Section 4.4 Background/Reference Area Soil

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4.4 Background/Reference Area Soil

The Silver Bow Plant is located in one of the world's major mining areas. A 2,000 square mile area surrounding the Silver Bow Plant contains geologic units that have been mined for mineral deposits of copper, gold, silver, lead, tungsten, phosphate, and talc (Alt, 1997). The area also has uranium deposits, including a deposit located approximately three miles from the Silver Bow Plant (Merewether, 1960). Associated with these mining activities are many mineral concentration mills and smelters. Seven mines or claims are located within a two-mile radius of the Silver Bow Plant, as shown on Figure 4.4-1. The seven mines are designated as extracting the following minerals: gold, silver, fluorine, aluminum, beryllium and clay. All of the mines are listed as abandoned and inactive.

The Silver Bow Plant is also located in an area that was affected by the extensive copper mining and smelting operations conducted throughout the area from Butte to Anaconda, Montana. Specifically, the area of Silver Bow Creek, located north of the Silver Bow Plant, is a Superfund site listed on the National Priorities List (NPL) as the SSTOU of the Silver Bow Creek/Butte Area, National Priorities List Site, Butte, Montana. The principal contaminants of concern at the SSTOU are arsenic, cadmium, copper, lead, mercury, and zinc (U.S. EPA, 1996).

This section describes the background/reference area soil quality data developed during investigations for the SSTOU and investigations for the Rhodia Silver Bow Plant.

4.4.1 Soil Background/Reference Area Investigation – SSTOU

The 1993 SSTOU background/reference area sampling included collection of many surface soil samples including 16 locations for the purpose of identifying background soil concentrations. These background soil locations were considered to be outside the SSTOU. The sixteen background/reference area surface samples were collected from locations that were approved by the Montana Department of Health and Environmental Sciences (MDHES) to represent background conditions. The sampling locations were selected in the field in conjunction with MDHES oversight personnel. These background sample locations are shown on Figure 3c of the Final 1993 Data Summary Report (included as Appendix 4.4-A). The general location of the Silver Bow Plant is identified on this figure as Rhone/Poulenc Plant near the Interstate 15 highway marker. These soil samples were collected and analyzed to provide information on the concentration of constituents of concern in background soils outside the extent of fluvially deposited tailings.

The arsenic and cadmium data for these background sample locations are summarized on Table 4.4-1, along with the statistical parameters based on this data set. This analytical data is designated as

"enforcement quality". The enforcement and screening assessment is a stipulation for admissibility into evidence of final data generated. The data in these tables are designated as "E" (Enforcement quality, positive detection of parameter) and "UE" (Enforcement quality, parameter undetected at limit shown).

Arsenic concentrations range from not detected at a detection limit of 2.9 mg/kg to a maximum detected value of 142 mg/kg at location BG0012. The highest concentrations were reported around the Gregson/Fairmont Hot Springs area (BG0012 and BG0013) approximately seven miles west-northwest of the Site. Based on the background arsenic concentrations, arsenic, in general, appears to be widely distributed along Silver Bow Creek.

Cadmium was detected in 3 of 16 background soil samples with a detection limit of 1.6 mg/kg. The highest background cadmium concentration was 6.6 mg/kg at Miles Crossing (BG0009). These data indicate that arsenic and cadmium are present in the soil outside of the SSTOU and that SSTOU data should be considered in relation to background conditions for the Silver Bow Plant.

4.4.2 Soil Background/Reference Area Investigations – Silver Bow Plant

4.4.2.1 Expanded Site Investigation

EPA Region 8 authorized Booz Allen Hamilton (Booz Allen) to conduct an ESI at the Silver Bow Plant in 2003 (Booz Allen, 2004). The purpose of the ESI was to gather new data and update existing data for re-evaluating the Rhodia site with respect to EPA's Hazard Ranking System criteria. Among other things, the field program included collection of nine (9) soil samples from background and undisturbed public areas around the Silver Bow Plant; seven samples from 0-to 2-inch depth interval and two samples from the 1-to 2-feet depth interval. These soil sample locations are shown on Figure 4.4-2 and the corresponding analytical data is summarized on Tables 4.4-2 to 4.4-4 along with the RFI data. These data are included in the statistical evaluation of the soil quality data.

4.4.2.2 RFI Background/Reference Area Investigation

Rhodia implemented the Background/Reference Area Sampling and Analysis Plan that was presented in Appendix J of the Final Phase 1 RFI Work Plan (Barr, 2009). Background/reference area soil samples were collected from sixteen areas located between 5 and 9 miles south of the Silver Bow Plant and shown on Figure 4.4-3.

The background /reference area is within the same graben as the Silver Bow Site and is mostly ranchland with sparsely located houses and out buildings. One area (i.e., BG-2) has been platted into

smaller areas for future development. The property owners did not identify any mining-related activities or pesticide use on their property during negotiation of access to their respective properties.

Each background/reference area sample consisted of five subsamples that were mixed to form a composite sample. The subsample locations are also shown on Figure 4.4-3. Soil was collected from the 0- to 2-inch, 2- to 12-inch and 12- to 18-inch bgs depth intervals at each location, yielding forty-eight composite samples for analysis of fluoride, metals and radionuclides.

The five 0- to 2-inch bgs discrete soil subsamples for each composite sample were collected using a 4-inch diameter stainless steel hand auger to obtain sufficient volume for sample analysis. The full volume of soil was removed from the hand auger using a stainless-steel sampling spoon and placed into a new plastic Ziploc bag. Upon collection of the fifth and final subsample, the soil from each subsample was placed in a stainless-steel sampling bowl, and rocks and detritus (e.g. roots) were removed before homogenizing the soil and filling sample containers as specified in the Field Sampling Plan (Appendix D of the RFI Work Plan).

The subsequent sample interval of 2- to 12-inches bgs was collected by advancing a 3-inch diameter stainless steel hand auger from the bottom of the hole created by the 4-inch diameter auger. The 2- to 12-inch sample was collected by advancing the 3-inch hand auger until it was full (generally to a depth of 8-inches), carefully removing the hand auger and placing the soil into a new plastic Ziploc bag, then carefully reinserting the hand auger to finish collecting the soil to the depth of 12-inches bgs. Upon collection of the fifth and final subsample, the soil from each subsample was placed in a stainless-steel sampling bowl, and rocks and detritus were removed before homogenizing the soil and filling sample containers as specified in the Field Sampling Plan.

The final sample interval of 12- to 18-inches bgs was collected by advancing a 2-inch diameter stainless steel hand auger from the bottom of the hole created by the 3-inch diameter auger used for the collection of the 2- to 12-inch sample. All but two of the 12- to 18-inch sample intervals were successfully advanced the entire 18 inches. Boring BG-14-2 obstructed at 17 inches bgs and BG-15-4 obstructed at 14 inches bgs in each of 3 attempted borings for each location. The full volume of soil was removed from the hand auger using a stainless-steel sampling spoon and placed into new plastic Ziploc bag. Upon collection of the fifth and final subsample, the soil from each subsample was placed in a stainless-steel sampling bowl, and rocks and detritus were removed before homogenizing the soil and filling sample containers as specified in the Field Sampling Plan.

Each composite sample along with the five subsamples was screened using an XRF instrument. The XRF data are summarized in Appendix 4.4-B. The average constituent concentration for the five subsamples was compared to the XRF value for the composite sample. The XRF data show low variability between the individual subsamples and good agreement between the average subsample concentrations and the XRF concentrations for the corresponding composite sample indicating that the subsamples were adequately homogenized prior to containerizing the composite samples and that the composite samples are representative of the soil conditions

4.4.3 Background/Reference Area Soil Quality Data

The composite soil samples were submitted to the laboratory for analysis of fluoride, metals and radionuclides. Soil quality data from the background/reference area investigations are summarized in Tables 4.4-2 and 4.4-3. This data set was combined with the background/reference area soil data from the ESI Report (Booz Allen, 2004) as discussed above.

4.4.3.1 Metals

Spatial distribution of metals concentrations are presented on Figures 4.4-4 to 4.4-32, and the analytical data are summarized in Table 4.4-2. For ease of discussion and to more clearly present the spatial distribution of the data, the analyzed metals parameters were divided into subgroups. In addition, the metals data were charted to evaluate the south to north distribution of each subgroup. The metal concentrations were charted against the y-coordinate for the sample location and the data are presented in south to north direction (left to right) on each chart. The data at about 50,000 meters represents the 2003 ESI data set and the data between 130,000 and 75,000 meters represents the 2010 background/reference area data set.

4.4.3.1.1 Group A

Group A metals parameters include: arsenic, cadmium, chromium, and copper. The spatial distribution of the Group A metals are presented on Figures 4.4-4 to 4.4-6 respectively for the 0- to 2-inch, 2- to 12-inch and 12- to 18-inch sample intervals for the 2010 background samples. Due to the distance between the 2010 background sampling locations and the ESI sample locations, Group A metals concentrations of the nine ESI samples is shown on Figure 4.4-7.

As shown on the figures, the horizontal distribution of Group A metals for the 2010 background/reference area is generally random. Based on the limited number and relatively close proximity of the 2003 ESI background/reference samples to one another, the reported concentrations generally reflect a distinctly separate background/reference area concentration compared to the location of the 2010 background/reference area sample event. The 2003 ESI data was used in

conjunction with the 2010 background/reference area samples to determine if any background concentration trends exist while moving north towards Silver Bow Creek and the SSTOU. Based on the data as shown on the figures, the arsenic, cadmium and copper concentrations for the 2003 ESI samples are higher than the 2010 background/reference area samples, which appears to indicate higher background concentrations are present near the Site (*see* Chart 4.4-1). Chromium concentrations are similar between the 2003 ESI and 2010 background/reference area data sets. Additionally, the SSTOU background sample data (Table 4.4-1) for arsenic and cadmium generally have a higher range of concentrations compared to the 2003 ESI and 2010 background/reference area samples. The vertical distribution of the arsenic, cadmium and copper concentrations in general also tends to decrease with depth (Figures 4.4-4 to 4.4-7).

4.4.3.1.2 Group B

Group B metals include: iron, lead, manganese, and nickel. The Group B metals spatial distribution of the 0- to 2-inch, 2- to 12-inch and 12- to 18-inch sample intervals for the 2010 background/reference area samples are presented on Figures 4.4-8 to 4.4-10 respectively. The nine ESI samples are shown on Figure 4.4-11. The figures show a generally random horizontal distribution of the Group B metals for the 2010 background/reference area samples. Similar to the arsenic, cadmium and copper concentrations trends described above, lead concentrations (Figures 4.4-8 to 4.4-11) appear to increase towards the SSTOU and Silver Bow Creek (*see* Chart 4.4-2). Similarly, lead concentrations also tend to decrease with sample depth interval.

Iron, manganese and nickel concentrations are similar between the 2003 ESI and 2010 background/reference area data sets and show no significant changes with depth (*see* Chart 4.4-2).

4.4.3.1.3 Group C

Group C metals parameters include: selenium, silver, uranium, vanadium, and zinc. The spatial distribution of the Group C metals from the 2010 background/reference area sample event are presented on Figures 4.4-12 to 4.4-14 respectively for the 0- to 2-inch, 2- to 12-inch, 12- to 18-inch sample intervals. The ESI background/reference area samples are shown on Figure 4.4-15.

The concentration distribution shown on the figures indicates a general random horizontal distribution of the Group C metals for the 2010 background/reference area samples. Vertical distribution of the Group C metals also appears random. Zinc concentrations reported for the 2003 ESI background/reference area samples are higher than the 2010 background area reported sample concentrations which suggest the background zinc concentrations are higher towards the SSTOU (*see* Chart 4.4-3). In addition, the zinc concentrations from the deeper 1-to 2-feet ESI sample interval are

less than the 0- to 2-inch sample interval. Silver, and vanadium concentrations are similar between the 2003 ESI and 2010 background/reference area data sets (*see* Chart 4.4-3). Selenium was not detected in the 2003 ESI data set, but the detection limit was higher than the 2010 samples so any comparison is inconclusive. Uranium was not included in the 2003 ESI investigation.

4.4.3.1.4 Group D

Group D metals parameters include: antimony, barium, beryllium, cobalt, mercury, and thallium. The spatial distribution of the Group D metals 0- to 2-inch, 2- to 12-inch and 12- to 18-inch sample intervals for the samples collected in 2010 are presented on Figures 4.4-16 to 4.4-18 respectively. Figure 4.4-19 shows the Group D metals distribution for the 0-to2-inch and 1-to 2-feet ESI background/reference area samples collected in 2003.

The distribution of the Group D metals, as presented on the figures, shows random horizontal distribution of Group D metal concentrations. Antimony concentrations reported for the 2003 ESI background/reference area samples are higher than any of the reported concentrations for the 2010 background/reference area samples suggesting the background concentrations of antimony are higher towards the SSTOU and Silver Bow Creek (*see* Chart 4.4-4). Vertical distribution of the antimony concentrations appears to slightly decrease with depth for the 2010 background reference area samples (Figures 4.4-16 to 4.4-18) however the two 2003 ESI 1-to 2 feet samples had similar concentrations to the 0-to 2-inch sample intervals from the same location and do not identify any distinct vertical distribution trend.

The other Group D concentrations are similar between the 2003 ESI and 2010 background/reference area data sets and show no significant changes with depth.

4.4.3.1.1 Group E

Group E metals parameters include: calcium, magnesium, potassium, and sodium. The group E metals consist of common elements which are commonly found in natural soil. Group E metals 0- to 2-inch, 2- to 12-inch and 12- to 18-inch sample interval spatial distribution for the background samples collected in 2010 are presented on Figures 4.4-20 to 4.4-22 respectively. The 2003 ESI sample intervals of 0- to 2-inches and 1-to 2-feet are shown on Figure 4.4-23. It should be noted that aluminum was only analyzed for the 2003 ESI background samples and therefore no aluminum data is presented on the spatial distribution figures for the 2010 background/reference area samples.

Group E metals concentrations for the 2010 background/reference area samples are in general randomly distributed horizontally throughout the sampling area. The 2003 ESI sample

concentrations of the Group E metals are similar to the 2010 sample concentrations (*see* Chart 4.4-5). Both the 2003 ESI and 2010 background/reference area sample intervals appear to slightly increase with depth and may be due to the deeper soil intervals experiencing less oxidation/reduction weathering.

4.4.3.2 Fluoride

The 2003 ESI data was included with the 2010 background/reference area for statistical analysis. The laboratory reported fluoride concentrations are summarized in Table 4.4-2. The statistical analysis of the data is provided in Table 4.4-4. The 2010 background/reference area sample spatial distribution of fluoride for the 0- to 2-inch, 2- to 12-inch and 12- to 18-inch sample intervals are presented on Figures 4.4-24 to 4.4-26. The 2003 ESI background/reference area fluoride sample data is presented on Figure 4.4-27.

The horizontal distribution of fluoride concentrations appear to be randomly distributed across the 2010 background/reference area. The 2003 ESI background/reference area sample concentrations are higher than the 2010 sample concentrations (*see* Chart 4.4-6). The vertical concentration distribution for the 2010 samples shows similar concentrations with depth, although the average concentration in the 12- to 18-inch depth interval is about 2 times higher than the average concentration in the 0- to 2-inch. Vertical distribution of the ESI samples appears random.

4.4.3.3 Radionuclides

Radionuclide parameters analyzed by the laboratory include the primary radioactive uranium decay products (U-238, U-234, Th-230, Ra-226 and Pb-210) and U-235. Radionuclide concentrations are summarized in Table 4.4-3. Spatial distribution of radionuclide concentrations for the 0- to 2-inch, 2- to 12-inch, 12- to 18-inch sample intervals collected during the 2010 background/reference area investigation are respectively shown on Figures 4.4-28 to 4.4-30. The ESI samples collected in 2003 were analyzed for radium 226 only and are shown on Figure 4.4-31.

The horizontal and vertical distribution of the radionuclide parameters reported for the 2003 ESI and 2010 background/reference area samples appears to be random. The Ra-226 concentrations for the 2003 ESI samples are similar to or lower than the Ra-226 concentrations reported for the 2010 background/reference area samples (*see* Chart 4.4-7).

Pb-210 and U-235 were not detected in the background/reference area samples. The Th-230 and U-238 concentrations are similar with depth.

4.4.3.4 Phosphorus and Orthophosphate

Total phosphorous and total orthophosphate analysis was performed on the four ESI samples and is summarized in Table 4.4-2. These parameters were not included in the Final RFI Work Plan for the background/reference area. The concentration distribution of total phosphorus and total orthophosphate for the ESI sample locations is shown on Figure 4.4-32. The two 2003 ESI 1- to 2-feet samples had lower reported concentrations compared to the 0-to 2-inch sample intervals from the same location. The reported concentrations are consistent with typical phosphorus concentrations for surface soil in Silver Bow County. Phosphorus concentrations range from 470 mg/kg to 1,340 mg/kg with a mean concentration of 880 mg/kg as reported in the U.S. Geological Survey Open-File Report 2004-1001, Version 5.0 (UGSS 2004).

4.4.4 Statistical Analysis

ProUCL software (U.S. EPA, 2010) available from EPA was used to calculate the 95% UCL of the mean background/reference concentration for each constituent. ProUCL was designed specifically to assist environmental investigations at Superfund and RCRA sites and is therefore suitable for characterizing background concentrations for the RFI at the Rhodia Silver Bow Plant. As discussed at length in the ProUCL Version 4.1.00 Technical Guide, there are several statistical methods which may be useful for characterizing background concentrations.

The selection of any one statistical test over another requires site knowledge as well as the particular use of background data for eventual comparison to site data. Due to the inherent assumptions associated with pooling background data, the statistical analysis incorporated the following data usage practices:

- An evaluation of statistical outliers was not conducted; therefore outliers were not excluded from UCL calculations. As described in the Background/Reference Area Sampling and Analysis Plan (Appendix J to the RFI Work Plan), statistical identification of an outlier does not necessarily reject the data point from further evaluation.

- All data included in the background data set passed a thorough quality assurance/quality control (QA/QC) review as described in Appendix A of the RFI Work Plan (Barr, 2009). Background data with a ‘b’ flag (blank contamination) or ‘R’ flag (failed QA/QC criteria) were excluded from UCL calculations.

- The statistical analysis of the radionuclide parameters used only the reported values and did not use the uncertainty (+/-) measurement reported with the sample.

- Duplicate samples were not included in the UCL calculations.

- For data sets with non-detect values, ProUCL 4.0 and higher versions have several methods including substitution methods (e.g., DL/2, DL), ROS methods (normal, lognormal, and gamma), and Kaplan-Meier Method. UCLs of the mean calculated with substitution methods were not selected as recommended by EPA.

The ProUCL Software recommended 95% UCLs of the mean are included in Table 4.4-4. ProUCL calculates several 95% UCLs of the mean and identifies the best fit value for the data set (*see* Appendix 4.4-C).

4.4.5 Comparison to Montana DEQ Background Soil Concentrations

The 95% UCL of the mean background/reference concentration for each constituent was compared to background soil concentrations published by MDEQ (MDEQ, 2007). The document (*see* Appendix 4.4-D) summarizes background concentrations for inorganics in soil and includes data for 8 studies, some of which were from Montana sites, the closest of which appears to be the Clark Fork Study Site. The highest concentration listed on the summary table was selected for comparison purposes. As noted on the document, MDEQ has adopted an action level for arsenic in surface soil of 40 mg/kg based upon a statistical analysis of native Montana soil concentrations (MDEQ 2005).

The selected MDEQ background soil concentration is summarized on Table 4.4-4. The 95% UCL of the mean for cadmium, copper, and lead developed for the Silver Bow Plant are above the Montana-published background concentrations for inorganics in soil by factors of 1.4, 1.6 and 1.02, respectively. The other metal constituents are consistent with the published background values.

4.4.6 Conclusions

An extensive background data set has been developed for the Rhodia Silver Bow Plant. The background data set includes soil samples collected from an area 5 to 9 miles south of the Plant (i.e., 2010 background/reference area) and soil samples collected by EPA representatives from background and undisturbed public areas around the Silver Bow Plant (Booz Allen, 2004). The background/reference area soil data set shows that the arsenic, cadmium, copper, lead, and zinc concentrations generally increase as one approaches Silver Bow Creek (a.k.a. SSTOU of the Silver Bow Creek/Butte Area, NPL Site, Butte, Montana). These metals are the principal constituents of concern for the SSTOU. As such, the SSTOU has contributed to the metals concentrations in soils on and around the Silver Bow Plant.

The radionuclide concentrations are similar between the 2003 ESI locations and the 2010 background/reference area locations. Fluoride concentrations are slightly higher at the 2003 ESI locations than the 2010 background/reference area locations.

The statistical parameters presented for the overall background/reference area data include the mean, maximum, minimum, standard deviation, and 95% UCL of the mean. ProUCL software (U.S. EPA, 2009) was used to calculate the 95% UCLs of the mean for various data distributions. The 95% UCL of the mean was selected for the data distribution recommended by the ProUCL software.

The background/reference area data set was compared to background concentrations published by MDEQ. The 95% UCLs of the mean for cadmium, copper, and lead are slightly above the maximum background concentrations published by MDEQ. The other metal constituents are consistent with the published background values.

Soil data for the SWMUs at the Rhodia Silver Bow Plant will be compared to the respective statistical parameters (mean, maximum, and 95% UCL of the mean) included in Table 4.4-4. Constituent concentrations are described in this report as above background/reference area concentrations if the mean and maximum concentrations of the SWMU data exceed both of the mean and maximum background/reference area values, as listed in Table 4.4-4. All data will be retained for evaluation in the human health and ecological risk assessments. The definitive background comparison will be conducted in the risk assessment using a statistical approach consistent with EPA guidance (U.S. EPA, 2002).

4.4.7 References

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Tables

Table 4.4-1

Background Surface Soil Data
Streamside Tailings OU

Sample Number	Sample Location	Total Arsenic (mg/kg)	Total Cadmium (mg/kg)
Background (SSTOU Data)			
BG0001	Rocker East	31.6 E	1.6 UE
BG0002	Rocker East	29.1 E	1.6 UE
BG0003	Fredricksburg West	55.3 E	1.6 UE
BG0004	Nissler South	30.8 E	1.6 UE
BG0005	Silver Bow/Sand Creek	10.5 E	1.6 UE
BG0006	Browns Gulch	2.9 UE	1.6 UE
BG0007	Upwind Air Monitoring Station	113 E	1.6 UE
BG0008	Miles Crossing	41 E	5.1 E
BG0009	Miles Crossing North	65.6 E	6.6 E
BG0010	Canyon North	36.7 E	1.6 UE
BG0011	German Gulch	29.7 E	1.6 UE
BG0012	Gregson/Finlen	142 E	3.5 E
BG0013	Gregson Creek/Fairmont	122 E	1.6 UE
BG0014	Perdee Gulch	12.9 E	1.6 UE
BG0015	Hensley Gulch	63 E	1.6 UE
BG0016	Opportunity/Willow Creek	61.1 E	1.6 UE

Notes: U = Undetected at the given detection limit.
J = Estimated value
E = Enforcement Quality Data

Statistics for SSTOU Data Set

UPL basis	95% KM (Chebyshev) UCL	Insufficient Detections
95% UPL	97	---
Maximum	142	6.6
Minimum	2.9	1.6
Mean	53	2
Standard Deviation	41	2
Number of Data Points	16	16

Table 4.4-2
Background Soil Quality Data- General and Site-Specific Parameters and Metals
Rhodia Silver Bow Plant
[concentration in mg/kg]

Chemical Name / Analysis Location				General Parameters						Metals																	
				Fluoride Lab		Orthophosphate, as P Lab		Phosphorus, total Lab		Aluminum Lab		Antimony Lab		Arsenic Lab		Barium Lab		Beryllium Lab		Cadmium Lab		Calcium Lab		Chromium Lab		Cobalt Lab		Copper Lab	
Location ID	Sample Date	Depth	Sample Type	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL
BG-1	06/29/2010	0 - 2 in	N	**1.5**	1.1	--	--	--	--	--	--	**0.667**	0.010	**35.5**	0.06	**133**	0.3	**0.38 J**	0.01	**0.5 J**	0.2	**2520**	2.2	**11.5**	0.4	**5.2**	0.3	**47.6**	0.7
			FD	**1.5**	1.1	--	--	--	--	--	--	**0.551**	0.010	**40.6**	0.06	**101**	0.3	**0.32 J**	0.01	**0.30 J**	0.2	**1970**	2.2	**7.9**	0.4	**4.2**	0.3	**36.4**	0.7
BG-1	06/29/2010	2 - 12 in	N	**5.4**	0.1	--	--	--	--	--	--	**0.203**	0.010	**12.0**	0.05	**113**	0.3	**0.45 J**	0.01	< 0.2	0.2	**2810**	2.2	**10.4**	0.4	**6.0**	0.3	**13.8**	0.7
BG-1	06/29/2010	12 - 18 in	N	**3.2**	0.1	--	--	--	--	--	--	**0.114**	0.011	**4.06**	0.06	**246**	0.4	**0.74 J**	0.01	< 0.2	0.2	**6030**	2.3	**9.7**	0.5	**6.1**	0.4	**11.7**	0.7
BG-2	06/30/2010	0 - 2 in	N	**1.5**	1.2	--	--	--	--	--	--	**0.597**	0.011	**40.5**	0.06	**146**	0.4	**0.58 J**	0.01	**0.5 J**	0.2	**3100**	2.5	**7.8**	0.5	**5.5**	0.4	**37.8**	0.7
BG-2	06/30/2010	2 - 12 in	N	**1.8 J**	0.1	--	--	--	--	--	--	**0.156**	0.010	**5.29**	0.05	**197**	0.3	**1.33 J**	0.01	< 0.2	0.2	**6790**	2.1	**4.8**	0.4	**4.4**	0.3	**14.2**	0.6
BG-2	06/30/2010	12 - 18 in	N	**5.1**	0.1	--	--	--	--	--	--	**0.132**	0.010	**3.45**	0.06	**220**	0.3	**0.71 J**	0.01	< 0.2	0.2	**6070**	2.3	**7.2**	0.5	**5.6**	0.3	**12.6**	0.7
BG-3	06/29/2010	0 - 2 in	N	**1.9**	1.1	--	--	--	--	--	--	**0.230**	0.010	**15.6**	0.06	**102**	0.3	**0.38 J**	0.01	**0.30 J**	0.2	**2560**	2.2	**6.9**	0.4	**4.0**	0.3	**15.1**	0.6
BG-3	06/29/2010	2 - 12 in	N	**2.5**	0.1	--	--	--	--	--	--	**0.129**	0.010	**5.86**	0.06	**141**	0.3	**0.55 J**	0.01	< 0.2	0.2	**4480**	2.3	**8.2**	0.5	**5.6**	0.3	**10.8**	0.7
BG-3	06/29/2010	12 - 18 in	N	**4.3**	0.1	--	--	--	--	--	--	**0.096**	0.010	**1.83**	0.06	**194**	0.3	**0.57 J**	0.01	< 0.2	0.2	**5600**	2.3	**6.5**	0.5	**7.1**	0.3	**9.7**	0.7
BG-4	06/28/2010	0 - 2 in	N	**1.6**	1.2	--	--	--	--	--	--	**0.675**	0.010	**42.4**	0.06	**124**	0.3	**0.32 J**	0.01	**0.5 J**	0.2	**2410**	2.3	**7.6**	0.5	**4.0**	0.3	**42.6**	0.7
BG-4	06/28/2010	2 - 12 in	N	**1.3**	1.1	--	--	--	--	--	--	**0.264**	0.010	**15.9**	0.06	**152**	0.3	**0.42 J**	0.01	< 0.2	0.2	**2970**	2.3	**8.7**	0.5	**5.2**	0.3	**16.8**	0.7
BG-4	06/28/2010	12 - 18 in	N	< 0.1	0.1	--	--	--	--	--	--	**0.072**	0.010	**3.24**	0.06	**140**	0.3	**0.35 J**	0.01	< 0.2	0.2	**2920**	2.2	**7.6**	0.4	**5.8**	0.3	**7.1**	0.6
BG-5	06/22/2010	0 - 2 in	N	**1.1 J**	0.1	--	--	--	--	--	--	**0.464**	0.011	**18.6**	0.06	**148**	0.4	**0.47 J**	0.01	**0.30 J**	0.2	**3630**	2.4	**8.8**	0.5	**5.9**	0.4	**23.5**	0.7
BG-5	06/22/2010	2 - 12 in	N	**1.2**	0.1	--	--	--	--	--	--	**0.129**	0.011	**4.29**	0.06	**140**	0.4	**0.58 J**	0.01	< 0.2	0.2	**4930**	2.4	**8.2**	0.5	**7.2**	0.4	**11.9**	0.7
BG-5	06/22/2010	12 - 18 in	N	**1.4**	0.1	--	--	--	--	--	--	**0.091**	0.010	**1.50**	0.06	**127**	0.3	**0.56 J**	0.01	< 0.2	0.2	**4940**	2.3	**8.8**	0.5	**9.5**	0.3	**12.7**	0.7
BG-6	06/28/2010	0 - 2 in	N	< 0.1	0.1	--	--	--	--	--	--	**0.284**	0.010	**17.5**	0.06	**122**	0.3	**0.37 J**	0.01	< 0.2	0.2	**2050**	2.3	**9.0**	0.5	**4.4**	0.3	**19.7**	0.7
BG-6	06/28/2010	2 - 12 in	N	< 0.1	0.1	--	--	--	--	--	--	**0.124**	0.010	**5.39**	0.06	**131**	0.3	**0.60 J**	0.01	< 0.2	0.2	**3320**	2.3	**9.3**	0.5	**5.7**	0.3	**13.1**	0.7
BG-6	06/28/2010	12 - 18 in	N	< 0.1	0.1	--	--	--	--	--	--	**0.093**	0.010	**2.17**	0.06	**172**	0.3	**0.48 J**	0.01	< 0.2	0.2	**11500**	2.2	**7.6**	0.4	**5.7**	0.3	**9.0**	0.7
BG-7	06/27/2010	0 - 2 in	N	**0.56 J**	0.03	--	--	--	--	--	--	**0.392**	0.011	**20.4**	0.06	**137**	0.4	**0.39 J**	0.01	< 0.2	0.2	**2300**	2.3	**16.4**	0.5	**5.6**	0.4	**16.8**	0.7
BG-7	06/27/2010	2 - 12 in	N	**1.57 J**	0.03	--	--	--	--	--	--	**0.152**	0.011	**4.55**	0.06	**178**	0.4	**0.71 J**	0.01	< 0.2	0.2	**4060**	2.4	**12.0**	0.5	**6.2**	0.4	**12.9**	0.7
BG-7	06/27/2010	12 - 18 in	N	**3.17 J**	0.02	--	--	--	--	--	--	**0.080**	0.010	**1.64**	0.06	**126**	0.3	**0.39 J**	0.01	< 0.2	0.2	**6010**	2.2	**12.7**	0.4	**4.8**	0.3	**7.2**	0.7
BG-8	06/26/2010	0 - 2 in	N	**0.48 J**	0.03	--	--	--	--	--	--	**0.686**	0.011	**44.5**	0.06	**188**	0.4	**0.36 J**	0.01	**0.2 J**	0.2	**3270**	2.4	**9.7**	0.5	**6.9**	0.4	**41.9**	0.7
BG-8	06/26/2010	2 - 12 in	N	**0.31 J**	0.03	--	--	--	--	--	--	**0.132**	0.010	**12.0**	0.06	**168**	0.3	**0.35 J**	0.01	< 0.2	0.2	**3230**	2.3	**11.0**	0.5	**6.5**	0.3	**10.3**	0.7
			FD	**0.30 J**	0.02	--	--	--	--	--	--	**0.154**	0.010	**17.4**	0.06	**162**	0.3	**0.36 J**	0.01	< 0.2	0.2	**3190**	2.2	**9.7**	0.4	**5.5**	0.3	**10.6**	0.7
BG-8	06/26/2010	12 - 18 in	N	**0.36 J**	0.02	--	--	--	--	--	--	**0.076**	0.010	**2.44**	0.06	**155**	0.3	**0.36 J**	0.01	< 0.2	0.2	**2890**	2.2	**10.3**	0.4	**6.7**	0.3	**8.2**	0.7
BG-9	06/22/2010	0 - 2 in	N	**1.3**	0.1	--	--	--	--	--	--	**0.420**	0.010	**28.1**	0.06	**105**	0.3	**0.35 J**	0.01	< 0.2	0.2	**3410**	2.3	**12.7**	0.5	**9.4**	0.3	**23.4**	0.7
BG-9	06/22/2010	2 - 12 in	N	**1.1 J**	0.1	--	--	--	--	--	--	**0.155**	0.011	**3.46**	0.06	**116**	0.3	**0.83 J**	0.01	< 0.3	0.3	**5760**	2.5	**8.1**	0.5	**6.5**	0.4	**14.9**	0.8
BG-9	06/22/2010	12 - 18 in	N	**4.1**	0.1	--	--	--	--	--	--	**0.092**	0.010	**1.47**	0.06	**104**	0.4	**0.47 J**	0.01	< 0.2	0.2	**5380**	2.3	**7.0**	0.5	**5.0**	0.3	**10.6**	0.7
BG-10	06/23/2010	0 - 2 in	N	**0.52 J**	0.03	--	--	--	--	--	--	**0.537**	0.011	**38.2**	0.06	**120**	0.4	**0.47 J**	0.01	**0.4 J**	0.2	**2200**	2.4	**11.9**	0.5	**6.1**	0.4	**32.3**	0.7
BG-10	06/23/2010	2 - 12 in	N	**0.35 J**	0.03	--	--	--	--	--	--	**0.138**	0.011	**5.14**	0.06	**155**	0.3	**0.60 J**	0.01	< 0.2	0.2	**2710**	2.4	**9.9**	0.5	**6.1**	0.4	**12.4**	0.7
BG-10	06/23/2010	12 - 18 in	N	**0.64 J**	0.03	--	--	--	--	--	--	**0.109**	0.011	**2.31**	0.06	**154**	0.4	**0.75 J**	0.01	< 0.2	0.2	**3540**	2.4	**8.4**	0.5	**7.5**	0.4	**12.7**	0.7
BG-11	06/27/2010	0 - 2 in	N	**0.39 J**	0.02	--	--	--	--	--	--	**0.439**	0.010	**42.6**	0.06	**120**	0.3	**0.41 J**	0.01	< 0.2	0.2	**2040**	2.2	**6.4**	0.4	**4.9**	0.3	**27.7**	0.7
BG-11	06/27/2010	2 - 12 in	N	**0.19 J**	0.03	--	--	--	--	--	--	**0.107**	0.010	**5.26**	0.06	**153**	0.3	**0.57 J**	0.01	< 0.2	0.2	**2730**	2.3	**8.1**	0.5	**5.9**	0.3	**10.2**	0.7
BG-11	06/27/2010	12 - 18 in	N	**0.32 J**	0.02	--	--	--	--	--	--	**0.083**	0.010	**1.35**	0.05	**293**	0.3	**0.37 J**	0.01	< 0.2	0.2	**2070**	2.1	**5.7**	0.4	**5.9**	0.3	**7.7**	0.6
BG-12	06/26/2010	0 - 2 in	N	**0.36 J**	0.03	--	--	--	--	--	--	**0.391**	0.010	**38.2**	0.06	**168**	0.3	**0.41 J**	0.01	< 0.2	0.2	**2760**	2.3	**8.1**	0.5	**5.2**	0.3	**21.0**	0.7
BG-12	06/26/2010	2 - 12 in	N	**0.21 J**	0.03	--	--	--	--	--	--	**0.165**	0.010	**7.91**	0.06	**189**	0.3	**0.43 J**	0.01	< 0.2	0.2	**2580**	2.3	**47.6**	0.5	**6.7**	0.3	**11.9**	0.7
BG-12	06/26/2010	12 - 18 in	N	**0.37 J**	0.03	--	--	--	--	--	--	**0.102**	0.010	**1.54**	0.06	**183**	0.3	**0.62 J**	0.01	< 0.2	0.2	**3750**	2.2	**7.7**	0.4	**7.5**	0.3	**11.3**	0.7
BG-13	06/22/2010	0 - 2 in	N	**1.2**	0.1	--	--	--	--	--	--	**0.335**	0.011	**19.3**	0.06	**119**	0.4	**0.49 J**	0.01	< 0.2	0.2	**3020**	2.4	**11.1**	0.5	**5.4**	0.4	**19.7**	0.7
BG-13	06/22/2010	2 - 12 in	N	**2.1**	0.1	--	--	--	--	--	--	**0.125**	0.010	**3.66**	0.06	**92.2**	0.3	**0.44 J**	0.01	< 0.2	0.2	**3550**	2.2	**11.9**	0.4	**5.2**	0.3	**11.2**	0.7
BG-13	06/22/2010	12 - 18 in	N	**2.4**	0.1	--	--	--	--	--	--	**0.199**	0.010	**2.72**	0.06	**218**	0.3	**0.48 J**	0.01	< 0.2	0.2	**14300**	2.3	**10.2**	0.5	**4.5**	0.3	**13.6**	0.7
BG-14	06/23/2010	0 - 2 in	N	**0.44 J**	0.02	--	--	--	--	--	--	**0.626**	0.010	**25.4**	0.06	**108**	0.3	**0.45 J**	0.01	**0.6 J**	0.2	**2300**	2.2	**9.3**	0.4	**5.0**	0.3	**38.3**	0.7
BG-14	06/23/2010	2 - 12 in	N	**0.45 J**	0.03	--	--	--	--	--	--	**0.170**	0.010	**6.54**	0.06	**109**	0.3	**0.46 J**	0.01	< 0.2	0.2	**2170**	2.3	**8.5**	0.5	**5.3**	0.3	**13.1**	0.7
BG-14	06/23/2010	12 - 18 in	N	**1.20 J**	0.03	--	--	--	--	--	--	**0.107**	0.010	**2.59**	0.06	**235**	0.3	**0.60 J**	0.01	< 0.2	0.2	**3870**	2.3	**7.9**	0.5	**5.1**	0.3	**12.7**	0.7
BG-15	06/25/2010	0 - 2 in	N	**0.27 J**	0.03	--	--	--	--	--	--	**0.398**	0.011	**34.1**	0.06	**150**	0.4	**0.42 J**	0.01	< 0.2	0.2	**3300**	2.4	**7.8**	0.5	**4.7**	0.4	**25.9**	0.7
BG-15	06/25/2010	2 - 12 in	N	**0.22 J**	0.03	--	--	--	--	--	--	**0.133**	0.010	**10.9 J**	0.06	**98.3**	0.3	**0.41 J**	0.01	< 0.2	0.2	**2930**	2.3	**8.6**	0.5	**4.5**	0.3	**11.2**	0.7
BG-15	06/25/2010	12 - 18 in	N	**0.27 J**	0.03	--	--	--	--	--	--	**0.104**	0.010	**5.70**	0.06	**90.3**	0.3	**0.52 J**	0.01	< 0.2	0.2	**3440**	2.3	**7.0**	0.5	**4.2**	0.3	**11.6**	0.7
			FD	**0.28 J**	0.03	--	--	--	--	--	--	**0.112**	0.010	**4.84 J**	0.06	**102**	0.3	**0.54 J**	0.01	< 0.2	0.2	**3540**	2.3	**7.4**	0.5	**4.8**	0.3	**12.8**	0.7
BG-16	06/26/2010	0 - 2 in	N	**0.28 J**	0.03	--	--	--	--	--	--	**0.592**	0.010	**32.5**	0.06	**120**	0.3	**0.35 J**	0.01	**0.30 J**	0.2	**2810 J**	2.2	**7.7**	0.4	**5.1**	0.3	**54.8**	0.7
BG-16	06/26/2010	2 - 12 in	N	**0.19 J**	0.02	--	--	--	--	--	--	**0.132**	0.010	**10.3**	0.06	**132**	0.3	**0.41 J**	0.01	< 0.2	0.2	**2990**	2.3	**7.8**	0.5	**5.4**	0.3	**36.8**	0.7
BG-16	06/26/2010	12 - 18 in	N	**0.17 J**	0.02	--	--	--	--	--	--	**0.076**	0.010	**3.06**	0.06	**107**	0.3	**0.42 J**	0.01	< 0.2	0.2	**2830**	2.2	**7.8**	0.4	**5.0**	0.3	**34.2**	0.7
ESI-BKD-1	07/23/2003	1 - 2 ft	N	**6.0 J**	4.2	**2.1**	2.1	**430 J**	1.7	**14300**	40.0	**3.1 J**	12.0	**18.0**	3.0	**120**	40.0	**0.58 J**	1.0	**0.090 J**	1.0	**1960**	1000.0	**11.7 J**	2.0	**6.2 J**	10.0	**20.5**	5.0
ESI-BKD-2	07/23/2003	1 - 2 ft	N	**6.4 J**	5.3	**3.9 J**	2.7	**790 J**	2.1	**16400**	40.0	**3.7 J**	12.0	**23.3**	3.0	**161**	40.0	**0.64 J**	1.0	**0.26 J**	1.0	**2700**	1000.0	**17.9 J**	2.0	**6.6 J**	10.0	**29.3**	5.0
ESI-BKS-1	07/23/2003	0 - 2 in	N	**6.7 J**	4.0	**27 J**	2.0	**910 J**	1.6	**9060**	40.0	**3.0 J**	12.0	**94.9**	3.0	**110**	40.0	**0.35 J**	1.0	**1.1**	1.0	**1290**	1000.0	**7.7 J**	2.0	**3.5 J**	10.0	**123**	5.0
ESI-BKS-2	07/23/2003	0 - 2 in	N	**12 J**	5.0	**14 J**	2.5	**910 J**	2.0	**13700**	40.0	**3.4 J**	12.0	**92.9**	3.0	**147**	40.0	**0.55 J**	1.0	**1.7**	1.0	**2160**	1000.0	**9.8 J**	2.0	**6.7 J**	10.0	**103**	5.0
ESI-RSS-1	07/19/2003	0 - 2 in	N	**19 J**	4.4	--	--	--	--	**11300**	40.0	< 13.1	13.1	**16.0**	3.0	**254**	40.0	**0.51 J**	1.0	**6.2**	1.0	**12400**	1000.0	**20.6**	2.0	**5.6 J**	10.0	**119**	5.0

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Table 4.4-2
Background Soil Quality Data- General and Site-Specific Parameters and Metals
Rhodia Silver Bow Plant
[concentration in mg/kg]

			Chemical Name	General Parameters						Metals																	
			Analysis Location	Fluoride Lab		Orthophosphate, as P Lab		Phosphorus, total Lab		Aluminum Lab		Antimony Lab		Arsenic Lab		Barium Lab		Beryllium Lab		Cadmium Lab		Calcium Lab		Chromium Lab		Cobalt Lab		Copper Lab	
Location ID	Sample Date	Depth	Sample Type	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL
ESI-RSS-2	07/19/2003	0 - 2 in	N	**29 J**	4.0	--	--	--	--	**9380**	40.0	**1.5 J**	12.0	**108**	3.0	**202**	40.0	**0.36 J**	1.0	**8.9**	1.0	**7720**	1000.0	**26.8**	2.0	**4.2 J**	10.0	**301**	5.0
			FD	**26**	4.0	--	--	--	--	**8720**	40.0	**1.4 J**	12.0	**103**	3.0	**194**	40.0	**0.33 J**	1.0	**6.6**	1.0	**5830**	1000.0	**22.4**	2.0	**3.9 J**	10.0	**273**	5.0
ESI-RSS-3	07/19/2003	0 - 2 in	N	**36 J**	4.0	--	--	--	--	**15700**	40.0	**0.58 J**	12.0	**99.8**	3.0	**263**	40.0	**0.69 J**	1.0	**3.3**	1.0	**3460**	1000.0	**23.2**	2.0	**9.2 J**	10.0	**145**	5.0
ESI-RSS-4	07/19/2003	0 - 2 in	N	**37 J**	4.0	--	--	--	--	**15900**	40.0	< 12.2	12.2	**75.6**	3.0	**248**	40.0	**0.73 J**	1.0	**3.1**	1.0	**2900**	1000.0	**19.7**	2.0	**9.3 J**	10.0	**106**	5.0
ESI-RSS-5	07/19/2003	0 - 2 in	N	**24 J**	4.0	--	--	--	--	**11000**	40.0	**0.49 J**	12.0	**118**	3.0	**165**	40.0	**0.44 J**	1.0	**1.3**	1.0	**2210**	1000.0	**10.3**	2.0	**6.5 J**	10.0	**147**	5.0

Table 4.4-2
Background Soil Quality Data- General and Site-Specific Parameters and Metals
Rhodia Silver Bow Plant
[concentration in mg/kg]

				Metals																									
		Chemical Name		Iron		Lead		Magnesium		Manganese		Mercury		Nickel		Potassium		Selenium		Silver		Sodium		Thallium		Uranium		Vanadium		Zinc	
		Analysis Location		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab	
Location ID	Sample Date	Depth	Sample Type	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL
BG-1	06/29/2010	0 - 2 in	N	**24500**	0.3	**31.6**	3.3	**2020**	0.04	**457**	0.04	**0.023**	0.002	**3.7 J**	0.5	**2160**	5.5	**0.4 J**	0.2	< 0.4	0.4	**43.6**	4.4	**0.220**	0.003	**2.140**	0.007	**54.6**	0.4	**60.7**	0.3
			FD	**17900**	0.3	**24.6**	3.3	**1550**	0.04	**369**	0.04	**0.020**	0.002	**2.6 J**	0.5	**1790**	5.4	**0.4 J**	0.2	< 0.4	0.4	**33.1**	4.4	**0.232**	0.003	**2.020**	0.007	**38.9**	0.4	**48.7**	0.3
BG-1	06/29/2010	2 - 12 in	N	**22300**	0.3	**8.5 J**	3.3	**2650**	0.04	**426**	0.04	**0.011 J**	0.002	**3.9 J**	0.6	**2430**	5.5	**0.4 J**	0.2	< 0.4	0.4	**53.9**	4.4	**0.249**	0.003	**1.890**	0.006	**49.9**	0.4	**28.6**	0.3
BG-1	06/29/2010	12 - 18 in	N	**24100**	0.4	**10.1 J**	3.5	**5740**	0.05	**481**	0.05	**0.016 J**	0.002	**5.6**	0.6	**4050**	5.8	**0.6 J**	0.2	< 0.5	0.5	**180**	4.7	**0.303**	0.004	**2.720**	0.007	**46.5**	0.5	**34.2**	0.4
BG-2	06/30/2010	0 - 2 in	N	**17200**	0.4	**16.7 J**	3.7	**3050**	0.05	**558**	0.05	**0.025**	0.002	**4.5 J**	0.6	**3030**	6.1	**0.5 J**	0.2	< 0.5	0.5	**102**	4.9	**0.291**	0.004	**2.010**	0.007	**32.3**	0.5	**63.0**	0.4
BG-2	06/30/2010	2 - 12 in	N	**15000**	0.3	**9.8 J**	3.2	**4170**	0.04	**780 J**	0.04	**0.015 J**	0.002	**3.2 J**	0.5	**2340**	5.3	**0.7 J**	0.2	< 0.4	0.4	**305**	4.3	**0.388**	0.003	**1.160**	0.006	**20.3**	0.4	**37.6**	0.3
BG-2	06/30/2010	12 - 18 in	N	**19400**	0.3	**6.5 J**	3.5	**5090**	0.05	**376**	0.05	**0.014 J**	0.002	**5.1**	0.6	**3700**	5.8	**0.5 J**	0.2	< 0.5	0.5	**292**	4.6	**0.320**	0.003	**0.986**	0.007	**37.1**	0.5	**34.7**	0.3
BG-3	06/29/2010	0 - 2 in	N	**15300**	0.3	**5.1 J**	3.2	**2500**	0.04	**336**	0.04	**0.013 J**	0.002	**2.5 J**	0.5	**2430**	5.4	**0.3 J**	0.2	< 0.4	0.4	**71.7**	4.3	**0.279**	0.003	**1.260**	0.007	**28.1**	0.4	**39.9**	0.3
BG-3	06/29/2010	2 - 12 in	N	**19700**	0.3	**5.9 J**	3.4	**4510**	0.05	**485**	0.05	**0.009 J**	0.002	**4.8**	0.6	**3930**	5.6	**0.4 J**	0.2	< 0.5	0.5	**138**	4.5	**0.261**	0.003	**1.170**	0.007	**34.9**	0.5	**36.2**	0.3
BG-3	06/29/2010	12 - 18 in	N	**18400**	0.3	**5.6 J**	3.4	**5290**	0.05	**449**	0.05	**0.010 J**	0.002	**4.4 J**	0.6	**4440**	5.7	**0.4 J**	0.2	< 0.5	0.5	**296**	4.6	**0.363**	0.003	**1.500**	0.007	**32.3**	0.5	**34.6**	0.3
BG-4	06/28/2010	0 - 2 in	N	**16400**	0.3	**14.4 J**	3.5	**2320**	0.05	**421**	0.05	**0.028**	0.002	**3.0 J**	0.6	**2600**	5.8	**0.3 J**	0.2	< 0.5	0.5	**29.0**	4.6	**0.243**	0.003	**3.070**	0.007	**35.1**	0.5	**53.3**	0.3
BG-4	06/28/2010	2 - 12 in	N	**18400**	0.3	**6.8 J**	3.4	**3040**	0.05	**462**	0.05	**0.016 J**	0.002	**3.8 J**	0.6	**3190**	5.7	**0.3 J**	0.2	< 0.5	0.5	**40.3**	4.5	**0.266**	0.003	**2.570**	0.007	**37.8**	0.5	**36.5**	0.3
BG-4	06/28/2010	12 - 18 in	N	**19200**	0.3	**4.1 J**	3.2	**3980**	0.04	**443**	0.04	**0.011 J**	0.002	**4.1 J**	0.5	**3640**	5.4	**0.2 J**	0.2	< 0.4	0.4	**49.4**	4.3	**0.362**	0.003	**1.810**	0.007	**37.8**	0.4	**32.1**	0.3
BG-5	06/22/2010	0 - 2 in	N	**17100**	0.4	**8.5 J**	3.5	**3190**	0.05	**595**	0.05	**0.016 J**	0.002	**4.0 J**	0.6	**2920**	5.9	**0.4 J**	0.2	< 0.5	0.5	**92.3**	4.8	**0.250**	0.004	**1.320**	0.007	**36.6**	0.5	**44.1**	0.4
BG-5	06/22/2010	2 - 12 in	N	**20800**	0.4	**7.7 J**	3.5	**4790**	0.05	**459**	0.05	**0.011 J**	0.002	**4.8**	0.6	**3290**	5.9	**0.4 J**	0.2	< 0.5	0.5	**99.2**	4.8	**0.322**	0.004	**1.200**	0.007	**41.4**	0.5	**37.8**	0.4
BG-5	06/22/2010	12 - 18 in	N	**21600**	0.3	< 3.4	3.4	**5200**	0.05	**380**	0.05	**0.014 J**	0.002	**5.2**	0.6	**2810**	5.7	**0.3 J**	0.2	< 0.5	0.5	**77.8**	4.6	**0.325**	0.004	**1.020**	0.007	**47.4**	0.5	**33.3**	0.3
BG-6	06/28/2010	0 - 2 in	N	**19000**	0.3	**8.9 J**	3.4	**1720**	0.05	**497**	0.05	**0.017 J**	0.002	**3.4 J**	0.6	**2040**	5.6	**0.4 J**	0.2	< 0.5	0.5	**48.4**	4.5	**0.220**	0.003	**1.060**	0.007	**38.9**	0.5	**38.3**	0.3
BG-6	06/28/2010	2 - 12 in	N	**20200**	0.3	**8.1 J**	3.4	**3250**	0.05	**456**	0.05	**0.011 J**	0.002	**4.8**	0.6	**3310**	5.7	**0.3 J**	0.2	< 0.5	0.5	**156**	4.6	**0.220**	0.003	**1.130**	0.007	**40.4**	0.5	**32.1**	0.3
BG-6	06/28/2010	12 - 18 in	N	**16700**	0.3	**4.7 J**	3.3	**3470**	0.04	**359**	0.04	**0.019 J**	0.002	**4.7**	0.6	**2990**	5.6	**0.4 J**	0.2	< 0.4	0.4	**257**	4.4	**0.230**	0.003	**1.330**	0.007	**34.6**	0.4	**25.6**	0.3
BG-7	06/27/2010	0 - 2 in	N	**35300**	0.4	**9.4 J**	3.5	**2310**	0.05	**573**	0.05	**0.007 J**	0.002	**4.2 J**	0.6	**2570**	5.8	**0.4 J**	0.2	< 0.5	0.5	**127**	4.7	**0.255**	0.004	**1.980**	0.007	**83.3**	0.5	**37.3**	0.4
BG-7	06/27/2010	2 - 12 in	N	**28800**	0.4	**7.9 J**	3.6	**4220**	0.05	**500**	0.05	**0.012 J**	0.002	**4.7 J**	0.6	**4170**	6.0	**0.6 J**	0.2	< 0.5	0.5	**620**	4.8	**0.817**	0.004	**2.090**	0.007	**64.4**	0.5	**34.8**	0.4
BG-7	06/27/2010	12 - 18 in	N	**29900**	0.3	**5.2 J**	3.3	**2850**	0.04	**434**	0.04	**0.003 J**	0.002	**3.6 J**	0.5	**2620**	5.5	**0.4 J**	0.2	< 0.4	0.4	**481**	4.4	**0.192**	0.003	**1.990**	0.007	**76.7**	0.4	**23.8**	0.3
BG-8	06/26/2010	0 - 2 in	N	**20200**	0.4	**14.5 J**	3.6	**3040**	0.05	**578**	0.05	**0.019**	0.002	**4.2 J**	0.6	**3300**	6.0	**0.4 J**	0.2	< 0.5	0.5	**45.5**	4.8	**0.295**	0.004	**1.890**	0.007	**43.5**	0.5	**54.8**	0.4
BG-8	06/26/2010	2 - 12 in	N	**23500**	0.3	**3.8 J**	3.4	**3650**	0.05	**519**	0.05	**0.007 J**	0.002	**4.5 J**	0.6	**3670**	5.6	**0.2 J**	0.2	< 0.5	0.5	**49.0**	4.5	**0.276**	0.003	**1.880**	0.007	**52.8**	0.5	**35.6**	0.3
			FD	**20500**	0.3	**3.5 J**	3.4	**3280**	0.05	**503**	0.05	**0.004 J**	0.002	**3.9 J**	0.6	**3320**	5.6	**0.4 J**	0.2	< 0.4	0.4	**47.3**	4.5	**0.285**	0.003	**1.590**	0.007	**43.3**	0.4	**34.1**	0.3
BG-8	06/26/2010	12 - 18 in	N	**22000**	0.3	**4.6 J**	3.3	**3910**	0.04	**548**	0.04	**0.003 J**	0.002	**4.5**	0.6	**3510**	5.5	**0.3 J**	0.2	< 0.4	0.4	**51.3**	4.4	**0.330**	0.003	**1.550**	0.007	**49.7**	0.4	**32.4**	0.3
BG-9	06/22/2010	0 - 2 in	N	**27400**	0.3	**10.3 J**	3.4	**2810**	0.05	**525**	0.05	**0.016 J**	0.002	**3.1 J**	0.6	**2700**	5.7	< 0.2	0.2	< 0.5	0.5	**77.1**	4.6	**0.230**	0.003	**1.070**	0.007	**69.1**	0.5	**38.2**	0.3
BG-9	06/22/2010	2 - 12 in	N	**22200**	0.4	**7.9 J**	3.1	**5240**	0.05	**536**	0.04	**0.012 J**	0.002	**4.0 J**	0.6	**3360**	5.2	**0.4 J**	0.2	< 0.5	0.5	**221**	5.0	**0.332**	0.004	**1.250**	0.007	**39.1**	0.5	**43.8**	0.4
BG-9	06/22/2010	12 - 18 in	N	**17100**	0.3	**6.1 J**	3.5	**3660 J**	0.05	**400**	0.05	**0.010 J**	0.002	**2.9 J**	0.6	**2600**	5.9	**0.6 J**	0.2	< 0.5	0.5	**244**	4.6	**0.272**	0.003	**0.915 J**	0.007	**39.9**	0.5	**27.8**	0.3
BG-10	06/23/2010	0 - 2 in	N	**26500**	0.4	**12.7 J**	3.6	**2840**	0.05	**655**	0.05	**0.023**	0.002	**4.5 J**	0.6	**2530**	5.9	**0.5 J**	0.2	< 0.5	0.5	**44.7**	4.7	**0.275**	0.004	**2.670**	0.007	**55.5**	0.5	**54.1**	0.4
BG-10	06/23/2010	2 - 12 in	N	**24000**	0.4	**8.0 J**	3.5	**3330**	0.05	**671**	0.05	**0.013 J**	0.002	**4.9**	0.6	**3010**	5.8	**0.5 J**	0.2	< 0.5	0.5	**59.2**	4.7	**0.292**	0.004	**2.270**	0.007	**48.9**	0.5	**38.6**	0.4
BG-10	06/23/2010	12 - 18 in	N	**23000**	0.4	**10.2 J**	3.6	**5140**	0.05	**861**	0.05	**0.012 J**	0.002	**5.6**	0.6	**5250**	5.9	**0.5 J**	0.2	< 0.5	0.5	**80.4**	4.7	**0.345**	0.004	**3.390**	0.007	**43.5**	0.5	**43.1**	0.4
BG-11	06/27/2010	0 - 2 in	N	**15700**	0.3	**8.9 J**	3.3	**2560**	0.04	**537**	0.04	**0.008 J**	0.002	**2.7 J**	0.6	**2500**	5.6	**0.3 J**	0.2	< 0.4	0.4	**35.4**	4.5	**0.278**	0.003	**1.680**	0.007	**29.9**	0.4	**45.1**	0.3
BG-11	06/27/2010	2 - 12 in	N	**21100**	0.3	**7.6 J**	3.5	**3360**	0.05	**613**	0.05	**0.002 J**	0.002	**4.0 J**	0.6	**3030**	5.8	**0.4 J**	0.2	< 0.5	0.5	**44.6**	4.7	**0.340**	0.004	**1.770**	0.007	**39.7**	0.5	**33.4**	0.3
BG-11	06/27/2010	12 - 18 in	N	**16100**	0.3	**9.0 J**	3.2	**2830**	0.04	**1050**	0.04	**0.003 J**	0.002	**3.0 J**	0.5	**2390**	5.4	**0.4 J**	0.2	< 0.4	0.4	**43.1**	4.3	**0.367**	0.003	**1.460**	0.006	**36.6**	0.4	**23.9**	0.3
BG-12	06/26/2010	0 - 2 in	N	**17400**	0.3	**7.4 J**	3.5	**2780**	0.05	**546**	0.05	**0.006 J**	0.002	**3.7 J**	0.6	**3100**	5.8	**0.4 J**	0.2	< 0.5	0.5	**44.7**	4.6	**0.316**	0.004	**1.930**	0.007	**32.1**	0.5	**44.0**	0.3
BG-12	06/26/2010	2 - 12 in	N	**19100**	0.3	**7.9 J**	3.4	**2970**	0.05	**764**	0.05	**0.008 J**	0.002	**21.4**	0.6	**2990**	5.7	**0.3 J**	0.2	< 0.5	0.5	**43.4**	4.5	**0.281**	0.003	**1.540**	0.007	**39.4**	0.5	**32.8**	0.3
BG-12	06/26/2010	12 - 18 in	N	**20500**	0.3	**7.5 J**	3.4	**4140**	0.05	**741**	0.05	**0.018**	0.002	**5.8**	0.6	**3180**	5.6	**0.4 J**	0.2	< 0.4	0.4	**56.5**	4.5	**0.332**	0.003	**1.710**	0.007	**40.7**	0.4	**32.2**	0.3
BG-13	06/22/2010	0 - 2 in	N	**19000**	0.4	**8.4 J**	3.5	**2710**	0.05	**535**	0.05	**0.014 J**	0.002	**4.9**	0.6	**2040**	5.9	**0.4 J**	0.2	**0.8 J**	0.5	**80.9**	4.7	**0.224**	0.004	**1.250**	0.007	**41.9**	0.5	**39.2**	0.4
BG-13	06/22/2010	2 - 12 in	N	**20500**	0.3	**4.7 J**	3.4	**3540**	0.05	**371**	0.05	**0.007 J**	0.002	**5.2**	0.6	**1670**	5.6	**0.4 J**	0.2	< 0.4	0.4	**203**	4.5	**0.313**	0.003	**1.410**	0.007	**47.3**	0.4	**30.1**	0.3
BG-13	06/22/2010	12 - 18 in	N	**17500**	0.3	< 3.5	3.5	**4360**	0.05	**833**	0.05	**0.010 J**	0.002	**6.6**	0.6	**1630**	5.8	**0.4 J**	0.2	< 0.5	0.5	**361**	4.7	**0.207**	0.003	**0.839**	0.007	**39.5**	0.5	**29.3**	0.3
BG-14	06/23/2010	0 - 2 in	N	**20200**	0.3	**15.4 J**	3.4	**2660**	0.05	**495**	0.05	**0.016 J**	0.002	**3.9 J**	0.6	**2230**	5.7	**0.3 J**	0.2	< 0.4	0.4	**53.0**	4.5	**0.274**	0.003	**1.570**	0.007	**42.1**	0.4	**61.5**	0.3
BG-14	06/23/2010	2 - 12 in	N	**18700**	0.3	**8.6 J**	3.4	**3520**	0.05	**441**	0.05	**0.013 J**	0.002	**4.4 J**	0.6	**2770**	5.6	**0.5 J**	0.2	< 0.5	0.5	**108**	4.5	**0.261**	0.003	**1.490**	0.007	**35.5**	0.5	**35.3**	0.3
BG-14	06/23/2010	12 - 18 in	N	**21500**	0.3	**7.0 J**	3.4	**4860**	0.05	**665**	0.05	**0.035**	0.002	**5.4**	0.6	**3540**	5.7	**0.6 J**	0.2	< 0.5	0.5	**239**	4.7	**0.422**	0.003	**2.030**	0.007	**39.7**	0.5	**36.7**	0.3
BG-15	06/25/2010	0 - 2 in	N	**17200**	0.4	**8.0 J**	3.6	**2610**	0.05	**651**	0.05	**0.017 J**	0.002	**3.8 J**	0.6	**2630**	6.0	**0.5 J**	0.2	< 0.5	0.5	**36.3**	4.8	**0.258**	0.004	**4.110**	0.007	**29.4**	0.5	**44.4**	0.4
BG-15	06/25/2010	2 - 12 in	N	**17300**	0.3	**5.2 J**	3.4	**3110**	0.05	**411**	0.05	**0.008 J**	0.002	**4.1 J**	0.6	**2670**	5.7	**0.4 J**	0.2	< 0.5	0.5	**44.7**	4.5	**0.235**	0.003	**1.840**	0.007	**30.3**	0.5	**30.8**	0.3
BG-15	06/25/2010	12 - 18 in	N	**18200**	0.3	**3.9 J**	3.5	**3630**	0.05	**334**	0.05	**0.005 J**	0.002	**4.3 J**	0.6	**2930**	5.8	**0.4 J**	0.2	< 0.5	0.5	**66.2**	4.6	**0.331**	0.003	**2.220**	0.007	**32.4**	0.5	**31.1**	0.3
			FD	**18500**	0.3	**4.6 J**	3.5	**3840**	0.05	**379**	0.05	**0.014 J**	0.002	**4.4 J**	0.6	**3110**	5.8	**0.4 J**	0.2	< 0.5	0.5	**69.7**	4.7	**0.303**	0.003	**1.770**	0.007	**32.2**	0.5	**33.8**	0.3
BG-16	06/26/2010	0 - 2 in	N	**20700**	0.3	**16.4 J**	3.3	**4080**	0.05	**604**	0.05	**0.016 J**	0.002	**3.2 J**	0.6	**3620**	5.6	**0.3 J**	0.2	< 0.4	0.4	**34.8**	4.5	**0.325**	0.003	**2.050**	0.007	**36.0**	0.4	**61.0**	0.3
BG-16	06/26/2010	2 - 12 in	N	**20600**	0.3	**6.0 J**	3.4	**4290**	0.05	**582**	0.05	**0.009 J**	0.002	**4.2 J**	0.6	**3700**	5.6	**0.4 J**	0.2	< 0.5	0.5	**43.9**	4.5	**0.303**	0.003	**2.580**	0.007	**34.9**	0.5	**44.2**	0.3
BG-16	06/26/2010	12 - 18 in	N	**17400**	0.3	**5.5 J**	3.3	**3690**	0.04	**440**	0.04	**0.007 J**	0.002	**3.2 J**	0.6	**3260**	5.5	**0.3 J**	0.2	< 0.4	0.4	**54.2**	4.4	**0.300**	0.003	**3.060**	0.007	**27.8**	0.4	**35.9**	0.3
ESI-BKD-1	07/23/2003	1 - 2 ft	N	**14200**	20.0	**7.5**	2.0	**3350**	1000.0	**437**	3.0	< 0.10	0.10	**7.9 J**	8.0	**2940**	1000.0	< 7.3 J	7.3	< 2.1	2.1	**146 J**	1000.0	< 5.2	5.2	--	--	**31.2**	10.0	**39.6**	12.0
ESI-BKD-2	07/23/2003	1 - 2 ft	N	**17600**	20.0	**11.5**	2.0	**4110**	1000.0	**524**	3.0	< 0.10	0.10	**10.3**	8.0	**3220**	1000.0	< 7.3 J	7.3	< 2.1	2.1	**84.3 J**	1000.0	< 5.2	5.2	--	--	**39.8**	10.0	**55.7**	12.0
ESI-BKS-1	07/23/2003	0 - 2 in	N	**11700**	20.0	**55.6**	2.0	**1820**	1000.0	**281**	3.0	**0.060 J**	0.10	**3.9 J**	8.0	**2130**	1000.0	< 7.0 J	7.0	**0.26 J**	2.0	**83.4 J**	1000.0	< 5.0	5.0	--	--	**27.1**	10.0	**72.9**	12.0
ESI-BKS-2	07/23/2003	0 - 2 in	N	**15900**	20.0	**30.3**	2.0	**3200**	1000.0	**728**	3.0	< 0.10	0.10	**6.1 J**	8.0	**3280**	1000.0	< 7.1 J	7.1	< 2.0	2.0	**87.3 J**	1000.0	< 5.1	5.1	--	--	**36.3**	10.0	**98.2**	12.0
ESI-RSS-1	07/19/2003	0 - 2 in	N	**11700**	20.0	**143**	2.0	**4230**	1000.0	**374**	3.0	**0.097 J**	0.10	**10.6**	8.0	**3830**	1000.0	< 7.7	7.7	**0.67 J**	2.0	**509 J**	1000.0	**0.56 J**	5.0	--	--	**31.0**	10.0	**371**	12.0

Table 4.4-2
Background Soil Quality Data- General and Site-Specific Parameters and Metals
Rhodia Silver Bow Plant
[concentration in mg/kg]

				Metals																									
			Chemical Name	Iron		Lead		Magnesium		Manganese		Mercury		Nickel		Potassium		Selenium		Silver		Sodium		Thallium		Uranium		Vanadium		Zinc	
			Analysis Location	Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab		Lab	
				N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL
Location ID	Sample Date	Depth	Sample Type																										
ESI-RSS-2	07/19/2003	0 - 2 in	N	**14500**	20.0	**191**	2.0	**2210**	1000.0	**276**	3.0	**0.20**	0.10	**9.7**	8.0	**2620**	1000.0	< 7.1	7.1	**1.7 J**	2.0	**291 J**	1000.0	**0.6 J**	5.0	--	--	**44.4**	10.0	**377**	12.0
			FD	**12200**	20.0	**164**	2.0	**2070**	1000.0	**234**	3.0	**0.26**	0.10	**8.3**	8.0	**2400**	1000.0	< 7.1	7.1	**1.6 J**	2.0	**273 J**	1000.0	**0.390 J**	5.0	--	--	**37.3**	10.0	**287**	12.0
ESI-RSS-3	07/19/2003	0 - 2 in	N	**14600**	20.0	**51.8**	2.0	**3210**	1000.0	**702**	3.0	**0.073 J**	0.10	**11.4**	8.0	**3210**	1000.0	< 6.9	6.9	**0.20 J**	2.0	**264 J**	1000.0	**1.00 J**	5.0	--	--	**27.4**	10.0	**210**	12.0
ESI-RSS-4	07/19/2003	0 - 2 in	N	**17500**	20.0	**26.2**	2.0	**3340**	1000.0	**1020**	3.0	**0.0048 J**	0.10	**10.8**	8.0	**3380**	1000.0	< 7.1	7.1	< 2.0	2.0	**247 J**	1000.0	**1.0 J**	5.0	--	--	**37.2**	10.0	**184**	12.0
ESI-RSS-5	07/19/2003	0 - 2 in	N	**16200**	20.0	**42.1**	2.0	**2240**	1000.0	**454**	3.0	**0.066 J**	0.10	**4.9 J**	8.0	**2460**	1000.0	< 7.1	7.1	< 2.0	2.0	**245 J**	1000.0	**0.97 J**	5.0	--	--	**37.4**	10.0	**86.3**	12.0

Table 4.4-3
Background Soil Quality Data - Site-Specific Radionuclides
Rhodia Silver Bow Plant
[concentrations in pCi/g]

			Chemical Name	Lead 210		Radium 226		Thorium 230		Uranium 234		Uranium 235		Uranium 238	
				N	RDL	N	RDL	N	RDL	N	RDL	N	RDL	N	RDL
Location ID	Sample Date	Depth	Sample Type												
BG-1	06/29/2010	0 - 2 in	N	< 4 +/- 1.5	4	**2.1 +/- 0.48 J**	0.9	**1.2 +/- 0.61**	0.65	**0.55 +/- 0.48 J**	0.22	< 0.22 +/- 0.23	0.22	**0.87 +/- 0.35 J**	0.22
	06/29/2010		FD	< 4.3 +/- 1.5	4.3	**1.9 +/- 0.46**	0.92	**3.4 +/- 0.77**	0.66	**1.4 +/- 0.64**	0.31	< 0.31 +/- 0.24	0.31	**1.21 +/- 0.56**	0.31
BG-1	06/29/2010	2 - 12 in	N	< 4.9 +/- 1.6	4.9	**5 +/- 0.74**	0.94	**1.6 +/- 0.57**	0.63	**0.94 +/- 0.56**	0.25	< 0.25 +/- 0.25	0.25	**0.89 +/- 0.41**	0.25
BG-1	06/29/2010	12 - 18 in	N	< 4 +/- 1.4	4	**1.7 +/- 0.35**	0.62	**3.4 +/- 0.72**	0.65	**1.1 +/- 0.61**	0.26	< 0.26 +/- 0.22	0.26	**1.21 +/- 0.5**	0.26
BG-10	06/23/2010	0 - 2 in	N	< 5.6 +/- 1.4	5.6	**5.5 +/- 1.1**	1.9	**1.2 +/- 0.5**	0.56	**0.78 +/- 0.36**	0.21	< 0.21 +/- 0.13	0.21	**0.92 +/- 0.36**	0.21
BG-10	06/23/2010	2 - 12 in	N	< 5.4 +/- 1.4	5.4	**7.6 +/- 1.3**	1.8	< 0.55 +/- 0.4	0.55	**0.88 +/- 0.43**	0.21	< 0.21 +/- 0.14	0.21	**1.11 +/- 0.39**	0.21
BG-10	06/23/2010	12 - 18 in	N	< 6.6 +/- 1.7	6.6	**5.9 +/- 1.2**	1.9	**1.6 +/- 0.53**	0.59	**0.67 +/- 0.42**	0.22	< 0.22 +/- 0.22	0.22	**0.89 +/- 0.4**	0.22
BG-11	06/27/2010	0 - 2 in	N	< 5.5 +/- 1.6	5.5	**1.9 +/- 0.46**	0.87	< 0.56 +/- 0.46	0.56	< 0.22 +/- 0.43	0.22	< 0.22 +/- 0.25	0.22	**0.36 +/- 0.25**	0.22
BG-11	06/27/2010	2 - 12 in	N	< 5.7 +/- 1.7	5.7	**1.3 +/- 0.31**	0.6	< 0.65 +/- 0.46	0.65	**0.69 +/- 0.43**	0.19	< 0.19 +/- 0.19	0.19	**0.27 +/- 0.25**	0.19
BG-11	06/27/2010	12 - 18 in	N	< 4.9 +/- 1.5	4.9	**2.2 +/- 0.49**	0.87	**1.2 +/- 0.61**	0.66	**0.39 +/- 0.44**	0.21	< 0.21 +/- 0.19	0.21	**0.58 +/- 0.35**	0.21
BG-12	06/26/2010	0 - 2 in	N	< 4.9 +/- 1.5	4.9	**1.6 +/- 0.43**	0.86	< 0.58 +/- 0.42	0.58	**0.79 +/- 0.46**	0.22	< 0.22 +/- 0.18	0.22	**0.49 +/- 0.29**	0.22
BG-12	06/26/2010	2 - 12 in	N	< 4.5 +/- 1.4	4.5	**1.6 +/- 0.41**	0.82	**0.98 +/- 0.44**	0.62	**0.78 +/- 0.37**	0.21	< 0.21 +/- 0.09	0.21	**0.49 +/- 0.29**	0.21
BG-12	06/26/2010	12 - 18 in	N	< 5.2 +/- 1.5	5.2	**2.7 +/- 0.55**	0.9	**0.66 +/- 0.45**	0.63	**0.71 +/- 0.42**	0.22	< 0.22 +/- 0.18	0.22	**0.48 +/- 0.3**	0.22
BG-13	06/22/2010	0 - 2 in	N	< 5.4 +/- 1.5	5.4	**4.2 +/- 0.96**	1.8	**0.93 +/- 0.46**	0.63	**0.48 +/- 0.51**	0.26	< 0.26 +/- 0.24	0.26	< 0.26 +/- 0.3	0.26
BG-13	06/22/2010	2 - 12 in	N	< 5.2 +/- 1.4	5.2	**4.3 +/- 0.85**	1.4	**0.75 +/- 0.39**	0.62	**0.65 +/- 0.49**	0.22	< 0.22 +/- 0.21	0.22	**0.36 +/- 0.33**	0.22
BG-13	06/22/2010	12 - 18 in	N	< 4.7 +/- 1.3	4.7	**3.4 +/- 0.79**	1.5	**1.3 +/- 0.49**	0.6	**0.77 +/- 0.65**	0.34	< 0.34 +/- 0.25	0.34	**0.43 +/- 0.38**	0.34
BG-14	06/23/2010	0 - 2 in	N	< 5.6 +/- 1.5	5.6	**5.4 +/- 1.1**	1.8	**0.65 +/- 0.38**	0.59	**0.67 +/- 0.48**	0.22	< 0.22 +/- 0.19	0.22	**1.18 +/- 0.38**	0.22
BG-14	06/23/2010	2 - 12 in	N	< 5.1 +/- 1.4	5.1	**5.6 +/- 0.95**	1.4	**0.72 +/- 0.4**	0.6	**0.37 +/- 0.41**	0.23	< 0.23 +/- 0.21	0.23	**0.85 +/- 0.38**	0.23
BG-14	06/23/2010	12 - 18 in	N	< 5.8 +/- 1.5	5.8	**5.6 +/- 1**	1.5	**0.79 +/- 0.42**	0.6	**0.7 +/- 0.38**	0.21	< 0.21 +/- 0.14	0.21	**0.67 +/- 0.29**	0.21

Table 4.4-4
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Statistical Parameter	Fluoride	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium
UPL Basis [1]	Use 95% H-UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% H-UCL	Use 95% Approximate Gamma UCL	Use 95% Student's-t UCL	95% KM (BCA) UCL	Use 95% Student's-t UCL
95% UPL (Reference Area Concentration)	7.6	1.0	40	170	0.55	1.1	4500
Maximum	37	3.9	120	290	1.3	8.9	14000
Minimum	0.10	0.072	1.4	90	0.32	0.09	1300
Mean	4.1	0.50	23	150	0.51	1.6	3900
Standard Deviation	8.3	0.17	29	47	0.17	2.4	2500
Number of samples	57	55	57	57	57	57	57
Number of Detected Values	53	55	57	57	57	18	57
% Detected	93.0%	100.0%	100.0%	100.0%	100.0%	31.6%	100.0%
Mt DEQ Background Concentration		1.5	40	580	3	0.76	
Reference Area Conc. > Mt DEQ Bkgd		No	No	No	No	Yes	

[1] UPL = Upper Prediction Limit for combined 2010 background/reference area data and ESI background data set. Used ProUCL selected UPL.

