/L	south	Contour Control
565038.28	144309.88	100.93	7.5	mg/L	south	Contour Control
565039.42	144381.38	100.95	7.5	mg/L	south	Contour Control
565044.45	144388.38	100.64	7.5	mg/L	south	Contour Control
565046.2	144378.33	100.4	7.5	mg/L	south	Contour Control
565054.46	144374.81	99.19	7.5	mg/L	south	Contour Control
565057.79	144254.59	99.69	7.5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565061.3	144275.57	100.14	7.5	mg/L	south	Contour Control
565064.67	144281.19	99.17	7.5	mg/L	south	Contour Control
565066.07	144265.17	99.59	7.5	mg/L	south	Contour Control
565069.73	144299.79	99.2	7.5	mg/L	south	Contour Control
565070.57	144395.8	100.5	7.5	mg/L	south	Contour Control
565074.67	144260.38	99.05	7.5	mg/L	south	Contour Control
565077.82	144310.39	99.28	7.5	mg/L	south	Contour Control
565079.61	144307.53	99.57	7.5	mg/L	south	Contour Control
565081.09	144284.11	100.18	7.5	mg/L	south	Contour Control
565083.19	144371.44	99.09	7.5	mg/L	south	Contour Control
565086.04	144326.21	100.21	7.5	mg/L	south	Contour Control
565090.17	144382.23	100.33	7.5	mg/L	south	Contour Control
565091.67	144323.13	99.27	7.5	mg/L	south	Contour Control
565093.17	144269.99	100.82	7.5	mg/L	south	Contour Control
565098.16	144399.17	99.95	7.5	mg/L	south	Contour Control
565099.68	144274.08	99.11	7.5	mg/L	south	Contour Control
565101.72	144309.16	100.03	7.5	mg/L	south	Contour Control
565103.41	144401.52	99.31	7.5	mg/L	south	Contour Control
565106.66	144385.64	100.37	7.5	mg/L	south	Contour Control
565111.84	144319.38	100.25	7.5	mg/L	south	Contour Control
565113.26	144343.75	100.13	7.5	mg/L	south	Contour Control
565122.4	144407.06	99.6	7.5	mg/L	south	Contour Control
565127.27	144388.97	100.02	7.5	mg/L	south	Contour Control
565128.55	144327.76	99.89	7.5	mg/L	south	Contour Control
565138.96	144348.71	99.49	7.5	mg/L	south	Contour Control
565140.81	144327.88	99.34	7.5	mg/L	south	Contour Control
565142.03	144294.66	100.87	7.5	mg/L	south	Contour Control
565149.22	144322.06	100.64	7.5	mg/L	south	Contour Control
565154.03	144310.99	99.87	7.5	mg/L	south	Contour Control
565159.55	144430.37	100.81	7.5	mg/L	south	Contour Control
565161.26	144329.97	99.37	7.5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565163.12	144373.68	100.06	7.5	mg/L	south	Contour Control
565166.31	144399.66	99.01	7.5	mg/L	south	Contour Control
565178.65	144351.34	100.58	7.5	mg/L	south	Contour Control
565182.3	144367.77	100.5	7.5	mg/L	south	Contour Control
565186.12	144433.66	99.34	7.5	mg/L	south	Contour Control
565189.07	144367.38	100.11	7.5	mg/L	south	Contour Control
565190.63	144341.66	99.6	7.5	mg/L	south	Contour Control
565192.53	144309.85	99.42	7.5	mg/L	south	Contour Control
565194.62	144352.69	99.78	7.5	mg/L	south	Contour Control
565195.9	144425.01	99.2	7.5	mg/L	south	Contour Control
565200.17	144312.86	100.68	7.5	mg/L	south	Contour Control
565210.83	144360.08	100.93	7.5	mg/L	south	Contour Control
565214.66	144320.15	99.05	7.5	mg/L	south	Contour Control
565216.5	144321.36	100.98	7.5	mg/L	south	Contour Control
565220.66	144411.84	100.83	7.5	mg/L	south	Contour Control
565231.25	144335.31	100.66	7.5	mg/L	south	Contour Control
565234.84	144401.5	99.11	7.5	mg/L	south	Contour Control
565236.47	144344.19	100.61	7.5	mg/L	south	Contour Control