Values in red are ND and have been scaled to 1

Table 4.4-4
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Statistical Parameter	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
UPL Basis [1]	Use 95% Student's-t UCL	Use 95% Student's-t UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% Student's-t UCL	95% KM (Chebyshev) UCL	Use 95% Student's-t UCL	Use 95% Approximate Gamma UCL
95% UPL (Reference Area Concentration)	12	6.1	64	20600	35	3700	570
Maximum	48	9.5	300	35300	190	5700	1100
Minimum	4.8	3.5	7.1	11700	3.8	1700	280
Mean	11	5.9	35	19600	17	3500	540
Standard Deviation	6.8	1.3	50	4300	32	960	160
Number of samples	57	57	57	57	57	57	57
Number of Detected Values	57	57	57	57	57	57	57
% Detected	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mt DEQ Background Concentration	90	19	39	48000	34		850
Reference Area Conc. > Mt DEQ Bkgd	No	No	Yes	No	Yes		No

[1] UPL = Upper Prediction Limit for combined 2010 backgr

Values in red are ND and have been scaled to 1

Table 4.4-4
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Statistical Parameter	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium
UPL Basis [1]	95% KM (Chebyshev) UCL	Use 95% Student's-t UCL	Use 95% Student's-t UCL	95% KM (Chebyshev) UCL	95% KM (t) UCL	Use 95% Chebyshev (Mean, Sd) UCL	95% KM (Chebyshev) UCL
95% UPL (Reference Area Concentration)	0.038	6.0	3200	0.47	0.35	220	0.46
Maximum	0.20	21	5300	0.70	1.7	620	1.0
Minimum	0.0020	2.5	1600	0.20	0.20	29	0.19
Mean	0.021	5.3	3000	0.41	0.73	140	0.35
Standard Deviation	0.031	3.2	680	0.11	0.60	130	0.19
Number of samples	57	57	57	57	57	57	57
Number of Detected Values	54	57	57	47	5	57	53
% Detected	94.7%	100.0%	100.0%	82.5%	8.8%	100.0%	93.0%
Mt DEQ Background Concentration	0.18	15		0.5			1.2
Reference Area Conc. > Mt DEQ Bkgd	No	No		No			No

[1] UPL = Upper Prediction Limit for combined 2010 backgr

Values in red are ND and have been scaled to 1

Table 4.4-4
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Statistical Parameter	Uranium	Vanadium	Zinc	Radium 226	Thorium230	Uranium234
UPL Basis [1]	Use 95% Approximate Gamma UCL	Use 95% Student's-t UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% Chebyshev (Mean, Sd) UCL	KM	KM
95% UPL (Reference Area Concentration)	2.0	43	98	5.0	1.7	1.6
Maximum	4.1	83	380	12	3.4	2.8
Minimum	0.84	20	24	1.2	0.55	0.2
Mean	1.8	41	59	3.6	0.96	0.73
Standard Deviation	0.69	12	69	2.4	0.49	0.52
Number of samples	48	57	57	57	48	48
Number of Detected Values	48	57	57	57	32	41
% Detected	100.0%	100.0%	100.0%	100.0%	66.7	85.4
Mt DEQ Background Concentration		130	120			
Reference Area Conc. > Mt DEQ Bkgd		No	No			

[1] UPL = Upper Prediction Limit for combined 2010 backgrc

Values in red are ND and have been scaled to 1

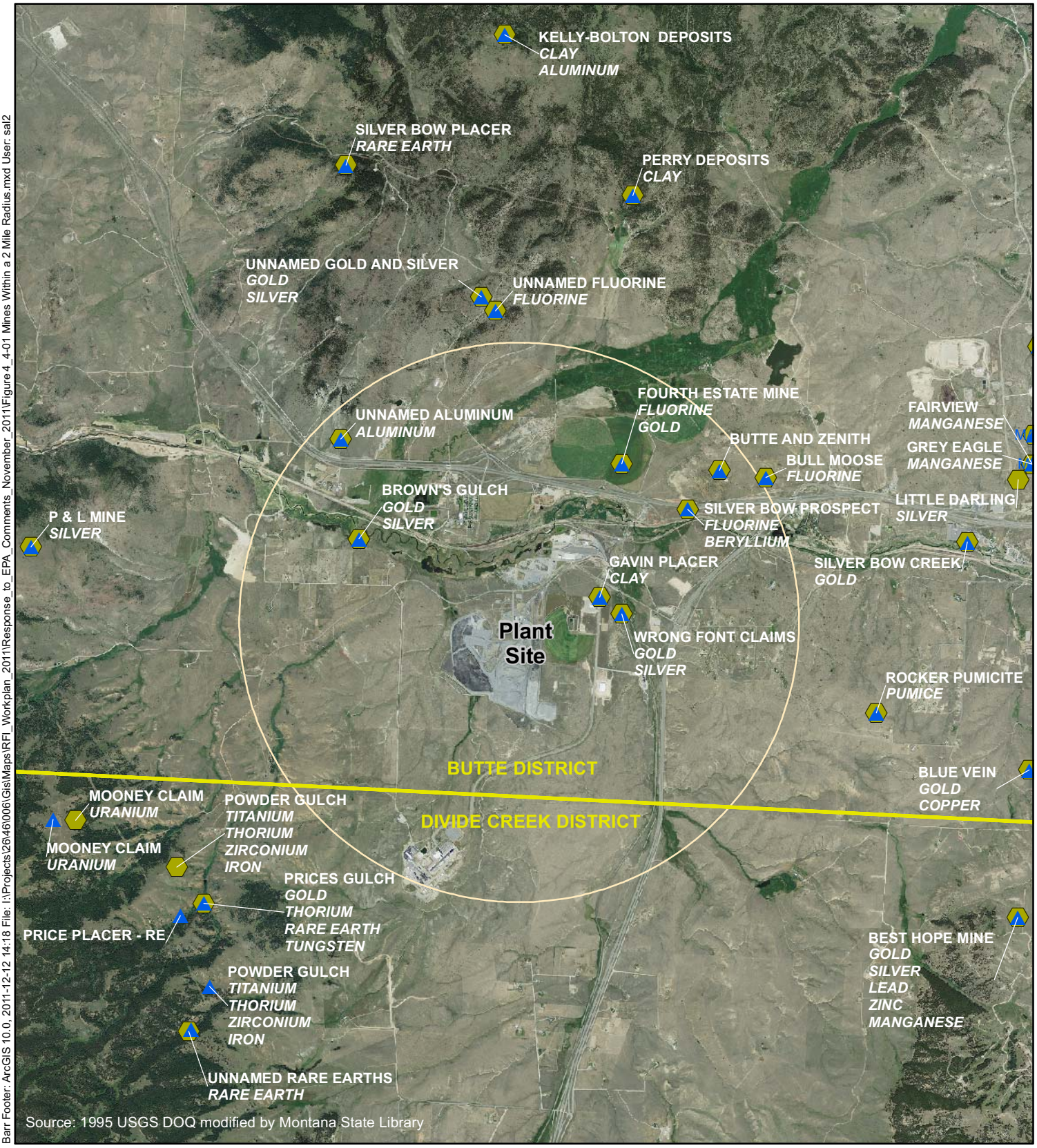
Table 4.4-4
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Statistical Parameter	Uranium238
UPL Basis [1]	N
95% UPL (Reference Area Concentration)	1.6
Maximum	2.7
Minimum	0.26
Mean	0.78
Standard Deviation	0.46
Number of samples	48
Number of Detected Values	48
% Detected	100
Mt DEQ Background Concentration	
Reference Area Conc. > Mt DEQ Bkgd	

[1] UPL = Upper Prediction Limit for combined 2010 backgrc

Values in red are ND and have been scaled to 1

Figures



Barr Footer: ArcGIS 10.0, 2011-12-12 14:18 File: I:\Projects\26\46\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-01 Mines Within a 2 Mile Radius.mxd User: sal2

Mines - Abandoned and Inactive Mines (Montana Bureau of Mines and Geology, 2004)

Mines (US Bureau of Mines, 1992)

Mining District Boundary

2-Mile Radius

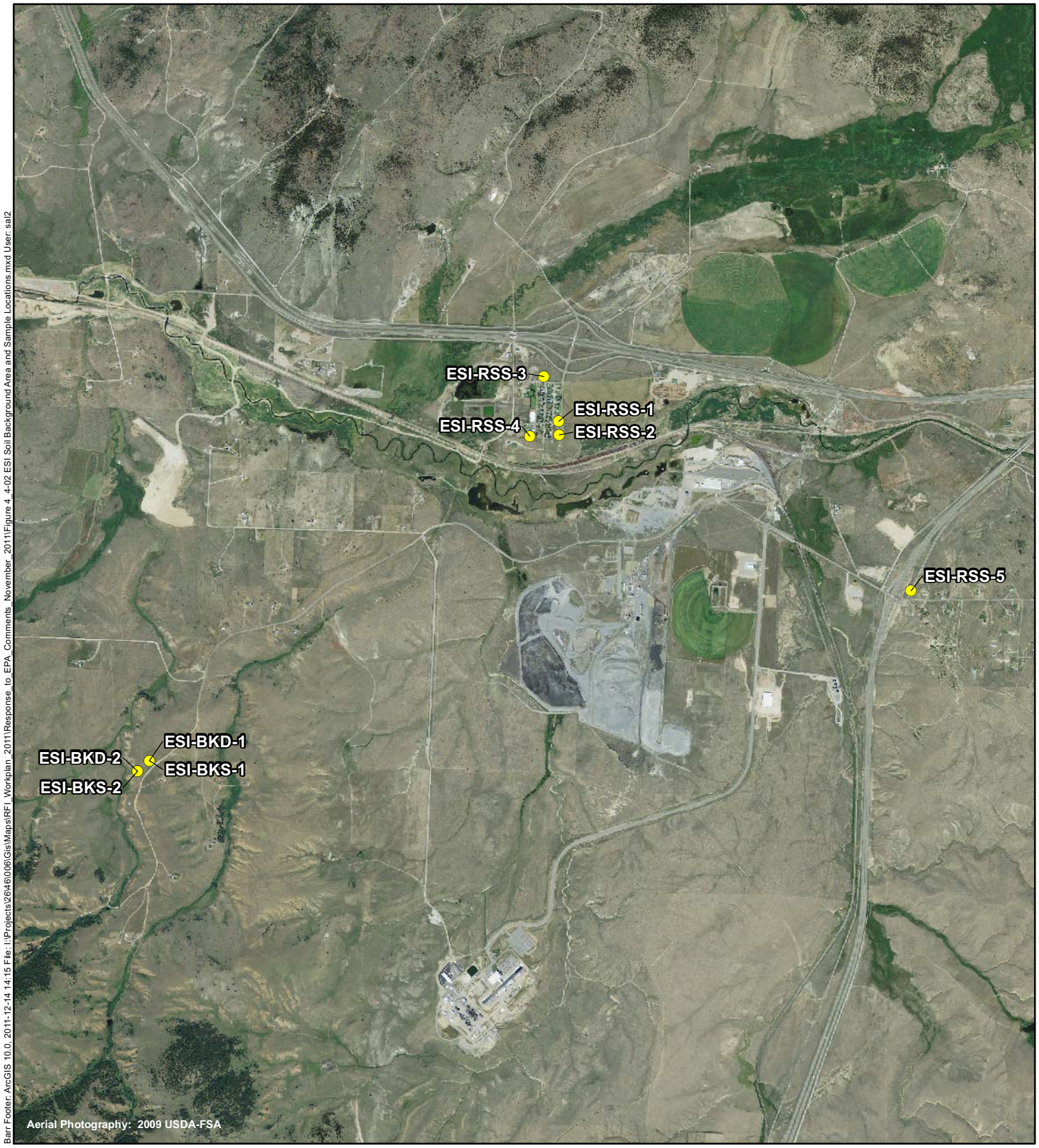
Label Text:
Mine Name (if known)
Mineral Resource

N

Feet
5,000 0 5,000

Figure 4.4-1

MINES WITHIN 2-MILE RADIUS
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 14:15 File: I:\Projects\26\6\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-02 ESI Soil Background Area and Sample Locations.mxd User: sal2

Sample Location

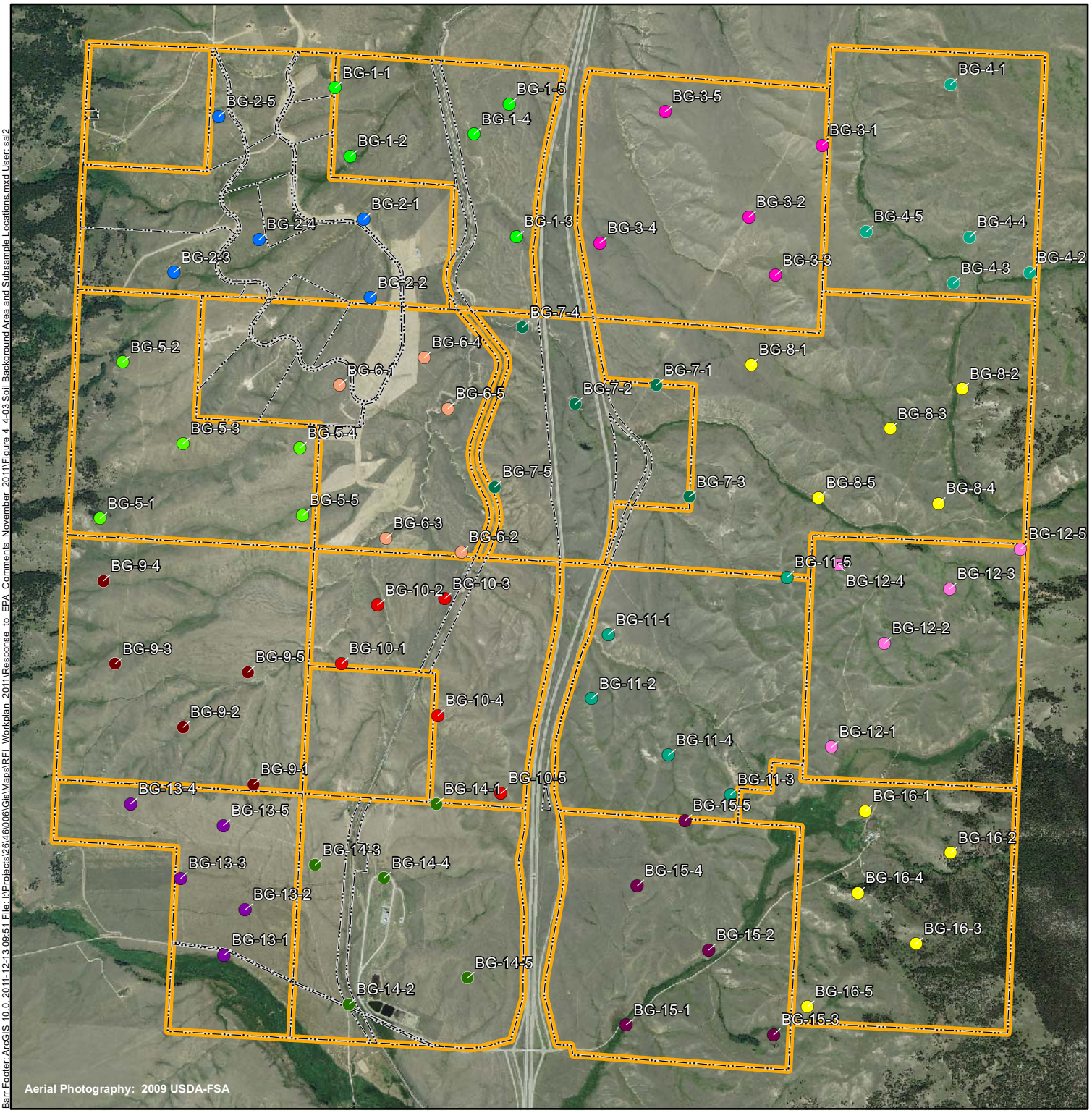
N

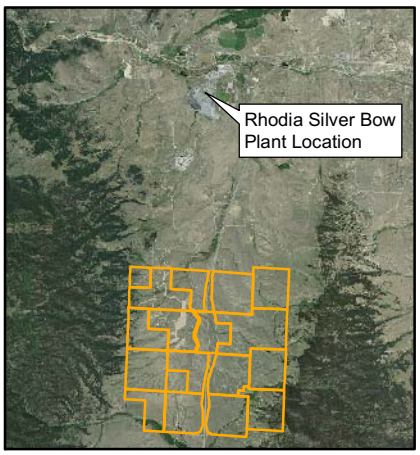
Feet

3,000 0 3,000

Figure 4.4-2

ESI SOIL BACKGROUND AREA AND SAMPLE LOCATIONS
Rhodia Silver Bow Plant
Montana





Subsample Locations

- BG-1
- BG-2
- BG-3
- BG-4
- BG-5
- BG-6
- BG-7
- BG-8
- BG-9
- BG-10
- BG-11
- BG-12
- BG-13
- BG-14
- BG-15
- BG-16

Ownership Boundary

Sample Grid

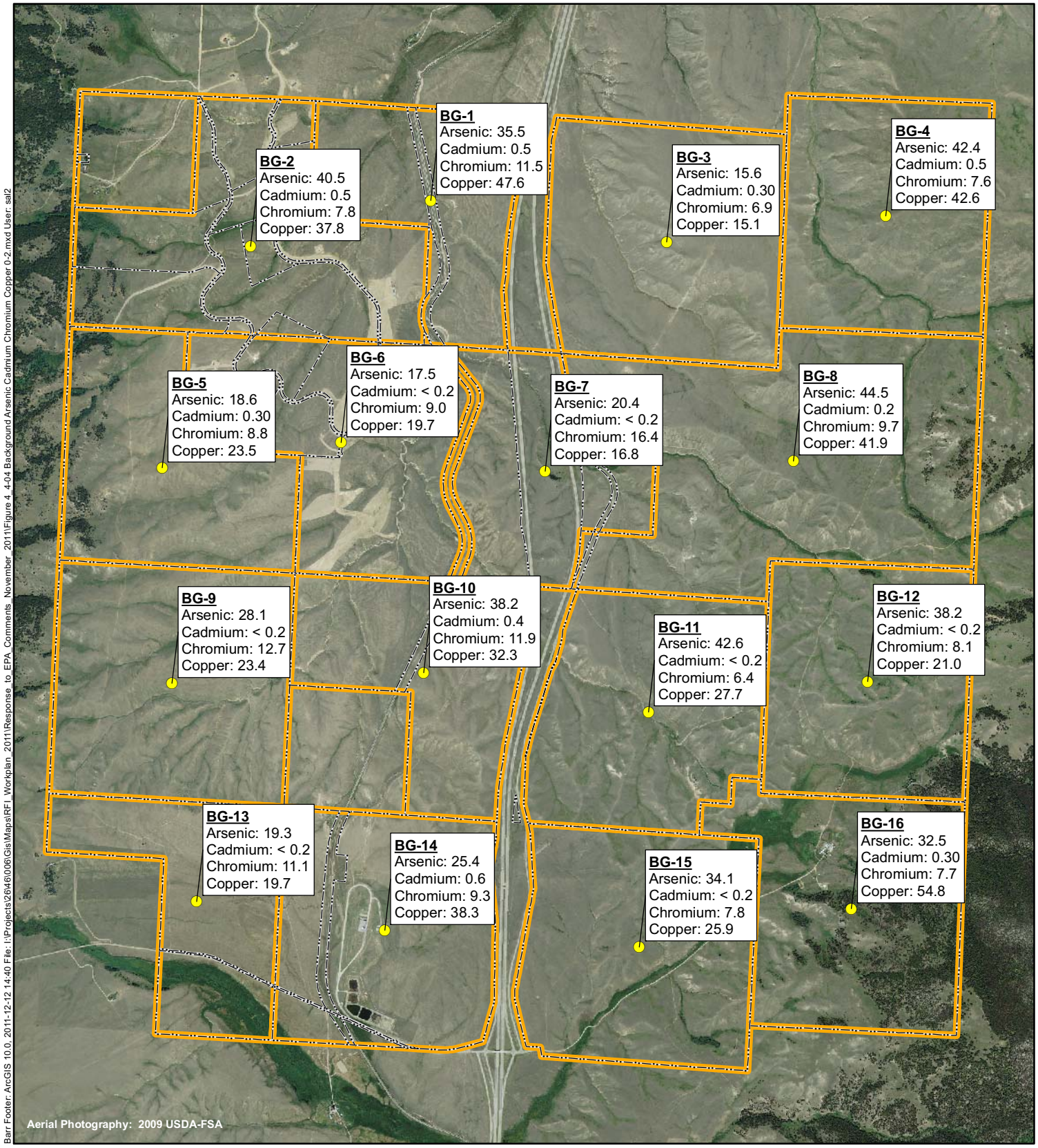
N

Feet

3,000 0 3,000

Figure 4.4-3

2010 SOIL BACKGROUND AREA AND SUBSAMPLE LOCATIONS
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:40 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-04 Background Arsenic Cadmium Chromium Copper 0-2.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

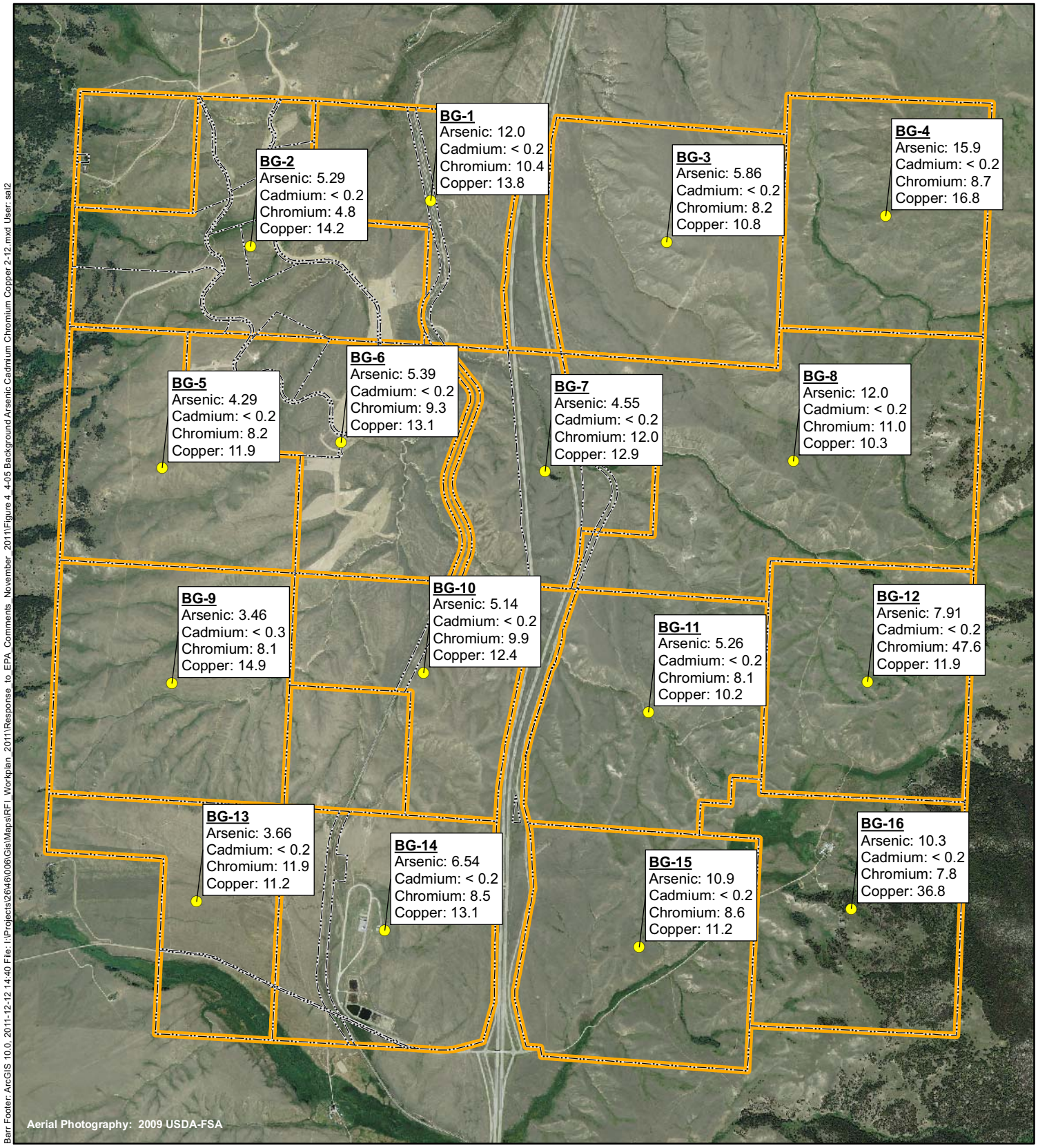
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-4

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ARSENIC, CADMIUM, CHROMIUM, AND COPPER (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:40 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-05 Background Arsenic Cadmium Chromium Copper 2-12.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name — Sample Location

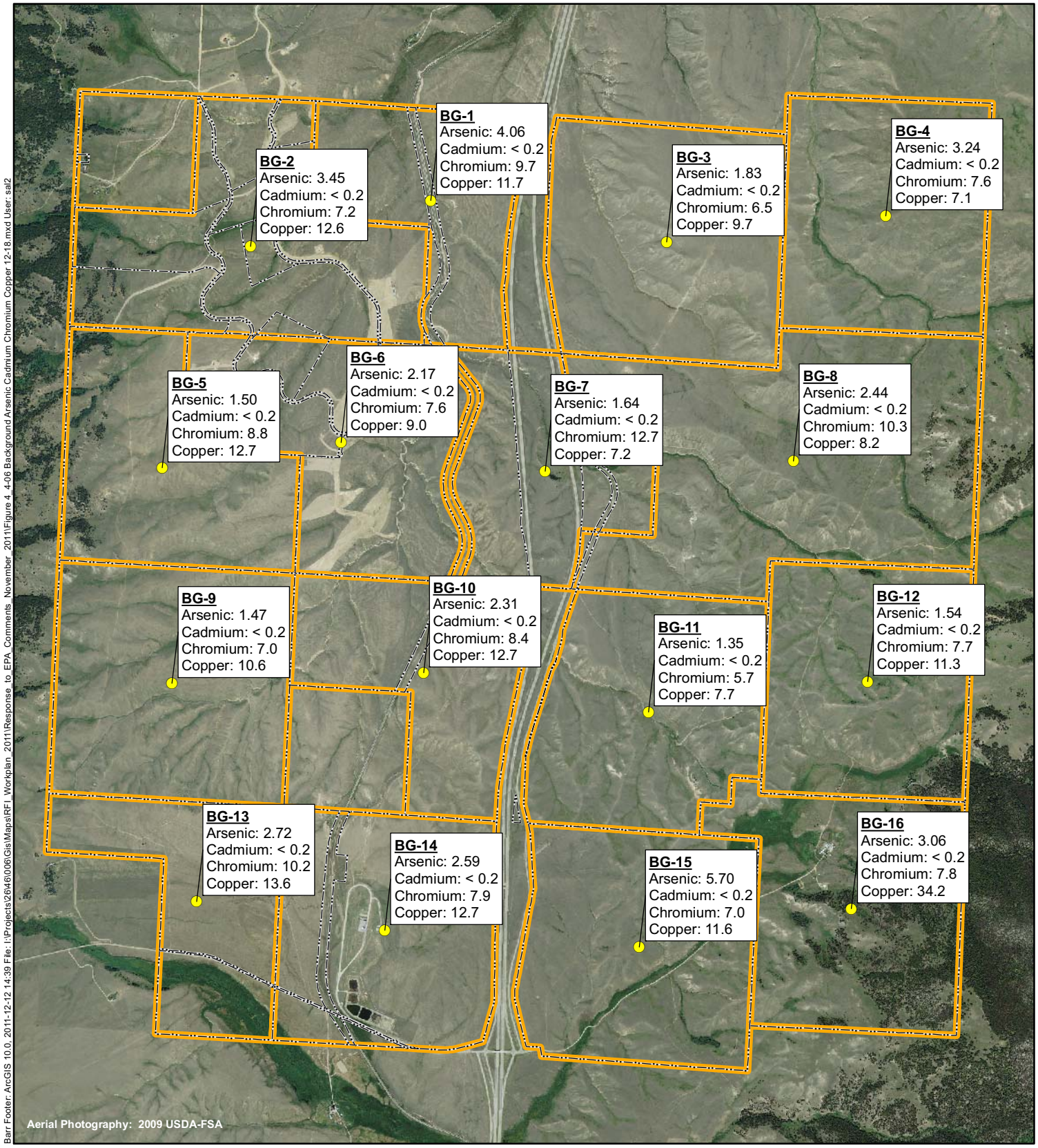
N

Feet

3,000 0 3,000

Figure 4.4-5

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ARSENIC, CADMIUM, CHROMIUM, AND COPPER (2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:39 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-06 Background Arsenic Cadmium Chromium Copper 12-18.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

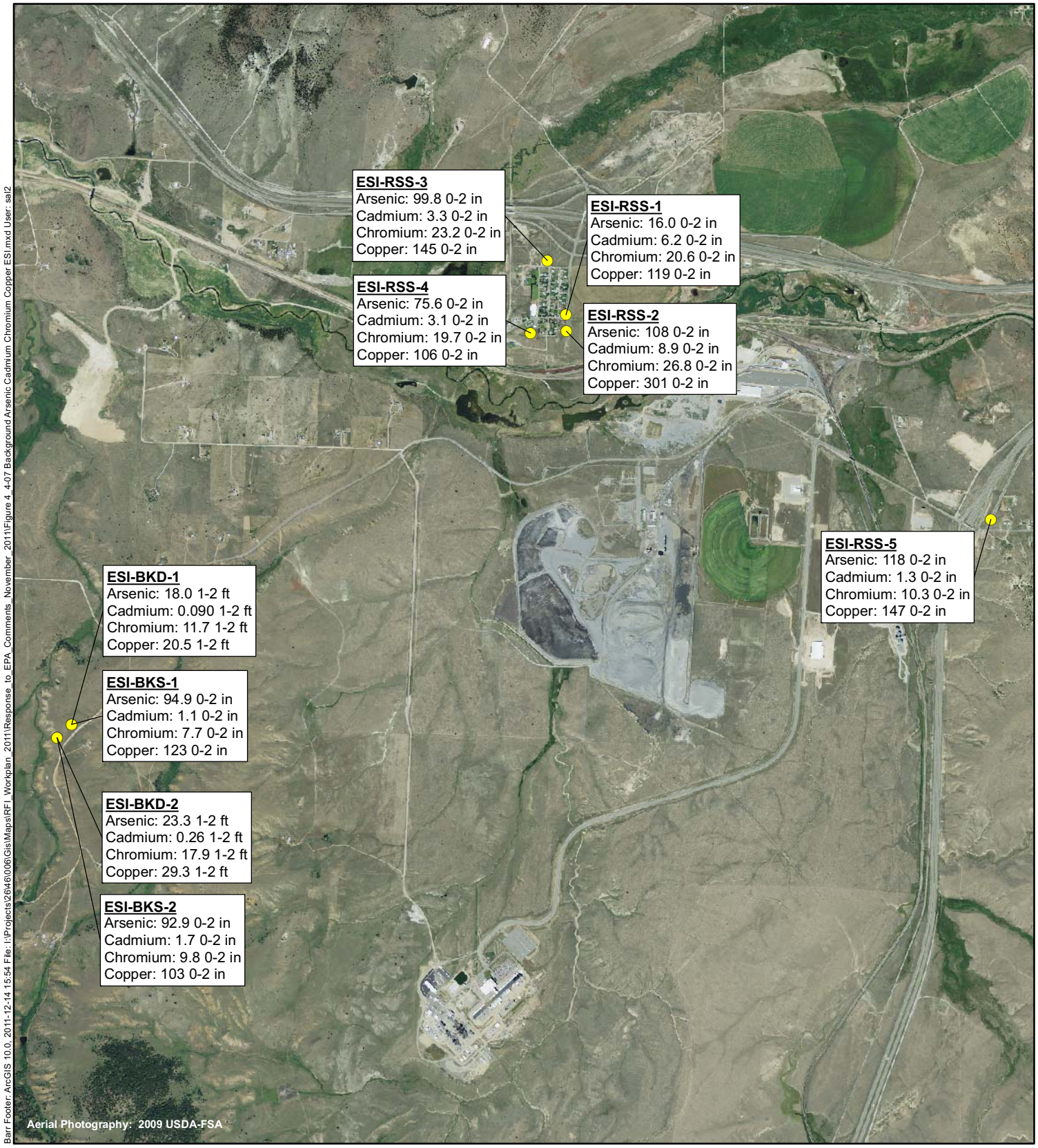
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-6

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ARSENIC, CADMIUM, CHROMIUM, AND COPPER (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 15:54 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-07 Background Arsenic Cadmium Chromium Copper ESI.mxd User: sal2

Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

Chemical Name Sample Depth

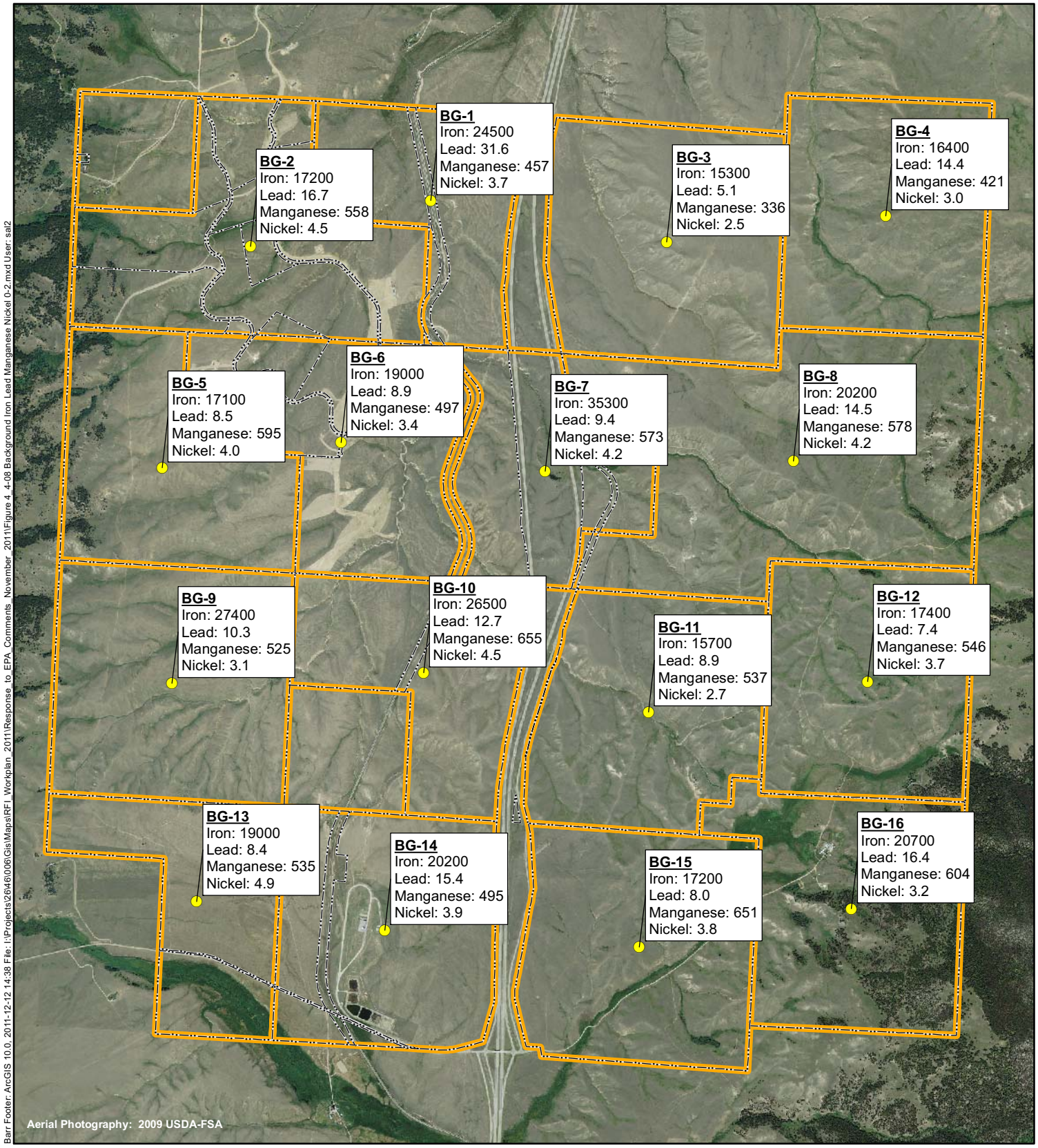
N

Feet

2,500 0 2,500

Figure 4.4-7

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ARSENIC, CADMIUM, CHROMIUM, AND COPPER (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:38 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-08 Background Iron Lead Manganese Nickel 0-2.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

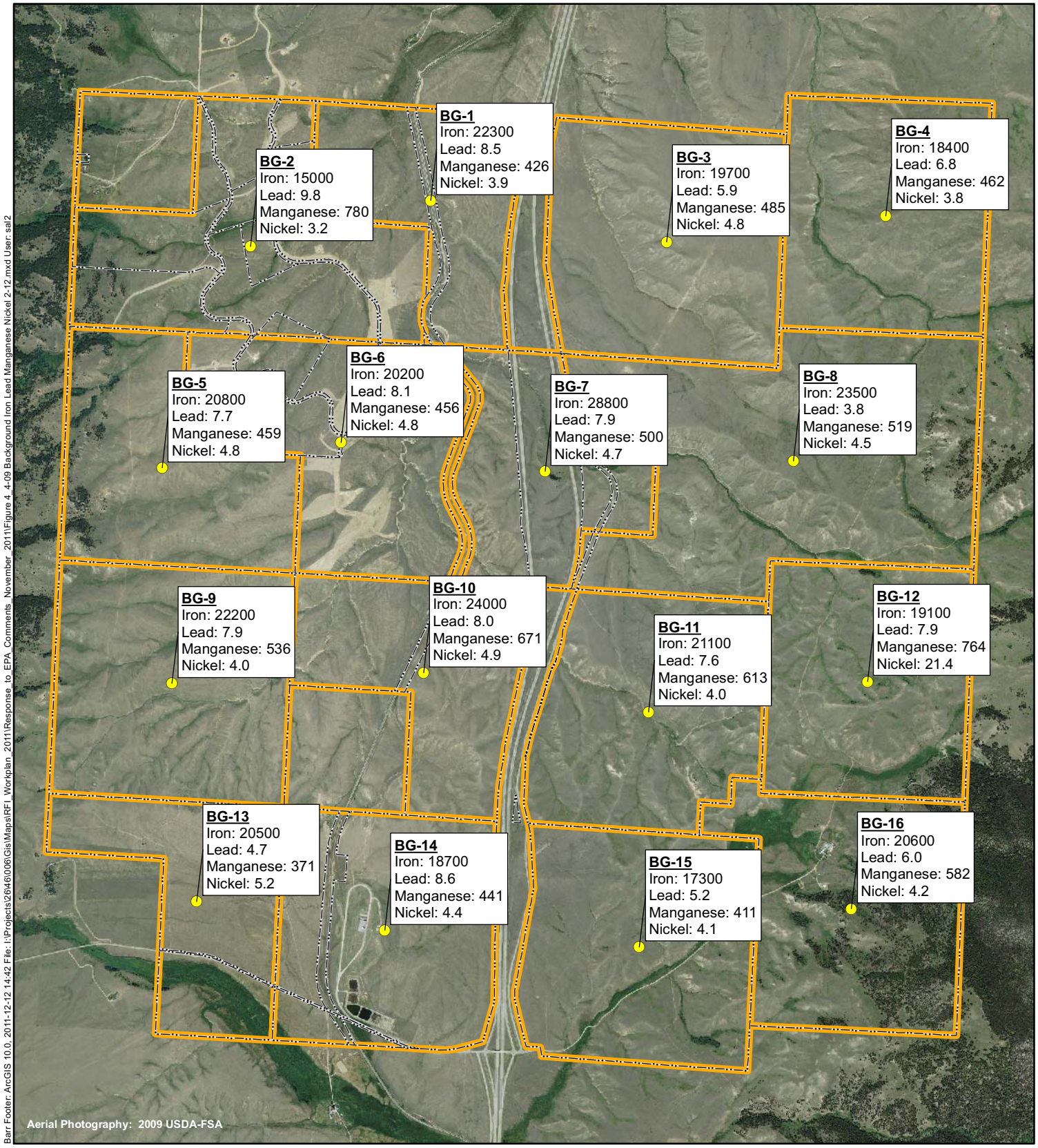
BG-13
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-8

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - IRON, LEAD, MANGANESE, AND NICKEL (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:42 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-09 Background Iron Lead Manganese Nickel 2-12.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

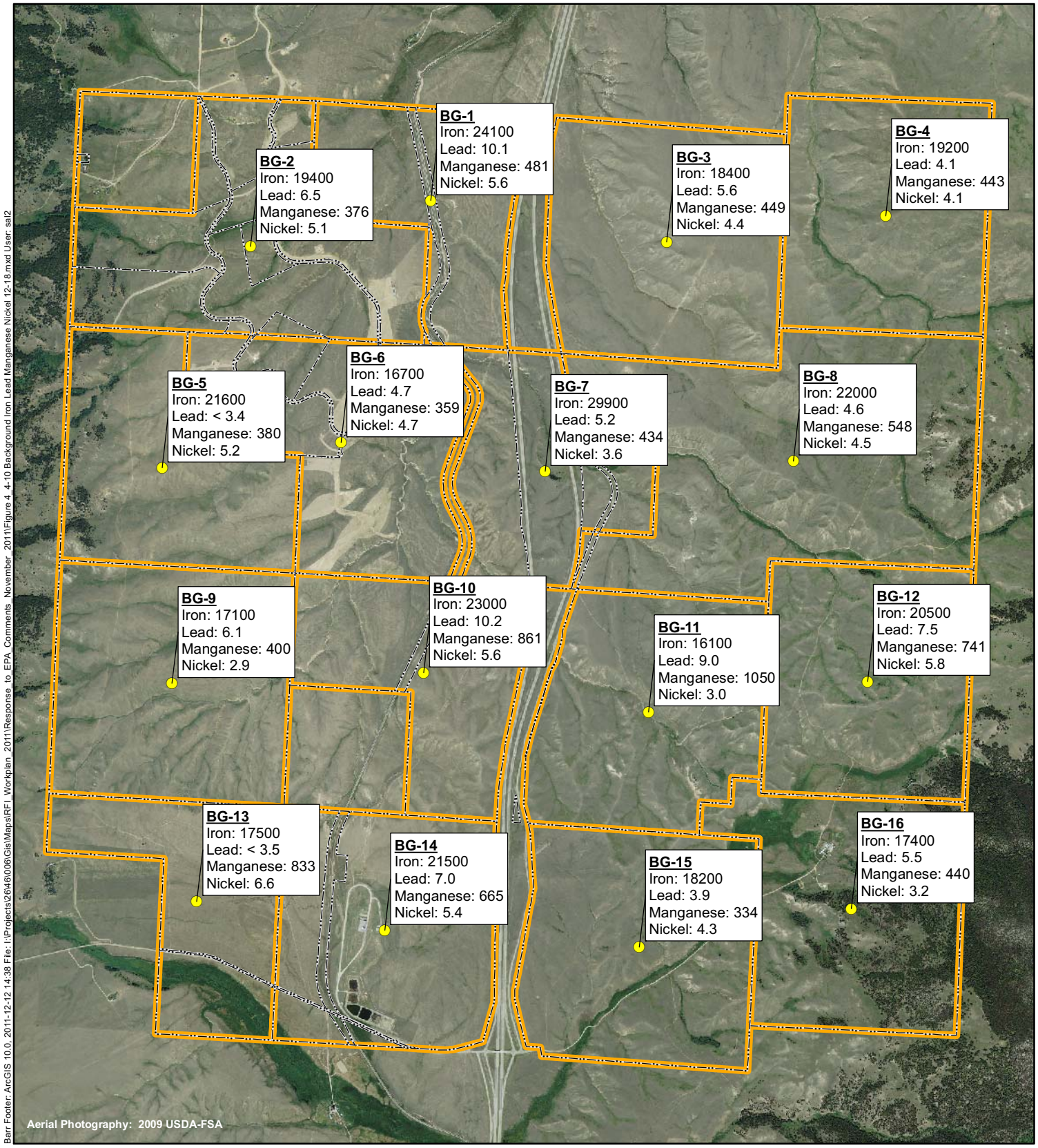
N

Feet

3,000 0 3,000

Figure 4.4-9

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - IRON, LEAD, MANGANESE, AND NICKEL (2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:38 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-10 Background Iron Lead Manganese Nickel 12-18.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

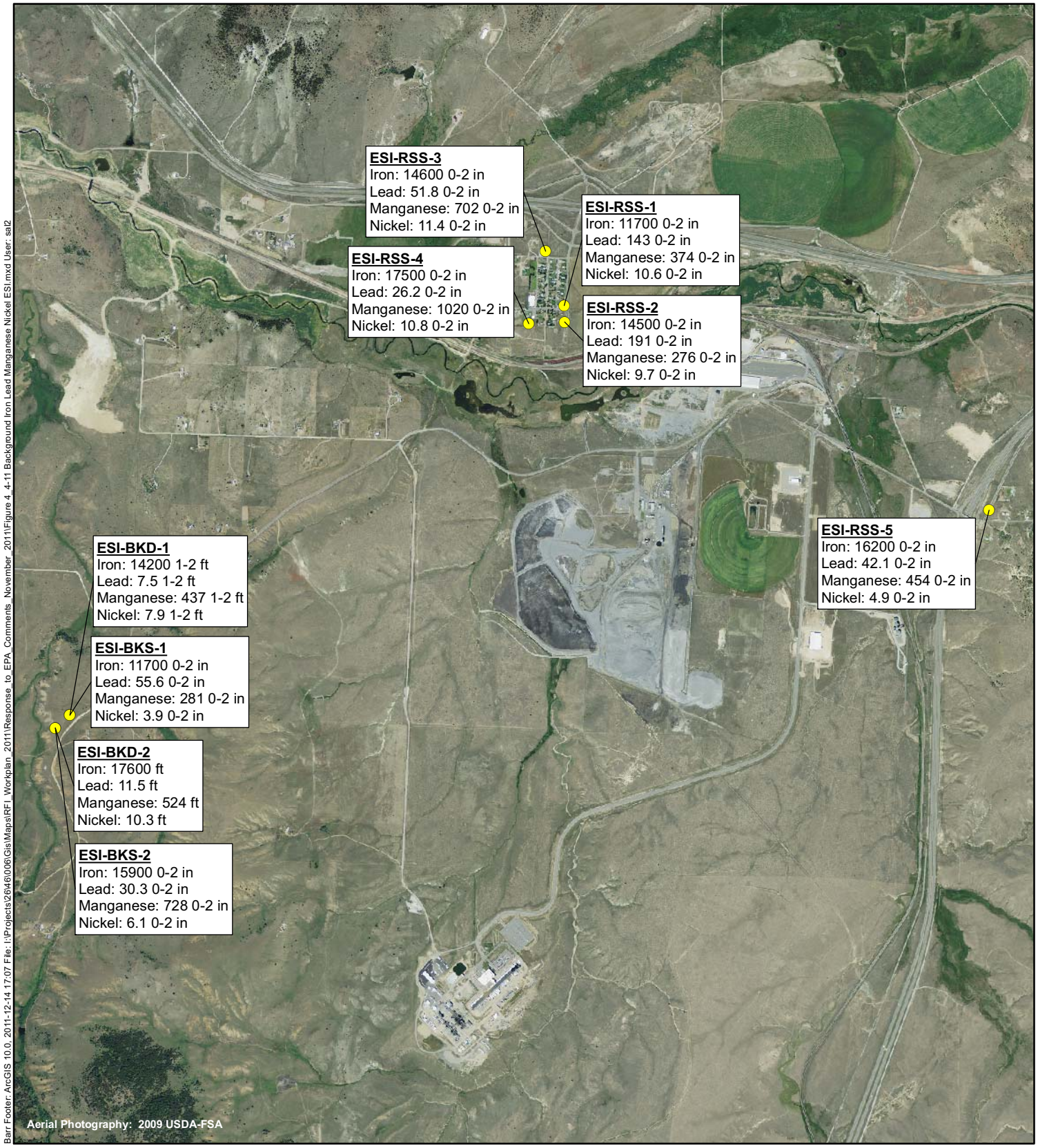
BG-13
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-10

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - IRON, LEAD, MANGANESE, AND NICKEL (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

Chemical Name Sample Depth

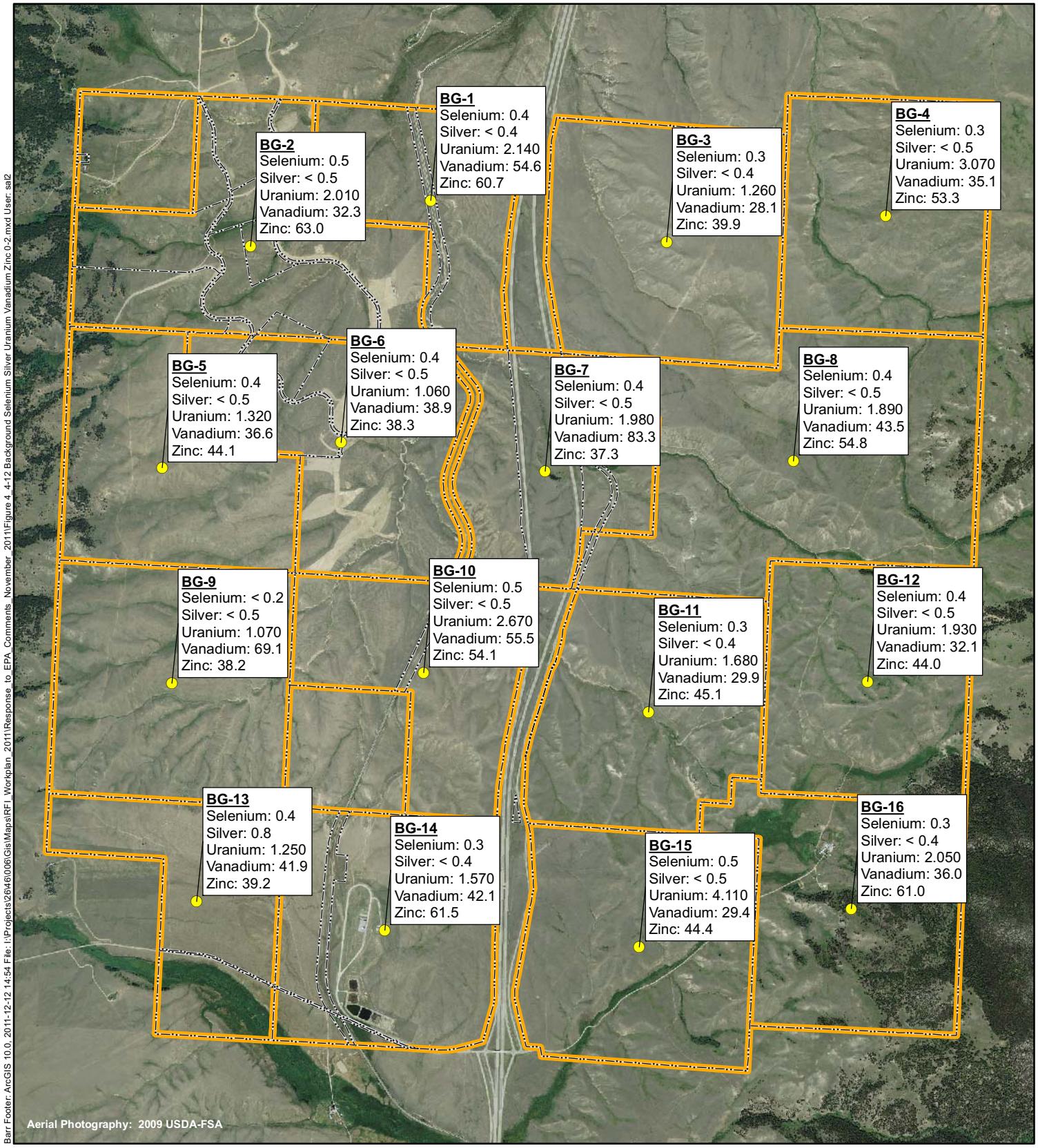
N

Feet

2,500 0 2,500

Figure 4.4-11

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - IRON, LEAD, MANGANESE, AND NICKEL (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 14:54 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-12 Background Selenium Silver Uranium Vanadium Zinc 0-2.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

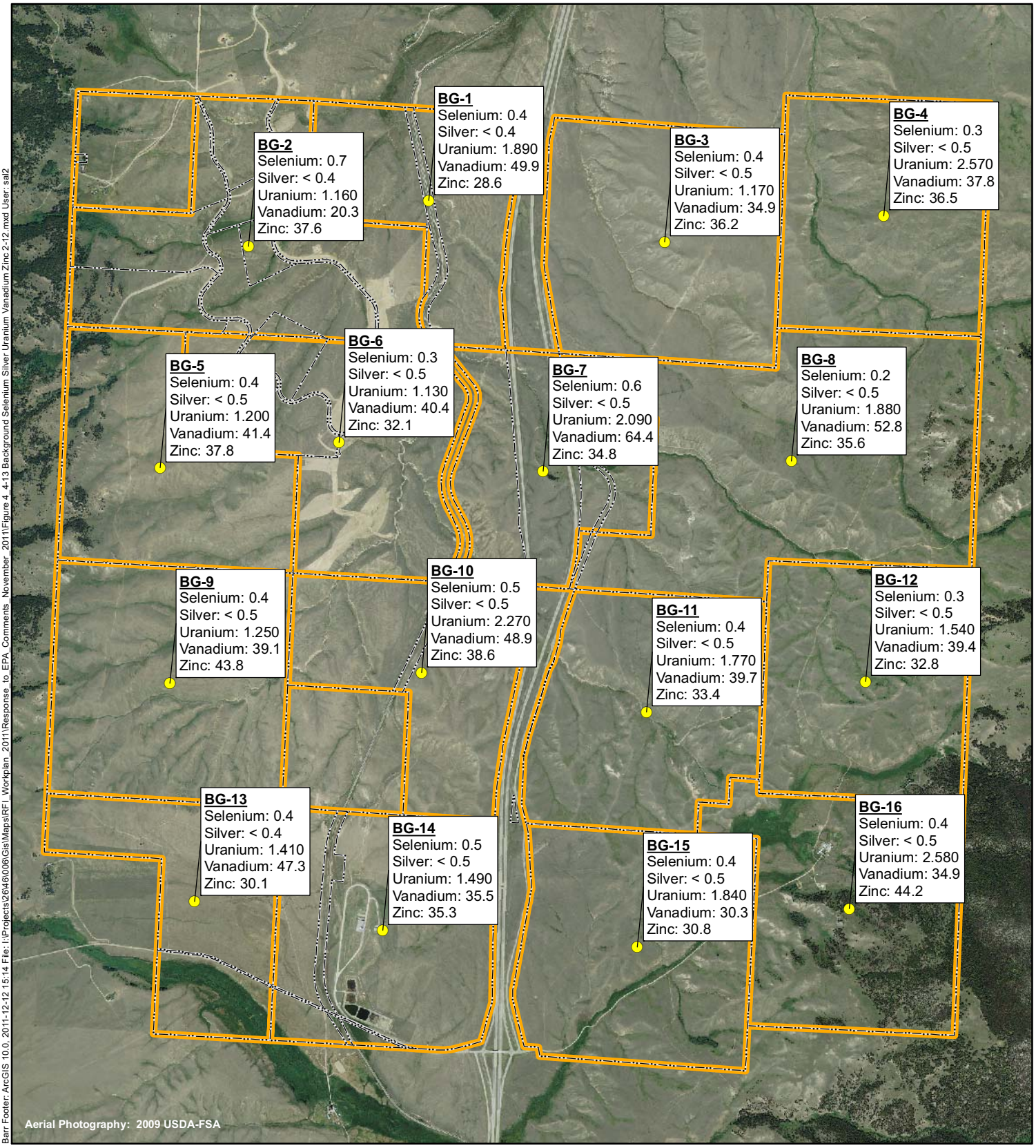
BG-13
Arsenic: 19.3 — Sample Location; Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-12

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 15:14 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-13 Background Selenium Silver Uranium Vanadium Zinc 2-12.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

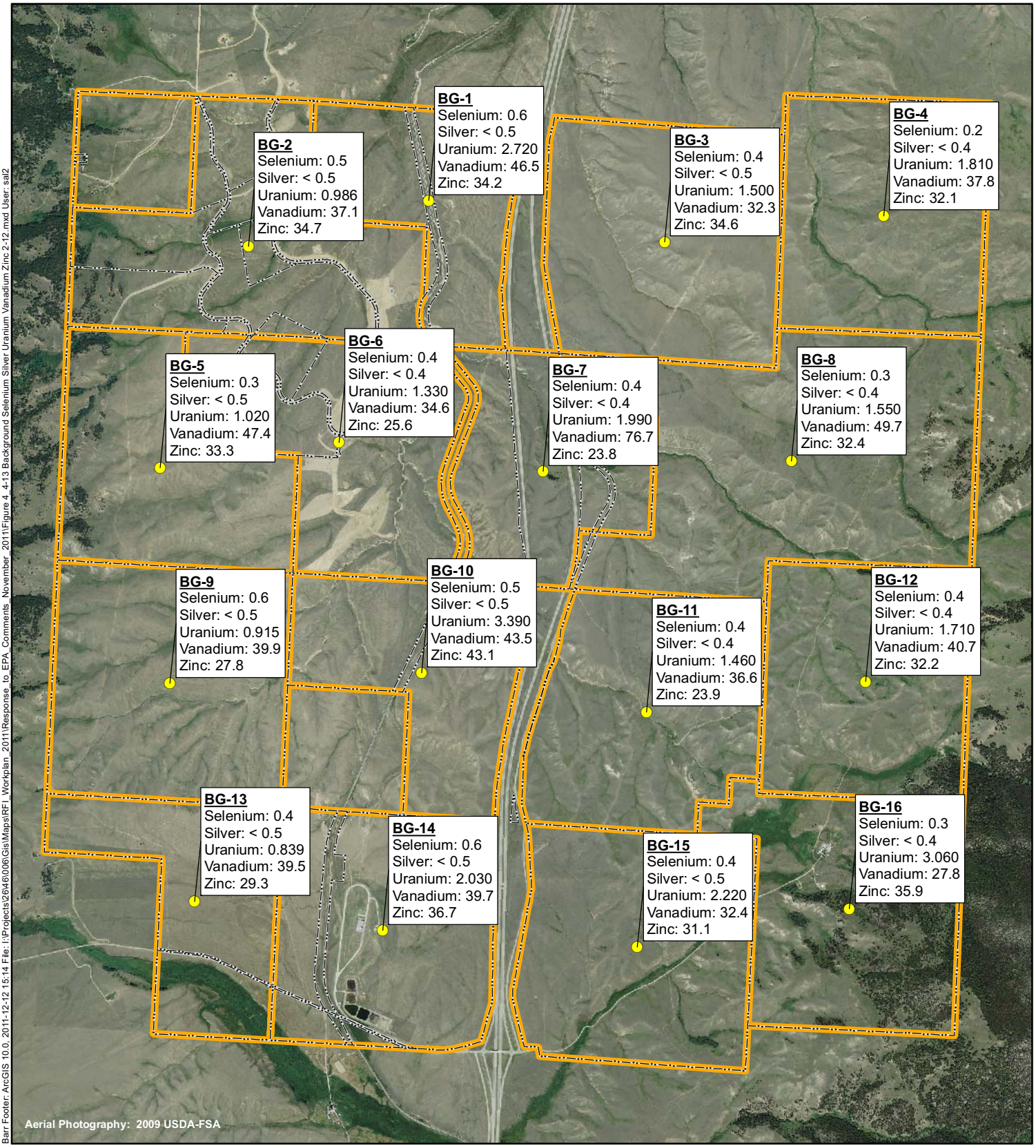
BG-13
Arsenic: 19.3 — Sample Location; Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-13

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC (2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 15:14 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-13 Background Selenium Silver Uranium Vanadium Zinc 2-12.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

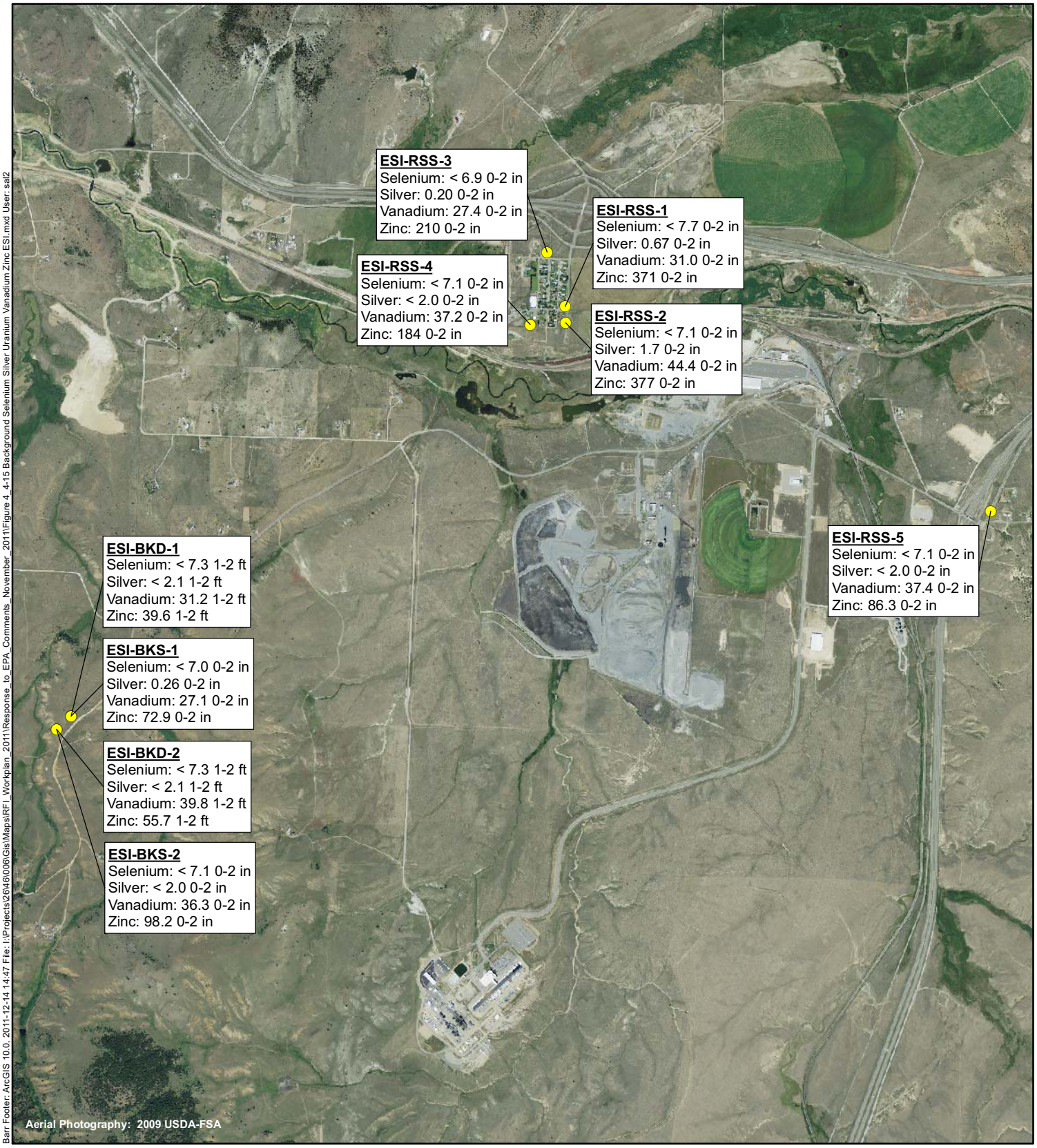
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-14

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 14:47 File: I:\Projects\26\4\6\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-15 Background Selenium Silver Uranium Vanadium Zinc ESI.mxd User: sal2

Sample Location

Sample Location — Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

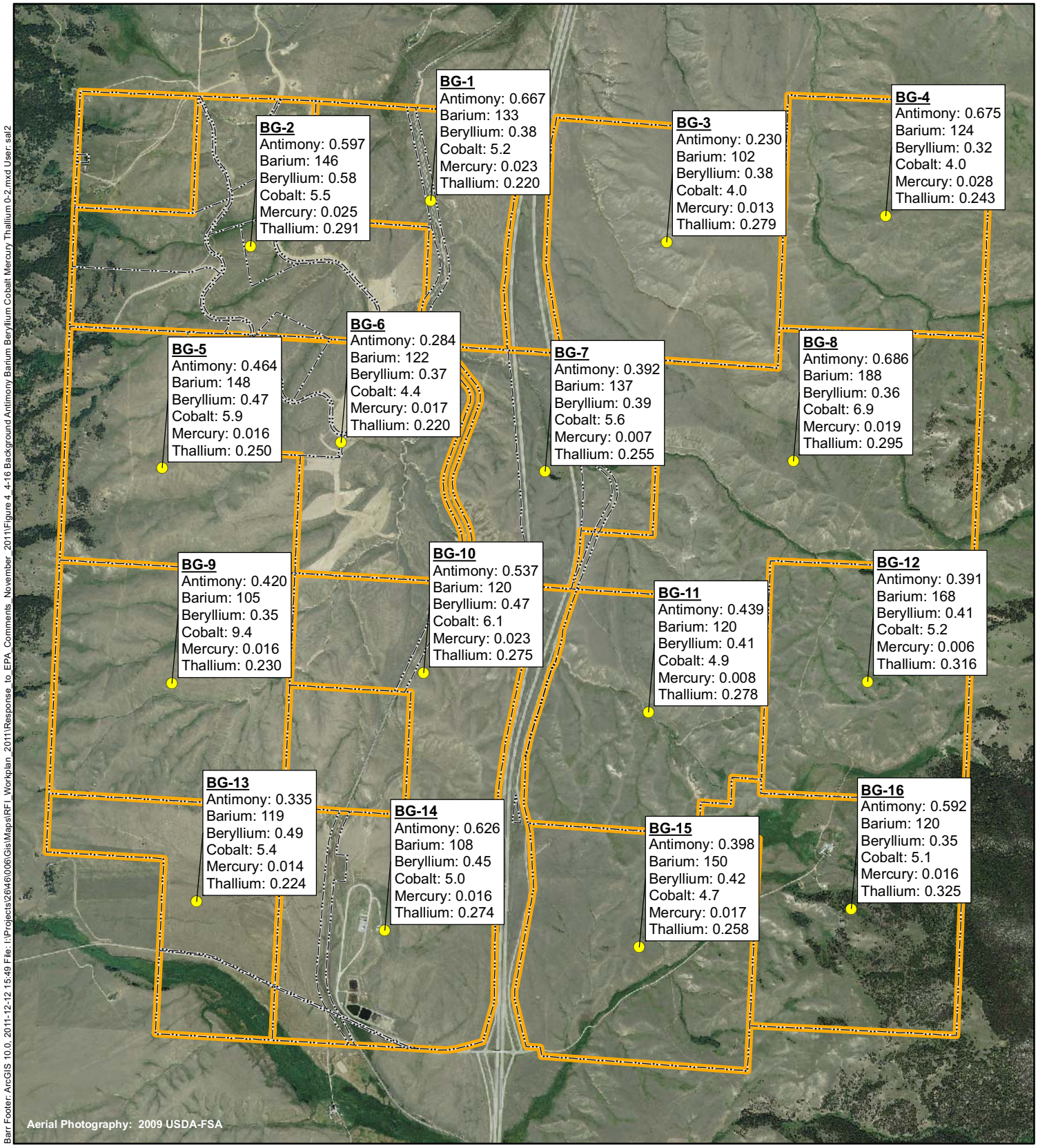
Chemical Name — Sample Depth

N

Feet
2,500 0 2,500

Figure 4.4-15

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - SELENIUM, SILVER, VANADIUM, AND ZINC
(ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

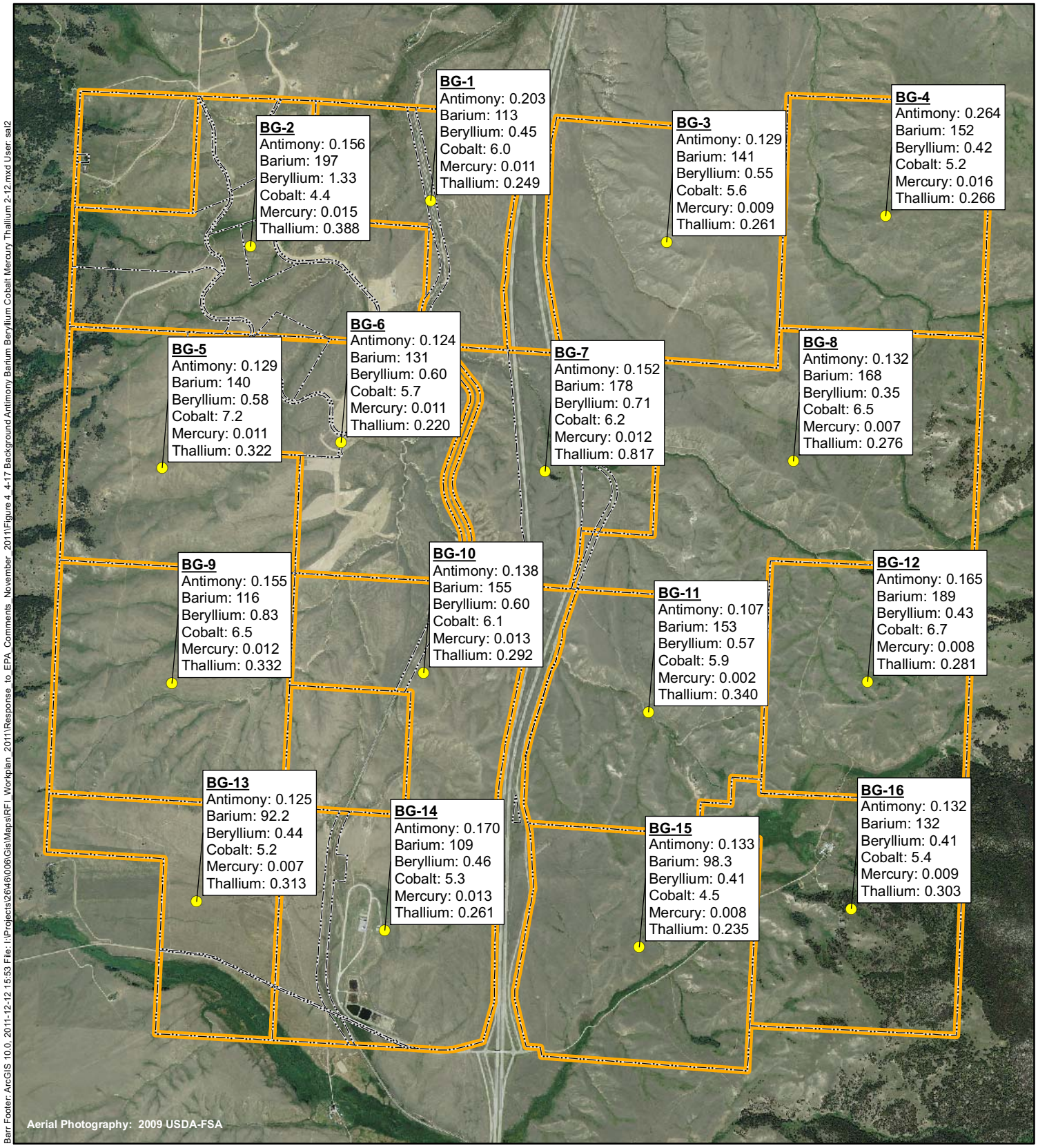
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-16

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ANTIMONY, BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

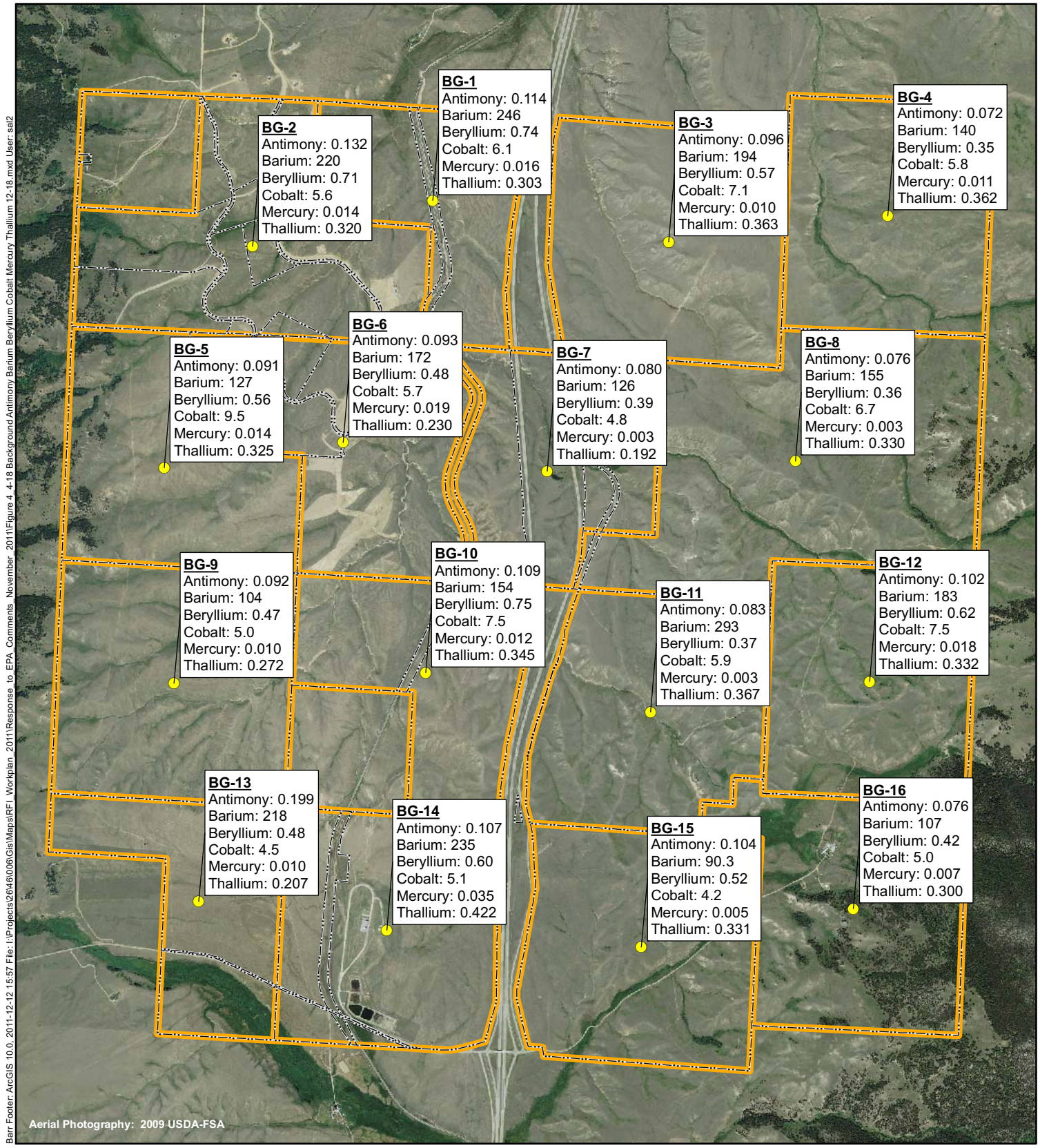
Sample Location

Feet

3,000 0 3,000

Figure 4.4-17

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ANTIMONY, BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM (2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

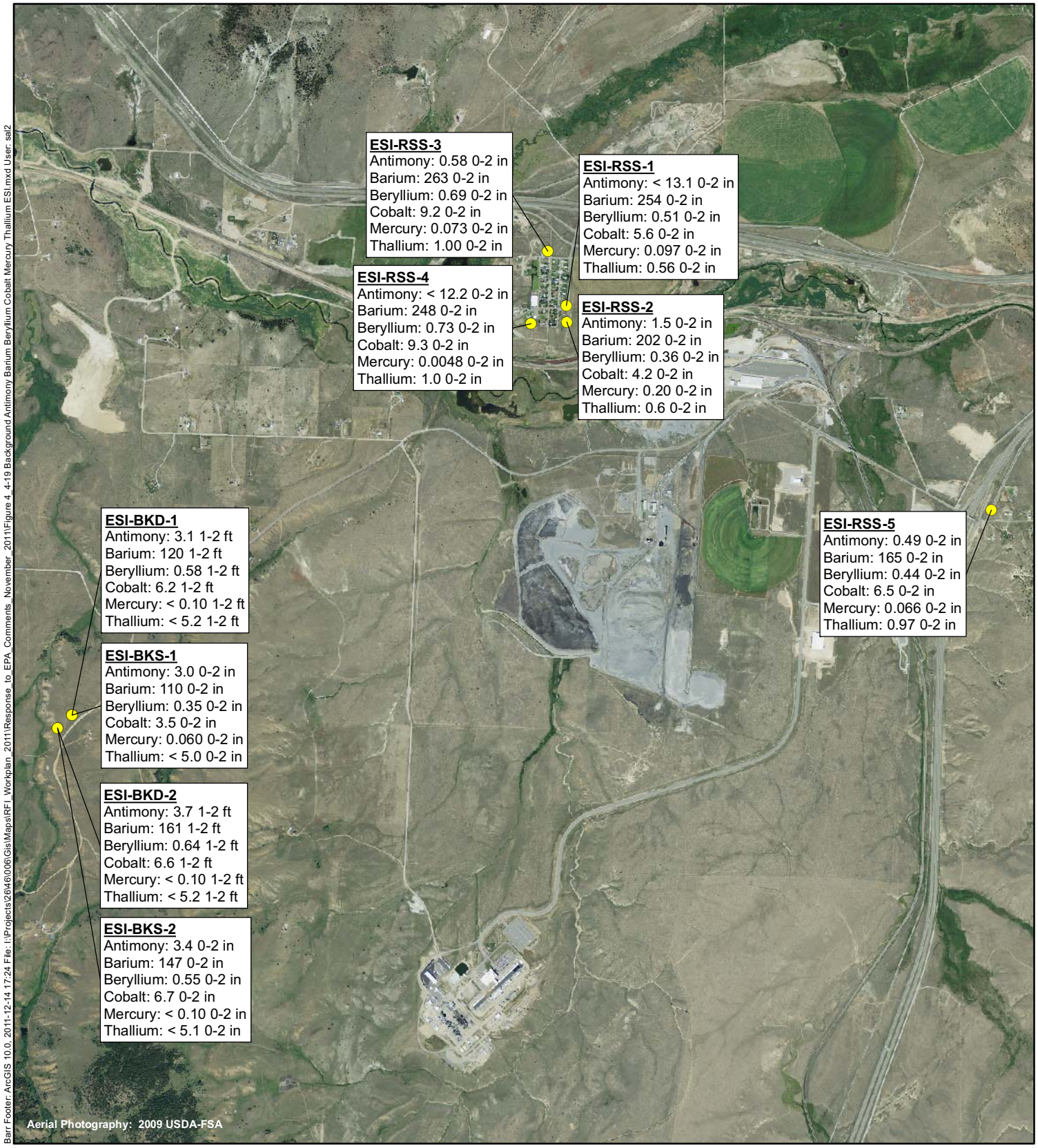
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-18

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ANTIMONY, BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

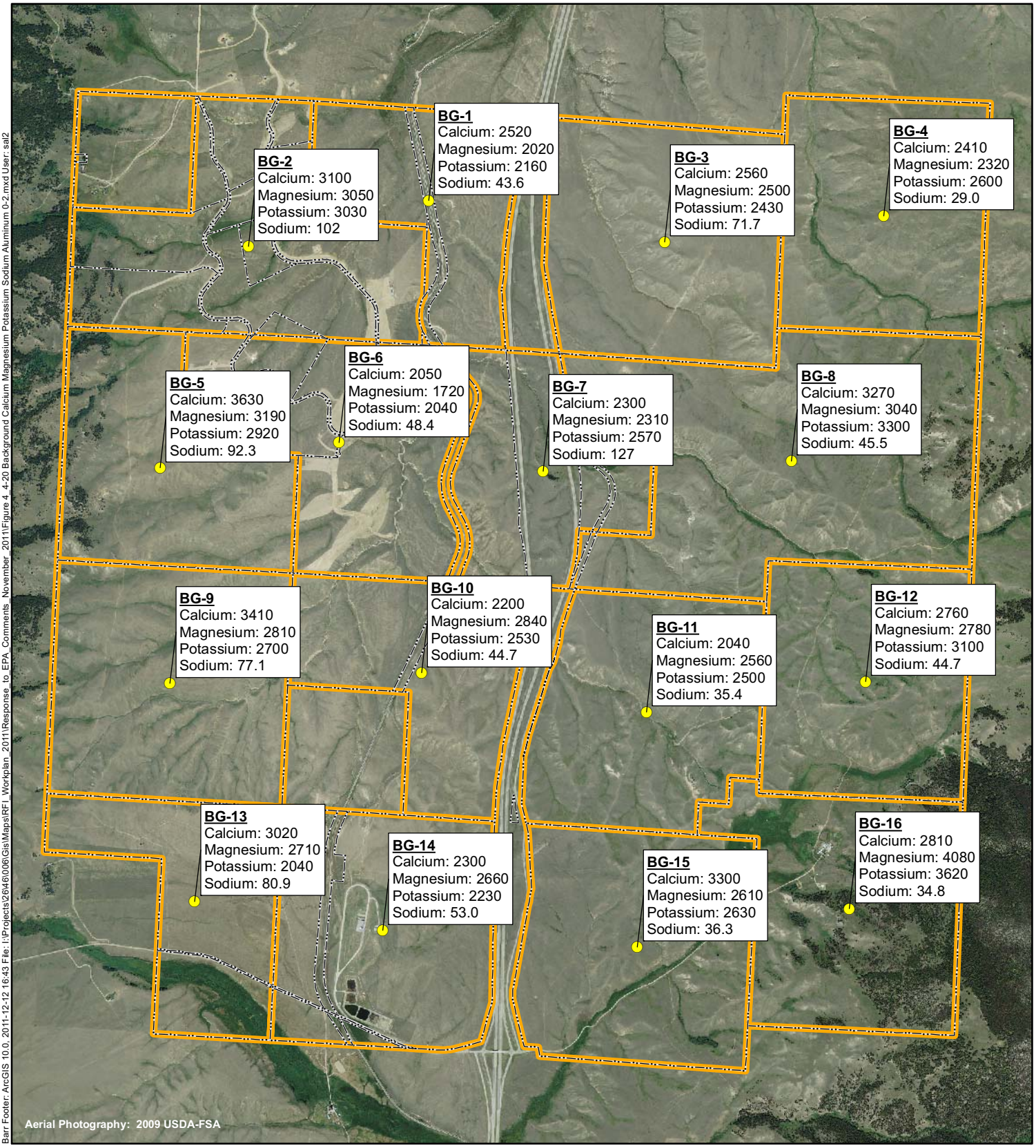
Chemical Name Sample Depth

N

Feet
2,500 0 2,500

Figure 4.4-19

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - ANTIMONY, BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

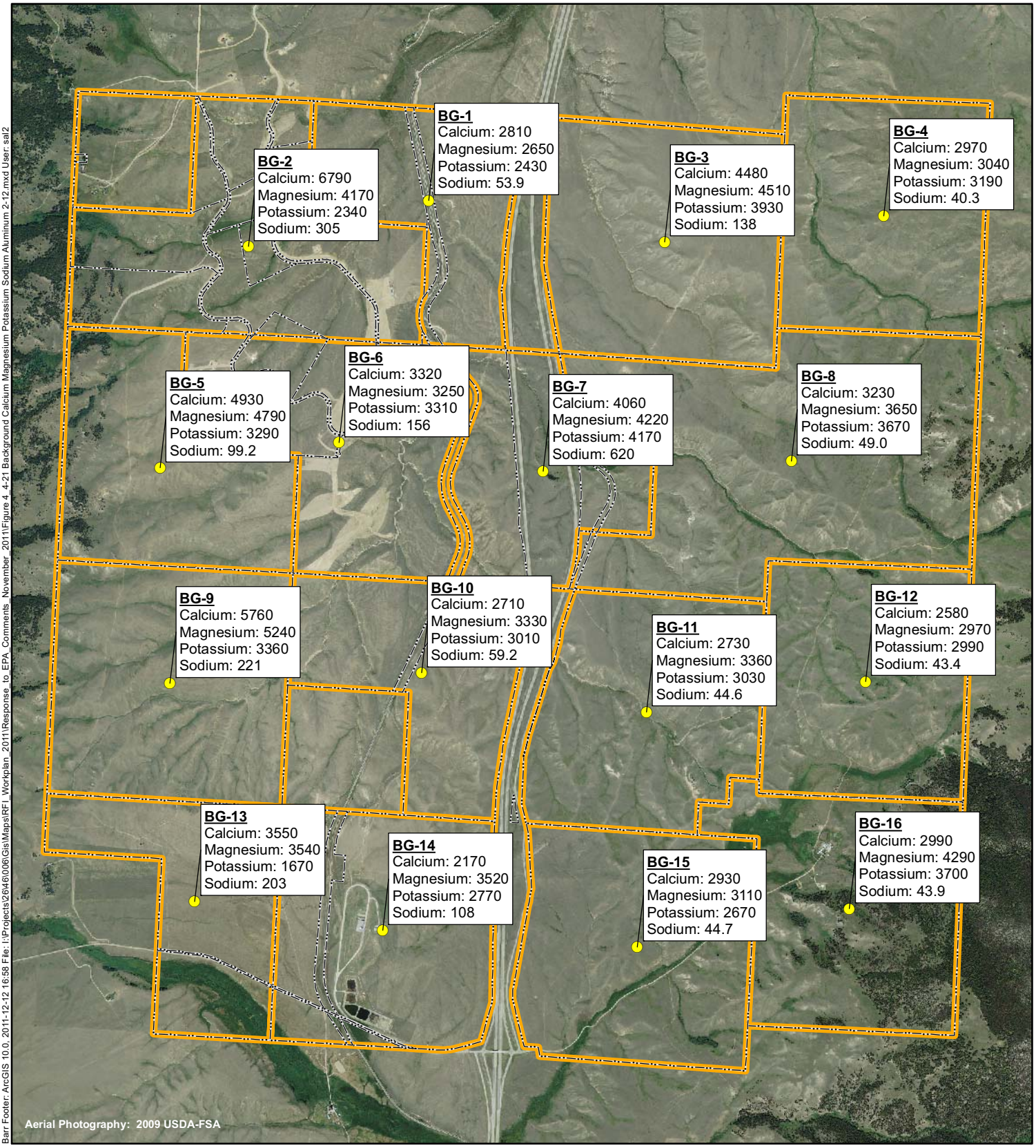
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-20

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

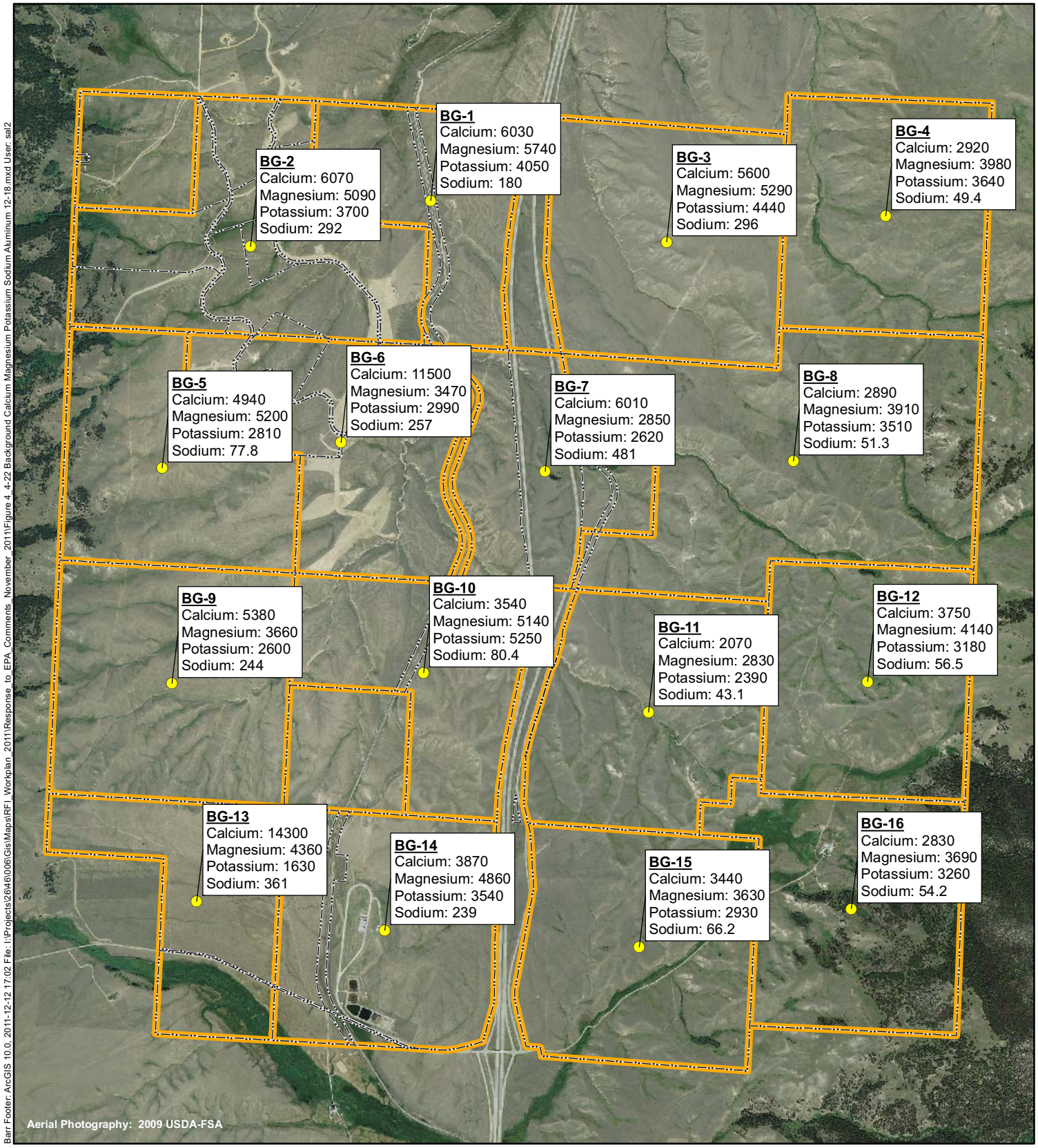
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-21

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM
(2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 17:02 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-22 Background Calcium Magnesium Potassium Sodium Aluminum 12-18.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

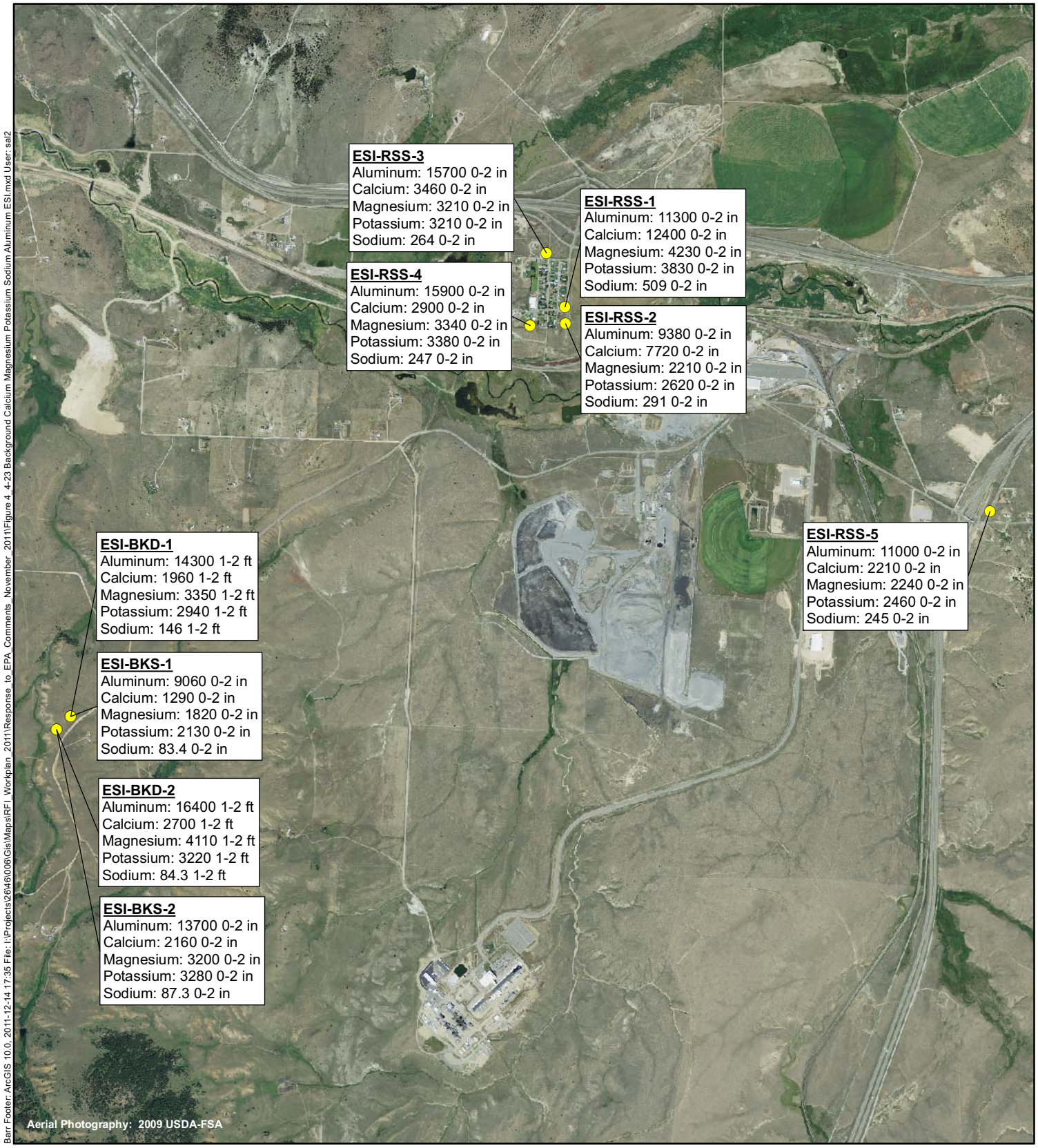
BG-13
Arsenic: 19.3 — Sample Location / Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-22

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

Chemical Name Sample Depth

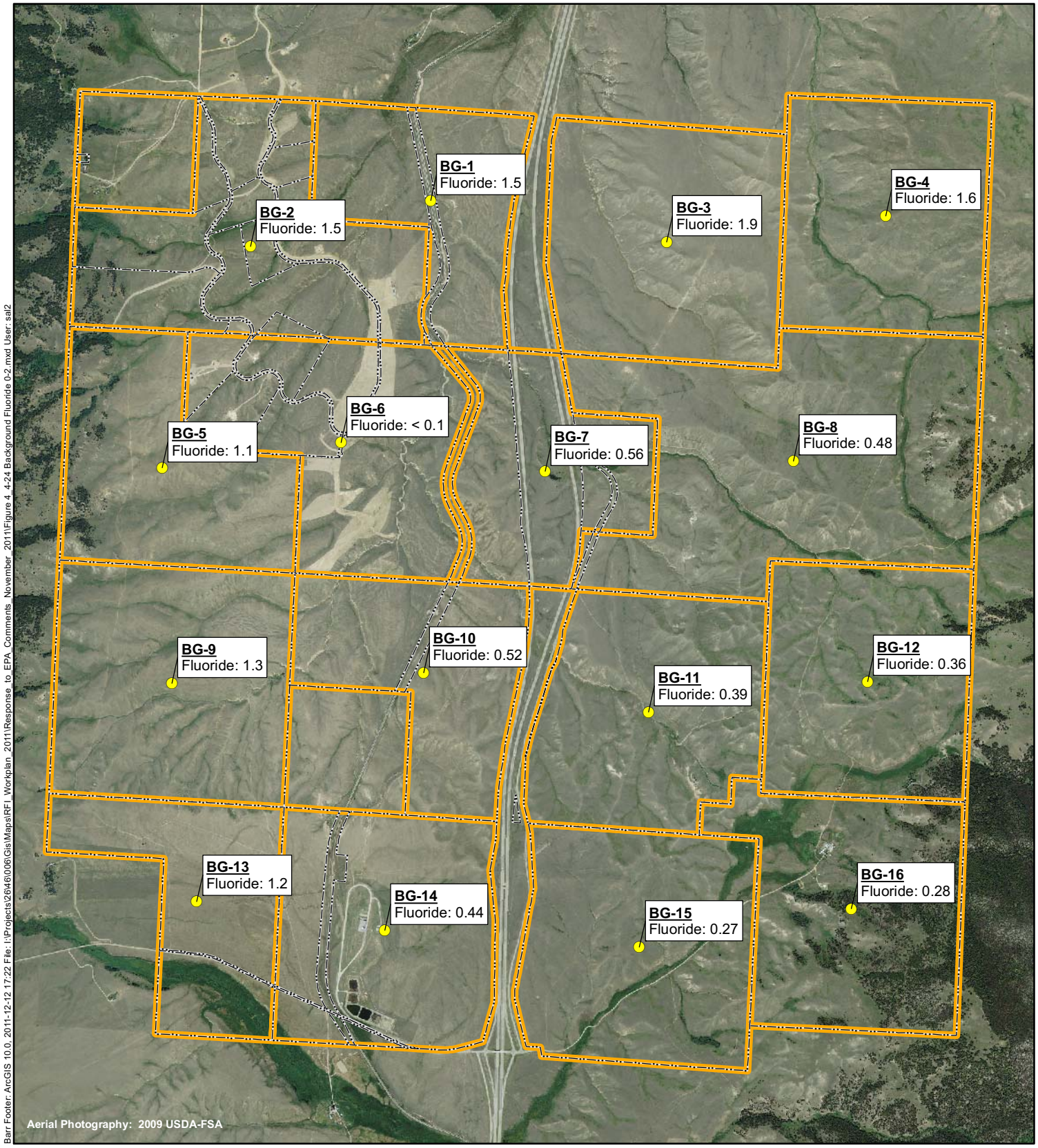
N

Feet

2,500 0 2,500

Figure 4.4-23

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - CALCIUM, MAGNESIUM, POTASSIUM, SODIUM, AND ALUMINUM (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 17:22 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-24 Background Fluoride 0-2.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

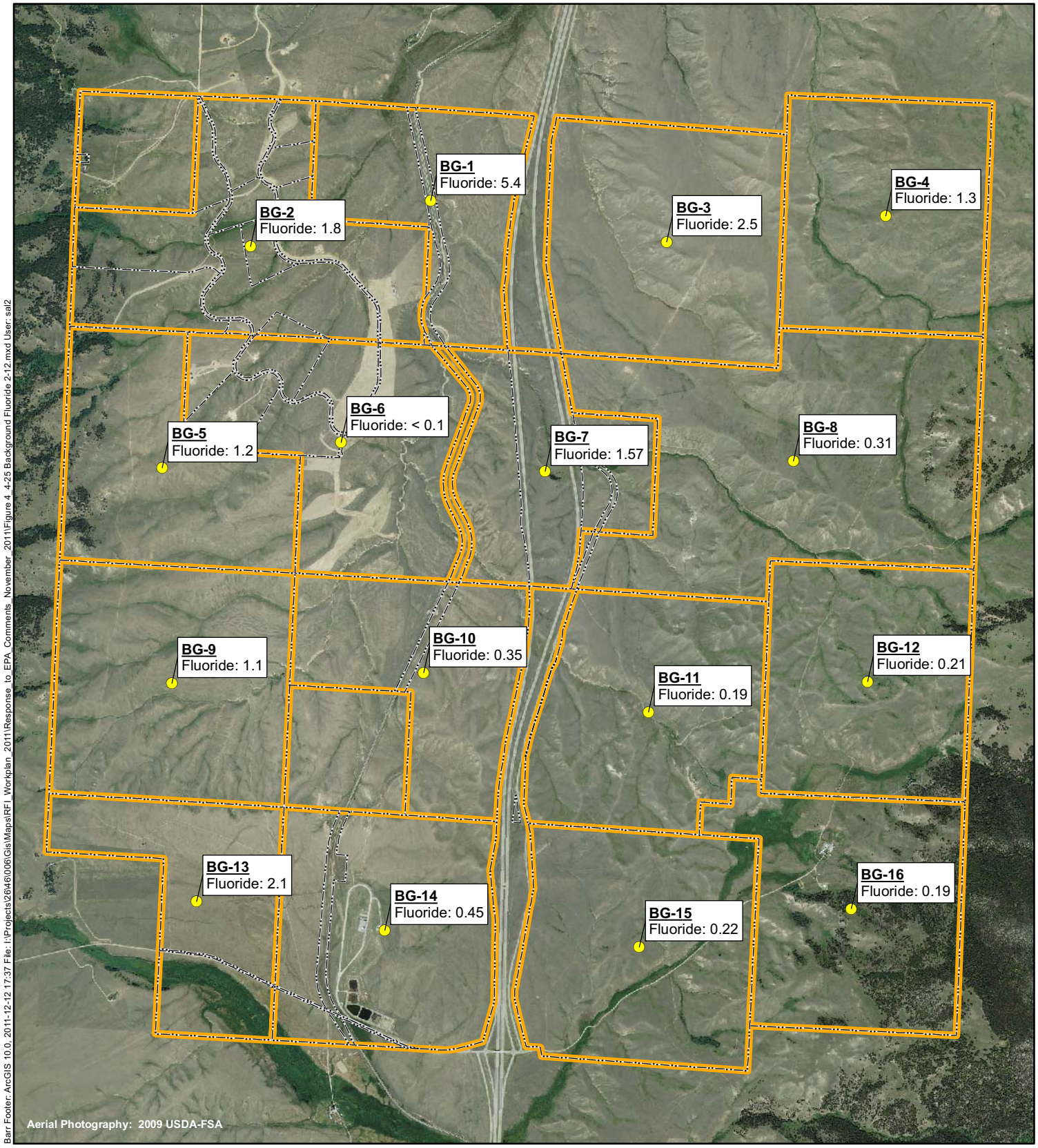
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-24

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - FLUORIDE
(0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 17:37 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-25 Background Fluoride 2-12.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13 — Sample Location
Arsenic: 19.3 — Sample Concentration (mg/kg)
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7
Chemical Name

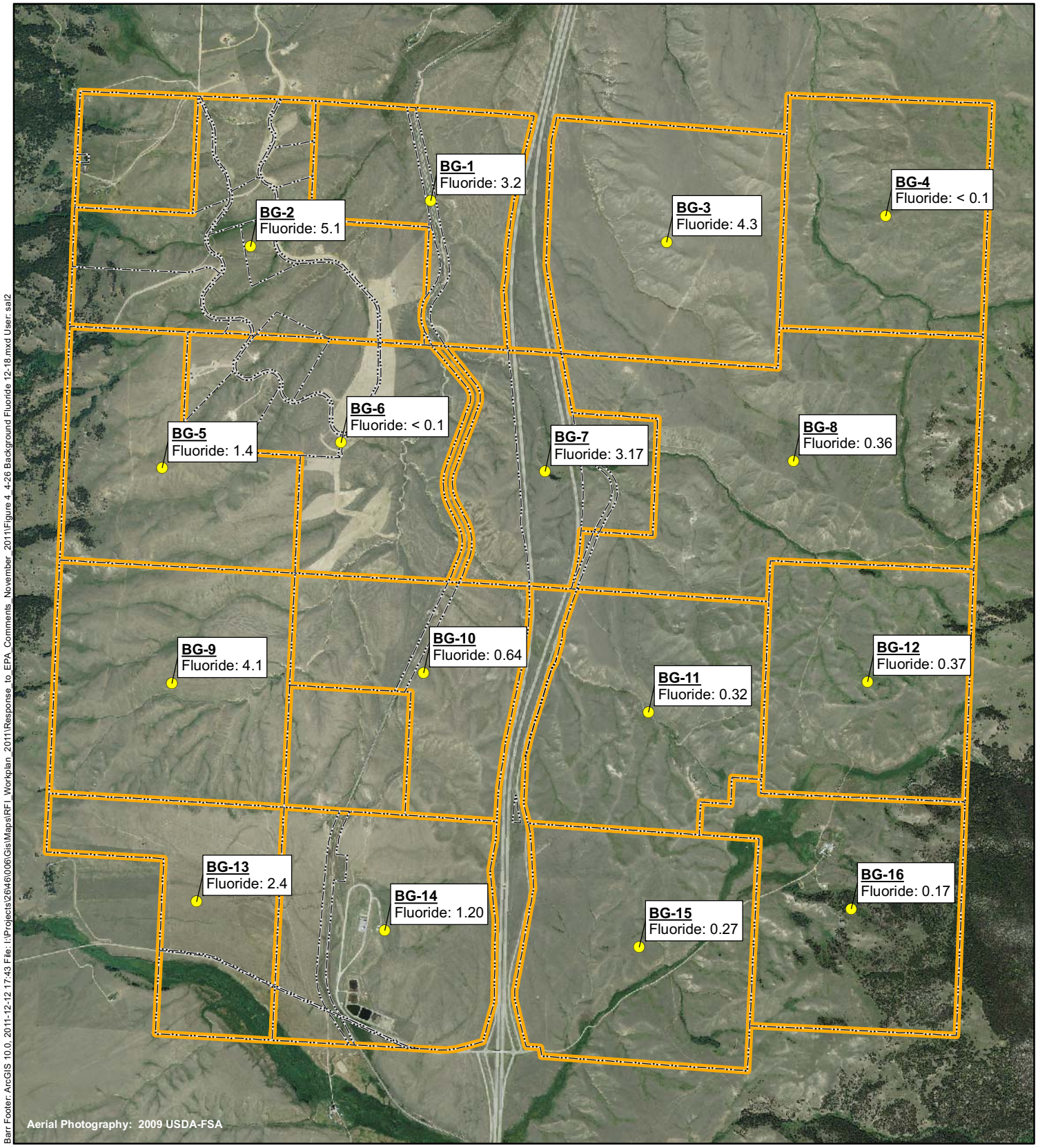
N

Feet

3,000 0 3,000

Figure 4.4-25

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - FLUORIDE
(2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-12 17:43 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-26 Background Fluoride 12-18.mxd User: sal2

Sample Location

Ownership Boundary

Sample Grid

BG-13
Arsenic: 19.3
Cadmium: < 0.2
Chromium: 11.1
Copper: 19.7

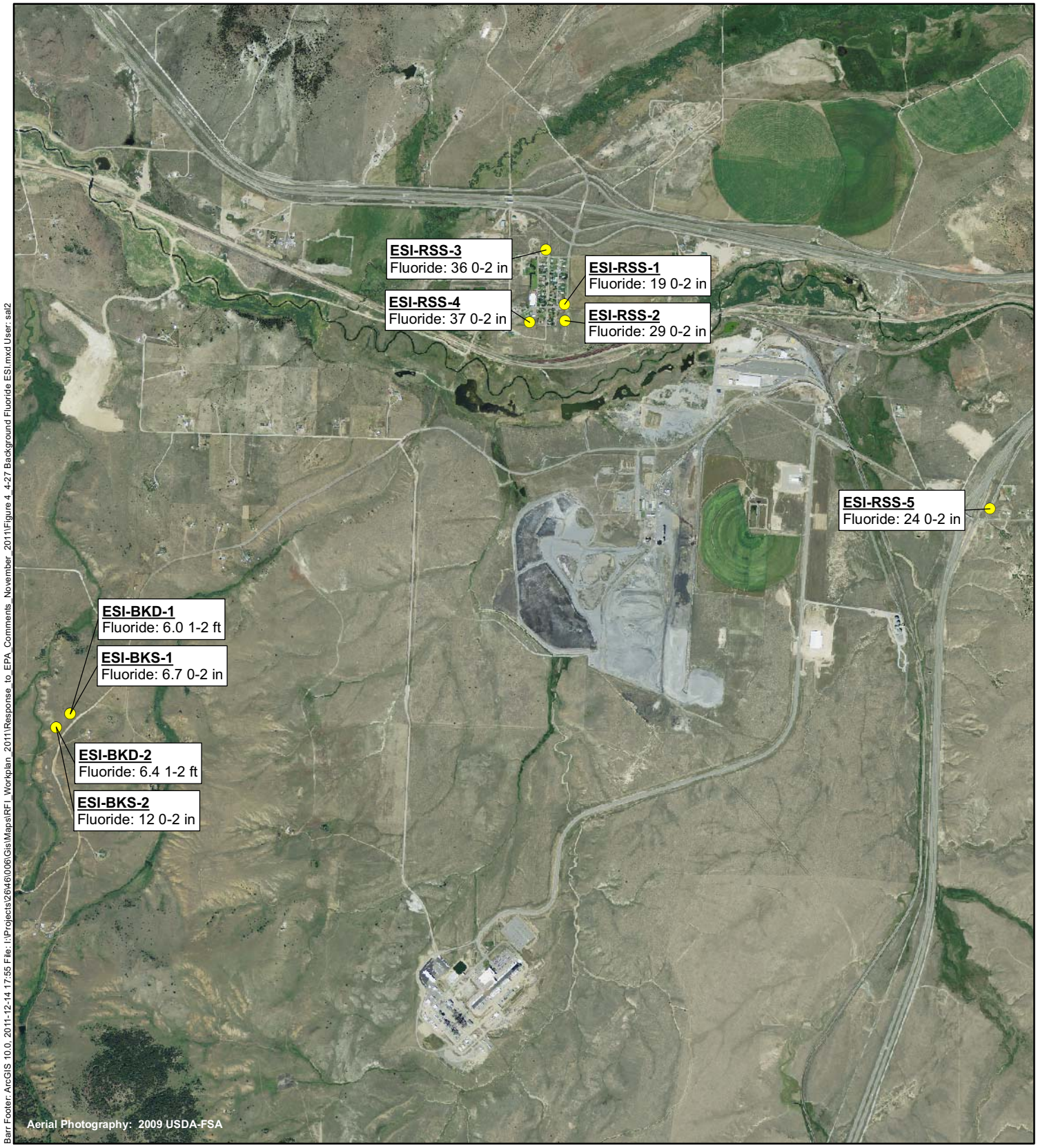
Sample Location
Sample Concentration (mg/kg)
Chemical Name

N

Feet
3,000 0 3,000

Figure 4.4-26

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - FLUORIDE (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 17:55 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-27 Background Fluoride ESI.mxd User: sal2

Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

Chemical Name Sample Depth

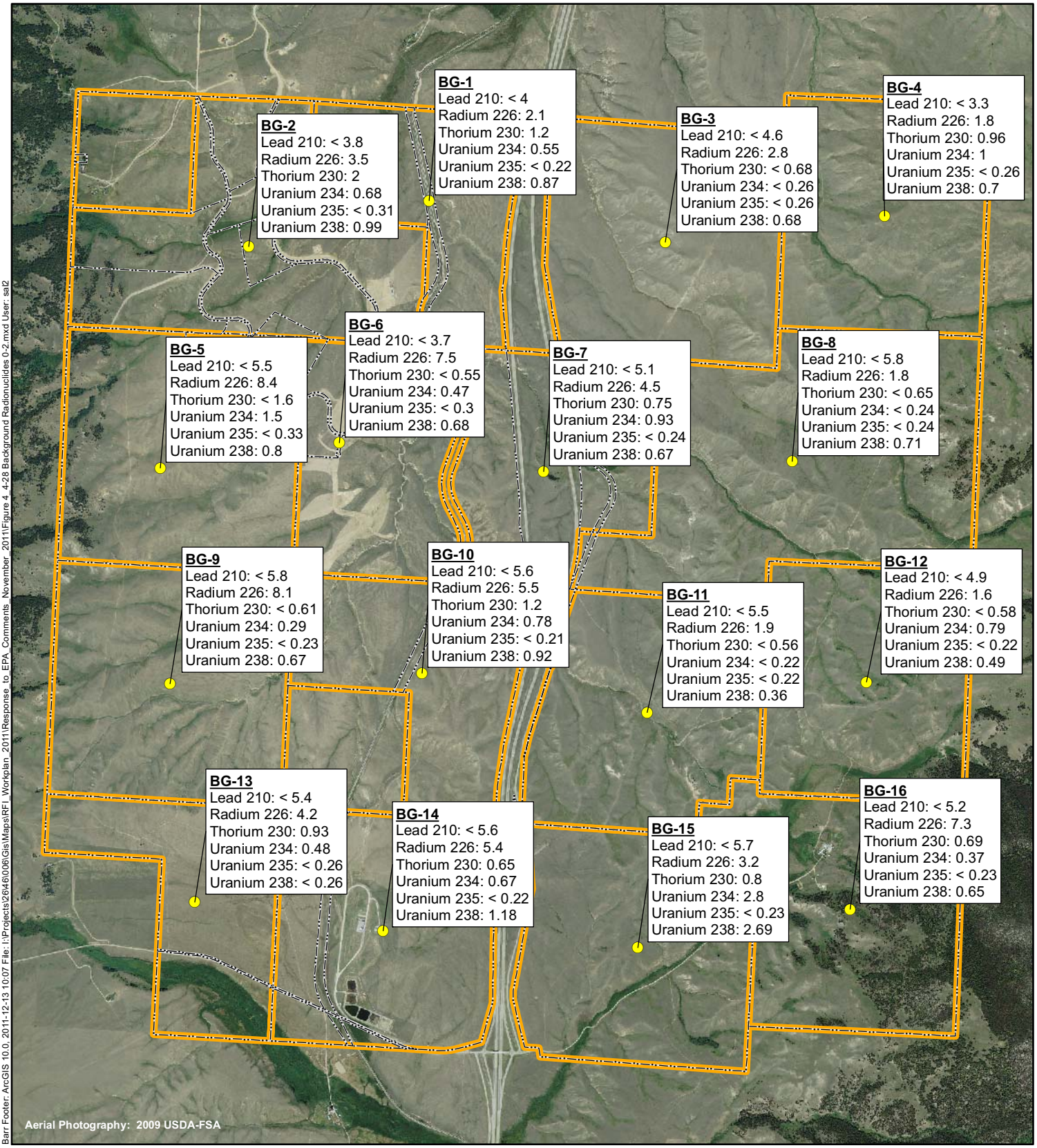
N

Feet

2,500 0 2,500

Figure 4.4-27

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - FLUORIDE
(ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Lead 210: < 5.4
Radium 226: 4.2
Thorium 230: 0.93
Uranium 234: 0.48
Uranium 235: < 0.26
Uranium 238: < 0.26

Sample Location
Chemical Name
Sample Concentration (pCi/g)

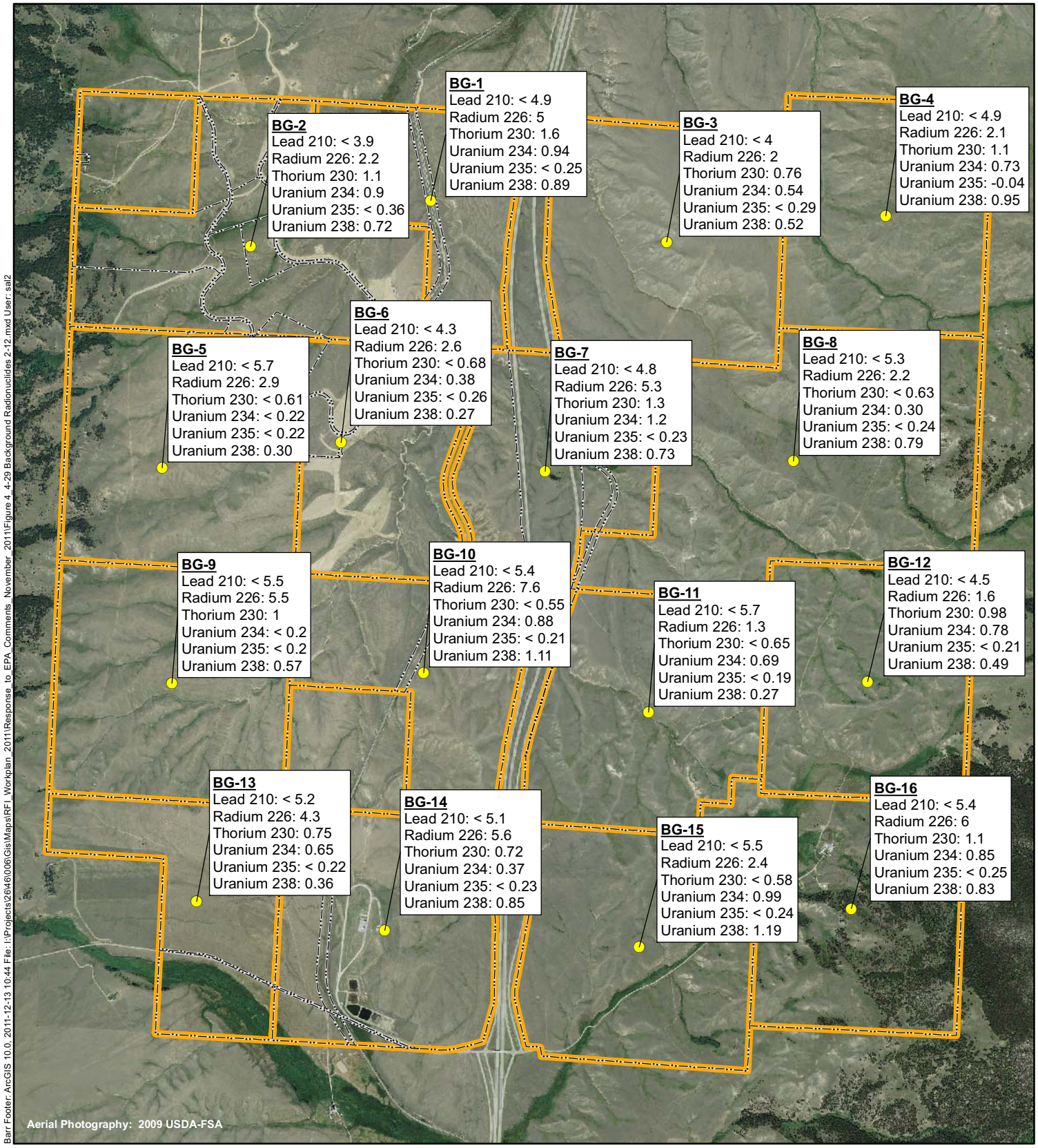
N

Feet

3,000 0 3,000

Figure 4.4-28

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - RADIONUCLIDES (0-2 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13 — Sample Location
Lead 210: < 5.4 — Chemical Name
Radium 226: 4.2 — Sample Concentration (pCi/g)
Thorium 230: 0.93
Uranium 234: 0.48
Uranium 235: < 0.26
Uranium 238: < 0.26

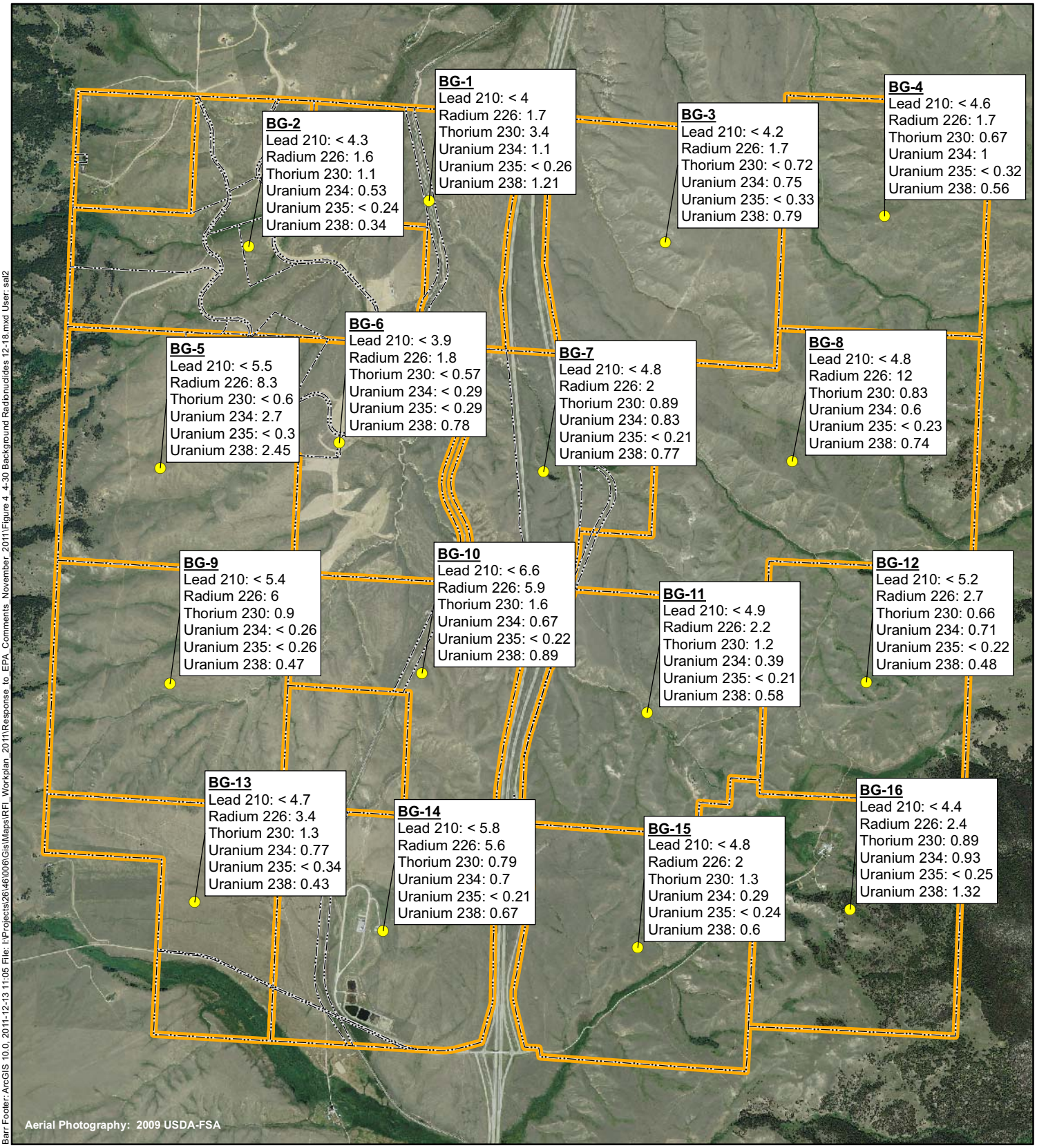
N

Feet

3,000 0 3,000

Figure 4.4-29

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - RADIONUCLIDES (2-12 INCHES)
Rhodia Silver Bow Plant
Montana



Sample Location

Ownership Boundary

Sample Grid

BG-13
Lead 210: < 5.4
Radium 226: 4.2
Thorium 230: 0.93
Uranium 234: 0.48
Uranium 235: < 0.26
Uranium 238: < 0.26

Sample Location
Chemical Name
Sample Concentration (pCi/g)

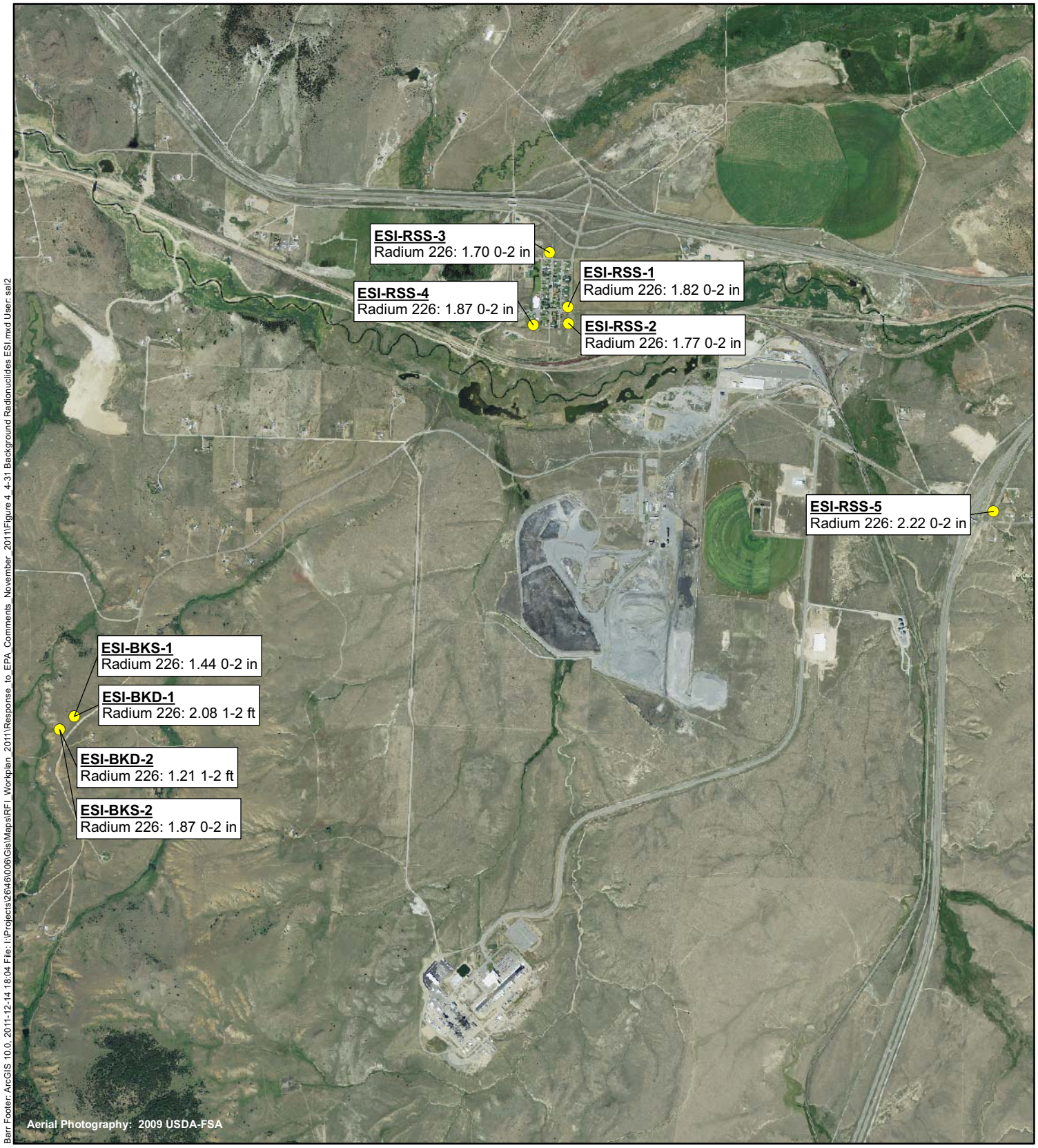
N

Feet

3,000 0 3,000

Figure 4.4-30

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - RADIONUCLIDES (12-18 INCHES)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 18:04 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-31 Background Radionuclides ESI.mxd User: sal2

Sample Location

Sample Location Sample Concentration (pCi/g)

ESI-BKS-2
Radium 226: 1.87 0-2 in

Chemical Name Sample Depth

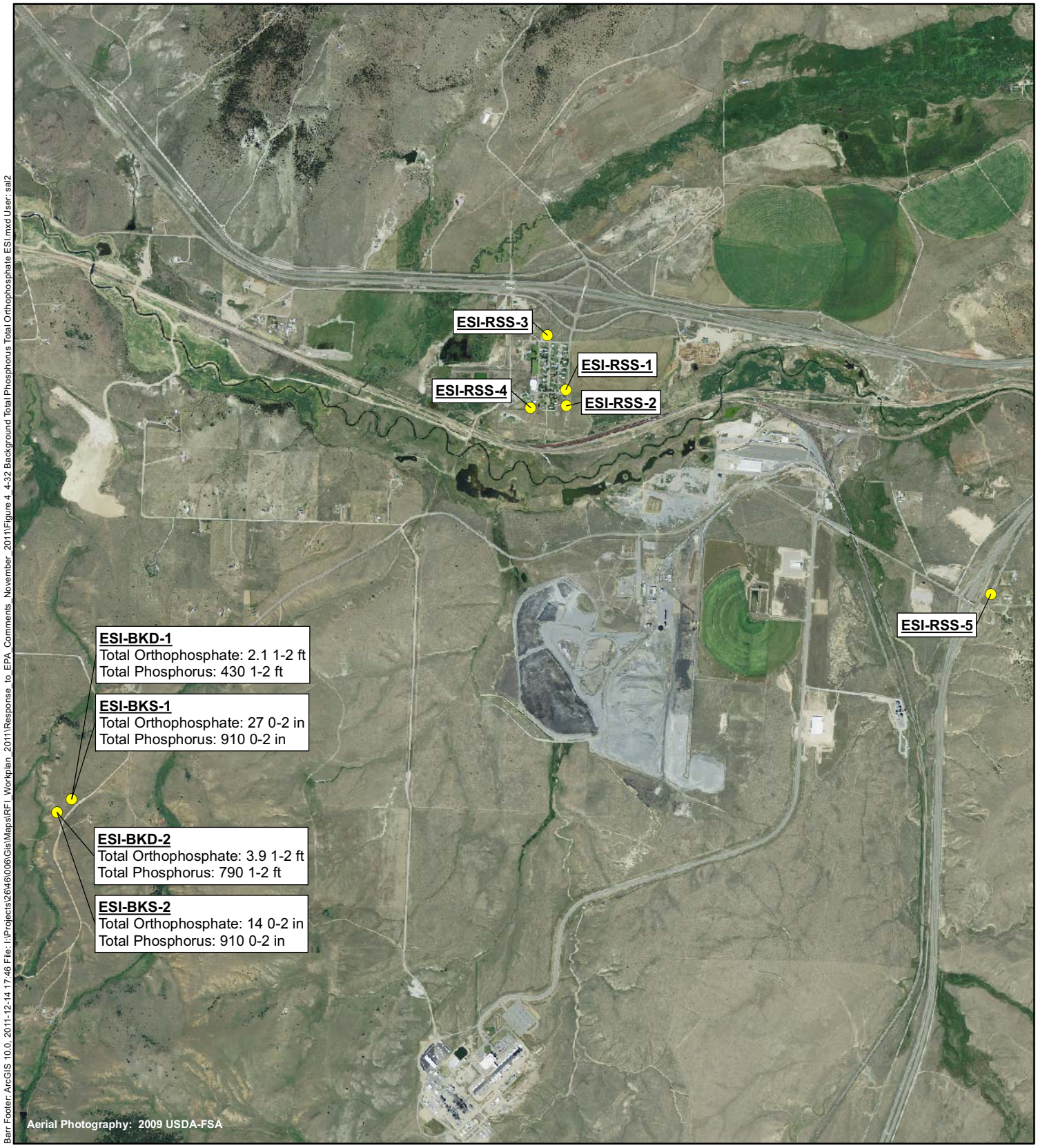
N

Feet

2,500 0 2,500

Figure 4.4-31

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - RADIONUCLIDES (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2011-12-14 17:46 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\Figure 4_4-32 Background Total Phosphorus Total Orthophosphate ESI.mxd User: sal2

Sample Location

Sample Location Sample Concentration (mg/kg)

ESI-BKS-2
Arsenic: 92.9 0-2 in
Cadmium: 1.7 0-2 in
Chromium: 9.8 0-2 in
Copper: 103 0-2 in

Chemical Name Sample Depth

N

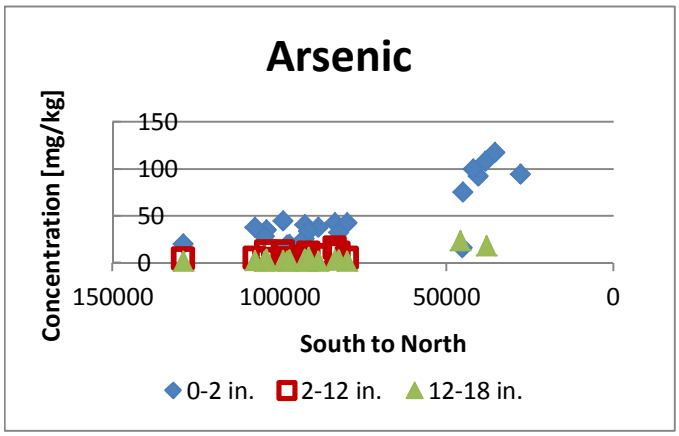
Feet

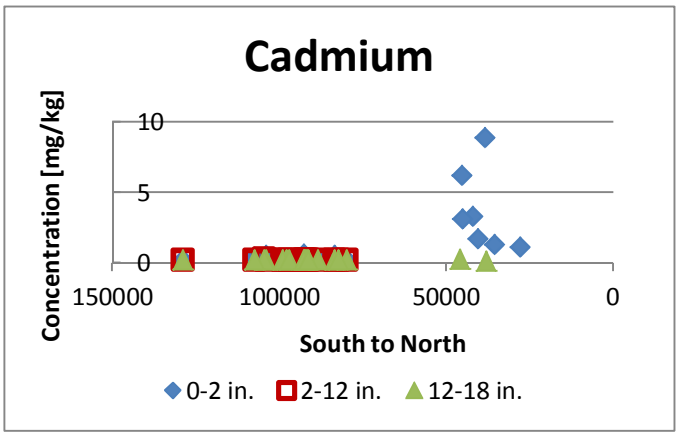
2,500 0 2,500

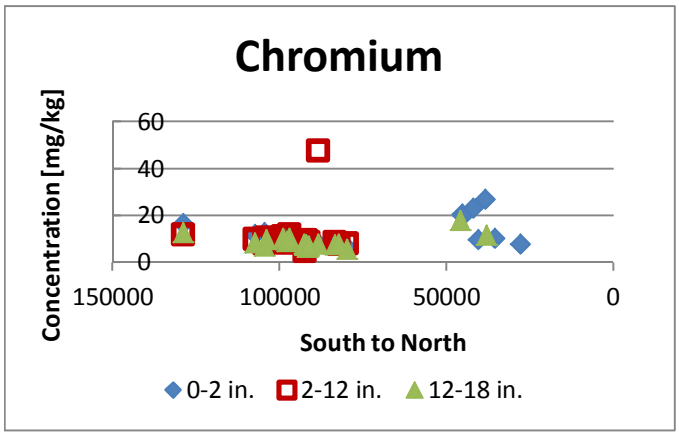
Figure 4.4-32

SITE SPECIFIC BACKGROUND SOIL RESULTS MAP - TOTAL PHOSPHORUS AND TOTAL ORTHOPHOSPHATE (ESI 0-2 INCHES AND 1-2 FEET)
Rhodia Silver Bow Plant
Montana

Charts







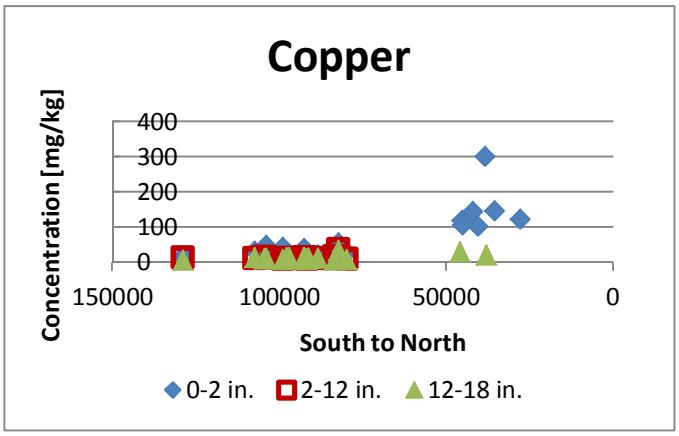
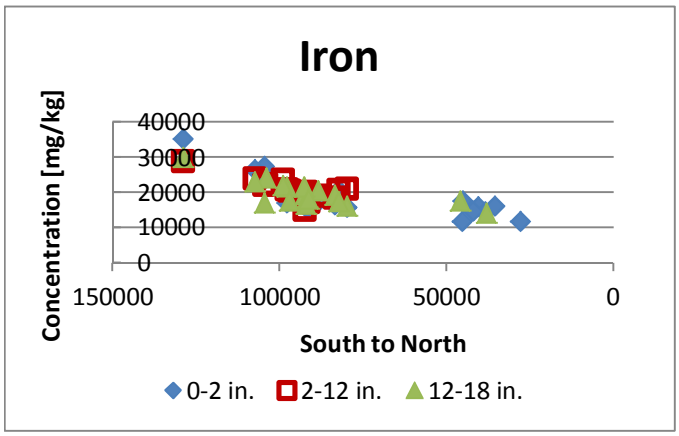
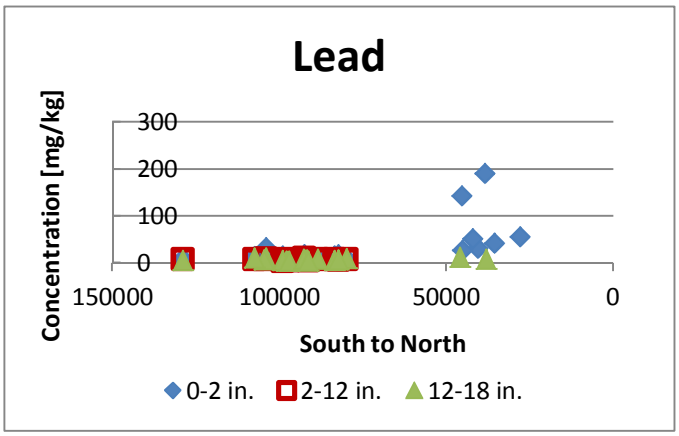
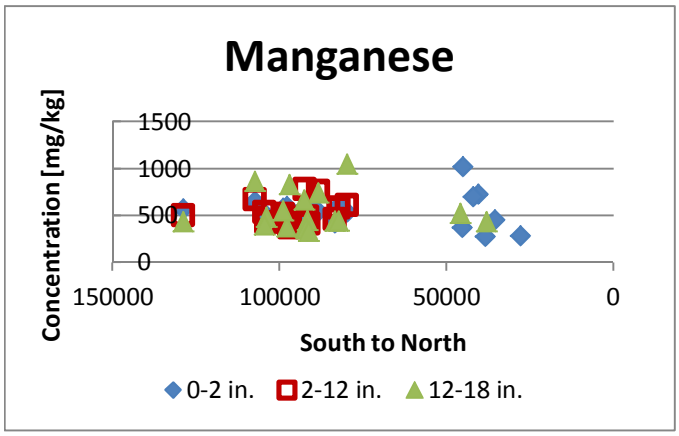


Chart 4.4-1
Metals Distribution - Group A
Background/Reference Areas







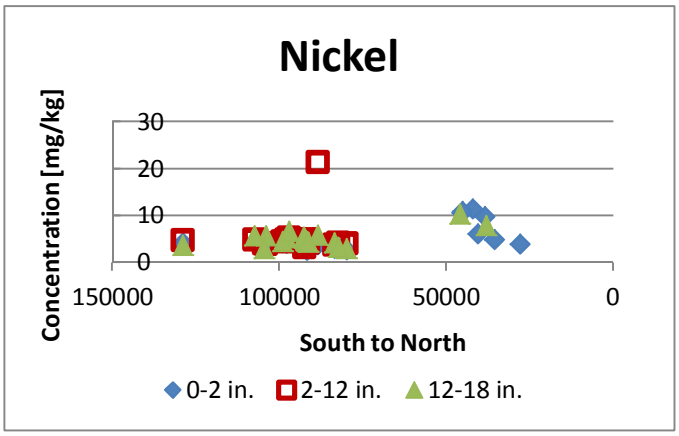
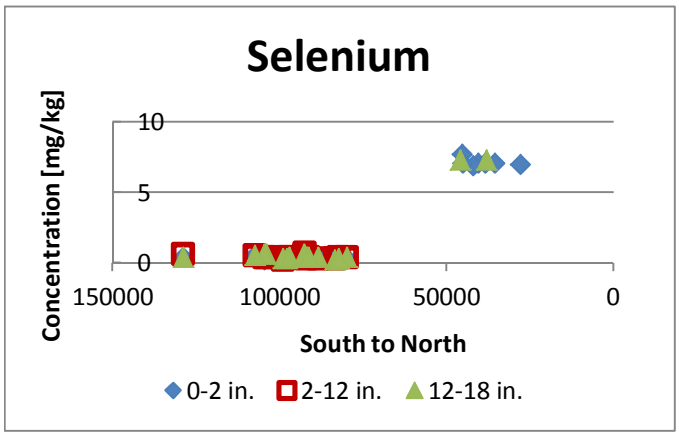
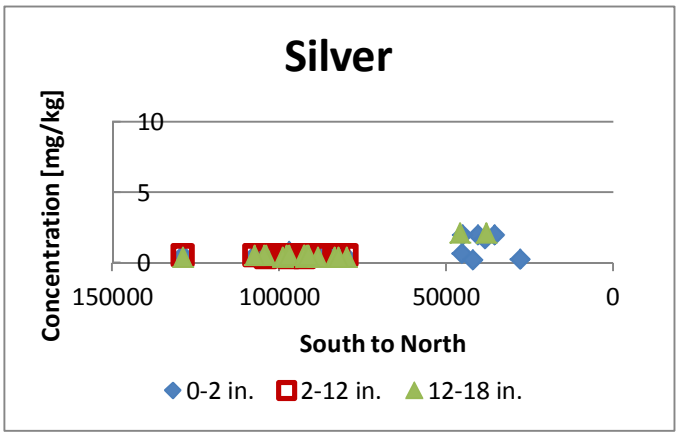
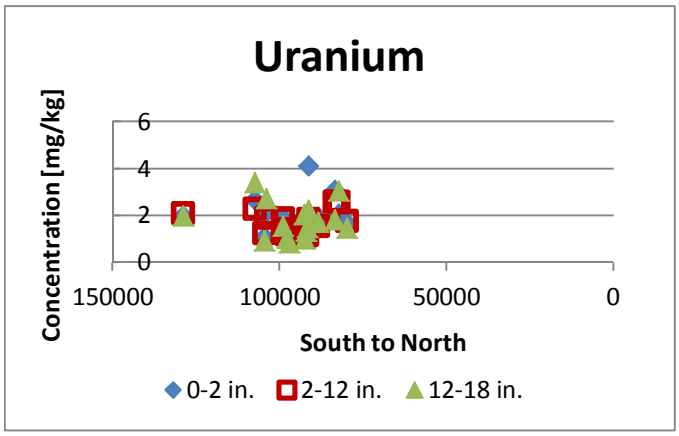
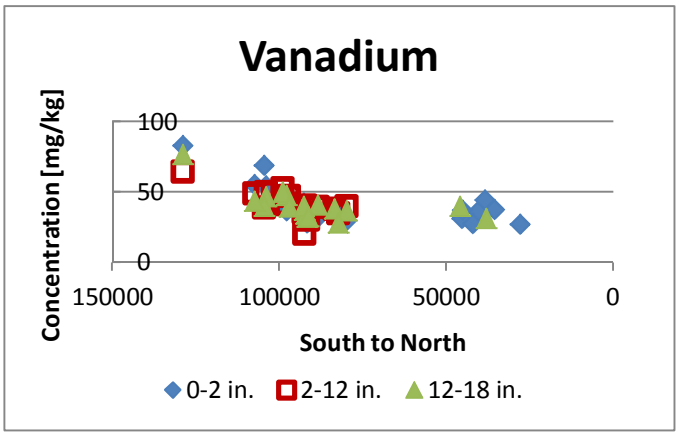


Chart 4.4-2
Metals Distribution - Group B
Background/Reference Areas









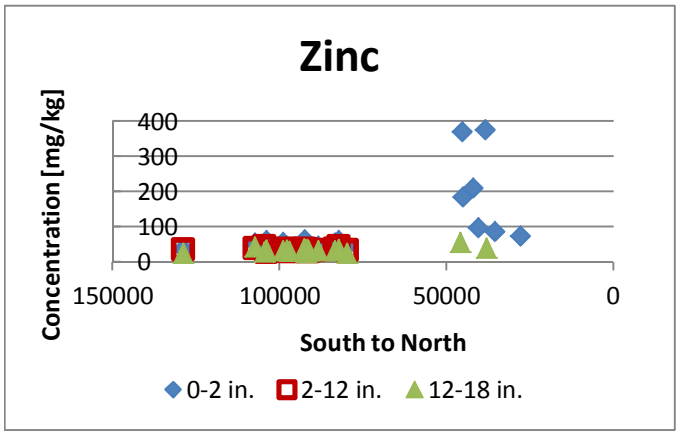
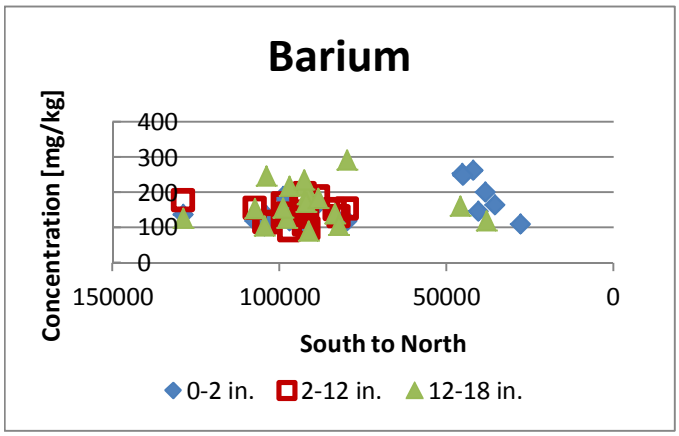
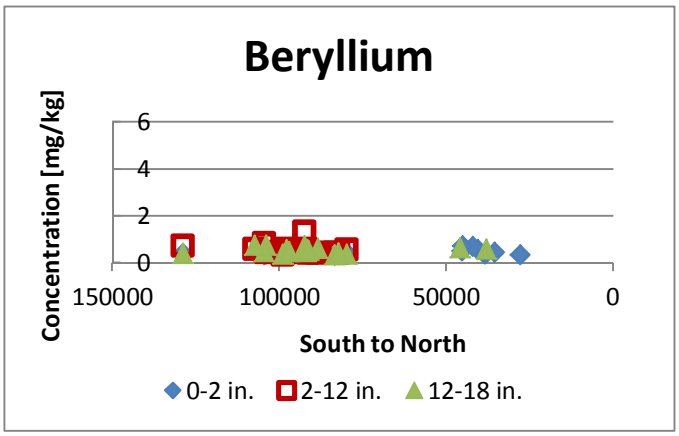
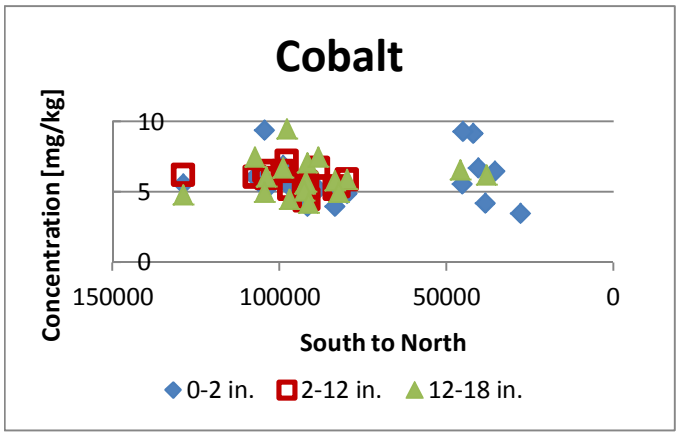
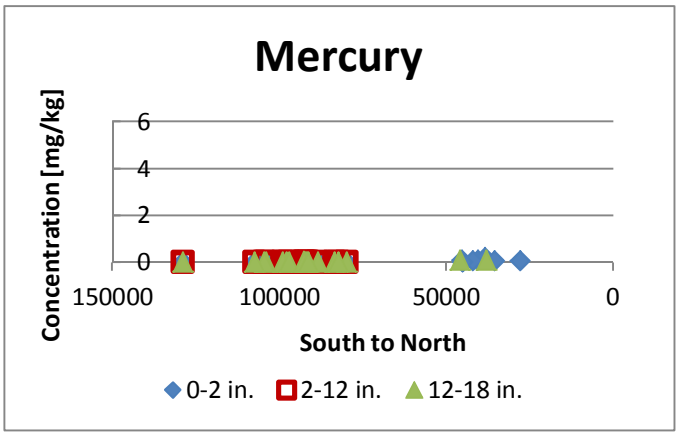


Chart 4.4-3
Metals Distribution - Group C
Background/Reference Areas









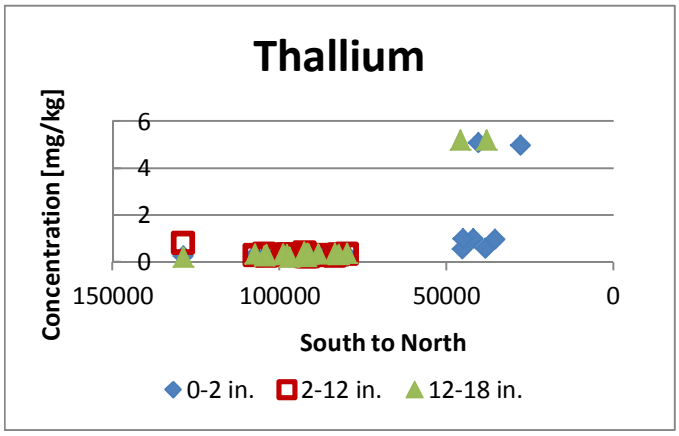
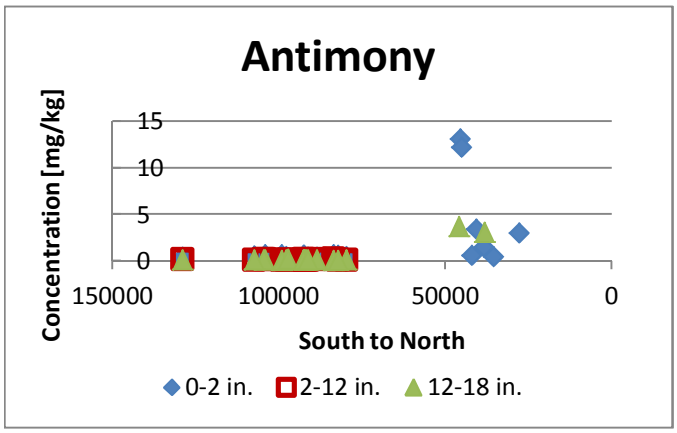
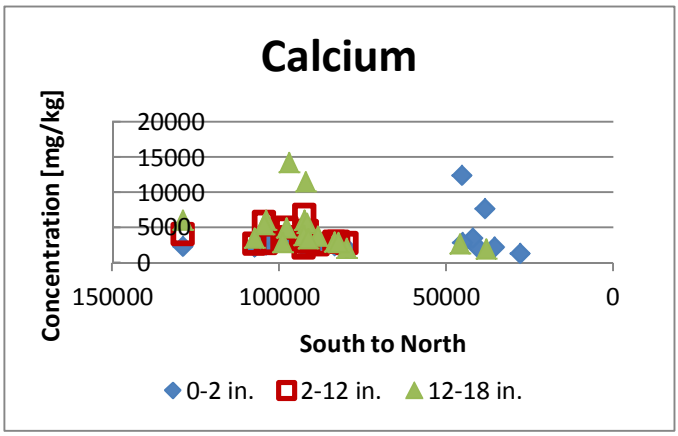
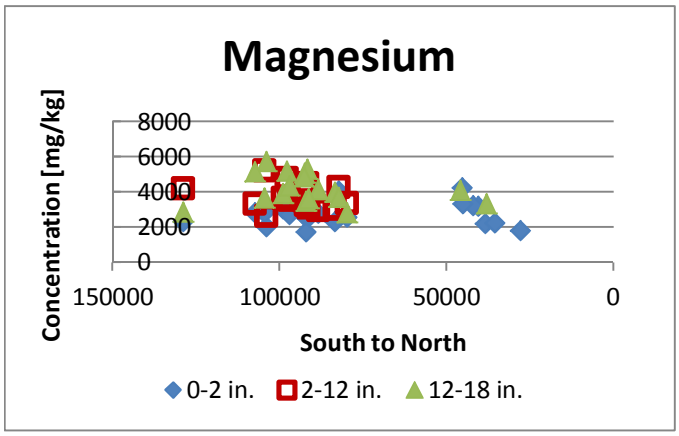
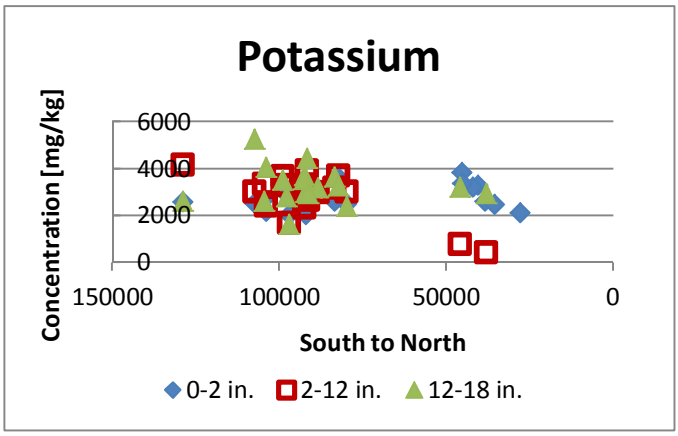


Chart 4.4-4
Metals Distribution - Group D
Background/Reference Areas









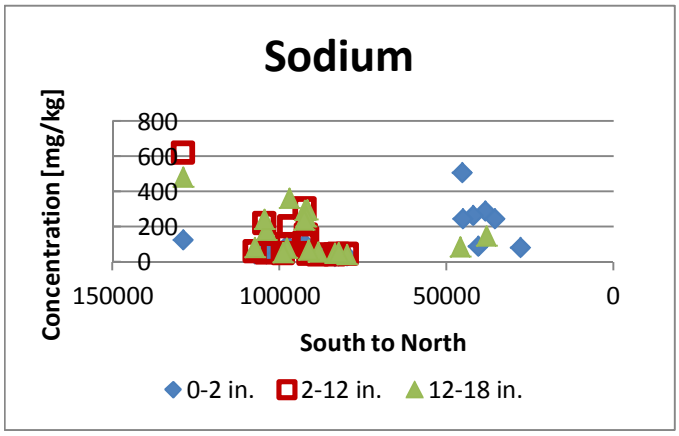


Chart 4.4-5
Metals Distribution - Group E
Background/Reference Areas

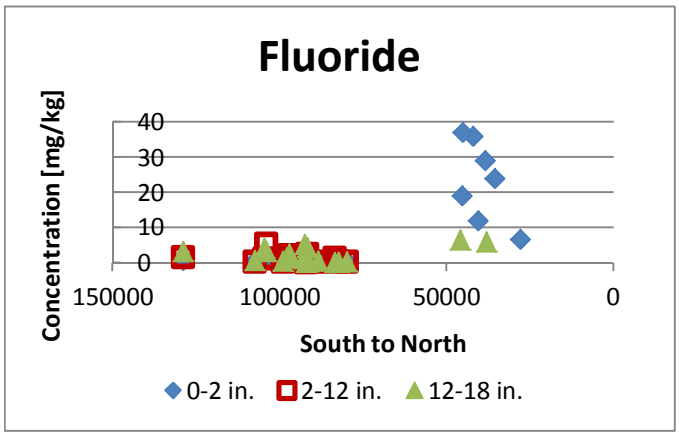
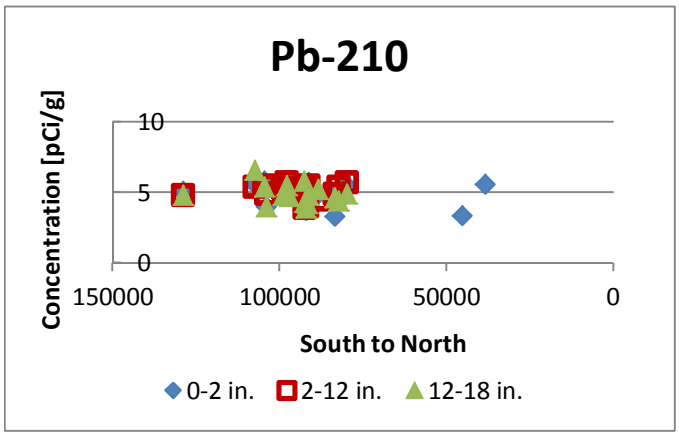
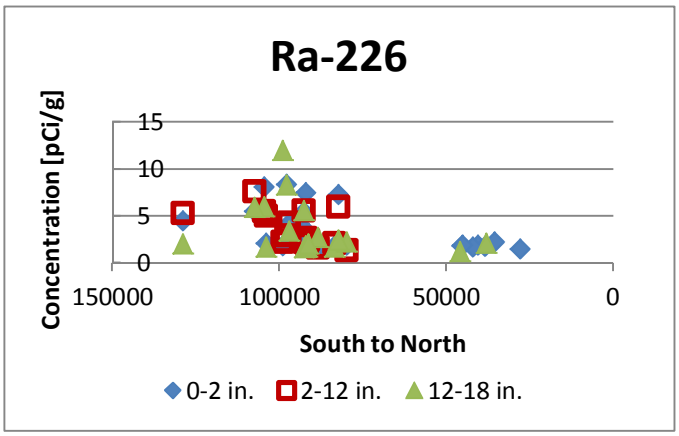
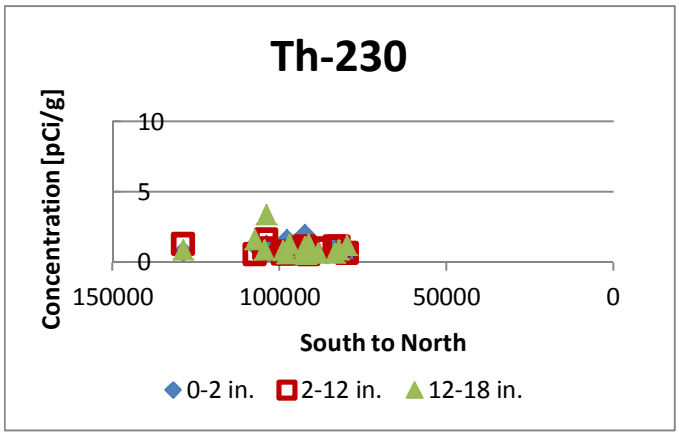
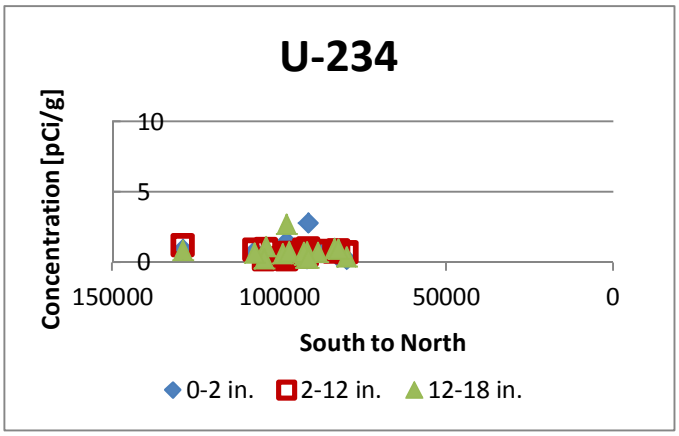


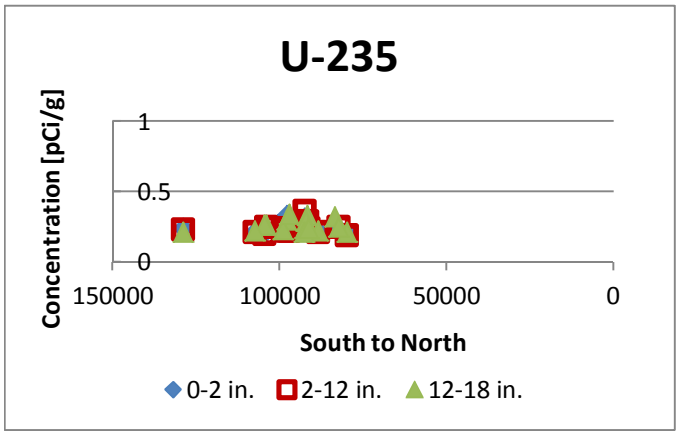
Chart 4.4-6
Fluoride Distribution
Background/Reference Areas











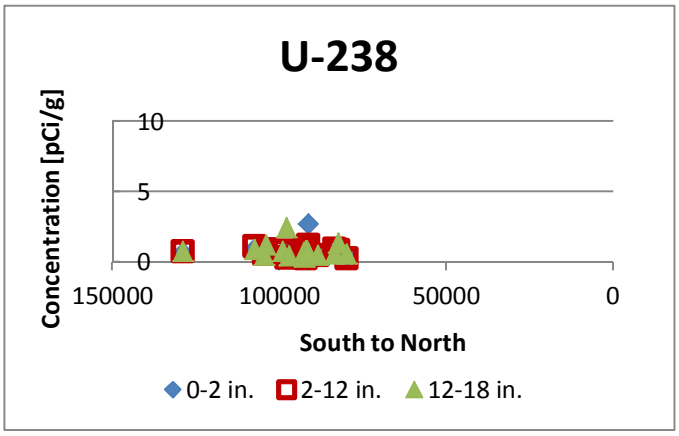


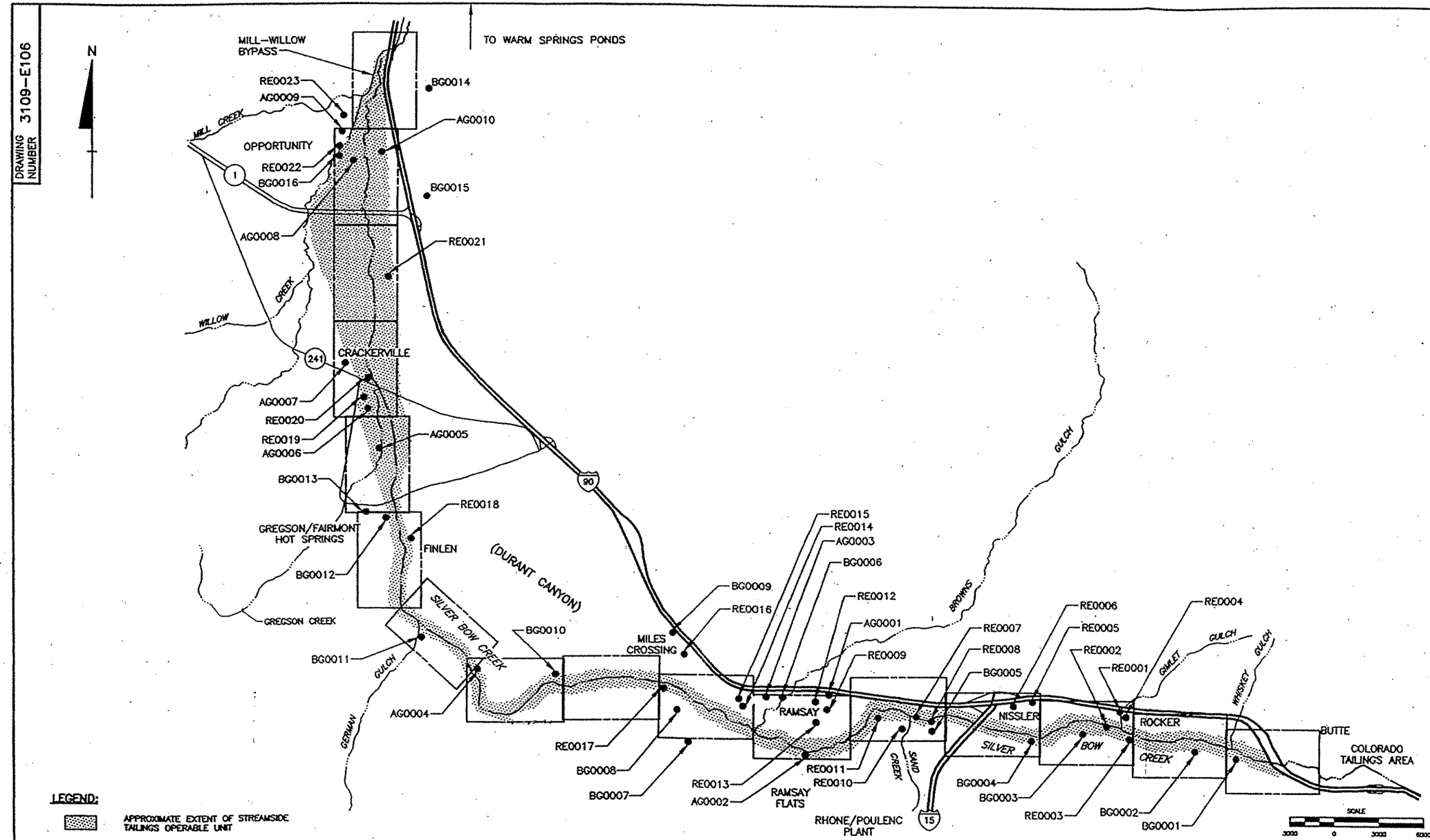
Chart 4.4-7
Radionuclides Distribution
Background/Reference Areas

Appendices

Appendix 4.4-A

SSTOU Figure 3c

DRAWING NUMBER 3109-E106



LEGEND:

- APPROXIMATE EXTENT OF STREAMSIDE TAILINGS OPERABLE UNIT
- APPROXIMATE AREA SHOWN ON FIGURE 4 MAP SERIES
- LOCATION AND DESIGNATION OF RANCH, RESIDENTIAL AND BACKGROUND SURFACE SOIL SAMPLING LOCATIONS
- RE — RESIDENTIAL SAMPLING LOCATIONS
- BG — BACKGROUND SAMPLING LOCATIONS
- AG — RANCH SAMPLING LOCATIONS

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7-17-94	ISSUED FOR DATA SUMMARY REPORT	T.M.G.	CHK	mjn

REFERENCE:
AFTER DRAWING BY ARCO FIGURE 1, TITLED: "LOCATION OF STREAMSIDE TAILINGS OPERABLE UNIT AND GENERALIZED SAMPLING LOCATIONS", DATED: JULY 1991. SCALE: 1"=5000'.