565238.62	144380.64	99.72	7.5	mg/L	south	Contour Control
565244.24	144416.64	99.8	7.5	mg/L	south	Contour Control
565259.72	144393.1	99.19	7.5	mg/L	south	Contour Control
565262.16	144360.78	100.52	7.5	mg/L	south	Contour Control
565265.1	144467.73	100.03	7.5	mg/L	south	Contour Control
565273.62	144427.57	100.66	7.5	mg/L	south	Contour Control
565277.38	144354.78	99.4	7.5	mg/L	south	Contour Control
565279.48	144446	100.77	7.5	mg/L	south	Contour Control
565285.89	144446.94	99.3	7.5	mg/L	south	Contour Control
565293.35	144389.45	99.86	7.5	mg/L	south	Contour Control
565295.44	144414.67	99.09	7.5	mg/L	south	Contour Control
565297.76	144388.48	99.03	7.5	mg/L	south	Contour Control
565300.24	144467.97	100.42	7.5	mg/L	south	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565302.41	144381.22	99.52	7.5	mg/L	south	Contour Control
565304.2	144471.68	100.36	7.5	mg/L	south	Contour Control
565306.15	144438.56	100.67	7.5	mg/L	south	Contour Control
565312.16	144398.56	99.57	7.5	mg/L	south	Contour Control
565314.27	144471.15	100.89	7.5	mg/L	south	Contour Control
565318.22	144426.53	100.05	7.5	mg/L	south	Contour Control
565329.2	144387.02	99.39	7.5	mg/L	south	Contour Control
565331.75	144450.79	99.43	7.5	mg/L	south	Contour Control
565335.38	144451.41	99.48	7.5	mg/L	south	Contour Control
565337.66	144468.23	99.96	7.5	mg/L	south	Contour Control
565340.34	144397.95	100.02	7.5	mg/L	south	Contour Control
565342.56	144410.86	100.62	7.5	mg/L	south	Contour Control
565344.46	144463.12	100.3	7.5	mg/L	south	Contour Control
565346.52	144449.24	100.72	7.5	mg/L	south	Contour Control
565348.9	144422.8	99.86	7.5	mg/L	south	Contour Control
565359.98	144416.23	99.68	7.5	mg/L	south	Contour Control
565371.64	144433.36	99.36	7.5	mg/L	south	Contour Control
564656.64	145318.81	119.54	10	mg/L	north	Contour Control
564618.52	145242.56	120.28	10	mg/L	north	Contour Control
564588.99	145137.98	98.97	10	mg/L	north	Contour Control
564588.99	145057.68	94.17	10	mg/L	north	Contour Control
564606.68	144949.37	88.69	10	mg/L	north	Contour Control
564709.23	144816.58	83.59	10	mg/L	north	Contour Control
564771.03	144779.77	83.88	10	mg/L	north	Contour Control
564786.29	144772.14	83.11	10	mg/L	north	Contour Control
564808.25	144761.16	84.93	10	mg/L	north	Contour Control
564822.15	144754.57	84.46	10	mg/L	north	Contour Control
564838.03	144748.62	83.33	10	mg/L	north	Contour Control
564859.86	144743.99	84.21	10	mg/L	north	Contour Control
564881.69	144740.02	84.41	10	mg/L	north	Contour Control
564897.56	144739.36	84.24	10	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564910.13	144740.68	83.79	10	mg/L	north	Contour Control
564924.39	144745.54	84.1	10	mg/L	north	Contour Control
564941.88	144753.91	84.91	10	mg/L	north	Contour Control
564981.38	144775.83	84.27	10	mg/L	north	Contour Control
565012.26	144797.57	84.83	10	mg/L	north	Contour Control
565045.07	144827.33	84.36	10	mg/L	north	Contour Control
565075.49	144860.41	83.83	10	mg/L	north	Contour Control
565096	144888.19	83.07	10	mg/L	north	Contour Control
565117.83	144921.26	83.83	10	mg/L	north	Contour Control
565137.84	144952	84.94	10	mg/L	north	Contour Control
565161.5	144994.07	83.92	10	mg/L	north	Contour Control