SUMMARY OF RANCH, RESIDENTIAL AND BACKGROUND SURFACE SOIL SAMPLING LOCATIONS

PREPARED FOR

ARCO **BA 10758**

ANACONDA, MONTANA

TITAN Environmental

DATE:	7-12-94	FIGURE 3c	DRAWING NUMBER 3109-E106	1
SCALE:	AS SHOWN			

Appendix 4.4-B

Background/Reference Area – XRF Data

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-1-1 0-2	06/29/10	10 U	< LOD	6.39	451	451.03	12.43	345	345.3	9.56	21 U	< LOD	14.01	105	105.26	6.21	28 J	28.19	9.66
BG-1-2 0-2	06/29/10	9 U	< LOD	6.08	349	348.97	10.69	258	258.26	8.07	20 U	< LOD	13.24	98	97.95	5.81	18 J	18.4	5.86
BG-1-3 0-2	06/29/10	9 U	< LOD	6.2	358	358.06	11.4	430	430.15	10.51	21 U	< LOD	13.81	103	103.13	6.05	20 J	19.98	6
BG-1-4 0-2	06/29/10	10 U	< LOD	6.8	504	503.66	13.36	387	387.17	10.36	21 U	< LOD	14.28	101	100.55	6.22	18 J	18.11	6.51
BG-1-5 0-2	06/29/10	11 U	< LOD	7.61	659	659.48	16.34	417	416.5	11.71	23 U	< LOD	15.45	93	93.04	6.59	33 J	32.81	7.83
Mean		10			464			367			21			100			23		
BG-1 0-2 COMP	06/29/10	10 U	< LOD	6.48	426	425.87	12.25	326	325.51	9.43	21 U	< LOD	13.91	93	93.13	5.96	23 J	22.85	6.47
%RPD		2%			9%			12%			1%			7%			2%		
BG-1-1 2-12	06/29/10	9 U	< LOD	6.26	304	303.94	10.79	343	342.9	9.63	22 U	< LOD	14.59	114	113.62	6.47	19 J	19.48	6.48
BG-1-2 2-12	06/29/10	9 U	< LOD	6.2	339	338.91	10.65	244	244.49	7.95	19 U	< LOD	12.82	89	88.8	5.61	14 J	14.1	5.39
BG-1-3 2-12	06/29/10	10 U	< LOD	6.49	443	443.21	12.54	350	349.81	9.8	21 U	< LOD	14	107	107.36	6.32	21 J	21.36	6.25
BG-1-4 2-12	06/29/10	11 U	< LOD	7.5	739	739.17	16.47	373	372.68	10.72	23 U	< LOD	15.2	101	101.25	6.6	34 J	34.3	7.54
BG-1-5 2-12	06/29/10	11 U	< LOD	7.6	621	621.25	16.15	475	475.28	12.54	23 U	< LOD	15.62	95	95.3	6.68	29 J	28.97	7.54
Mean		10			489			357			22			101			23		
BG-1 2-12 COMP	06/29/10	10 U	< LOD	6.45	318	317.65	11.85	398	398.03	10.69	40 J	40.48	10.96	88	88.02	6.31	228	227.77	14.84
%RPD		0%			42%			11%			60%			14%			163%		
BG-1-1 12-18	06/29/10	9 U	< LOD	6.21	350	350.18	11.11	287	287.27	8.76	20 U	< LOD	13.14	93	92.61	5.81	20 J	19.59	6.12
BG-1-2 12-18	06/29/10	10 U	< LOD	6.38	350	349.5	11.12	252	252.14	8.31	15 J	15.02	9.06	85	84.59	5.72	15 J	15.26	5.62
BG-1-3 12-18	06/29/10	10 U	< LOD	6.44	339	339.21	11.59	438	438.21	10.96	22 U	< LOD	14.48	100	100.48	6.22	24 J	23.83	6.36
BG-1-4 12-18	06/29/10	10 U	< LOD	6.77	493	492.59	13.11	300	300.41	9.2	23 U	< LOD	15.01	120	119.54	6.74	32 J	31.92	7.02
BG-1-5 12-18	06/29/10	9 U	< LOD	5.9	177	177.24	9.12	470	470.4	10.89	20 U	< LOD	13.21	96	96.34	5.8	7 J	7.42	4.89
Mean		10			342			349			20			99			20		
BG-1 12-18 COMP	06/29/10	9 U	< LOD	6.25	319	319.02	10.79	334	333.68	9.37	21 U	< LOD	13.97	104	104.02	6.13	17 J	16.52	5.72
%RPD		6%			7%			5%			5%			5%			14%		
BG-2-1 0-2	06/30/10	9 U	< LOD	6.31	462	462.38	12.52	395	394.74	10.13	21 U	< LOD	13.99	103	102.52	6.08	17 J	16.83	5.82
BG-2-2 0-2	06/30/10	9 U	< LOD	5.95	287	286.84	10.14	337	337.03	9.18	20 U	< LOD	13.05	93	92.51	5.66	15 J	14.62	5.43
BG-2-3 0-2	06/30/10	10 U	< LOD	6.37	377	377.41	11.49	327	326.76	9.28	20 U	< LOD	13.07	85	84.53	5.6	21 J	20.52	6.24
BG-2-4 0-2	06/30/10	9 U	< LOD	5.87	274	274	10	357	356.61	9.4	21 U	< LOD	13.69	103	102.61	5.94	21 J	21.29	5.95
BG-2-5 0-2	06/30/10	9 U	< LOD	6.14	393	393.44	11.14	242	242.13	7.81	17 U	< LOD	11.21	58	57.55	4.6	21 J	21.28	5.87
Mean		9			359			332			20			88			19		
BG-2 0-2 COMP	06/30/10	9 U	< LOD	6.06	326	326.13	10.71	356	355.71	9.47	20 U	< LOD	13.2	99	99.06	5.85	17 J	16.64	5.62
%RPD		2%			10%			7%			1%			11%			11%		
BG-2-1 2-12	06/30/10	10 U	< LOD	6.53	443	442.87	12.65	419	419.46	10.66	22 U	< LOD	14.43	100	100.06	6.17	21 J	21.31	6.22
BG-2-2 2-12	06/30/10	9 U	< LOD	6.09	366	366.31	11.18	325	325.47	9.13	20 U	< LOD	13.63	97	97.15	5.88	16 J	16.07	5.6
BG-2-3 2-12	06/30/10	9 U	< LOD	6.06	371	370.97	11.1	252	251.75	8.1	18 U	< LOD	12.13	79	79.2	5.32	19 J	18.69	5.76
BG-2-4 2-12	06/30/10	9 U	< LOD	6.02	283	282.61	10.22	310	310.24	8.99	21 U	< LOD	14.24	110	109.78	6.26	21 J	21.34	6.01
BG-2-5 2-12	06/30/10	9 U	< LOD	6.31	422	422.17	11.67	222	222.05	7.66	17 U	< LOD	11.27	51	50.51	4.48	25 J	25.08	5.98
Mean		9			377			306			20			87			20		
BG-2 2-12 COMP	06/30/10	9 U	< LOD	6.2	375	374.8	11.26	319	318.69	9.04	18 U	< LOD	12.11	89	89.15	5.54	15 J	15.18	5.44
%RPD		2%			1%			4%			9%			2%			31%		
BG-2-1 12-18	06/30/10	9 U	< LOD	6.08	333	332.89	10.65	251	251.13	8.09	14 J	14.06	9.23	104	103.94	6.08	17 J	17.05	5.69
BG-2-2 12-18	06/30/10	9 U	< LOD	5.94	215	214.92	9.69	463	463.06	10.86	21 U	< LOD	14.08	108	108.04	6.17	20 J	20.02	5.88
BG-2-3 12-18	06/30/10	9 U	< LOD	6.24	409	409.2	11.75	294	294.22	8.81	18 U	< LOD	12.22	75	74.56	5.26	19 J	18.69	5.72
BG-2-4 12-18	06/30/10	9 U	< LOD	6.27	313	312.67	11.31	451	450.99	11.13	22 U	< LOD	14.42	110	109.77	6.42	25 J	24.67	6.48
BG-2-5 12-18	06/30/10	9 U	< LOD	6.22	455	454.9	12.06	257	257.15	8.18	16 U	< LOD	10.47	41	40.81	4.07	21 J	20.53	5.61
Mean		9			345			343			18			88			20		
BG-2 12-18 COMP	06/30/10	9 U	< LOD	6.14	282	281.72	10.52	384	383.57	10.08	20 U	< LOD	13.25	95	95.1	5.88	20 J	19.59	5.9
%RPD		0%			20%			11%			9%			8%			2%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
		Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ
BG-3-1 0-2	06/29/10	9 U	< LOD	6.05	285	284.71	10.59	431	430.96	10.58	22 U	< LOD	14.43	110	110.07	6.29	20 J	19.68	6.14
BG-3-2 0-2	06/29/10	9 U	< LOD	6.03	321	321.32	10.62	322	321.79	9.06	20 U	< LOD	13.42	100	99.65	5.9	21 J	21.04	5.96
BG-3-3 0-2	06/29/10	9 U	< LOD	6.05	249	249.36	9.99	329	329.31	9.21	22 J	21.67	10	113	113.15	6.4	127	126.57	10.95
BG-3-4 0-2	06/29/10	9 U	< LOD	6.17	319	318.92	10.97	417	417.3	10.41	20 U	< LOD	13.17	86	85.79	5.61	17 J	16.64	5.84
BG-3-5 0-2	06/29/10	9 U	< LOD	6.14	366	365.62	11.28	371	370.53	9.71	21 U	< LOD	14.03	107	106.76	6.13	22 J	22	6.1
Mean		9			308			374			21			103			41		
BG-3 0-2 COMP	06/29/10	10 U	< LOD	6.43	419	418.97	12.01	340	340.02	9.48	22 U	< LOD	14.37	104	104.03	6.19	19 J	19.12	5.99
%RPD		11%			31%			10%			5%			1%			74%		
BG-3-1 2-12	06/29/10	9 U	< LOD	6.29	303	302.71	11	346	346.14	9.85	23 U	< LOD	15.03	119	118.94	6.73	29 J	28.8	6.81
BG-3-2 2-12	06/29/10	9 U	< LOD	6.06	293	292.65	10.39	374	373.8	9.73	21 U	< LOD	14.29	123	123.45	6.48	19 J	18.82	5.9
BG-3-3 2-12	06/29/10	9 U	< LOD	6.21	286	285.65	10.28	262	261.96	8.39	16 J	15.92	9.87	119	118.85	6.58	31 J	31.14	6.71
BG-3-4 2-12	06/29/10	10 U	< LOD	6.4	324	324.31	11.37	457	457.22	11.11	22 U	< LOD	14.48	103	103.07	6.24	18 J	17.66	5.89
BG-3-5 2-12	06/29/10	9 U	< LOD	6.12	214	214.28	9.76	401	401.09	10.38	23 U	< LOD	15.57	144	143.89	7.18	24 J	24.3	6.47
Mean		9			284			368			21			122			24		
BG-3 2-12 COMP	06/29/10	9 U	< LOD	6.31	308	308.26	10.83	363	363.21	9.84	21 U	< LOD	13.94	115	115.1	6.4	22 J	22.2	6.22
%RPD		2%			8%			1%			0%			6%			10%		
BG-3-1 12-18	06/29/10	9 U	< LOD	6.32	297	297.25	10.84	345	344.74	9.74	22 U	< LOD	14.63	125	124.79	6.76	41	40.87	7.4
BG-3-2 12-18	06/29/10	9 U	< LOD	6.02	295	295.26	10.14	273	273.35	8.34	21 U	< LOD	14.15	128	127.68	6.54	26 J	25.56	6.28
BG-3-3 12-18	06/29/10	9 U	< LOD	6.15	263	262.89	10.06	275	275.23	8.66	22 U	< LOD	14.69	118	118.47	6.58	18 J	18.44	5.95
BG-3-4 12-18	06/29/10	9 U	< LOD	6.07	342	342.37	11.39	464	463.99	10.99	21 U	< LOD	13.75	87	86.73	5.71	21 J	21.46	6.02
BG-3-5 12-18	06/29/10	9 U	< LOD	5.93	162	161.81	8.72	402	401.95	10.1	22 U	< LOD	14.69	144	144.05	6.93	14 J	14.21	5.55
Mean		9			272			352			22			120			24		
BG-3 12-18 COMP	06/29/10	10 U	< LOD	6.35	301	301.26	10.88	366	366.41	9.98	22 U	< LOD	14.86	123	122.51	6.71	29 J	29.33	6.69
%RPD		11%			10%			4%			2%			2%			19%		
BG-4-1 0-2	06/28/10	9 U	< LOD	6.13	318	318.05	10.78	310	309.82	9.01	21 U	< LOD	14.24	119	118.76	6.47	65	65.07	8.87
BG-4-2 0-2	06/28/10	9 U	< LOD	5.95	220	219.93	9.28	333	332.73	9.14	21 U	< LOD	14.22	112	111.51	6.21	16 J	16.03	5.71
BG-4-3 0-2	06/28/10	9 U	< LOD	5.99	291	291.05	10.21	336	335.83	9.18	20 U	< LOD	13.41	99	99.09	5.86	18 J	17.99	5.7
BG-4-4 0-2	06/28/10	9 U	< LOD	6.29	332	332.15	11.04	320	319.9	9.25	22 U	< LOD	14.56	112	112.28	6.41	34 J	33.53	7.17
BG-4-5 0-2	06/28/10	8 U	< LOD	5.63	191	191.1	8.43	281	280.93	8.13	18 U	< LOD	12.1	85	84.57	5.25	22 J	22.19	5.78
Mean		9			270			316			20			105			31		
BG-4 0-2 COMP	06/28/10	9 U	< LOD	6.27	410	410.49	11.77	315	315.2	9.06	21 U	< LOD	13.96	103	103.28	6.09	32 J	32.25	6.84
%RPD		2%			41%			0%			3%			2%			3%		
BG-4-1 2-12	06/28/10	10 U	< LOD	6.38	243	243.49	10.42	380	379.76	10.38	24 U	< LOD	16.32	153	153.3	7.59	45	44.93	7.88
BG-4-2 2-12	06/28/10	9 U	< LOD	6.03	275	275.18	10.2	347	347.16	9.45	17 J	16.94	9.58	104	103.64	6.12	32 J	31.5	6.72
BG-4-3 2-12	06/28/10	9 U	< LOD	5.89	226	226	9.53	382	382.09	9.81	21 U	< LOD	14.03	118	117.76	6.33	19 J	18.61	5.77
BG-4-4 2-12	06/28/10	10 U	< LOD	6.48	430	429.71	12.48	344	344.33	9.79	22 U	< LOD	14.9	119	119.49	6.71	28 J	28.03	6.75
BG-4-5 2-12	06/28/10	9 U	< LOD	5.88	243	242.8	9.31	277	277.35	8.25	19 U	< LOD	12.42	89	89.03	5.47	30 J	30.07	6.24
Mean		9			283			346			21			117			31		
BG-4 2-12 COMP	06/28/10	9 U	< LOD	6.26	352	352.09	11.24	358	358.49	9.68	22 U	< LOD	14.46	117	117.45	6.46	20 J	20.28	6.05
%RPD		4%			22%			3%			7%			0%			43%		
BG-4-1 12-18	06/28/10	9 U	< LOD	6.27	285	284.56	10.43	302	302.18	9.03	23 U	< LOD	15.18	130	130.35	6.87	36	36.32	7.12
BG-4-2 12-18	06/28/10	9 U	< LOD	5.97	205	205.26	9.07	344	344.46	9.26	20 U	< LOD	13.55	111	111.07	6.12	15 J	14.81	5.49
BG-4-3 12-18	06/28/10	10 U	< LOD	6.4	403	403.17	11.99	371	371.3	9.96	22 U	< LOD	14.79	117	117.45	6.55	23 J	23.06	6.32
BG-4-4 12-18	06/28/10	11 U	< LOD	7.11	588	587.87	14.67	368	368.06	10.45	25 U	< LOD	16.94	168	168.03	8.06	28 J	28.46	7.15
BG-4-5 12-18	06/28/10	9 U	< LOD	5.86	290	289.59	9.92	301	300.72	8.56	20 U	< LOD	13.13	92	92.02	5.6	14 J	13.81	5.21
Mean		10			354			337			22			124			23		
BG-4 12-18 COMP	06/28/10	9 U	< LOD	6.18	246	245.74	10	333	333.26	9.49	23 U	< LOD	15.6	149	149.18	7.28	22 J	22.09	6.35
%RPD		6%			36%			1%			4%			19%			5%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-5-1 0-2	06/22/10	9 U	< LOD	5.98	200	199.98	9.36	427	427.09	10.41	22 U	< LOD	14.93	148	148.12	7.03	21 J	20.85	6.09
BG-5-2 0-2	06/22/10	8 U	< LOD	5.66	192	191.67	8.6	319	319.49	8.73	20 U	< LOD	13.62	125	124.99	6.28	14 J	13.52	5.34
BG-5-3 0-2	06/22/10	9 U	< LOD	6.03	319	319.39	10.7	379	378.83	9.77	20 U	< LOD	13.11	96	96.42	5.78	15 J	14.8	5.69
BG-5-4 0-2	06/22/10	9 U	< LOD	6.24	439	439.34	11.93	311	311.26	8.91	20 U	< LOD	13.18	91	90.87	5.68	20 J	19.69	5.78
BG-5-5 0-2	06/22/10	9 U	< LOD	6.02	324	324.08	10.4	301	300.61	8.6	19 U	< LOD	12.69	87	87.22	5.47	22 J	22.21	5.98
Mean		9			295			347			20			109			18		
BG-5 0-2 COMP	06/22/10	9 U	< LOD	6.13	330	329.89	10.78	344	343.61	9.35	21 U	< LOD	13.93	109	108.83	6.15	17 J	16.72	5.62
%RPD		2%			11%			1%			4%			0%			8%		
BG-5-1 2-12	06/22/10	9 U	< LOD	6	256	256.33	10.21	456	455.92	10.76	23 U	< LOD	15.55	152	151.75	7.17	28 J	28.35	6.52
BG-5-2 2-12	06/22/10	9 U	< LOD	5.73	242	241.7	9.48	351	351.19	9.25	21 U	< LOD	13.75	126	125.83	6.37	20 J	20.25	5.77
BG-5-3 2-12	06/22/10	9 U	< LOD	6.07	286	286.49	10.17	272	272.17	8.44	20 U	< LOD	13.11	99	99.43	5.92	18 J	18.27	5.7
BG-5-4 2-12	06/22/10	9 U	< LOD	6.28	335	335.02	11.32	418	417.81	10.55	21 U	< LOD	14.21	100	100.32	6.12	25 J	24.97	6.33
BG-5-5 2-12	06/22/10	10 U	< LOD	6.38	413	412.5	11.91	302	301.89	8.99	21 U	< LOD	14.06	104	104.05	6.18	19 J	19.37	5.98
Mean		9			306			360			21			116			22		
BG-5 2-12 COMP	06/22/10	10 U	< LOD	6.43	399	398.83	11.88	366	365.8	9.86	22 U	< LOD	14.93	114	114.13	6.48	12 J	12.34	5.49
%RPD		8%			26%			2%			4%			2%			59%		
BG-5-1 12-18	06/22/10	9 U	< LOD	5.94	196	195.93	9.52	406	406.22	10.4	24 U	< LOD	16.01	161	160.72	7.51	48	48.2	7.83
BG-5-2 12-18	06/22/10	9 U	< LOD	5.67	173	173.4	8.48	337	336.92	9.04	21 U	< LOD	14.2	139	138.81	6.65	17 J	16.7	5.58
BG-5-3 12-18	06/22/10	9 U	< LOD	6.15	285	284.91	10.25	290	290.2	8.76	20 U	< LOD	13.07	94	93.85	5.81	20 J	19.99	5.89
BG-5-4 12-18	06/22/10	9 U	< LOD	5.94	292	291.62	10.57	412	412.27	10.3	20 U	< LOD	13.16	93	93.48	5.77	18 J	18.46	5.75
BG-5-5 12-18	06/22/10	10 U	< LOD	6.75	398	398.46	12.26	247	247.08	8.62	19 U	< LOD	12.79	65	64.58	5.3	21 J	20.87	6.19
Mean		9			269			338			21			110			25		
BG-5 12-18 COMP	06/22/10	9 U	< LOD	6.03	302	301.72	10.59	309	308.77	9.09	20 U	< LOD	13.38	93	93.41	5.87	17 J	16.65	5.7
%RPD		2%			12%			9%			4%			17%			37%		
BG-6-1 0-2	06/28/10	9 U	< LOD	5.98	304	304.45	10.21	284	284.33	8.44	18 U	< LOD	12.27	84	83.76	5.38	25 J	24.7	5.99
BG-6-2 0-2	06/28/10	11 U	< LOD	7.64	800	800.38	17.45	505	504.84	12.52	22 U	< LOD	14.84	86	86.29	6.23	58	57.66	8.91
BG-6-3 0-2	06/28/10	10 U	< LOD	6.97	694	694.38	15.4	379	379.07	10.38	21 U	< LOD	14.07	91	91.37	6.04	21 J	21.21	6.38
BG-6-4 0-2	06/28/10	9 U	< LOD	6.11	361	360.56	10.87	281	280.89	8.4	19 U	< LOD	12.43	84	84.32	5.41	18 J	18.01	5.81
BG-6-5 0-2	06/28/10	9 U	< LOD	5.9	293	293.25	10.09	310	309.98	8.75	19 U	< LOD	12.5	89	89.12	5.51	22 J	21.89	6.2
Mean		10			490			352			20			87			29		
BG-6 0-2 COMP	06/28/10	9 U	< LOD	6.12	307	306.96	10.58	359	358.75	9.6	20 U	< LOD	13.05	96	96.2	5.81	9 J	9.43	5.18
%RPD		6%			46%			2%			1%			10%			105%		
BG-6-1 2-12	06/28/10	9 U	< LOD	6.03	367	366.69	11.04	299	298.78	8.7	20 U	< LOD	13.04	86	85.93	5.53	16 J	15.86	5.44
BG-6-2 2-12	06/28/10	9 U	< LOD	5.87	221	220.64	9.82	508	508.41	11.3	20 U	< LOD	13.37	88	87.81	5.61	18 J	17.61	5.72
BG-6-3 2-12	06/28/10	10 U	< LOD	6.65	464	464.02	12.98	395	394.72	10.48	21 U	< LOD	14.07	93	93.42	6.04	19 J	19	6.08
BG-6-4 2-12	06/28/10	9 U	< LOD	6.18	398	397.67	11.62	353	353.17	9.5	21 U	< LOD	13.7	112	112.05	6.21	24 J	23.84	6.22
BG-6-5 2-12	06/28/10	9 U	< LOD	6.33	423	423.07	11.88	270	269.64	8.47	21 U	< LOD	13.96	110	109.84	6.27	22 J	21.82	6.09
Mean		9			375			365			21			98			20		
BG-6 2-12 COMP	06/28/10	9 U	< LOD	6.23	330	329.92	11.05	371	371.27	9.89	20 U	< LOD	13.65	98	98.17	5.98	23 J	22.57	6.12
%RPD		2%			13%			2%			3%			0%			15%		
BG-6-1 12-18	06/28/10	9 U	< LOD	6.23	414	413.56	11.91	333	332.61	9.37	20 U	< LOD	13.52	101	101.47	6.03	21 J	21.28	6.03
BG-6-2 12-18	06/28/10	10 U	< LOD	6.43	298	298.12	11.55	550	550.47	12.4	22 U	< LOD	14.56	85	84.79	5.91	45	45.45	7.76
BG-6-3 12-18	06/28/10	10 U	< LOD	6.47	444	444.4	12.41	361	361.38	9.82	20 U	< LOD	13.53	99	99.46	6.02	22 J	21.91	6.14
BG-6-4 12-18	06/28/10	9 U	< LOD	6.11	288	288.13	10.77	429	428.96	10.7	21 U	< LOD	14.32	92	91.64	5.93	20 J	19.85	5.91
BG-6-5 12-18	06/28/10	10 U	< LOD	6.44	398	398.09	11.82	316	315.8	9.22	21 U	< LOD	14.19	105	104.85	6.22	27 J	26.5	6.4
Mean		10			368			398			21			96			27		
BG-6 12-18 COMP	06/28/10	9 U	< LOD	6.16	289	288.93	10.58	395	395.45	10.17	21 U	< LOD	13.73	103	103.44	6.09	21 J	21.35	6.05
%RPD		6%			24%			1%			1%			7%			25%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	12 U	< LOD	8.15	659	659.36	17.58	450	449.84	13	24 U	< LOD	16.33	82	82.39	6.74	41 J	40.95	8.79
BG-7-2 0-2	06/27/10	9 U	< LOD	6.28	345	344.87	11.06	362	362.44	9.65	20 U	< LOD	13.44	104	103.61	6.01	20 J	19.9	5.94
BG-7-3 0-2	06/27/10	10 U	< LOD	6.46	481	480.57	12.77	375	375.42	9.94	16 J	15.56	9.54	96	95.79	6	34 J	34.23	6.92
BG-7-4 0-2	06/27/10	9 U	< LOD	6.21	380	380.38	11.37	345	344.59	9.33	20 U	< LOD	13.55	101	101.03	5.94	47	47.18	7.47
BG-7-5 0-2	06/27/10	11 U	< LOD	7.28	838	838.3	16.7	369	368.57	10.25	22 U	< LOD	14.38	105	105.33	6.41	31 J	31.24	7.15
Mean		10			541			380			20			98			35		
BG-7 0-2 COMP	06/27/10	11 U	< LOD	7.01	601	600.73	14.94	398	398.38	10.93	22 U	< LOD	14.58	104	103.57	6.51	22 J	21.89	6.59
%RPD		8%			11%			5%			8%			6%			45%		
BG-7-1 2-12	06/27/10	9 J	8.96	5.15	557	556.85	15.38	407	406.91	11.69	23 U	< LOD	15.4	89	88.84	6.52	25 J	24.78	7.21
BG-7-2 2-12	06/27/10	11 U	< LOD	7.03	666	666.02	14.91	398	398.37	10.44	22 U	< LOD	14.92	115	114.68	6.57	28 J	27.54	6.65
BG-7-3 2-12	06/27/10	9 U	< LOD	6.26	382	382.21	11.72	407	407.28	10.29	21 U	< LOD	14.01	104	103.83	6.12	36	35.52	6.93
BG-7-4 2-12	06/27/10	9 U	< LOD	6.17	345	345.2	11.07	364	363.5	9.66	21 U	< LOD	13.72	101	100.59	5.98	24 J	24.49	6.19
BG-7-5 2-12	06/27/10	10 U	< LOD	6.63	585	585.12	13.87	318	318.15	9.3	22 U	< LOD	14.89	115	114.76	6.54	24 J	24.49	6.42
Mean		10			507			379			22			105			27		
BG-7 2-12 COMP	06/27/10	9 U	< LOD	6.32	344	344.45	11.4	406	406.09	10.41	22 U	< LOD	14.57	110	109.61	6.36	20 J	20.42	6.1
%RPD		6%			38%			7%			1%			5%			31%		
BG-7-1 12-18	06/27/10	16 U	< LOD	10.99	864	864.3	24.78	510	509.77	17.25	33 U	< LOD	21.73	94	94.06	9.04	61 J	61.38	12.76
BG-7-2 12-18	06/27/10	10 U	< LOD	6.77	544	543.99	14.14	421	421.02	10.84	23 U	< LOD	15.38	120	119.92	6.82	179	178.79	13.24
BG-7-3 12-18	06/27/10	9 U	< LOD	6.25	348	348.04	11.57	454	453.93	11	21 U	< LOD	14.28	107	107.39	6.28	22 J	22.35	6.26
BG-7-4 12-18	06/27/10	9 U	< LOD	6.22	314	313.97	10.9	389	389.1	10.11	18 J	17.8	9.48	89	88.95	5.83	22 J	22.12	6.06
BG-7-5 12-18	06/27/10	9 U	< LOD	6.24	415	414.81	11.68	276	275.5	8.47	20 U	< LOD	13.05	104	104.34	6.01	18 J	18.34	5.74
Mean		11			497			410			23			103			60		
BG-7 12-18 COMP	06/27/10	11 U	< LOD	7.05	484	483.76	13.86	420	419.59	11.29	23 U	< LOD	15.58	101	100.76	6.59	24 J	23.55	6.72
%RPD		4%			3%			2%			0%			2%			86%		
BG-8-1 0-2	06/26/10	9 U	< LOD	6.01	276	276.36	9.78	264	264.26	8.13	19 U	< LOD	12.41	90	89.9	5.52	20 J	19.57	5.94
BG-8-2 0-2	06/26/10	9 U	< LOD	6.3	297	296.5	10.88	405	404.97	10.48	22 U	< LOD	14.48	105	105.19	6.29	10 J	9.97	5.32
BG-8-3 0-2	06/26/10	9 U	< LOD	5.98	304	304.39	10.08	290	290.18	8.41	19 U	< LOD	12.69	85	85.28	5.4	18 J	17.52	5.48
BG-8-4 0-2	06/26/10	9 U	< LOD	6.18	332	331.59	10.76	290	289.76	8.68	21 U	< LOD	13.96	115	115.14	6.33	25 J	25.35	6.29
BG-8-5 0-2	06/26/10	9 U	< LOD	6.22	322	322.16	11.19	440	440.2	10.79	23 U	< LOD	15.04	122	121.68	6.65	23 J	22.83	6.58
Mean		9			306			338			21			103			19		
BG-8 0-2 COMP	06/26/10	9 U	< LOD	6.14	363	362.82	11.25	351	350.72	9.5	21 U	< LOD	13.85	105	104.62	6.09	22 J	21.79	6.14
%RPD		0%			17%			4%			1%			2%			14%		
BG-8-1 2-12	06/26/10	9 U	< LOD	5.97	307	306.9	10.28	318	317.99	8.88	19 U	< LOD	12.81	94	94.34	5.66	14 J	14.23	5.31
BG-8-2 2-12	06/26/10	9 U	< LOD	6.33	322	322.21	11.22	390	389.6	10.33	21 U	< LOD	14.28	103	103.43	6.25	13 J	12.81	5.56
BG-8-3 2-12	06/26/10	9 U	< LOD	6.23	319	319.34	10.82	341	340.65	9.46	21 U	< LOD	13.92	109	109.3	6.24	18 J	17.61	5.81
BG-8-4 2-12	06/26/10	9 U	< LOD	6.08	328	328.08	10.71	299	299.16	8.8	21 U	< LOD	13.85	112	112.36	6.25	18 J	18.48	5.84
BG-8-5 2-12	06/26/10	9 U	< LOD	6.22	249	249.09	10.36	470	469.87	11.16	22 U	< LOD	14.9	116	116.49	6.53	20 J	20.44	6.09
Mean		9			305			364			21			107			17		
BG-8 2-12 COMP	06/26/10	10 U	< LOD	6.47	390	389.79	11.75	339	338.82	9.52	21 U	< LOD	14.13	113	113.34	6.39	21 J	21.37	6.12
%RPD		11%			24%			7%			1%			6%			23%		
BG-8-1 12-18	06/26/10	9 U	< LOD	6	322	321.92	10.38	271	271.4	8.25	19 U	< LOD	12.6	86	85.94	5.46	19 J	19.37	5.67
BG-8-2 12-18	06/26/10	10 U	< LOD	6.48	388	388.24	12.28	412	412.49	10.78	22 U	< LOD	14.91	113	113.25	6.62	35 J	34.97	7.18
BG-8-3 12-18	06/26/10	9 U	< LOD	6.08	253	252.8	10.12	385	384.94	10.06	22 U	< LOD	14.76	114	114.07	6.44	26 J	25.58	6.4
BG-8-4 12-18	06/26/10	9 U	< LOD	6.11	219	219.39	9.79	405	405.36	10.38	21 U	< LOD	14.08	116	115.92	6.43	24 J	23.64	6.31
BG-8-5 12-18	06/26/10	9 U	< LOD	6.1	267	266.56	10.47	464	463.86	10.99	22 U	< LOD	14.84	126	125.79	6.67	15 J	14.71	5.73
Mean		9			290			387			21			111			24		
BG-8 12-18 COMP	06/26/10	9 U	< LOD	6.27	290	289.68	10.73	405	405.26	10.41	22 U	< LOD	14.87	114	113.79	6.49	18 J	17.56	5.95
%RPD		2%			0%			4%			4%			3%			28%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-9-1 0-2	06/22/10	9 U	< LOD	6	301	301.23	10.5	421	421.21	10.21	20 U	< LOD	13.11	92	91.87	5.64	16 J	16.21	5.72
BG-9-2 0-2	06/22/10	9 U	< LOD	5.83	255	255.09	9.68	350	349.87	9.25	19 U	< LOD	12.97	89	88.72	5.53	25 J	24.73	6.02
BG-9-3 0-2	06/22/10	14 U	< LOD	9.35	1,220	1219.76	23.85	534	534.15	14.6	21 J	20.99	12.37	84	83.86	7.22	127	127.44	13.73
BG-9-4 0-2	06/22/10	9 U	< LOD	6.03	301	301.46	10.64	458	457.52	10.65	20 U	< LOD	13.14	92	92.37	5.67	25 J	24.74	6.21
BG-9-5 0-2	06/22/10	10 U	< LOD	6.54	486	486.06	13.1	386	385.97	10.29	20 U	< LOD	13.51	98	97.9	6.05	22 J	21.96	6.38
Mean		10			513			430			20			91			43		
BG-9 0-2 COMP	06/22/10	10 U	< LOD	6.76	466	465.68	13.18	441	440.97	11.12	15 J	14.96	9.81	90	89.71	6.05	23 J	23.11	6.5
%RPD		2%			10%			3%			29%			1%			61%		
BG-9-1 2-12	06/22/10	9 U	< LOD	6	311	311.39	10.68	382	381.5	9.86	21 U	< LOD	13.78	110	110.19	6.17	22 J	22.32	6
BG-9-2 2-12	06/22/10	9 U	< LOD	5.72	239	238.97	9.34	314	314.15	8.75	18 U	< LOD	11.92	92	92.23	5.49	19 J	19.36	5.61
BG-9-3 2-12	06/22/10	9 U	< LOD	6.23	347	347.11	11.77	530	530.03	11.91	20 U	< LOD	13.37	69	69.21	5.28	13 J	12.53	5.38
BG-9-4 2-12	06/22/10	9 U	< LOD	6.3	305	305.45	11.03	413	413.39	10.58	20 U	< LOD	13.36	96	95.98	5.97	20 J	19.68	5.98
BG-9-5 2-12	06/22/10	9 U	< LOD	6.31	410	409.52	12.36	469	468.57	11.19	22 U	< LOD	14.49	97	96.65	6.08	39	39.28	7.25
Mean		9			322			422			20			93			23		
BG-9 2-12 COMP	06/22/10	10 U	< LOD	6.37	455	455.45	12.44	396	396.09	10.13	21 U	< LOD	14.16	115	114.87	6.35	28 J	27.67	6.44
%RPD		11%			34%			6%			4%			21%			21%		
BG-9-1 12-18	06/22/10	9 U	< LOD	6.06	333	332.88	10.98	377	377.14	9.85	20 U	< LOD	13.49	104	104.18	6.04	24 J	23.63	6.15
BG-9-2 12-18	06/22/10	9 U	< LOD	6	312	311.5	10.69	393	392.93	9.98	20 U	< LOD	13.14	99	98.76	5.85	29 J	29.26	6.41
BG-9-3 12-18	06/22/10	10 U	< LOD	6.58	500	500.1	13.79	637	636.82	13.16	20 U	< LOD	13.56	72	72.25	5.42	13 J	13.17	5.55
BG-9-4 12-18	06/22/10	10 U	< LOD	6.48	461	461.2	12.78	430	430	10.72	20 U	< LOD	13.53	97	96.93	5.98	17 J	17.28	5.84
BG-9-5 12-18	06/22/10	9 U	< LOD	6.22	346	346.08	11.83	561	560.92	12.23	22 U	< LOD	14.93	110	110.05	6.42	19 J	18.9	5.96
Mean		9			390			480			20			96			20		
BG-9 12-18 COMP	06/22/10	9 U	< LOD	6.22	325	325.46	11.22	468	468.19	11.04	20 U	< LOD	13.66	101	101.43	6.03	32 J	31.67	6.65
%RPD		4%			18%			2%			2%			5%			44%		
BG-10-1 0-2	06/23/10	9 U	< LOD	5.96	302	302.48	10.4	377	377.11	9.67	19 U	< LOD	12.69	84	83.67	5.41	14 J	14.42	5.35
BG-10-2 0-2	06/23/10	10 U	< LOD	6.62	449	449.08	12.7	379	378.83	10.2	20 U	< LOD	13.4	86	86.29	5.77	22 J	21.77	6.6
BG-10-3 0-2	06/23/10	10 U	< LOD	6.67	581	581.05	13.86	427	426.92	10.58	20 U	< LOD	13.23	82	82.4	5.56	20 J	20.34	6.03
BG-10-4 0-2	06/23/10	10 U	< LOD	6.34	495	495.41	13.01	442	442.18	10.74	22 U	< LOD	14.41	116	115.98	6.43	19 J	19.47	6.02
BG-10-5 0-2	06/23/10	10 U	< LOD	6.85	523	523.14	13.96	436	436.35	11.19	24 U	< LOD	16.11	141	141.02	7.38	32 J	32.28	7.34
Mean		10			470			412			21			102			21		
BG-10 0-2 COMP	06/23/10	10 U	< LOD	6.43	426	426.39	12.28	391	390.6	10.2	20 U	< LOD	13.44	98	98.4	5.99	21 J	20.65	6.11
%RPD		2%			10%			5%			5%			4%			2%		
BG-10-1 2-12	06/23/10	9 U	< LOD	5.82	268	267.81	9.98	397	397.04	9.86	20 U	< LOD	13.57	97	97.3	5.79	17 J	17.35	5.58
BG-10-2 2-12	06/23/10	10 U	< LOD	6.58	391	391.09	12.1	354	353.79	9.97	22 U	< LOD	14.46	98	97.74	6.2	19 J	19.26	6.14
BG-10-3 2-12	06/23/10	9 U	< LOD	6.2	404	404.11	11.38	282	281.99	8.43	19 U	< LOD	12.34	80	80.41	5.31	20 J	19.99	5.7
BG-10-4 2-12	06/23/10	9 U	< LOD	6.11	312	312.01	10.84	402	402.14	10.12	21 U	< LOD	13.92	113	113.16	6.27	72	72.44	8.69
BG-10-5 2-12	06/23/10	9 U	< LOD	6.32	329	328.56	11.18	324	323.78	9.45	24 U	< LOD	15.91	142	142.17	7.24	39	38.86	7.45
Mean		9			341			352			21			106			33		
BG-10 2-12 COMP	06/23/10	9 U	< LOD	6.3	423	423.23	12.02	344	343.82	9.5	21 U	< LOD	13.85	101	100.66	6.04	20 J	19.83	5.91
%RPD		2%			22%			2%			1%			5%			50%		
BG-10-1 12-18	06/23/10	9 U	< LOD	6.09	282	282.38	10.58	435	435.08	10.63	22 U	< LOD	14.9	113	112.76	6.4	21 J	21.22	6.09
BG-10-2 12-18	06/23/10	10 U	< LOD	6.49	392	391.96	11.85	282	282.18	8.87	21 U	< LOD	13.82	96	95.78	6.06	27 J	26.95	6.52
BG-10-3 12-18	06/23/10	9 U	< LOD	5.98	338	338.29	10.68	341	341.2	9.17	16 J	15.65	8.6	75	74.6	5.2	10 J	10.16	4.92
BG-10-4 12-18	06/23/10	9 U	< LOD	6.21	374	373.53	11.72	470	469.93	11.02	21 U	< LOD	14.17	106	105.62	6.16	23 J	23.04	6.16
BG-10-5 12-18	06/23/10	9 U	< LOD	6.3	324	324.14	11.05	312	311.9	9.23	24 U	< LOD	16.06	155	155.25	7.47	42	42.47	7.65
Mean		9			342			368			21			109			25		
BG-10 12-18 COMP	06/23/10	9 U	< LOD	6.22	348	348.14	11.29	370	369.94	9.88	22 U	< LOD	14.91	115	114.73	6.48	27 J	26.54	6.46
%RPD		2%			2%			1%			6%			5%			9%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-11-1 0-2	06/27/10	9 U	< LOD	6.17	426	426.42	11.9	431	431.11	10.28	21 U	< LOD	13.8	105	105.37	6	26 J	26.16	6.52
BG-11-2 0-2	06/27/10	9 U	< LOD	6.04	297	297.23	10.4	418	418.02	10.12	20 U	< LOD	13.1	91	91.01	5.61	16 J	16.45	5.54
BG-11-3 0-2	06/27/10	9 U	< LOD	5.98	291	291.11	10.39	401	400.85	10.01	20 U	< LOD	13.58	101	101.47	5.93	19 J	19.21	5.87
BG-11-4 0-2	06/27/10	9 U	< LOD	5.71	199	199.29	8.94	379	378.71	9.55	19 U	< LOD	12.35	84	84.28	5.33	10 J	9.69	5.15
BG-11-5 0-2	06/27/10	9 U	< LOD	6.11	276	275.92	10.41	356	356.47	9.74	23 U	< LOD	15.17	147	146.71	7.16	29 J	28.66	6.73
Mean		9			298			397			21			106			20		
BG-11 0-2 COMP	06/27/10	9 U	< LOD	6.03	292	291.82	10.47	425	424.77	10.3	21 U	< LOD	13.67	105	104.67	6.01	25 J	25.06	6.19
%RPD		0%			2%			7%			2%			1%			22%		
BG-11-1 2-12	06/27/10	9 U	< LOD	6.21	347	346.79	11.24	438	438.4	10.54	23 U	< LOD	15.26	129	129.17	6.71	27 J	27.18	6.52
BG-11-2 2-12	06/27/10	9 U	< LOD	6.2	321	320.85	10.92	403	402.6	10.19	21 U	< LOD	13.81	102	101.55	6.03	23 J	22.53	6.06
BG-11-3 2-12	06/27/10	9 U	< LOD	6.2	353	352.65	11.49	429	429.42	10.64	21 U	< LOD	13.96	112	111.71	6.32	16 J	16.16	5.88
BG-11-4 2-12	06/27/10	9 U	< LOD	6.27	347	346.66	11.27	394	393.71	10.15	20 U	< LOD	13.42	91	91.05	5.77	13 J	13.4	5.41
BG-11-5 2-12	06/27/10	9 U	< LOD	5.96	160	159.67	8.98	462	461.57	10.92	21 U	< LOD	14.29	114	114.48	6.36	20 J	19.7	5.92
Mean		9			306			425			21			110			20		
BG-11 2-12 COMP	06/27/10	9 U	< LOD	6.05	299	298.78	10.73	435	435.48	10.58	21 U	< LOD	14.11	104	104.01	6.11	21 J	21.42	6.03
%RPD		0%			2%			2%			1%			5%			6%		
BG-11-1 12-18	06/27/10	9 U	< LOD	6	351	351.48	10.92	297	296.81	8.7	21 U	< LOD	13.88	114	113.86	6.26	30 J	30.06	6.54
BG-11-2 12-18	06/27/10	10 U	< LOD	6.38	329	329.46	11.31	392	392.01	10.33	23 U	< LOD	15.15	128	127.76	6.86	25 J	24.96	6.52
BG-11-3 12-18	06/27/10	10 U	< LOD	6.37	448	448.32	12.73	466	466.04	11.15	22 U	< LOD	14.42	99	99.24	6.12	25 J	24.7	6.4
BG-11-4 12-18	06/27/10	9 U	< LOD	6.02	312	312.26	10.66	393	393.43	9.97	20 U	< LOD	13.16	91	91.23	5.68	11 J	10.68	5.12
BG-11-5 12-18	06/27/10	10 U	< LOD	6.71	432	432.09	12.67	413	412.95	10.68	22 U	< LOD	14.99	124	124.46	6.81	44	43.61	7.64
Mean		10			374			392			22			111			27		
BG-11 12-18 COMP	06/27/10	10 U	< LOD	6.54	440	440.2	12.61	399	399.12	10.42	23 U	< LOD	15.35	134	133.87	7	31 J	31.49	6.94
%RPD		4%			16%			2%			6%			19%			14%		
BG-12-1 0-2	06/26/10	9 U	< LOD	6.33	323	322.82	11.26	460	460.39	11.03	21 U	< LOD	13.98	100	99.71	6.07	28 J	27.91	6.66
BG-12-2 0-2	06/26/10	9 U	< LOD	5.84	272	271.61	9.89	318	317.67	8.91	20 U	< LOD	13.21	92	91.99	5.67	17 J	17.09	5.55
BG-12-3 0-2	06/26/10	9 U	< LOD	5.93	261	260.8	9.71	327	327.37	8.99	20 U	< LOD	13.07	94	94.08	5.67	13 J	13.14	5.29
BG-12-4 0-2	06/26/10	9 U	< LOD	5.96	302	301.73	10.47	373	373.12	9.68	19 U	< LOD	12.82	87	87.35	5.54	23 J	23.21	6.22
BG-12-5 0-2	06/26/10	9 U	< LOD	5.99	277	277.21	9.88	285	284.96	8.46	20 U	< LOD	13.29	98	98.49	5.82	22 J	22	6.02
Mean		9			287			353			20			94			21		
BG-12 0-2 COMP	06/26/10	9 U	< LOD	6.22	288	287.97	10.48	381	381.15	9.94	21 U	< LOD	13.72	103	103.39	6.06	22 J	22.07	6.09
%RPD		0%			0%			8%			5%			9%			7%		
BG-12-1 2-12	06/26/10	9 U	< LOD	6.15	297	297.24	10.87	443	442.55	10.78	22 U	< LOD	14.51	100	100	6.11	33 J	32.51	6.85
BG-12-2 2-12	06/26/10	10 U	< LOD	6.48	381	380.94	11.93	358	358.21	9.97	23 U	< LOD	15.65	128	127.52	6.94	23 J	23.15	6.56
BG-12-3 2-12	06/26/10	9 U	< LOD	6.26	375	374.96	11.57	367	367.1	9.83	22 U	< LOD	14.52	113	112.62	6.38	23 J	23.21	6.22
BG-12-4 2-12	06/26/10	9 U	< LOD	5.74	247	247.45	9.57	351	350.5	9.25	20 U	< LOD	13.2	99	98.88	5.77	19 J	19.13	5.62
BG-12-5 2-12	06/26/10	9 U	< LOD	6.23	388	388.02	11.38	283	282.76	8.58	20 U	< LOD	13.61	106	105.55	6.09	14 J	13.88	5.47
Mean		9			338			360			21			109			22		
BG-12 2-12 COMP	06/26/10	9 U	< LOD	6.02	281	281.29	10.36	396	395.91	10.06	21 U	< LOD	14.01	114	114.2	6.29	19 J	19.18	5.89
%RPD		2%			18%			9%			2%			4%			16%		
BG-12-1 12-18	06/26/10	9 U	< LOD	6.25	433	433.07	12.52	505	505.29	11.48	21 U	< LOD	14.18	97	96.89	6	22 J	21.95	6.09
BG-12-2 12-18	06/26/10	9 U	< LOD	6.21	299	299.29	10.7	349	348.83	9.66	22 U	< LOD	14.62	114	114.16	6.46	24 J	23.8	6.34
BG-12-3 12-18	06/26/10	10 U	< LOD	6.37	375	375.46	11.82	406	406.33	10.46	22 U	< LOD	14.75	113	112.72	6.47	23 J	22.87	6.31
BG-12-4 12-18	06/26/10	9 U	< LOD	6.09	286	285.71	10.51	416	415.88	10.34	21 U	< LOD	14.25	109	109.19	6.23	20 J	20.05	5.93
BG-12-5 12-18	06/26/10	10 U	< LOD	6.48	394	393.72	11.79	254	254.25	8.43	21 U	< LOD	14.26	110	110.15	6.42	23 J	22.8	6.31
Mean		9			357			386			21			109			22		
BG-12 12-18 COMP	06/26/10	9 U	< LOD	6.3	357	357.34	11.53	386	385.95	10.16	22 U	< LOD	14.56	117	117.01	6.53	29 J	28.92	6.66
%RPD		4%			0%			0%			3%			7%			26%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	11 U	< LOD	7.36	547	546.76	14.84	417	416.98	11.47	24 U	< LOD	15.81	109	108.73	6.9	36 J	36.1	7.88
BG-13-2 0-2	06/22/10	10 U	< LOD	6.4	410	409.57	11.89	304	303.96	9.04	19 U	< LOD	12.8	87	86.59	5.65	17 J	16.81	5.72
BG-13-3 0-2	06/22/10	9 U	< LOD	5.94	308	307.73	10.27	320	319.78	8.89	19 U	< LOD	12.45	88	87.97	5.47	14 J	13.71	5.31
BG-13-4 0-2	06/22/10	9 U	< LOD	5.96	300	299.94	10.3	385	385.26	9.68	20 U	< LOD	13.01	99	99.22	5.76	18 J	18.06	5.6
BG-13-5 0-2	06/22/10	9 U	< LOD	5.79	327	327.07	10.5	381	380.72	9.53	19 U	< LOD	12.73	95	95.3	5.6	15 J	14.72	5.28
Mean		10			378			361			20			96			20		
BG-13 0-2 COMP	06/22/10	9 U	< LOD	6.03	308	307.53	10.47	359	359.1	9.48	19 U	< LOD	12.49	88	88.2	5.52	17 J	17.12	5.56
%RPD		6%			21%			1%			6%			8%			16%		
BG-13-1 2-12	06/22/10	10 U	< LOD	6.98	385	385.35	12.79	409	408.76	11.22	23 U	< LOD	15.43	121	121.27	7.08	29 J	28.52	7.15
BG-13-2 2-12	06/22/10	9 U	< LOD	6.14	326	325.99	10.81	301	301.14	8.92	20 U	< LOD	13.07	82	82.4	5.55	21 J	21.15	5.94
BG-13-3 2-12	06/22/10	9 U	< LOD	6.1	373	372.62	11.48	431	430.7	10.44	19 U	< LOD	12.78	79	79.29	5.36	17 J	17.02	5.61
BG-13-4 2-12	06/22/10	9 U	< LOD	5.82	168	168.38	9.06	464	463.56	10.9	20 U	< LOD	13.65	94	93.89	5.83	15 J	15.24	5.53
BG-13-5 2-12	06/22/10	9 U	< LOD	6.07	278	278.39	10.44	427	426.53	10.46	21 U	< LOD	13.83	112	112.2	6.25	21 J	21.11	5.98
Mean		9			306			406			21			98			21		
BG-13 2-12 COMP	06/22/10	9 U	< LOD	6.23	298	298.27	10.91	396	396.27	10.39	21 U	< LOD	13.68	93	93.4	5.95	18 J	17.68	5.88
%RPD		2%			3%			3%			2%			5%			13%		
BG-13-1 12-18	06/22/10	9 U	< LOD	6.22	235	235.15	10.25	422	421.88	10.8	22 U	< LOD	14.38	107	106.76	6.37	21 J	20.85	6.18
BG-13-2 12-18	06/22/10	9 U	< LOD	6.12	311	310.94	10.85	377	377.1	9.98	20 U	< LOD	13.06	89	89.35	5.72	21 J	20.7	5.98
BG-13-3 12-18	06/22/10	9 U	< LOD	6.14	278	277.55	10.6	427	427.16	10.64	18 U	< LOD	12.26	68	67.95	5.1	18 J	18.16	5.74
BG-13-4 12-18	06/22/10	8 U	< LOD	5.58	129	128.92	8.36	480	479.99	10.85	20 U	< LOD	13.51	96	96.28	5.77	24 J	23.96	5.98
BG-13-5 12-18	06/22/10	9 U	< LOD	6.02	287	286.5	10.27	340	340.05	9.32	20 U	< LOD	13.56	102	101.74	5.98	24 J	24.46	6.15
Mean		9			248			409			20			92			22		
BG-13 12-18 COMP	06/22/10	9 U	< LOD	6	247	247.48	10.05	418	418.1	10.39	20 U	< LOD	13.02	91	90.92	5.7	21 J	20.82	5.93
%RPD		2%			0%			2%			0%			2%			3%		
BG-14-1 0-2	06/23/10	10 U	< LOD	6.62	374	373.71	12.4	512	512.31	11.97	24 U	< LOD	15.76	133	133.05	7.11	72	72.23	9.26
BG-14-2 0-2	06/23/10	10 U	< LOD	6.49	378	377.99	11.85	403	403.27	10.43	21 U	< LOD	13.86	94	93.83	5.96	24 J	23.52	6.37
BG-14-3 0-2	06/23/10	9 U	< LOD	6.05	300	299.78	10.26	311	311.21	8.84	20 U	< LOD	13.23	93	92.84	5.7	22 J	22.31	6.13
BG-14-4 0-2	06/23/10	9 U	< LOD	6.14	335	335.14	10.9	350	349.53	9.47	20 U	< LOD	13.48	86	85.69	5.61	16 J	15.97	5.62
BG-14-5 0-2	06/23/10	9 U	< LOD	6.17	346	345.52	11.07	423	422.78	10.26	21 U	< LOD	13.9	118	118.3	6.31	19 J	19.38	5.97
Mean		9			347			400			21			105			31		
BG-14 0-2 COMP	06/23/10	9 U	< LOD	6.05	275	275.39	10.22	389	388.91	9.93	20 U	< LOD	13.58	109	108.72	6.11	16 J	15.65	5.65
%RPD		4%			23%			3%			6%			4%			63%		
BG-14-1 2-12	06/23/10	9 U	< LOD	6.23	255	255.17	10.74	509	509.42	11.81	23 U	< LOD	15.01	117	116.6	6.63	25 J	24.65	6.5
BG-14-2 2-12	06/23/10	10 U	< LOD	6.65	635	635.43	14.4	437	437.37	10.7	20 U	< LOD	13.46	97	97.04	5.93	31 J	30.7	6.68
BG-14-3 2-12	06/23/10	9 U	< LOD	5.86	296	296.48	10.33	386	385.99	9.75	20 U	< LOD	13.49	107	107.48	6.01	20 J	19.65	5.77
BG-14-4 2-12	06/23/10	10 U	< LOD	6.56	525	525.43	13.12	285	284.57	8.78	20 U	< LOD	13.64	105	104.81	6.17	15 J	15.21	5.71
BG-14-5 2-12	06/23/10	9 U	< LOD	5.96	316	315.83	10.68	432	431.58	10.3	21 U	< LOD	14.31	121	121.12	6.37	25 J	24.73	6.2
01/00/00		9			405			410			21			109			23		
BG-14 2-12 COMP	06/23/10	9 U	< LOD	6.04	273	273.16	10.38	454	454.38	10.71	21 U	< LOD	14.32	122	121.99	6.46	23 J	23.32	6.17
%RPD		4%			39%			10%			1%			11%			1%		
BG-14-1 12-18	06/23/10	8 U	< LOD	5.65	140	139.92	8.76	587	586.77	11.82	20 U	< LOD	13.6	96	95.54	5.71	40	39.67	6.85
BG-14-2 12-18	06/23/10	9 U	< LOD	6.33	449	448.92	12.39	420	419.91	10.41	20 U	< LOD	13.56	98	98.17	5.92	15 J	15.28	5.62
BG-14-3 12-18	06/23/10	9 U	< LOD	6.1	275	274.88	10.13	352	351.77	9.45	21 U	< LOD	13.9	114	114.38	6.27	26 J	26.28	6.27
BG-14-4 12-18	06/23/10	10 U	< LOD	6.4	452	451.78	12.44	277	277.22	8.62	16 J	15.84	9.46	97	97.34	6.06	136	136.38	11.35
BG-14-5 12-18	06/23/10	9 U	< LOD	6.31	356	356.05	11.57	437	436.86	10.74	24 U	< LOD	16.24	146	145.8	7.24	25 J	24.97	6.52
Mean		9			334			415			20			110			48		
BG-14 12-18 COMP	06/23/10	9 U	< LOD	6.14	304	303.84	10.61	358	357.56	9.62	21 U	< LOD	13.85	103	102.74	6.06	26 J	26.22	6.27
%RPD		0%			10%			15%			4%			7%			60%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Molybdenum			Zirconium			Strontium			Uranium			Rubidium			Thorium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-15-1 0-2	06/25/10	9 U	< LOD	6.05	262	261.67	9.84	313	313.06	8.92	34 J	33.8	10.01	99	98.92	6.06	22 J	21.82	5.88
BG-15-2 0-2	06/25/10	9 U	< LOD	6.07	330	329.84	10.78	380	380.28	9.71	20 U	< LOD	13.25	87	87.15	5.56	37	36.91	6.78
BG-15-3 0-2	06/25/10	9 U	< LOD	6.18	329	328.85	10.79	352	352.12	9.47	21 U	< LOD	13.68	106	105.95	6.07	17 J	17.19	5.72
BG-15-4 0-2	06/25/10	9 U	< LOD	5.93	305	305.18	10.19	314	314.48	8.76	20 U	< LOD	13.61	120	120	6.24	28 J	27.97	6.45
BG-15-5 0-2	06/25/10	8 U	< LOD	5.65	200	200.28	8.62	312	311.93	8.53	14 J	13.6	8.44	85	84.71	5.31	22 J	21.63	6.21
Mean		9			285			334			22			99			25		
BG-15 0-2 COMP	06/25/10	9 U	< LOD	5.83	255	255.08	9.69	353	352.58	9.31	20 U	< LOD	13.07	100	100.02	5.79	13 J	12.98	5.3
%RPD		2%			11%			5%			9%			1%			64%		
BG-15-1 2-12	06/25/10	9 U	< LOD	5.82	210	209.65	8.99	330	329.6	8.95	18 J	17.69	9.51	113	112.68	6.16	22 J	22.23	5.91
BG-15-2 2-12	06/25/10	9 U	< LOD	5.83	245	245.34	9.53	348	347.71	9.22	20 U	< LOD	13.32	109	109.1	6	14 J	14.06	5.35
BG-15-3 2-12	06/25/10	9 U	< LOD	6.26	396	396.06	11.67	379	379.28	9.85	20 U	< LOD	13.64	103	103.4	6.03	22 J	21.95	5.98
BG-15-4 2-12	06/25/10	9 U	< LOD	5.77	174	173.66	8.41	286	286.06	8.42	20 U	< LOD	13.29	116	116.06	6.17	23 J	23.49	5.97
BG-15-5 2-12	06/25/10	9 U	< LOD	5.95	277	277.45	10.12	399	398.6	9.9	20 U	< LOD	13.34	105	104.9	5.94	18 J	18.45	5.67
Mean		9			260			348			20			109			20		
BG-15 2-12 COMP	06/25/10	9 U	< LOD	6.06	303	303.16	10.51	371	371.29	9.69	20 U	< LOD	13.38	110	109.64	6.1	27 J	27.09	6.3
%RPD		0%			15%			6%			2%			1%			31%		
BG-15-1 12-18	06/25/10	9 U	< LOD	5.71	218	217.56	8.91	327	327.18	8.75	20 U	< LOD	13.38	107	107.4	5.87	21 J	20.72	5.66
BG-15-2 12-18	06/25/10	8 U	< LOD	5.65	228	228	9.27	386	386.27	9.53	20 U	< LOD	13.28	99	98.65	5.7	32	31.68	6.29
BG-15-3 12-18	06/25/10	9 U	< LOD	6.12	262	262.31	10.78	529	529.13	11.88	23 U	< LOD	15.36	126	125.62	6.8	43	42.79	7.5
BG-15-4 12-18	06/25/10	9 U	< LOD	5.97	256	255.95	9.78	346	345.66	9.29	21 U	< LOD	13.91	120	119.92	6.34	20 J	20	5.86
BG-15-5 12-18	06/25/10	9 U	< LOD	5.94	246	246	9.69	373	372.9	9.61	20 U	< LOD	13.33	100	100.32	5.85	18 J	18.11	5.65
Mean		9			242			392			21			110			27		
BG-15 12-18 COMP	06/25/10	9 U	< LOD	5.99	284	284.38	10.39	398	398.49	10.06	21 U	< LOD	14.09	109	108.74	6.17	25 J	25.23	6.23
%RPD		2%			16%			1%			1%			1%			7%		
BG-16-1 0-2	06/25/10	10 U	< LOD	6.73	560	560.21	13.64	333	332.52	9.49	22 U	< LOD	14.39	101	101.45	6.19	26 J	25.75	6.88
BG-16-2 0-2	06/25/10	10 U	< LOD	6.77	545	545.42	13.7	396	395.71	10.37	24 U	< LOD	16.2	144	143.73	7.27	47	46.9	8
BG-16-3 0-2	06/26/10	9 U	< LOD	5.74	226	225.56	9.13	311	310.82	8.69	21 U	< LOD	14.05	123	122.74	6.33	19 J	19.15	5.81
BG-16-4 0-2	06/26/10	9 U	< LOD	5.82	154	154.47	8.6	378	377.86	9.84	22 U	< LOD	14.48	142	142.27	6.91	22 J	21.89	6.4
BG-16-5 0-2	06/26/10	9 U	< LOD	5.73	162	161.78	8.47	357	357.2	9.38	21 U	< LOD	13.82	125	125.43	6.4	26 J	26.12	6.73
Mean		9			329			355			22			127			28		
BG-16 0-2 COMP	06/26/10	9 U	< LOD	5.85	222	221.54	9.44	352	352.1	9.47	21 U	< LOD	13.96	118	118.19	6.35	22 J	21.92	6.15
%RPD		4%			39%			1%			5%			7%			24%		
BG-16-1 2-12	06/25/10	10 U	< LOD	6.52	443	442.73	12.33	329	328.83	9.39	21 U	< LOD	13.67	103	103.11	6.13	16 J	16.47	5.78
BG-16-2 2-12	06/25/10	9 U	< LOD	5.94	191	191.11	9.2	377	377.02	9.89	22 U	< LOD	14.51	123	123.13	6.56	31 J	31.16	6.63
BG-16-3 2-12	06/26/10	9 U	< LOD	5.83	280	280.34	9.83	325	324.77	8.85	20 U	< LOD	13.48	114	113.82	6.08	11 J	11.46	5.12
BG-16-4 2-12	06/26/10	9 U	< LOD	5.98	259	258.7	10.17	406	406.21	10.18	23 U	< LOD	15.14	143	143.46	6.99	60	60.18	8.25
BG-16-5 2-12	06/26/10	9 U	< LOD	6.14	290	289.64	10.42	336	336.18	9.38	21 U	< LOD	14.17	104	103.51	6.14	25 J	24.92	6.21
Mean		9			293			355			21			117			29		
BG-16 2-12 COMP	06/26/10	9 U	< LOD	6.16	346	346.04	11.12	365	364.72	9.7	22 U	< LOD	14.44	118	117.96	6.44	23 J	22.81	6.19
%RPD		2%			17%			3%			3%			1%			22%		
BG-16-1 12-18	06/25/10	9 U	< LOD	6.13	342	342.46	10.89	297	296.98	8.78	21 U	< LOD	13.91	109	108.53	6.18	19 J	18.93	5.79
BG-16-2 12-18	06/25/10	9 U	< LOD	5.91	201	200.71	9.01	319	318.56	8.98	21 U	< LOD	13.83	127	127.43	6.5	25 J	24.58	6.16
BG-16-3 12-18	06/26/10	9 U	< LOD	5.91	266	266.03	9.79	326	326.01	8.99	21 U	< LOD	13.98	124	124.08	6.4	13 J	12.7	5.38
BG-16-4 12-18	06/26/10	9 U	< LOD	5.91	166	166.04	8.86	371	371.34	9.87	24 U	< LOD	16.05	155	154.59	7.35	27 J	27.25	6.58
BG-16-5 12-18	06/26/10	10 U	< LOD	6.8	493	493.19	13.23	392	392.01	10.37	22 U	< LOD	14.97	114	113.67	6.57	46	46.43	7.73
Mean		9			294			341			22			126			26		
BG-16 12-18 COMP	06/26/10	9 U	< LOD	5.86	242	242.22	9.55	332	332	9.11	22 U	< LOD	14.4	120	120.35	6.4	13 J	13.37	5.38
%RPD		2%			19%			3%			1%			5%			67%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-1-1 0-2	06/29/10	599	599.4	23.71	8 U	< LOD	5.18	138	138.4	20.87	15 U	< LOD	10.19	112	112.33	14.82	105 U	< LOD	69.79
BG-1-2 0-2	06/29/10	50	50.42	7.87	7 U	< LOD	4.37	38 J	37.5	7.63	14 U	< LOD	9.02	142	142.4	15.3	94 U	< LOD	62.76
BG-1-3 0-2	06/29/10	31 J	31.37	6.93	7 U	< LOD	4.43	58	58.34	7.86	15 U	< LOD	9.68	95	95.01	13.62	96 U	< LOD	63.83
BG-1-4 0-2	06/29/10	88	88.03	10.31	6 J	5.57	3.51	114	113.86	11.62	15 U	< LOD	10.3	166	166.23	17.66	109 U	< LOD	72.78
BG-1-5 0-2	06/29/10	50	49.77	9.21	8 U	< LOD	5.59	91	90.86	10.84	18 U	< LOD	12.22	89	89.45	16.86	118 U	< LOD	78.99
Mean		164			7			88			15			121			104		
BG-1 0-2 COMP	06/29/10	55	55.45	8.54	7 U	< LOD	4.55	68	67.79	9.22	10 J	10.42	6.81	104	104.11	14.6	99 U	< LOD	66.16
%RPD		99%			3%			25%			43%			15%			5%		
BG-1-1 2-12	06/29/10	81	81.21	9.77	7 U	< LOD	4.47	30 J	30.11	8.77	16 U	< LOD	10.36	61 J	61.01	12.47	105 U	< LOD	69.7
BG-1-2 2-12	06/29/10	23 J	23.13	6.16	6 U	< LOD	4.09	33	32.64	6.43	15 U	< LOD	9.98	62	62.14	11.97	104 U	< LOD	69.22
BG-1-3 2-12	06/29/10	26 J	25.7	6.75	7 U	< LOD	4.54	12 U	< LOD	8.32	15 U	< LOD	10.13	38 J	38.37	11.44	103 U	< LOD	68.51
BG-1-4 2-12	06/29/10	31 J	30.76	7.62	7 U	< LOD	4.8	41	41.16	7.92	16 U	< LOD	10.91	63 J	62.64	14.06	114 U	< LOD	75.87
BG-1-5 2-12	06/29/10	37 J	36.79	8.32	8 U	< LOD	5.11	46	46.34	8.73	18 U	< LOD	11.89	54 J	53.64	14.82	120 U	< LOD	80.3
Mean		40			7			32			16			56			109		
BG-1 2-12 COMP	06/29/10	21 J	20.8	8.19	9 U	< LOD	5.86	37 J	37.44	7.5	16 U	< LOD	10.44	51 J	50.51	12.54	105 U	< LOD	69.92
%RPD		61%			25%			13%			0%			9%			4%		
BG-1-1 12-18	06/29/10	52	51.8	8.19	7 U	< LOD	4.47	19 J	19.28	7.23	15 U	< LOD	10.04	51 J	50.56	11.73	98 U	< LOD	65.16
BG-1-2 12-18	06/29/10	22 J	21.57	6.27	6 U	< LOD	4.3	12 U	< LOD	7.73	15 U	< LOD	9.89	70	69.84	13.03	103 U	< LOD	68.76
BG-1-3 12-18	06/29/10	17 J	17.26	6.16	7 U	< LOD	4.59	11 U	< LOD	7.61	15 U	< LOD	9.94	22 J	22.14	10.37	106 U	< LOD	70.41
BG-1-4 12-18	06/29/10	26 J	26.3	6.92	7 U	< LOD	4.58	18 J	17.59	6.26	15 U	< LOD	10.18	58 J	58.02	12.6	106 U	< LOD	70.94
BG-1-5 12-18	06/29/10	15 J	14.61	5.52	6 U	< LOD	3.91	11 U	< LOD	7.01	14 U	< LOD	9.06	14 J	13.7	8.47	92 U	< LOD	61.64
Mean		26			7			14			15			43			101		
BG-1 12-18 COMP	06/29/10	22 J	22.06	6.27	7 U	< LOD	4.4	9 J	8.7	5.34	15 U	< LOD	9.79	39 J	39.42	10.91	104 U	< LOD	69.18
%RPD		18%			6%			45%			1%			10%			3%		
BG-2-1 0-2	06/30/10	31 J	31.04	6.87	6 U	< LOD	4.17	77	77.22	8.53	15 U	< LOD	9.81	96	95.69	13.73	100 U	< LOD	66.42
BG-2-2 0-2	06/30/10	27 J	26.94	6.45	7 U	< LOD	4.36	81	80.97	8.33	15 U	< LOD	9.69	84	84.15	12.74	96 U	< LOD	64.07
BG-2-3 0-2	06/30/10	66	66.13	8.91	7 U	< LOD	4.57	84	84	9.87	15 U	< LOD	10.25	101	101.36	14.21	106 U	< LOD	70.59
BG-2-4 0-2	06/30/10	34 J	33.52	6.9	6 U	< LOD	4.18	79	79.47	8.46	13 U	< LOD	8.79	103	102.53	13.43	89 U	< LOD	59.49
BG-2-5 0-2	06/30/10	49	49.2	7.77	7 U	< LOD	4.45	38 J	37.88	7.58	14 U	< LOD	9.51	149	148.98	15.78	97 U	< LOD	64.77
Mean		41			7			72			14			107			98		
BG-2 0-2 COMP	06/30/10	26 J	25.65	6.39	6 U	< LOD	4.23	50	50.03	7.22	15 U	< LOD	9.84	80	80.17	12.75	99 U	< LOD	66.18
%RPD		46%			10%			36%			4%			29%			1%		
BG-2-1 2-12	06/30/10	27 J	26.54	6.83	7 U	< LOD	4.72	18 J	18.34	6.22	15 U	< LOD	10.28	54 J	53.67	12.06	101 U	< LOD	67.44
BG-2-2 2-12	06/30/10	24 J	24.06	6.27	6 U	< LOD	3.96	11 J	11.02	5.47	15 U	< LOD	9.77	61	60.77	11.82	99 U	< LOD	66.13
BG-2-3 2-12	06/30/10	31 J	30.98	6.84	7 U	< LOD	4.65	42	42.28	7.21	15 U	< LOD	9.78	69	68.9	12.53	99 U	< LOD	66.09
BG-2-4 2-12	06/30/10	20 J	20.05	6.08	6 U	< LOD	4.06	15 J	14.98	5.53	14 U	< LOD	9.36	83	83.4	13.16	99 U	< LOD	66.29
BG-2-5 2-12	06/30/10	15 J	14.85	5.69	6 U	< LOD	4.3	17 J	17.43	5.39	14 U	< LOD	9.63	82	81.89	13.32	100 U	< LOD	66.4
Mean		23			6			21			15			70			100		
BG-2 2-12 COMP	06/30/10	17 J	17.33	5.8	6 U	< LOD	4.28	16 J	15.6	5.37	14 U	< LOD	9.66	55 J	55.22	11.66	102 U	< LOD	68.04
%RPD		32%			6%			25%			4%			24%			2%		
BG-2-1 12-18	06/30/10	24 J	23.74	6.27	6 U	< LOD	4.16	12 U	< LOD	7.74	14 U	< LOD	9.14	58 J	57.76	11.9	103 U	< LOD	68.54
BG-2-2 12-18	06/30/10	14 J	14.03	5.66	6 U	< LOD	4.17	11 U	< LOD	7.06	15 U	< LOD	9.76	49 J	49.19	11.13	96 U	< LOD	63.89
BG-2-3 12-18	06/30/10	19 J	18.85	6	6 U	< LOD	4.2	13 J	13.49	5.42	14 U	< LOD	9.55	52 J	52.22	11.76	100 U	< LOD	66.39
BG-2-4 12-18	06/30/10	21 J	21.28	6.51	7 U	< LOD	4.77	12 U	< LOD	8.05	16 U	< LOD	10.39	42 J	41.98	11.64	109 U	< LOD	72.35
BG-2-5 12-18	06/30/10	14 J	14.27	5.56	6 U	< LOD	4.08	10 J	9.7	4.89	14 U	< LOD	9.17	76	76.43	12.79	96 U	< LOD	64.13
Mean		18			6			12			15			55			101		
BG-2 12-18 COMP	06/30/10	17 J	16.79	5.9	6 U	< LOD	4.13	10 J	9.73	5.13	14 U	< LOD	9.33	48 J	47.8	11.56	100 U	< LOD	66.43
%RPD		8%			3%			15%			4%			14%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-3-1 0-2	06/29/10	46	46.05	7.82	6 U	< LOD	4.31	19 J	19.4	6.95	15 U	< LOD	9.85	96	96.19	13.97	100 U	< LOD	66.81
BG-3-2 0-2	06/29/10	29 J	28.96	6.67	6 U	< LOD	4.24	76	75.96	8.3	14 U	< LOD	9.16	127	127.22	14.84	96 U	< LOD	64.05
BG-3-3 0-2	06/29/10	42	41.64	8.13	7 U	< LOD	4.46	28 J	27.89	7.26	15 U	< LOD	9.99	107	107.02	14.14	101 U	< LOD	67.09
BG-3-4 0-2	06/29/10	46	45.63	7.73	6 U	< LOD	4.24	68	67.79	8.69	15 U	< LOD	9.94	95	94.9	13.81	103 U	< LOD	68.88
BG-3-5 0-2	06/29/10	33 J	32.53	6.93	7 U	< LOD	4.36	86	85.5	8.76	15 U	< LOD	9.72	113	113	14.4	102 U	< LOD	67.81
Mean		39			6			55			15			108			100		
BG-3 0-2 COMP	06/29/10	30 J	30.02	6.93	7 U	< LOD	4.73	34 J	34.46	6.97	14 U	< LOD	9.6	92	91.85	13.7	100 U	< LOD	66.67
%RPD		27%			9%			48%			6%			16%			0%		
BG-3-1 2-12	06/29/10	24 J	23.92	6.72	7 U	< LOD	4.59	16 J	15.75	6.03	15 U	< LOD	10.33	86	85.79	14.18	110 U	< LOD	73.24
BG-3-2 2-12	06/29/10	28 J	27.87	6.58	6 U	< LOD	4.08	11 J	11.33	5.68	14 U	< LOD	9.27	48 J	48.16	10.79	96 U	< LOD	64.09
BG-3-3 2-12	06/29/10	17 J	16.83	6.06	7 U	< LOD	4.62	12 J	11.53	5.29	14 U	< LOD	9.59	62 J	61.89	12.43	106 U	< LOD	70.62
BG-3-4 2-12	06/29/10	15 J	15.2	5.88	6 U	< LOD	4.31	10 J	10.32	5.16	15 U	< LOD	10.18	30 J	29.71	10.62	103 U	< LOD	68.91
BG-3-5 2-12	06/29/10	19 J	19.3	6.27	7 U	< LOD	4.62	21 J	21.33	5.97	15 U	< LOD	10.04	70	69.85	12.95	108 U	< LOD	72.27
Mean		21			7			14			15			59			105		
BG-3 2-12 COMP	06/29/10	25 J	25.44	6.6	6 U	< LOD	4.21	12 J	12.24	5.77	15 U	< LOD	9.96	50 J	49.92	11.61	99 U	< LOD	66.12
%RPD		19%			10%			15%			3%			17%			6%		
BG-3-1 12-18	06/29/10	12 J	12.1	6	5 J	5.43	3.36	11 U	< LOD	7.22	14 U	< LOD	9.64	76	76.03	13.42	101 U	< LOD	67.32
BG-3-2 12-18	06/29/10	26 J	26.23	6.55	7 U	< LOD	4.34	12 U	< LOD	8.16	10 J	9.5	6.08	66	65.88	11.75	88 U	< LOD	58.86
BG-3-3 12-18	06/29/10	19 J	18.92	6.21	7 U	< LOD	4.61	11 U	< LOD	7.54	15 U	< LOD	9.7	61 J	60.75	12.21	95 U	< LOD	63.54
BG-3-4 12-18	06/29/10	22 J	21.51	6.21	6 U	< LOD	3.8	12 U	< LOD	7.77	14 U	< LOD	9.31	41 J	40.97	10.84	96 U	< LOD	64.27
BG-3-5 12-18	06/29/10	10 J	10.48	5.35	6 U	< LOD	4.27	10 U	< LOD	6.62	14 U	< LOD	9.32	50 J	49.56	10.91	94 U	< LOD	62.53
Mean		18			6			11			13			59			95		
BG-3 12-18 COMP	06/29/10	13 J	12.97	5.82	7 U	< LOD	4.48	8 J	8.06	4.93	14 U	< LOD	9.48	56 J	55.91	12.26	105 U	< LOD	70.18
%RPD		31%			12%			33%			4%			5%			10%		
BG-4-1 0-2	06/28/10	105	105.01	10.85	7 U	< LOD	4.51	163	162.66	12.83	15 U	< LOD	9.83	166	165.76	17.09	100 U	< LOD	66.63
BG-4-2 0-2	06/28/10	40	39.54	7.19	6 U	< LOD	3.94	45	45.2	7.52	14 U	< LOD	9.53	88	87.74	13.13	102 U	< LOD	67.88
BG-4-3 0-2	06/28/10	27 J	26.7	6.45	6 U	< LOD	4.18	56	55.56	7.45	14 U	< LOD	9.25	96	95.77	13.39	96 U	< LOD	64.08
BG-4-4 0-2	06/28/10	67	67.02	9.11	7 U	< LOD	4.51	74	74.12	9.69	15 U	< LOD	9.75	175	174.92	17.45	99 U	< LOD	66.29
BG-4-5 0-2	06/28/10	41	41.48	7.11	6 U	< LOD	4.1	54	54.12	7.63	13 U	< LOD	8.73	162	162.28	15.52	95 U	< LOD	63.37
Mean		56			6			78			14			137			98		
BG-4 0-2 COMP	06/28/10	45	45.38	7.79	6 U	< LOD	4.15	99	99.06	9.64	14 U	< LOD	9.47	122	122.32	14.98	99 U	< LOD	66.25
%RPD		22%			6%			23%			1%			12%			1%		
BG-4-1 2-12	06/28/10	15 J	14.94	6.28	7 U	< LOD	4.67	24 J	23.94	6.11	16 U	< LOD	10.34	46 J	46.19	12.43	107 U	< LOD	71.62
BG-4-2 2-12	06/28/10	38	38.13	7.32	6 U	< LOD	4.2	63	63.18	8.24	14 U	< LOD	9.62	76	76.08	12.85	104 U	< LOD	69.01
BG-4-3 2-12	06/28/10	17 J	16.84	5.76	6 U	< LOD	3.87	16 J	16.04	5.34	14 U	< LOD	9.33	62	61.68	11.74	94 U	< LOD	62.42
BG-4-4 2-12	06/28/10	24 J	23.61	6.72	7 U	< LOD	4.67	28 J	27.81	6.6	15 U	< LOD	9.91	68	67.5	12.94	103 U	< LOD	68.99
BG-4-5 2-12	06/28/10	17 J	16.77	5.72	6 U	< LOD	4.2	37	37.03	6.23	14 U	< LOD	9.38	64	63.79	11.55	99 U	< LOD	65.9
Mean		22			6			34			15			63			101		
BG-4 2-12 COMP	06/28/10	24 J	23.97	6.49	7 U	< LOD	4.64	28 J	28.47	6.42	14 U	< LOD	9.55	63	63.41	12.2	102 U	< LOD	67.73
%RPD		8%			9%			18%			4%			0%			1%		
BG-4-1 12-18	06/28/10	21 J	20.53	6.43	7 U	< LOD	4.57	23 J	23.07	6.13	15 U	< LOD	9.79	41 J	41.41	11.46	101 U	< LOD	67.61
BG-4-2 12-18	06/28/10	25 J	24.57	6.24	6 U	< LOD	4.11	16 J	15.58	5.64	14 U	< LOD	9.04	60	59.85	11.62	100 U	< LOD	66.46
BG-4-3 12-18	06/28/10	26 J	25.68	6.67	7 U	< LOD	4.45	12 U	< LOD	8.13	15 U	< LOD	10.02	54 J	54.09	11.98	104 U	< LOD	69.42
BG-4-4 12-18	06/28/10	15 J	15.05	6.37	7 U	< LOD	4.95	8 J	8.37	5.37	16 U	< LOD	10.51	50 J	50.18	12.87	112 U	< LOD	74.49
BG-4-5 12-18	06/28/10	17 J	17.15	5.61	6 U	< LOD	3.9	10 U	< LOD	6.93	14 U	< LOD	9.21	53 J	52.67	10.79	92 U	< LOD	61.6
Mean		21			7			14			15			52			102		
BG-4 12-18 COMP	06/28/10	21 J	21.47	6.37	6 U	< LOD	4.32	12 U	< LOD	7.78	14 U	< LOD	9.65	63	63.3	12.54	104 U	< LOD	69.03
%RPD		1%			10%			14%			6%			20%			2%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-5-1 0-2	06/22/10	20 J	20.12	6.07	6 U	< LOD	4.01	54	54.35	7.23	14 U	< LOD	9.61	89	89.06	13.36	101 U	< LOD	67.46
BG-5-2 0-2	06/22/10	28 J	27.95	6.3	6 U	< LOD	3.72	60	59.64	7.42	9 J	9.47	6.09	80	79.63	11.97	89 U	< LOD	59.07
BG-5-3 0-2	06/22/10	52	51.55	7.95	6 U	< LOD	4.17	40	39.6	7.79	14 U	< LOD	9.25	95	95.12	13.33	95 U	< LOD	63.28
BG-5-4 0-2	06/22/10	20 J	20.41	6.05	6 U	< LOD	4.07	32	32.24	6.3	14 U	< LOD	9.19	91	91.43	13.24	95 U	< LOD	63.51
BG-5-5 0-2	06/22/10	46	46.22	7.52	6 U	< LOD	3.82	72	71.59	8.54	14 U	< LOD	9.33	108	108.12	13.73	94 U	< LOD	62.72
Mean		33			6			52			13			93			95		
BG-5 0-2 COMP	06/22/10	16 J	16.32	5.81	7 U	< LOD	4.45	33	32.64	6.16	14 U	< LOD	9.59	67	66.66	12.01	98 U	< LOD	65.43
%RPD		70%			15%			44%			7%			32%			3%		
BG-5-1 2-12	06/22/10	9 J	8.9	5.39	7 U	< LOD	4.47	7 J	7.25	4.5	14 U	< LOD	9.52	46 J	45.73	11.11	100 U	< LOD	66.79
BG-5-2 2-12	06/22/10	14 J	13.88	5.45	6 U	< LOD	3.79	10 U	< LOD	6.83	13 U	< LOD	8.67	35 J	34.54	9.62	90 U	< LOD	60.11
BG-5-3 2-12	06/22/10	13 J	13.34	5.54	6 U	< LOD	4.1	30	29.81	5.92	14 U	< LOD	9.15	54 J	53.76	11.59	98 U	< LOD	65.64
BG-5-4 2-12	06/22/10	18 J	17.8	6.13	7 U	< LOD	4.55	12 J	12.08	5.4	15 U	< LOD	10.05	41 J	40.78	11.16	102 U	< LOD	67.75
BG-5-5 2-12	06/22/10	23 J	23.46	6.48	7 U	< LOD	4.52	12 U	< LOD	7.89	14 U	< LOD	9.38	76	75.97	12.9	98 U	< LOD	65.53
Mean		15			7			14			14			50			98		
BG-5 2-12 COMP	06/22/10	18 J	17.87	6	7 U	< LOD	4.36	10 J	10.2	5.24	15 U	< LOD	10.03	61 J	60.74	12.2	101 U	< LOD	67.35
%RPD		16%			6%			35%			7%			19%			3%		
BG-5-1 12-18	06/22/10	15 J	14.91	6.17	7 U	< LOD	4.53	11 U	< LOD	7.34	14 U	< LOD	9.56	56 J	55.66	11.74	95 U	< LOD	63.06
BG-5-2 12-18	06/22/10	16 J	16.44	5.63	6 U	< LOD	3.83	10 U	< LOD	6.58	13 U	< LOD	8.65	30 J	29.85	9.07	88 U	< LOD	58.62
BG-5-3 12-18	06/22/10	20 J	20.15	6.09	6 U	< LOD	4.03	9 J	9.44	5.26	15 U	< LOD	9.73	57 J	56.63	11.85	101 U	< LOD	67.22
BG-5-4 12-18	06/22/10	18 J	18.13	5.9	6 U	< LOD	4.09	12 J	11.8	5.24	14 U	< LOD	9.49	46 J	45.74	11.22	102 U	< LOD	68.27
BG-5-5 12-18	06/22/10	18 J	17.79	6.27	7 U	< LOD	4.41	11 U	< LOD	7.66	16 U	< LOD	10.76	55 J	54.5	13.35	110 U	< LOD	73.54
Mean		17			6			11			14			49			99		
BG-5 12-18 COMP	06/22/10	19 J	18.76	6	6 U	< LOD	4.02	11 U	< LOD	7.13	15 U	< LOD	9.69	44 J	44.06	11.42	101 U	< LOD	67.12
%RPD		9%			6%			4%			4%			10%			2%		
BG-6-1 0-2	06/28/10	21 J	20.79	6.05	6 U	< LOD	4.1	50	50.44	7	13 U	< LOD	8.88	92	92.37	12.94	90 U	< LOD	60.28
BG-6-2 0-2	06/28/10	27 J	26.69	7.62	8 U	< LOD	5.34	50	50.32	8.27	17 U	< LOD	11.3	45 J	45.38	13.68	123 U	< LOD	81.84
BG-6-3 0-2	06/28/10	33 J	32.6	7.37	7 U	< LOD	4.63	51	50.67	8.03	16 U	< LOD	10.39	70	69.69	13.31	101 U	< LOD	67.42
BG-6-4 0-2	06/28/10	55	54.53	8.02	6 U	< LOD	4.04	89	89.1	9.4	14 U	< LOD	9.58	114	113.58	14.19	99 U	< LOD	65.88
BG-6-5 0-2	06/28/10	78	77.56	9.16	6 U	< LOD	4.27	94	93.96	10.12	14 U	< LOD	9.12	128	128.02	14.74	97 U	< LOD	64.82
Mean		43			7			67			15			90			102		
BG-6 0-2 COMP	06/28/10	30 J	30.26	6.67	6 U	< LOD	4.1	35	35.15	6.86	15 U	< LOD	9.77	65	64.57	12.09	101 U	< LOD	67.15
%RPD		35%			10%			62%			1%			32%			1%		
BG-6-1 2-12	06/28/10	17 J	16.99	5.74	6 U	< LOD	4.01	9 J	9.04	4.96	14 U	< LOD	9.49	63	63.45	11.62	92 U	< LOD	61.48
BG-6-2 2-12	06/28/10	29 J	28.59	6.65	7 U	< LOD	4.35	16 J	16.09	5.95	14 U	< LOD	9.54	29 J	28.97	9.9	96 U	< LOD	64.31
BG-6-3 2-12	06/28/10	23 J	23	6.56	7 U	< LOD	4.34	11 J	10.73	5.7	15 U	< LOD	10.02	46 J	46.36	11.86	102 U	< LOD	67.81
BG-6-4 2-12	06/28/10	30 J	30.08	6.78	6 U	< LOD	4.16	13 U	< LOD	8.49	14 U	< LOD	9.21	46 J	45.54	10.87	99 U	< LOD	66.2
BG-6-5 2-12	06/28/10	20 J	19.65	6.18	7 U	< LOD	4.43	19 J	19.38	5.8	14 U	< LOD	9.66	58 J	57.79	11.9	99 U	< LOD	65.84
Mean		24			7			14			14			48			98		
BG-6 2-12 COMP	06/28/10	20 J	19.89	6.2	7 U	< LOD	4.42	20 J	20.26	5.86	15 U	< LOD	9.96	58 J	58.28	11.81	100 U	< LOD	66.49
%RPD		17%			6%			38%			5%			18%			2%		
BG-6-1 12-18	06/28/10	20 J	19.9	6.22	7 U	< LOD	4.56	8 J	8.32	5.25	15 U	< LOD	9.85	59 J	58.96	11.95	97 U	< LOD	64.73
BG-6-2 12-18	06/28/10	23 J	22.89	6.88	7 U	< LOD	4.91	13 U	< LOD	8.55	16 U	< LOD	10.4	21 U	< LOD	13.96	105 U	< LOD	70.27
BG-6-3 12-18	06/28/10	22 J	22.21	6.34	6 U	< LOD	4.05	14 J	13.71	5.67	15 U	< LOD	10.08	43 J	42.73	11.25	103 U	< LOD	68.75
BG-6-4 12-18	06/28/10	12 J	11.54	5.59	6 U	< LOD	4.32	9 J	8.67	4.81	14 U	< LOD	9.25	46 J	45.93	10.87	95 U	< LOD	63.42
BG-6-5 12-18	06/28/10	15 J	14.79	5.8	6 U	< LOD	4.04	7 J	7.41	4.92	15 U	< LOD	10	52 J	52.16	11.72	106 U	< LOD	70.43
Mean		18			6			10			15			44			101		
BG-6 12-18 COMP	06/28/10	21 J	20.88	6.22	6 U	< LOD	4.08	12 U	< LOD	7.8	14 U	< LOD	9.25	43 J	43.03	10.73	93 U	< LOD	62.14
%RPD		13%			6%			16%			7%			3%			8%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	34 J	33.88	8.75	9 U	< LOD	6.11	74	74.42	10.4	21 U	< LOD	13.81	49 J	49.45	16.99	146 U	< LOD	97.2
BG-7-2 0-2	06/27/10	28 J	28.15	6.71	7 U	< LOD	4.52	49	49.05	7.38	15 U	< LOD	9.68	81	81.49	12.91	95 U	< LOD	63.45
BG-7-3 0-2	06/27/10	31 J	31.43	7.02	6 U	< LOD	4.09	49	49.04	7.6	14 U	< LOD	9.48	76	76.36	12.91	99 U	< LOD	66.17
BG-7-4 0-2	06/27/10	33 J	32.75	7.08	6 U	< LOD	4.27	37	36.68	7.05	14 U	< LOD	9.41	92	91.87	13.2	95 U	< LOD	63.54
BG-7-5 0-2	06/27/10	41	41.44	8	7 U	< LOD	4.64	69	68.94	9.04	16 U	< LOD	10.48	95	94.88	14.83	110 U	< LOD	73.26
Mean		33			7			56			16			79			109		
BG-7 0-2 COMP	06/27/10	25 J	24.73	7.06	7 U	< LOD	4.98	38	38.1	7.41	16 U	< LOD	10.52	56 J	56.41	13.3	106 U	< LOD	70.55
%RPD		29%			0%			38%			0%			34%			3%		
BG-7-1 2-12	06/27/10	34 J	33.92	8.1	8 U	< LOD	5.29	47	46.58	8.64	19 U	< LOD	12.6	47 J	47.31	14.76	129 U	< LOD	86.04
BG-7-2 2-12	06/27/10	17 J	16.8	6.15	7 U	< LOD	4.43	12 U	< LOD	7.76	16 U	< LOD	10.49	39 J	39.21	11.5	109 U	< LOD	72.53
BG-7-3 2-12	06/27/10	22 J	22.42	6.43	7 U	< LOD	4.39	12 U	< LOD	7.83	15 U	< LOD	9.91	43 J	42.85	11.09	105 U	< LOD	69.8
BG-7-4 2-12	06/27/10	23 J	22.66	6.33	7 U	< LOD	4.45	12 J	12.1	5.52	15 U	< LOD	9.71	74	73.5	12.64	102 U	< LOD	68.01
BG-7-5 2-12	06/27/10	22 J	21.72	6.44	6 U	< LOD	4.32	8 J	8.2	5.42	15 U	< LOD	9.77	57 J	57.18	12.17	102 U	< LOD	68.04
Mean		24			7			18			16			52			109		
BG-7 2-12 COMP	06/27/10	22 J	22.02	6.38	6 U	< LOD	4.33	11 J	10.57	5.52	15 U	< LOD	9.75	44 J	43.71	11.33	103 U	< LOD	68.43
%RPD		7%			15%			49%			6%			17%			6%		
BG-7-1 12-18	06/27/10	40 J	39.94	11.71	13 U	< LOD	8.72	21 U	< LOD	14.31	30 U	< LOD	20.02	45 U	< LOD	29.86	207 U	< LOD	138.06
BG-7-2 12-18	06/27/10	28 J	28.49	8.18	8 U	< LOD	5.24	14 U	< LOD	9.24	15 U	< LOD	9.9	44 J	44.09	11.68	103 U	< LOD	68.71
BG-7-3 12-18	06/27/10	25 J	25.2	6.61	6 U	< LOD	4.2	12 U	< LOD	8.25	15 U	< LOD	9.86	43 J	43.06	11.3	101 U	< LOD	67.57
BG-7-4 12-18	06/27/10	21 J	20.81	6.23	6 U	< LOD	4.25	12 U	< LOD	7.85	14 U	< LOD	9.5	72	71.88	12.47	100 U	< LOD	66.76
BG-7-5 12-18	06/27/10	16 J	16.24	5.83	7 U	< LOD	4.34	10 J	10.12	5.07	14 U	< LOD	9.28	62	62.13	11.91	95 U	< LOD	63.28
Mean		26			8			14			18			53			121		
BG-7 12-18 COMP	06/27/10	22 J	21.73	6.86	8 U	< LOD	5.02	13 U	< LOD	8.63	17 U	< LOD	11.16	64 J	63.98	13.89	117 U	< LOD	78.04
%RPD		17%			0%			6%			3%			18%			4%		
BG-8-1 0-2	06/26/10	60	59.71	8.33	7 U	< LOD	4.42	75	75.14	9.12	13 U	< LOD	8.86	146	145.8	15.39	93 U	< LOD	61.71
BG-8-2 0-2	06/26/10	16 J	15.96	5.93	7 U	< LOD	4.68	54	54.19	7.3	15 U	< LOD	10.1	79	79.07	13.41	105 U	< LOD	70.13
BG-8-3 0-2	06/26/10	22 J	22.31	6.04	6 U	< LOD	4.16	81	80.96	8.04	13 U	< LOD	8.88	99	98.89	13.11	91 U	< LOD	60.62
BG-8-4 0-2	06/26/10	24 J	23.6	6.35	6 U	< LOD	4.13	84	84.24	8.47	14 U	< LOD	9.54	111	111.2	14.39	103 U	< LOD	68.57
BG-8-5 0-2	06/26/10	64	64.09	8.92	7 U	< LOD	4.41	85	84.72	9.91	14 U	< LOD	9.56	126	125.75	15.41	99 U	< LOD	65.74
Mean		37			7			76			14			112			98		
BG-8 0-2 COMP	06/26/10	38	37.83	7.28	6 U	< LOD	4.33	68	67.98	8.39	14 U	< LOD	9.52	83	82.57	13.05	100 U	< LOD	66.69
%RPD		2%			10%			11%			1%			30%			2%		
BG-8-1 2-12	06/26/10	18 J	17.65	5.75	6 U	< LOD	4.18	20 J	19.97	5.51	13 U	< LOD	8.84	53 J	53.18	10.96	92 U	< LOD	61.55
BG-8-2 2-12	06/26/10	17 J	16.74	6	7 U	< LOD	4.39	49	49.46	7.17	11 J	11.1	6.99	68	67.89	12.87	101 U	< LOD	67.18
BG-8-3 2-12	06/26/10	21 J	21.17	6.2	6 U	< LOD	4.14	12 U	< LOD	7.69	14 U	< LOD	9.58	66	66.49	12.36	99 U	< LOD	66.28
BG-8-4 2-12	06/26/10	25 J	24.81	6.42	7 U	< LOD	4.37	19 J	18.56	5.93	15 U	< LOD	9.74	52 J	51.68	11.38	101 U	< LOD	67.44
BG-8-5 2-12	06/26/10	17 J	16.69	5.98	6 U	< LOD	4.33	45	45.13	6.89	15 U	< LOD	9.76	51 J	51.16	11.74	103 U	< LOD	68.4
Mean		20			6			29			14			58			99		
BG-8 2-12 COMP	06/26/10	18 J	18.26	6.12	7 U	< LOD	4.41	27 J	27.43	6.17	14 U	< LOD	9.4	53 J	52.92	11.7	99 U	< LOD	66.05
%RPD		9%			9%			7%			3%			9%			0%		
BG-8-1 12-18	06/26/10	23 J	22.96	6.15	6 U	< LOD	4.24	36	36.08	6.5	14 U	< LOD	9.29	78	78.42	12.48	99 U	< LOD	66.23
BG-8-2 12-18	06/26/10	17 J	17.13	6.31	7 U	< LOD	4.41	11 U	< LOD	7.62	14 U	< LOD	9.58	72	71.9	13.41	103 U	< LOD	68.79
BG-8-3 12-18	06/26/10	24 J	23.85	6.55	7 U	< LOD	4.6	12 U	< LOD	7.76	14 U	< LOD	9.54	45 J	45.28	11.04	97 U	< LOD	64.79
BG-8-4 12-18	06/26/10	24 J	23.52	6.47	6 U	< LOD	4.24	12 U	< LOD	7.98	15 U	< LOD	9.99	50 J	49.61	11.56	104 U	< LOD	69.3
BG-8-5 12-18	06/26/10	24 J	23.63	6.44	7 U	< LOD	4.45	10 J	9.87	5.51	14 U	< LOD	9.16	64	63.63	12.21	97 U	< LOD	64.82
Mean		22			7			16			14			62			100		
BG-8 12-18 COMP	06/26/10	26 J	26.15	6.63	6 U	< LOD	4.21	12 U	< LOD	8.13	15 U	< LOD	10.05	53 J	52.91	11.94	104 U	< LOD	69.29
%RPD		15%			10%			30%			5%			15%			4%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-9-1 0-2	06/22/10	50	50.47	7.84	6 U	< LOD	4.26	82	82.39	9.09	15 U	< LOD	9.87	90	90.36	13.06	99 U	< LOD	66.06
BG-9-2 0-2	06/22/10	27 J	27.48	6.45	6 U	< LOD	4.15	38	37.53	6.7	14 U	< LOD	9.05	75	75.36	12.11	96 U	< LOD	64.02
BG-9-3 0-2	06/22/10	25 J	24.85	9.29	11 U	< LOD	7.14	21 J	20.65	8.1	22 U	< LOD	14.9	38 J	37.77	17.41	147 U	< LOD	98.23
BG-9-4 0-2	06/22/10	39	38.66	7.27	7 U	< LOD	4.44	55	54.93	7.86	13 U	< LOD	8.96	81	80.61	12.62	98 U	< LOD	65.19
BG-9-5 0-2	06/22/10	42	41.87	7.82	7 U	< LOD	4.83	58	58.06	8.49	16 U	< LOD	10.5	89	88.66	14.3	109 U	< LOD	72.86
Mean		37			7			51			16			75			110		
BG-9 0-2 COMP	06/22/10	38	38.02	7.6	6 U	< LOD	4.32	63	62.72	8.61	15 U	< LOD	10.23	69	69.19	13.44	112 U	< LOD	74.54
%RPD		4%			21%			21%			6%			8%			2%		
BG-9-1 2-12	06/22/10	13 J	13.25	5.64	6 U	< LOD	4.33	13 J	13.35	5.08	14 U	< LOD	9.19	63	63.19	11.72	91 U	< LOD	60.39
BG-9-2 2-12	06/22/10	21 J	20.66	5.9	6 U	< LOD	3.99	11 U	< LOD	7.12	14 U	< LOD	9.01	62	62.05	11.49	96 U	< LOD	64.33
BG-9-3 2-12	06/22/10	16 J	16.05	5.88	6 U	< LOD	4.3	11 U	< LOD	7.19	15 U	< LOD	10.33	59 J	58.91	12.52	101 U	< LOD	67.49
BG-9-4 2-12	06/22/10	15 J	14.7	5.8	6 U	< LOD	4.26	10 J	10.37	5.12	15 U	< LOD	10.1	58 J	58.45	12.6	109 U	< LOD	72.82
BG-9-5 2-12	06/22/10	21 J	21.44	6.55	7 U	< LOD	4.62	14 J	13.51	5.73	15 U	< LOD	10.04	59 J	59.02	12.46	101 U	< LOD	67.6
Mean		17			6			12			15			60			100		
BG-9 2-12 COMP	06/22/10	16 J	15.56	5.85	6 U	< LOD	3.87	11 J	10.65	5.1	14 U	< LOD	9.19	68	68.07	12.2	92 U	< LOD	61
%RPD		7%			3%			7%			4%			12%			8%		
BG-9-1 12-18	06/22/10	21 J	21.49	6.24	7 U	< LOD	4.42	9 J	9.36	5.32	14 U	< LOD	9.42	51 J	50.65	11.34	103 U	< LOD	68.4
BG-9-2 12-18	06/22/10	19 J	19.07	6.01	6 U	< LOD	3.89	8 J	8.37	5.09	14 U	< LOD	9.17	46 J	46.21	10.84	95 U	< LOD	63.28
BG-9-3 12-18	06/22/10	16 J	16.3	5.98	6 U	< LOD	4.3	10 U	< LOD	6.98	15 U	< LOD	10.2	48 J	47.65	11.97	105 U	< LOD	69.7
BG-9-4 12-18	06/22/10	21 J	20.68	6.26	6 U	< LOD	4.25	16 J	15.53	5.71	15 U	< LOD	9.71	52 J	52.27	11.85	101 U	< LOD	67.43
BG-9-5 12-18	06/22/10	9 J	8.78	5.33	6 U	< LOD	4.04	10 U	< LOD	6.71	15 U	< LOD	9.7	36 J	35.62	10.83	101 U	< LOD	67.06
Mean		17			6			11			15			47			101		
BG-9 12-18 COMP	06/22/10	12 J	11.92	5.71	7 U	< LOD	4.51	9 J	9.23	4.88	14 U	< LOD	9.41	51 J	50.89	11.38	94 U	< LOD	62.59
%RPD		36%			12%			16%			4%			9%			7%		
BG-10-1 0-2	06/23/10	23 J	22.7	6.1	6 U	< LOD	4.03	64	63.63	7.55	14 U	< LOD	9.35	110	109.99	13.81	94 U	< LOD	62.91
BG-10-2 0-2	06/23/10	80	80.42	9.83	7 U	< LOD	4.39	141	140.84	12.04	15 U	< LOD	9.77	122	122.4	15.75	101 U	< LOD	67.52
BG-10-3 0-2	06/23/10	32 J	32.13	7.02	7 U	< LOD	4.45	64	63.61	8.15	15 U	< LOD	9.93	73	73.32	12.82	105 U	< LOD	69.94
BG-10-4 0-2	06/23/10	23 J	23.11	6.41	6 U	< LOD	4.33	41	40.69	6.92	15 U	< LOD	9.77	48 J	48.17	11.48	102 U	< LOD	68.21
BG-10-5 0-2	06/23/10	36 J	35.77	7.73	7 U	< LOD	4.86	99	99.23	9.93	16 U	< LOD	10.56	67 J	67.19	13.79	114 U	< LOD	76.2
Mean		39			7			82			15			84			103		
BG-10 0-2 COMP	06/23/10	29 J	29.17	6.95	7 U	< LOD	4.77	77	77.35	8.6	15 U	< LOD	9.9	81	80.85	13.31	97 U	< LOD	64.67
%RPD		29%			6%			6%			0%			4%			6%		
BG-10-1 2-12	06/23/10	23 J	22.52	6.1	6 U	< LOD	4.01	11 U	< LOD	7.51	13 U	< LOD	8.99	44 J	44.19	10.4	92 U	< LOD	61.47
BG-10-2 2-12	06/23/10	26 J	25.51	6.75	7 U	< LOD	4.42	10 J	10.48	5.83	15 U	< LOD	10	58 J	58.17	12.72	104 U	< LOD	69.48
BG-10-3 2-12	06/23/10	20 J	20.19	6.01	6 U	< LOD	4.2	9 J	9.07	5.13	14 U	< LOD	9.18	76	76.26	12.22	93 U	< LOD	61.94
BG-10-4 2-12	06/23/10	16 J	16.38	6.32	7 U	< LOD	4.74	29 J	28.64	6.14	14 U	< LOD	9.09	44 J	44.34	10.78	94 U	< LOD	62.49
BG-10-5 2-12	06/23/10	29 J	28.57	7.06	7 U	< LOD	4.41	13 J	12.62	6.09	16 U	< LOD	10.35	75	74.95	13.63	106 U	< LOD	70.57
Mean		23			7			14			14			59			98		
BG-10 2-12 COMP	06/23/10	17 J	17.23	5.92	6 U	< LOD	4.1	9 J	8.5	5.07	15 U	< LOD	9.95	53 J	52.5	11.61	98 U	< LOD	65.16
%RPD		29%			10%			46%			4%			11%			0%		
BG-10-1 12-18	06/23/10	23 J	22.7	6.37	6 U	< LOD	4.23	11 U	< LOD	7.61	14 U	< LOD	9.12	50 J	50.31	11.38	94 U	< LOD	62.79
BG-10-2 12-18	06/23/10	19 J	18.86	6.28	7 U	< LOD	4.58	12 J	11.78	5.52	15 U	< LOD	10.24	71	70.6	13.41	107 U	< LOD	71.29
BG-10-3 12-18	06/23/10	16 J	16.18	5.47	6 U	< LOD	3.67	7 J	7.46	4.71	14 U	< LOD	9.4	44 J	43.99	10.44	99 U	< LOD	66.17
BG-10-4 12-18	06/23/10	18 J	18.39	6.04	6 U	< LOD	4.17	11 U	< LOD	7.49	15 U	< LOD	9.73	26 J	26.31	9.99	100 U	< LOD	66.78
BG-10-5 12-18	06/23/10	29 J	29.08	7.1	7 U	< LOD	4.54	13 U	< LOD	8.62	15 U	< LOD	10.19	76	76.32	13.54	107 U	< LOD	71.55
Mean		21			6			11			15			53			101		
BG-10 12-18 COMP	06/23/10	22 J	21.75	6.33	6 U	< LOD	4.08	12 U	< LOD	7.77	14 U	< LOD	9.36	64	64.21	12.39	100 U	< LOD	66.76
%RPD		5%			6%			11%			4%			18%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-11-1 0-2	06/27/10	73	72.77	9.01	7 U	< LOD	4.47	105	105.49	10.33	14 U	< LOD	9.54	96	95.54	13.39	104 U	< LOD	69.04
BG-11-2 0-2	06/27/10	27 J	27.02	6.42	6 U	< LOD	4.17	74	73.84	8.03	13 U	< LOD	8.65	77	77.47	12.23	93 U	< LOD	62.28
BG-11-3 0-2	06/27/10	35 J	35.11	7.04	7 U	< LOD	4.34	78	77.52	8.51	14 U	< LOD	9.11	86	86.35	12.89	95 U	< LOD	63.52
BG-11-4 0-2	06/27/10	52	51.51	7.72	6 U	< LOD	4.13	97	96.88	9.38	13 U	< LOD	8.81	93	92.75	12.87	95 U	< LOD	63.44
BG-11-5 0-2	06/27/10	24 J	24.22	6.57	6 U	< LOD	4.12	55	54.73	7.58	14 U	< LOD	9.46	126	126	15.46	100 U	< LOD	66.67
Mean		42			6			82			14			96			97		
BG-11 0-2 COMP	06/27/10	24 J	24.35	6.41	7 U	< LOD	4.47	59	58.53	7.51	13 U	< LOD	8.98	78	78.2	12.5	96 U	< LOD	64
%RPD		55%			9%			32%			5%			20%			1%		
BG-11-1 2-12	06/27/10	33 J	32.55	7.02	7 U	< LOD	4.44	26 J	25.94	6.62	14 U	< LOD	9.42	64	64.43	11.96	100 U	< LOD	66.63
BG-11-2 2-12	06/27/10	18 J	17.92	5.95	6 U	< LOD	4.06	11 U	< LOD	7.43	14 U	< LOD	9.43	51 J	50.99	11.3	98 U	< LOD	65.53
BG-11-3 2-12	06/27/10	35 J	34.64	7.19	7 U	< LOD	4.43	18 J	18.28	6.47	14 U	< LOD	9.6	54 J	53.64	11.79	100 U	< LOD	66.75
BG-11-4 2-12	06/27/10	16 J	15.61	5.73	6 U	< LOD	4.09	10 J	10.49	5.07	15 U	< LOD	9.8	48 J	48	11.33	100 U	< LOD	66.61
BG-11-5 2-12	06/27/10	15 J	15.02	5.72	6 U	< LOD	4.02	14 J	14.42	5.25	14 U	< LOD	9.59	33 J	32.67	10.32	100 U	< LOD	66.75
Mean		23			6			16			14			50			100		
BG-11 2-12 COMP	06/27/10	21 J	21.43	6.19	6 U	< LOD	4	12 J	11.76	5.44	15 U	< LOD	9.7	54 J	53.57	11.56	98 U	< LOD	65.62
%RPD		11%			6%			27%			5%			8%			2%		
BG-11-1 12-18	06/27/10	27 J	27.29	6.58	6 U	< LOD	4.13	12 U	< LOD	8.14	14 U	< LOD	9.41	55 J	54.59	11.54	102 U	< LOD	67.88
BG-11-2 12-18	06/27/10	22 J	22	6.5	7 U	< LOD	4.57	8 J	8.24	5.47	15 U	< LOD	9.96	57 J	57.16	12.58	107 U	< LOD	71.6
BG-11-3 12-18	06/27/10	26 J	25.54	6.69	7 U	< LOD	4.43	13 J	13.23	5.87	15 U	< LOD	10	60 J	60.07	12.3	103 U	< LOD	68.82
BG-11-4 12-18	06/27/10	16 J	16.35	5.63	6 U	< LOD	3.8	10 U	< LOD	6.92	14 U	< LOD	9.32	41 J	41.08	10.72	97 U	< LOD	64.82
BG-11-5 12-18	06/27/10	17 J	16.74	6.32	7 U	< LOD	4.46	8 J	8.28	5.28	15 U	< LOD	9.94	43 J	43.19	11.48	103 U	< LOD	68.78
Mean		22			7			10			15			51			102		
BG-11 12-18 COMP	06/27/10	19 J	19.1	6.35	7 U	< LOD	4.45	11 J	11.08	5.49	15 U	< LOD	9.81	43 J	42.72	11.5	104 U	< LOD	69.34
%RPD		13%			6%			8%			3%			17%			2%		
BG-12-1 0-2	06/26/10	41	41.07	7.62	6 U	< LOD	4.18	37 J	36.75	7.52	14 U	< LOD	9.52	114	113.99	14.81	104 U	< LOD	69.43
BG-12-2 0-2	06/26/10	21 J	21.48	6.03	6 U	< LOD	3.97	80	80.37	8.1	13 U	< LOD	8.75	120	120.02	14.42	92 U	< LOD	61.19
BG-12-3 0-2	06/26/10	27 J	27.23	6.35	6 U	< LOD	3.9	88	87.96	8.48	14 U	< LOD	9.53	116	116.18	14.14	96 U	< LOD	63.85
BG-12-4 0-2	06/26/10	56	56.28	8.25	7 U	< LOD	4.4	114	114.49	10.23	14 U	< LOD	9.37	150	149.71	15.74	95 U	< LOD	63.13
BG-12-5 0-2	06/26/10	41	40.71	7.27	6 U	< LOD	3.94	94	94.42	9.15	14 U	< LOD	9.45	131	131.47	15	97 U	< LOD	64.77
Mean		37			6			83			14			126			97		
BG-12 0-2 COMP	06/26/10	24 J	24.37	6.43	6 U	< LOD	4.25	70	69.75	8.03	15 U	< LOD	10.02	83	83.15	13.16	102 U	< LOD	67.82
%RPD		43%			3%			17%			8%			41%			5%		
BG-12-1 2-12	06/26/10	32 J	32.31	7.11	6 U	< LOD	4.25	40	39.85	7.3	15 U	< LOD	9.69	70	69.6	12.55	97 U	< LOD	64.5
BG-12-2 2-12	06/26/10	36 J	36.44	7.48	7 U	< LOD	4.38	14 U	< LOD	9.12	15 U	< LOD	10.31	66	65.65	13.08	110 U	< LOD	73.3
BG-12-3 2-12	06/26/10	20 J	20.46	6.25	7 U	< LOD	4.35	12 U	< LOD	7.76	15 U	< LOD	9.88	56 J	55.95	11.94	101 U	< LOD	67.17
BG-12-4 2-12	06/26/10	15 J	15.22	5.55	6 U	< LOD	3.87	17 J	16.8	5.21	13 U	< LOD	8.62	52 J	52.1	10.76	87 U	< LOD	57.9
BG-12-5 2-12	06/26/10	21 J	20.8	6.11	6 U	< LOD	4.31	11 J	10.89	5.34	15 U	< LOD	9.94	46 J	45.68	11.16	101 U	< LOD	67.35
Mean		25			6			19			15			58			99		
BG-12 2-12 COMP	06/26/10	23 J	23.07	6.25	6 U	< LOD	3.92	21 J	20.62	5.92	14 U	< LOD	9.43	71	71.11	12.45	100 U	< LOD	66.35
%RPD		8%			6%			11%			4%			20%			1%		
BG-12-1 12-18	06/26/10	17 J	16.79	6.02	7 U	< LOD	4.59	11 U	< LOD	7.54	14 U	< LOD	9.64	43 J	42.93	11.02	101 U	< LOD	67.56
BG-12-2 12-18	06/26/10	26 J	26.36	6.66	6 U	< LOD	4.19	12 U	< LOD	8.32	15 U	< LOD	10.02	73	73.28	13.05	103 U	< LOD	68.86
BG-12-3 12-18	06/26/10	23 J	23.18	6.5	7 U	< LOD	4.36	12 U	< LOD	7.87	15 U	< LOD	9.79	50 J	49.9	11.84	107 U	< LOD	71
BG-12-4 12-18	06/26/10	19 J	18.77	6.06	7 U	< LOD	4.37	11 J	10.5	5.25	14 U	< LOD	9.53	53 J	52.61	11.42	96 U	< LOD	64.32
BG-12-5 12-18	06/26/10	21 J	21.32	6.49	7 U	< LOD	4.81	12 U	< LOD	7.72	15 U	< LOD	10.14	48 J	47.92	12.18	102 U	< LOD	67.81
Mean		21			7			12			15			53			102		
BG-12 12-18 COMP	06/26/10	21 J	21.4	6.39	6 U	< LOD	4.29	12 U	< LOD	7.96	15 U	< LOD	9.73	55 J	55.11	12.06	102 U	< LOD	67.88
%RPD		1%			13%			3%			3%			3%			0%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	46	46.33	8.74	7 U	< LOD	4.96	74	73.85	9.89	17 U	< LOD	11.57	95	94.75	16.25	122 U	< LOD	81.18
BG-13-2 0-2	06/22/10	22 J	22.14	6.35	7 U	< LOD	4.49	25 J	25.37	6.25	15 U	< LOD	10.12	76	75.81	12.94	100 U	< LOD	66.44
BG-13-3 0-2	06/22/10	28 J	28.03	6.39	6 U	< LOD	3.74	48	47.55	7.1	13 U	< LOD	8.68	71	71.23	11.81	90 U	< LOD	59.76
BG-13-4 0-2	06/22/10	21 J	20.74	5.99	6 U	< LOD	4.17	32	32.48	6.21	14 U	< LOD	9.03	66	66.13	11.53	92 U	< LOD	61.41
BG-13-5 0-2	06/22/10	19 J	18.87	5.72	6 U	< LOD	3.9	37	37.09	6.24	13 U	< LOD	8.71	76	76.1	11.88	94 U	< LOD	62.53
Mean		27			6			43			14			77			100		
BG-13 0-2 COMP	06/22/10	21 J	21.15	5.99	6 U	< LOD	3.9	35	35.25	6.4	14 U	< LOD	9.56	65	64.74	11.88	100 U	< LOD	66.75
%RPD		26%			6%			21%			3%			17%			0%		
BG-13-1 2-12	06/22/10	20 J	19.69	6.83	8 U	< LOD	5.26	38	37.94	7.29	17 U	< LOD	11.21	61 J	61.13	14.49	118 U	< LOD	78.4
BG-13-2 2-12	06/22/10	21 J	20.62	6.14	6 U	< LOD	4.09	10 J	10.46	5.35	14 U	< LOD	9.56	59 J	59.48	12.13	99 U	< LOD	66.01
BG-13-3 2-12	06/22/10	24 J	23.54	6.27	6 U	< LOD	4.23	11 U	< LOD	7.39	15 U	< LOD	9.82	31 J	30.97	9.93	100 U	< LOD	66.64
BG-13-4 2-12	06/22/10	17 J	17.44	5.9	7 U	< LOD	4.45	11 U	< LOD	7.09	14 U	< LOD	9.05	40 J	40.11	10.45	98 U	< LOD	65.58
BG-13-5 2-12	06/22/10	15 J	15.08	5.76	6 U	< LOD	4.26	8 J	7.87	4.88	14 U	< LOD	9.41	50 J	49.77	11.17	100 U	< LOD	66.54
Mean		19			7			16			15			48			103		
BG-13 2-12 COMP	06/22/10	20 J	20.13	6.2	6 U	< LOD	4.12	15 J	15.46	5.71	15 U	< LOD	10.13	51 J	51.18	12.18	104 U	< LOD	69.55
%RPD		3%			10%			4%			1%			6%			1%		
BG-13-1 12-18	06/22/10	17 J	16.62	6.1	7 U	< LOD	4.49	20 J	20.26	5.86	15 U	< LOD	9.77	63 J	63.39	12.92	101 U	< LOD	67.44
BG-13-2 12-18	06/22/10	22 J	21.67	6.33	7 U	< LOD	4.58	11 U	< LOD	7.66	15 U	< LOD	9.82	62	62.09	12.21	103 U	< LOD	68.72
BG-13-3 12-18	06/22/10	21 J	21.23	6.25	7 U	< LOD	4.46	11 U	< LOD	7.66	15 U	< LOD	10.22	53 J	53.46	11.66	105 U	< LOD	70
BG-13-4 12-18	06/22/10	15 J	15.2	5.69	6 U	< LOD	4.26	8 J	8.43	4.82	14 U	< LOD	9.35	42 J	41.95	10.26	93 U	< LOD	62.16
BG-13-5 12-18	06/22/10	22 J	21.85	6.19	6 U	< LOD	4.17	12 U	< LOD	7.7	14 U	< LOD	9.59	50 J	49.87	11.31	101 U	< LOD	67.64
Mean		19			7			12			15			54			101		
BG-13 12-18 COMP	06/22/10	21 J	20.87	6.23	7 U	< LOD	4.47	11 U	< LOD	7.43	14 U	< LOD	9.49	56 J	55.8	11.54	96 U	< LOD	63.74
%RPD		8%			6%			12%			4%			4%			5%		
BG-14-1 0-2	06/23/10	26 J	26.01	7.32	7 U	< LOD	4.94	32 J	31.8	7.06	16 U	< LOD	10.35	54 J	53.96	12.46	107 U	< LOD	71.17
BG-14-2 0-2	06/23/10	35 J	34.8	7.3	6 U	< LOD	4.31	22 J	22.18	6.73	15 U	< LOD	9.99	88	87.64	13.75	99 U	< LOD	65.77
BG-14-3 0-2	06/23/10	53	52.76	8.01	6 U	< LOD	4.28	76	75.65	8.98	14 U	< LOD	9.23	110	109.58	13.99	98 U	< LOD	65.11
BG-14-4 0-2	06/23/10	31 J	30.99	6.77	6 U	< LOD	4.18	45	44.96	7.29	15 U	< LOD	9.99	68	68.07	12.32	100 U	< LOD	66.94
BG-14-5 0-2	06/23/10	38	38.01	7.21	6 U	< LOD	4.26	98	97.68	9.22	14 U	< LOD	9.3	98	97.58	13.39	96 U	< LOD	64.29
Mean		37			6			55			15			84			100		
BG-14 0-2 COMP	06/23/10	29 J	28.71	6.62	6 U	< LOD	4.15	39	38.77	6.93	14 U	< LOD	9.29	98	98.23	13.55	97 U	< LOD	64.64
%RPD		23%			3%			33%			6%			16%			3%		
BG-14-1 2-12	06/23/10	19 J	18.51	6.27	7 U	< LOD	4.46	11 U	< LOD	7.53	15 U	< LOD	10.24	32 J	32.01	11.15	106 U	< LOD	70.41
BG-14-2 2-12	06/23/10	23 J	22.51	6.47	7 U	< LOD	4.41	25 J	24.81	6.24	15 U	< LOD	10.01	59 J	58.69	11.99	104 U	< LOD	69.1
BG-14-3 2-12	06/23/10	22 J	21.94	6.1	6 U	< LOD	4.11	11 U	< LOD	7.56	14 U	< LOD	9.18	41 J	41.46	10.3	95 U	< LOD	63.51
BG-14-4 2-12	06/23/10	22 J	22.38	6.39	7 U	< LOD	4.44	20 J	19.54	6	15 U	< LOD	10.01	65	64.68	12.59	99 U	< LOD	66.21
BG-14-5 2-12	06/23/10	27 J	27.21	6.51	6 U	< LOD	3.96	8 J	8.17	5.44	13 U	< LOD	8.94	43 J	43.1	10.17	91 U	< LOD	60.85
01/00/00		23			7			15			14			48			99		
BG-14 2-12 COMP	06/23/10	22 J	22.09	6.3	7 U	< LOD	4.44	9 J	8.5	5.29	14 U	< LOD	9.22	46 J	45.84	10.81	97 U	< LOD	64.35
%RPD		3%			6%			50%			3%			4%			2%		
BG-14-1 12-18	06/23/10	20 J	19.53	6	6 U	< LOD	4.02	11 U	< LOD	7.24	13 U	< LOD	8.78	17 J	17.42	8.27	95 U	< LOD	63.37
BG-14-2 12-18	06/23/10	23 J	22.89	6.32	6 U	< LOD	4.32	11 J	11.07	5.49	14 U	< LOD	9.52	43 J	43.15	10.78	99 U	< LOD	66.01
BG-14-3 12-18	06/23/10	19 J	18.6	6.03	7 U	< LOD	4.38	9 J	9.02	5.12	14 U	< LOD	9.26	72	72.35	12.37	97 U	< LOD	64.82
BG-14-4 12-18	06/23/10	16 J	15.52	6.83	7 U	< LOD	4.94	13 J	13.07	5.61	15 U	< LOD	9.95	78	77.67	13.1	100 U	< LOD	66.6
BG-14-5 12-18	06/23/10	23 J	23.05	6.55	7 U	< LOD	4.69	12 U	< LOD	7.99	16 U	< LOD	10.38	52 J	52.01	11.86	107 U	< LOD	71.5
Mean		20			7			11			14			52			100		
BG-14 12-18 COMP	06/23/10	15 J	14.57	5.74	6 U	< LOD	4.26	11 U	< LOD	7.11	16 U	< LOD	10.36	53 J	52.71	11.61	104 U	< LOD	69.08
%RPD		30%			10%			2%			11%			1%			4%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Lead			Selenium			Arsenic			Mercury			Zinc			Tungsten		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-15-1 0-2	06/25/10	12 J	12.31	5.45	6 U	< LOD	4.25	9 J	9.19	4.73	14 U	< LOD	9.5	69	68.69	12.31	102 U	< LOD	67.82
BG-15-2 0-2	06/25/10	23 J	23.23	6.36	7 U	< LOD	4.46	33	32.54	6.42	14 U	< LOD	9.06	38 J	38.3	10.23	98 U	< LOD	65.63
BG-15-3 0-2	06/25/10	26 J	25.69	6.39	6 U	< LOD	3.89	72	72.4	8.06	14 U	< LOD	9.05	91	91.05	13.19	96 U	< LOD	63.77
BG-15-4 0-2	06/25/10	52	51.59	7.9	6 U	< LOD	4.21	105	104.85	9.67	14 U	< LOD	9.06	99	98.64	13.23	91 U	< LOD	60.37
BG-15-5 0-2	06/25/10	114	113.94	10.4	7 U	< LOD	4.4	75	75.39	10.27	14 U	< LOD	9.06	254	254.39	18.82	99 U	< LOD	66.08
Mean		45			6			59			14			110			97		
BG-15 0-2 COMP	06/25/10	27 J	26.95	6.36	6 U	< LOD	4.11	39	39.26	6.75	14 U	< LOD	9.41	66	66.17	11.66	95 U	< LOD	63.01
%RPD		51%			6%			40%			0%			50%			2%		
BG-15-1 2-12	06/25/10	24 J	24.31	6.21	6 U	< LOD	4.08	11 U	< LOD	7.45	14 U	< LOD	9.25	42 J	42.37	10.27	97 U	< LOD	64.37
BG-15-2 2-12	06/25/10	20 J	20.26	5.89	6 U	< LOD	3.82	13 J	13.14	5.26	13 U	< LOD	8.36	45 J	44.62	10.08	86 U	< LOD	57.15
BG-15-3 2-12	06/25/10	16 J	15.56	5.78	6 U	< LOD	4.28	36	36.11	6.31	14 U	< LOD	9.53	54 J	54.43	11.48	100 U	< LOD	66.91
BG-15-4 2-12	06/25/10	17 J	17.02	5.74	6 U	< LOD	4.09	13 J	13.38	5.14	13 U	< LOD	8.76	32 J	32.27	9.67	94 U	< LOD	62.81
BG-15-5 2-12	06/25/10	19 J	19.29	5.85	6 U	< LOD	3.84	52	51.94	6.96	13 U	< LOD	8.79	67	66.74	11.73	97 U	< LOD	64.54
Mean		19			6			25			13			48			95		
BG-15 2-12 COMP	06/25/10	19 J	19.42	6.07	6 U	< LOD	4.24	27 J	26.75	6.03	14 U	< LOD	9.33	57 J	56.94	11.44	96 U	< LOD	64.07
%RPD		1%			0%			8%			4%			17%			1%		
BG-15-1 12-18	06/25/10	22 J	21.97	5.87	5 U	< LOD	3.65	10 U	< LOD	6.67	13 U	< LOD	8.67	37 J	36.57	9.39	92 U	< LOD	61.01
BG-15-2 12-18	06/25/10	16 J	16.43	5.66	6 U	< LOD	3.97	10 U	< LOD	6.95	13 U	< LOD	8.75	24 J	23.59	8.59	88 U	< LOD	58.96
BG-15-3 12-18	06/25/10	15 J	14.96	6.09	7 U	< LOD	4.55	10 J	9.6	5.17	15 U	< LOD	9.97	56 J	56.14	12.26	108 U	< LOD	71.92
BG-15-4 12-18	06/25/10	22 J	21.81	6.15	6 U	< LOD	4.25	19 J	19.38	5.73	13 U	< LOD	8.9	49 J	48.58	10.81	96 U	< LOD	63.91
BG-15-5 12-18	06/25/10	21 J	21.26	6.02	6 U	< LOD	3.94	21 J	21.15	5.75	14 U	< LOD	9.18	70	70	11.92	96 U	< LOD	63.89
Mean		19			6			14			14			47			96		
BG-15 12-18 COMP	06/25/10	21 J	20.59	6.16	6 U	< LOD	4.18	11 U	< LOD	7.54	14 U	< LOD	9.13	47 J	46.61	10.84	95 U	< LOD	63.17
%RPD		9%			0%			24%			3%			0%			1%		
BG-16-1 0-2	06/25/10	87	86.57	10.11	7 U	< LOD	4.95	48 J	47.5	9.54	16 U	< LOD	10.4	138	137.99	16.06	107 U	< LOD	71.21
BG-16-2 0-2	06/25/10	48	48.13	8.34	7 U	< LOD	4.6	72	71.63	9.17	16 U	< LOD	10.45	150	150.39	16.55	103 U	< LOD	68.88
BG-16-3 0-2	06/26/10	35	35.18	6.9	6 U	< LOD	4.26	63	62.99	7.87	14 U	< LOD	9.17	121	120.69	14.16	95 U	< LOD	63.21
BG-16-4 0-2	06/26/10	59	58.53	8.47	7 U	< LOD	4.36	40 J	40.37	8.15	14 U	< LOD	9.16	157	156.53	16.47	98 U	< LOD	65.65
BG-16-5 0-2	06/26/10	103	103.11	10.31	6 U	< LOD	4.32	111	110.93	11.21	14 U	< LOD	9.41	98	98.32	13.45	95 U	< LOD	63.57
Mean		66			7			67			15			133			100		
BG-16 0-2 COMP	06/26/10	38	38.08	7.21	6 U	< LOD	3.94	49	48.95	7.68	14 U	< LOD	9.58	96	95.62	13.58	99 U	< LOD	65.9
%RPD		54%			10%			31%			6%			32%			1%		
BG-16-1 2-12	06/25/10	22 J	21.56	6.34	7 U	< LOD	4.65	25 J	24.96	6.21	15 U	< LOD	9.87	60 J	60.38	12.26	104 U	< LOD	69.17
BG-16-2 2-12	06/25/10	11 J	11.08	5.6	7 U	< LOD	4.52	11 J	11.08	4.9	15 U	< LOD	9.99	65	65.49	11.97	99 U	< LOD	65.86
BG-16-3 2-12	06/26/10	18 J	18.14	5.64	6 U	< LOD	3.73	10 U	< LOD	6.9	13 U	< LOD	8.99	65	64.78	11.43	94 U	< LOD	62.39
BG-16-4 2-12	06/26/10	25 J	24.54	6.79	7 U	< LOD	4.64	23 J	23.13	6.24	14 U	< LOD	9.31	74	74.07	12.75	96 U	< LOD	64.25
BG-16-5 2-12	06/26/10	15 J	14.59	5.78	7 U	< LOD	4.43	14 J	14.11	5.25	14 U	< LOD	9.62	29 J	29.28	10.32	101 U	< LOD	67.14
Mean		18			7			17			14			59			99		
BG-16 2-12 COMP	06/26/10	27 J	26.91	6.55	6 U	< LOD	3.88	9 J	8.73	5.55	14 U	< LOD	9.58	53 J	52.61	11.55	100 U	< LOD	66.91
%RPD		39%			13%			59%			1%			10%			1%		
BG-16-1 12-18	06/25/10	15 J	14.71	5.71	7 U	< LOD	4.37	14 J	13.78	5.19	14 U	< LOD	9.63	57 J	56.92	11.68	99 U	< LOD	65.73
BG-16-2 12-18	06/25/10	17 J	17.08	5.85	6 U	< LOD	4.08	11 U	< LOD	7.24	14 U	< LOD	9.24	58	58.33	11.32	94 U	< LOD	62.61
BG-16-3 12-18	06/26/10	25 J	25.44	6.33	6 U	< LOD	4.24	12 U	< LOD	7.73	13 U	< LOD	8.86	60	60.34	11.32	93 U	< LOD	61.73
BG-16-4 12-18	06/26/10	18 J	17.85	6.14	7 U	< LOD	4.56	11 U	< LOD	7.64	14 U	< LOD	9.31	55 J	54.65	12.13	100 U	< LOD	66.48
BG-16-5 12-18	06/26/10	16 J	16.01	6.3	7 U	< LOD	4.81	21 J	21.49	5.95	15 U	< LOD	10.07	44 J	43.93	11.85	107 U	< LOD	71.45
Mean		18			7			14			14			55			99		
BG-16 12-18 COMP	06/26/10	17 J	16.64	5.72	6 U	< LOD	4.17	8 J	7.63	4.84	13 U	< LOD	8.65	41 J	41.12	10.39	94 U	< LOD	62.4
%RPD		7%			10%			53%			7%			29%			5%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-1-1 0-2	06/29/10	115	115.39	19.78	83 U	< LOD	55.57	265 U	< LOD	176.9	28,435	28435.27	353.07	678	678.06	78.37	45 J	44.64	19.47
BG-1-2 0-2	06/29/10	75 J	75.07	17.2	79 U	< LOD	52.37	235 U	< LOD	156.63	23,706	23705.72	313.43	498	497.98	66.8	34 J	34.45	19.21
BG-1-3 0-2	06/29/10	57 J	56.7	16.71	79 U	< LOD	52.87	260 U	< LOD	173.64	28,121	28120.88	347.58	790	790.44	81.77	47 J	46.71	18.89
BG-1-4 0-2	06/29/10	159	158.72	22.29	87 U	< LOD	58.11	292 U	< LOD	194.48	32,890	32890.44	389.52	714	714.06	82.91	47 J	47.06	19.11
BG-1-5 0-2	06/29/10	92 J	92.09	22.11	112 U	< LOD	74.35	489 J	489.33	215.07	74,068	74067.88	636.23	818	817.95	104.28	53 J	53.4	22.13
Mean		100			88			308			37,444			700			45		
BG-1 0-2 COMP	06/29/10	79 J	79.35	18.56	87 U	< LOD	57.7	216 J	215.91	130.47	32,908	32908.14	385.53	753	753.26	83.58	58 J	57.96	19.49
%RPD		23%			1%			35%			13%			7%			25%		
BG-1-1 2-12	06/29/10	35 U	< LOD	23.1	86 U	< LOD	57.09	292 U	< LOD	194.74	34,233	34232.7	391.66	675	675.19	80.25	43 U	< LOD	28.94
BG-1-2 2-12	06/29/10	31 J	31.04	15.41	82 U	< LOD	54.69	252 U	< LOD	167.96	26,432	26432.06	335.14	1,179	1179	95.18	44 U	< LOD	29.49
BG-1-3 2-12	06/29/10	31 J	30.95	16.27	89 U	< LOD	59.42	320 U	< LOD	213.51	40,595	40594.78	429.7	583	583.25	78.6	43 J	43.29	21.27
BG-1-4 2-12	06/29/10	36 J	35.82	18.19	98 U	< LOD	65.51	370 J	369.5	171.09	49,793	49793.48	504.43	730	730.16	91.99	69 J	68.95	20.53
BG-1-5 2-12	06/29/10	54 J	53.58	20.35	111 U	< LOD	73.93	561 J	560.74	207.48	67,388	67387.97	610.12	819	819.01	103.18	62 J	62.43	21.32
Mean		37			93			359			43,688			797			52		
BG-1 2-12 COMP	06/29/10	32 J	32.27	16.95	91 U	< LOD	60.66	340 U	< LOD	226.88	42,854	42853.54	452.29	805	805	90	37 J	37.07	19.62
%RPD		16%			2%			5%			2%			1%			34%		
BG-1-1 12-18	06/29/10	30 J	29.66	15.65	84 U	< LOD	55.72	303 U	< LOD	201.67	36,271	36270.67	399.31	715	715.1	81.58	53 J	52.61	22.24
BG-1-2 12-18	06/29/10	43 J	42.98	16.71	88 U	< LOD	58.38	309 U	< LOD	205.92	38,126	38126.18	413.23	732	732.37	83.03	45 J	44.87	22.79
BG-1-3 12-18	06/29/10	33 U	< LOD	22.26	88 U	< LOD	58.99	310 U	< LOD	206.51	38,325	38325.48	418.87	487	487.34	73.67	48 J	48.1	20.6
BG-1-4 12-18	06/29/10	35 U	< LOD	23.49	88 U	< LOD	58.88	284 J	284.44	139.7	36,444	36443.84	411.12	683	683.27	82.14	53 J	52.91	19.64
BG-1-5 12-18	06/29/10	31 U	< LOD	20.55	79 U	< LOD	52.53	233 U	< LOD	155.06	23,123	23122.71	312.87	272 J	272.18	55.86	33 U	< LOD	21.8
Mean		34			85			288			34,458			578			46		
BG-1 12-18 COMP	06/29/10	26 J	26.47	15.49	84 U	< LOD	55.69	267 U	< LOD	178.18	29,348	29348.06	357.84	587	586.76	74.49	33 J	32.99	19.97
%RPD		28%			2%			7%			16%			2%			34%		
BG-2-1 0-2	06/30/10	43 J	42.6	16.23	83 U	< LOD	55.65	258 U	< LOD	172.21	27,128	27128.37	342.88	675	674.93	77.29	46 J	45.83	19.01
BG-2-2 0-2	06/30/10	57 J	57.45	16.39	79 U	< LOD	52.48	230 U	< LOD	153.53	22,575	22574.56	306.59	787	786.75	79.24	41 J	40.67	18.3
BG-2-3 0-2	06/30/10	90 J	89.73	18.61	82 U	< LOD	54.6	253 U	< LOD	168.96	25,744	25744.05	335.43	412	411.96	64.89	45 J	45.13	18.56
BG-2-4 0-2	06/30/10	79 J	79.39	17.25	77 U	< LOD	51.66	229 U	< LOD	152.78	22,213	22213.49	302.79	760	760.4	77.72	39 J	38.93	18.51
BG-2-5 0-2	06/30/10	88 J	88.07	17.71	79 U	< LOD	52.41	268 U	< LOD	178.44	30,736	30735.54	356.05	1,236	1235.61	96.37	47 J	46.58	21.51
Mean		71			80			248			25,679			774			44		
BG-2 0-2 COMP	06/30/10	47 J	47.07	15.96	78 U	< LOD	51.94	247 U	< LOD	164.56	25,534	25534.22	327.28	660	659.78	74.91	45 J	45.29	19.66
%RPD		41%			3%			0%			1%			16%			3%		
BG-2-1 2-12	06/30/10	39 J	38.77	16.58	85 U	< LOD	56.77	290 U	< LOD	193.32	34,050	34049.5	392.35	619	619.06	78.3	43 U	< LOD	28.7
BG-2-2 2-12	06/30/10	24 J	24.47	14.88	76 U	< LOD	50.92	251 U	< LOD	167.23	26,579	26579.43	335.82	548	548.18	71.04	39 J	38.69	19.47
BG-2-3 2-12	06/30/10	48 J	48.06	16.22	79 U	< LOD	52.58	284 U	< LOD	189.25	33,463	33463.09	377.66	391	390.56	64.83	47 U	< LOD	31.48
BG-2-4 2-12	06/30/10	39 J	39.31	16	60 J	59.65	37.36	269 U	< LOD	179.35	30,540	30539.6	362.65	708	708.33	79.4	40 J	40.37	20.54
BG-2-5 2-12	06/30/10	33 J	33.44	15.57	83 U	< LOD	55.46	305 U	< LOD	203.46	38,001	38001.48	404.4	1,068	1067.7	94.18	49 U	< LOD	32.94
Mean		37			77			280			32,527			667			44		
BG-2 2-12 COMP	06/30/10	27 J	27.4	15.15	81 U	< LOD	53.82	267 U	< LOD	177.74	29,250	29250.39	352.58	761	761.29	80.41	46 U	< LOD	30.9
%RPD		30%			6%			5%			11%			13%			5%		
BG-2-1 12-18	06/30/10	32 U	< LOD	21.51	79 U	< LOD	52.39	279 U	< LOD	185.67	31,676	31676.26	367.86	661	661.45	76.91	62 J	62.43	21.57
BG-2-2 12-18	06/30/10	33 U	< LOD	22.18	80 U	< LOD	53.59	255 U	< LOD	169.9	27,153	27152.65	340.75	693	692.54	77.46	43 U	< LOD	28.68
BG-2-3 12-18	06/30/10	27 J	26.99	15.45	85 U	< LOD	56.75	296 U	< LOD	197.51	35,741	35740.76	394.24	374	373.58	65.55	50 U	< LOD	33.49
BG-2-4 12-18	06/30/10	35 U	< LOD	23.56	88 U	< LOD	58.53	301 U	< LOD	200.39	35,238	35237.5	402.29	610	609.69	78.52	36 J	36.15	20.24
BG-2-5 12-18	06/30/10	29 J	29.11	15.28	82 U	< LOD	54.44	284 U	< LOD	189.35	33,366	33365.8	377.78	957	956.8	88.88	37 J	36.68	21.88
Mean		31			83			283			32,635			659			46		
BG-2 12-18 COMP	06/30/10	34 U	< LOD	22.83	79 U	< LOD	52.79	293 U	< LOD	195.41	34,919	34918.91	392.54	572	571.58	75.02	47 U	< LOD	31.04
%RPD		9%			5%			3%			7%			14%			3%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-3-1 0-2	06/29/10	71 J	71.47	17.56	79 U	< LOD	52.64	279 U	< LOD	186.04	32,247	32246.52	373.97	521	521.32	71.46	42 J	42.4	20.36
BG-3-2 0-2	06/29/10	64 J	64.32	16.92	79 U	< LOD	52.7	238 U	< LOD	158.82	24,068	24068.48	319.47	1,213	1213.03	95.66	41 J	40.69	18.27
BG-3-3 0-2	06/29/10	61 J	60.54	16.9	80 U	< LOD	53.08	245 U	< LOD	163.38	24,921	24920.58	325.84	396	396.36	63.02	38 U	< LOD	25.28
BG-3-4 0-2	06/29/10	81 J	80.72	18.04	80 U	< LOD	53.38	253 U	< LOD	168.35	26,464	26463.82	338.93	639	638.87	75.57	44 J	43.88	18.15
BG-3-5 0-2	06/29/10	88 J	87.92	18.09	79 U	< LOD	52.88	241 U	< LOD	160.61	23,774	23773.78	317.75	722	722.15	77.7	57 J	57.14	19.09
Mean		73			79			251			26,295			698			44		
BG-3 0-2 COMP	06/29/10	70 J	70.45	17.66	80 U	< LOD	53.46	267 U	< LOD	178.12	28,371	28371.14	352.61	639	638.92	76.39	54 J	54.15	19.24
%RPD		4%			1%			6%			8%			9%			20%		
BG-3-1 2-12	06/29/10	44 J	43.8	17.23	89 U	< LOD	59.65	313 U	< LOD	208.77	37,457	37457.13	416.91	518	518.33	75.31	47 U	< LOD	31.66
BG-3-2 2-12	06/29/10	32 U	< LOD	21.61	77 U	< LOD	51.61	224 U	< LOD	149.12	21,174	21174.17	299.23	662	662.35	74.31	30 J	30.14	17.2
BG-3-3 2-12	06/29/10	33 J	32.73	15.97	84 U	< LOD	55.89	287 U	< LOD	191.15	33,324	33324.11	383.15	296 J	296	61.04	46 U	< LOD	30.96
BG-3-4 2-12	06/29/10	34 U	< LOD	22.58	84 U	< LOD	56.19	292 U	< LOD	194.91	33,632	33631.55	389.83	553	553.01	74.97	32 J	31.95	18.69
BG-3-5 2-12	06/29/10	34 U	< LOD	22.58	86 U	< LOD	57.24	289 U	< LOD	192.96	32,900	32899.76	384.19	1,197	1196.69	99.6	46 U	< LOD	30.5
Mean		35			84			281			31,697			645			40		
BG-3 2-12 COMP	06/29/10	37 J	36.9	16.16	83 U	< LOD	55.49	282 U	< LOD	187.87	31,620	31620.46	374.21	610	610.24	76.21	44 U	< LOD	29.41
%RPD		4%			1%			0%			0%			6%			9%		
BG-3-1 12-18	06/29/10	35 U	< LOD	23.21	84 U	< LOD	56.15	316 U	< LOD	210.36	39,223	39223.33	422.66	447	446.67	71.38	50 U	< LOD	33.32
BG-3-2 12-18	06/29/10	32 J	32.25	15.12	78 U	< LOD	51.8	248 U	< LOD	165.09	26,052	26052.22	330.2	667	667.24	75.16	44 U	< LOD	29.42
BG-3-3 12-18	06/29/10	31 J	30.73	15.96	84 U	< LOD	56.26	289 U	< LOD	192.76	33,497	33496.87	386.78	279 J	278.73	60.8	47 U	< LOD	31.3
BG-3-4 12-18	06/29/10	29 J	28.72	15.49	81 U	< LOD	54.26	269 U	< LOD	179.35	29,674	29673.57	359.76	619	619.38	75.41	43 U	< LOD	28.51
BG-3-5 12-18	06/29/10	32 U	< LOD	21.57	77 U	< LOD	51.41	232 U	< LOD	154.63	23,494	23494.24	315.71	593	592.63	71.93	39 U	< LOD	26.06
Mean		32			81			271			30,388			521			45		
BG-3 12-18 COMP	06/29/10	40 J	39.86	16.65	87 U	< LOD	57.98	296 U	< LOD	197.09	34,862	34861.72	396.94	545	544.91	75.02	47 U	< LOD	31.35
%RPD		23%			7%			9%			14%			5%			5%		
BG-4-1 0-2	06/28/10	223	222.52	23.65	83 U	< LOD	55.15	290 U	< LOD	193.56	34,763	34762.89	387.57	606	605.54	75.95	46 J	46.33	22.3
BG-4-2 0-2	06/28/10	77 J	77.32	17.37	78 U	< LOD	51.77	239 U	< LOD	159.39	24,221	24221.47	318.14	865	864.53	82.81	30 J	30.31	18.99
BG-4-3 0-2	06/28/10	66 J	65.61	16.83	78 U	< LOD	51.79	238 U	< LOD	158.76	25,065	25064.9	323.41	760	759.75	78.68	33 J	32.58	19.67
BG-4-4 0-2	06/28/10	147	147.32	21.16	82 U	< LOD	54.41	281 U	< LOD	187.04	31,590	31589.84	374.12	1,144	1143.87	96.94	34 J	34.4	19.82
BG-4-5 0-2	06/28/10	116	116.15	18.19	72 U	< LOD	48.06	192 U	< LOD	128.12	16,472	16472.48	254	1,087	1086.56	86.19	40 J	40.03	17.49
Mean		126			79			248			26,422			892			37		
BG-4 0-2 COMP	06/28/10	102	102.01	18.96	82 U	< LOD	54.93	260 U	< LOD	173.61	28,680	28680.2	351.62	993	992.7	89.79	58 J	57.75	20.52
%RPD		21%			4%			5%			8%			11%			45%		
BG-4-1 2-12	06/28/10	25 J	24.79	16.42	91 U	< LOD	60.51	351 U	< LOD	233.77	47,818	47817.51	474.42	586	586.37	81.45	48 U	< LOD	31.93
BG-4-2 2-12	06/28/10	59 J	58.91	16.82	81 U	< LOD	53.78	266 U	< LOD	177.15	29,038	29038.14	352.6	1,109	1108.56	93.61	32 J	32.36	20.04
BG-4-3 2-12	06/28/10	28 J	28.48	15.01	81 U	< LOD	53.9	260 U	< LOD	173.33	29,068	29067.76	349.29	777	776.54	80.46	39 J	38.77	20.74
BG-4-4 2-12	06/28/10	33 J	32.86	16.58	89 U	< LOD	59.43	299 U	< LOD	199.17	33,851	33851	395.39	757	757.19	85.02	52 J	52.14	19.81
BG-4-5 2-12	06/28/10	32 U	< LOD	21.02	77 U	< LOD	51.01	226 U	< LOD	150.74	21,856	21855.81	297.59	757	756.55	76.82	38 J	38.15	18.43
Mean		35			84			280			32,326			797			42		
BG-4 2-12 COMP	06/28/10	29 J	29.41	15.56	82 U	< LOD	54.89	269 U	< LOD	179.25	29,057	29057.36	355.5	712	712.04	79.37	43 J	42.77	19.93
%RPD		20%			2%			4%			11%			11%			3%		
BG-4-1 12-18	06/28/10	26 J	25.82	15.63	84 U	< LOD	56.15	314 U	< LOD	209.4	39,978	39978.47	421.56	429	428.77	70.09	51 U	< LOD	33.73
BG-4-2 12-18	06/28/10	42 J	41.97	15.59	78 U	< LOD	52.33	244 U	< LOD	162.44	25,801	25800.74	327.12	844	843.66	81.81	61 J	61.12	20.49
BG-4-3 12-18	06/28/10	24 J	24.43	15.54	83 U	< LOD	55.49	284 U	< LOD	189.11	32,352	32351.5	379.15	788	788.19	83.95	39 J	39.16	20.8
BG-4-4 12-18	06/28/10	37 U	< LOD	24.95	93 U	< LOD	62.27	260 J	259.85	157.16	44,073	44073.32	465.97	1,188	1187.74	106.64	46 U	< LOD	30.72
BG-4-5 12-18	06/28/10	32 U	< LOD	21.05	76 U	< LOD	50.9	224 U	< LOD	149.09	22,531	22530.85	301.3	603	602.81	70.08	33 J	32.76	19.46
Mean		32			83			265			32,947			770			46		
BG-4 12-18 COMP	06/28/10	36 J	35.6	16.22	83 U	< LOD	55	289 U	< LOD	192.37	33,395	33395.35	386.68	743	743.1	82.57	36 J	36.47	20.8
%RPD		11%			0%			9%			1%			4%			24%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-5-1 0-2	06/22/10	32 J	31.61	15.34	80 U	< LOD	53.03	264 U	< LOD	176.01	29,103	29103.46	351.63	982	981.56	88.48	45 U	< LOD	29.96
BG-5-2 0-2	06/22/10	62 J	61.69	15.88	71 U	< LOD	47.66	200 U	< LOD	133.09	18,041	18040.62	267.35	583	583.48	67.71	41 J	40.87	18.28
BG-5-3 0-2	06/22/10	72 J	71.68	17.16	76 U	< LOD	50.6	229 U	< LOD	152.58	22,753	22753.36	309.67	903	902.51	84.17	29 J	29.3	18.11
BG-5-4 0-2	06/22/10	42 J	41.77	15.73	77 U	< LOD	51.24	248 U	< LOD	165.62	25,741	25740.75	329.77	952	951.99	86.65	51 J	50.94	19.71
BG-5-5 0-2	06/22/10	73 J	73.11	16.84	75 U	< LOD	49.92	229 U	< LOD	152.38	23,121	23121.19	307.13	1,024	1024.38	87.34	41 J	41.03	19.15
Mean		56			76			234			23,752			889			41		
BG-5 0-2 COMP	06/22/10	32 U	< LOD	21.56	81 U	< LOD	53.89	243 U	< LOD	162.29	25,427	25426.94	328.11	755	754.77	79.26	47 J	46.69	19.23
%RPD		55%			7%			4%			7%			16%			13%		
BG-5-1 2-12	06/22/10	33 U	< LOD	21.92	77 U	< LOD	51.03	264 U	< LOD	176.2	29,537	29537.4	354.46	584	583.57	72.95	45 U	< LOD	30.18
BG-5-2 2-12	06/22/10	27 J	27.09	14.48	76 U	< LOD	50.63	215 U	< LOD	143.47	20,661	20660.59	289.31	336	336.25	57.23	40 U	< LOD	26.69
BG-5-3 2-12	06/22/10	33 U	< LOD	22.11	81 U	< LOD	54.01	274 U	< LOD	182.48	31,197	31197.45	366.85	809	809.39	83.22	47 U	< LOD	31.06
BG-5-4 2-12	06/22/10	27 J	27.32	15.69	83 U	< LOD	55.13	281 U	< LOD	187.38	32,438	32437.52	379.89	678	677.5	79.48	45 U	< LOD	30.02
BG-5-5 2-12	06/22/10	34 U	< LOD	22.87	81 U	< LOD	54.05	274 U	< LOD	182.73	29,928	29927.61	364.01	783	783.09	82.93	45 J	45.25	19.16
Mean		31			80			262			28,752			638			44		
BG-5 2-12 COMP	06/22/10	34 J	34.1	15.97	83 U	< LOD	55.3	211 J	210.53	124.29	30,439	30438.64	366.74	698	697.67	79.59	30 J	30.31	19.81
%RPD		10%			4%			21%			6%			9%			39%		
BG-5-1 12-18	06/22/10	34 U	< LOD	22.71	62 J	61.68	38.2	274 U	< LOD	182.49	30,748	30747.6	369.48	554	554.33	73.68	32 J	31.6	19.21
BG-5-2 12-18	06/22/10	25 J	24.61	14.35	70 J	69.51	34.45	192 U	< LOD	127.79	17,126	17125.69	262.94	233 J	232.86	50.25	35 U	< LOD	23.45
BG-5-3 12-18	06/22/10	26 J	25.78	15.38	82 U	< LOD	54.69	269 U	< LOD	179.32	30,145	30144.89	362.69	827	826.5	84.24	45 U	< LOD	30.14
BG-5-4 12-18	06/22/10	25 J	25.42	15.22	83 U	< LOD	55.04	269 U	< LOD	179.57	30,699	30699.06	363.32	650	650.07	76.6	33 J	32.97	19.65
BG-5-5 12-18	06/22/10	42 J	41.64	17.92	95 U	< LOD	63.42	377 U	< LOD	251.22	51,761	51761.23	504.14	975	974.57	99.93	55 U	< LOD	36.89
Mean		30			78			276			32,096			648			40		
BG-5 12-18 COMP	06/22/10	24 J	24.11	15.48	85 U	< LOD	56.82	300 U	< LOD	199.87	36,322	36322.38	400.75	766	766.16	83.54	48 U	< LOD	31.69
%RPD		24%			8%			8%			12%			17%			18%		
BG-6-1 0-2	06/28/10	48 J	47.92	15.81	76 U	< LOD	50.86	226 U	< LOD	150.7	21,764	21764.09	300.36	943	942.85	84.74	53 J	53.08	18.67
BG-6-2 0-2	06/28/10	54 J	53.95	19.36	99 U	< LOD	66.08	410 U	< LOD	273.01	56,731	56731.29	542.65	705	705.06	93.32	45 J	45.13	20.25
BG-6-3 0-2	06/28/10	65 J	65.12	18.48	91 U	< LOD	60.45	250 J	249.64	140.69	36,557	36557.12	415.44	766	766.44	87.29	48 J	47.87	19.26
BG-6-4 0-2	06/28/10	90	89.76	17.79	75 U	< LOD	49.71	230 U	< LOD	153.33	22,397	22397.15	304.89	840	839.51	80.96	44 J	44.06	18.57
BG-6-5 0-2	06/28/10	166	165.5	20.76	75 U	< LOD	49.88	224 U	< LOD	149.6	21,158	21158.4	294.65	714	713.81	75.38	50 J	50.28	18.52
Mean		85			83			268			31,721			794			48		
BG-6 0-2 COMP	06/28/10	42 J	42.39	15.98	80 U	< LOD	53.26	253 U	< LOD	168.55	26,359	26359.35	335.66	727	727.07	78.8	47 J	46.77	18.43
%RPD		67%			4%			6%			18%			9%			2%		
BG-6-1 2-12	06/28/10	35 J	35.45	15.3	76 U	< LOD	50.84	233 U	< LOD	155.01	22,943	22942.84	310.05	612	612.21	72.54	34 J	33.63	18.47
BG-6-2 2-12	06/28/10	29 J	28.92	15.12	79 U	< LOD	52.99	253 U	< LOD	168.82	27,897	27896.67	343.04	421	421.38	64.84	39 J	39	17.28
BG-6-3 2-12	06/28/10	39 J	38.87	16.93	89 U	< LOD	59.48	311 U	< LOD	207.53	36,748	36748.28	412.62	631	631.04	79.88	45 J	45.26	19.57
BG-6-4 2-12	06/28/10	31 J	30.89	15.34	80 U	< LOD	53.49	242 U	< LOD	161.61	24,445	24444.79	322.42	559	559.37	71.08	41 J	40.82	18.41
BG-6-5 2-12	06/28/10	35 J	34.74	15.85	81 U	< LOD	53.91	272 U	< LOD	181.12	29,494	29494.47	359.22	683	682.5	78.4	44 J	44.24	20.37
Mean		34			81			262			28,305			581			41		
BG-6 2-12 COMP	06/28/10	33 U	< LOD	22.3	80 U	< LOD	53.45	255 U	< LOD	170.06	25,705	25704.86	335.83	590	590.38	73.69	50 J	49.6	18.56
%RPD		2%			1%			3%			10%			2%			21%		
BG-6-1 12-18	06/28/10	24 J	23.78	15.28	83 U	< LOD	55.35	277 U	< LOD	184.71	31,048	31048.26	368.32	626	626.04	76.28	74 J	73.74	20.63
BG-6-2 12-18	06/28/10	35 U	< LOD	23.28	70 J	70	40.16	332 U	< LOD	221.36	44,446	44446.11	456.69	615	614.86	82.15	41 U	< LOD	27.34
BG-6-3 12-18	06/28/10	35 U	< LOD	23.08	86 U	< LOD	57.21	281 U	< LOD	187.16	31,511	31511.43	373.95	667	667.29	78.66	60 J	60.11	20.61
BG-6-4 12-18	06/28/10	27 J	27.06	15.72	83 U	< LOD	55.52	233 U	< LOD	155.35	21,052	21051.87	306.74	448	448.02	66.21	29 J	29.44	17.82
BG-6-5 12-18	06/28/10	28 J	28.1	15.87	86 U	< LOD	57.08	260 U	< LOD	173.41	27,159	27159.41	347.64	525	525.07	71.6	43 J	42.56	20.12
Mean		30			82			277			31,043			576			49		
BG-6 12-18 COMP	06/28/10	29 J	29.16	15.54	82 U	< LOD	54.96	251 U	< LOD	167.55	25,679	25679.43	334.74	453	452.6	67.03	42 U	< LOD	27.76
%RPD		3%			0%			10%			19%			24%			16%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	78 J	78.24	23.82	124 U	< LOD	82.36	653 J	652.85	260.29	94,685	94685.1	769.53	1,224	1223.76	132.27	71 J	70.88	22.34
BG-7-2 0-2	06/27/10	46 J	46.31	16.17	80 U	< LOD	53.37	258 U	< LOD	171.93	28,464	28464.18	348.74	721	721.22	78.68	50 J	49.69	19.62
BG-7-3 0-2	06/27/10	53 J	52.78	16.79	80 U	< LOD	53.24	267 U	< LOD	178.23	28,663	28662.99	354.41	681	680.65	78.55	47 J	46.94	18.79
BG-7-4 0-2	06/27/10	58 J	58.47	16.57	80 U	< LOD	53.08	239 U	< LOD	159.34	24,056	24056.11	317.95	761	761.28	79.03	33 J	33.28	18.71
BG-7-5 0-2	06/27/10	70 J	70.19	18.85	92 U	< LOD	61.27	321 U	< LOD	213.83	38,654	38653.98	427.52	717	716.85	85.4	55 J	55.2	19.81
Mean		61			91			348			42,904			821			51		
BG-7 0-2 COMP	06/27/10	62 J	61.81	19.07	93 U	< LOD	62.06	271 J	271.42	161.14	45,758	45757.95	477.51	828	827.65	93.88	50 J	50.09	19.73
%RPD		2%			2%			25%			6%			1%			2%		
BG-7-1 2-12	06/27/10	60 J	60.25	20.99	114 U	< LOD	75.74	606 J	605.66	210.07	68,172	68172.16	616.56	829	829.27	104.14	89 J	88.55	21.76
BG-7-2 2-12	06/27/10	30 J	30.31	16.23	84 U	< LOD	55.77	298 U	< LOD	198.53	35,031	35031.1	399.55	665	665.16	81.08	32 J	32.41	19.91
BG-7-3 2-12	06/27/10	32 U	< LOD	21.55	81 U	< LOD	53.85	262 U	< LOD	174.8	28,625	28624.67	352.53	560	560.25	72.56	42 U	< LOD	28.33
BG-7-4 2-12	06/27/10	42 J	42.18	15.98	80 U	< LOD	53.32	261 U	< LOD	174.27	28,011	28011.24	345.93	736	736.21	79.25	46 U	< LOD	30.53
BG-7-5 2-12	06/27/10	35 U	< LOD	23.52	87 U	< LOD	57.78	287 U	< LOD	191.32	33,496	33496.34	387.8	555	555.13	74.87	38 J	38.38	20.64
Mean		40			89			343			38,667			669			49		
BG-7 2-12 COMP	06/27/10	35 U	< LOD	23.13	85 U	< LOD	56.46	282 U	< LOD	187.93	32,232	32231.75	378.91	692	692.46	80.63	32 J	32.13	19.29
%RPD		13%			5%			19%			18%			3%			43%		
BG-7-1 12-18	06/27/10	69 U	< LOD	46.08	209 U	< LOD	139.14	1,030 J	1030.27	568.25	298,242	298242	1701.01	1,485	1485.11	215.87	51 J	50.88	28.45
BG-7-2 12-18	06/27/10	29 J	28.93	16.42	87 U	< LOD	58.22	299 U	< LOD	199.54	34,302	34302.49	399.56	736	736.04	84.54	38 J	38.45	19.91
BG-7-3 12-18	06/27/10	35 U	< LOD	23.22	84 U	< LOD	56.25	286 U	< LOD	190.61	32,610	32609.76	381.47	782	781.79	83.97	42 J	41.67	19.95
BG-7-4 12-18	06/27/10	24 J	23.77	15.34	82 U	< LOD	54.62	243 U	< LOD	162.07	23,939	23939.2	324.06	539	539.13	70.97	33 J	33.12	18.83
BG-7-5 12-18	06/27/10	33 U	< LOD	22.1	81 U	< LOD	53.91	268 U	< LOD	178.45	29,549	29548.77	355.72	495	495.25	69.35	49 J	48.87	20.62
Mean		38			109			425			83,728			807			43		
BG-7 12-18 COMP	06/27/10	39 U	< LOD	25.91	97 U	< LOD	64.89	400 J	400.17	159.27	42,979	42978.74	466.44	682	682.4	87.89	48 J	47.87	19.9
%RPD		3%			11%			6%			64%			17%			12%		
BG-8-1 0-2	06/26/10	127	126.96	19.36	79 U	< LOD	52.64	230 U	< LOD	153.49	22,871	22870.93	306.86	797	797.06	79.44	48 J	47.92	18.78
BG-8-2 0-2	06/26/10	34 J	34.07	16.32	86 U	< LOD	57.11	284 U	< LOD	189.34	31,878	31878.22	379.87	903	903.21	89.25	37 J	36.77	19.73
BG-8-3 0-2	06/26/10	47 J	47.48	15.51	74 U	< LOD	49.55	219 U	< LOD	146.12	21,494	21494.37	294.69	837	837.37	79.83	58 J	58.28	19.19
BG-8-4 0-2	06/26/10	94	93.64	18.48	78 U	< LOD	52.14	238 U	< LOD	158.57	23,112	23111.67	315.39	1,001	1000.86	89.01	35 J	35.39	18.18
BG-8-5 0-2	06/26/10	154	154.45	21.45	82 U	< LOD	54.95	269 U	< LOD	179.17	29,644	29644.16	362.47	1,039	1038.81	93.11	37 J	37.29	19.47
Mean		91			80			248			25,800			915			43		
BG-8 0-2 COMP	06/26/10	73 J	72.85	17.47	78 U	< LOD	51.92	251 U	< LOD	167.5	26,467	26467.07	336.61	829	828.83	82.57	43 J	42.75	19.12
%RPD		22%			2%			1%			3%			10%			0%		
BG-8-1 2-12	06/26/10	24 J	24.21	14.57	80 U	< LOD	53.23	235 J	234.95	107.64	24,017	24016.5	314.35	638	637.68	72.94	34 J	33.61	18.7
BG-8-2 2-12	06/26/10	35 U	< LOD	23.35	82 U	< LOD	54.58	295 U	< LOD	196.69	34,086	34085.75	394.36	875	874.96	88.87	38 J	37.98	20.3
BG-8-3 2-12	06/26/10	34 U	< LOD	22.68	82 U	< LOD	54.87	274 U	< LOD	182.69	30,458	30458.34	364.46	651	650.74	77.05	45 J	44.52	19.6
BG-8-4 2-12	06/26/10	29 J	28.5	15.29	81 U	< LOD	53.91	254 U	< LOD	169.25	26,285	26284.92	335.4	728	727.83	78.77	33 J	32.75	19.4
BG-8-5 2-12	06/26/10	31 J	30.61	15.87	85 U	< LOD	56.55	281 U	< LOD	187.61	31,606	31606.01	374.96	1,019	1018.5	92.58	45 U	< LOD	30.28
Mean		31			82			268			29,290			782			39		
BG-8 2-12 COMP	06/26/10	33 U	< LOD	22.3	84 U	< LOD	56.2	277 U	< LOD	184.87	31,263	31263.16	372.59	750	749.52	82.44	35 J	34.85	19.51
%RPD		8%			2%			3%			7%			4%			11%		
BG-8-1 12-18	06/26/10	34 J	33.6	15.16	79 U	< LOD	52.82	236 U	< LOD	157.26	23,665	23664.81	312.89	704	703.5	75.7	41 J	40.5	18.84
BG-8-2 12-18	06/26/10	33 J	33.41	16.84	92 U	< LOD	61.33	321 U	< LOD	214.08	38,945	38944.84	427.78	898	897.5	92.38	49 U	< LOD	32.93
BG-8-3 12-18	06/26/10	33 U	< LOD	22.06	80 U	< LOD	53.22	258 U	< LOD	171.72	27,597	27596.66	347.81	650	650.26	76.57	31 J	30.78	18.87
BG-8-4 12-18	06/26/10	28 J	28.36	15.76	81 U	< LOD	54.29	261 U	< LOD	173.87	28,084	28084.32	353.21	867	867.39	86.01	41 U	< LOD	27.37
BG-8-5 12-18	06/26/10	34 U	< LOD	22.51	81 U	< LOD	53.85	278 U	< LOD	185.34	31,825	31825	373.08	1,059	1058.68	93.44	47 U	< LOD	31.43
Mean		32			83			271			30,023			836			42		
BG-8 12-18 COMP	06/26/10	25 J	25.35	15.65	84 U	< LOD	56.24	286 U	< LOD	190.86	33,020	33019.8	383.85	870	869.72	87.03	33 J	32.57	20.09
%RPD		26%			2%			5%			10%			4%			24%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-9-1 0-2	06/22/10	94	94.2	18.01	75 U	< LOD	50.29	213 U	< LOD	141.84	19,657	19656.5	285.53	653	652.53	72.64	37 U	< LOD	24.84
BG-9-2 0-2	06/22/10	61 J	61.38	16.27	74 U	< LOD	49.45	213 U	< LOD	141.91	19,943	19943.48	285.28	796	796.35	77.82	47 J	46.98	18.14
BG-9-3 0-2	06/22/10	36 J	35.85	22.76	136 U	< LOD	90.66	600 J	600.17	291.76	113,162	113162	867.35	1,167	1166.56	137.07	62 J	62.4	23.56
BG-9-4 0-2	06/22/10	63 J	62.77	16.61	76 U	< LOD	50.39	231 U	< LOD	153.79	22,676	22675.74	307.3	537	537.33	68.33	40 U	< LOD	26.71
BG-9-5 0-2	06/22/10	86 J	86.26	19.04	86 U	< LOD	57.12	311 U	< LOD	207.63	37,869	37869.37	415.83	822	821.96	87.97	41 J	40.55	19.97
Mean		68			89			314			42,661			795			45		
BG-9 0-2 COMP	06/22/10	70 J	70	18.63	88 U	< LOD	58.93	307 J	306.94	139.6	35,851	35851.42	409.85	844	844.38	89.28	54 J	53.7	19.16
%RPD		3%			2%			2%			17%			6%			17%		
BG-9-1 2-12	06/22/10	39 J	38.84	15.66	79 U	< LOD	52.87	247 U	< LOD	164.74	25,655	25654.91	330.26	794	793.69	80.71	35 J	35.09	19.6
BG-9-2 2-12	06/22/10	29 J	28.95	14.59	77 U	< LOD	51.27	237 U	< LOD	158.19	24,693	24693.18	316.05	605	604.67	70.98	30 J	29.96	19.41
BG-9-3 2-12	06/22/10	33 J	32.53	16.12	87 U	< LOD	58.26	319 U	< LOD	212.66	40,004	40004.26	424.05	790	789.71	86.13	50 U	< LOD	33.07
BG-9-4 2-12	06/22/10	35 U	< LOD	23.63	88 U	< LOD	58.67	310 U	< LOD	206.87	38,532	38532.13	417.07	576	576.06	77.22	41 J	41.06	22.06
BG-9-5 2-12	06/22/10	28 J	28.17	15.82	85 U	< LOD	56.62	311 U	< LOD	207.45	39,087	39087.28	418.11	672	671.79	81.04	58 J	57.98	22.34
Mean		33			83			285			33,594			687			43		
BG-9 2-12 COMP	06/22/10	33 U	< LOD	21.98	81 U	< LOD	54.13	268 U	< LOD	178.93	30,046	30045.74	360.07	647	646.89	76.66	40 J	39.94	20.7
%RPD		1%			3%			6%			11%			6%			7%		
BG-9-1 12-18	06/22/10	33 U	< LOD	22.14	80 U	< LOD	53.18	251 U	< LOD	167.62	26,385	26385.09	336.46	713	713.18	78.49	30 J	29.95	19.34
BG-9-2 12-18	06/22/10	25 J	25.42	14.92	79 U	< LOD	52.76	248 U	< LOD	165.08	26,152	26152.43	332.62	661	661.14	75.44	43 U	< LOD	28.76
BG-9-3 12-18	06/22/10	28 J	27.8	16.15	86 U	< LOD	57.19	307 U	< LOD	204.88	37,304	37303.84	413.51	703	703.42	83.27	42 J	42	21.18
BG-9-4 12-18	06/22/10	34 U	< LOD	22.91	86 U	< LOD	57.32	290 U	< LOD	193.03	33,785	33784.52	388.25	539	539.49	74.09	34 J	34.29	20.57
BG-9-5 12-18	06/22/10	35 U	< LOD	23.14	83 U	< LOD	55.12	282 U	< LOD	188.18	31,694	31693.7	377.15	572	572.03	75.19	42 U	< LOD	27.91
Mean		31			83			276			31,064			638			38		
BG-9 12-18 COMP	06/22/10	26 J	26.47	15.33	80 U	< LOD	53.62	268 U	< LOD	178.9	30,024	30023.95	361.78	594	594.19	74.29	37 J	36.9	19.46
%RPD		18%			3%			3%			3%			7%			3%		
BG-10-1 0-2	06/23/10	50 J	49.91	15.93	78 U	< LOD	51.79	219 U	< LOD	145.67	20,477	20477.18	291.45	917	917.06	83.41	39 U	< LOD	26.09
BG-10-2 0-2	06/23/10	182	182	23.01	87 U	< LOD	57.89	305 U	< LOD	203.33	35,952	35951.82	405.35	769	768.84	85.19	61 J	61.08	19.42
BG-10-3 0-2	06/23/10	81 J	81.45	18.29	83 U	< LOD	55.54	251 U	< LOD	167.14	25,600	25599.65	335.12	657	657.04	76.46	38 J	37.76	17.44
BG-10-4 0-2	06/23/10	52 J	52.21	16.78	83 U	< LOD	55.58	224 J	224.34	122.49	29,804	29803.5	360.57	540	540.06	72.35	34 J	33.82	18.86
BG-10-5 0-2	06/23/10	55 J	55.32	18.27	94 U	< LOD	62.48	347 U	< LOD	231.03	45,005	45004.56	464.4	995	994.55	98.06	51 J	51.1	21.71
Mean		84			85			269			31,368			776			45		
BG-10 0-2 COMP	06/23/10	87 J	87.27	18.63	84 U	< LOD	56.03	285 U	< LOD	190.19	31,967	31966.6	376.85	1,016	1016.42	92.53	42 J	42.11	19.6
%RPD		4%			1%			6%			2%			27%			6%		
BG-10-1 2-12	06/23/10	32 U	< LOD	21.4	78 U	< LOD	51.82	232 U	< LOD	154.84	23,356	23356.1	309.18	552	552.29	68.75	42 J	42.18	19.04
BG-10-2 2-12	06/23/10	36 U	< LOD	24.22	91 U	< LOD	60.35	329 U	< LOD	219.56	41,120	41120.41	437.49	701	701.3	84.4	42 J	41.65	20.8
BG-10-3 2-12	06/23/10	27 J	27.21	14.87	79 U	< LOD	52.47	230 U	< LOD	153.14	22,462	22461.95	305.68	787	786.53	79.36	43 J	43.34	18.54
BG-10-4 2-12	06/23/10	32 U	< LOD	21.55	79 U	< LOD	52.8	260 U	< LOD	173.1	27,721	27721.27	343.37	461	461.01	66.97	48 J	47.95	19.19
BG-10-5 2-12	06/23/10	37 J	36.86	16.59	89 U	< LOD	59.49	331 U	< LOD	220.94	43,799	43799.41	446.73	816	816.48	88.44	47 J	46.79	23.35
Mean		33			83			276			31,692			663			44		
BG-10 2-12 COMP	06/23/10	30 J	30.47	15.58	82 U	< LOD	54.45	277 U	< LOD	184.64	31,109	31109.48	367.91	624	623.66	76.17	43 J	43.16	19.75
%RPD		9%			1%			0%			2%			6%			3%		
BG-10-1 12-18	06/23/10	33 U	< LOD	22.05	81 U	< LOD	54.21	277 U	< LOD	184.68	32,192	32192.41	373.85	678	678.34	78.52	31 J	31.17	20.67
BG-10-2 12-18	06/23/10	34 J	33.67	16.52	90 U	< LOD	59.78	331 U	< LOD	220.45	42,182	42182.15	439.46	835	834.57	88.98	50 U	< LOD	33.33
BG-10-3 12-18	06/23/10	32 U	< LOD	21.44	74 U	< LOD	49.21	210 U	< LOD	139.8	19,034	19034.2	279.5	529	529.04	66.78	52 J	52.47	18.4
BG-10-4 12-18	06/23/10	31 U	< LOD	20.96	84 U	< LOD	56.31	272 U	< LOD	181.16	30,819	30818.56	365.11	438	437.85	67.23	43 U	< LOD	28.82
BG-10-5 12-18	06/23/10	38 J	37.7	16.44	85 U	< LOD	56.69	315 U	< LOD	209.93	38,976	38976.26	419.67	1,319	1319.03	105.02	52 U	< LOD	34.7
Mean		34			83			281			32,641			760			46		
BG-10 12-18 COMP	06/23/10	34 U	< LOD	22.87	83 U	< LOD	55.36	286 U	< LOD	190.53	33,398	33397.86	383.03	765	764.57	82.83	45 J	44.56	21.29
%RPD		1%			0%			2%			2%			1%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
		Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ	Concentration	Instrument Reading	Instrument 2σ
BG-11-1 0-2	06/27/10	148	147.59	20.16	76 U	< LOD	50.61	209 U	< LOD	139	18,720	18719.93	277.68	678	678.11	73.47	36 J	35.78	17.58
BG-11-2 0-2	06/27/10	65 J	65.05	16.56	77 U	< LOD	51.05	220 U	< LOD	146.72	20,888	20888.35	293.23	883	883.24	81.92	41 U	< LOD	27.28
BG-11-3 0-2	06/27/10	62 J	61.79	16.7	81 U	< LOD	54.1	238 U	< LOD	158.9	23,880	23879.52	316.16	864	863.82	82.67	39 J	38.77	18.66
BG-11-4 0-2	06/27/10	99	99.35	17.89	74 U	< LOD	49.65	202 U	< LOD	134.51	18,377	18376.97	272.43	776	775.69	76.49	38 U	< LOD	25.11
BG-11-5 0-2	06/27/10	83 J	82.85	18.45	87 U	< LOD	57.69	293 U	< LOD	195.13	34,963	34962.61	393.16	993	992.54	91.85	46 U	< LOD	30.68
Mean		91			79			232			23,366			839			40		
BG-11 0-2 COMP	06/27/10	56 J	56.26	16.43	80 U	< LOD	53.35	238 U	< LOD	158.37	24,090	24089.62	317.62	807	806.84	80.72	27 J	27.44	17.69
%RPD		48%			1%			2%			3%			4%			39%		
BG-11-1 2-12	06/27/10	28 J	27.84	15.21	59 J	58.57	36.58	244 U	< LOD	162.35	25,395	25394.85	328.33	626	626.38	73.9	47 J	46.72	19.36
BG-11-2 2-12	06/27/10	34 U	< LOD	22.41	82 U	< LOD	54.89	255 U	< LOD	169.71	27,258	27258.08	342.73	763	762.61	80.34	43 J	42.54	19.57
BG-11-3 2-12	06/27/10	26 J	25.53	15.49	82 U	< LOD	54.85	280 U	< LOD	186.99	31,756	31755.74	374.22	802	802.32	84.09	47 J	47.23	20.52
BG-11-4 2-12	06/27/10	34 U	< LOD	22.82	82 U	< LOD	54.93	265 U	< LOD	176.71	29,500	29499.57	358.86	776	776.05	81.98	31 J	31.28	20.27
BG-11-5 2-12	06/27/10	33 U	< LOD	22.33	79 U	< LOD	52.9	257 U	< LOD	171.51	27,826	27825.96	347.4	786	786.13	81.89	39 U	< LOD	26.01
Mean		31			77			260			28,347			751			41		
BG-11 2-12 COMP	06/27/10	33 U	< LOD	21.97	77 U	< LOD	51.25	265 U	< LOD	176.72	29,539	29538.95	356.51	753	752.91	80.61	41 J	40.88	19.79
%RPD		6%			0%			2%			4%			0%			1%		
BG-11-1 12-18	06/27/10	31 U	< LOD	20.85	80 U	< LOD	53.56	260 U	< LOD	173.23	29,564	29564.45	352.67	488	488.45	68.35	47 J	47.42	21.35
BG-11-2 12-18	06/27/10	36 U	< LOD	23.68	88 U	< LOD	58.79	319 U	< LOD	212.96	40,420	40420.14	428.17	848	848.34	88.83	50 U	< LOD	33.5
BG-11-3 12-18	06/27/10	34 U	< LOD	22.84	83 U	< LOD	55.25	281 U	< LOD	187.3	32,158	32157.6	379.21	877	877.3	87.73	33 J	33.2	20.14
BG-11-4 12-18	06/27/10	33 U	< LOD	21.89	80 U	< LOD	53.14	264 U	< LOD	175.71	30,352	30351.85	357.91	845	845.08	83.73	37 J	37.48	21.09
BG-11-5 12-18	06/27/10	30 J	30.35	16.34	86 U	< LOD	57.19	286 U	< LOD	190.53	31,859	31858.54	383.26	768	768.11	84.59	40 J	39.67	19.18
Mean		33			83			282			32,871			765			41		
BG-11 12-18 COMP	06/27/10	33 U	< LOD	22.06	88 U	< LOD	58.68	303 U	< LOD	202.2	35,903	35903.13	403.77	1,242	1241.78	102.44	54 J	53.78	21.28
%RPD		1%			5%			7%			9%			48%			26%		
BG-12-1 0-2	06/26/10	52 J	51.63	16.89	80 U	< LOD	53.09	258 U	< LOD	172.07	27,248	27247.98	347.75	857	857.07	85.99	42 U	< LOD	27.84
BG-12-2 0-2	06/26/10	60 J	59.74	16.43	78 U	< LOD	52.31	257 U	< LOD	171.04	28,101	28101.49	341.22	772	771.53	79.74	39 J	38.51	20.54
BG-12-3 0-2	06/26/10	53 J	53.43	16.02	79 U	< LOD	52.38	233 U	< LOD	155.58	23,507	23506.99	310.53	875	874.77	82.29	44 U	< LOD	29.46
BG-12-4 0-2	06/26/10	126	126.01	19.52	79 U	< LOD	52.65	232 U	< LOD	154.79	23,386	23385.8	313.37	1,115	1115.2	91.83	48 J	47.62	19.27
BG-12-5 0-2	06/26/10	119	118.73	19.07	77 U	< LOD	51.05	241 U	< LOD	160.53	24,681	24680.77	320	1,001	1000.71	87.52	35 J	35.31	19.6
Mean		82			79			244			25,385			924			42		
BG-12 0-2 COMP	06/26/10	48 J	48.22	16.45	83 U	< LOD	55.23	260 U	< LOD	173.27	27,515	27514.95	344.85	861	860.73	84.75	50 J	49.53	19.95
%RPD		52%			5%			6%			8%			7%			18%		
BG-12-1 2-12	06/26/10	40 J	39.88	16.15	80 U	< LOD	53.42	272 U	< LOD	181.36	30,000	29999.87	363.16	698	698.35	79.65	43 U	< LOD	28.82
BG-12-2 2-12	06/26/10	29 J	28.81	16.36	62 J	61.67	40.06	308 U	< LOD	205.66	37,431	37431.36	415.13	802	801.86	86.96	48 U	< LOD	32.05
BG-12-3 2-12	06/26/10	34 U	< LOD	22.6	85 U	< LOD	56.76	283 U	< LOD	188.97	33,391	33390.81	382.34	755	755.24	82.28	42 J	42.04	21.33
BG-12-4 2-12	06/26/10	31 U	< LOD	20.79	74 U	< LOD	49.03	235 U	< LOD	156.51	25,139	25139.2	319.68	649	649.09	73.01	44 J	44.19	20.35
BG-12-5 2-12	06/26/10	27 J	27.35	15.3	58 J	58.06	37.38	267 U	< LOD	178.17	29,924	29924	358.1	742	742.25	80.12	42 J	42.28	20.46
Mean		32			72			273			31,177			729			44		
BG-12 2-12 COMP	06/26/10	35 J	35.07	15.57	82 U	< LOD	54.42	262 U	< LOD	174.56	29,108	29107.53	352.31	771	771.08	80.95	37 J	36.68	20.72
%RPD		8%			13%			4%			7%			6%			17%		
BG-12-1 12-18	06/26/10	33 U	< LOD	21.87	83 U	< LOD	55.52	260 U	< LOD	173.08	28,532	28532.42	353.61	634	634.09	76.04	42 U	< LOD	27.97
BG-12-2 12-18	06/26/10	29 J	29.28	15.78	83 U	< LOD	55.33	293 U	< LOD	195.61	34,503	34502.62	391.17	652	652.34	78.69	48 U	< LOD	31.73
BG-12-3 12-18	06/26/10	26 J	25.81	15.77	84 U	< LOD	55.83	286 U	< LOD	190.76	32,103	32103.48	379.7	697	696.88	80.77	41 J	41.2	20.81
BG-12-4 12-18	06/26/10	31 U	< LOD	20.92	83 U	< LOD	55.07	268 U	< LOD	178.69	29,926	29926.45	358.61	819	819.02	83.78	49 J	49.13	20.96
BG-12-5 12-18	06/26/10	30 J	29.65	16.21	89 U	< LOD	59.41	343 U	< LOD	228.63	45,916	45915.99	458.06	978	978.3	95.36	53 U	< LOD	35.62
Mean		30			84			290			34,196			756			47		
BG-12 12-18 COMP	06/26/10	28 J	28.39	15.74	82 U	< LOD	54.62	293 U	< LOD	195.58	34,040	34039.89	389.48	775	774.55	83.7	45 J	45.32	20.98
%RPD		6%			3%			1%			0%			2%			3%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	96 J	95.93	21.63	100 U	< LOD	66.77	347 J	346.68	178.27	52,965	52964.76	527.37	1,002	1001.9	104.75	62 J	61.94	21.94
BG-13-2 0-2	06/22/10	46 J	45.7	16.65	83 U	< LOD	55.32	269 U	< LOD	179.25	28,442	28441.54	355.42	658	657.6	77.72	64 J	64.39	20.03
BG-13-3 0-2	06/22/10	56 J	55.94	16.09	76 U	< LOD	50.58	223 U	< LOD	148.72	20,953	20953.36	293.21	620	620.05	71.3	55 J	54.75	18.47
BG-13-4 0-2	06/22/10	33 J	32.79	14.85	76 U	< LOD	50.94	216 U	< LOD	144.3	20,912	20911.88	291.77	644	644.26	71.99	45 J	44.58	18.17
BG-13-5 0-2	06/22/10	33 J	32.77	14.66	75 U	< LOD	50.27	202 U	< LOD	134.37	18,155	18154.74	269.37	669	668.88	71.71	53 J	53.06	18.06
Mean		53			82			251			28,285			719			56		
BG-13 0-2 COMP	06/22/10	34 J	33.58	15.23	77 U	< LOD	51.29	237 U	< LOD	157.89	24,098	24097.91	317.15	636	635.79	73.32	65 J	65.18	19.02
%RPD		43%			6%			6%			16%			12%			15%		
BG-13-1 2-12	06/22/10	46 J	45.97	18.83	103 U	< LOD	68.82	424 U	< LOD	282.72	62,790	62789.7	567.03	944	943.85	103.32	66 J	65.53	25.23
BG-13-2 2-12	06/22/10	33 J	33.02	15.72	82 U	< LOD	54.77	292 U	< LOD	194.86	34,108	34108.32	385.66	522	522.3	72.56	43 J	42.7	21.65
BG-13-3 2-12	06/22/10	32 U	< LOD	21.18	78 U	< LOD	52.15	237 U	< LOD	158.26	22,802	22801.61	311.08	581	580.55	71.1	39 U	< LOD	26.02
BG-13-4 2-12	06/22/10	31 U	< LOD	20.52	80 U	< LOD	53.47	235 U	< LOD	156.73	23,007	23007.21	314.72	624	623.73	73.63	34 J	33.6	16.95
BG-13-5 2-12	06/22/10	34 U	< LOD	22.44	81 U	< LOD	53.7	244 U	< LOD	162.35	24,387	24386.89	323.73	543	543.39	70.54	30 J	29.5	18.47
Mean		35			85			286			33,419			643			42		
BG-13 2-12 COMP	06/22/10	24 J	23.98	15.78	85 U	< LOD	56.61	316 U	< LOD	210.35	39,818	39818.41	425	766	766.16	85.68	38 J	37.65	20.43
%RPD		38%			0%			10%			17%			17%			11%		
BG-13-1 12-18	06/22/10	53 J	53.37	17.58	89 U	< LOD	59.17	324 U	< LOD	215.77	40,826	40825.64	433.83	495	494.96	74.72	48 U	< LOD	32.18
BG-13-2 12-18	06/22/10	26 J	26.31	15.6	85 U	< LOD	56.82	267 U	< LOD	178.32	29,169	29168.7	358.2	533	532.84	71.79	44 J	43.91	19.95
BG-13-3 12-18	06/22/10	36 J	35.54	16.1	80 U	< LOD	53.04	242 U	< LOD	161.62	22,840	22839.63	318.52	569	569.29	72.05	41 U	< LOD	27.32
BG-13-4 12-18	06/22/10	31 U	< LOD	20.62	67 J	67.13	35.98	227 U	< LOD	151.64	22,525	22524.72	305.66	1,703	1702.85	109.31	42 U	< LOD	28.11
BG-13-5 12-18	06/22/10	24 J	24.26	14.94	80 U	< LOD	53.02	259 U	< LOD	172.83	28,500	28499.51	347.48	445	444.84	66.07	37 J	36.52	20.18
Mean		34			80			264			28,772			749			42		
BG-13 12-18 COMP	06/22/10	33 J	33.43	15.69	59 J	58.53	37.53	257 U	< LOD	171.38	27,157	27157.35	342.84	1,060	1060.15	92.02	37 J	36.8	20.09
%RPD		3%			30%			3%			6%			34%			14%		
BG-14-1 0-2	06/23/10	42 J	41.84	17.3	91 U	< LOD	60.74	308 U	< LOD	205.05	36,380	36380.01	413.08	754	754.1	85.72	43 U	< LOD	28.43
BG-14-2 0-2	06/23/10	59 J	58.58	17.42	83 U	< LOD	55.36	289 U	< LOD	192.62	32,635	32635.05	383.2	718	717.78	81.98	32 J	31.98	19.75
BG-14-3 0-2	06/23/10	106	105.82	18.6	78 U	< LOD	51.89	226 U	< LOD	150.58	21,787	21786.64	301.44	821	820.78	80.43	67 J	66.93	19.04
BG-14-4 0-2	06/23/10	65 J	65.34	17.08	77 U	< LOD	51.48	252 U	< LOD	168.14	26,240	26239.53	334.67	653	653.22	75.5	40 J	40.37	18.93
BG-14-5 0-2	06/23/10	83 J	83.23	17.59	77 U	< LOD	51.1	222 U	< LOD	147.67	20,568	20567.7	293.21	732	731.68	76.85	41 J	41.21	17.53
Mean		71			81			259			27,522			736			45		
BG-14 0-2 COMP	06/23/10	43 J	42.77	15.93	80 U	< LOD	53.63	238 U	< LOD	158.83	24,133	24133	319.73	619	618.71	73.12	32 J	31.77	17.68
%RPD		49%			1%			9%			13%			17%			33%		
BG-14-1 2-12	06/23/10	35 U	< LOD	23.17	88 U	< LOD	58.53	322 U	< LOD	214.56	40,571	40570.61	431.61	586	586.15	78.98	43 U	< LOD	28.99
BG-14-2 2-12	06/23/10	34 U	< LOD	22.35	82 U	< LOD	54.89	258 U	< LOD	171.96	27,876	27875.94	349.33	514	514.32	70.54	36 J	35.91	18.71
BG-14-3 2-12	06/23/10	31 U	< LOD	20.92	78 U	< LOD	52.13	229 U	< LOD	152.52	22,747	22746.76	305.86	505	504.8	66.65	33 J	32.96	18.48
BG-14-4 2-12	06/23/10	34 U	< LOD	22.99	83 U	< LOD	55.26	299 U	< LOD	199.29	36,292	36292.43	401.88	606	606.46	77.49	46 U	< LOD	30.57
BG-14-5 2-12	06/23/10	27 J	26.57	14.7	79 U	< LOD	52.83	210 U	< LOD	139.75	18,854	18853.76	278.75	432	432.24	62.49	37 U	< LOD	24.93
01/00/00		32			82			264			29,268			529			39		
BG-14 2-12 COMP	06/23/10	28 J	27.98	15.08	77 U	< LOD	51.6	238 U	< LOD	158.98	24,086	24086.08	319.54	625	625.15	73.48	40 U	< LOD	26.75
%RPD		14%			6%			10%			19%			17%			3%		
BG-14-1 12-18	06/23/10	30 U	< LOD	19.74	72 U	< LOD	47.87	174 U	< LOD	115.74	13,715	13714.5	235.37	336	335.92	54.93	30 J	30.14	15.29
BG-14-2 12-18	06/23/10	34 J	33.92	15.75	60 J	60.04	36.56	236 U	< LOD	157.47	24,163	24163	322.89	585	584.88	72.04	36 U	< LOD	23.78
BG-14-3 12-18	06/23/10	37 J	36.86	15.55	80 U	< LOD	53.08	255 U	< LOD	170.23	27,446	27446.45	340.43	534	534.4	70.27	34 J	33.65	20.34
BG-14-4 12-18	06/23/10	26 J	25.97	15.6	58 J	57.88	38.38	285 U	< LOD	190.2	33,371	33370.52	383.21	670	670.11	78.82	39 J	39.24	21.75
BG-14-5 12-18	06/23/10	35 U	< LOD	23.08	84 U	< LOD	55.86	272 U	< LOD	181.29	31,299	31298.8	371.55	752	751.53	81.93	45 U	< LOD	30.17
Mean		32			71			244			25,999			575			37		
BG-14 12-18 COMP	06/23/10	32 U	< LOD	21.57	82 U	< LOD	54.66	265 U	< LOD	176.74	29,025	29025.43	353.38	550	550.05	72.24	32 J	31.9	20.29
%RPD		1%			15%			8%			11%			5%			14%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Copper			Nickel			Cobalt			Iron			Manganese			Chromium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-15-1 0-2	06/25/10	29 J	28.59	15.09	79 U	< LOD	52.57	261 U	< LOD	173.8	29,030	29029.87	349.37	542	542.14	70.59	34 J	34.35	20.3
BG-15-2 0-2	06/25/10	25 J	24.83	14.66	77 U	< LOD	51.14	228 U	< LOD	152.15	22,336	22336.06	304.16	566	566.41	69.78	38 J	38.37	18.26
BG-15-3 0-2	06/25/10	53 J	52.65	16.38	80 U	< LOD	53.41	241 U	< LOD	160.5	24,062	24061.63	319.2	548	547.61	69.63	41 J	41.42	18.29
BG-15-4 0-2	06/25/10	126	125.76	19.04	77 U	< LOD	51.39	224 U	< LOD	149.34	22,436	22436.46	301.1	554	553.66	68.17	51 J	50.88	18.78
BG-15-5 0-2	06/25/10	248	247.55	22.89	74 U	< LOD	49.26	201 U	< LOD	134.13	18,614	18614.21	269.04	1,191	1191.03	89.7	41 U	< LOD	27.62
Mean		96			77			231			23,296			680			41		
BG-15 0-2 COMP	06/25/10	39 J	38.78	15.22	75 U	< LOD	50.22	222 U	< LOD	148.13	21,807	21806.73	298.76	599	598.65	70.32	40 J	39.68	17.71
%RPD		85%			3%			4%			7%			13%			2%		
BG-15-1 2-12	06/25/10	24 J	24.24	14.35	76 U	< LOD	50.63	220 U	< LOD	146.5	20,967	20966.71	290.95	431	430.6	61.89	38 J	38.36	18.65
BG-15-2 2-12	06/25/10	30 U	< LOD	20.26	73 U	< LOD	48.58	206 U	< LOD	137.11	19,499	19498.67	281.81	422	422.31	61.2	33 J	32.71	17.49
BG-15-3 2-12	06/25/10	43 J	43.47	16.06	82 U	< LOD	54.79	209 J	209.19	111.73	25,208	25208.16	327.78	406	405.83	64.03	62 J	62.2	19.52
BG-15-4 2-12	06/25/10	31 U	< LOD	20.76	78 U	< LOD	51.67	230 U	< LOD	153.22	22,744	22744.39	305.12	337	337.04	58.32	36 U	< LOD	24.29
BG-15-5 2-12	06/25/10	46 J	45.61	15.62	76 U	< LOD	50.98	221 U	< LOD	147.51	20,731	20730.59	292.31	817	816.66	79.66	40 U	< LOD	26.65
Mean		35			77			217			21,830			483			42		
BG-15 2-12 COMP	06/25/10	40 J	40.34	15.65	77 U	< LOD	51.08	240 U	< LOD	160.19	24,583	24582.51	321.86	623	623.34	72.97	64 J	63.96	19.29
%RPD		14%			0%			10%			12%			25%			42%		
BG-15-1 12-18	06/25/10	25 J	25.29	13.92	73 U	< LOD	48.4	177 U	< LOD	117.68	14,585	14584.95	238.5	323	323.49	53.5	37 U	< LOD	24.83
BG-15-2 12-18	06/25/10	29 U	< LOD	19.49	71 U	< LOD	47.16	193 U	< LOD	128.45	16,863	16863.41	257.56	360	359.85	56.94	38 U	< LOD	25.07
BG-15-3 12-18	06/25/10	35 U	< LOD	23.19	85 U	< LOD	56.59	290 U	< LOD	193.66	33,498	33497.91	387.61	636	636.34	78.28	45 U	< LOD	30.07
BG-15-4 12-18	06/25/10	27 J	27.19	14.87	81 U	< LOD	54.06	237 U	< LOD	157.73	23,584	23583.7	312.98	450	449.91	64.95	42 U	< LOD	27.94
BG-15-5 12-18	06/25/10	29 J	28.78	14.9	79 U	< LOD	52.72	228 U	< LOD	152.01	22,001	22000.51	301.75	679	678.91	74.41	40 U	< LOD	26.81
Mean		29			78			225			22,106			490			40		
BG-15 12-18 COMP	06/25/10	33 U	< LOD	22.16	80 U	< LOD	53.26	246 U	< LOD	164.31	25,486	25485.85	328.76	595	594.62	72.68	38 J	37.98	19.33
%RPD		13%			3%			9%			14%			19%			6%		
BG-16-1 0-2	06/25/10	73 J	73.05	18.21	84 U	< LOD	56.29	214 J	214.06	120.9	28,193	28192.93	355.95	892	892.11	87.98	48 J	47.88	18.99
BG-16-2 0-2	06/25/10	66 J	66.42	17.94	84 U	< LOD	55.97	266 U	< LOD	177.66	27,856	27856.11	355.45	1,329	1329.27	103.82	57 J	57.09	19.25
BG-16-3 0-2	06/26/10	55 J	55.16	15.89	77 U	< LOD	51.24	222 U	< LOD	148.13	22,337	22336.62	299.93	808	808.44	78.6	46 J	45.9	19.02
BG-16-4 0-2	06/26/10	298	297.96	25.92	76 U	< LOD	50.84	246 U	< LOD	164.11	25,490	25490.25	330.66	1,160	1160.11	94.88	43 U	< LOD	28.63
BG-16-5 0-2	06/26/10	164	164.31	20.75	77 U	< LOD	51.58	222 U	< LOD	148.3	22,464	22463.88	303.35	402	402.49	61.44	34 J	33.6	18.13
Mean		131			80			234			25,268			918			46		
BG-16 0-2 COMP	06/26/10	106	105.62	18.83	78 U	< LOD	51.87	242 U	< LOD	161.13	24,768	24768.12	324.08	789	788.93	80.66	35 J	35.42	18.54
%RPD		21%			2%			3%			2%			15%			26%		
BG-16-1 2-12	06/25/10	33 J	33.15	16	81 U	< LOD	54.27	275 U	< LOD	183.39	30,151	30151.01	366.18	737	737.35	81.54	40 J	40.46	19.29
BG-16-2 2-12	06/25/10	33 U	< LOD	21.83	82 U	< LOD	54.5	234 U	< LOD	156.3	21,989	21988.6	308.6	577	577.03	71.38	24 J	24.16	15.96
BG-16-3 2-12	06/26/10	26 J	25.73	14.27	74 U	< LOD	49.42	219 U	< LOD	146.31	21,375	21374.73	292.77	610	610.01	70.34	40 J	39.6	18.95
BG-16-4 2-12	06/26/10	239	238.89	23.95	79 U	< LOD	52.56	246 U	< LOD	164.27	26,420	26419.98	335.65	926	925.68	86.37	44 U	< LOD	29.35
BG-16-5 2-12	06/26/10	24 J	24.03	15.28	85 U	< LOD	56.55	283 U	< LOD	188.42	33,208	33208.26	379.36	348	347.5	63.55	41 J	40.93	20
Mean		71			80			251			26,629			640			38		
BG-16 2-12 COMP	06/26/10	56 J	55.96	16.71	78 U	< LOD	51.85	258 U	< LOD	172.27	28,154	28153.69	347.79	732	731.81	79.43	43 J	43.34	19.57
%RPD		24%			3%			3%			6%			13%			13%		
BG-16-1 12-18	06/25/10	26 J	25.59	15.11	81 U	< LOD	53.87	186 J	185.88	117.5	28,098	28098.07	347.01	674	673.84	76.71	39 J	38.87	19.95
BG-16-2 12-18	06/25/10	30 U	< LOD	20.31	79 U	< LOD	52.41	232 U	< LOD	154.81	23,428	23427.86	313.49	556	555.64	70.08	36 U	< LOD	23.77
BG-16-3 12-18	06/26/10	32 U	< LOD	21.55	78 U	< LOD	51.84	228 U	< LOD	151.78	22,915	22915.17	307.18	720	719.71	76.29	48 J	47.88	18.6
BG-16-4 12-18	06/26/10	325	325.22	27.16	82 U	< LOD	54.54	263 U	< LOD	175.07	28,820	28820.39	354.86	787	787.34	82.38	40 U	< LOD	26.39
BG-16-5 12-18	06/26/10	32 J	32.3	16.42	64 J	63.84	40.58	318 U	< LOD	212.22	39,484	39483.58	424.45	534	534.41	75.87	38 J	37.93	22.01
Mean		89			77			245			28,549			654			40		
BG-16 12-18 COMP	06/26/10	54 J	54.26	16.15	76 U	< LOD	50.42	237 U	< LOD	157.81	23,984	23984.47	315.71	533	532.87	68.46	44 J	44.26	19.04
%RPD		49%			1%			3%			17%			20%			9%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-1-1 0-2	06/29/10	84 U	< LOD	55.79	3,543	3543.42	128.42	112 U	< LOD	74.64	11,092	11092.27	269.51	16,453	16453.27	447.98	914 U	< LOD	609.64
BG-1-2 0-2	06/29/10	85 U	< LOD	56.85	3,966	3966.11	132.72	114 U	< LOD	76.16	11,821	11821.18	276.97	18,944	18944.37	475.45	958 U	< LOD	638.86
BG-1-3 0-2	06/29/10	58 J	57.73	34.23	2,754	2754.21	114.97	107 U	< LOD	71.02	10,937	10936.94	258.25	16,259	16259.44	430.32	892 U	< LOD	594.53
BG-1-4 0-2	06/29/10	88 J	88.44	35.38	3,136	3136.23	119.02	84 J	83.56	51.63	12,524	12523.97	278.95	18,915	18914.6	467.58	1,015 U	< LOD	676.73
BG-1-5 0-2	06/29/10	106 J	106.16	43	3,923	3922.56	145.91	95 J	94.9	58.53	12,467	12466.59	309.95	16,254	16253.96	485.86	1,112 U	< LOD	741.28
Mean		84			3,464			102			11,768			17,365			978		
BG-1 0-2 COMP	06/29/10	87 J	86.89	37.07	3,522	3522.44	125.92	91 J	91.37	50.48	11,490	11490.18	269.81	17,717	17716.73	455.83	949 U	< LOD	632.5
%RPD		3%			2%			12%			2%			2%			3%		
BG-1-1 2-12	06/29/10	98 J	97.61	37.91	3,784	3783.58	129.56	89 J	88.88	50.73	11,001	11001.22	269.52	15,754	15753.85	441.18	1,072 U	< LOD	714.67
BG-1-2 2-12	06/29/10	75 J	75.4	40.32	4,487	4487.35	140.8	113 U	< LOD	75.57	10,617	10616.83	272.08	20,922	20921.78	507.05	1,022 U	< LOD	681.55
BG-1-3 2-12	06/29/10	103 J	103.02	40.58	3,578	3578.16	136.86	103 J	102.81	55.86	11,797	11797.02	295.18	16,585	16584.97	477.98	1,107 U	< LOD	737.97
BG-1-4 2-12	06/29/10	96 J	96.34	37.69	3,223	3223.41	126.58	88 J	88.38	55.31	12,986	12986.11	297.27	18,244	18244.24	482.68	943 U	< LOD	628.69
BG-1-5 2-12	06/29/10	135 J	134.91	39.49	3,301	3300.62	130.58	136 U	< LOD	90.62	15,125	15124.61	326.64	15,798	15797.66	467.51	1,037 U	< LOD	691.26
Mean		101			3,675			106			12,305			17,461			1,036		
BG-1 2-12 COMP	06/29/10	110 J	109.76	38.45	3,736	3735.87	130.33	119 U	< LOD	79.45	12,326	12325.51	286.2	18,177	18176.8	474.15	1,056 U	< LOD	703.88
%RPD		8%			2%			12%			0%			4%			2%		
BG-1-1 12-18	06/29/10	100 J	99.95	43.89	4,549	4548.75	151.95	134 U	< LOD	89.11	13,161	13160.81	316.1	14,687	14686.75	464.33	1,168 U	< LOD	778.54
BG-1-2 12-18	06/29/10	104 U	< LOD	69.46	5,168	5167.74	163.77	123 U	< LOD	82.12	10,849	10848.94	302.24	18,574	18574.22	528.61	1,174 U	< LOD	782.85
BG-1-3 12-18	06/29/10	102 J	102.46	39.1	3,457	3457.03	131.62	125 U	< LOD	83.62	13,198	13197.97	303.33	17,911	17911.05	484.83	1,011 U	< LOD	674.26
BG-1-4 12-18	06/29/10	85 J	85.09	35.41	2,866	2865.64	118.15	122 U	< LOD	81.11	13,795	13794.68	297.11	19,084	19084.37	479.84	957 U	< LOD	637.91
BG-1-5 12-18	06/29/10	58 J	57.8	25.83	1,958	1958.04	85.49	102 U	< LOD	67.88	13,284	13283.7	248.66	15,934	15933.73	380.89	725 U	< LOD	483.25
Mean		90			3,600			121			12,857			17,238			1,007		
BG-1 12-18 COMP	06/29/10	99 J	99	39.08	3,613	3613.49	132.23	127 U	< LOD	84.92	14,121	14120.6	306.48	18,094	18093.95	478.73	1,034 U	< LOD	689.03
%RPD		10%			0%			5%			9%			5%			3%		
BG-2-1 0-2	06/30/10	86 J	85.99	35.76	3,533	3532.65	122.37	106 J	105.57	55.63	14,881	14881.13	298.23	16,886	16886.34	443.29	949 U	< LOD	632.42
BG-2-2 0-2	06/30/10	67 J	66.62	34.48	3,443	3442.96	118.52	112 J	111.91	48.06	11,072	11071.75	253.33	15,321	15320.96	410.02	907 U	< LOD	604.83
BG-2-3 0-2	06/30/10	77 U	< LOD	51.11	3,092	3092.26	117.22	115 U	< LOD	76.46	12,602	12602.3	275.53	16,870	16870	439.57	936 U	< LOD	623.68
BG-2-4 0-2	06/30/10	78 U	< LOD	51.71	3,422	3421.98	119.64	94 J	94.23	49.94	12,118	12118.41	266.68	16,278	16278.08	425.9	932 U	< LOD	621.35
BG-2-5 0-2	06/30/10	85 J	84.89	40.83	4,394	4393.75	142.64	129 U	< LOD	85.77	13,578	13577.52	308.35	10,347	10346.52	386.81	1,027 U	< LOD	684.62
Mean		79			3,577			111			12,850			15,140			950		
BG-2 0-2 COMP	06/30/10	70 J	69.54	36.67	3,666	3666.06	126.71	96 J	95.59	53.05	12,620	12619.52	283.34	16,575	16575.1	447.62	991 U	< LOD	660.67
%RPD		12%			2%			15%			2%			9%			4%		
BG-2-1 2-12	06/30/10	79 J	79.09	38.12	4,031	4030.75	132.56	103 J	102.88	56.96	14,412	14411.93	304.76	17,287	17286.52	463.13	1,037 U	< LOD	691.65
BG-2-2 2-12	06/30/10	100 J	100.48	37.7	3,696	3695.92	128.16	115 U	< LOD	76.39	11,562	11561.9	272.92	15,821	15820.94	438.72	856 U	< LOD	570.64
BG-2-3 2-12	06/30/10	66 J	65.65	39.7	3,590	3590.17	136.58	125 U	< LOD	83.04	12,333	12332.75	301.39	14,117	14116.89	448.13	1,025 U	< LOD	683.59
BG-2-4 2-12	06/30/10	120 J	120.37	40.43	3,922	3922.31	136.64	117 U	< LOD	78.14	11,221	11220.8	280.82	17,060	17059.95	470.41	953 U	< LOD	635.63
BG-2-5 2-12	06/30/10	85 J	84.86	43.34	4,328	4327.86	150.49	134 U	< LOD	89.48	12,805	12804.54	311.92	8,327	8326.87	366.88	1,111 U	< LOD	740.99
Mean		90			3,913			119			12,467			14,522			996		
BG-2 2-12 COMP	06/30/10	79 J	78.67	39.39	3,901	3900.53	136.34	124 J	123.75	56.59	12,451	12451.11	297.4	16,156	16155.52	466.33	1,075 U	< LOD	716.51
%RPD		13%			0%			4%			0%			11%			8%		
BG-2-1 12-18	06/30/10	91 J	91.14	39.81	4,247	4246.94	138.9	94 J	93.78	53.11	10,475	10474.51	281.17	17,162	17162.42	484.69	1,116 U	< LOD	744.05
BG-2-2 12-18	06/30/10	82 J	82.45	36.97	3,715	3714.99	127.68	143 U	< LOD	95.42	19,210	19209.98	345.52	18,229	18228.7	474.8	972 U	< LOD	648.23
BG-2-3 12-18	06/30/10	76 J	76.35	44.77	3,965	3965.01	153.1	114 J	113.77	66.14	16,085	16084.51	347.94	11,754	11754.36	427.44	1,067 U	< LOD	711.59
BG-2-4 12-18	06/30/10	84 J	83.88	38.98	3,554	3554.13	132.7	142 U	< LOD	94.54	18,593	18593.28	350.61	18,649	18649.05	492.94	995 U	< LOD	663.23
BG-2-5 12-18	06/30/10	97 U	< LOD	64.41	4,407	4407.08	151.12	154 J	154.18	71.99	20,168	20167.59	375.55	6,410	6410.33	327.4	1,052 U	< LOD	701.39
Mean		86			3,978			129			16,906			14,441			1,040		
BG-2 12-18 COMP	06/30/10	84 J	83.55	40.82	4,065	4064.6	141.15	145 U	< LOD	96.5	17,339	17339.2	345.66	15,193	15193.17	458.62	1,072 U	< LOD	714.62
%RPD		2%			2%			11%			3%			5%			3%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-3-1 0-2	06/29/10	103 J	102.99	39.42	4,088	4087.71	135.65	135 U	< LOD	90.02	16,696	16695.69	334.49	19,875	19874.84	506.08	1,073 U	< LOD	715.4
BG-3-2 0-2	06/29/10	66 J	65.88	33.99	3,207	3206.72	116.04	84 J	83.73	46.32	10,285	10285.44	247.62	16,586	16586.34	426.94	882 U	< LOD	588.13
BG-3-3 0-2	06/29/10	68 J	67.55	31.61	3,297	3296.71	109.49	108 U	< LOD	71.88	12,354	12354.35	262.76	18,316	18316.32	437.95	973 U	< LOD	648.78
BG-3-4 0-2	06/29/10	74 J	73.74	33.23	3,030	3029.7	112.57	98 J	98.2	48.63	11,744	11743.87	259.66	16,409	16409.24	422.16	938 U	< LOD	625.11
BG-3-5 0-2	06/29/10	71 J	71.21	36.9	3,488	3488.49	125.31	114 U	< LOD	75.77	13,140	13140.19	280.04	21,326	21326.08	483.85	1,000 U	< LOD	666.82
Mean		76			3,422			108			12,844			18,502			973		
BG-3 0-2 COMP	06/29/10	73 J	73.1	35.73	3,430	3429.71	122.35	79 J	78.64	51.49	12,434	12433.84	278.13	18,261	18260.94	460.72	983 U	< LOD	655.12
%RPD		5%			0%			31%			3%			1%			1%		
BG-3-1 2-12	06/29/10	78 J	77.97	42.53	4,556	4556.06	149.41	97 J	96.88	61.33	14,199	14198.58	327.69	18,082	18082.08	508.93	1,151 U	< LOD	767.34
BG-3-2 2-12	06/29/10	55 J	54.94	32.45	3,168	3167.85	111.56	105 U	< LOD	69.93	11,622	11621.92	255.71	21,239	21239.22	465.06	871 U	< LOD	580.8
BG-3-3 2-12	06/29/10	99 J	99.12	39.45	4,121	4121.42	137.08	140 U	< LOD	93.16	15,806	15805.74	334.99	16,998	16998.1	485.04	1,092 U	< LOD	728.21
BG-3-4 2-12	06/29/10	97 J	97.23	35.02	3,096	3095.78	117.26	117 U	< LOD	78.27	13,307	13306.51	284.06	17,543	17543.24	449.91	846 U	< LOD	563.94
BG-3-5 2-12	06/29/10	77 J	77.32	42.06	4,020	4020.16	144.28	128 U	< LOD	85.29	13,157	13156.51	311.44	23,997	23996.72	562.46	1,083 U	< LOD	722.2
Mean		81			3,792			117			13,618			19,572			1,009		
BG-3 2-12 COMP	06/29/10	86 U	< LOD	57.4	3,884	3884.28	134.47	127 U	< LOD	84.45	13,872	13872.18	304.18	19,195	19195.35	490.42	1,005 U	< LOD	670.22
%RPD		6%			2%			8%			2%			2%			0%		
BG-3-1 12-18	06/29/10	73 J	73.1	45.24	4,815	4815.03	159.21	101 J	101.29	63.89	14,425	14425.07	340.61	18,919	18919.46	534.65	1,213 U	< LOD	808.49
BG-3-2 12-18	06/29/10	64 J	64.41	36.89	3,598	3597.61	127.78	115 U	< LOD	76.49	10,971	10971.44	277.67	20,517	20517.15	507.03	1,048 U	< LOD	698.59
BG-3-3 12-18	06/29/10	64 J	64.35	40.3	4,144	4143.64	141.76	146 U	< LOD	97.2	16,926	16926.23	348.68	16,591	16591.12	485.27	1,064 U	< LOD	709.47
BG-3-4 12-18	06/29/10	60 J	59.87	36.67	3,255	3254.5	125.28	106 J	106.1	57.52	15,168	15167.6	309.06	18,741	18740.88	475.82	1,054 U	< LOD	702.52
BG-3-5 12-18	06/29/10	77 U	< LOD	51.36	3,709	3709.07	120.14	85 J	84.96	50.34	12,588	12587.64	276.91	26,578	26578.39	533.52	933 U	< LOD	621.82
Mean		68			3,904			111			14,016			20,269			1,062		
BG-3 12-18 COMP	06/29/10	88 J	87.51	41.68	4,288	4288.38	144.97	106 J	105.56	62.07	14,941	14940.75	332.93	19,957	19956.72	528.02	1,084 U	< LOD	722.44
%RPD		26%			9%			4%			6%			2%			2%		
BG-4-1 0-2	06/28/10	102 J	102.03	44.09	4,034	4033.68	149.69	130 U	< LOD	86.77	12,664	12663.54	314.14	17,612	17611.84	506.01	1,169 U	< LOD	779.04
BG-4-2 0-2	06/28/10	66 J	66.1	35.12	3,052	3051.96	119.47	91 J	91.29	55.81	14,415	14415.09	301.02	18,014	18013.89	465.93	919 U	< LOD	612.36
BG-4-3 0-2	06/28/10	92 J	91.97	38.71	3,627	3627.12	131.09	119 U	< LOD	79.23	12,483	12482.83	284.39	17,442	17442.41	460.88	952 U	< LOD	634.41
BG-4-4 0-2	06/28/10	89 J	88.66	37.72	3,486	3486.39	128.03	97 J	97.28	58.56	15,604	15603.82	314.87	17,275	17275.3	462.37	1,090 U	< LOD	726.77
BG-4-5 0-2	06/28/10	49 J	48.67	30.63	2,536	2536.3	103.16	99 U	< LOD	66.02	10,663	10662.63	236.97	11,916	11915.72	351.81	890 U	< LOD	593.3
Mean		80			3,347			107			13,166			16,452			1,004		
BG-4 0-2 COMP	06/28/10	61 J	60.55	38.22	3,316	3316.17	129.89	121 U	< LOD	80.97	13,009	13008.54	292.62	16,971	16970.92	460.33	995 U	< LOD	663.28
%RPD		26%			1%			12%			1%			3%			1%		
BG-4-1 2-12	06/28/10	114 J	114.45	41.35	3,991	3990.87	141.48	133 U	< LOD	88.9	12,974	12973.91	319.75	18,475	18474.59	520.02	1,161 U	< LOD	773.69
BG-4-2 2-12	06/28/10	85 U	< LOD	56.86	3,433	3433.07	131.26	94 J	94.05	58.16	14,472	14471.61	312.34	18,067	18067.32	482.31	1,015 U	< LOD	676.59
BG-4-3 2-12	06/28/10	116 J	115.79	40.3	4,037	4036.57	137.59	129 U	< LOD	86.1	13,512	13511.78	310.99	20,510	20510.34	520.94	1,011 U	< LOD	674.01
BG-4-4 2-12	06/28/10	74 J	74.34	38.33	3,779	3778.86	132.24	125 U	< LOD	83.63	14,018	14018.07	303.9	17,729	17728.77	472.52	997 U	< LOD	664.74
BG-4-5 2-12	06/28/10	66 J	66.16	34.45	3,345	3344.73	118.25	80 J	80.22	52.38	13,828	13827.86	281.57	14,512	14512.03	405.36	854 U	< LOD	569.38
Mean		91			3,717			112			13,761			17,859			1,008		
BG-4 2-12 COMP	06/28/10	104 J	104.46	37.27	3,520	3519.5	126.58	152 J	152.16	57.68	13,869	13868.61	303.28	17,780	17779.72	474.05	1,000 U	< LOD	666.82
%RPD		13%			5%			30%			1%			0%			1%		
BG-4-1 12-18	06/28/10	113 J	112.78	44.97	4,462	4462.13	154.83	132 U	< LOD	87.98	11,900	11899.83	317.78	17,991	17991.38	528.56	1,173 U	< LOD	782.27
BG-4-2 12-18	06/28/10	83 U	< LOD	55.4	3,270	3269.96	127.05	131 U	< LOD	87.58	14,990	14989.66	315.54	18,423	18423.16	484.23	826 J	825.75	514.78
BG-4-3 12-18	06/28/10	99 J	98.95	41.33	4,294	4293.64	142.48	133 U	< LOD	88.41	14,623	14622.66	320.68	20,629	20628.65	520.67	1,109 U	< LOD	739.52
BG-4-4 12-18	06/28/10	83 J	82.86	41.41	4,038	4037.69	142.96	160 U	< LOD	106.52	21,632	21631.71	385.95	21,068	21068.22	535.27	1,224 U	< LOD	816.16
BG-4-5 12-18	06/28/10	62 J	61.52	36.76	3,539	3539.39	126.45	112 U	< LOD	74.59	11,589	11588.95	272.52	16,464	16464.29	444.91	877 U	< LOD	584.74
Mean		88			3,921			134			14,947			18,915			1,042		
BG-4 12-18 COMP	06/28/10	101 J	100.77	42.02	4,514	4513.81	145.88	100 J	99.78	60.75	14,878	14878.35	327.16	20,928	20928	530.63	1,018 U	< LOD	678.61
%RPD		14%			14%			29%			0%			10%			2%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-5-1 0-2	06/22/10	85 J	85.48	38.72	3,610	3609.99	132.14	106 J	105.52	58.85	14,762	14761.57	315.52	18,753	18752.59	490.77	1,126 U	< LOD	750.87
BG-5-2 0-2	06/22/10	63 J	63.23	33.43	3,197	3197.47	114.12	103 U	< LOD	68.55	10,866	10865.5	251.26	19,007	19006.57	448.27	899 U	< LOD	599.21
BG-5-3 0-2	06/22/10	79 J	79.33	33.1	3,056	3056.18	112.24	124 U	< LOD	82.74	16,255	16255.36	304.88	20,205	20204.99	471.08	970 U	< LOD	646.96
BG-5-4 0-2	06/22/10	84 J	84.32	37.52	3,767	3767.01	128.78	87 J	87.23	51.23	11,665	11664.78	273.26	15,869	15869.08	438.23	986 U	< LOD	657.02
BG-5-5 0-2	06/22/10	57 J	56.63	34.71	3,269	3268.82	119.32	119 J	118.76	49.15	10,746	10745.8	258.36	16,358	16357.6	434.3	940 U	< LOD	626.35
Mean		74			3,380			108			12,859			18,038			984		
BG-5 0-2 COMP	06/22/10	82 J	82.28	36.07	3,448	3447.67	122.8	114 U	< LOD	76.25	12,182	12181.79	274	16,701	16700.91	441.01	1,020 U	< LOD	679.93
%RPD		11%			2%			6%			5%			8%			4%		
BG-5-1 2-12	06/22/10	71 J	70.76	39.07	3,821	3821.26	134.97	103 J	103.23	58.29	14,416	14415.66	311.94	17,996	17995.67	481.57	1,049 U	< LOD	699.51
BG-5-2 2-12	06/22/10	76 U	< LOD	50.5	3,015	3015.39	114.84	107 U	< LOD	71.56	11,649	11648.59	260.34	20,650	20649.81	467.14	891 U	< LOD	594.27
BG-5-3 2-12	06/22/10	73 J	73.23	39.9	3,772	3771.64	137.41	135 U	< LOD	89.76	14,663	14663.18	323.2	19,005	19004.91	506.29	1,094 U	< LOD	729.23
BG-5-4 2-12	06/22/10	109 J	108.53	38.53	3,900	3900.45	131.96	133 U	< LOD	88.92	15,568	15567.72	321.63	15,647	15647.47	452.97	1,060 U	< LOD	706.99
BG-5-5 2-12	06/22/10	83 J	82.57	36.8	3,628	3627.53	125.75	109 U	< LOD	72.44	11,256	11256.2	265.3	15,127	15127.49	423.41	959 U	< LOD	639.58
Mean		82			3,627			117			13,510			17,685			1,011		
BG-5 2-12 COMP	06/22/10	121 J	120.69	38.99	4,127	4126.89	133.62	125 U	< LOD	83.12	13,384	13384.46	299.25	16,636	16635.7	461.56	957 U	< LOD	637.74
%RPD		38%			13%			6%			1%			6%			5%		
BG-5-1 12-18	06/22/10	61 J	61.25	36.46	3,571	3571.26	126.21	118 U	< LOD	78.98	12,904	12904.1	289.89	18,572	18571.87	475.63	956 U	< LOD	637.3
BG-5-2 12-18	06/22/10	60 J	59.73	28.57	2,260	2259.86	94.75	91 U	< LOD	60.56	9,975	9975.29	226.09	21,258	21257.84	439.31	753 U	< LOD	501.68
BG-5-3 12-18	06/22/10	70 J	70.2	39.02	3,851	3850.88	135.31	128 J	128.25	60.74	15,311	15311.34	323.85	19,787	19786.72	507.08	1,064 U	< LOD	709.32
BG-5-4 12-18	06/22/10	93 J	93.38	36.15	3,371	3370.66	122.93	108 J	107.61	60.5	16,730	16729.81	324.32	15,906	15905.5	446.21	988 U	< LOD	658.72
BG-5-5 12-18	06/22/10	107 J	106.87	53.72	6,859	6859.19	192.85	144 U	< LOD	96.21	12,835	12834.96	338.01	8,452	8452.05	398.49	1,038 U	< LOD	692.19
Mean		78			3,982			118			13,551			16,795			960		
BG-5 12-18 COMP	06/22/10	100 U	< LOD	66.35	4,836	4835.88	156.99	136 U	< LOD	90.9	14,053	14052.65	326.25	16,422	16422.03	488.45	1,134 U	< LOD	756.14
%RPD		24%			19%			14%			4%			2%			17%		
BG-6-1 0-2	06/28/10	97 J	96.55	34.29	3,127	3126.9	114.84	93 J	93.49	44.43	9,149	9148.98	233.74	14,266	14266.01	397.44	815 U	< LOD	543.43
BG-6-2 0-2	06/28/10	112 J	112.28	38.4	2,917	2917.18	125.93	136 U	< LOD	90.92	16,857	16857.34	330.82	17,768	17767.73	475.36	936 U	< LOD	624.27
BG-6-3 0-2	06/28/10	83 U	< LOD	55.45	3,550	3549.82	127.45	117 U	< LOD	78.25	13,081	13081.33	284.62	16,202	16201.66	438.88	997 U	< LOD	664.52
BG-6-4 0-2	06/28/10	68 J	67.92	33.85	3,353	3353.01	116.08	93 U	< LOD	62.14	8,182	8181.81	224.86	15,735	15735.44	415.98	887 U	< LOD	591.03
BG-6-5 0-2	06/28/10	70 J	69.72	33.74	3,039	3038.96	114.11	71 J	70.72	42.64	8,499	8499.24	229.05	17,502	17502.46	436.04	651 J	651.21	433.96
Mean		86			3,197			102			11,154			16,295			857		
BG-6 0-2 COMP	06/28/10	76 J	75.91	33.93	3,237	3237.06	115.4	104 U	< LOD	69.15	10,858	10858.36	252.66	16,359	16359.22	423.6	958 U	< LOD	638.4
%RPD		12%			1%			2%			3%			0%			11%		
BG-6-1 2-12	06/28/10	73 J	72.53	34.72	3,326	3325.79	118.37	103 U	< LOD	68.99	10,331	10330.7	248.63	14,996	14995.87	410.14	793 U	< LOD	528.76
BG-6-2 2-12	06/28/10	94 J	93.6	30.71	2,244	2243.89	99.75	82 J	82.16	52.32	15,701	15700.5	284.68	17,155	17155.42	417.28	911 U	< LOD	607.35
BG-6-3 2-12	06/28/10	95 J	95.17	37.15	3,466	3465.66	125.75	116 U	< LOD	77.5	11,941	11941.22	277.73	16,529	16529.25	448.48	1,011 U	< LOD	673.96
BG-6-4 2-12	06/28/10	70 J	70.42	35.16	3,435	3435.31	120.23	106 U	< LOD	70.39	10,884	10884.21	255.74	18,284	18284.44	448.29	842 U	< LOD	561.42
BG-6-5 2-12	06/28/10	77 J	76.91	39.08	3,962	3962.2	135.33	116 U	< LOD	77.23	10,705	10704.92	277.43	19,999	19999.33	505.75	992 U	< LOD	661.66
Mean		82			3,287			105			11,912			17,393			910		
BG-6 2-12 COMP	06/28/10	80 J	79.84	34.44	3,280	3279.58	117.08	104 J	104.2	47.88	10,841	10841.28	254.03	16,765	16764.71	430.36	891 U	< LOD	593.76
%RPD		2%			0%			1%			9%			4%			2%		
BG-6-1 12-18	06/28/10	87 J	87.05	37.95	3,633	3632.77	129.63	112 J	112.4	52.9	11,628	11628.22	278.98	16,465	16465.23	454.16	1,023 U	< LOD	682.15
BG-6-2 12-18	06/28/10	101 J	100.54	33.87	2,370	2370.46	109.9	132 U	< LOD	87.91	18,008	18008.05	322.76	16,753	16752.62	440.53	1,000 U	< LOD	666.69
BG-6-3 12-18	06/28/10	83 J	82.8	39.46	3,826	3826.06	135.41	129 J	129.16	53.89	11,488	11487.81	283.26	18,659	18658.83	487.93	945 U	< LOD	629.74
BG-6-4 12-18	06/28/10	61 J	61.4	32.94	2,501	2501.03	112.83	264 U	< LOD	176.04	77,170	77169.84	650.12	19,104	19104.36	490.65	1,336 U	< LOD	890.83
BG-6-5 12-18	06/28/10	82 J	82.27	39.9	3,578	3578.2	136.11	181 J	180.93	82.07	31,518	31517.88	443.09	21,032	21032.36	520.48	1,277 U	< LOD	851.01
Mean		83			3,182			164			29,962			18,403			1,116		
BG-6 12-18 COMP	06/28/10	78 U	< LOD	52.33	3,018	3018.03	120.16	198 U	< LOD	131.82	42,037	42037.25	487.06	19,640	19639.6	488.12	1,195 U	< LOD	796.76
%RPD		6%			5%			19%			34%			7%			7%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	128 J	128.15	42	3,243	3242.69	138.23	99 J	98.84	57.84	12,084	12083.55	305.25	15,593	15592.57	476.74	1,024 U	< LOD	682.7
BG-7-2 0-2	06/27/10	77 J	77.21	37.45	3,494	3493.85	127.72	109 J	108.81	56.37	14,489	14488.54	301.89	18,299	18299.25	469.21	977 U	< LOD	651.59
BG-7-3 0-2	06/27/10	67 J	67.47	34.52	3,219	3219.21	117.66	110 U	< LOD	73.66	11,952	11952.24	266.99	17,001	17000.89	436.61	946 U	< LOD	630.8
BG-7-4 0-2	06/27/10	57 J	57.35	34.75	3,444	3443.85	120.51	77 J	77.13	51.19	12,335	12334.71	277.07	18,556	18556.07	463.7	868 U	< LOD	578.98
BG-7-5 0-2	06/27/10	85 J	85.49	37.43	3,404	3403.8	126.42	114 U	< LOD	76.14	11,975	11975.35	278.24	19,760	19760.28	483.14	955 U	< LOD	636.36
Mean		83			3,361			102			12,567			17,842			954		
BG-7 0-2 COMP	06/27/10	100 J	100.49	36.99	3,405	3405.39	124.91	118 U	< LOD	78.9	12,315	12315.21	285.01	18,125	18125	472.08	1,055 U	< LOD	703.04
%RPD		19%			1%			15%			2%			2%			10%		
BG-7-1 2-12	06/27/10	103 J	103.21	40.13	3,590	3589.89	135.55	123 U	< LOD	81.76	12,051	12050.68	295.36	15,600	15600.21	462.83	1,015 U	< LOD	676.64
BG-7-2 2-12	06/27/10	104 J	103.62	39.28	4,115	4115.35	135.5	132 U	< LOD	88.18	15,059	15059.26	319.48	19,664	19664.11	502.88	961 U	< LOD	640.4
BG-7-3 2-12	06/27/10	86 J	85.75	36.32	3,513	3513.37	123.72	116 U	< LOD	77.46	13,051	13050.82	285.3	18,304	18303.56	463.31	995 U	< LOD	663.43
BG-7-4 2-12	06/27/10	89 J	88.68	41.27	3,610	3610.02	139.02	132 U	< LOD	88.23	15,229	15229.41	320.51	18,730	18730.39	491.66	1,155 U	< LOD	770.28
BG-7-5 2-12	06/27/10	71 J	70.92	40.36	4,042	4041.97	140.06	120 U	< LOD	80.32	11,479	11479.42	288.82	17,500	17500.2	484.19	1,131 U	< LOD	753.83
Mean		91			3,774			125			13,374			17,960			1,051		
BG-7 2-12 COMP	06/27/10	82 U	< LOD	54.55	3,342	3341.66	125.04	111 U	< LOD	74.08	11,601	11600.51	274.88	17,613	17612.63	461.15	954 U	< LOD	635.82
%RPD		10%			12%			12%			14%			2%			10%		
BG-7-1 12-18	06/27/10	296	295.69	55.88	3,432	3431.52	172.03	170 U	< LOD	113.22	14,764	14763.61	403.92	14,468	14467.66	557.3	1,330 U	< LOD	886.81
BG-7-2 12-18	06/27/10	94 J	94.12	37.96	3,362	3361.77	128.06	125 U	< LOD	83.65	13,666	13666.23	303.93	19,710	19710.11	498.99	1,045 U	< LOD	696.74
BG-7-3 12-18	06/27/10	79 J	79.1	38.18	3,825	3824.84	131.66	90 J	89.74	56.05	13,808	13807.75	301.63	18,524	18523.96	480.19	1,019 U	< LOD	679.37
BG-7-4 12-18	06/27/10	57 J	57.37	34.38	3,096	3096.47	118.56	168 U	< LOD	112.06	29,358	29357.96	413.7	17,687	17686.59	465.49	1,182 U	< LOD	787.85
BG-7-5 12-18	06/27/10	62 J	62.46	39	4,000	3999.93	136.07	119 U	< LOD	79.37	11,553	11552.86	286.11	18,733	18732.75	492.08	1,050 U	< LOD	700.07
Mean		118			3,543			134			16,630			17,824			1,125		
BG-7 12-18 COMP	06/27/10	82 J	81.51	36.51	3,143	3143.45	124	162 U	< LOD	107.86	25,185	25184.65	399.54	17,943	17943.32	484.2	1,038 U	< LOD	692.05
%RPD		36%			12%			19%			41%			1%			8%		
BG-8-1 0-2	06/26/10	76 U	< LOD	50.72	3,164	3164.3	117.29	108 U	< LOD	72.14	11,254	11254.12	258.4	14,456	14455.55	405.08	949 U	< LOD	632.68
BG-8-2 0-2	06/26/10	89 J	88.8	38.37	3,772	3771.92	131.78	141 U	< LOD	94.27	18,406	18405.92	344.24	18,116	18115.86	480.56	1,127 U	< LOD	751.22
BG-8-3 0-2	06/26/10	60 J	60.1	34.01	2,831	2831.16	114.57	109 U	< LOD	72.56	11,452	11451.77	261.39	14,976	14976.24	413.02	958 U	< LOD	638.46
BG-8-4 0-2	06/26/10	62 J	62.08	34.24	3,116	3116.19	116.32	102 U	< LOD	67.85	10,154	10153.75	249.44	21,228	21227.71	478.16	921 U	< LOD	614.24
BG-8-5 0-2	06/26/10	70 J	69.96	37.2	3,476	3475.92	127.63	106 J	105.54	61.5	17,499	17499.28	332.31	19,589	19588.56	490.27	1,056 U	< LOD	704.32
Mean		71			3,272			113			13,753			17,673			1,002		
BG-8 0-2 COMP	06/26/10	59 J	59.1	35.47	3,390	3390.42	122.09	120 U	< LOD	79.78	13,578	13578.43	288.15	17,919	17918.9	456.35	922 U	< LOD	614.46
%RPD		19%			4%			6%			1%			1%			8%		
BG-8-1 2-12	06/26/10	76 J	76.2	34.67	2,889	2889.4	116.03	108 U	< LOD	71.68	11,161	11161.04	259.86	14,366	14365.75	407.86	960 U	< LOD	639.82
BG-8-2 2-12	06/26/10	70 J	69.97	40.01	3,965	3965.37	138.72	120 J	119.79	66.53	19,362	19361.53	357.59	18,581	18581.42	493.26	1,186 U	< LOD	790.77
BG-8-3 2-12	06/26/10	100 J	99.99	37.77	3,531	3530.85	127.44	112 U	< LOD	74.8	11,460	11460	272.17	16,231	16231.01	443.71	931 U	< LOD	620.84
BG-8-4 2-12	06/26/10	78 J	77.71	36.75	3,449	3449.12	125.15	112 U	< LOD	74.54	11,334	11334.1	273.78	22,043	22043.37	508.96	1,004 U	< LOD	669.21
BG-8-5 2-12	06/26/10	94 J	94.18	42.07	4,212	4211.99	144.72	148 U	< LOD	98.41	18,563	18562.5	358.91	20,807	20807.44	528.83	1,102 U	< LOD	734.63
Mean		84			3,609			120			14,376			18,406			1,037		
BG-8 2-12 COMP	06/26/10	78 J	77.85	37.4	3,596	3596.05	128.19	125 U	< LOD	83.41	14,004	14004.14	301.41	19,550	19550.22	488.29	908 U	< LOD	605.16
%RPD		7%			0%			4%			3%			6%			13%		
BG-8-1 12-18	06/26/10	62 J	61.98	34.46	3,144	3144.47	117.45	101 J	100.94	49.59	11,592	11592.26	262.76	15,098	15098.27	414.05	833 U	< LOD	555.13
BG-8-2 12-18	06/26/10	144 J	144.11	45.71	4,984	4984.24	157.63	133 J	133.26	72.48	20,160	20160.2	389	20,754	20754.41	551.89	1,142 U	< LOD	761.52
BG-8-3 12-18	06/26/10	62 J	62.06	35.79	3,464	3464.23	123.5	116 U	< LOD	77.57	12,389	12388.58	281.36	19,221	19220.99	476.84	952 U	< LOD	634.58
BG-8-4 12-18	06/26/10	79 J	78.74	36.01	3,897	3897.08	125.2	107 J	107.05	49.73	11,126	11125.69	264.73	18,747	18747.43	464.19	930 U	< LOD	619.67
BG-8-5 12-18	06/26/10	97 J	96.9	43.41	4,682	4682.3	151.4	152 U	< LOD	101.23	18,521	18521.22	368.92	21,881	21881	555.35	1,117 U	< LOD	744.4
Mean		89			4,034			122			14,758			19,140			995		
BG-8 12-18 COMP	06/26/10	76 J	76.37	40	4,150	4149.72	139.09	134 U	< LOD	89.2	15,123	15123.3	321.18	19,446	19445.63	502.03	1,102 U	< LOD	734.79
%RPD		16%			3%			10%			2%			2%			10%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-9-1 0-2	06/22/10	49 J	48.97	29.44	2,666	2665.78	100.3	68 J	67.91	45.25	11,769	11768.68	245.69	16,188	16188.28	397.62	855 U	< LOD	569.8
BG-9-2 0-2	06/22/10	52 J	52.12	31.98	3,117	3116.74	110.55	87 J	87.47	49.23	12,441	12441.19	264.02	15,105	15104.74	404.78	833 U	< LOD	555.41
BG-9-3 0-2	06/22/10	135 J	134.6	44.6	3,705	3704.57	149.02	157 U	< LOD	104.38	17,278	17277.88	376.19	15,011	15011.14	496.45	1,295 U	< LOD	863.47
BG-9-4 0-2	06/22/10	67 J	66.68	32.09	3,150	3149.88	110.75	119 J	119.2	58.91	18,307	18306.77	318.13	18,602	18602.1	450.9	975 U	< LOD	649.82
BG-9-5 0-2	06/22/10	76 J	75.5	38.22	3,575	3575.38	130.68	126 U	< LOD	84.24	14,202	14202.19	305.07	17,182	17182.39	464.96	1,031 U	< LOD	687.03
Mean		76			3,243			111			14,799			16,418			998		
BG-9 0-2 COMP	06/22/10	77 J	77.03	34.47	3,213	3212.52	117.61	122 U	< LOD	81.21	14,141	14140.7	292.87	16,469	16469.12	440.16	1,000 U	< LOD	666.41
%RPD		2%			1%			9%			5%			0%			0%		
BG-9-1 2-12	06/22/10	76 J	76.29	37.63	3,758	3757.68	129.55	121 U	< LOD	80.57	13,729	13729.4	297.75	18,392	18391.63	474.03	1,020 U	< LOD	680.26
BG-9-2 2-12	06/22/10	81 U	< LOD	53.7	3,547	3547.37	124.75	122 U	< LOD	81.02	13,721	13721.46	293.8	13,490	13490.41	410.73	1,060 U	< LOD	706.41
BG-9-3 2-12	06/22/10	95 J	95.08	43.3	3,904	3904.1	147.45	149 U	< LOD	99.55	17,546	17545.72	360.68	13,659	13658.73	454.66	1,133 U	< LOD	755.17
BG-9-4 2-12	06/22/10	122 J	121.84	41.98	3,879	3878.7	142.03	144 U	< LOD	95.86	15,782	15781.74	343.31	16,819	16819.06	494.45	1,063 U	< LOD	708.38
BG-9-5 2-12	06/22/10	134 J	133.59	42.92	4,079	4079.47	145.14	151 U	< LOD	100.48	17,865	17864.99	360.32	15,685	15685.36	477.96	1,112 U	< LOD	741.04
Mean		102			3,833			137			15,729			15,609			1,078		
BG-9 2-12 COMP	06/22/10	96 J	96.04	39.67	3,807	3807.15	135.81	132 J	132.03	60.74	14,901	14901.08	321.52	17,216	17215.76	480.27	1,022 U	< LOD	681.25
%RPD		6%			1%			4%			5%			10%			5%		
BG-9-1 12-18	06/22/10	69 J	68.74	37.55	3,662	3661.51	129.27	123 U	< LOD	82.07	13,717	13717.08	296.39	18,200	18199.69	470.15	969 U	< LOD	645.98
BG-9-2 12-18	06/22/10	81 J	81.25	37.74	3,792	3792.17	129.83	122 U	< LOD	81.36	13,478	13477.68	294.05	17,899	17898.52	466.6	981 U	< LOD	654.3
BG-9-3 12-18	06/22/10	87 J	87.13	40.09	3,596	3595.74	136.94	172 U	< LOD	114.83	25,510	25510.32	413.24	13,461	13461.28	439.78	1,084 U	< LOD	722.38
BG-9-4 12-18	06/22/10	94 J	93.87	39.47	3,624	3623.63	134.19	104 J	104.1	62.77	16,792	16791.74	336.68	17,182	17182.09	477.32	1,055 U	< LOD	703.24
BG-9-5 12-18	06/22/10	90 J	90.32	36.24	3,525	3525.17	124.2	125 J	125.03	67.67	22,427	22426.51	365.91	18,348	18348.28	471.42	937 U	< LOD	624.76
Mean		84			3,640			129			18,385			17,018			1,005		
BG-9 12-18 COMP	06/22/10	83 J	82.59	36.91	3,615	3614.9	126.69	137 U	< LOD	91.01	17,945	17944.57	333.28	17,398	17397.58	462.38	959 U	< LOD	639.66
%RPD		1%			1%			6%			2%			2%			5%		
BG-10-1 0-2	06/23/10	70 J	70.18	32.65	2,805	2804.56	109.64	106 U	< LOD	70.55	11,542	11542.09	254.86	15,069	15069.19	402.93	813 U	< LOD	541.83
BG-10-2 0-2	06/23/10	83 J	82.54	34.81	2,912	2911.84	116.38	103 U	< LOD	68.98	9,697	9696.6	247.89	14,582	14582.37	414.67	910 U	< LOD	606.34
BG-10-3 0-2	06/23/10	74 J	74.08	30.68	2,394	2393.71	101.38	110 U	< LOD	73.14	13,464	13463.61	268.03	18,587	18587.04	433.9	921 U	< LOD	614.31
BG-10-4 0-2	06/23/10	78 J	77.72	35.12	3,126	3126.28	118.85	121 U	< LOD	80.85	13,936	13936.31	293	20,049	20049.19	481.21	1,027 U	< LOD	684.97
BG-10-5 0-2	06/23/10	109 J	108.76	42.57	4,139	4139.23	145.42	134 U	< LOD	89.61	13,908	13908.1	322.78	19,856	19856.05	526.33	1,078 U	< LOD	718.34
Mean		83			3,075			115			12,509			17,629			950		
BG-10 0-2 COMP	06/23/10	92 J	91.7	36.54	3,171	3170.53	122.49	114 U	< LOD	76.12	11,628	11628.47	272.19	15,314	15313.99	430.66	970 U	< LOD	646.85
%RPD		11%			3%			1%			7%			14%			2%		
BG-10-1 2-12	06/23/10	62 J	61.61	35.36	3,537	3537.09	122.41	116 U	< LOD	77.21	12,583	12582.79	277.99	16,796	16796.03	442.52	894 U	< LOD	595.87
BG-10-2 2-12	06/23/10	113 J	113.25	42.09	4,345	4344.54	144.13	119 U	< LOD	79.28	11,187	11187.33	282.66	14,656	14655.87	445.1	1,098 U	< LOD	732.1
BG-10-3 2-12	06/23/10	55 J	54.73	34.02	3,009	3009.15	115.53	88 J	88.21	45.93	10,085	10085.06	243.08	14,196	14195.52	396.17	886 U	< LOD	590.39
BG-10-4 2-12	06/23/10	85 J	85.44	35.6	3,267	3267.39	120.58	122 U	< LOD	81.32	14,125	14124.89	296.45	21,466	21466.08	498.14	1,007 U	< LOD	671.25
BG-10-5 2-12	06/23/10	92 J	91.75	45.94	4,653	4652.79	159.62	132 U	< LOD	87.85	11,865	11865.42	319.46	18,581	18581.47	538.64	1,191 U	< LOD	793.93
Mean		81			3,762			115			11,969			17,139			1,015		