565193.06	145041.4	84.64	10	mg/L	north	Contour Control
565216.52	145085.1	89.31	10	mg/L	north	Contour Control
565240.39	145138.7	89.56	10	mg/L	north	Contour Control
565253.53	145193.91	94.62	10	mg/L	north	Contour Control
565254.85	145233.36	95.8	10	mg/L	north	Contour Control
565253.53	145278.06	103.3	10	mg/L	north	Contour Control
565249.12	145296.22	113.7	10	mg/L	north	Contour Control
565221.96	145345.82	114.9	10	mg/L	north	Contour Control
565197.16	145377.7	120.81	10	mg/L	north	Contour Control
565170.71	145408.22	120.16	10	mg/L	north	Contour Control
565158.87	145425.31	120.8	10	mg/L	north	Contour Control
564796.44	144858.69	88.99	10	mg/L	north	Contour Control
565433.28	144599.72	92.94	10	mg/L	south	Contour Control
564901.46	144498.19	93.32	10	mg/L	south	Contour Control
564815.86	144137.52	93.26	10	mg/L	south	Contour Control
564897.04	144850.17	87.5	12	mg/L	north	Contour Control
564699.23	144871.89	89.78	12.5	mg/L	north	Contour Control
564943.08	144874.04	89.65	12.5	mg/L	north	Contour Control
565175.96	145182.08	94.27	15	mg/L	north	Contour Control
565187.8	145203.12	95.36	15	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565199.63	145229.41	95.14	15	mg/L	north	Contour Control
565200.94	145250.45	98.25	15	mg/L	north	Contour Control
565197	145274.11	98.74	15	mg/L	north	Contour Control
565187.8	145299.09	102.16	15	mg/L	north	Contour Control
564699.23	145300.43	119.49	15	mg/L	north	Contour Control
564669.75	145239.49	119.66	15	mg/L	north	Contour Control
564642.23	145180.52	107.83	15	mg/L	north	Contour Control
564630.43	145095.99	97.09	15	mg/L	north	Contour Control
564632.4	145015.39	94.22	15	mg/L	north	Contour Control
564648.12	144940.69	88.46	15	mg/L	north	Contour Control
564795.56	144830.61	84.84	15	mg/L	north	Contour Control
564907.61	144832.58	84.53	15	mg/L	north	Contour Control
564974.44	144881.72	83.9	15	mg/L	north	Contour Control
565027.52	144934.8	83.36	15	mg/L	north	Contour Control
565080.59	144995.73	84.6	15	mg/L	north	Contour Control
565123.84	145040.95	83.57	15	mg/L	north	Contour Control
565165.12	145094.02	88.25	15	mg/L	north	Contour Control
565200.51	145149.06	89.59	15	mg/L	north	Contour Control
565222.13	145202.14	94.21	15	mg/L	north	Contour Control
565228.03	145270.94	102.56	15	mg/L	north	Contour Control
565208.37	145320.09	108.74	15	mg/L	north	Contour Control
565169.05	145369.23	119.26	15	mg/L	north	Contour Control
565114.01	145406.58	120.05	15	mg/L	north	Contour Control
565314.52	144266.43	93.79	15	mg/L	south	Contour Control
564747.36	145299.09	119.25	20	mg/L	north	Contour Control
564723.7	145270.17	120.33	20	mg/L	north	Contour Control
564709.23	145245.19	120.04	20	mg/L	north	Contour Control
564686.88	145207.06	112.35	20	mg/L	north	Contour Control
564671.11	145168.93	103.14	20	mg/L	north	Contour Control
564663.22	145133.44	98.54	20	mg/L	north	Contour Control
564659.27	145101.88	97.44	20	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564655.33	145063.76	94.14	20	mg/L	north	Contour Control
564660.59	145013.8	94.11	20	mg/L	north	Contour Control
564672.42	144973.04	88.96	20	mg/L	north	Contour Control
564676.36	144957.26	89.57	20	mg/L	north	Contour Control
564682.94	144942.8	88.57	20	mg/L	north	Contour Control
564707.08	144917.15	88.16	20	mg/L	north	Contour Control
564731.58	144902.04	88.49	20	mg/L	north	Contour Control
564750.26	144894.36	88.85	20	mg/L	north	Contour Control
564822.15	144896.79	88.79	20	mg/L	north	Contour Control
564863.06	144912.56	89.04	20	mg/L	north	Contour Control
564906.44	144938.86	88.29	20	mg/L	north	Contour Control
564961.66	144979.61	89.51	20	mg/L	north	Contour Control
565019.51	145020.37	89.2	20	mg/L	north	Contour Control
565056.32	145049.29	88.88	20	mg/L	north	Contour Control
565102.34	145088.74	89.81	20	mg/L	north	Contour Control
565145.73	145132.12	89.1	20	mg/L	north	Contour Control
565169.39	145326.7	112.21	20	mg/L	north	Contour Control
565144.41	145349.05	1115.48	20	mg/L	north	Contour Control
565122.06	145363.52	120.37	20	mg/L	north	Contour Control
565098.4	145374.03	120.37	20	mg/L	north	Contour Control
565067.26	145384.79	120.33	20	mg/L	north	Contour Control
565040.55	145385.87	120.51	20	mg/L	north	Contour Control
564995.85	145377.98	120.89	20	mg/L	north	Contour Control
564968.24	145367.46	120.84	20	mg/L	north	Contour Control
564953.77	145363.52	119.25	20	mg/L	north	Contour Control
564844.7	145165.77	110.89	20	mg/L	north	Contour Control
564900	144434.65	92.65	20	mg/L	south	Contour Control
565000.68	144170.77	93.45	20	mg/L	south	Contour Control
565401.2	144540.85	92.03	20	mg/L	south	Contour Control
564763.12	145243.42	120.19	30	mg/L	north	Contour Control
564735.6	145165.77	108.46	30	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
564731.67	145080.26	94.24	30	mg/L	north	Contour Control
564730.69	144988.85	88.08	30	mg/L	north	Contour Control
564772.95	144934.8	89.08	30	mg/L	north	Contour Control
564853.55	144966.25	89.74	30	mg/L	north	Contour Control
564949.87	145035.05	88.44	30	mg/L	north	Contour Control
565025.55	145081.25	88.31	30	mg/L	north	Contour Control
565092.39	145143.17	89.93	30	mg/L	north	Contour Control
565133.67	145203.12	94.87	30	mg/L	north	Contour Control
565151.36	145250.3	101.37	30	mg/L	north	Contour Control
565146.45	145296.5	112.72	30	mg/L	north	Contour Control
565099.27	145325	113.35	30	mg/L	north	Contour Control
565035.38	145339.74	120.92	30	mg/L	north	Contour Control
564964.61	145334.83	120.73	30	mg/L	north	Contour Control
564890.9	145310.26	119.69	30	mg/L	north	Contour Control
564828.97	145281.75	120.9	30	mg/L	north	Contour Control
564819.15	145217.87	115.25	30	mg/L	north	Contour Control
564796.54	145124.49	98.58	30	mg/L	north	Contour Control
564790.64	145040.95	95.61	30	mg/L	north	Contour Control
564799.49	144985.91	89.12	30	mg/L	north	Contour Control
564865.34	145032.1	88.99	30	mg/L	north	Contour Control
564961.66	145092.06	94.11	30	mg/L	north	Contour Control
565027.52	145148.08	95.71	30	mg/L	north	Contour Control
565069.78	145198.21	94.99	30	mg/L	north	Contour Control
565096.32	145245.39	102.72	30	mg/L	north	Contour Control
565059.95	145299.45	120.46	30	mg/L	north	Contour Control
565002.95	145292.57	115.36	30	mg/L	north	Contour Control
564935.13	145284.7	120.24	30	mg/L	north	Contour Control
564884.02	145252.27	114.32	30	mg/L	north	Contour Control
564902.69	145090.09	95.67	30	mg/L	north	Contour Control
564972.48	145151.03	94.74	30	mg/L	north	Contour Control
565020.64	145200.17	97.82	30	mg/L	north	Contour Control