BG-10 2-12 COMP	06/23/10	81 J	81.03	37.59	3,648	3647.88	128.7	115 U	< LOD	76.53	11,916	11915.7	279.57	16,065	16065.43	446.26	954 U	< LOD	635.88
%RPD		0%			3%			0%			0%			6%			6%		
BG-10-1 12-18	06/23/10	69 J	69.35	40.02	3,899	3898.83	138.69	113 J	112.97	59.4	14,030	14029.75	315.91	17,901	17900.92	491.69	1,019 U	< LOD	679.19
BG-10-2 12-18	06/23/10	93 J	93.07	46.65	5,046	5045.65	162.84	128 U	< LOD	85.11	11,290	11290.22	302.4	14,416	14416.47	469.15	1,014 U	< LOD	676.14
BG-10-3 12-18	06/23/10	69 J	68.6	34.05	3,017	3017.16	114.7	103 U	< LOD	68.67	10,971	10970.9	250.88	17,383	17383.39	429.91	874 U	< LOD	582.74
BG-10-4 12-18	06/23/10	97 J	96.58	37.52	3,490	3490.14	127.01	130 U	< LOD	86.91	15,730	15729.61	315.35	18,813	18812.6	478.64	956 U	< LOD	637.19
BG-10-5 12-18	06/23/10	133 J	132.88	47.91	5,122	5121.96	165.24	127 U	< LOD	84.74	10,687	10686.54	306.7	20,087	20087.49	556.74	1,112 U	< LOD	741.47
Mean		92			4,115			120			12,542			17,720			995		
BG-10 12-18 COMP	06/23/10	127 J	126.8	41.82	4,415	4415.48	143.45	127 U	< LOD	84.62	12,651	12651.3	304.66	17,860	17859.71	494.32	1,103 U	< LOD	735.62
%RPD		32%			7%			6%			1%			1%			10%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-11-1 0-2	06/27/10	65 J	64.6	32.47	3,200	3200.4	111.18	109 U	< LOD	72.52	12,998	12997.93	264.94	17,510	17509.72	424.37	878 U	< LOD	585.47
BG-11-2 0-2	06/27/10	75 J	75.31	34.12	3,102	3101.97	115.67	89 J	89.48	51.25	12,796	12796.21	275.73	17,225	17225.21	440.86	913 U	< LOD	608.54
BG-11-3 0-2	06/27/10	61 J	61.37	34.73	3,303	3303.32	119.17	76 J	76.4	48.45	11,135	11135.46	261.3	17,777	17777.37	448.48	895 U	< LOD	596.81
BG-11-4 0-2	06/27/10	87 J	87.21	31.85	3,330	3330.12	109.01	113 J	112.73	44.47	9,969	9969.39	234.35	15,663	15663.32	400.54	896 U	< LOD	597.59
BG-11-5 0-2	06/27/10	89 U	< LOD	59.42	3,833	3832.91	138	117 J	117.24	61.66	15,294	15294.3	330.73	21,378	21377.71	535.07	1,089 U	< LOD	725.72
Mean		75			3,354			101			12,438			17,911			934		
BG-11 0-2 COMP	06/27/10	54 J	53.81	32.79	3,161	3160.79	113.08	102 J	102.44	47.61	11,023	11022.96	253.39	16,930	16930.17	428.44	889 U	< LOD	592.8
%RPD		33%			6%			1%			12%			6%			5%		
BG-11-1 2-12	06/27/10	70 J	69.93	37.21	3,866	3865.88	129.13	82 J	81.96	51.01	11,673	11673.31	273.94	17,480	17479.6	457.35	986 U	< LOD	657.25
BG-11-2 2-12	06/27/10	79 J	78.67	37.33	3,517	3516.87	127.64	117 U	< LOD	78.28	12,092	12091.78	281.18	15,378	15377.69	438.48	1,061 U	< LOD	707.16
BG-11-3 2-12	06/27/10	71 J	70.76	40.01	3,996	3995.53	138.33	122 U	< LOD	81.22	12,587	12587.24	294.45	17,031	17031.13	470.09	919 U	< LOD	612.76
BG-11-4 2-12	06/27/10	96 J	95.95	42.34	4,829	4828.8	147.38	119 U	< LOD	79.31	11,868	11867.56	284.43	15,452	15451.86	446.88	996 U	< LOD	663.85
BG-11-5 2-12	06/27/10	71 J	71.37	34.16	3,295	3294.91	117.1	79 J	79.06	51.2	12,847	12847.16	277.95	19,334	19333.56	465.64	913 U	< LOD	608.57
Mean		77			3,901			104			12,213			16,935			975		
BG-11 2-12 COMP	06/27/10	75 J	74.68	38.16	4,083	4083.34	133.01	101 J	101.04	56.21	14,002	14002.02	300.4	16,958	16958	458.22	971 U	< LOD	647.51
%RPD		3%			5%			3%			14%			0%			0%		
BG-11-1 12-18	06/27/10	66 J	66.03	40.32	3,934	3934.2	139.52	117 U	< LOD	77.85	10,744	10743.92	281.07	16,172	16171.64	468.03	1,154 U	< LOD	769.34
BG-11-2 12-18	06/27/10	93 J	92.76	44.24	4,280	4280.29	152.44	109 J	108.95	60.15	12,385	12385.42	316.82	17,177	17176.8	508.61	1,121 U	< LOD	747.06
BG-11-3 12-18	06/27/10	94 J	94.08	39.38	3,583	3583.45	133.3	106 J	105.59	57.53	14,101	14100.92	306.71	16,926	16925.54	465.97	929 U	< LOD	619.62
BG-11-4 12-18	06/27/10	78 J	78.27	43.74	5,321	5321.28	155.34	125 U	< LOD	83.32	12,303	12302.98	299.21	16,712	16711.77	477.72	1,075 U	< LOD	716.89
BG-11-5 12-18	06/27/10	86 J	85.72	35.69	3,038	3038.24	120.03	134 U	< LOD	89.4	17,075	17074.51	329.34	25,323	25323.29	547.84	1,057 U	< LOD	704.73
Mean		83			4,031			118			13,322			18,462			1,067		
BG-11 12-18 COMP	06/27/10	105 J	105.45	41.44	3,923	3922.84	141	126 J	125.72	60.01	14,094	14094.06	319.12	20,123	20123.22	520.77	1,068 U	< LOD	711.95
%RPD		23%			3%			6%			6%			9%			0%		
BG-12-1 0-2	06/26/10	70 J	69.63	36.21	3,513	3512.84	124.42	132 J	132.35	56.92	15,302	15301.57	303.22	18,393	18392.79	461.77	980 U	< LOD	653.3
BG-12-2 0-2	06/26/10	87 J	86.92	40.98	4,156	4156.03	140.98	118 U	< LOD	78.58	11,229	11229.21	281.75	18,180	18179.94	484.32	1,016 U	< LOD	677.07
BG-12-3 0-2	06/26/10	87 J	87.39	36.99	3,313	3312.79	125.07	117 U	< LOD	78.3	12,368	12367.55	283.5	14,287	14287.02	424.85	928 U	< LOD	618.34
BG-12-4 0-2	06/26/10	57 J	56.93	35.59	3,286	3285.93	122.19	118 U	< LOD	78.69	12,905	12904.72	282.96	16,249	16248.81	439.69	968 U	< LOD	645.5
BG-12-5 0-2	06/26/10	58 J	58.39	37.58	3,385	3384.51	128.09	105 U	< LOD	70.13	9,751	9750.93	252.44	14,112	14111.53	415.15	972 U	< LOD	647.97
Mean		72			3,531			118			12,311			16,244			973		
BG-12 0-2 COMP	06/26/10	86 J	85.96	38.78	3,643	3642.77	131.74	118 U	< LOD	78.46	12,144	12143.83	281.14	16,355	16355.43	448.63	738 J	738.42	484.59
%RPD		18%			3%			0%			1%			1%			27%		
BG-12-1 2-12	06/26/10	60 J	59.78	37.32	3,476	3475.71	128.28	130 U	< LOD	86.7	15,833	15832.57	317.79	19,569	19568.82	489.07	965 U	< LOD	643.48
BG-12-2 2-12	06/26/10	98 J	98.32	44	4,986	4985.94	154.57	137 U	< LOD	91.39	14,077	14077.43	328.9	19,851	19850.99	532.99	1,118 U	< LOD	745.63
BG-12-3 2-12	06/26/10	77 J	77.02	42.02	4,369	4368.86	146.29	106 J	105.56	58.33	13,172	13171.81	309.76	17,744	17743.7	492.81	1,114 U	< LOD	742.43
BG-12-4 2-12	06/26/10	73 J	73.44	40.12	4,236	4236.28	139.51	121 U	< LOD	80.52	12,554	12553.58	292.13	17,116	17115.88	468.1	985 U	< LOD	656.57
BG-12-5 2-12	06/26/10	98 J	97.95	39.95	4,068	4067.51	136.9	114 U	< LOD	76.11	11,037	11037.24	275.62	15,588	15588.22	448.03	1,003 U	< LOD	668.95
Mean		81			4,227			122			13,335			17,974			1,037		
BG-12 2-12 COMP	06/26/10	95 J	95.18	41.44	4,363	4363.14	143.38	127 U	< LOD	84.73	13,001	13001.29	303.69	18,111	18110.74	490.64	1,025 U	< LOD	683.25
%RPD		16%			3%			4%			3%			1%			1%		
BG-12-1 12-18	06/26/10	68 J	67.94	36.17	3,439	3438.89	124.15	108 J	108.43	59.52	17,171	17171.02	321.41	19,463	19462.71	477.04	1,010 U	< LOD	673.14
BG-12-2 12-18	06/26/10	78 J	78.38	44.51	4,819	4819.21	155.93	135 U	< LOD	89.71	13,642	13642.12	325.56	22,555	22554.7	563.75	1,100 U	< LOD	733.55
BG-12-3 12-18	06/26/10	87 J	87.05	41.81	4,773	4772.53	147.02	116 J	115.85	59.48	14,178	14178.01	316.97	19,236	19235.56	506.41	1,191 U	< LOD	793.85
BG-12-4 12-18	06/26/10	65 J	64.82	40.69	4,345	4344.56	143.09	133 J	133.01	61.23	14,973	14973.46	325.08	19,350	19349.62	508.88	1,117 U	< LOD	744.4
BG-12-5 12-18	06/26/10	143 J	143.41	49.64	5,189	5188.55	170.43	132 U	< LOD	88.32	11,008	11008.23	310.82	13,566	13565.68	473.94	983 U	< LOD	655.55
Mean		88			4,513			125			14,194			18,834			1,080		
BG-12 12-18 COMP	06/26/10	98 J	97.98	41.32	4,367	4367.42	143.46	150 J	149.85	60.54	14,051	14050.74	319.49	20,660	20659.98	527.75	1,149 U	< LOD	766.15
%RPD		11%			3%			18%			1%			9%			6%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	145 J	145.46	42.47	3,774	3774	141.41	141 J	140.78	65.67	16,948	16948.17	348.2	17,879	17878.72	499.71	1,135 U	< LOD	756.35
BG-13-2 0-2	06/22/10	83 J	83.26	36.15	3,316	3316.17	122.97	104 J	103.85	55.78	14,012	14011.5	297.46	15,608	15608.07	438.44	984 U	< LOD	655.75
BG-13-3 0-2	06/22/10	63 J	62.8	33.38	3,087	3086.82	113.67	89 J	88.68	45.63	10,143	10142.82	243.02	15,860	15859.54	413.95	950 U	< LOD	633.4
BG-13-4 0-2	06/22/10	58 J	58.44	33.41	3,254	3253.74	114.55	109 U	< LOD	72.54	12,506	12506.36	263.41	16,694	16694.19	419.89	909 U	< LOD	606.19
BG-13-5 0-2	06/22/10	70 J	70.16	32.79	3,127	3127.46	111.28	96 U	< LOD	64.04	9,677	9676.64	231.91	15,008	15008.02	394.04	848 U	< LOD	565.64
Mean		84			3,312			108			12,657			16,210			965		
BG-13 0-2 COMP	06/22/10	89 J	88.53	34.31	3,181	3180.74	115.56	107 U	< LOD	71.59	11,591	11590.69	259.8	15,708	15708.42	416.65	954 U	< LOD	635.69
%RPD		6%			4%			1%			9%			3%			1%		
BG-13-1 2-12	06/22/10	170 J	169.7	49.19	4,347	4347.41	164.07	160 U	< LOD	106.36	16,775	16774.77	384.46	18,255	18255.22	556.77	1,237 U	< LOD	824.92
BG-13-2 2-12	06/22/10	115 J	115.32	41.57	3,810	3810.33	140.46	136 U	< LOD	90.86	14,694	14693.55	325.93	14,702	14701.5	457.73	1,079 U	< LOD	719.44
BG-13-3 2-12	06/22/10	93 J	93.37	34.29	3,178	3177.61	114.88	87 J	87.35	48.16	12,233	12233.31	258.77	16,721	16721.41	416.92	837 U	< LOD	558.3
BG-13-4 2-12	06/22/10	52 J	51.62	30.02	2,583	2583.38	101.96	109 J	108.97	48.91	12,882	12881.97	260.02	14,366	14366.02	385.01	867 U	< LOD	578.33
BG-13-5 2-12	06/22/10	65 J	64.96	35.62	3,667	3667.32	123.63	115 J	114.59	55.02	14,517	14516.95	294.68	18,501	18501.36	460.12	836 U	< LOD	557.54
Mean		99			3,517			121			14,220			16,509			971		
BG-13 2-12 COMP	06/22/10	104 J	104.19	38.38	3,405	3404.78	129.41	133 U	< LOD	88.5	14,767	14766.99	318.42	16,121	16120.59	464.58	1,081 U	< LOD	720.89
%RPD		5%			3%			9%			4%			2%			11%		
BG-13-1 12-18	06/22/10	132 J	131.55	41.58	3,476	3476.38	139.2	221 U	< LOD	147.41	42,207	42206.93	536.42	15,056	15056.14	478.53	1,438 J	1437.67	671.2
BG-13-2 12-18	06/22/10	82 U	< LOD	54.54	3,299	3299.08	127.05	213 U	< LOD	141.8	43,326	43326.49	516.29	13,999	13998.69	441.54	935 J	935.13	601.14
BG-13-3 12-18	06/22/10	57 J	57.2	32.59	2,584	2584.05	113.13	241 J	240.89	117.87	72,988	72987.58	642.5	12,266	12265.93	413.67	1,337 U	< LOD	891.08
BG-13-4 12-18	06/22/10	102 J	102.39	35.94	2,719	2718.84	117.76	104 J	103.57	60.43	18,252	18251.67	325.91	16,794	16793.67	442.48	989 U	< LOD	659.51
BG-13-5 12-18	06/22/10	80 J	79.72	38.03	3,785	3784.79	131.3	130 U	< LOD	86.61	15,090	15089.65	315.86	15,578	15578.34	450.1	993 U	< LOD	661.75
Mean		91			3,173			182			38,373			14,739			1,138		
BG-13 12-18 COMP	06/22/10	64 J	64.4	37.22	3,047	3046.73	127.03	211 U	< LOD	140.63	43,770	43770.24	518.34	14,968	14968.49	453.82	1,264 U	< LOD	842.39
%RPD		34%			4%			15%			13%			2%			10%		
BG-14-1 0-2	06/23/10	119 J	118.61	37.19	3,584	3583.62	125.25	103 J	103.4	56.9	15,135	15135.48	306.22	18,891	18890.75	473.33	946 J	946.01	506.53
BG-14-2 0-2	06/23/10	100 J	100.2	37.75	3,254	3254.2	126.32	127 U	< LOD	84.49	14,379	14379.36	305.38	17,526	17525.56	467.05	1,027 U	< LOD	684.66
BG-14-3 0-2	06/23/10	88 J	87.78	34.79	3,216	3216.19	117.14	89 J	89.32	44	8,891	8890.7	232.21	15,218	15217.7	409.99	865 U	< LOD	576.83
BG-14-4 0-2	06/23/10	59 J	59.44	35.63	3,449	3448.5	122.52	107 U	< LOD	71.24	10,840	10839.52	259.03	16,291	16290.81	433.28	955 U	< LOD	636.73
BG-14-5 0-2	06/23/10	62 J	61.93	32.31	3,055	3055.25	110.2	93 J	93.3	48.6	12,683	12683.38	261.89	17,944	17943.87	428.32	864 U	< LOD	576.24
Mean		86			3,312			104			12,386			17,174			931		
BG-14 0-2 COMP	06/23/10	73 J	73.21	32.62	3,124	3124.12	111.3	105 U	< LOD	69.99	11,071	11070.72	253.03	16,625	16624.86	424.01	937 U	< LOD	624.46
%RPD		16%			6%			1%			11%			3%			1%		
BG-14-1 2-12	06/23/10	86 J	85.64	36.45	3,171	3171.31	123.25	133 J	133.26	60.05	15,920	15920.25	318.89	16,779	16779.37	458.52	1,027 U	< LOD	684.44
BG-14-2 2-12	06/23/10	95 J	95.07	34.29	3,087	3086.83	115.21	120 U	< LOD	79.77	14,212	14212.12	290.94	17,063	17062.92	443.06	888 U	< LOD	591.79
BG-14-3 2-12	06/23/10	88 J	87.81	35.36	3,504	3504.1	120.77	110 J	109.96	50.65	11,969	11968.78	271.29	20,136	20136.3	475.94	877 U	< LOD	584.75
BG-14-4 2-12	06/23/10	71 J	71.21	41	3,928	3927.51	141.12	112 U	< LOD	74.74	9,777	9776.81	271.6	17,580	17580.39	486.27	990 J	989.94	530.93
BG-14-5 2-12	06/23/10	72 U	< LOD	48.28	3,122	3121.61	111.05	72 J	71.82	46.58	12,010	12010.27	256.14	22,885	22885.21	474.28	846 U	< LOD	564.3
01/00/00		82			3,362			109			12,778			18,889			926		
BG-14 2-12 COMP	06/23/10	78 J	78.12	33.54	3,150	3150.21	113.9	96 J	95.89	48.76	11,639	11638.7	262.84	20,212	20212.44	467.28	994 U	< LOD	662.51
%RPD		5%			7%			13%			9%			7%			7%		
BG-14-1 12-18	06/23/10	58 U	< LOD	38.88	2,092	2092.3	87.83	80 J	80.19	50.96	17,298	17298.45	279.64	17,914	17914.16	401.42	759 U	< LOD	505.81
BG-14-2 12-18	06/23/10	63 U	< LOD	41.86	2,378	2377.61	94.9	97 U	< LOD	64.66	11,293	11292.67	238.54	15,896	15896.38	390.32	765 U	< LOD	510.11
BG-14-3 12-18	06/23/10	91 J	90.81	39.95	3,643	3642.87	135.24	115 U	< LOD	76.83	10,981	10981.22	280.31	20,167	20166.82	507.5	1,121 U	< LOD	747.43
BG-14-4 12-18	06/23/10	78 J	78.35	44.78	4,113	4112.96	152.51	128 U	< LOD	85.44	12,731	12731.03	308.87	20,002	20002.11	523.48	1,068 U	< LOD	712.05
BG-14-5 12-18	06/23/10	105 J	104.54	38.93	3,621	3621.18	131.81	107 J	107.49	54.77	12,135	12134.75	292.24	19,928	19928.46	505.6	1,098 U	< LOD	731.92
Mean		79			3,169			105			12,888			18,781			962		
BG-14 12-18 COMP	06/23/10	89 J	88.52	39.4	3,796	3796.39	134.73	91 J	91.25	56.54	13,515	13514.9	304.46	19,739	19739.39	501.9	1,025 U	< LOD	683.15
%RPD		12%			18%			15%			5%			5%			6%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Vanadium			Titanium			Scandium			Calcium			Potassium			Sulfur		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-15-1 0-2	06/25/10	83 J	82.77	36.36	3,002	3001.75	122.33	128 U	< LOD	85.65	14,388	14387.94	311.48	14,880	14880.05	444.16	972 U	< LOD	648
BG-15-2 0-2	06/25/10	79 J	78.8	34.05	2,878	2877.64	113.65	111 U	< LOD	73.92	12,857	12856.77	271.32	18,582	18581.82	447.18	984 U	< LOD	656.31
BG-15-3 0-2	06/25/10	73 J	72.97	33.99	3,130	3129.73	115.29	75 J	74.6	48.39	11,703	11703.24	260.7	16,204	16204.08	422.07	951 U	< LOD	633.96
BG-15-4 0-2	06/25/10	65 J	65.28	33.41	2,822	2822.29	112.34	105 U	< LOD	70.28	10,792	10791.75	255.49	19,992	19991.89	466.21	904 U	< LOD	602.41
BG-15-5 0-2	06/25/10	76 U	< LOD	50.49	2,664	2664.18	113.44	126 U	< LOD	84.28	17,436	17435.55	309.46	14,387	14387.09	401.32	960 U	< LOD	639.71
Mean		75			2,899			109			13,435			16,809			954		
BG-15 0-2 COMP	06/25/10	68 J	67.86	31.7	2,706	2705.97	106.39	111 U	< LOD	73.7	13,818	13818.28	273.02	16,658	16658.47	417.15	898 U	< LOD	598.57
%RPD		10%			7%			2%			3%			1%			6%		
BG-15-1 2-12	06/25/10	76 U	< LOD	50.4	2,857	2857.09	114.81	89 J	89.03	52.39	13,150	13150.41	282.23	17,676	17675.76	450.79	876 U	< LOD	584.17
BG-15-2 2-12	06/25/10	60 J	60.44	31.89	2,878	2878.49	108.03	101 U	< LOD	67.53	10,941	10941.38	245.9	17,738	17738.19	425.5	831 U	< LOD	554.07
BG-15-3 2-12	06/25/10	61 J	60.98	36.35	3,443	3442.54	124.66	117 U	< LOD	77.94	12,837	12836.53	280.83	17,445	17445.44	450.34	956 U	< LOD	637.22
BG-15-4 2-12	06/25/10	47 J	47.29	28.38	2,231	2230.51	94.94	86 U	< LOD	57.09	8,253	8252.84	213.63	17,064	17063.73	408.41	815 U	< LOD	543.62
BG-15-5 2-12	06/25/10	60 J	59.91	33.8	2,969	2968.93	114.34	108 J	107.67	53.2	14,873	14872.58	285.06	16,684	16684.19	421.92	914 U	< LOD	609.41
Mean		61			2,876			100			12,011			17,321			878		
BG-15 2-12 COMP	06/25/10	54 J	54.41	34.98	3,252	3251.61	120.14	117 U	< LOD	77.76	13,465	13465.31	285.6	17,214	17213.75	446.59	974 U	< LOD	649.55
%RPD		12%			12%			15%			11%			1%			10%		
BG-15-1 12-18	06/25/10	71 U	< LOD	47	3,040	3040.49	107.66	106 U	< LOD	70.81	13,436	13436.18	263.33	19,983	19982.9	440.08	875 U	< LOD	583.28
BG-15-2 12-18	06/25/10	74 U	< LOD	49.19	3,558	3558.37	115.06	79 J	78.64	49.79	13,882	13882.18	272.84	21,904	21904.01	467.12	866 U	< LOD	577.15
BG-15-3 12-18	06/25/10	119 J	119.05	38.29	3,245	3244.95	127.76	112 J	111.93	68.73	20,694	20694.38	370.72	16,980	16980.13	477.97	1,088 U	< LOD	725.49
BG-15-4 12-18	06/25/10	77 J	76.69	34.49	2,925	2925.35	115.7	106 U	< LOD	70.42	10,490	10489.77	257.72	19,312	19311.89	468.55	912 U	< LOD	607.81
BG-15-5 12-18	06/25/10	76 U	< LOD	50.81	3,157	3156.85	117.32	91 J	90.9	50.76	12,999	12998.72	271.5	15,178	15177.93	409.1	909 U	< LOD	605.71
Mean		83			3,185			99			14,300			18,671			930		
BG-15 12-18 COMP	06/25/10	70 J	69.98	35.34	3,056	3056.43	119.7	119 U	< LOD	79.05	12,897	12897.29	287.06	19,014	19014.08	476.06	981 U	< LOD	653.84
%RPD		17%			4%			19%			10%			2%			5%		
BG-16-1 0-2	06/25/10	85 J	85.22	34.92	3,248	3247.97	118.51	106 J	105.7	52.66	13,017	13016.87	281.47	17,370	17370.49	448.23	1,044 U	< LOD	695.7
BG-16-2 0-2	06/25/10	72 J	71.76	34.36	3,042	3042	116.64	84 J	83.98	55.49	14,864	14864.05	302.86	21,875	21874.63	502.26	974 U	< LOD	649.59
BG-16-3 0-2	06/26/10	58 J	57.69	35.81	3,345	3345.16	122.32	78 J	78.15	48.85	11,454	11453.91	263.19	18,202	18202.11	450.48	928 U	< LOD	618.38
BG-16-4 0-2	06/26/10	89 J	88.85	36.84	3,394	3394.41	125	95 J	95.44	57.36	15,133	15132.66	310.82	20,975	20975.44	502.27	1,078 U	< LOD	718.69
BG-16-5 0-2	06/26/10	65 J	65.12	33.42	2,958	2957.99	112.94	99 U	< LOD	66.2	10,186	10186.22	247.03	18,196	18196.33	444.16	891 U	< LOD	593.95
Mean		74			3,197			92			12,931			19,324			983		
BG-16 0-2 COMP	06/26/10	56 J	56.12	34.33	2,952	2952.19	116.32	81 J	81.32	50.35	12,423	12422.9	272.12	18,768	18768.36	456.3	964 U	< LOD	642.61
%RPD		27%			8%			13%			4%			3%			2%		
BG-16-1 2-12	06/25/10	66 J	66.04	35.82	3,479	3478.58	123.41	113 U	< LOD	75.59	11,855	11854.9	276.24	17,833	17832.54	461.67	922 U	< LOD	614.51
BG-16-2 2-12	06/25/10	66 J	66.26	27	2,045	2044.57	89.14	82 J	82.09	47.78	13,675	13674.92	261.16	19,167	19166.64	426.32	832 U	< LOD	554.82
BG-16-3 2-12	06/26/10	83 U	< LOD	55.28	3,725	3724.88	127.46	79 J	79.27	48.68	11,096	11096.49	262.9	19,655	19654.83	470.73	901 U	< LOD	600.89
BG-16-4 2-12	06/26/10	90 J	90.49	37.34	3,319	3318.59	126.03	111 J	111.25	58.95	15,648	15647.52	318.79	22,614	22614.15	523.98	1,030 U	< LOD	686.72
BG-16-5 2-12	06/26/10	66 J	65.52	37.2	3,504	3503.62	128.11	75 J	74.88	49.44	9,947	9947.37	263.91	16,558	16557.88	458.95	935 U	< LOD	623.27
Mean		74			3,214			92			12,444			19,165			924		
BG-16 2-12 COMP	06/26/10	67 J	67.02	37.34	3,238	3238.3	126.57	109 J	108.54	52.84	12,191	12191.45	281.66	19,012	19011.82	478	983 U	< LOD	655.51
%RPD		10%			1%			17%			2%			1%			6%		
BG-16-1 12-18	06/25/10	84 U	< LOD	55.94	3,561	3560.7	129.02	115 U	< LOD	76.75	11,178	11178.06	277.86	19,708	19707.75	495.45	989 U	< LOD	659.2
BG-16-2 12-18	06/25/10	71 J	70.83	27.8	2,222	2221.5	92.04	98 U	< LOD	65.19	11,319	11318.6	244.64	21,363	21363.14	451.67	774 U	< LOD	516.27
BG-16-3 12-18	06/26/10	79 J	79.01	35.51	3,529	3529.2	121.14	105 U	< LOD	69.71	10,957	10956.89	256.23	18,865	18864.92	453.69	949 U	< LOD	632.59
BG-16-4 12-18	06/26/10	58 J	57.53	33.11	2,990	2989.57	113.48	123 U	< LOD	81.81	15,025	15024.67	301.09	22,562	22561.9	503.94	938 U	< LOD	625.62
BG-16-5 12-18	06/26/10	108 J	108.06	43.02	3,857	3856.76	145.48	129 U	< LOD	86.27	12,356	12355.56	310.74	17,061	17061.37	498.62	1,114 U	< LOD	742.52
Mean		80			3,232			114			12,167			19,912			953		
BG-16 12-18 COMP	06/26/10	72 J	71.6	35.8	3,627	3627.41	123.48	111 U	< LOD	73.69	11,590	11590.41	270.74	19,856	19855.51	477.95	966 U	< LOD	644.15
%RPD		11%			12%			3%			5%			0%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-1-1 0-2	06/29/10	973	973.36	38.52	85	85.29	9.75	167	166.93	31.28	38 J	38.47	11.49	61	60.82	10.3	15 U	< LOD	10.25
BG-1-2 0-2	06/29/10	578	578.32	34.63	61	60.88	9.24	86 J	86.28	29.33	29 J	28.67	10.95	25 J	25.28	9.48	13 J	12.76	6.67
BG-1-3 0-2	06/29/10	691	690.84	36.9	89	89.1	9.8	175	174.62	31.49	41 J	40.64	11.57	45 J	45.4	10.17	11 J	10.5	6.93
BG-1-4 0-2	06/29/10	595	595.35	36.43	63	63.31	9.72	103 J	103.32	30.94	25 J	25.41	11.42	34 J	34.33	10.05	15 U	< LOD	10.06
BG-1-5 0-2	06/29/10	618	617.83	40.08	79	78.85	10.74	101 J	101.04	33.91	24 J	24.07	12.5	38 J	37.92	11.06	16 U	< LOD	10.98
Mean		691			75			126			31			41			14		
BG-1 0-2 COMP	06/29/10	478	478.15	35.08	47 J	47.31	9.47	80 J	79.82	30.21	25 U	< LOD	16.64	18 J	18.19	9.66	15 U	< LOD	10.04
%RPD		36%			46%			45%			23%			77%			7%		
BG-1-1 2-12	06/29/10	562	561.83	35.59	81	80.94	9.63	130 J	130.06	30.66	42 J	41.57	11.42	30 J	29.72	9.83	15 U	< LOD	10.15
BG-1-2 2-12	06/29/10	507	506.91	34.68	61	60.6	9.38	93 J	92.78	29.82	28 J	27.85	11.08	23 J	23.11	9.59	15 U	< LOD	9.86
BG-1-3 2-12	06/29/10	580	580.47	36.13	78	77.91	9.72	124 J	124.46	30.96	25 J	24.89	11.37	33 J	33.15	9.97	15 U	< LOD	10.23
BG-1-4 2-12	06/29/10	489	488.65	37.56	60	59.96	10.21	102 J	102.05	32.53	25 J	24.74	12	24 J	23.55	10.42	16 U	< LOD	10.56
BG-1-5 2-12	06/29/10	601	601.35	39.48	77	77.45	10.6	114 J	113.83	33.63	24 J	24.45	12.34	28 J	27.94	10.8	16 U	< LOD	10.57
Mean		548			71			113			29			28			15		
BG-1 2-12 COMP	06/29/10	505	504.64	35.72	48 J	47.75	9.6	55 J	54.59	30.37	21 J	20.72	11.32	21 J	21.17	9.84	15 U	< LOD	9.87
%RPD		8%			39%			69%			31%			27%			3%		
BG-1-1 12-18	06/29/10	537	536.58	34.97	67	66.58	9.43	102 J	102.42	30	30 J	30.45	11.14	23 J	23.21	9.62	15 U	< LOD	9.85
BG-1-2 12-18	06/29/10	549	548.88	35.42	49	48.95	9.45	109 J	108.62	30.36	26 J	25.7	11.21	21 J	20.91	9.69	15 U	< LOD	9.95
BG-1-3 12-18	06/29/10	571	571.25	35.87	75	75.02	9.66	115 J	114.79	30.7	41 J	40.91	11.47	22 J	21.95	9.79	15 U	< LOD	10.04
BG-1-4 12-18	06/29/10	705	705.19	36.75	54	53.57	9.56	80 J	80.01	30.38	25 U	< LOD	16.75	22 J	22.25	9.79	15 U	< LOD	10.17
BG-1-5 12-18	06/29/10	608	607.97	35.75	76	76.38	9.57	145 J	145.41	30.68	45 J	44.82	11.41	30 J	30.26	9.81	15 U	< LOD	10.08
Mean		594			64			110			33			24			15		
BG-1 12-18 COMP	06/29/10	691	691	36.55	71	70.58	9.61	118 J	117.95	30.64	36 J	35.72	11.38	30 J	29.5	9.87	15 U	< LOD	10.01
%RPD		15%			10%			7%			7%			24%			0%		
BG-2-1 0-2	06/30/10	622	621.72	35.88	68	68.35	9.55	118 J	117.87	30.46	39 J	39.42	11.35	30 J	30.43	9.81	15 U	< LOD	9.87
BG-2-2 0-2	06/30/10	524	524.11	33.86	48	47.89	9.06	96 J	96.16	29.04	25 J	24.96	10.76	26 J	25.58	9.34	15 U	< LOD	9.77
BG-2-3 0-2	06/30/10	576	575.8	35.75	71	71.01	9.6	141 J	141.24	30.82	44 J	43.93	11.47	30 J	29.94	9.86	15 U	< LOD	10.15
BG-2-4 0-2	06/30/10	636	636.47	34.8	71	71.39	9.24	105 J	104.68	29.34	41 J	40.6	11	27 J	26.5	9.45	15 U	< LOD	9.71
BG-2-5 0-2	06/30/10	298	297.73	31.43	19 J	19.09	8.65	62 U	< LOD	41.3	23 U	< LOD	15.34	20 U	< LOD	13.18	14 U	< LOD	9.11
Mean		531			55			104			34			27			15		
BG-2 0-2 COMP	06/30/10	564	564.35	34.82	69	68.92	9.35	117 J	117.23	29.85	26 J	25.89	10.99	26 J	25.87	9.56	15 U	< LOD	9.72
%RPD		6%			22%			11%			28%			2%			1%		
BG-2-1 2-12	06/30/10	548	548.45	36.07	67	67.36	9.72	143 J	143.44	31.26	30 J	29.55	11.46	34 J	33.73	10.03	15 U	< LOD	10.14
BG-2-2 2-12	06/30/10	610	609.86	35.57	74	74.48	9.51	156	155.64	30.61	47 J	46.55	11.37	38 J	38.37	9.85	15 U	< LOD	10.02
BG-2-3 2-12	06/30/10	567	566.92	34.73	59	58.89	9.28	111 J	110.92	29.7	26 J	25.91	10.96	19 J	18.63	9.44	15 U	< LOD	9.76
BG-2-4 2-12	06/30/10	572	571.65	35.26	61	61.27	9.43	126 J	126.27	30.27	30 J	29.69	11.16	30 J	30.28	9.72	15 U	< LOD	9.95
BG-2-5 2-12	06/30/10	457	456.87	33.72	54	53.99	9.17	105 J	105.46	29.38	18 J	18.04	10.78	23 J	22.82	9.39	15 U	< LOD	9.73
Mean		551			63			128			30			29			15		
BG-2 2-12 COMP	06/30/10	740	740.35	36.29	76	75.56	9.48	124 J	123.66	30.22	29 J	28.94	11.13	35 J	34.7	9.77	15 U	< LOD	9.77
%RPD		29%			19%			3%			4%			19%			0%		
BG-2-1 12-18	06/30/10	470	469.77	34.35	64	64.16	9.37	121 J	120.63	30	30 J	30.05	11.08	30 J	29.58	9.63	15 U	< LOD	9.88
BG-2-2 12-18	06/30/10	568	567.65	35.51	82	82.46	9.6	150 J	150.18	30.73	44 J	44.34	11.41	24 J	23.67	9.74	15 U	< LOD	10.15
BG-2-3 12-18	06/30/10	669	669.13	35.97	70	70.37	9.49	114 J	113.91	30.25	29 J	29.02	11.18	29 J	28.69	9.73	15 U	< LOD	10
BG-2-4 12-18	06/30/10	623	623.17	36.97	84	84.31	9.91	147 J	146.74	31.65	27 J	27.2	11.57	34 J	33.88	10.16	16 U	< LOD	10.39
BG-2-5 12-18	06/30/10	518	517.65	34.49	55	54.58	9.28	99 J	98.91	29.66	20 J	20.35	10.9	19 J	18.76	9.45	14 U	< LOD	9.49
Mean		570			71			126			30			27			15		
BG-2 12-18 COMP	06/30/10	649	649.49	36.27	76	76.16	9.64	163	163.24	31.05	37 J	36.86	11.4	36 J	35.56	9.93	15 U	< LOD	10.06
%RPD		13%			7%			25%			21%			28%			0%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-3-1 0-2	06/29/10	597	597.36	35.88	75	74.78	9.62	152 J	151.53	30.89	43 J	43.22	11.46	30 J	29.53	9.84	11 J	10.86	6.85
BG-3-2 0-2	06/29/10	577	576.95	35.21	74	73.83	9.47	149 J	148.85	30.41	46 J	46.23	11.33	37 J	36.61	9.78	13 J	13.24	6.8
BG-3-3 0-2	06/29/10	366	365.57	32.94	39 J	39.01	9.05	70 J	69.83	28.89	19 J	18.63	10.7	16 J	16.09	9.24	14 U	< LOD	9.36
BG-3-4 0-2	06/29/10	625	624.57	35.35	70	70.29	9.4	118 J	117.52	29.99	30 J	29.54	11.07	24 J	24.37	9.59	15 U	< LOD	9.77
BG-3-5 0-2	06/29/10	609	608.52	35.23	68	68.45	9.39	125 J	125.38	30.04	29 J	28.57	11.07	31 J	31.09	9.66	15 U	< LOD	9.93
Mean		555			65			123			33			28			14		
BG-3 0-2 COMP	06/29/10	499	498.88	34.55	57	57.3	9.34	99 J	99.3	29.82	26 J	26.11	11.03	28 J	27.91	9.61	15 U	< LOD	9.7
%RPD		11%			13%			21%			25%			1%			10%		
BG-3-1 2-12	06/29/10	492	492.37	35.32	61	61.1	9.58	96 J	96.11	30.49	17 J	17.07	11.2	22 J	21.51	9.77	15 U	< LOD	10.01
BG-3-2 2-12	06/29/10	611	611.19	35.18	76	75.89	9.41	129 J	128.97	30.03	42 J	41.7	11.18	26 J	25.76	9.58	15 U	< LOD	9.79
BG-3-3 2-12	06/29/10	432	432.19	34.61	59	58.74	9.48	104 J	104.16	30.3	25 J	24.65	11.19	30 J	29.53	9.76	15 U	< LOD	10.15
BG-3-4 2-12	06/29/10	607	607.2	36.13	67	66.94	9.63	130 J	130.36	30.86	37 J	37.15	11.45	33 J	32.81	9.93	15 U	< LOD	10.19
BG-3-5 2-12	06/29/10	717	717.37	36.84	74	74.32	9.66	131 J	130.64	30.87	45 J	45.05	11.51	30 J	30.47	9.92	15 U	< LOD	9.88
Mean		572			67			118			33			28			15		
BG-3 2-12 COMP	06/29/10	565	565.33	35.6	55	54.87	9.5	102 J	101.8	30.37	26 J	25.99	11.24	29 J	29.13	9.81	15 U	< LOD	10.09
%RPD		1%			20%			15%			24%			3%			0%		
BG-3-1 12-18	06/29/10	663	663.3	37.34	86	86.47	9.95	129 J	128.62	31.57	47 J	46.94	11.82	32 J	32.13	10.17	16 U	< LOD	10.44
BG-3-2 12-18	06/29/10	483	483.33	34.06	68	67.72	9.28	131 J	130.52	29.75	32 J	31.69	10.97	35 J	34.65	9.59	14 U	< LOD	9.64
BG-3-3 12-18	06/29/10	486	486.09	35.41	53	53.44	9.58	122 J	122.15	30.84	30 J	30.35	11.39	25 J	24.59	9.83	15 U	< LOD	10.17
BG-3-4 12-18	06/29/10	650	649.85	36.38	82	81.77	9.69	164	164.49	31.17	36 J	35.89	11.44	42 J	42.24	10.05	12 J	12.06	6.91
BG-3-5 12-18	06/29/10	709	708.91	36.53	84	83.71	9.64	170	169.83	31.01	46 J	46.48	11.49	39 J	38.56	9.96	16 J	16.07	6.95
Mean		598			75			143			38			35			15		
BG-3 12-18 COMP	06/29/10	562	561.58	35.77	66	66.47	9.61	116 J	116.27	30.68	34 J	34.49	11.39	34 J	34.11	9.92	15 U	< LOD	9.98
%RPD		6%			12%			21%			12%			2%			3%		
BG-4-1 0-2	06/28/10	470	470.46	34.34	61	60.71	9.35	104 J	104.01	29.84	27 J	26.98	11.04	17 J	16.67	9.48	15 U	< LOD	9.74
BG-4-2 0-2	06/28/10	525	524.61	34.31	66	65.62	9.26	119 J	118.61	29.64	25 J	24.89	10.91	22 J	22.41	9.44	15 U	< LOD	9.87
BG-4-3 0-2	06/28/10	560	560.14	34.61	61	60.63	9.27	111 J	110.71	29.63	30 J	30.28	10.99	21 J	21.03	9.45	11 J	10.99	6.65
BG-4-4 0-2	06/28/10	424	423.67	33.8	33 J	33.22	9.15	65 U	< LOD	43.57	24 U	< LOD	16.21	21 U	< LOD	13.93	14 U	< LOD	9.53
BG-4-5 0-2	06/28/10	386	385.63	31.56	16 J	16.27	8.52	51 J	51.37	27.4	23 U	< LOD	15.1	20 U	< LOD	13.16	14 U	< LOD	9.06
Mean		473			47			90			26			20			14		
BG-4 0-2 COMP	06/28/10	486	485.79	34.62	53	52.58	9.36	94 J	94.07	29.91	19 J	19.42	11.02	14 J	14.43	9.5	15 U	< LOD	9.86
%RPD		3%			11%			4%			30%			36%			8%		
BG-4-1 2-12	06/28/10	576	575.54	37.24	87	87.38	10.09	162	161.53	32.3	46 J	45.52	11.97	31 J	31.44	10.29	16 U	< LOD	10.67
BG-4-2 2-12	06/28/10	584	584.39	35.33	69	68.73	9.46	122 J	121.84	30.22	34 J	34.17	11.2	23 J	23.29	9.65	15 U	< LOD	9.89
BG-4-3 2-12	06/28/10	706	705.88	36	86	86.4	9.52	167	166.83	30.55	49 J	49.03	11.34	37 J	36.76	9.79	15 U	< LOD	10.07
BG-4-4 2-12	06/28/10	560	560.44	36.36	63	62.81	9.75	119 J	118.91	31.22	21 J	21.31	11.43	25 J	25.11	9.97	15 U	< LOD	10.23
BG-4-5 2-12	06/28/10	447	447.43	32.72	37 J	37.17	8.83	65 J	64.65	28.2	23 J	23.13	10.53	19 J	18.85	9.07	14 U	< LOD	9.4
Mean		575			68			127			35			27			15		
BG-4 2-12 COMP	06/28/10	636	635.75	36.07	68	68.48	9.57	122 J	121.54	30.58	42 J	42.27	11.43	28 J	28.31	9.82	15 U	< LOD	10.15
%RPD		10%			1%			4%			19%			4%			0%		
BG-4-1 12-18	06/28/10	483	483	35.16	75	75.43	9.62	133 J	132.89	30.75	36 J	36.14	11.39	29 J	28.81	9.84	15 U	< LOD	10.12
BG-4-2 12-18	06/28/10	589	588.96	34.94	82	82.38	9.41	133 J	132.85	29.97	47 J	47.01	11.21	35 J	34.79	9.66	15 U	< LOD	9.76
BG-4-3 12-18	06/28/10	630	630.16	36.35	87	86.76	9.74	147 J	147.27	31.09	43 J	43.39	11.53	33 J	32.71	9.97	15 U	< LOD	10
BG-4-4 12-18	06/28/10	689	689.42	38.62	79	79.48	10.22	143 J	142.76	32.66	31 J	31.44	11.99	40 J	40.09	10.56	16 U	< LOD	10.67
BG-4-5 12-18	06/28/10	627	626.98	34.67	71	71.06	9.22	120 J	120.09	29.41	37 J	37.35	10.95	28 J	27.83	9.44	15 U	< LOD	9.73
Mean		604			79			135			39			33			15		
BG-4 12-18 COMP	06/28/10	667	667.39	36.84	84	84.35	9.8	142 J	142.37	31.25	40 J	39.62	11.56	38 J	37.85	10.09	15 U	< LOD	10.09
%RPD		10%			6%			5%			3%			14%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-5-1 0-2	06/22/10	459	458.95	33.86	43 J	42.75	9.15	92 J	92.07	29.36	24 U	< LOD	16.17	21 J	21.38	9.4	15 U	< LOD	9.73
BG-5-2 0-2	06/22/10	647	646.5	34.39	74	73.78	9.12	138 J	138.08	29.23	41 J	41.17	10.87	28 J	27.9	9.35	15 U	< LOD	9.73
BG-5-3 0-2	06/22/10	714	714.27	36.42	80	79.63	9.58	136 J	136.01	30.59	42 J	41.75	11.38	39 J	39.2	9.92	15 U	< LOD	10.18
BG-5-4 0-2	06/22/10	570	570.37	35.17	76	75.53	9.47	132 J	131.58	30.26	34 J	33.75	11.18	27 J	27.18	9.67	15 U	< LOD	10
BG-5-5 0-2	06/22/10	498	498.15	33.66	54	53.7	9.08	105 J	104.91	29.1	29 J	28.69	10.78	17 J	16.72	9.25	14 U	< LOD	9.51
Mean		578			65			121			34			26			15		
BG-5 0-2 COMP	06/22/10	529	529.05	34.41	64	63.89	9.28	101 J	101.03	29.55	30 J	30.45	10.98	23 J	22.74	9.47	15 U	< LOD	9.71
%RPD		9%			2%			18%			13%			14%			1%		
BG-5-1 2-12	06/22/10	587	586.79	35.61	77	76.82	9.57	162	161.73	30.82	38 J	37.73	11.33	37 J	37.27	9.87	15 U	< LOD	10.04
BG-5-2 2-12	06/22/10	697	696.72	35.39	87	86.65	9.37	173	173.12	30.13	43 J	43.16	11.1	30 J	30.19	9.57	15 U	< LOD	9.88
BG-5-3 2-12	06/22/10	596	596.01	35.26	68	67.8	9.41	126 J	125.55	30.13	36 J	36.24	11.18	34 J	33.6	9.72	15 U	< LOD	9.83
BG-5-4 2-12	06/22/10	563	562.73	35.89	78	78.3	9.69	145 J	144.74	31.04	29 J	28.69	11.37	36 J	36.32	9.98	15 U	< LOD	10.24
BG-5-5 2-12	06/22/10	697	697.36	37.03	75	74.74	9.75	151 J	150.79	31.33	37 J	36.87	11.54	35 J	34.69	10.06	15 U	< LOD	10.23
Mean		628			77			151			37			34			15		
BG-5 2-12 COMP	06/22/10	532	532.02	35.21	61	60.71	9.48	122 J	121.64	30.41	27 J	27.29	11.19	22 J	22.3	9.68	15 U	< LOD	9.84
%RPD		17%			23%			22%			30%			44%			0%		
BG-5-1 12-18	06/22/10	602	602.39	35.91	74	74.29	9.61	145 J	144.91	30.83	38 J	37.9	11.39	39 J	38.53	9.95	15 U	< LOD	10.12
BG-5-2 12-18	06/22/10	761	760.59	35.99	91	91.02	9.45	186	186.16	30.43	50 J	50.49	11.25	45 J	44.81	9.8	15 U	< LOD	9.9
BG-5-3 12-18	06/22/10	553	552.74	35.36	66	65.76	9.51	130 J	130.26	30.5	34 J	34.34	11.28	23 J	23.11	9.7	15 U	< LOD	9.95
BG-5-4 12-18	06/22/10	585	585.34	36.08	93	92.7	9.78	150 J	149.97	31.14	49 J	48.56	11.61	32 J	32.17	9.97	15 U	< LOD	10.23
BG-5-5 12-18	06/22/10	579	578.55	38.15	72	72.02	10.26	142 J	142.28	32.89	29 J	29.48	12.06	26 J	26.1	10.47	16 U	< LOD	10.76
Mean		616			79			151			40			33			15		
BG-5 12-18 COMP	06/22/10	693	692.57	36.73	74	74.2	9.68	156	156.29	31.14	38 J	37.51	11.46	43 J	42.87	10.07	15 U	< LOD	10.03
%RPD		12%			7%			4%			5%			26%			1%		
BG-6-1 0-2	06/28/10	499	498.68	33.74	49	49.23	9.08	87 J	86.73	29	22 J	21.65	10.73	26 J	26.36	9.36	14 U	< LOD	9.56
BG-6-2 0-2	06/28/10	685	685.38	39.42	74	74.03	10.42	121 J	121.35	33.16	24 J	23.77	12.16	30 J	30.43	10.66	16 U	< LOD	10.8
BG-6-3 0-2	06/28/10	656	655.94	37.41	70	70.16	9.91	104 J	104.27	31.45	28 J	28.18	11.64	26 J	26.16	10.12	16 U	< LOD	10.36
BG-6-4 0-2	06/28/10	605	605.11	34.61	66	66.43	9.22	118 J	118.17	29.46	31 J	30.67	10.91	29 J	28.87	9.48	10 J	10.13	6.58
BG-6-5 0-2	06/28/10	457	456.9	33.51	50	50.27	9.09	79 J	79.28	28.97	23 J	22.98	10.76	18 J	17.76	9.27	14 U	< LOD	9.6
Mean		580			62			102			26			26			14		
BG-6 0-2 COMP	06/28/10	597	596.84	35.48	65	65.46	9.47	128 J	128.45	30.35	38 J	38.18	11.27	31 J	30.85	9.75	15 U	< LOD	9.99
%RPD		3%			5%			23%			39%			18%			7%		
BG-6-1 2-12	06/28/10	879	879.36	36.62	63	63.43	9.29	117 J	116.8	29.73	26 J	26.25	10.96	29 J	29.19	9.59	11 J	10.81	6.66
BG-6-2 2-12	06/28/10	679	679.27	35.93	88	88.38	9.55	152 J	152.13	30.5	39 J	39.17	11.26	35 J	35.28	9.8	15 U	< LOD	10.04
BG-6-3 2-12	06/28/10	512	511.86	35.51	54	53.82	9.56	87 J	86.59	30.46	19 J	18.53	11.23	23 J	22.6	9.79	15 U	< LOD	10
BG-6-4 2-12	06/28/10	630	630.49	35.69	75	75.16	9.51	141 J	141.18	30.46	32 J	31.54	11.2	26 J	25.56	9.7	15 U	< LOD	9.99
BG-6-5 2-12	06/28/10	515	514.81	34.98	66	65.52	9.47	129 J	128.5	30.37	29 J	29.13	11.18	33 J	33.02	9.77	15 U	< LOD	9.99
Mean		643			69			125			29			29			14		
BG-6 2-12 COMP	06/28/10	574	573.91	35.36	67	67.1	9.48	120 J	119.91	30.29	27 J	27.17	11.16	25 J	25	9.68	15 U	< LOD	10.04
%RPD		11%			3%			4%			7%			15%			5%		
BG-6-1 12-18	06/28/10	594	593.68	36.18	77	77.29	9.72	153 J	152.97	31.2	37 J	37.08	11.49	35 J	35.13	10	15 U	< LOD	10.2
BG-6-2 12-18	06/28/10	589	589.11	36.45	72	71.54	9.76	113 J	113.43	31.08	20 J	19.89	11.39	26 J	25.59	9.96	16 U	< LOD	10.34
BG-6-3 12-18	06/28/10	631	630.62	36.49	82	82.46	9.76	145 J	145.43	31.19	38 J	37.53	11.52	35 J	35.22	10.02	15 U	< LOD	10.19
BG-6-4 12-18	06/28/10	733	733.22	37.3	91	90.78	9.84	144 J	143.7	31.3	38 J	38.32	11.58	27 J	26.91	9.99	16 U	< LOD	10.37
BG-6-5 12-18	06/28/10	713	713.18	36.4	64	63.94	9.5	95 J	95.09	30.19	27 J	27.13	11.2	22 J	21.64	9.69	15 U	< LOD	10.03
Mean		652			77			130			32			29			15		
BG-6 12-18 COMP	06/28/10	778	778.08	37.52	82	81.83	9.78	157	157.31	31.37	45 J	45.18	11.64	41 J	41.1	10.13	17 J	16.71	7.06
%RPD		18%			6%			19%			34%			34%			10%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	505	504.57	40.42	38 J	38.02	10.84	77 U	< LOD	51.4	28 U	< LOD	18.79	25 U	< LOD	16.45	16 U	< LOD	10.97
BG-7-2 0-2	06/27/10	545	545.01	35.03	73	73.07	9.46	128 J	127.74	30.24	34 J	34.35	11.2	31 J	30.9	9.71	15 U	< LOD	10.05
BG-7-3 0-2	06/27/10	588	587.65	35.68	70	69.6	9.56	128 J	127.86	30.57	36 J	35.57	11.33	40 J	40.41	9.93	15 U	< LOD	10.1
BG-7-4 0-2	06/27/10	515	515.4	34.2	67	66.71	9.26	106 J	105.59	29.48	35 J	34.93	10.98	20 J	20.25	9.41	14 U	< LOD	9.65
BG-7-5 0-2	06/27/10	570	569.57	36.9	70	69.66	9.93	110 J	110.4	31.57	28 J	27.88	11.67	32 J	32.11	10.2	16 U	< LOD	10.45
Mean		545			64			110			32			30			15		
BG-7 0-2 COMP	06/27/10	547	547.07	37.12	57	56.95	9.96	79 J	78.62	31.56	21 J	21.14	11.69	23 J	23.2	10.17	16 U	< LOD	10.37
%RPD		0%			11%			33%			42%			25%			5%		
BG-7-1 2-12	06/27/10	539	538.99	39.17	50 J	50.3	10.5	68 J	68.14	33.25	28 U	< LOD	18.46	24 J	23.85	10.76	16 U	< LOD	10.89
BG-7-2 2-12	06/27/10	587	587.24	36.82	77	77.22	9.91	128 J	128.12	31.57	31 J	31.16	11.63	37 J	37.04	10.21	15 U	< LOD	10.26
BG-7-3 2-12	06/27/10	661	660.84	36.43	85	84.78	9.71	152 J	151.51	31.03	54 J	54.1	11.61	40 J	39.62	10.01	15 U	< LOD	10.07
BG-7-4 2-12	06/27/10	655	655.02	35.54	51	50.78	9.31	98 J	97.99	29.79	25 J	24.84	11.02	19 J	19.29	9.53	15 U	< LOD	9.87
BG-7-5 2-12	06/27/10	511	511.28	35.07	61	60.64	9.48	113 J	112.6	30.31	23 J	23.35	11.14	25 J	24.67	9.69	15 U	< LOD	9.84
Mean		591			65			112			32			29			15		
BG-7 2-12 COMP	06/27/10	575	575.27	35.87	57	57.23	9.57	106 J	105.86	30.59	25 J	24.71	11.28	26 J	26.18	9.82	15 U	< LOD	9.87
%RPD		3%			13%			5%			25%			11%			1%		
BG-7-1 12-18	06/27/10	304	304.48	48.4	30 U	< LOD	20.01	93 U	< LOD	62.28	34 U	< LOD	22.99	30 U	< LOD	20.09	20 U	< LOD	13.37
BG-7-2 12-18	06/27/10	548	548.17	36.24	69	68.77	9.77	107 J	106.69	31.07	18 J	17.56	11.39	32 J	31.83	10.04	16 U	< LOD	10.35
BG-7-3 12-18	06/27/10	608	608.41	36.37	81	80.68	9.76	148 J	148	31.23	41 J	41.07	11.55	40 J	39.79	10.08	15 U	< LOD	10
BG-7-4 12-18	06/27/10	580	580.36	35.62	64	64.21	9.52	121 J	120.66	30.48	30 J	30.1	11.26	26 J	26.31	9.75	15 U	< LOD	9.97
BG-7-5 12-18	06/27/10	562	561.81	35.16	68	67.86	9.45	121 J	121.05	30.2	31 J	31.14	11.17	38 J	38.01	9.79	15 U	< LOD	10.01
Mean		520			62			118			31			33			16		
BG-7 12-18 COMP	06/27/10	475	475.14	36.57	40 J	39.6	9.85	70 U	< LOD	46.4	26 U	< LOD	17.26	22 U	< LOD	14.94	15 U	< LOD	10.28
%RPD		9%			44%			51%			17%			41%			8%		
BG-8-1 0-2	06/26/10	351	351.45	32.21	16 J	15.82	8.76	43 J	42.57	28.08	23 U	< LOD	15.53	20 U	< LOD	13.47	14 U	< LOD	9.22
BG-8-2 0-2	06/26/10	556	555.87	36.13	74	73.98	9.75	143 J	142.81	31.28	35 J	35.49	11.54	38 J	37.68	10.08	15 U	< LOD	10.28
BG-8-3 0-2	06/26/10	505	505.35	33.45	42 J	42.46	8.96	81 J	80.91	28.66	24 J	24.36	10.66	21 J	20.9	9.21	14 U	< LOD	9.56
BG-8-4 0-2	06/26/10	556	556.23	34.9	53	53.25	9.32	105 J	105.18	29.85	25 J	25	11.02	23 J	23.11	9.55	15 U	< LOD	9.77
BG-8-5 0-2	06/26/10	584	584.37	36.01	76	76.24	9.68	132 J	131.94	30.91	31 J	31.33	11.39	34 J	33.76	9.95	15 U	< LOD	10.09
Mean		510			52			101			28			27			15		
BG-8 0-2 COMP	06/26/10	520	519.75	34.66	47	46.65	9.28	100 J	100.11	29.8	25 U	< LOD	16.38	21 J	20.55	9.52	15 U	< LOD	9.88
%RPD		2%			10%			1%			10%			26%			3%		
BG-8-1 2-12	06/26/10	522	521.71	34.22	51	50.92	9.18	95 J	94.53	29.36	28 J	28.33	10.91	25 J	24.95	9.45	15 U	< LOD	9.68
BG-8-2 2-12	06/26/10	519	519.01	36.12	73	72.97	9.81	121 J	121.08	31.27	31 J	30.8	11.54	27 J	27.37	10.02	15 U	< LOD	10.06
BG-8-3 2-12	06/26/10	600	600.24	35.88	69	69.42	9.59	128 J	127.73	30.67	35 J	35.18	11.37	28 J	27.95	9.82	15 U	< LOD	10.21
BG-8-4 2-12	06/26/10	608	608.42	35.42	67	66.76	9.43	129 J	128.73	30.23	36 J	36.06	11.2	31 J	30.66	9.7	15 U	< LOD	9.9
BG-8-5 2-12	06/26/10	619	618.68	36.12	79	79.26	9.66	144 J	144.21	30.93	35 J	34.86	11.38	28 J	27.61	9.87	15 U	< LOD	9.89
Mean		574			68			123			33			28			15		
BG-8 2-12 COMP	06/26/10	552	552.22	35.7	66	66.22	9.61	124 J	123.67	30.74	29 J	29.31	11.33	29 J	29.09	9.86	15 U	< LOD	10.05
%RPD		4%			3%			0%			13%			4%			0%		
BG-8-1 12-18	06/26/10	466	465.7	33.51	49	48.7	9.07	90 J	89.69	29.01	26 J	26.21	10.78	28 J	28.06	9.39	14 U	< LOD	9.6
BG-8-2 12-18	06/26/10	569	568.94	37.46	90	90.48	10.18	186	186.04	32.77	44 J	44.39	12.03	40 J	40.43	10.47	16 U	< LOD	10.62
BG-8-3 12-18	06/26/10	590	590.11	35.68	72	71.54	9.56	143 J	142.58	30.68	44 J	44.37	11.41	31 J	31.17	9.82	15 U	< LOD	9.92
BG-8-4 12-18	06/26/10	552	552.32	35.77	71	71	9.64	122 J	121.76	30.78	33 J	33.36	11.41	35 J	35.33	9.96	13 J	12.96	6.93
BG-8-5 12-18	06/26/10	600	599.92	36.14	82	81.75	9.71	150 J	150.21	31.1	38 J	38.05	11.47	36 J	36.22	10	15 U	< LOD	10.08
Mean		555			73			138			37			34			15		
BG-8 12-18 COMP	06/26/10	560	560.3	35.92	75	75.44	9.7	159	159.28	31.22	46 J	46.34	11.58	38 J	38.45	10.03	15 U	< LOD	10.18
%RPD		1%			3%			14%			22%			11%			3%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-9-1 0-2	06/22/10	600	599.6	34.75	60	60.46	9.24	130 J	129.84	29.71	35 J	34.85	11.01	37 J	36.85	9.61	11 J	10.73	6.63
BG-9-2 0-2	06/22/10	604	603.79	34.55	79	78.53	9.26	154	153.52	29.74	48 J	47.88	11.07	30 J	30.07	9.48	11 J	10.61	6.59
BG-9-3 0-2	06/22/10	516	515.96	42.27	52 J	52.2	11.42	69 J	69.47	36.09	30 U	< LOD	19.95	18 J	17.86	11.58	18 U	< LOD	11.82
BG-9-4 0-2	06/22/10	598	598	35.17	72	72.47	9.41	146 J	146.32	30.24	47 J	47.15	11.27	31 J	30.85	9.67	15 U	< LOD	9.94
BG-9-5 0-2	06/22/10	568	567.62	36.47	67	66.61	9.79	111 J	110.72	31.2	22 J	22.22	11.46	32 J	31.63	10.07	15 U	< LOD	10.1
Mean		577			66			122			36			30			14		
BG-9 0-2 COMP	06/22/10	544	544.36	36.54	72	72.2	9.88	113 J	112.87	31.42	25 J	24.52	11.56	24 J	23.97	10.05	15 U	< LOD	10.31
%RPD		6%			9%			8%			37%			21%			7%		
BG-9-1 2-12	06/22/10	572	571.94	34.77	75	74.96	9.35	106 J	106.1	29.67	33 J	33.31	11.04	33 J	32.86	9.61	15 U	< LOD	9.77
BG-9-2 2-12	06/22/10	665	664.78	35.01	76	75.96	9.27	131 J	131.23	29.6	41 J	41.42	11.03	36 J	35.89	9.57	10 J	10.12	6.59
BG-9-3 2-12	06/22/10	595	594.59	36.15	83	83.32	9.73	144 J	144.49	31.09	40 J	40.12	11.51	41 J	40.94	10.06	15 U	< LOD	10.16
BG-9-4 2-12	06/22/10	699	698.78	37.03	83	83.06	9.79	139 J	138.6	31.21	41 J	41.39	11.59	37 J	36.91	10.08	15 U	< LOD	10.27
BG-9-5 2-12	06/22/10	641	641.4	36.67	84	83.74	9.8	153 J	152.62	31.35	35 J	35.27	11.52	43 J	43.16	10.15	15 U	< LOD	10.18
Mean		634			80			135			38			38			14		
BG-9 2-12 COMP	06/22/10	674	673.75	36.7	88	88.27	9.77	156	156.38	31.25	47 J	47.49	11.61	32 J	31.86	9.98	15 U	< LOD	10.25
%RPD		6%			9%			15%			21%			17%			7%		
BG-9-1 12-18	06/22/10	614	613.97	35.6	75	74.69	9.51	128 J	128.45	30.36	41 J	41.45	11.31	35 J	34.68	9.8	15 U	< LOD	10.04
BG-9-2 12-18	06/22/10	618	618.18	35.18	74	74.26	9.38	120 J	119.6	29.9	36 J	36.15	11.12	28 J	27.8	9.6	15 U	< LOD	9.96
BG-9-3 12-18	06/22/10	629	628.78	37.19	73	72.8	9.91	142 J	142.18	31.77	41 J	40.65	11.77	35 J	34.68	10.22	16 U	< LOD	10.35
BG-9-4 12-18	06/22/10	812	812.36	37.85	99	98.64	9.89	147 J	146.6	31.38	40 J	39.72	11.61	29 J	28.89	10.03	15 U	< LOD	10.28
BG-9-5 12-18	06/22/10	559	558.81	35.94	73	72.82	9.69	125 J	124.8	30.93	23 J	23.26	11.34	23 J	23.24	9.85	15 U	< LOD	10.21
Mean		646			79			132			36			30			15		
BG-9 12-18 COMP	06/22/10	619	619.24	35.85	80	79.8	9.59	121 J	121.28	30.48	30 J	30.01	11.25	32 J	32.45	9.83	15 U	< LOD	9.92
%RPD		4%			2%			9%			19%			6%			1%		
BG-10-1 0-2	06/23/10	536	536.36	34.08	59	59.17	9.16	133 J	133.39	29.5	30 J	29.79	10.85	28 J	28.11	9.43	14 U	< LOD	9.63
BG-10-2 0-2	06/23/10	561	561.26	35.73	54	54.16	9.54	102 J	101.97	30.51	20 J	20.15	11.22	17 J	17.26	9.71	15 U	< LOD	10
BG-10-3 0-2	06/23/10	634	634.22	36.32	66	65.81	9.64	127 J	126.92	30.86	38 J	38.43	11.46	25 J	24.96	9.85	15 U	< LOD	10.09
BG-10-4 0-2	06/23/10	615	615.4	36.01	72	71.55	9.61	141 J	140.61	30.82	31 J	30.69	11.32	35 J	34.97	9.91	15 U	< LOD	10.05
BG-10-5 0-2	06/23/10	980	980.36	40.08	86	86.03	10.14	142 J	141.5	32.29	42 J	42.01	11.98	28 J	27.95	10.34	16 U	< LOD	10.62
Mean		665			67			129			32			27			15		
BG-10 0-2 COMP	06/23/10	542	541.81	35.08	56	55.82	9.4	81 J	80.9	29.87	23 J	22.55	11.08	26 J	26.11	9.65	15 U	< LOD	9.81
%RPD		20%			18%			46%			33%			2%			0%		
BG-10-1 2-12	06/23/10	698	698.19	35.4	76	75.95	9.32	122 J	122.48	29.69	42 J	41.79	11.1	31 J	31.26	9.58	13 J	12.7	6.68
BG-10-2 2-12	06/23/10	566	565.65	36.2	70	70.33	9.73	101 J	101.14	30.87	25 J	25.39	11.41	23 J	23.04	9.89	15 U	< LOD	10.08
BG-10-3 2-12	06/23/10	474	474.05	33.41	42 J	41.71	9	52 J	52.29	28.55	22 J	21.99	10.67	19 J	19.37	9.23	14 U	< LOD	9.29
BG-10-4 2-12	06/23/10	633	632.84	35.87	78	78.06	9.57	143 J	143.04	30.62	39 J	38.72	11.33	33 J	33.09	9.82	15 U	< LOD	10.09
BG-10-5 2-12	06/23/10	495	494.68	35.19	68	67.75	9.57	138 J	138.45	30.75	28 J	28.2	11.26	24 J	24.4	9.76	15 U	< LOD	9.77
Mean		573			67			111			31			26			14		
BG-10 2-12 COMP	06/23/10	559	559.28	35.5	68	68.14	9.55	118 J	118.23	30.48	30 J	30.44	11.27	28 J	28.02	9.79	15 U	< LOD	10.1
%RPD		3%			2%			6%			4%			7%			4%		
BG-10-1 12-18	06/23/10	701	701.31	37.18	101	101.36	9.91	182	182.08	31.73	45 J	44.81	11.67	36 J	36.17	10.13	15 U	< LOD	10.32
BG-10-2 12-18	06/23/10	461	461.36	35.07	59	59.3	9.56	112 J	111.95	30.6	21 J	21.42	11.24	15 J	14.6	9.66	15 U	< LOD	10.12
BG-10-3 12-18	06/23/10	658	658.13	35	54	53.67	9.18	125 J	124.54	29.57	32 J	32.48	10.93	24 J	24.09	9.43	15 U	< LOD	9.71
BG-10-4 12-18	06/23/10	584	584.48	35.49	80	79.6	9.55	135 J	135.17	30.49	38 J	37.76	11.3	35 J	34.76	9.81	15 U	< LOD	10.09
BG-10-5 12-18	06/23/10	621	620.82	36.36	83	83	9.75	161	161.06	31.27	42 J	42.2	11.56	41 J	40.55	10.06	13 J	13.25	6.96
Mean		605			75			143			36			30			15		
BG-10 12-18 COMP	06/23/10	576	575.56	35.65	72	72.15	9.58	129 J	129.01	30.61	39 J	39.26	11.38	27 J	27.02	9.79	15 U	< LOD	10.18
%RPD		5%			5%			10%			9%			11%			3%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-11-1 0-2	06/27/10	485	485.23	33.89	68	67.79	9.23	117 J	117.44	29.49	29 J	29.05	10.9	30 J	30.01	9.48	15 U	< LOD	9.75
BG-11-2 0-2	06/27/10	569	568.87	34.27	67	66.66	9.18	129 J	129.08	29.46	27 J	26.7	10.82	17 J	16.8	9.3	14 U	< LOD	9.6
BG-11-3 0-2	06/27/10	539	539.47	34.36	58	57.52	9.22	98 J	97.76	29.41	29 J	29.34	10.93	27 J	26.68	9.48	15 U	< LOD	9.78
BG-11-4 0-2	06/27/10	552	551.63	33.95	52	51.86	9.06	125 J	124.88	29.23	30 J	30.23	10.79	25 J	25.24	9.33	14 U	< LOD	9.6
BG-11-5 0-2	06/27/10	485	485.49	34.87	59	59.34	9.46	111 J	110.64	30.26	21 J	21.06	11.11	26 J	26.46	9.7	15 U	< LOD	9.97
Mean		526			61			116			27			25			15		
BG-11 0-2 COMP	06/27/10	600	599.64	35.17	66	66	9.38	136 J	135.94	30.13	34 J	33.98	11.12	31 J	30.83	9.65	15 U	< LOD	9.95
%RPD		13%			8%			16%			22%			21%			3%		
BG-11-1 2-12	06/27/10	484	483.85	33.81	55	55.21	9.15	97 J	96.85	29.23	21 J	21.22	10.77	23 J	22.77	9.37	14 U	< LOD	9.5
BG-11-2 2-12	06/27/10	569	568.63	35.28	69	68.68	9.47	134 J	134.07	30.38	34 J	33.67	11.22	27 J	27.13	9.7	15 U	< LOD	10.08
BG-11-3 2-12	06/27/10	611	610.87	35.96	69	69.2	9.58	141 J	141.14	30.79	30 J	30.15	11.3	30 J	29.76	9.84	15 U	< LOD	10
BG-11-4 2-12	06/27/10	523	523.28	34.64	62	62.39	9.35	112 J	111.88	29.87	24 J	23.77	11	29 J	29	9.6	15 U	< LOD	9.91
BG-11-5 2-12	06/27/10	608	607.76	36.32	80	79.54	9.74	182	182.07	31.5	50 J	50.14	11.66	31 J	30.72	9.98	15 U	< LOD	10.31
Mean		559			67			133			32			28			15		
BG-11 2-12 COMP	06/27/10	579	579.45	35.54	72	72.02	9.54	122 J	121.98	30.44	45 J	44.98	11.39	30 J	30.4	9.79	15 U	< LOD	9.97
%RPD		4%			7%			9%			34%			7%			1%		
BG-11-1 12-18	06/27/10	479	478.75	33.77	61	60.63	9.18	116 J	115.87	29.4	26 J	26.37	10.83	23 J	23.04	9.37	14 U	< LOD	9.56
BG-11-2 12-18	06/27/10	615	614.75	36.47	73	72.52	9.73	136 J	136	31.16	40 J	40.4	11.57	39 J	38.75	10.07	15 U	< LOD	10.3
BG-11-3 12-18	06/27/10	663	662.84	36.66	77	76.62	9.72	156 J	155.77	31.25	36 J	35.93	11.49	42 J	42	10.08	15 U	< LOD	10.21
BG-11-4 12-18	06/27/10	621	620.98	35.2	69	69.48	9.36	134 J	133.95	30.03	31 J	31.26	11.06	29 J	29.2	9.61	15 U	< LOD	9.82
BG-11-5 12-18	06/27/10	706	705.5	37.29	82	81.91	9.84	150 J	149.59	31.5	30 J	30.19	11.54	34 J	33.75	10.1	16 U	< LOD	10.39
Mean		617			72			138			33			33			15		
BG-11 12-18 COMP	06/27/10	724	723.72	37.2	74	74.36	9.75	130 J	129.91	31.13	34 J	33.9	11.5	29 J	28.8	9.98	15 U	< LOD	10.07
%RPD		16%			2%			6%			4%			14%			0%		
BG-12-1 0-2	06/26/10	759	759.09	36.92	71	70.7	9.6	135 J	135.18	30.75	22 J	22.18	11.22	39 J	38.78	9.96	15 U	< LOD	10.07
BG-12-2 0-2	06/26/10	543	542.63	34.54	65	64.72	9.29	128 J	128.05	29.82	33 J	32.99	11.03	28 J	27.65	9.54	15 U	< LOD	9.84
BG-12-3 0-2	06/26/10	628	627.81	34.56	62	62.01	9.14	99 J	98.52	29.12	36 J	35.82	10.89	24 J	24.47	9.37	14 U	< LOD	9.64
BG-12-4 0-2	06/26/10	510	509.68	34.37	62	61.5	9.3	121 J	121.34	29.81	41 J	41.22	11.14	29 J	29.36	9.58	15 U	< LOD	9.96
BG-12-5 0-2	06/26/10	439	438.6	32.96	38 J	38.28	8.92	71 J	71.32	28.51	17 J	17.32	10.55	20 U	< LOD	13.6	14 U	< LOD	9.35
Mean		576			60			111			30			28			15		
BG-12 0-2 COMP	06/26/10	527	527.11	34.74	57	56.97	9.34	102 J	101.54	29.84	26 J	26.02	11.04	21 J	21.47	9.55	15 U	< LOD	9.9
%RPD		9%			4%			8%			14%			29%			3%		
BG-12-1 2-12	06/26/10	558	558.4	35.22	68	68.4	9.47	114 J	113.85	30.2	27 J	27.45	11.15	25 J	25.34	9.68	15 U	< LOD	9.97
BG-12-2 2-12	06/26/10	644	643.58	36.75	76	75.53	9.78	150 J	150.34	31.38	41 J	41.09	11.61	32 J	32.16	10.03	15 U	< LOD	10.3
BG-12-3 2-12	06/26/10	621	621.11	36.19	87	86.69	9.72	170	169.69	31.21	40 J	40.44	11.48	32 J	32.47	9.93	15 U	< LOD	10.26
BG-12-4 2-12	06/26/10	652	652.14	35.22	76	76.12	9.35	163	162.89	30.13	40 J	40.37	11.11	30 J	29.97	9.59	11 J	10.99	6.66
BG-12-5 2-12	06/26/10	505	504.54	34.49	70	70.02	9.37	104 J	104.28	29.78	25 J	25.24	11.01	35 J	34.66	9.67	15 U	< LOD	9.89
Mean		596			75			140			35			31			14		
BG-12 2-12 COMP	06/26/10	1,085	1084.82	38.98	109	108.93	9.8	201	200.72	31.42	49 J	48.88	11.55	37 J	37.07	10.02	15 U	< LOD	10.26
%RPD		58%			36%			36%			34%			18%			5%		
BG-12-1 12-18	06/26/10	664	664.16	36.52	91	90.73	9.75	162	162.29	31.2	35 J	34.99	11.43	34 J	34.47	9.98	15 U	< LOD	10.07
BG-12-2 12-18	06/26/10	808	807.97	37.78	85	84.81	9.81	141 J	140.91	31.27	38 J	38.01	11.56	38 J	37.79	10.11	15 U	< LOD	10.22
BG-12-3 12-18	06/26/10	596	596.13	36.35	84	84.48	9.79	143 J	142.98	31.24	37 J	36.8	11.53	30 J	29.62	9.99	15 U	< LOD	10.22
BG-12-4 12-18	06/26/10	604	603.81	35.75	86	85.85	9.62	178	177.79	31	42 J	42.2	11.4	38 J	38.03	9.91	15 U	< LOD	10.14
BG-12-5 12-18	06/26/10	607	607.1	37.07	90	89.63	9.99	154 J	153.98	31.91	42 J	42.38	11.81	41 J	40.99	10.3	16 U	< LOD	10.54
Mean		656			87			156			39			36			15		
BG-12 12-18 COMP	06/26/10	685	685.3	37.34	99	98.75	9.97	180	180.18	31.94	45 J	44.77	11.75	44 J	44.46	10.28	15 U	< LOD	10.32
%RPD		4%			13%			15%			15%			19%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	510	510.38	37.78	49 J	48.68	10.16	51 J	50.65	32.06	27 U	< LOD	17.82	23 U	< LOD	15.41	16 U	< LOD	10.64
BG-13-2 0-2	06/22/10	568	568.23	35.19	57	57	9.39	95 J	95.28	29.95	27 J	27.3	11.12	24 J	23.56	9.63	15 U	< LOD	9.9
BG-13-3 0-2	06/22/10	625	624.82	34.97	63	62.72	9.27	141 J	141.38	29.87	45 J	45.03	11.12	22 J	21.6	9.47	15 U	< LOD	9.74
BG-13-4 0-2	06/22/10	696	696.25	35.23	66	66.15	9.23	133 J	132.69	29.64	32 J	31.99	10.94	39 J	39.1	9.61	15 U	< LOD	9.8
BG-13-5 0-2	06/22/10	992	991.8	37.47	96	96.2	9.49	156	156.46	30.25	47 J	46.85	11.25	36 J	36.32	9.75	13 J	13.4	6.75
Mean		678			66			115			36			29			15		
BG-13 0-2 COMP	06/22/10	699	698.96	35.61	74	74.3	9.37	137 J	136.54	29.99	38 J	37.85	11.1	28 J	28.49	9.59	15 U	< LOD	9.75
%RPD		3%			11%			17%			7%			3%			1%		
BG-13-1 2-12	06/22/10	698	698.42	39.83	83	83.46	10.54	121 J	120.63	33.41	37 J	36.82	12.41	35 J	34.99	10.81	16 U	< LOD	10.89
BG-13-2 2-12	06/22/10	630	630.21	35.87	79	79.12	9.57	139 J	139.13	30.6	33 J	33.39	11.28	38 J	38.25	9.89	15 U	< LOD	10.13
BG-13-3 2-12	06/22/10	703	702.61	35.99	79	78.53	9.49	150 J	149.56	30.41	47 J	46.97	11.31	28 J	27.68	9.68	15 U	< LOD	9.92
BG-13-4 2-12	06/22/10	633	632.79	36.1	82	81.87	9.65	173	173.43	31.09	47 J	46.75	11.49	37 J	37.41	9.95	15 U	< LOD	10.18
BG-13-5 2-12	06/22/10	606	606.05	35.33	76	75.6	9.45	146 J	145.6	30.33	40 J	40.3	11.23	38 J	37.5	9.77	15 U	< LOD	9.92
Mean		654			80			146			41			35			15		
BG-13 2-12 COMP	06/22/10	596	596.3	36.33	75	74.6	9.74	140 J	139.65	31.19	36 J	35.59	11.51	25 J	24.51	9.91	15 U	< LOD	10.15
%RPD		9%			6%			4%			13%			34%			1%		
BG-13-1 12-18	06/22/10	666	665.9	37.43	81	80.97	9.94	158 J	157.92	31.91	46 J	46.16	11.84	43 J	43.06	10.31	16 U	< LOD	10.41
BG-13-2 12-18	06/22/10	654	653.87	36.6	75	74.94	9.71	139 J	138.99	31.09	33 J	33.3	11.46	42 J	42	10.09	15 U	< LOD	10.23
BG-13-3 12-18	06/22/10	550	549.8	35.94	74	73.53	9.71	161	160.82	31.31	35 J	35.05	11.49	33 J	33.17	9.98	11 J	11.45	6.93
BG-13-4 12-18	06/22/10	802	801.94	36.69	96	96.29	9.58	179	178.52	30.74	53 J	53.28	11.41	39 J	38.62	9.85	15 U	< LOD	10
BG-13-5 12-18	06/22/10	489	489.27	34.26	65	64.97	9.31	98 J	98.3	29.61	32 J	32.3	11.03	23 J	23.19	9.5	15 U	< LOD	9.68
Mean		632			78			147			40			36			14		
BG-13 12-18 COMP	06/22/10	746	745.87	37.31	93	92.78	9.83	165	165.25	31.44	50 J	49.89	11.68	39 J	39.11	10.12	15 U	< LOD	10.25
%RPD		17%			17%			12%			23%			8%			4%		
BG-14-1 0-2	06/23/10	649	648.82	37.21	67	67.06	9.85	123 J	122.78	31.48	30 J	29.82	11.61	28 J	28.48	10.1	16 U	< LOD	10.36
BG-14-2 0-2	06/23/10	654	654.32	36.53	72	71.97	9.68	143 J	142.91	31.06	36 J	35.71	11.46	31 J	31.49	9.95	15 U	< LOD	10.15
BG-14-3 0-2	06/23/10	556	556.19	33.95	52	51.98	9.05	89 J	88.81	28.89	21 J	21.27	10.69	14 J	13.96	9.19	11 J	10.64	6.52
BG-14-4 0-2	06/23/10	660	660.29	35.66	67	67.28	9.41	118 J	118.25	30.07	21 J	20.89	11.02	29 J	29.43	9.67	15 U	< LOD	9.95
BG-14-5 0-2	06/23/10	885	885.46	36.59	80	79.79	9.35	135 J	134.85	29.84	37 J	37.17	11.05	38 J	37.84	9.67	15 U	< LOD	9.75
Mean		681			68			122			29			28			14		
BG-14 0-2 COMP	06/23/10	559	559.24	34.99	73	72.72	9.43	126 J	125.53	30.11	38 J	38.33	11.2	26 J	26.24	9.62	15 U	< LOD	9.96
%RPD		20%			8%			4%			27%			7%			4%		
BG-14-1 2-12	06/23/10	512	511.52	36.12	84	83.5	9.87	142 J	141.79	31.51	32 J	32.15	11.59	28 J	28.36	10.05	16 U	< LOD	10.34
BG-14-2 2-12	06/23/10	625	624.68	36.18	68	68.24	9.63	138 J	137.99	30.9	40 J	39.67	11.44	22 J	21.68	9.8	15 U	< LOD	9.88
BG-14-3 2-12	06/23/10	615	614.63	35.19	85	84.87	9.45	163	163.2	30.32	50 J	49.83	11.27	39 J	38.52	9.75	15 U	< LOD	9.88
BG-14-4 2-12	06/23/10	631	631.26	36.62	71	71.11	9.74	112 J	111.69	30.98	19 J	18.63	11.35	30 J	29.63	9.98	16 U	< LOD	10.34
BG-14-5 2-12	06/23/10	698	698.08	35.61	77	77.15	9.38	151	151.46	30.13	41 J	41.24	11.14	29 J	29.24	9.62	15 U	< LOD	9.73
01/00/00		616			77			141			36			30			15		
BG-14 2-12 COMP	06/23/10	626	625.8	35.71	81	81.17	9.55	153 J	152.81	30.61	40 J	39.87	11.31	30 J	30.22	9.77	15 U	< LOD	10.02
%RPD		2%			5%			8%			9%			1%			3%		
BG-14-1 12-18	06/23/10	548	548.35	34.35	81	81.28	9.31	179	178.86	30.09	46 J	45.56	11.1	30 J	30.44	9.53	15 U	< LOD	9.87
BG-14-2 12-18	06/23/10	673	672.51	36.41	75	75.18	9.64	155	155.26	30.98	34 J	34	11.38	39 J	38.99	9.98	15 U	< LOD	10.26
BG-14-3 12-18	06/23/10	589	589.47	35.14	65	64.6	9.38	146 J	146.01	30.24	31 J	31.32	11.11	25 J	24.89	9.59	15 U	< LOD	9.97
BG-14-4 12-18	06/23/10	786	786.1	36.73	51	50.85	9.41	106 J	105.85	30.18	23 J	22.97	11.11	17 J	16.54	9.6	15 U	< LOD	9.8
BG-14-5 12-18	06/23/10	642	641.98	36.44	85	84.76	9.74	162	162	31.23	38 J	38.4	11.5	37 J	36.78	10.01	12 J	12.12	6.92
Mean		648			71			150			34			30			14		
BG-14 12-18 COMP	06/23/10	659	658.52	35.96	77	76.7	9.54	154	154.11	30.65	30 J	29.85	11.21	39 J	38.78	9.86	15 U	< LOD	10.12
%RPD		2%			8%			3%			14%			27%			4%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Barium			Cesium			Tellurium			Antimony			Tin			Cadmium		
			Instrument			Instrument			Instrument			Instrument			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ	Concentration	Reading	2σ
BG-15-1 0-2	06/25/10	511	511.3	34.3	57	57.08	9.25	94 J	94.14	29.48	34 J	33.82	11.01	26 J	26.01	9.5	15 U	< LOD	9.68
BG-15-2 0-2	06/25/10	713	713.15	35.59	81	81.03	9.36	136 J	136.18	29.89	30 J	30.49	10.99	27 J	26.95	9.55	15 U	< LOD	9.73
BG-15-3 0-2	06/25/10	592	591.64	34.67	45 J	45.1	9.16	88 J	87.56	29.31	35 J	35.02	10.99	29 J	29.32	9.51	15 U	< LOD	9.69
BG-15-4 0-2	06/25/10	655	655	34.71	75	74.78	9.2	123 J	123.16	29.33	35 J	34.72	10.88	37 J	36.95	9.51	15 U	< LOD	9.68
BG-15-5 0-2	06/25/10	417	417.17	31.65	19 U	< LOD	12.71	61 U	< LOD	40.53	23 U	< LOD	15.09	19 U	< LOD	12.94	14 U	< LOD	9.05
Mean		578			55			100			31			28			15		
BG-15 0-2 COMP	06/25/10	649	648.93	35.2	77	76.94	9.35	133 J	133.13	29.87	37 J	37.18	11.06	23 J	22.89	9.51	15 U	< LOD	9.71
%RPD		12%			33%			28%			16%			18%			1%		
BG-15-1 2-12	06/25/10	664	664.17	35.17	78	77.57	9.32	161	161	30.01	42 J	41.7	11.08	34 J	34.38	9.6	15 U	< LOD	9.81
BG-15-2 2-12	06/25/10	898	897.82	37.11	92	92.13	9.52	168	167.93	30.51	43 J	43.19	11.26	42 J	41.97	9.85	15 U	< LOD	10.01
BG-15-3 2-12	06/25/10	596	596.41	35.26	62	62.11	9.39	104 J	104.4	29.95	36 J	35.84	11.17	36 J	36.07	9.74	15 U	< LOD	9.76
BG-15-4 2-12	06/25/10	654	653.83	35.29	80	79.85	9.38	161	160.58	30.16	41 J	41.21	11.13	33 J	32.82	9.64	15 U	< LOD	9.87
BG-15-5 2-12	06/25/10	611	610.53	34.11	57	56.7	9.02	99 J	98.91	28.83	25 J	24.55	10.66	18 J	18.04	9.2	14 U	< LOD	9.59
Mean		685			74			139			37			33			15		
BG-15 2-12 COMP	06/25/10	625	625.39	34.88	64	63.75	9.24	115 J	115.16	29.55	24 J	23.68	10.86	32 J	31.85	9.54	15 U	< LOD	9.71
%RPD		9%			14%			19%			44%			2%			1%		
BG-15-1 12-18	06/25/10	702	701.88	34.74	89	88.84	9.2	187	186.92	29.67	53 J	52.51	10.98	48	48.05	9.59	14 U	< LOD	9.63
BG-15-2 12-18	06/25/10	815	815.24	36.1	103	102.71	9.44	181	181.1	30.21	45 J	45.49	11.13	40 J	39.98	9.69	15 U	< LOD	9.83
BG-15-3 12-18	06/25/10	536	535.59	35.93	80	80.37	9.76	137 J	136.9	31.16	40 J	39.98	11.56	40 J	40.09	10.1	15 U	< LOD	10.21
BG-15-4 12-18	06/25/10	696	695.73	35.62	78	78.31	9.39	126 J	126.22	29.92	40 J	40.09	11.13	41 J	40.92	9.74	15 U	< LOD	9.72
BG-15-5 12-18	06/25/10	566	565.97	34.09	55	54.51	9.09	113 J	112.87	29.17	25 J	25.18	10.74	21 U	< LOD	13.82	14 U	< LOD	9.45
Mean		663			81			149			41			38			15		
BG-15 12-18 COMP	06/25/10	680	679.77	35.91	87	86.51	9.53	148 J	148.02	30.45	40 J	39.58	11.27	36 J	35.74	9.79	12 J	12.1	6.78
%RPD		3%			7%			1%			1%			5%			20%		
BG-16-1 0-2	06/25/10	406	406.16	33.8	24 J	23.71	9.14	51 J	51.13	29.23	24 U	< LOD	16.11	21 U	< LOD	13.9	14 U	< LOD	9.34
BG-16-2 0-2	06/25/10	640	639.93	37.09	90	89.92	9.95	170	169.8	31.89	48 J	47.5	11.8	41 J	40.57	10.24	16 U	< LOD	10.46
BG-16-3 0-2	06/26/10	782	782.47	35.41	72	71.93	9.16	135 J	134.67	29.36	35 J	35.31	10.85	22 J	22.09	9.33	14 U	< LOD	9.54
BG-16-4 0-2	06/26/10	499	498.68	34.31	63	62.94	9.3	124 J	124.32	29.83	31 J	31.29	11.02	23 J	23.48	9.51	15 U	< LOD	9.8
BG-16-5 0-2	06/26/10	744	744.11	35.71	72	72	9.31	147 J	147.15	29.92	41 J	41.45	11.09	34 J	33.81	9.61	15 U	< LOD	9.9
Mean		614			64			125			36			28			15		
BG-16 0-2 COMP	06/26/10	531	531.36	34.64	61	61.23	9.33	124 J	123.79	29.93	29 J	29.13	11.04	23 J	22.85	9.53	15 U	< LOD	9.85
%RPD		15%			5%			1%			21%			20%			1%		
BG-16-1 2-12	06/25/10	542	542.13	35.17	52	52.36	9.42	87 J	86.51	30	31 J	31.39	11.21	17 J	17.16	9.58	15 U	< LOD	9.99
BG-16-2 2-12	06/25/10	501	500.54	34.78	76	76.13	9.49	129 J	128.93	30.29	41 J	41.3	11.27	31 J	31.46	9.74	15 U	< LOD	9.8
BG-16-3 2-12	06/26/10	729	728.74	35.15	78	78.04	9.21	117 J	117.15	29.27	36 J	36.28	10.89	38 J	38.05	9.52	15 U	< LOD	9.73
BG-16-4 2-12	06/26/10	587	586.84	35.45	86	85.62	9.56	168	168.15	30.74	32 J	32.37	11.23	34 J	33.58	9.8	15 U	< LOD	10.07
BG-16-5 2-12	06/26/10	615	614.73	35.82	72	71.9	9.55	143 J	142.94	30.67	30 J	30.17	11.25	30 J	29.94	9.8	15 U	< LOD	9.93
Mean		595			73			129			34			30			15		
BG-16 2-12 COMP	06/26/10	590	589.94	35.12	67	66.93	9.38	115 J	115.22	29.95	25 J	24.93	11.02	14 J	14.34	9.47	15 U	< LOD	9.83
%RPD		1%			8%			11%			31%			73%			0%		
BG-16-1 12-18	06/25/10	663	662.78	35.92	72	71.75	9.5	166	166.14	30.71	38 J	38.09	11.29	34 J	33.68	9.8	11 J	11	6.78
BG-16-2 12-18	06/25/10	466	465.59	33.93	57	57.35	9.23	148 J	147.52	29.9	32 J	31.8	10.98	33 J	32.61	9.56	15 U	< LOD	9.8
BG-16-3 12-18	06/26/10	747	747.39	35.68	73	72.83	9.29	114 J	113.97	29.59	30 J	29.75	10.94	24 J	23.59	9.48	15 U	< LOD	9.68
BG-16-4 12-18	06/26/10	620	620.46	36.2	85	85	9.71	195	195.13	31.45	38 J	38	11.46	39 J	39.25	10.02	15 U	< LOD	10.2
BG-16-5 12-18	06/26/10	657	657.23	37.08	85	85.16	9.89	148 J	147.5	31.57	38 J	38.02	11.66	43 J	42.72	10.23	16 U	< LOD	10.38
Mean		631			74			154			35			35			14		
BG-16 12-18 COMP	06/26/10	672	672.15	35.6	77	77.48	9.42	158	157.55	30.31	40 J	39.68	11.18	29 J	28.78	9.65	15 U	< LOD	9.86
%RPD		6%			3%			2%			13%			18%			4%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
		Concentration	Instrument		Concentration	Instrument	
			Reading	2σ		Reading	2σ
BG-1-1 0-2	06/29/10	11 U	< LOD	7.31	16 U	< LOD	10.34
BG-1-2 0-2	06/29/10	11 U	< LOD	7.21	15 U	< LOD	9.8
BG-1-3 0-2	06/29/10	12 U	< LOD	7.67	15 U	< LOD	10.21
BG-1-4 0-2	06/29/10	11 U	< LOD	7.59	15 U	< LOD	10.2
BG-1-5 0-2	06/29/10	12 U	< LOD	8.28	17 U	< LOD	11.36
Mean		11			16		
BG-1 0-2 COMP	06/29/10	11 U	< LOD	7.08	15 U	< LOD	9.84
%RPD		4%			4%		
BG-1-1 2-12	06/29/10	11 U	< LOD	7.34	15 U	< LOD	10.13
BG-1-2 2-12	06/29/10	8 J	8.24	4.98	15 U	< LOD	9.93
BG-1-3 2-12	06/29/10	11 U	< LOD	7.28	15 U	< LOD	10.26
BG-1-4 2-12	06/29/10	12 U	< LOD	7.92	16 U	< LOD	10.96
BG-1-5 2-12	06/29/10	12 U	< LOD	8.16	16 U	< LOD	10.62
Mean		11			15		
BG-1 2-12 COMP	06/29/10	11 U	< LOD	7.53	15 U	< LOD	9.94
%RPD		2%			3%		
BG-1-1 12-18	06/29/10	11 U	< LOD	7.29	15 U	< LOD	9.95
BG-1-2 12-18	06/29/10	11 U	< LOD	7.46	15 U	< LOD	9.98
BG-1-3 12-18	06/29/10	11 U	< LOD	7.32	12 J	12.38	6.94
BG-1-4 12-18	06/29/10	11 U	< LOD	7.23	15 U	< LOD	9.95
BG-1-5 12-18	06/29/10	11 U	< LOD	7.49	15 U	< LOD	10.02
Mean		11			14		
BG-1 12-18 COMP	06/29/10	8 J	8.05	5.07	15 U	< LOD	10.18
%RPD		32%			4%		
BG-2-1 0-2	06/30/10	11 U	< LOD	7.41	15 U	< LOD	9.94
BG-2-2 0-2	06/30/10	10 U	< LOD	6.97	14 U	< LOD	9.22
BG-2-3 0-2	06/30/10	11 U	< LOD	7.57	15 U	< LOD	10.22
BG-2-4 0-2	06/30/10	11 U	< LOD	7.08	14 U	< LOD	9.35
BG-2-5 0-2	06/30/10	10 U	< LOD	6.76	13 U	< LOD	8.87
Mean		11			14		
BG-2 0-2 COMP	06/30/10	11 U	< LOD	7.2	15 U	< LOD	9.92
%RPD		4%			5%		
BG-2-1 2-12	06/30/10	11 U	< LOD	7.58	15 J	14.9	7.1
BG-2-2 2-12	06/30/10	11 U	< LOD	7.47	12 J	12.38	6.85
BG-2-3 2-12	06/30/10	11 U	< LOD	7.18	15 U	< LOD	9.71
BG-2-4 2-12	06/30/10	11 U	< LOD	7.31	15 U	< LOD	10.06
BG-2-5 2-12	06/30/10	11 U	< LOD	7.05	14 U	< LOD	9.36
Mean		11			14		
BG-2 2-12 COMP	06/30/10	11 U	< LOD	7.22	15 U	< LOD	9.78
%RPD		0%			5%		
BG-2-1 12-18	06/30/10	11 U	< LOD	7.24	15 U	< LOD	9.97
BG-2-2 12-18	06/30/10	11 J	11.12	5.13	13 J	12.56	6.9
BG-2-3 12-18	06/30/10	11 U	< LOD	7.19	15 U	< LOD	10.06
BG-2-4 12-18	06/30/10	10 J	9.68	5.24	14 J	14.12	7.17
BG-2-5 12-18	06/30/10	11 U	< LOD	7.09	15 U	< LOD	9.87
Mean		11			14		
BG-2 12-18 COMP	06/30/10	11 U	< LOD	7.36	15 U	< LOD	10.13
%RPD		2%			4%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
		Concentration	Instrument		Concentration	Instrument	
			Reading	2σ		Reading	2σ
BG-3-1 0-2	06/29/10	11 U	< LOD	7.44	15 U	< LOD	10.21
BG-3-2 0-2	06/29/10	11 U	< LOD	7.36	15 U	< LOD	9.92
BG-3-3 0-2	06/29/10	10 U	< LOD	6.92	14 U	< LOD	9.5
BG-3-4 0-2	06/29/10	11 U	< LOD	7.28	14 U	< LOD	9.62
BG-3-5 0-2	06/29/10	11 U	< LOD	7.34	15 U	< LOD	9.88
Mean		11			15		
BG-3 0-2 COMP	06/29/10	11 U	< LOD	7.23	15 U	< LOD	9.78
%RPD		2%			3%		
BG-3-1 2-12	06/29/10	11 U	< LOD	7.51	15 U	< LOD	9.78
BG-3-2 2-12	06/29/10	11 U	< LOD	7.1	15 U	< LOD	9.74
BG-3-3 2-12	06/29/10	11 U	< LOD	7.3	15 U	< LOD	10.05
BG-3-4 2-12	06/29/10	11 U	< LOD	7.52	15 U	< LOD	10.21
BG-3-5 2-12	06/29/10	11 U	< LOD	7.56	15 U	< LOD	10.31
Mean		11			15		
BG-3 2-12 COMP	06/29/10	11 U	< LOD	7.42	15 U	< LOD	10.01
%RPD		0%			0%		
BG-3-1 12-18	06/29/10	11 U	< LOD	7.57	15 U	< LOD	10.29
BG-3-2 12-18	06/29/10	11 U	< LOD	7.27	14 U	< LOD	9.31
BG-3-3 12-18	06/29/10	11 U	< LOD	7.45	15 U	< LOD	10.08
BG-3-4 12-18	06/29/10	11 U	< LOD	7.54	15 U	< LOD	10.31
BG-3-5 12-18	06/29/10	11 U	< LOD	7.58	13 J	12.59	6.94
Mean		11			14		
BG-3 12-18 COMP	06/29/10	11 U	< LOD	7.41	15 U	< LOD	10.09
%RPD		0%			4%		
BG-4-1 0-2	06/28/10	11 U	< LOD	7.32	12 J	11.9	6.75
BG-4-2 0-2	06/28/10	11 U	< LOD	7.08	14 U	< LOD	9.63
BG-4-3 0-2	06/28/10	11 U	< LOD	7.09	14 U	< LOD	9.64
BG-4-4 0-2	06/28/10	11 U	< LOD	7.02	14 U	< LOD	9.64
BG-4-5 0-2	06/28/10	10 U	< LOD	6.68	14 U	< LOD	9.04
Mean		11			14		
BG-4 0-2 COMP	06/28/10	11 U	< LOD	7.26	15 U	< LOD	9.88
%RPD		2%			10%		
BG-4-1 2-12	06/28/10	12 U	< LOD	7.89	14 J	13.61	7.26
BG-4-2 2-12	06/28/10	11 U	< LOD	7.46	15 J	14.82	6.92
BG-4-3 2-12	06/28/10	11 U	< LOD	7.33	13 J	13	6.84
BG-4-4 2-12	06/28/10	11 U	< LOD	7.4	16 U	< LOD	10.37
BG-4-5 2-12	06/28/10	10 U	< LOD	6.78	14 U	< LOD	9.37
Mean		11			14		
BG-4 2-12 COMP	06/28/10	11 U	< LOD	7.46	11 J	10.99	6.86
%RPD		0%			27%		
BG-4-1 12-18	06/28/10	11 U	< LOD	7.58	15 U	< LOD	10.1
BG-4-2 12-18	06/28/10	11 U	< LOD	7.1	15 U	< LOD	9.89
BG-4-3 12-18	06/28/10	11 U	< LOD	7.59	13 J	13.27	7
BG-4-4 12-18	06/28/10	12 U	< LOD	7.92	16 U	< LOD	10.55
BG-4-5 12-18	06/28/10	10 U	< LOD	6.97	15 U	< LOD	9.8
Mean		11			15		
BG-4 12-18 COMP	06/28/10	11 U	< LOD	7.57	15 U	< LOD	10.03
%RPD		0%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
		Concentration	Instrument		Concentration	Instrument	
			Reading	2σ		Reading	2σ
BG-5-1 0-2	06/22/10	11 U	< LOD	7.01	14 U	< LOD	9.65
BG-5-2 0-2	06/22/10	11 U	< LOD	7.17	15 U	< LOD	9.74
BG-5-3 0-2	06/22/10	11 U	< LOD	7.45	15 U	< LOD	9.83
BG-5-4 0-2	06/22/10	11 U	< LOD	7.37	15 U	< LOD	9.93
BG-5-5 0-2	06/22/10	11 U	< LOD	7.09	14 U	< LOD	9.54
Mean		11			15		
BG-5 0-2 COMP	06/22/10	11 U	< LOD	7.3	14 U	< LOD	9.65
%RPD		0%			4%		
BG-5-1 2-12	06/22/10	11 U	< LOD	7.19	15 U	< LOD	10.19
BG-5-2 2-12	06/22/10	11 U	< LOD	7.27	16 J	16.04	6.84
BG-5-3 2-12	06/22/10	11 U	< LOD	7.39	15 U	< LOD	9.83
BG-5-4 2-12	06/22/10	11 U	< LOD	7.41	14 J	14.02	7.02
BG-5-5 2-12	06/22/10	11 U	< LOD	7.66	13 J	12.99	7.04
Mean		11			15		
BG-5 2-12 COMP	06/22/10	11 U	< LOD	7.31	15 U	< LOD	10.03
%RPD		0%			3%		
BG-5-1 12-18	06/22/10	11 U	< LOD	7.42	11 J	11.06	6.87
BG-5-2 12-18	06/22/10	11 U	< LOD	7.34	11 J	10.99	6.71
BG-5-3 12-18	06/22/10	11 U	< LOD	7.39	15 U	< LOD	9.94
BG-5-4 12-18	06/22/10	11 U	< LOD	7.59	15 U	< LOD	10.33
BG-5-5 12-18	06/22/10	8 J	8.21	5.4	16 U	< LOD	10.7
Mean		10			14		
BG-5 12-18 COMP	06/22/10	11 U	< LOD	7.4	15 U	< LOD	9.86
%RPD		6%			10%		
BG-6-1 0-2	06/28/10	11 U	< LOD	7.02	14 U	< LOD	9.64
BG-6-2 0-2	06/28/10	12 U	< LOD	7.82	16 U	< LOD	10.53
BG-6-3 0-2	06/28/10	11 U	< LOD	7.61	15 U	< LOD	10.24
BG-6-4 0-2	06/28/10	9 J	9.1	4.91	15 U	< LOD	9.8
BG-6-5 0-2	06/28/10	10 U	< LOD	6.95	14 U	< LOD	9.42
Mean		11			15		
BG-6 0-2 COMP	06/28/10	11 U	< LOD	7.43	15 U	< LOD	10.03
%RPD		4%			1%		
BG-6-1 2-12	06/28/10	8 J	7.85	4.93	15 U	< LOD	9.74
BG-6-2 2-12	06/28/10	11 U	< LOD	7.34	12 J	11.51	6.8
BG-6-3 2-12	06/28/10	11 U	< LOD	7.28	14 U	< LOD	9.6
BG-6-4 2-12	06/28/10	10 J	10.26	5.07	12 J	11.76	6.82
BG-6-5 2-12	06/28/10	11 U	< LOD	7.29	12 J	12.09	6.83
Mean		10			13		
BG-6 2-12 COMP	06/28/10	11 U	< LOD	7.25	15 U	< LOD	9.98
%RPD		8%			14%		
BG-6-1 12-18	06/28/10	11 U	< LOD	7.5	15 U	< LOD	10.03
BG-6-2 12-18	06/28/10	11 U	< LOD	7.43	15 U	< LOD	10
BG-6-3 12-18	06/28/10	11 U	< LOD	7.41	15 U	< LOD	10.24
BG-6-4 12-18	06/28/10	11 U	< LOD	7.63	11 J	11.49	7
BG-6-5 12-18	06/28/10	11 U	< LOD	7.26	15 U	< LOD	9.8
Mean		11			14		
BG-6 12-18 COMP	06/28/10	11 U	< LOD	7.46	12 J	12.36	7.02
%RPD		0%			17%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ
BG-7-1 0-2	06/27/10	12 U	< LOD	8.21	17 U	< LOD	11.28
BG-7-2 0-2	06/27/10	11 U	< LOD	7.32	11 J	11.11	6.77
BG-7-3 0-2	06/27/10	11 U	< LOD	7.33	15 U	< LOD	9.92
BG-7-4 0-2	06/27/10	11 U	< LOD	7.21	14 J	13.68	6.73
BG-7-5 0-2	06/27/10	11 U	< LOD	7.6	15 U	< LOD	10.21
Mean		11			14		
BG-7 0-2 COMP	06/27/10	11 U	< LOD	7.58	16 U	< LOD	10.61
%RPD		2%			11%		
BG-7-1 2-12	06/27/10	12 U	< LOD	8.08	16 U	< LOD	10.62
BG-7-2 2-12	06/27/10	11 U	< LOD	7.66	15 U	< LOD	10.27
BG-7-3 2-12	06/27/10	11 U	< LOD	7.47	15 U	< LOD	10.02
BG-7-4 2-12	06/27/10	11 U	< LOD	7.33	11 J	11.01	6.73
BG-7-5 2-12	06/27/10	11 U	< LOD	7.2	15 U	< LOD	10.08
Mean		11			14		
BG-7 2-12 COMP	06/27/10	11 U	< LOD	7.28	15 U	< LOD	9.9
%RPD		2%			4%		
BG-7-1 12-18	06/27/10	15 U	< LOD	9.8	20 U	< LOD	13.55
BG-7-2 12-18	06/27/10	11 U	< LOD	7.36	15 U	< LOD	10.3
BG-7-3 12-18	06/27/10	11 U	< LOD	7.47	15 U	< LOD	10.23
BG-7-4 12-18	06/27/10	11 U	< LOD	7.25	15 U	< LOD	9.85
BG-7-5 12-18	06/27/10	11 U	< LOD	7.24	15 U	< LOD	9.92
Mean		12			16		
BG-7 12-18 COMP	06/27/10	11 U	< LOD	7.3	16 U	< LOD	10.37
%RPD		7%			0%		
BG-8-1 0-2	06/26/10	8 J	7.73	4.75	14 U	< LOD	9.1
BG-8-2 0-2	06/26/10	11 U	< LOD	7.53	15 U	< LOD	10.24
BG-8-3 0-2	06/26/10	10 U	< LOD	6.92	14 U	< LOD	9.26
BG-8-4 0-2	06/26/10	11 U	< LOD	7.1	11 J	11.24	6.73
BG-8-5 0-2	06/26/10	11 U	< LOD	7.55	15 U	< LOD	9.96
Mean		10			14		
BG-8 0-2 COMP	06/26/10	11 U	< LOD	7.27	14 U	< LOD	9.39
%RPD		8%			1%		
BG-8-1 2-12	06/26/10	11 U	< LOD	7.21	15 J	15.28	6.79
BG-8-2 2-12	06/26/10	11 U	< LOD	7.52	16 U	< LOD	10.39
BG-8-3 2-12	06/26/10	11 U	< LOD	7.39	15 U	< LOD	10.01
BG-8-4 2-12	06/26/10	11 U	< LOD	7.24	10 J	10.46	6.74
BG-8-5 2-12	06/26/10	9 J	8.89	5.1	15 U	< LOD	10.23
Mean		11			14		
BG-8 2-12 COMP	06/26/10	11 U	< LOD	7.54	15 U	< LOD	10.12
%RPD		4%			5%		
BG-8-1 12-18	06/26/10	8 J	7.72	4.84	14 U	< LOD	9.44
BG-8-2 12-18	06/26/10	12 U	< LOD	7.88	14 J	13.75	7.31
BG-8-3 12-18	06/26/10	11 U	< LOD	7.38	15 U	< LOD	10.16
BG-8-4 12-18	06/26/10	11 U	< LOD	7.62	11 J	10.8	6.9
BG-8-5 12-18	06/26/10	11 U	< LOD	7.56	15 U	< LOD	10.22
Mean		11			14		
BG-8 12-18 COMP	06/26/10	11 U	< LOD	7.58	15 U	< LOD	10.22
%RPD		4%			8%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
		Concentration	Instrument		Concentration	Instrument	
			Reading	2σ		Reading	2σ
BG-9-1 0-2	06/22/10	11 U	< LOD	7.18	13 J	12.5	6.71
BG-9-2 0-2	06/22/10	11 U	< LOD	7.12	10 J	10.15	6.58
BG-9-3 0-2	06/22/10	13 U	< LOD	8.8	17 U	< LOD	11.65
BG-9-4 0-2	06/22/10	8 J	7.99	4.97	15 U	< LOD	9.95
BG-9-5 0-2	06/22/10	11 U	< LOD	7.5	16 U	< LOD	10.36
Mean		11			14		
BG-9 0-2 COMP	06/22/10	11 U	< LOD	7.63	15 U	< LOD	10.2
%RPD		2%			5%		
BG-9-1 2-12	06/22/10	11 U	< LOD	7.1	15 U	< LOD	9.86
BG-9-2 2-12	06/22/10	11 U	< LOD	7.15	15 U	< LOD	9.85
BG-9-3 2-12	06/22/10	11 U	< LOD	7.47	15 U	< LOD	10.21
BG-9-4 2-12	06/22/10	11 U	< LOD	7.51	15 U	< LOD	10.29
BG-9-5 2-12	06/22/10	11 U	< LOD	7.49	15 U	< LOD	10.18
Mean		11			15		
BG-9 2-12 COMP	06/22/10	11 U	< LOD	7.54	16 U	< LOD	10.35
%RPD		0%			6%		
BG-9-1 12-18	06/22/10	11 U	< LOD	7.29	15 U	< LOD	10
BG-9-2 12-18	06/22/10	11 U	< LOD	7.31	15 U	< LOD	9.7
BG-9-3 12-18	06/22/10	12 U	< LOD	7.79	15 U	< LOD	10.23
BG-9-4 12-18	06/22/10	11 U	< LOD	7.59	12 J	12.11	7.03
BG-9-5 12-18	06/22/10	11 U	< LOD	7.45	14 J	13.75	7.03
Mean		11			14		
BG-9 12-18 COMP	06/22/10	11 U	< LOD	7.32	15 U	< LOD	9.85
%RPD		2%			5%		
BG-10-1 0-2	06/23/10	11 U	< LOD	7.09	14 U	< LOD	9.42
BG-10-2 0-2	06/23/10	11 U	< LOD	7.32	15 U	< LOD	9.88
BG-10-3 0-2	06/23/10	11 U	< LOD	7.37	15 U	< LOD	10.12
BG-10-4 0-2	06/23/10	11 U	< LOD	7.44	15 U	< LOD	10.09
BG-10-5 0-2	06/23/10	12 U	< LOD	7.85	13 J	13.16	7.28
Mean		11			14		
BG-10 0-2 COMP	06/23/10	11 U	< LOD	7.06	15 U	< LOD	10.05
%RPD		2%			4%		
BG-10-1 2-12	06/23/10	10 J	9.55	4.96	15 U	< LOD	9.93
BG-10-2 2-12	06/23/10	11 U	< LOD	7.34	15 U	< LOD	10.15
BG-10-3 2-12	06/23/10	10 U	< LOD	6.98	14 U	< LOD	9.33
BG-10-4 2-12	06/23/10	11 U	< LOD	7.34	15 U	< LOD	9.95
BG-10-5 2-12	06/23/10	11 U	< LOD	7.33	15 U	< LOD	9.81
Mean		11			15		
BG-10 2-12 COMP	06/23/10	11 U	< LOD	7.51	15 U	< LOD	10.17
%RPD		4%			1%		
BG-10-1 12-18	06/23/10	9 J	8.98	5.18	17 J	16.66	7.21
BG-10-2 12-18	06/23/10	11 U	< LOD	7.29	15 U	< LOD	9.71
BG-10-3 12-18	06/23/10	11 U	< LOD	7.14	14 U	< LOD	9.43
BG-10-4 12-18	06/23/10	11 U	< LOD	7.19	15 U	< LOD	10.03
BG-10-5 12-18	06/23/10	11 U	< LOD	7.43	15 U	< LOD	10.22
Mean		11			15		
BG-10 12-18 COMP	06/23/10	11 U	< LOD	7.42	15 U	< LOD	10.21
%RPD		4%			1%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ
BG-11-1 0-2	06/27/10	11 U	< LOD	7.05	15 U	< LOD	9.72
BG-11-2 0-2	06/27/10	11 U	< LOD	7.06	14 U	< LOD	9.54
BG-11-3 0-2	06/27/10	11 U	< LOD	7.13	14 U	< LOD	9.66
BG-11-4 0-2	06/27/10	10 U	< LOD	6.98	14 U	< LOD	9.34
BG-11-5 0-2	06/27/10	11 U	< LOD	7.22	15 U	< LOD	9.79
Mean		11			14		
BG-11 0-2 COMP	06/27/10	11 U	< LOD	7.2	15 U	< LOD	10.03
%RPD		2%			4%		
BG-11-1 2-12	06/27/10	11 U	< LOD	7.02	14 U	< LOD	9.38
BG-11-2 2-12	06/27/10	11 U	< LOD	7.47	15 U	< LOD	9.97
BG-11-3 2-12	06/27/10	11 U	< LOD	7.47	15 U	< LOD	10.21
BG-11-4 2-12	06/27/10	11 U	< LOD	7.07	12 J	11.92	6.74
BG-11-5 2-12	06/27/10	11 U	< LOD	7.66	12 J	12.28	7
Mean		11			14		
BG-11 2-12 COMP	06/27/10	11 U	< LOD	7.46	15 U	< LOD	10.15
%RPD		0%			10%		
BG-11-1 12-18	06/27/10	10 U	< LOD	6.98	14 U	< LOD	9.53
BG-11-2 12-18	06/27/10	11 U	< LOD	7.3	15 U	< LOD	10.1
BG-11-3 12-18	06/27/10	11 U	< LOD	7.25	15 U	< LOD	10.11
BG-11-4 12-18	06/27/10	11 U	< LOD	7.23	15 U	< LOD	9.67
BG-11-5 12-18	06/27/10	11 U	< LOD	7.6	15 U	< LOD	10.25
Mean		11			15	0	0
BG-11 12-18 COMP	06/27/10	11 U	< LOD	7.35	15 U	< LOD	10.3
%RPD		2%			1%		
BG-12-1 0-2	06/26/10	11 U	< LOD	7.45	15 U	< LOD	10.11
BG-12-2 0-2	06/26/10	11 U	< LOD	7.13	14 U	< LOD	9.6
BG-12-3 0-2	06/26/10	11 U	< LOD	7.09	14 U	< LOD	9.49
BG-12-4 0-2	06/26/10	8 J	8.39	4.94	11 J	11.11	6.7
BG-12-5 0-2	06/26/10	10 U	< LOD	6.83	14 U	< LOD	9.52
Mean		10			14		
BG-12 0-2 COMP	06/26/10	11 U	< LOD	7.36	15 U	< LOD	9.82
%RPD		8%			10%		
BG-12-1 2-12	06/26/10	11 U	< LOD	7.36	14 U	< LOD	9.66
BG-12-2 2-12	06/26/10	11 U	< LOD	7.48	15 U	< LOD	10.16
BG-12-3 2-12	06/26/10	11 U	< LOD	7.43	15 U	< LOD	10.1
BG-12-4 2-12	06/26/10	11 U	< LOD	7.3	14 U	< LOD	9.64
BG-12-5 2-12	06/26/10	11 U	< LOD	7.22	15 U	< LOD	9.98
Mean		11			15		
BG-12 2-12 COMP	06/26/10	11 U	< LOD	7.62	15 U	< LOD	10.19
%RPD		0%			3%		
BG-12-1 12-18	06/26/10	11 U	< LOD	7.57	15 U	< LOD	10.08
BG-12-2 12-18	06/26/10	11 U	< LOD	7.48	15 U	< LOD	10.21
BG-12-3 12-18	06/26/10	8 J	8.35	5.14	15 U	< LOD	10.22
BG-12-4 12-18	06/26/10	11 U	< LOD	7.47	15 U	< LOD	9.73
BG-12-5 12-18	06/26/10	12 U	< LOD	7.71	16 U	< LOD	10.36
Mean		11			15		
BG-12 12-18 COMP	06/26/10	11 U	< LOD	7.56	14 J	14.14	7.16
%RPD		4%			8%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
			Instrument			Instrument	
		Concentration	Reading	2σ	Concentration	Reading	2σ
BG-13-1 0-2	06/22/10	12 U	< LOD	7.73	15 U	< LOD	10.29
BG-13-2 0-2	06/22/10	11 U	< LOD	7.33	14 U	< LOD	9.51
BG-13-3 0-2	06/22/10	9 J	9.42	4.95	14 U	< LOD	9.65
BG-13-4 0-2	06/22/10	11 U	< LOD	7.22	15 U	< LOD	9.68
BG-13-5 0-2	06/22/10	11 U	< LOD	7.31	15 U	< LOD	9.78
Mean		11			15		
BG-13 0-2 COMP	06/22/10	11 U	< LOD	7.11	14 U	< LOD	9.61
%RPD		2%			4%		
BG-13-1 2-12	06/22/10	12 U	< LOD	8.03	16 U	< LOD	10.9
BG-13-2 2-12	06/22/10	11 U	< LOD	7.36	15 U	< LOD	10.12
BG-13-3 2-12	06/22/10	11 U	< LOD	7.21	15 U	< LOD	9.9
BG-13-4 2-12	06/22/10	11 U	< LOD	7.54	15 U	< LOD	10.19
BG-13-5 2-12	06/22/10	11 U	< LOD	7.26	15 U	< LOD	9.72
Mean		11			15		
BG-13 2-12 COMP	06/22/10	11 U	< LOD	7.45	15 U	< LOD	10.13
%RPD		2%			1%		
BG-13-1 12-18	06/22/10	11 U	< LOD	7.51	16 U	< LOD	10.51
BG-13-2 12-18	06/22/10	11 U	< LOD	7.45	15 U	< LOD	10.18
BG-13-3 12-18	06/22/10	11 U	< LOD	7.41	15 U	< LOD	10.07
BG-13-4 12-18	06/22/10	11 U	< LOD	7.26	15 U	< LOD	10.09
BG-13-5 12-18	06/22/10	11 U	< LOD	7.22	15 U	< LOD	9.83
Mean		11			15		
BG-13 12-18 COMP	06/22/10	8 J	7.96	5.14	16 U	< LOD	10.43
%RPD		32%			5%		
BG-14-1 0-2	06/23/10	11 U	< LOD	7.62	15 U	< LOD	10.25
BG-14-2 0-2	06/23/10	11 U	< LOD	7.5	12 J	11.66	6.94
BG-14-3 0-2	06/23/10	11 U	< LOD	7.08	15 U	< LOD	9.75
BG-14-4 0-2	06/23/10	11 U	< LOD	7.29	15 U	< LOD	9.84
BG-14-5 0-2	06/23/10	11 U	< LOD	7.14	14 U	< LOD	9.6
Mean		11			14		
BG-14 0-2 COMP	06/23/10	11 U	< LOD	7.11	10 J	10.15	6.71
%RPD		0%			35%		
BG-14-1 2-12	06/23/10	12 U	< LOD	7.67	15 U	< LOD	10.22
BG-14-2 2-12	06/23/10	11 U	< LOD	7.55	15 U	< LOD	10.21
BG-14-3 2-12	06/23/10	8 J	7.95	4.96	15 U	< LOD	9.73
BG-14-4 2-12	06/23/10	11 U	< LOD	7.52	15 U	< LOD	10.08
BG-14-5 2-12	06/23/10	8 J	8.47	4.95	10 J	10.02	6.67
01/00/00		10			14		
BG-14 2-12 COMP	06/23/10	9 J	9.01	5.04	15 U	< LOD	10.08
%RPD		11%			7%		
BG-14-1 12-18	06/23/10	11 U	< LOD	7.29	15 U	< LOD	9.88
BG-14-2 12-18	06/23/10	11 U	< LOD	7.51	15 U	< LOD	10.09
BG-14-3 12-18	06/23/10	11 U	< LOD	7.19	15 U	< LOD	9.84
BG-14-4 12-18	06/23/10	11 U	< LOD	7.29	15 U	< LOD	9.97
BG-14-5 12-18	06/23/10	11 U	< LOD	7.46	15 U	< LOD	10.04
Mean		11			15		
BG-14 12-18 COMP	06/23/10	11 U	< LOD	7.24	15 U	< LOD	9.94
%RPD		0%			0%		

Appendix 4.4-B
Background/Reference Area - XRF Data
Rhodia Silver Bow Plant

Station	Date Collected	Silver			Palladium		
		Concentration	Instrument		Concentration	Instrument	
			Reading	2σ		Reading	2σ
BG-15-1 0-2	06/25/10	11 U	< LOD	7.19	15 U	< LOD	9.83
BG-15-2 0-2	06/25/10	11 U	< LOD	7.21	15 U	< LOD	9.84
BG-15-3 0-2	06/25/10	11 U	< LOD	7.2	14 U	< LOD	9.55
BG-15-4 0-2	06/25/10	11 U	< LOD	7.07	13 J	12.84	6.65
BG-15-5 0-2	06/25/10	10 U	< LOD	6.4	13 U	< LOD	8.99
Mean		11			14		
BG-15 0-2 COMP	06/25/10	11 U	< LOD	7.3	15 U	< LOD	9.7
%RPD		2%			7%		
BG-15-1 2-12	06/25/10	11 U	< LOD	7.16	15 U	< LOD	9.68
BG-15-2 2-12	06/25/10	11 U	< LOD	7.3	15 U	< LOD	9.75
BG-15-3 2-12	06/25/10	11 U	< LOD	7.17	15 U	< LOD	9.8
BG-15-4 2-12	06/25/10	11 U	< LOD	7.35	15 U	< LOD	9.91
BG-15-5 2-12	06/25/10	11 U	< LOD	7.05	14 U	< LOD	9.53
Mean		11			15		
BG-15 2-12 COMP	06/25/10	11 U	< LOD	7.18	14 U	< LOD	9.47
%RPD		0%			6%		
BG-15-1 12-18	06/25/10	9 J	9.03	4.85	15 U	< LOD	9.72
BG-15-2 12-18	06/25/10	11 U	< LOD	7.27	15 U	< LOD	9.73
BG-15-3 12-18	06/25/10	11 U	< LOD	7.65	12 J	11.98	7
BG-15-4 12-18	06/25/10	11 U	< LOD	7.19	15 U	< LOD	9.99
BG-15-5 12-18	06/25/10	11 U	< LOD	7.08	14 U	< LOD	9.53
Mean		11			14		
BG-15 12-18 COMP	06/25/10	11 U	< LOD	7.25	15 U	< LOD	9.76
%RPD		4%			5%		
BG-16-1 0-2	06/25/10	11 U	< LOD	7.01	14 U	< LOD	9.64
BG-16-2 0-2	06/25/10	11 U	< LOD	7.61	14 J	13.7	7.15
BG-16-3 0-2	06/26/10	10 U	< LOD	6.99	14 U	< LOD	9.43
BG-16-4 0-2	06/26/10	11 U	< LOD	7.36	15 U	< LOD	9.95
BG-16-5 0-2	06/26/10	11 U	< LOD	7.32	10 J	10.4	6.66
Mean		11			13		
BG-16 0-2 COMP	06/26/10	11 U	< LOD	7.17	15 U	< LOD	9.96
%RPD		2%			11%		
BG-16-1 2-12	06/25/10	11 U	< LOD	7.23	15 U	< LOD	9.85
BG-16-2 2-12	06/25/10	11 U	< LOD	7.44	15 U	< LOD	9.73
BG-16-3 2-12	06/26/10	10 U	< LOD	6.95	14 U	< LOD	9.41
BG-16-4 2-12	06/26/10	11 U	< LOD	7.47	15 U	< LOD	10.15
BG-16-5 2-12	06/26/10	11 U	< LOD	7.39	15 U	< LOD	10.09
Mean		11			15		
BG-16 2-12 COMP	06/26/10	7 J	7.44	4.94	14 U	< LOD	9.64
%RPD		43%			6%		
BG-16-1 12-18	06/25/10	11 U	< LOD	7.39	15 U	< LOD	9.88
BG-16-2 12-18	06/25/10	11 U	< LOD	7.32	14 U	< LOD	9.64
BG-16-3 12-18	06/26/10	11 U	< LOD	7.21	15 U	< LOD	9.7
BG-16-4 12-18	06/26/10	8 J	8.02	5.09	15 U	< LOD	10
BG-16-5 12-18	06/26/10	11 U	< LOD	7.52	15 U	< LOD	10.29
Mean		10			15		
BG-16 12-18 COMP	06/26/10	11 U	< LOD	7.39	15 U	< LOD	9.88
%RPD		6%			1%		

Appendix 4.4-C

Background/Reference Area Soil Data Statistics

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Fluoride	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium
2010 Background/Reference Area	1.5	0.667	35.5	133	0.38	0.5	2520
2010 Background/Reference Area	5.4	0.203	12	113	0.45	0.2	2810
2010 Background/Reference Area	3.2	0.114	4.06	246	0.74	0.2	6030
2010 Background/Reference Area	0.52	0.537	38.2	120	0.47	0.4	2200
2010 Background/Reference Area	0.35	0.138	5.14	155	0.6	0.2	2710
2010 Background/Reference Area	0.64	0.109	2.31	154	0.75	0.2	3540
2010 Background/Reference Area	0.39	0.439	42.6	120	0.41	0.2	2040
2010 Background/Reference Area	0.19	0.107	5.26	153	0.57	0.2	2730
2010 Background/Reference Area	0.32	0.083	1.35	293	0.37	0.2	2070
2010 Background/Reference Area	0.36	0.391	38.2	168	0.41	0.2	2760
2010 Background/Reference Area	0.21	0.165	7.91	189	0.43	0.2	2580
2010 Background/Reference Area	0.37	0.102	1.54	183	0.62	0.2	3750
2010 Background/Reference Area	1.2	0.335	19.3	119	0.49	0.2	3020
2010 Background/Reference Area	2.1	0.125	3.66	92.2	0.44	0.2	3550
2010 Background/Reference Area	2.4	0.199	2.72	218	0.48	0.2	14300
2010 Background/Reference Area	0.44	0.626	25.4	108	0.45	0.6	2300
2010 Background/Reference Area	0.45	0.17	6.54	109	0.46	0.2	2170
2010 Background/Reference Area	1.2	0.107	2.59	235	0.6	0.2	3870
2010 Background/Reference Area	0.27	0.398	34.1	150	0.42	0.2	3300
2010 Background/Reference Area	0.22	0.133	10.9	98.3	0.41	0.2	2930
2010 Background/Reference Area	0.27	0.104	5.7	90.3	0.52	0.2	3440
2010 Background/Reference Area	0.28	0.592	32.5	120	0.35	0.3	2810
2010 Background/Reference Area	0.19	0.132	10.3	132	0.41	0.2	2990
2010 Background/Reference Area	0.17	0.076	3.06	107	0.42	0.2	2830
2010 Background/Reference Area	1.5	0.597	40.5	146	0.58	0.5	3100
2010 Background/Reference Area	1.8	0.156	5.29	197	1.33	0.2	6790
2010 Background/Reference Area	5.1	0.132	3.45	220	0.71	0.2	6070
2010 Background/Reference Area	1.9	0.23	15.6	102	0.38	0.3	2560
2010 Background/Reference Area	2.5	0.129	5.86	141	0.55	0.2	4480
2010 Background/Reference Area	4.3	0.096	1.83	194	0.57	0.2	5600
2010 Background/Reference Area	1.6	0.675	42.4	124	0.32	0.5	2410
2010 Background/Reference Area	1.3	0.264	15.9	152	0.42	0.2	2970
2010 Background/Reference Area	0.1	0.072	3.24	140	0.35	0.2	2920
2010 Background/Reference Area	1.1	0.464	18.6	148	0.47	0.3	3630
2010 Background/Reference Area	1.2	0.129	4.29	140	0.58	0.2	4930
2010 Background/Reference Area	1.4	0.091	1.5	127	0.56	0.2	4940
2010 Background/Reference Area	0.1	0.284	17.5	122	0.37	0.2	2050
2010 Background/Reference Area	0.1	0.124	5.39	131	0.6	0.2	3320
2010 Background/Reference Area	0.1	0.093	2.17	172	0.48	0.2	11500
2010 Background/Reference Area	0.56	0.392	20.4	137	0.39	0.2	2300
2010 Background/Reference Area	1.57	0.152	4.55	178	0.71	0.2	4060
2010 Background/Reference Area	3.17	0.08	1.64	126	0.39	0.2	6010
2010 Background/Reference Area	0.48	0.686	44.5	188	0.36	0.2	3270
2010 Background/Reference Area	0.31	0.132	12	168	0.35	0.2	3230

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Fluoride	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium
2010 Background/Reference Area	**0.36**	**0.076**	**2.44**	**155**	**0.36**	**0.2**	**2890**
2010 Background/Reference Area	**1.3**	**0.42**	**28.1**	**105**	**0.35**	**0.2**	**3410**
2010 Background/Reference Area	**1.1**	**0.155**	**3.46**	**116**	**0.83**	**0.3**	**5760**
2010 Background/Reference Area	**4.1**	**0.092**	**1.47**	**104**	**0.47**	**0.2**	**5380**
2003 ESI Area	**6**	**3.1**	**18**	**120**	**0.58**	**0.09**	**1960**
2003 ESI Area	**6.4**	**3.9**	**25.1**	**165**	**0.66**	**0.24**	**2780**
2003 ESI Area	**6.7**	**3**	**94.9**	**110**	**0.35**	**1.1**	**1290**
2003 ESI Area	**12**	**3.4**	**92.9**	**147**	**0.55**	**1.7**	**2160**
2003 ESI Area	**19**		**16**	**254**	**0.51**	**6.2**	**12400**
2003 ESI Area	**29**	**1.5**	**108**	**202**	**0.36**	**8.9**	**7720**
2003 ESI Area	**36**	**0.58**	**99.8**	**263**	**0.69**	**3.3**	**3460**
2003 ESI Area	**37**		**75.6**	**248**	**0.73**	**3.1**	**2900**
2003 ESI Area	**24**	**0.49**	**118**	**165**	**0.44**	**1.3**	**2210**
Red indicates detection limit for non-detect sample value.							
	F	Sb	As	Ba	Be	Cd	Ca
UPL Basis [1]	Use 95% H-UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% H-UCL	Use 95% Approximate Gamma UCL	Use 95% Student's-t UCL	95% KM (BCA) UCL	Use 95% Student's-t UCL
95% UPL (Reference Area Concentration)	7.6	1.0	40	165	0.55	1.1	4480
Maximum	37	0.072	118	293	1.33	8.9	14300
Minimum	0.1	0	1.35	90.3	0.32	0.09	1290
Mean	4.137	3.9	22.83	154.6	0.509	1.641	3925
Standard Deviation	8.337	0.165	29.39	47.39	0.167	2.39	2499
Number of samples	57	55	57	57	57	57	57
Number of Detected Values	53	55	57	57	57	18	57
% Detected	93.0%	100.0%	100.0%	100.0%	100.0%	31.6%	100.0%
Mt DEQ Background Concentration		0.47	40	580	0.68	0.76	
Reference Area Conc. > Mt DEQ Bkgd		Yes	No	No	No	Yes	

[1] UPL = Upper Prediction Limit for combined 2010 background/reference area data and ESI background data set. Used ProUCL selected UPL.