Table B-2: 2014 Separate, Deep Cr(VI) Plume Data

X	Y	Z	Value	Units	Plume	Data Type
565043.24	145252.27	108.06	30	mg/L	north	Contour Control
565110.08	145282.74	107.49	30	mg/L	north	Contour Control
564707.1	145039.96	95.2	30	mg/L	north	Contour Control
564726.75	145124.49	98.4	30	mg/L	north	Contour Control
564787.69	145182.48	103.19	30	mg/L	north	Contour Control
564836.84	145082.23	94.6	30	mg/L	north	Contour Control
564915.47	145148.08	95.58	30	mg/L	north	Contour Control
564865.34	145120.56	95.53	30	mg/L	north	Contour Control
564897.78	145192.07	103.75	30	mg/L	north	Contour Control
564972.48	145200.91	97.84	30	mg/L	north	Contour Control
564927.26	145231.38	107.95	30	mg/L	north	Contour Control
564988.2	145251.04	102.35	30	mg/L	north	Contour Control
565416.74	144484.88	92.49	30	mg/L	south	Contour Control
565306.66	144380.69	93.8	30	mg/L	south	Contour Control
565029.48	144278.47	92.92	30	mg/L	south	Contour Control

Attachment C

Software Installation and Checkout Form for Leapfrog Geo

CHPRC SOFTWARE INSTALLATION AND CHECKOUT FORM

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

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

GENERAL INFORMATION:

1. Software Name: Leapfrog Geo Software Version No.: 2.1.2

EXECUTABLE INFORMATION:

2. Executable Name (include path):

[redacted]\bin\geo.exe

3. Executable Size (bytes):

COMPILATION INFORMATION:

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

Vendor supplied

5. Operating System (include version number):

Windows (Vendor supplied)

INSTALLATION AND CHECKOUT INFORMATION:

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

INTERA Lenovo Laptop #00669

7. Operating System (include version number):

Windows 8.1 Pro

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

TEST CASE INFORMATION:

9. Directory/Path:

[redacted]\leapfrog\

10. Procedure(s):

per CHPRC-01754 Rev 0, Leapfrog Hydro Software Test Plan

11. Libraries:

N/A

12. Input Files:

per CHPRC-01754 Rev 0, Leapfrog Hydro Software Test Plan

13. Output Files:

per CHPRC-01754 Rev 0, Leapfrog Hydro Software Test Plan

14. Test Cases:

Vendor Installation Package, TC-1, TC-2,TC-3, TC-4, Tc-5, TC-6

15. Test Case Results:

Pass

16. Test Performed By: Travis Hammond

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

18. Disposition (include HISI update):

Accepted; installation added to Hanford Off-Site user list

CHPRC SOFTWARE INSTALLATION AND CHECKOUT FORM (continued)

1. Software Name: Leapfrog Geo — Software Version No.: 2.1.2

Prepared By:

19.	WE Nichols	8 OCT 2015
Software Owner (Signature)	Print	Date

20. Test Personnel:

	TB Hammond	10/6/15
Sign	Print	Date
Sign	Print	Date
Sign	Print	Date

Approved By:

21.	N/R per SMP	
Software SME (Signature)	Print	Date