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
2010 Background/Reference Area	11.5	5.2	47.6	24500	31.6	2020	457
2010 Background/Reference Area	10.4	6	13.8	22300	8.5	2650	426
2010 Background/Reference Area	9.7	6.1	11.7	24100	10.1	5740	481
2010 Background/Reference Area	11.9	6.1	32.3	26500	12.7	2840	655
2010 Background/Reference Area	9.9	6.1	12.4	24000	8	3330	671
2010 Background/Reference Area	8.4	7.5	12.7	23000	10.2	5140	861
2010 Background/Reference Area	6.4	4.9	27.7	15700	8.9	2560	537
2010 Background/Reference Area	8.1	5.9	10.2	21100	7.6	3360	613
2010 Background/Reference Area	5.7	5.9	7.7	16100	9	2830	1050
2010 Background/Reference Area	8.1	5.2	21	17400	7.4	2780	546
2010 Background/Reference Area	47.6	6.7	11.9	19100	7.9	2970	764
2010 Background/Reference Area	7.7	7.5	11.3	20500	7.5	4140	741
2010 Background/Reference Area	11.1	5.4	19.7	19000	8.4	2710	535
2010 Background/Reference Area	11.9	5.2	11.2	20500	4.7	3540	371
2010 Background/Reference Area	10.2	4.5	13.6	17500	3.5	4360	833
2010 Background/Reference Area	9.3	5	38.3	20200	15.4	2660	495
2010 Background/Reference Area	8.5	5.3	13.1	18700	8.6	3520	441
2010 Background/Reference Area	7.9	5.1	12.7	21500	7	4860	665
2010 Background/Reference Area	7.8	4.7	25.9	17200	8	2610	651
2010 Background/Reference Area	8.6	4.5	11.2	17300	5.2	3110	411
2010 Background/Reference Area	7	4.2	11.6	18200	3.9	3630	334
2010 Background/Reference Area	7.7	5.1	54.8	20700	16.4	4080	604
2010 Background/Reference Area	7.8	5.4	36.8	20600	6	4290	582
2010 Background/Reference Area	7.8	5	34.2	17400	5.5	3690	440
2010 Background/Reference Area	7.8	5.5	37.8	17200	16.7	3050	558
2010 Background/Reference Area	4.8	4.4	14.2	15000	9.8	4170	780
2010 Background/Reference Area	7.2	5.6	12.6	19400	6.5	5090	376
2010 Background/Reference Area	6.9	4	15.1	15300	5.1	2500	336
2010 Background/Reference Area	8.2	5.6	10.8	19700	5.9	4510	485
2010 Background/Reference Area	6.5	7.1	9.7	18400	5.6	5290	449
2010 Background/Reference Area	7.6	4	42.6	16400	14.4	2320	421
2010 Background/Reference Area	8.7	5.2	16.8	18400	6.8	3040	462
2010 Background/Reference Area	7.6	5.8	7.1	19200	4.1	3980	443
2010 Background/Reference Area	8.8	5.9	23.5	17100	8.5	3190	595
2010 Background/Reference Area	8.2	7.2	11.9	20800	7.7	4790	459
2010 Background/Reference Area	8.8	9.5	12.7	21600	3.4	5200	380
2010 Background/Reference Area	9	4.4	19.7	19000	8.9	1720	497
2010 Background/Reference Area	9.3	5.7	13.1	20200	8.1	3250	456
2010 Background/Reference Area	7.6	5.7	9	16700	4.7	3470	359
2010 Background/Reference Area	16.4	5.6	16.8	35300	9.4	2310	573
2010 Background/Reference Area	12	6.2	12.9	28800	7.9	4220	500
2010 Background/Reference Area	12.7	4.8	7.2	29900	5.2	2850	434
2010 Background/Reference Area	9.7	6.9	41.9	20200	14.5	3040	578
2010 Background/Reference Area	11	6.5	10.3	23500	3.8	3650	519

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese
2010 Background/Reference Area	**10.3**	**6.7**	**8.2**	**22000**	**4.6**	**3910**	**548**
2010 Background/Reference Area	**12.7**	**9.4**	**23.4**	**27400**	**10.3**	**2810**	**525**
2010 Background/Reference Area	**8.1**	**6.5**	**14.9**	**22200**	**7.9**	**5240**	**536**
2010 Background/Reference Area	**7**	**5**	**10.6**	**17100**	**6.1**	**3660**	**400**
2003 ESI Area	**11.7**	**6.2**	**20.5**	**14200**	**7.5**	**3350**	**437**
2003 ESI Area	**26.8**	**6.6**	**29.3**	**18200**	**12.2**	**4190**	**517**
2003 ESI Area	**7.7**	**3.5**	**123**	**11700**	**55.6**	**1820**	**281**
2003 ESI Area	**9.8**	**6.7**	**103**	**15900**	**30.3**	**3200**	**728**
2003 ESI Area	**20.6**	**5.6**	**119**	**11700**	**143**	**4230**	**374**
2003 ESI Area	**26.8**	**4.2**	**301**	**14500**	**191**	**2210**	**276**
2003 ESI Area	**23.2**	**9.2**	**145**	**14600**	**51.8**	**3210**	**702**
2003 ESI Area	**19.7**	**9.3**	**106**	**17500**	**26.2**	**3340**	**1020**
2003 ESI Area	**10.3**	**6.5**	**147**	**16200**	**42.1**	**2240**	**454**
Red indicates detection limit for non-detect sample value.							
	Cr	Co	Cu	Fe	Pb	Mg	Mn
UPL Basis [1]	Use 95% Student's-t UCL	Use 95% Student's-t UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% Student's-t UCL	95% KM (Chebyshev) UCL	Use 95% Student's-t UCL	Use 95% Approximate Gamma UCL
95% UPL (Reference Area Concentration)	12	6.1	64	20600	35	3700	573
Maximum	47.6	9.5	301	35300	0	5740	1050
Minimum	4.8	3.5	7.1	11700	0	1720	276
Mean	10.96	5.851	35.09	19621	3.8	3482	537.2
Standard Deviation	6.781	1.327	49.86	4319	31.62	956.4	163.5
Number of samples	57	57	57	57	57	57	57
Number of Detected Values	57	57	57	57	57	57	57
% Detected	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mt DEQ Background Concentration	41	7.1	21	21000	17		380
Reference Area Conc. > Mt DEQ Bkgd	No	No	Yes	No	Yes		Yes

[1] UPL = Upper Prediction Limit for combined 2010 backgr

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium
2010 Background/Reference Area	0.023	3.7	2160	0.4	0.4	43.6	0.22
2010 Background/Reference Area	0.011	3.9	2430	0.4	0.4	53.9	0.249
2010 Background/Reference Area	0.016	5.6	4050	0.6	0.5	180	0.303
2010 Background/Reference Area	0.023	4.5	2530	0.5	0.5	44.7	0.275
2010 Background/Reference Area	0.013	4.9	3010	0.5	0.5	59.2	0.292
2010 Background/Reference Area	0.012	5.6	5250	0.5	0.5	80.4	0.345
2010 Background/Reference Area	0.008	2.7	2500	0.3	0.4	35.4	0.278
2010 Background/Reference Area	0.002	4	3030	0.4	0.5	44.6	0.34
2010 Background/Reference Area	0.003	3	2390	0.4	0.4	43.1	0.367
2010 Background/Reference Area	0.006	3.7	3100	0.4	0.5	44.7	0.316
2010 Background/Reference Area	0.008	21.4	2990	0.3	0.5	43.4	0.281
2010 Background/Reference Area	0.018	5.8	3180	0.4	0.4	56.5	0.332
2010 Background/Reference Area	0.014	4.9	2040	0.4	0.8	80.9	0.224
2010 Background/Reference Area	0.007	5.2	1670	0.4	0.4	203	0.313
2010 Background/Reference Area	0.01	6.6	1630	0.4	0.5	361	0.207
2010 Background/Reference Area	0.016	3.9	2230	0.3	0.4	53	0.274
2010 Background/Reference Area	0.013	4.4	2770	0.5	0.5	108	0.261
2010 Background/Reference Area	0.035	5.4	3540	0.6	0.5	239	0.422
2010 Background/Reference Area	0.017	3.8	2630	0.5	0.5	36.3	0.258
2010 Background/Reference Area	0.008	4.1	2670	0.4	0.5	44.7	0.235
2010 Background/Reference Area	0.005	4.3	2930	0.4	0.5	66.2	0.331
2010 Background/Reference Area	0.016	3.2	3620	0.3	0.4	34.8	0.325
2010 Background/Reference Area	0.009	4.2	3700	0.4	0.5	43.9	0.303
2010 Background/Reference Area	0.007	3.2	3260	0.3	0.4	54.2	0.3
2010 Background/Reference Area	0.025	4.5	3030	0.5	0.5	102	0.291
2010 Background/Reference Area	0.015	3.2	2340	0.7	0.4	305	0.388
2010 Background/Reference Area	0.014	5.1	3700	0.5	0.5	292	0.32
2010 Background/Reference Area	0.013	2.5	2430	0.3	0.4	71.7	0.279
2010 Background/Reference Area	0.009	4.8	3930	0.4	0.5	138	0.261
2010 Background/Reference Area	0.01	4.4	4440	0.4	0.5	296	0.363
2010 Background/Reference Area	0.028	3	2600	0.3	0.5	29	0.243
2010 Background/Reference Area	0.016	3.8	3190	0.3	0.5	40.3	0.266
2010 Background/Reference Area	0.011	4.1	3640	0.2	0.4	49.4	0.362
2010 Background/Reference Area	0.016	4	2920	0.4	0.5	92.3	0.25
2010 Background/Reference Area	0.011	4.8	3290	0.4	0.5	99.2	0.322
2010 Background/Reference Area	0.014	5.2	2810	0.3	0.5	77.8	0.325
2010 Background/Reference Area	0.017	3.4	2040	0.4	0.5	48.4	0.22
2010 Background/Reference Area	0.011	4.8	3310	0.3	0.5	156	0.22
2010 Background/Reference Area	0.019	4.7	2990	0.4	0.4	257	0.23
2010 Background/Reference Area	0.007	4.2	2570	0.4	0.5	127	0.255
2010 Background/Reference Area	0.012	4.7	4170	0.6	0.5	620	0.817
2010 Background/Reference Area	0.003	3.6	2620	0.4	0.4	481	0.192
2010 Background/Reference Area	0.019	4.2	3300	0.4	0.5	45.5	0.295
2010 Background/Reference Area	0.007	4.5	3670	0.2	0.5	49	0.276

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium
2010 Background/Reference Area	0.003	4.5	3510	0.3	0.4	51.3	0.33
2010 Background/Reference Area	0.016	3.1	2700	0.2	0.5	77.1	0.23
2010 Background/Reference Area	0.012	4	3360	0.4	0.5	221	0.332
2010 Background/Reference Area	0.01	2.9	2600	0.6	0.5	244	0.272
2003 ESI Area	0.1	7.9	2940	7.3	2.1	146	5.2
2003 ESI Area	0.1	14.6	3300	7.3	2.1	84.5	5.2
2003 ESI Area	0.06	3.9	2130	7	0.26	83.4	5
2003 ESI Area	0.1	6.1	3280	7.1	2	87.3	5.1
2003 ESI Area	0.097	10.6	3830	7.7	0.67	509	0.56
2003 ESI Area	0.2	9.7	2620	7.1	1.7	291	0.6
2003 ESI Area	0.073	11.4	3210	6.9	0.2	264	1
2003 ESI Area	0.0048	10.8	3380	7.1	2	247	1
2003 ESI Area	0.066	4.9	2460	7.1	2	245	0.97
Red indicates detection limit for non-detect sample value.							
	Hg	Ni	K	Se	Ag	Na	Tl
UPL Basis [1]	95% KM (t) UCL	Use 95% Student's-t UCL	Use 95% Student's-t UCL	95% KM (Chebyshev) UCL	95% KM (t) UCL	Use 95% Chebyshev (Mean, Sd) UCL	95% KM (Chebyshev) UCL
95% UPL (Reference Area Concentration)	0.038	6.0	3161	0.47	0.35	216	0.46
Maximum	0.2	21.4	5250	0.7	1.7	620	1
Minimum	0.002	2.5	1630	0.2	0.2	29	0.192
Mean	0.0207	5.261	3011	0.406	0.726	140	0.349
Standard Deviation	0.0306	3.162	679.2	0.105	0.602	131	0.189
Number of samples	57	57	57	57	57	57	57
Number of Detected Values	54	57	57	47	5	57	53
% Detected	94.7%	100.0%	100.0%	82.5%	8.8%	100.0%	93.0%
Mt DEQ Background Concentration	0.05	15		0.23			1.2
Reference Area Conc. > Mt DEQ Bkgd	No	No		Yes			No

[1] UPL = Upper Prediction Limit for combined 2010 backgr

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Uranium	Vanadium	Zinc	Radium 226	Thorium230	Uranium234
2010 Background/Reference Area	2.14	54.6	60.7	2.1	1.2	0.55
2010 Background/Reference Area	1.89	49.9	28.6	5	3.4	1.1
2010 Background/Reference Area	2.72	46.5	34.2	1.7	1.6	0.94
2010 Background/Reference Area	2.67	55.5	54.1	5.5	1.2	0.78
2010 Background/Reference Area	2.27	48.9	38.6	7.6	1.6	0.67
2010 Background/Reference Area	3.39	43.5	43.1	5.9	0.55	0.88
2010 Background/Reference Area	1.68	29.9	45.1	1.9	0.56	0.22
2010 Background/Reference Area	1.77	39.7	33.4	1.3	1.2	0.39
2010 Background/Reference Area	1.46	36.6	23.9	2.2	0.65	0.69
2010 Background/Reference Area	1.93	32.1	44	1.6	0.58	0.79
2010 Background/Reference Area	1.54	39.4	32.8	1.6	0.66	0.71
2010 Background/Reference Area	1.71	40.7	32.2	2.7	0.98	0.78
2010 Background/Reference Area	1.25	41.9	39.2	4.2	0.93	0.48
2010 Background/Reference Area	1.41	47.3	30.1	4.3	1.3	0.77
2010 Background/Reference Area	0.839	39.5	29.3	3.4	0.75	0.65
2010 Background/Reference Area	1.57	42.1	61.5	5.4	0.65	0.67
2010 Background/Reference Area	1.49	35.5	35.3	5.6	0.79	0.7
2010 Background/Reference Area	2.03	39.7	36.7	5.6	0.72	0.37
2010 Background/Reference Area	4.11	29.4	44.4	3.2	0.8	2.8
2010 Background/Reference Area	1.84	30.3	30.8	2.4	1.3	0.29
2010 Background/Reference Area	2.22	32.4	31.1	2	0.58	0.99
2010 Background/Reference Area	2.05	36	61	7.3	0.69	0.37
2010 Background/Reference Area	2.58	34.9	44.2	6	0.89	0.93
2010 Background/Reference Area	3.06	27.8	35.9	2.4	1.1	0.85
2010 Background/Reference Area	2.01	32.3	63	3.5	2	0.68
2010 Background/Reference Area	1.16	20.3	37.6	2.2	1.1	0.53
2010 Background/Reference Area	0.986	37.1	34.7	1.6	1.1	0.9
2010 Background/Reference Area	1.26	28.1	39.9	2.8	0.68	0.26
2010 Background/Reference Area	1.17	34.9	36.2	2	0.72	0.75
2010 Background/Reference Area	1.5	32.3	34.6	1.7	0.76	0.54
2010 Background/Reference Area	3.07	35.1	53.3	1.8	0.96	1
2010 Background/Reference Area	2.57	37.8	36.5	2.1	0.67	1
2010 Background/Reference Area	1.81	37.8	32.1	1.7	1.1	0.73
2010 Background/Reference Area	1.32	36.6	44.1	8.4	1.6	1.5
2010 Background/Reference Area	1.2	41.4	37.8	2.9	0.6	2.7
2010 Background/Reference Area	1.02	47.4	33.3	8.3	0.61	0.22
2010 Background/Reference Area	1.06	38.9	38.3	7.5	0.55	0.47
2010 Background/Reference Area	1.13	40.4	32.1	2.6	0.57	0.29
2010 Background/Reference Area	1.33	34.6	25.6	1.8	0.68	0.38
2010 Background/Reference Area	1.98	83.3	37.3	4.5	0.75	0.93
2010 Background/Reference Area	2.09	64.4	34.8	5.3	0.89	0.83
2010 Background/Reference Area	1.99	76.7	23.8	2	1.3	1.2
2010 Background/Reference Area	1.89	43.5	54.8	1.8	0.65	0.24
2010 Background/Reference Area	1.88	52.8	35.6	2.2	0.83	0.6

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Uranium	Vanadium	Zinc	Radium 226	Thorium230	Uranium234
2010 Background/Reference Area	**1.55**	**49.7**	**32.4**	**12**	**0.63**	**0.3**
2010 Background/Reference Area	**1.07**	**69.1**	**38.2**	**8.1**	**0.61**	**0.29**
2010 Background/Reference Area	**1.25**	**39.1**	**43.8**	**5.5**	**0.9**	**0.26**
2010 Background/Reference Area	**0.915**	**39.9**	**27.8**	**6**	**1**	**0.2**
2003 ESI Area		**31.2**	**39.6**	**2.08**		
2003 ESI Area		**41**	**55.7**	**1.21**		
2003 ESI Area		**27.1**	**72.9**	**1.44**		
2003 ESI Area		**36.3**	**98.2**	**1.87**		
2003 ESI Area		**31**	**371**	**1.82**		
2003 ESI Area		**44.4**	**377**	**1.77**		
2003 ESI Area		**27.4**	**210**	**1.7**		
2003 ESI Area		**37.2**	**184**	**1.87**		
2003 ESI Area		**37.4**	**86.3**	**2.22**		
Red indicates detection limit for non-detect sample value.						
	U	V	Zn	Ra226		
UPL Basis [1]	Use 95% Approximate Gamma UCL	Use 95% Student's-t UCL	Use 95% Chebyshev (Mean, Sd) UCL	Use 95% Chebyshev (Mean, Sd) UCL	KM	KM
95% UPL (Reference Area Concentration)	2.0	43	98	5.0	1.7	1.6
Maximum	4.11	83.3	377	12	3.4	2.8
Minimum	0.839	20.3	23.8	1.21	0.55	0.2
Mean	1.809	40.71	58.82	3.6	0.957	0.733
Standard Deviation	0.691	11.69	68.66	2.384	0.490	0.517
Number of samples	48	57	57	57	48	48
Number of Detected Values	48	57	57	57	32	41
% Detected	100.0%	100.0%	100.0%	100.0%	66.7	85.4
Mt DEQ Background Concentration		70	55			
Reference Area Conc. > Mt DEQ Bkgd		No	Yes			

[1] UPL = Upper Prediction Limit for combined 2010 backgrc

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Uranium238
2010 Background/Reference Area	0.87
2010 Background/Reference Area	1.21
2010 Background/Reference Area	0.89
2010 Background/Reference Area	0.92
2010 Background/Reference Area	0.89
2010 Background/Reference Area	1.11
2010 Background/Reference Area	0.36
2010 Background/Reference Area	0.58
2010 Background/Reference Area	0.27
2010 Background/Reference Area	0.49
2010 Background/Reference Area	0.48
2010 Background/Reference Area	0.49
2010 Background/Reference Area	0.26
2010 Background/Reference Area	0.43
2010 Background/Reference Area	0.36
2010 Background/Reference Area	1.18
2010 Background/Reference Area	0.67
2010 Background/Reference Area	0.85
2010 Background/Reference Area	2.69
2010 Background/Reference Area	0.6
2010 Background/Reference Area	1.19
2010 Background/Reference Area	0.65
2010 Background/Reference Area	1.32
2010 Background/Reference Area	0.83
2010 Background/Reference Area	0.99
2010 Background/Reference Area	0.34
2010 Background/Reference Area	0.72
2010 Background/Reference Area	0.68
2010 Background/Reference Area	0.79
2010 Background/Reference Area	0.52
2010 Background/Reference Area	0.7
2010 Background/Reference Area	0.56
2010 Background/Reference Area	0.95
2010 Background/Reference Area	0.8
2010 Background/Reference Area	2.45
2010 Background/Reference Area	0.3
2010 Background/Reference Area	0.68
2010 Background/Reference Area	0.78
2010 Background/Reference Area	0.27
2010 Background/Reference Area	0.67
2010 Background/Reference Area	0.77
2010 Background/Reference Area	0.73
2010 Background/Reference Area	0.71
2010 Background/Reference Area	0.74

Values in red are ND and have been scaled to 1

Appendix 4.4-C
Background/Reference Area Soil Data Statistics
Rhodia Silver Bow Plant

Source	Uranium238
2010 Background/Reference Area	**0.79**
2010 Background/Reference Area	**0.67**
2010 Background/Reference Area	**0.47**
2010 Background/Reference Area	**0.57**
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
2003 ESI Area	
Red indicates detection limit for non-detect sample value.	
UPL Basis [1]	N
95% UPL (Reference Area Concentration)	1.6
Maximum	2.69
Minimum	0.26
Mean	0.776
Standard Deviation	0.458
Number of samples	48
Number of Detected Values	48
% Detected	100
Mt DEQ Background Concentration	
Reference Area Conc. > Mt DEQ Bkgd	

[1] UPL = Upper Prediction Limit for combined 2010 backgrc

Values in red are ND and have been scaled to 1

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Silver

General Statistics

Number of Valid Data	57	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	52
		Percent Non-Detects	91.23%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.2	Minimum Detected	-1.609
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	0.726	Mean of Detected	-0.61
SD of Detected	0.602	SD of Detected	0.871
Minimum Non-Detect	0.4	Minimum Non-Detect	-0.916
Maximum Non-Detect	2.1	Maximum Non-Detect	0.742
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	57
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.876	Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.346	Mean	-1.254
SD	0.301	SD	0.529
95% DL/2 (t) UCL	0.413	95% H-Stat (DL/2) UCL	0.376
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.418
		SD in Log Scale	0.645
		Mean in Original Scale	0.302
		SD in Original Scale	0.249
		95% t UCL	0.357
		95% Percentile Bootstrap UCL	0.356
		95% BCA Bootstrap UCL	0.377
		95% H-UCL	0.354

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.884	Data appear Normal at 5% Significance Level	
Theta Star	0.822		
nu star	8.835		
A-D Test Statistic	0.283	Nonparametric Statistics	
5% A-D Critical Value	0.685	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.685	Mean	0.278
5% K-S Critical Value	0.361	SD	0.224
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.041
		95% KM (t) UCL	0.346
Assuming Gamma Distribution		95% KM (z) UCL	0.345
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.362
Minimum	0.000001	95% KM (bootstrap t) UCL	0.375
Maximum	1.7	95% KM (BCA) UCL	0.818
Mean	0.365	95% KM (Percentile Bootstrap) UCL	0.72
Median	0.289	95% KM (Chebyshev) UCL	0.457
SD	0.357	97.5% KM (Chebyshev) UCL	0.534
k star	0.226	99% KM (Chebyshev) UCL	0.686
Theta star	1.617		
Nu star	25.71	Potential UCLs to Use	
AppChi2	15.15	95% KM (t) UCL	0.346
95% Gamma Approximate UCL (Use when n >= 40)	0.619	95% KM (Percentile Bootstrap) UCL	0.72
95% Adjusted Gamma UCL (Use when n < 40)	0.627		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (a)

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	55

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.35	Minimum of Log Data	0.3
Maximum	118	Maximum of Log Data	4.771
Mean	22.83	Mean of log Data	2.357
Geometric Mean	10.56	SD of log Data	1.299
Median	10.9		
SD	29.39		
Std. Error of Mean	3.892		
Coefficient of Variation	1.287		
Skewness	1.926		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.232	Lilliefors Test Statistic	0.114
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	29.34	95% H-UCL	40.14
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	46.8
95% Adjusted-CLT UCL (Chen-1995)	30.29	97.5% Chebyshev (MVUE) UCL	56.7
95% Modified-t UCL (Johnson-1978)	29.5	99% Chebyshev (MVUE) UCL	76.15
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.745	**Data appear Lognormal at 5% Significance Level**	
Theta Star	30.66		
MLE of Mean	22.83		
MLE of Standard Deviation	26.46		
nu star	84.88		
Approximate Chi Square Value (.05)	64.65	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	29.23
Adjusted Chi Square Value	64.19	95% Jackknife UCL	29.34
		95% Standard Bootstrap UCL	29.15
Anderson-Darling Test Statistic	1.426	95% Bootstrap-t UCL	30.85
Anderson-Darling 5% Critical Value	0.791	95% Hall's Bootstrap UCL	30.37
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL	29.46
Kolmogorov-Smirnov 5% Critical Value	0.122	95% BCA Bootstrap UCL	30.35
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	39.8
		97.5% Chebyshev(Mean, Sd) UCL	47.14
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	61.56
95% Approximate Gamma UCL (Use when n >= 40)	29.97		
95% Adjusted Gamma UCL (Use when n < 40)	30.19		

Potential UCL to Use		Use 95% H-UCL	40.14

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic (b)

General Statistics

Number of Valid Observations	16	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.9	Minimum of Log Data	1.065
Maximum	142	Maximum of Log Data	4.956
Mean	52.95	Mean of log Data	3.617
Geometric Mean	37.22	SD of log Data	0.995
Median	38.85		
SD	40.83		
Std. Error of Mean	10.21		
Coefficient of Variation	0.771		
Skewness	1.048		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.884	Shapiro Wilk Test Statistic	0.917
Shapiro Wilk Critical Value	0.887	Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	70.85	95% H-UCL	122.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	128.2
95% Adjusted-CLT UCL (Chen-1995)	72.6	97.5% Chebyshev (MVUE) UCL	158.4
95% Modified-t UCL (Johnson-1978)	71.29	99% Chebyshev (MVUE) UCL	217.6

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.313	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	40.33		
MLE of Mean	52.95		
MLE of Standard Deviation	46.21		
nu star	42.02		
Approximate Chi Square Value (.05)	28.16	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0335	95% CLT UCL	69.74
Adjusted Chi Square Value	26.87	95% Jackknife UCL	70.85
		95% Standard Bootstrap UCL	69.48
Anderson-Darling Test Statistic	0.283	95% Bootstrap-t UCL	76.76
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	72.97
Kolmogorov-Smirnov Test Statistic	0.157	95% Percentile Bootstrap UCL	69.51
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL	72.49

Data appear Gamma Distributed at 5% Significance Level						95% Chebyshev(Mean, Sd) UCL	97.45
						97.5% Chebyshev(Mean, Sd) UCL	116.7
Assuming Gamma Distribution						99% Chebyshev(Mean, Sd) UCL	154.5
95% Approximate Gamma UCL (Use when n >= 40)	79.01						
95% Adjusted Gamma UCL (Use when n < 40)	82.8						
Potential UCL to Use						Use 95% Approximate Gamma UCL	79.01
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

1				**General UCL Statistics for Full Data Sets**								
2			**User Selected Options**									
3			From File	SoilBkgd.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Barium**											
10												
11						**General Statistics**							
12					Number of Valid Observations	57				Number of Distinct Observations	50	
13												
14					**Raw Statistics**					**Log-transformed Statistics**		
15					Minimum	90.3				Minimum of Log Data	4.503	
16					Maximum	293				Maximum of Log Data	5.68	
17					Mean	154.6				Mean of log Data	4.999	
18					Geometric Mean	148.3				SD of log Data	0.287	
19					Median	146						
20					SD	47.39						
21					Std. Error of Mean	6.277						
22					Coefficient of Variation	0.307						
23					Skewness	1.031						
24												
25					**Relevant UCL Statistics**							
26					**Normal Distribution Test**					**Lognormal Distribution Test**		
27					Lilliefors Test Statistic	0.146				Lilliefors Test Statistic	0.0875	
28					Lilliefors Critical Value	0.117				Lilliefors Critical Value	0.117	
29					**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**		
30												
31					**Assuming Normal Distribution**					**Assuming Lognormal Distribution**		
32					95% Student's-t UCL	165.1				95% H-UCL	164.9	
33					**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	180.3	
34					95% Adjusted-CLT UCL (Chen-1995)	165.9				97.5% Chebyshev (MVUE) UCL	191.6	
35					95% Modified-t UCL (Johnson-1978)	165.3				99% Chebyshev (MVUE) UCL	213.7	
36												
37					**Gamma Distribution Test**					**Data Distribution**		
38					k star (bias corrected)	11.47				**Data Follow Appr. Gamma Distribution at 5% Significance Level**		
39					Theta Star	13.48						
40					MLE of Mean	154.6						
41					MLE of Standard Deviation	45.65						
42					nu star	1307						
43					Approximate Chi Square Value (.05)	1224				**Nonparametric Statistics**		
44					Adjusted Level of Significance	0.0458				95% CLT UCL	164.9	
45					Adjusted Chi Square Value	1222				95% Jackknife UCL	165.1	
46										95% Standard Bootstrap UCL	164.8	
47					Anderson-Darling Test Statistic	0.791				95% Bootstrap-t UCL	166.5	
48					Anderson-Darling 5% Critical Value	0.75				95% Hall's Bootstrap UCL	167	
49					Kolmogorov-Smirnov Test Statistic	0.107				95% Percentile Bootstrap UCL	165.6	
50					Kolmogorov-Smirnov 5% Critical Value	0.118				95% BCA Bootstrap UCL	165.7	
51					**Data follow Appr. Gamma Distribution at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	182	
52										97.5% Chebyshev(Mean, Sd) UCL	193.8	
53					**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	217.1	
54					95% Approximate Gamma UCL (Use when n >= 40)	165.1						

	A	B	C	D	E	F	G	H	I	J	K	L
55	95% Adjusted Gamma UCL (Use when n < 40)					165.4						
56												
57	**Potential UCL to Use**						Use 95% Approximate Gamma UCL					165.1
58												
59	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
60	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
61	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
62												

	A	B	C	D	E	F	G	H	I	J	K	L
1				**General UCL Statistics for Full Data Sets**								
2			**User Selected Options**									
3			From File	SoilBkgd.wst								
4			Full Precision	OFF								
5			Confidence Coefficient	95%								
6			Number of Bootstrap Operations	2000								
7												
8												
9	**Beryllium**											
10												
11						**General Statistics**							
12						Number of Valid Observations	57				Number of Distinct Observations	31	
13												
14						**Raw Statistics**					**Log-transformed Statistics**	
15						Minimum	0.32				Minimum of Log Data	-1.139
16						Maximum	1.33				Maximum of Log Data	0.285
17						Mean	0.509				Mean of log Data	-0.717
18						Geometric Mean	0.488				SD of log Data	0.277
19						Median	0.47					
20						SD	0.167					
21						Std. Error of Mean	0.0221					
22						Coefficient of Variation	0.328					
23						Skewness	2.373					
24												
25						**Relevant UCL Statistics**							
26						**Normal Distribution Test**					**Lognormal Distribution Test**	
27						Lilliefors Test Statistic	0.153				Lilliefors Test Statistic	0.103
28						Lilliefors Critical Value	0.117				Lilliefors Critical Value	0.117
29						**Data not Normal at 5% Significance Level**					**Data appear Lognormal at 5% Significance Level**	
30												
31						**Assuming Normal Distribution**					**Assuming Lognormal Distribution**	
32						95% Student's-t UCL	0.546				95% H-UCL	0.54
33						**95% UCLs (Adjusted for Skewness)**					95% Chebyshev (MVUE) UCL	0.589
34						95% Adjusted-CLT UCL (Chen-1995)	0.553				97.5% Chebyshev (MVUE) UCL	0.625
35						95% Modified-t UCL (Johnson-1978)	0.547				99% Chebyshev (MVUE) UCL	0.695
36												
37						**Gamma Distribution Test**					**Data Distribution**	
38						k star (bias corrected)	11.58				**Data appear Lognormal at 5% Significance Level**	
39						Theta Star	0.0439					
40						MLE of Mean	0.509					
41						MLE of Standard Deviation	0.149					
42						nu star	1321					
43						Approximate Chi Square Value (.05)	1237				**Nonparametric Statistics**	
44						Adjusted Level of Significance	0.0458				95% CLT UCL	0.545
45						Adjusted Chi Square Value	1235				95% Jackknife UCL	0.546
46											95% Standard Bootstrap UCL	0.544
47						Anderson-Darling Test Statistic	1.149				95% Bootstrap-t UCL	0.556
48						Anderson-Darling 5% Critical Value	0.75				95% Hall's Bootstrap UCL	0.564
49						Kolmogorov-Smirnov Test Statistic	0.121				95% Percentile Bootstrap UCL	0.547
50						Kolmogorov-Smirnov 5% Critical Value	0.118				95% BCA Bootstrap UCL	0.552
51						**Data not Gamma Distributed at 5% Significance Level**					95% Chebyshev(Mean, Sd) UCL	0.605
52											97.5% Chebyshev(Mean, Sd) UCL	0.647
53						**Assuming Gamma Distribution**					99% Chebyshev(Mean, Sd) UCL	0.729
54						95% Approximate Gamma UCL (Use when n >= 40)	0.543					

	A	B	C	D	E	F	G	H	I	J	K	L
55	95% Adjusted Gamma UCL (Use when n < 40)					0.544						
56												
57	**Potential UCL to Use**										Use 95% Student's-t UCL	0.546
58											or 95% Modified-t UCL	0.547
59											or 95% H-UCL	0.54
60												
61	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
62	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
63	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
64	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
65												
66	**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.**											
67	**These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)**											
68	**and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.**											
69												

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Calcium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	55

Raw Statistics		Log-transformed Statistics	
Minimum	1290	Minimum of Log Data	7.162
Maximum	14300	Maximum of Log Data	9.568
Mean	3925	Mean of log Data	8.146
Geometric Mean	3450	SD of log Data	0.471
Median	3020		
SD	2499		
Std. Error of Mean	330.9		
Coefficient of Variation	0.637		
Skewness	2.583		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.249	Lilliefors Test Statistic	0.16
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4478	95% H-UCL	4336
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4939
95% Adjusted-CLT UCL (Chen-1995)	4590	97.5% Chebyshev (MVUE) UCL	5412
95% Modified-t UCL (Johnson-1978)	4497	99% Chebyshev (MVUE) UCL	6342
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.834	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1024		
MLE of Mean	3925		
MLE of Standard Deviation	2005		
nu star	437		
Approximate Chi Square Value (.05)	389.6	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	4469
Adjusted Chi Square Value	388.4	95% Jackknife UCL	4478
		95% Standard Bootstrap UCL	4473
Anderson-Darling Test Statistic	2.811	95% Bootstrap-t UCL	4733
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	4681
Kolmogorov-Smirnov Test Statistic	0.197	95% Percentile Bootstrap UCL	4496
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	4596
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5367
		97.5% Chebyshev(Mean, Sd) UCL	5991
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7218
95% Approximate Gamma UCL (Use when n >= 40)	4403		
95% Adjusted Gamma UCL (Use when n < 40)	4416		

Potential UCL to Use						Use 95% Student's-t UCL	4478
						or 95% Modified-t UCL	4497

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Cadmium

General Statistics

Number of Valid Data	57	Number of Detected Data	18
Number of Distinct Detected Data	14	Number of Non-Detect Data	39
		Percent Non-Detects	68.42%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.09	Minimum Detected	-2.408
Maximum Detected	8.9	Maximum Detected	2.186
Mean of Detected	1.641	Mean of Detected	-0.297
SD of Detected	2.39	SD of Detected	1.258
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.3	Maximum Non-Detect	-1.204
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	42
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	15
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	73.68%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.661	Shapiro Wilk Test Statistic	0.947
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.587	Mean	-1.662
SD	1.502	SD	1.166
95% DL/2 (t) UCL	0.92	95% H-Stat (DL/2) UCL	0.561
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.529
		SD in Log Scale	2.035
		Mean in Original Scale	0.557
		SD in Original Scale	1.513
		95% t UCL	0.892
		95% Percentile Bootstrap UCL	0.933
		95% BCA Bootstrap UCL	1.057
		95% H-UCL	1.79
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.667	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2.461		
nu star	24		
A-D Test Statistic	1.006	**Nonparametric Statistics**	

5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	0.58
5% K-S Critical Value	0.211	SD	1.491
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.203
		95% KM (t) UCL	0.92
Assuming Gamma Distribution		95% KM (z) UCL	0.914
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.866
Minimum	0.000001	95% KM (bootstrap t) UCL	1.296
Maximum	8.9	95% KM (BCA) UCL	1.057
Mean	0.519	95% KM (Percentile Bootstrap) UCL	0.972
Median	0.000001	95% KM (Chebyshev) UCL	1.466
SD	1.525	97.5% KM (Chebyshev) UCL	1.849
k star	0.101	99% KM (Chebyshev) UCL	2.602
Theta star	5.148		
Nu star	11.49	**Potential UCLs to Use**	
AppChi2	4.894	95% KM (BCA) UCL	1.057
95% Gamma Approximate UCL (Use when n >= 40)	1.219		
95% Adjusted Gamma UCL (Use when n < 40)	1.247		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Cobalt

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	32

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.5	Minimum of Log Data	1.253
Maximum	9.5	Maximum of Log Data	2.251
Mean	5.851	Mean of log Data	1.743
Geometric Mean	5.716	SD of log Data	0.215
Median	5.6		
SD	1.327		
Std. Error of Mean	0.176		
Coefficient of Variation	0.227		
Skewness	1.079		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.116	Lilliefors Test Statistic	0.0721
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.145	95% H-UCL	6.146
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.58
95% Adjusted-CLT UCL (Chen-1995)	6.167	97.5% Chebyshev (MVUE) UCL	6.898
95% Modified-t UCL (Johnson-1978)	6.149	99% Chebyshev (MVUE) UCL	7.521
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	20.46	**Data appear Normal at 5% Significance Level**	
Theta Star	0.286		
MLE of Mean	5.851		
MLE of Standard Deviation	1.294		
nu star	2332		
Approximate Chi Square Value (.05)	2221	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	6.14
Adjusted Chi Square Value	2218	95% Jackknife UCL	6.145
		95% Standard Bootstrap UCL	6.132
Anderson-Darling Test Statistic	0.609	95% Bootstrap-t UCL	6.172
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	6.178
Kolmogorov-Smirnov Test Statistic	0.085	95% Percentile Bootstrap UCL	6.158
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	6.177
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.617
		97.5% Chebyshev(Mean, Sd) UCL	6.948
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7.599
95% Approximate Gamma UCL (Use when n >= 40)	6.144		
95% Adjusted Gamma UCL (Use when n < 40)	6.152		

Potential UCL to Use						Use 95% Student's-t UCL	6.145
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Chromium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	39

Raw Statistics		Log-transformed Statistics	
Minimum	4.8	Minimum of Log Data	1.569
Maximum	47.6	Maximum of Log Data	3.863
Mean	10.96	Mean of log Data	2.289
Geometric Mean	9.863	SD of log Data	0.41
Median	8.8		
SD	6.781		
Std. Error of Mean	0.898		
Coefficient of Variation	0.619		
Skewness	3.522		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.281	Lilliefors Test Statistic	0.168
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12.46	95% H-UCL	11.86
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13.34
95% Adjusted-CLT UCL (Chen-1995)	12.88	97.5% Chebyshev (MVUE) UCL	14.47
95% Modified-t UCL (Johnson-1978)	12.53	99% Chebyshev (MVUE) UCL	16.7
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.672	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	2.345		
MLE of Mean	10.96		
MLE of Standard Deviation	5.069		
nu star	532.6		
Approximate Chi Square Value (.05)	480	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	12.43
Adjusted Chi Square Value	478.8	95% Jackknife UCL	12.46
		95% Standard Bootstrap UCL	12.43
Anderson-Darling Test Statistic	4.361	95% Bootstrap-t UCL	13.42
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	13.95
Kolmogorov-Smirnov Test Statistic	0.205	95% Percentile Bootstrap UCL	12.56
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	13.08
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14.87
		97.5% Chebyshev(Mean, Sd) UCL	16.57
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	19.89
95% Approximate Gamma UCL (Use when n >= 40)	12.15		
95% Adjusted Gamma UCL (Use when n < 40)	12.19		

Potential UCL to Use		Use 95% Student's-t UCL	12.46
		or 95% Modified-t UCL	12.53

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Copper

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	50

Raw Statistics		Log-transformed Statistics	
Minimum	7.1	Minimum of Log Data	1.96
Maximum	301	Maximum of Log Data	5.707
Mean	35.09	Mean of log Data	3.061
Geometric Mean	21.35	SD of log Data	0.876
Median	14.9		
SD	49.86		
Std. Error of Mean	6.604		
Coefficient of Variation	1.421		
Skewness	3.442		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.287	Lilliefors Test Statistic	0.18
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	46.13	95% H-UCL	40.53
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	49.02
95% Adjusted-CLT UCL (Chen-1995)	49.17	97.5% Chebyshev (MVUE) UCL	56.8
95% Modified-t UCL (Johnson-1978)	46.63	99% Chebyshev (MVUE) UCL	72.07
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.096	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	32.01		
MLE of Mean	35.09		
MLE of Standard Deviation	33.52		
nu star	124.9		
Approximate Chi Square Value (.05)	100.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	45.95
Adjusted Chi Square Value	99.56	95% Jackknife UCL	46.13
		95% Standard Bootstrap UCL	46.06
Anderson-Darling Test Statistic	4.701	95% Bootstrap-t UCL	52.59
Anderson-Darling 5% Critical Value	0.776	95% Hall's Bootstrap UCL	55.03
Kolmogorov-Smirnov Test Statistic	0.207	95% Percentile Bootstrap UCL	46.64
Kolmogorov-Smirnov 5% Critical Value	0.121	95% BCA Bootstrap UCL	50.65
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	63.87
		97.5% Chebyshev(Mean, Sd) UCL	76.33
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	100.8
95% Approximate Gamma UCL (Use when n >= 40)	43.78		
95% Adjusted Gamma UCL (Use when n < 40)	44.04		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL		63.87

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Fluoride

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	46

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	37	Maximum of Log Data	3.611
Mean	4.137	Mean of log Data	0.135
Geometric Mean	1.144	SD of log Data	1.569
Median	1.2		
SD	8.337		
Std. Error of Mean	1.104		
Coefficient of Variation	2.015		
Skewness	2.975		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.317	Lilliefors Test Statistic	0.0966
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.984	95% H-UCL	7.636
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.37
95% Adjusted-CLT UCL (Chen-1995)	6.418	97.5% Chebyshev (MVUE) UCL	10.37
95% Modified-t UCL (Johnson-1978)	6.056	99% Chebyshev (MVUE) UCL	14.3
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.481	**Data appear Lognormal at 5% Significance Level**	
Theta Star	8.607		
MLE of Mean	4.137		
MLE of Standard Deviation	5.967		
nu star	54.79		
Approximate Chi Square Value (.05)	38.78	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	5.953
Adjusted Chi Square Value	38.43	95% Jackknife UCL	5.984
		95% Standard Bootstrap UCL	5.901
Anderson-Darling Test Statistic	3.072	95% Bootstrap-t UCL	6.855
Anderson-Darling 5% Critical Value	0.817	95% Hall's Bootstrap UCL	6.248
Kolmogorov-Smirnov Test Statistic	0.181	95% Percentile Bootstrap UCL	5.946
Kolmogorov-Smirnov 5% Critical Value	0.125	95% BCA Bootstrap UCL	6.529
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.95
		97.5% Chebyshev(Mean, Sd) UCL	11.03
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15.12
95% Approximate Gamma UCL (Use when n >= 40)	5.844		
95% Adjusted Gamma UCL (Use when n < 40)	5.897		
Potential UCL to Use		Use 95% H-UCL	7.636

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Iron

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	46

Raw Statistics		Log-transformed Statistics	
Minimum	11700	Minimum of Log Data	9.367
Maximum	35300	Maximum of Log Data	10.47
Mean	19621	Mean of log Data	9.862
Geometric Mean	19192	SD of log Data	0.21
Median	19000		
SD	4319		
Std. Error of Mean	572.1		
Coefficient of Variation	0.22		
Skewness	1.148		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.112	Lilliefors Test Statistic	0.07
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	20578	95% H-UCL	20590
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22009
95% Adjusted-CLT UCL (Chen-1995)	20655	97.5% Chebyshev (MVUE) UCL	23047
95% Modified-t UCL (Johnson-1978)	20592	99% Chebyshev (MVUE) UCL	25085
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	21.6	**Data appear Normal at 5% Significance Level**	
Theta Star	908.3		
MLE of Mean	19621		
MLE of Standard Deviation	4222		
nu star	2463		
Approximate Chi Square Value (.05)	2348	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	20562
Adjusted Chi Square Value	2346	95% Jackknife UCL	20578
		95% Standard Bootstrap UCL	20564
Anderson-Darling Test Statistic	0.49	95% Bootstrap-t UCL	20694
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	20758
Kolmogorov-Smirnov Test Statistic	0.0821	95% Percentile Bootstrap UCL	20537
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	20674
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	22115
		97.5% Chebyshev(Mean, Sd) UCL	23194
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25313
95% Approximate Gamma UCL (Use when n >= 40)	20576		
95% Adjusted Gamma UCL (Use when n < 40)	20601		

Potential UCL to Use						Use 95% Student's-t UCL	20578
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Data Sets with Non-Detects	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Mercury

General Statistics

Number of Valid Data	57	Number of Detected Data	54
Number of Distinct Detected Data	27	Number of Non-Detect Data	3
		Percent Non-Detects	5.26%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.002	Minimum Detected	-6.215
Maximum Detected	0.2	Maximum Detected	-1.609
Mean of Detected	0.0207	Mean of Detected	-4.323
SD of Detected	0.0306	SD of Detected	0.849
Minimum Non-Detect	0.1	Minimum Non-Detect	-2.303
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.337	Lilliefors Test Statistic	0.151
5% Lilliefors Critical Value	0.121	5% Lilliefors Critical Value	0.121
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0223	Mean	-4.254
SD	0.0305	SD	0.879
95% DL/2 (t) UCL	0.029	95% H-Stat (DL/2) UCL	0.0271
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-4.325
		SD in Log Scale	0.833
		Mean in Original Scale	0.0204
		SD in Original Scale	0.0298
		95% t UCL	0.027
		95% Percentile Bootstrap UCL	0.0275
		95% BCA Bootstrap UCL	0.0295
		95% H-UCL	0.0238
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.202	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.0172		
nu star	129.9		
A-D Test Statistic	3.257	**Nonparametric Statistics**	
5% A-D Critical Value	0.774	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.774	Mean	0.0205
5% K-S Critical Value	0.124	SD	0.0298

Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.00402
		95% KM (t) UCL	0.0273
Assuming Gamma Distribution		95% KM (z) UCL	0.0272
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0273
Minimum	0.002	95% KM (bootstrap t) UCL	0.0336
Maximum	0.2	95% KM (BCA) UCL	0.0282
Mean	0.0207	95% KM (Percentile Bootstrap) UCL	0.0278
Median	0.013	95% KM (Chebyshev) UCL	0.0381
SD	0.0299	97.5% KM (Chebyshev) UCL	0.0457
k star	1.23	99% KM (Chebyshev) UCL	0.0605
Theta star	0.0168		
Nu star	140.2	**Potential UCLs to Use**	
AppChi2	113.9	95% KM (Chebyshev) UCL	0.0381
95% Gamma Approximate UCL (Use when n >= 40)	0.0255		
95% Adjusted Gamma UCL (Use when n < 40)	0.0256		
Note: DL/2 is not a recommended method.			

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Potassium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	49

Raw Statistics		Log-transformed Statistics	
Minimum	1630	Minimum of Log Data	7.396
Maximum	5250	Maximum of Log Data	8.566
Mean	3011	Mean of log Data	7.985
Geometric Mean	2936	SD of log Data	0.228
Median	2990		
SD	679.2		
Std. Error of Mean	89.96		
Coefficient of Variation	0.226		
Skewness	0.567		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0667	Lilliefors Test Statistic	0.0691
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3161	95% H-UCL	3175
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3412
95% Adjusted-CLT UCL (Chen-1995)	3166	97.5% Chebyshev (MVUE) UCL	3586
95% Modified-t UCL (Johnson-1978)	3162	99% Chebyshev (MVUE) UCL	3926
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	19.08	**Data appear Normal at 5% Significance Level**	
Theta Star	157.8		
MLE of Mean	3011		
MLE of Standard Deviation	689.3		
nu star	2175		
Approximate Chi Square Value (.05)	2068	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	3159
Adjusted Chi Square Value	2065	95% Jackknife UCL	3161
		95% Standard Bootstrap UCL	3155
Anderson-Darling Test Statistic	0.181	95% Bootstrap-t UCL	3179
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL	3174
Kolmogorov-Smirnov Test Statistic	0.0541	95% Percentile Bootstrap UCL	3154
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	3163
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3403
		97.5% Chebyshev(Mean, Sd) UCL	3573
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3906
95% Approximate Gamma UCL (Use when n >= 40)	3167		
95% Adjusted Gamma UCL (Use when n < 40)	3171		

Potential UCL to Use						Use 95% Student's-t UCL	3161
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Magnesium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	56

Raw Statistics		**Log-transformed Statistics**	
Minimum	1720	Minimum of Log Data	7.45
Maximum	5740	Maximum of Log Data	8.655
Mean	3482	Mean of log Data	8.118
Geometric Mean	3353	SD of log Data	0.279
Median	3340		
SD	956.4		
Std. Error of Mean	126.7		
Coefficient of Variation	0.275		
Skewness	0.417		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.0946	Lilliefors Test Statistic	0.0569
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3694	95% H-UCL	3716
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4056
95% Adjusted-CLT UCL (Chen-1995)	3698	97.5% Chebyshev (MVUE) UCL	4303
95% Modified-t UCL (Johnson-1978)	3695	99% Chebyshev (MVUE) UCL	4789
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	12.76	**Data appear Normal at 5% Significance Level**	
Theta Star	272.9		
MLE of Mean	3482		
MLE of Standard Deviation	974.7		
nu star	1455		
Approximate Chi Square Value (.05)	1367	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	3690
Adjusted Chi Square Value	1365	95% Jackknife UCL	3694
		95% Standard Bootstrap UCL	3689
Anderson-Darling Test Statistic	0.211	95% Bootstrap-t UCL	3707
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	3687
Kolmogorov-Smirnov Test Statistic	0.0593	95% Percentile Bootstrap UCL	3682
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	3711
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4034
		97.5% Chebyshev(Mean, Sd) UCL	4273
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4742
95% Approximate Gamma UCL (Use when n >= 40)	3705		
95% Adjusted Gamma UCL (Use when n < 40)	3711		

Potential UCL to Use						Use 95% Student's-t UCL	3694
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Manganese

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	57

Raw Statistics		**Log-transformed Statistics**	
Minimum	276	Minimum of Log Data	5.62
Maximum	1050	Maximum of Log Data	6.957
Mean	537.2	Mean of log Data	6.245
Geometric Mean	515.4	SD of log Data	0.287
Median	500		
SD	163.5		
Std. Error of Mean	21.65		
Coefficient of Variation	0.304		
Skewness	1.152		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.123	Lilliefors Test Statistic	0.0695
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	573.4	95% H-UCL	573.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	627
95% Adjusted-CLT UCL (Chen-1995)	576.4	97.5% Chebyshev (MVUE) UCL	666.2
95% Modified-t UCL (Johnson-1978)	574	99% Chebyshev (MVUE) UCL	743
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.58	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	46.39		
MLE of Mean	537.2		
MLE of Standard Deviation	157.9		
nu star	1320		
Approximate Chi Square Value (.05)	1237	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	572.8
Adjusted Chi Square Value	1235	95% Jackknife UCL	573.4
		95% Standard Bootstrap UCL	572.1
Anderson-Darling Test Statistic	0.496	95% Bootstrap-t UCL	575.7
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	577.8
Kolmogorov-Smirnov Test Statistic	0.0836	95% Percentile Bootstrap UCL	573.1
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	576.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	631.6
		97.5% Chebyshev(Mean, Sd) UCL	672.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	752.7
95% Approximate Gamma UCL (Use when n >= 40)	573.4		
95% Adjusted Gamma UCL (Use when n < 40)	574.4		

Potential UCL to Use					Use 95% Approximate Gamma UCL		573.4
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Sodium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	55

Raw Statistics		Log-transformed Statistics	
Minimum	29	Minimum of Log Data	3.367
Maximum	620	Maximum of Log Data	6.43
Mean	140	Mean of log Data	4.589
Geometric Mean	98.38	SD of log Data	0.82
Median	80.9		
SD	131		
Std. Error of Mean	17.35		
Coefficient of Variation	0.935		
Skewness	1.756		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.228	Lilliefors Test Statistic	0.136
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	169	95% H-UCL	174.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	209.7
95% Adjusted-CLT UCL (Chen-1995)	172.9	97.5% Chebyshev (MVUE) UCL	241.3
95% Modified-t UCL (Johnson-1978)	169.7	99% Chebyshev (MVUE) UCL	303.4
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.492	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	93.88		
MLE of Mean	140		
MLE of Standard Deviation	114.7		
nu star	170		
Approximate Chi Square Value (.05)	140.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	168.6
Adjusted Chi Square Value	140.2	95% Jackknife UCL	169
		95% Standard Bootstrap UCL	168.3
Anderson-Darling Test Statistic	2.418	95% Bootstrap-t UCL	175.6
Anderson-Darling 5% Critical Value	0.768	95% Hall's Bootstrap UCL	172.7
Kolmogorov-Smirnov Test Statistic	0.168	95% Percentile Bootstrap UCL	169.8
Kolmogorov-Smirnov 5% Critical Value	0.12	95% BCA Bootstrap UCL	173.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	215.6
		97.5% Chebyshev(Mean, Sd) UCL	248.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	312.6
95% Approximate Gamma UCL (Use when n >= 40)	169		
95% Adjusted Gamma UCL (Use when n < 40)	169.8		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL		215.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Nickel

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	34

Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	21.4	Maximum of Log Data	3.063
Mean	5.261	Mean of log Data	1.557
Geometric Mean	4.743	SD of log Data	0.411
Median	4.4		
SD	3.162		
Std. Error of Mean	0.419		
Coefficient of Variation	0.601		
Skewness	3.232		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.282	Lilliefors Test Statistic	0.188
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.962	95% H-UCL	5.708
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.42
95% Adjusted-CLT UCL (Chen-1995)	6.142	97.5% Chebyshev (MVUE) UCL	6.969
95% Modified-t UCL (Johnson-1978)	5.992	99% Chebyshev (MVUE) UCL	8.046
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	4.729	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.113		
MLE of Mean	5.261		
MLE of Standard Deviation	2.419		
nu star	539.1		
Approximate Chi Square Value (.05)	486.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	5.95
Adjusted Chi Square Value	485	95% Jackknife UCL	5.962
		95% Standard Bootstrap UCL	5.959
Anderson-Darling Test Statistic	3.93	95% Bootstrap-t UCL	6.32
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	6.601
Kolmogorov-Smirnov Test Statistic	0.223	95% Percentile Bootstrap UCL	5.988
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	6.189
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.087
		97.5% Chebyshev(Mean, Sd) UCL	7.877
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	9.428
95% Approximate Gamma UCL (Use when n >= 40)	5.833		
95% Adjusted Gamma UCL (Use when n < 40)	5.849		

Potential UCL to Use		Use 95% Student's-t UCL	5.962
		or 95% Modified-t UCL	5.992

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Lead

General Statistics

Number of Valid Data	57	Number of Detected Data	55
Number of Distinct Detected Data	47	Number of Non-Detect Data	2
		Percent Non-Detects	3.51%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	3.8	Minimum Detected	1.335
Maximum Detected	191	Maximum Detected	5.252
Mean of Detected	17.47	Mean of Detected	2.33
SD of Detected	31.62	SD of Detected	0.822
Minimum Non-Detect	3.4	Minimum Non-Detect	1.224
Maximum Non-Detect	3.5	Maximum Non-Detect	1.253
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	2
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	55
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	3.51%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.364	Lilliefors Test Statistic	0.226
5% Lilliefors Critical Value	0.119	5% Lilliefors Critical Value	0.119
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	16.91	Mean	2.267
SD	31.19	SD	0.872
95% DL/2 (t) UCL	23.82	95% H-Stat (DL/2) UCL	18.24
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	16.24	Mean in Log Scale	2.265
SD	31.61	SD in Log Scale	0.877
95% MLE (t) UCL	23.24	Mean in Original Scale	16.91
95% MLE (Tiku) UCL	22.53	SD in Original Scale	31.19
		95% t UCL	23.82
		95% Percentile Bootstrap UCL	24.21
		95% BCA Bootstrap UCL	27.96
		95% H UCL	18.31
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.032	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	16.92		
nu star	113.5		
A-D Test Statistic	6.423	**Nonparametric Statistics**	

5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	16.99
5% K-S Critical Value	0.123	SD	30.88
Data not Gamma Distributed at 5% Significance Level		SE of Mean	4.128
		95% KM (t) UCL	23.89
Assuming Gamma Distribution		95% KM (z) UCL	23.78
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	23.89
Minimum	0.000001	95% KM (bootstrap t) UCL	37.11
Maximum	191	95% KM (BCA) UCL	25
Mean	16.85	95% KM (Percentile Bootstrap) UCL	24.99
Median	8	95% KM (Chebyshev) UCL	34.98
SD	31.22	97.5% KM (Chebyshev) UCL	42.77
k star	0.565	99% KM (Chebyshev) UCL	58.06
Theta star	29.81		
Nu star	64.46	**Potential UCLs to Use**	
AppChi2	46.99	95% KM (Chebyshev) UCL	34.98
95% Gamma Approximate UCL (Use when n >= 40)	23.12		
95% Adjusted Gamma UCL (Use when n < 40)	23.31		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Radium 226

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	40

Raw Statistics		Log-transformed Statistics	
Minimum	1.21	Minimum of Log Data	0.191
Maximum	12	Maximum of Log Data	2.485
Mean	3.6	Mean of log Data	1.096
Geometric Mean	2.993	SD of log Data	0.593
Median	2.4		
SD	2.384		
Std. Error of Mean	0.316		
Coefficient of Variation	0.662		
Skewness	1.347		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.219	Lilliefors Test Statistic	0.184
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.128	95% H-UCL	4.167
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.862
95% Adjusted-CLT UCL (Chen-1995)	4.179	97.5% Chebyshev (MVUE) UCL	5.427
95% Modified-t UCL (Johnson-1978)	4.137	99% Chebyshev (MVUE) UCL	6.536
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.728	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.32		
MLE of Mean	3.6		
MLE of Standard Deviation	2.179		
nu star	311		
Approximate Chi Square Value (.05)	271.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	4.119
Adjusted Chi Square Value	270.2	95% Jackknife UCL	4.128
		95% Standard Bootstrap UCL	4.117
Anderson-Darling Test Statistic	2.637	95% Bootstrap-t UCL	4.199
Anderson-Darling 5% Critical Value	0.758	95% Hall's Bootstrap UCL	4.195
Kolmogorov-Smirnov Test Statistic	0.201	95% Percentile Bootstrap UCL	4.145
Kolmogorov-Smirnov 5% Critical Value	0.119	95% BCA Bootstrap UCL	4.213
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.976
		97.5% Chebyshev(Mean, Sd) UCL	5.571
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.741
95% Approximate Gamma UCL (Use when n >= 40)	4.129		
95% Adjusted Gamma UCL (Use when n < 40)	4.143		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL		4.976

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Antimony

General Statistics

Number of Valid Observations	55	Number of Distinct Observations	50
Number of Missing Values	2		

Raw Statistics		Log-transformed Statistics	
Minimum	0.072	Minimum of Log Data	-2.631
Maximum	3.9	Maximum of Log Data	1.361
Mean	0.504	Mean of log Data	-1.385
Geometric Mean	0.25	SD of log Data	1.044
Median	0.165		
SD	0.848		
Std. Error of Mean	0.114		
Coefficient of Variation	1.681		
Skewness	3.014		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.324	Lilliefors Test Statistic	0.172
Lilliefors Critical Value	0.119	Lilliefors Critical Value	0.119
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.696	95% H-UCL	0.606
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.737
95% Adjusted-CLT UCL (Chen-1995)	0.742	97.5% Chebyshev (MVUE) UCL	0.872
95% Modified-t UCL (Johnson-1978)	0.704	99% Chebyshev (MVUE) UCL	1.137
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.808	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.625		
MLE of Mean	0.504		
MLE of Standard Deviation	0.561		
nu star	88.84		
Approximate Chi Square Value (.05)	68.11	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0456	95% CLT UCL	0.692
Adjusted Chi Square Value	67.62	95% Jackknife UCL	0.696
		95% Standard Bootstrap UCL	0.693
Anderson-Darling Test Statistic	4.395	95% Bootstrap-t UCL	0.798
Anderson-Darling 5% Critical Value	0.788	95% Hall's Bootstrap UCL	0.702
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL	0.699
Kolmogorov-Smirnov 5% Critical Value	0.124	95% BCA Bootstrap UCL	0.745
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.003
		97.5% Chebyshev(Mean, Sd) UCL	1.218
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.642
95% Approximate Gamma UCL (Use when n >= 40)	0.658		
95% Adjusted Gamma UCL (Use when n < 40)	0.663		

Potential UCL to Use						
Use 95% Chebyshev (Mean, Sd) UCL	1.003					
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.						
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)						
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.						

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Selenium

General Statistics

Number of Valid Data	57	Number of Detected Data	47
Number of Distinct Detected Data	6	Number of Non-Detect Data	10
		Percent Non-Detects	17.54%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.2	Minimum Detected	-1.609
Maximum Detected	0.7	Maximum Detected	-0.357
Mean of Detected	0.406	Mean of Detected	-0.933
SD of Detected	0.105	SD of Detected	0.263
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	7.7	Maximum Non-Detect	2.041
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	57
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.896	Shapiro Wilk Test Statistic	0.901
5% Shapiro Wilk Critical Value	0.946	5% Shapiro Wilk Critical Value	0.946
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.904	Mean	-0.608
SD	1.179	SD	0.877
95% DL/2 (t) UCL	1.165	95% H-Stat (DL/2) UCL	1.034
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.947
		SD in Log Scale	0.258
		Mean in Original Scale	0.401
		SD in Original Scale	0.101
		95% t UCL	0.423
		95% Percentile Bootstrap UCL	0.423
		95% BCA Bootstrap UCL	0.424
		95% H-UCL	0.426
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	14.35	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.0283		
nu star	1349		
A-D Test Statistic	2.268	**Nonparametric Statistics**	

5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	0.402
5% K-S Critical Value	0.129	SD	0.107
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0156
		95% KM (t) UCL	0.428
Assuming Gamma Distribution		95% KM (z) UCL	0.428
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.428
Minimum	0.0623	95% KM (bootstrap t) UCL	0.43
Maximum	0.7	95% KM (BCA) UCL	0.428
Mean	0.402	95% KM (Percentile Bootstrap) UCL	0.429
Median	0.4	95% KM (Chebyshev) UCL	0.47
SD	0.108	97.5% KM (Chebyshev) UCL	0.5
k star	10.37	99% KM (Chebyshev) UCL	0.557
Theta star	0.0388		
Nu star	1183	**Potential UCLs to Use**	
AppChi2	1104	95% KM (Chebyshev) UCL	0.47
95% Gamma Approximate UCL (Use when n >= 40)	0.431		
95% Adjusted Gamma UCL (Use when n < 40)	0.432		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Thallium

General Statistics

Number of Valid Data	57	Number of Detected Data	53
Number of Distinct Detected Data	45	Number of Non-Detect Data	4
		Percent Non-Detects	7.02%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.192	Minimum Detected	-1.65
Maximum Detected	1	Maximum Detected	0
Mean of Detected	0.349	Mean of Detected	-1.14
SD of Detected	0.189	SD of Detected	0.38
Minimum Non-Detect	5	Minimum Non-Detect	1.609
Maximum Non-Detect	5.2	Maximum Non-Detect	1.649
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	57
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Lilliefors Test Statistic	0.312	Lilliefors Test Statistic	0.216
5% Lilliefors Critical Value	0.122	5% Lilliefors Critical Value	0.122
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.505	Mean	-0.994
SD	0.599	SD	0.649
95% DL/2 (t) UCL	0.637	95% H-Stat (DL/2) UCL	0.543
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.14
		SD in Log Scale	0.367
		Mean in Original Scale	0.347
		SD in Original Scale	0.182
		95% t UCL	0.388
		95% Percentile Bootstrap UCL	0.39
		95% BCA Bootstrap UCL	0.401
		95% H-UCL	0.373
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	5.497	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.0636		
nu star	582.7		
A-D Test Statistic	4.899	**Nonparametric Statistics**	

5% A-D Critical Value	0.753	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.753	Mean	0.349
5% K-S Critical Value	0.122	SD	0.187
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0259
		95% KM (t) UCL	0.393
Assuming Gamma Distribution		95% KM (z) UCL	0.392
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.393
Minimum	0.192	95% KM (bootstrap t) UCL	0.407
Maximum	1	95% KM (BCA) UCL	0.396
Mean	0.351	95% KM (Percentile Bootstrap) UCL	0.394
Median	0.303	95% KM (Chebyshev) UCL	0.462
SD	0.182	97.5% KM (Chebyshev) UCL	0.511
k star	5.888	99% KM (Chebyshev) UCL	0.607
Theta star	0.0596		
Nu star	671.3	**Potential UCLs to Use**	
AppChi2	612.1	95% KM (Chebyshev) UCL	0.462
95% Gamma Approximate UCL (Use when n >= 40)	0.385		
95% Adjusted Gamma UCL (Use when n < 40)	0.386		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Uranium

General Statistics

Number of Valid Observations	48	Number of Distinct Observations	46

Raw Statistics		Log-transformed Statistics	
Minimum	0.839	Minimum of Log Data	-0.176
Maximum	4.11	Maximum of Log Data	1.413
Mean	1.809	Mean of log Data	0.527
Geometric Mean	1.695	SD of log Data	0.362
Median	1.74		
SD	0.691		
Std. Error of Mean	0.0997		
Coefficient of Variation	0.382		
Skewness	1.155		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.919	Shapiro Wilk Test Statistic	0.981
Shapiro Wilk Critical Value	0.947	Shapiro Wilk Critical Value	0.947
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.976	95% H-UCL	1.99
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.228
95% Adjusted-CLT UCL (Chen-1995)	1.991	97.5% Chebyshev (MVUE) UCL	2.411
95% Modified-t UCL (Johnson-1978)	1.979	99% Chebyshev (MVUE) UCL	2.769
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	7.34	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.246		
MLE of Mean	1.809		
MLE of Standard Deviation	0.668		
nu star	704.6		
Approximate Chi Square Value (.05)	644	**Nonparametric Statistics**	
Adjusted Level of Significance	0.045	95% CLT UCL	1.973
Adjusted Chi Square Value	642.2	95% Jackknife UCL	1.976
		95% Standard Bootstrap UCL	1.971
Anderson-Darling Test Statistic	0.335	95% Bootstrap-t UCL	1.992
Anderson-Darling 5% Critical Value	0.751	95% Hall's Bootstrap UCL	2.005
Kolmogorov-Smirnov Test Statistic	0.0691	95% Percentile Bootstrap UCL	1.973
Kolmogorov-Smirnov 5% Critical Value	0.128	95% BCA Bootstrap UCL	1.988
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2.243
		97.5% Chebyshev(Mean, Sd) UCL	2.431
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.801
95% Approximate Gamma UCL (Use when n >= 40)	1.979		
95% Adjusted Gamma UCL (Use when n < 40)	1.985		

Potential UCL to Use					Use 95% Approximate Gamma UCL		1.979
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.							

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Vanadium

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	51

Raw Statistics		Log-transformed Statistics	
Minimum	20.3	Minimum of Log Data	3.011
Maximum	83.3	Maximum of Log Data	4.422
Mean	40.71	Mean of log Data	3.672
Geometric Mean	39.33	SD of log Data	0.258
Median	38.9		
SD	11.69		
Std. Error of Mean	1.548		
Coefficient of Variation	0.287		
Skewness	1.664		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.172	Lilliefors Test Statistic	0.115
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	43.3	95% H-UCL	43.13
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	46.77
95% Adjusted-CLT UCL (Chen-1995)	43.62	97.5% Chebyshev (MVUE) UCL	49.43
95% Modified-t UCL (Johnson-1978)	43.36	99% Chebyshev (MVUE) UCL	54.65
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	13.86	**Data appear Lognormal at 5% Significance Level**	
Theta Star	2.938		
MLE of Mean	40.71		
MLE of Standard Deviation	10.94		
nu star	1580		
Approximate Chi Square Value (.05)	1488	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	43.26
Adjusted Chi Square Value	1486	95% Jackknife UCL	43.3
		95% Standard Bootstrap UCL	43.18
Anderson-Darling Test Statistic	1.152	95% Bootstrap-t UCL	43.55
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL	43.82
Kolmogorov-Smirnov Test Statistic	0.134	95% Percentile Bootstrap UCL	43.44
Kolmogorov-Smirnov 5% Critical Value	0.118	95% BCA Bootstrap UCL	43.61
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	47.46
		97.5% Chebyshev(Mean, Sd) UCL	50.38
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	56.12
95% Approximate Gamma UCL (Use when n >= 40)	43.21		
95% Adjusted Gamma UCL (Use when n < 40)	43.28		

Potential UCL to Use		Use 95% Student's-t UCL	43.3
		or 95% Modified-t UCL	43.36
		or 95% H-UCL	43.13

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.

H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.

It is therefore recommended to avoid the use of H-statistic based 95% UCLs.

Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General UCL Statistics for Full Data Sets	
User Selected Options	
From File	SoilBkgd.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Zinc

General Statistics

Number of Valid Observations	57	Number of Distinct Observations	56

Raw Statistics		**Log-transformed Statistics**	
Minimum	23.8	Minimum of Log Data	3.17
Maximum	377	Maximum of Log Data	5.932
Mean	58.82	Mean of log Data	3.817
Geometric Mean	45.46	SD of log Data	0.58
Median	37.8		
SD	68.66		
Std. Error of Mean	9.095		
Coefficient of Variation	1.167		
Skewness	3.86		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Lilliefors Test Statistic	0.353	Lilliefors Test Statistic	0.242
Lilliefors Critical Value	0.117	Lilliefors Critical Value	0.117
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	74.03	95% H-UCL	62.52
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	72.78
95% Adjusted-CLT UCL (Chen-1995)	78.74	97.5% Chebyshev (MVUE) UCL	81.08
95% Modified-t UCL (Johnson-1978)	74.8	99% Chebyshev (MVUE) UCL	97.38
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.994	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	29.5		
MLE of Mean	58.82		
MLE of Standard Deviation	41.66		
nu star	227.3		
Approximate Chi Square Value (.05)	193.4	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0458	95% CLT UCL	73.78
Adjusted Chi Square Value	192.6	95% Jackknife UCL	74.03
		95% Standard Bootstrap UCL	73.48
Anderson-Darling Test Statistic	7.587	95% Bootstrap-t UCL	89.23
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	83.44
Kolmogorov-Smirnov Test Statistic	0.289	95% Percentile Bootstrap UCL	75.48
Kolmogorov-Smirnov 5% Critical Value	0.119	95% BCA Bootstrap UCL	80.2
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	98.46
		97.5% Chebyshev(Mean, Sd) UCL	115.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	149.3
95% Approximate Gamma UCL (Use when n >= 40)	69.13		
95% Adjusted Gamma UCL (Use when n < 40)	69.42		

Potential UCL to Use				Use 95% Chebyshev (Mean, Sd) UCL			98.46

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)

and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

General Background Statistics for Data Sets with Non-Detects											
User Selected Options											
From File			C:\ProUCL\Rhodia\soilbkgd_radio.xls.wst								
Full Precision			OFF								
Confidence Coefficient			95%								
Coverage			90%								
Different or Future K Values			1								
Number of Bootstrap Operations			2000								
Thorium230											
General Statistics											
Number of Valid Data					48	Number of Detected Data					32
Number of Distinct Detected Data					22	Number of Non-Detect Data					16
						Percent Non-Detects					33.33%
Raw Statistics						Log-transformed Statistics					
Minimum Detected					0.65	Minimum Detected					-0.431
Maximum Detected					3.4	Maximum Detected					1.224
Mean of Detected					1.098	Mean of Detected					0.0206
SD of Detected					0.523	SD of Detected					0.356
Minimum Non-Detect					0.55	Minimum Non-Detect					-0.598
Maximum Non-Detect					1.6	Maximum Non-Detect					0.47
Data with Multiple Detection Limits						Single Detection Limit Scenario					
Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect with Single DL					44
For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected with Single DL					4
Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage					91.67%
Background Statistics											
Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only					
Shapiro Wilk Test Statistic					0.7	Shapiro Wilk Test Statistic					0.902
5% Shapiro Wilk Critical Value					0.93	5% Shapiro Wilk Critical Value					0.93
Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level					
Assuming Normal Distribution						Assuming Lognormal Distribution					
DL/2 Substitution Method						DL/2 Substitution Method					
Mean					0.844	Mean (Log Scale)					-0.361
SD					0.562	SD (Log Scale)					0.633
95% UTL 90% Coverage					1.771	95% UTL 90% Coverage					1.981
95% UPL (t)					1.797	95% UPL (t)					2.04
90% Percentile (z)					1.565	90% Percentile (z)					1.57
95% Percentile (z)					1.769	95% Percentile (z)					1.976
99% Percentile (z)					2.152	99% Percentile (z)					3.043
Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
Mean					-0.335	Mean in Original Scale					0.893
SD					1.384	SD in Original Scale					0.517
95% UTL with 90% Coverage					1.946	95% UTL with 90% Coverage					1.723
						95% BCA UTL with 90% Coverage					1.36
						95% Bootstrap (%) UTL with 90% Coverage					1.6
95% UPL (t)					2.011	95% UPL (t)					1.761
90% Percentile (z)					1.438	90% Percentile (z)					1.45
95% Percentile (z)					1.941	95% Percentile (z)					1.72
99% Percentile (z)					2.884	99% Percentile (z)					2.37

Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only						
k star (bias corrected)					6.423	Data follow Appr. Gamma Distribution at 5% Significance Level						
Theta Star					0.171							
nu star					411.1							
A-D Test Statistic					1.113	Nonparametric Statistics						
5% A-D Critical Value					0.747	Kaplan-Meier (KM) Method						
K-S Test Statistic					0.154	Mean						0.953
5% K-S Critical Value					0.156	SD						0.469
Data follow Appx. Gamma Distribution at 5% Significance Level						SE of Mean						0.069
						95% KM UTL with 90% Coverage						1.726
Assuming Gamma Distribution						95% KM Chebyshev UPL						3.019
Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)						1.748
Mean					0.995	90% Percentile (z)						1.554
Median					0.887	95% Percentile (z)						1.724
SD					0.464	99% Percentile (z)						2.044
k star					6.892							
Theta star					0.144	Gamma ROS Limits with Extrapolated Data						
Nu star					661.6	95% Wilson Hilferty (WH) Approx. Gamma UPL						1.694
95% Percentile of Chisquare (2k)					23.4	95% Hawkins Wixley (HW) Approx. Gamma UPL						1.688
						95% WH Approx. Gamma UTL with 90% Coverage						1.669
90% Percentile					1.502	95% HW Approx. Gamma UTL with 90% Coverage						1.663
95% Percentile					1.69							
99% Percentile					2.082							
Note: UPL represents a preferred estimate of BTV												
For an Example: KM-UPL may be used when multiple detection limits are present												
Note: DL/2 is not a recommended method.												
Uranium234												
General Statistics												
Number of Valid Data					48	Number of Detected Data						41
Number of Distinct Detected Data					35	Number of Non-Detect Data						7
						Percent Non-Detects						14.58%
Raw Statistics						Log-transformed Statistics						
Minimum Detected					0.29	Minimum Detected						-1.238
Maximum Detected					2.8	Maximum Detected						1.03
Mean of Detected					0.817	Mean of Detected						-0.337
SD of Detected					0.514	SD of Detected						0.5
Minimum Non-Detect					0.2	Minimum Non-Detect						-1.609
Maximum Non-Detect					0.29	Maximum Non-Detect						-1.238
Data with Multiple Detection Limits						Single Detection Limit Scenario						
Note: Data have multiple DLs - Use of KM Method is recommended						Number treated as Non-Detect with Single DL						7
For all methods (except KM, DL/2, and ROS Methods),						Number treated as Detected with Single DL						41
Observations < Largest ND are treated as NDs						Single DL Non-Detect Percentage						14.58%
Background Statistics												
Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only						
Shapiro Wilk Test Statistic					0.709	Shapiro Wilk Test Statistic						0.94
5% Shapiro Wilk Critical Value					0.941	5% Shapiro Wilk Critical Value						0.941
Data not Normal at 5% Significance Level						Data not Lognormal at 5% Significance Level						
Assuming Normal Distribution						Assuming Lognormal Distribution						

DL/2 Substitution Method						DL/2 Substitution Method					
Mean					0.715	Mean (Log Scale)					-0.597
SD					0.535	SD (Log Scale)					0.787
95% UTL 90% Coverage					1.598	95% UTL 90% Coverage					2.016
95% UPL (t)					1.623	95% UPL (t)					2.092
90% Percentile (z)					1.401	90% Percentile (z)					1.51
95% Percentile (z)					1.596	95% Percentile (z)					2.01
99% Percentile (z)					1.961	99% Percentile (z)					3.438
Maximum Likelihood Estimate(MLE) Method						Log ROS Method					
Mean					0.691	Mean in Original Scale					0.733
SD					0.569	SD in Original Scale					0.517
95% UTL with 90% Coverage					1.629	95% UTL with 90% Coverage					1.648
						95% BCA UTL with 90% Coverage					1.5
						95% Bootstrap (%) UTL with 90% Coverage					1.5
95% UPL (t)					1.656	95% UPL (t)					1.696
90% Percentile (z)					1.421	90% Percentile (z)					1.321
95% Percentile (z)					1.627	95% Percentile (z)					1.645
99% Percentile (z)					2.015	99% Percentile (z)					2.482
Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only					
k star (bias corrected)					3.621	Data do not follow a Discernable Distribution (0.05)					
Theta Star					0.226						
nu star					296.9						
A-D Test Statistic					1.109	Nonparametric Statistics					
5% A-D Critical Value					0.753	Kaplan-Meier (KM) Method					
K-S Test Statistic					0.159	Mean					0.74
5% K-S Critical Value					0.139	SD					0.505
Data not Gamma Distributed at 5% Significance Level						SE of Mean					0.0738
						95% KM UTL with 90% Coverage					1.572
Assuming Gamma Distribution						95% KM Chebyshev UPL					2.963
Gamma ROS Statistics with Extrapolated Data						95% KM UPL (t)					1.596
Mean					0.725	90% Percentile (z)					1.387
Median					0.685	95% Percentile (z)					1.57
SD					0.525	99% Percentile (z)					1.914
k star					2.259						
Theta star					0.321	Gamma ROS Limits with Extrapolated Data					
Nu star					216.9	95% Wilson Hilferty (WH) Approx. Gamma UPL					1.665
95% Percentile of Chisquare (2k)					10.32	95% Hawkins Wixley (HW) Approx. Gamma UPL					1.705
						95% WH Approx. Gamma UTL with 90% Coverage					1.627
90% Percentile					1.371	95% HW Approx. Gamma UTL with 90% Coverage					1.663
95% Percentile					1.656						
99% Percentile					2.283						
Note: UPL represents a preferred estimate of BTV											
For an Example: KM-UPL may be used when multiple detection limits are present											
Note: DL/2 is not a recommended method.											

Appendix 4.4-D

Background Concentrations for Inorganics in Soil (Published by Montana DEQ, 12/26/2007)

BACKGROUND CONCENTRATIONS FOR INORGANICS IN SOIL

	Selected Elements (mg/kg)																		
Reference:	**Al**	**Sb**	As*	**Ba**	**Be**	**Cd**	**Cr**	**Co**	**Cu**	**Fe**	**Pb**	**Mn**	**Hg**	**Ni**	**Se**	**Ag**	**Tl**	**V**	**Zn**
U.S. Mean Soil (Kabata-Pendlas & Pendlas 1984)	-	-	6.7	-	-	0.73	-	-	24	-	20	495	0.09	-	0.3	-	-	-	58
U.S. Mean Soil (Adriano 1986)	-	-	7.2	-	-	0.3	-	-	25	-	15	560	0.09	-	0.1 - 2	-	-	-	65
Mean Shale (Bowen 1979)	88,000	1.5	13	550	3	0.22	90	19	39	48,000	23	850	0.18	-	0.5	0.07	1.2	130	120
Western U.S. Soils Mean (Schacklette & Boerngen 1984)	58,000	0.47	5.5	580	0.68	-	41	7.1	21	21,000	17	380	0.05	15	0.23	-	-	70	55
Helena Valley Mean Soil (EPA 1987)	-	-	16.5	-	-	0.24	-	-	16.3	15,248	11.6	336	0.08	-	0.07	-	-	-	46.9
Missoula Lake Bed Sediments (Moore 1985)	-	-	-	-	-	0.2	-	-	25	-	34	406	-	-	-	-	-	-	105
Blackfoot River Sediments (Rice & Ray 1985)	-	-	4	-	-	<0.1	-	-	13	-	-	-	-	-	-	-	-	-	-
Clark Fork Study Site 14 Mean Soil (?)	-	-	16	-	-	0.76	-	-	29	19,270	15	514	0.08	-	<0.35	-	-	-	82

* DEQ has adopted an action level for arsenic in surface soil of 40 mg/kg based upon a statistical analysis of native Montana soil concentrations (April 2005).