SWMU 22 - Slag Granulation Water and Temporary Retention Ditch

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5.5.22 SWMU 22 - Slag Granulation Water and Temporary Retention Ditch

The location of Solid Waste Management Unit (SWMU) 22 is shown on Figure 5.5.22-1a and SWMU 22 monitoring stations and sample locations are provided on Figure 5.5.22-1b. The Slag Granulation Water and Temporary Retention Ditch is a low area where process water was released during upset conditions, which caused flooding of the slag pit. This flooding condition transferred process water to the retention ditch via surface water flow. The process water either evaporated or infiltrated to groundwater. Representative water quality data for the process water that periodically accumulated and infiltrated is summarized in Appendix 5.5.22-A.

Wells in the vicinity of the Slag Granulation Water and Temporary Retention Ditch are (*see* Figure 5.5.22-1b):

- Upgradient MW-06-15.
- Downgradient MW-97-12, MW-06-14, and MW-EPA-3.

SWMU 22 specific groundwater quality is discussed below for a select number of parameters in Section 5.5.22.3. Site-wide groundwater quality data is discussed in Section 5.3.

5.5.22.1 RFI Activities

5.5.22.1.1 2009 Investigation Activities

The objectives of the RFI work for SWMU 22 were to evaluate the vertical extent of soil containing hazardous constituents where slag granulation water would occasionally flow to the temporary retention ditch area located to the north of the Raw Materials Area. Discrete soil samples were collected approximately every 100 feet along the Slag Granulation Water and Temporary Retention Ditch area at the locations shown on Figure 5.5.22-1b. Samples were collected from the 0 to 2-inch and 2 to 12-inch depth intervals at six locations using stainless-steel hand augers as described in the Field Sampling Plan. Test pits were excavated at three locations using a rubber tire backhoe at approximately 200-foot intervals to evaluate the vertical extent of hazardous constituents at these locations. Soil samples were collected at the 1- to 2-foot and 4- to 5-foot depth interval at the test pit locations in accordance with sample collection techniques specified in the Field Sampling Plan. The soil samples were analyzed according to the X-ray fluorescence (XRF) screening and confirmatory analytical protocols. Eleven of the soil samples from varying depth intervals at SGW-1 through SGW-5 were submitted for laboratory analysis of elemental phosphorus, metals, semivolatile organic compounds (SVOCs), general chemical analytes and radionuclides.

5.5.22.2 RFI Results

This section discusses the results of the investigation at the Slag Granulation Water and Temporary Retention Ditch area. The SWMU sample data and background values (i.e., mean, maximum, and 95% upper confidence limit of the mean) are summarized in Tables 5.5.22-1 through 5.5.22-4. The locations of all the SWMU 22 samples are shown on Figure 5.5.22-1b. The data presentation in Figures 5.5.22-2 through 5.5.22-37 show the locations, concentrations and depth intervals for the data reported on the figures.

Soil data from SWMU 22 were compared to the background/reference area concentrations. Concentrations above the 95% upper confidence limit of the mean background/reference area concentrations are highlighted on the constituent delineation figures presented in this section. Where a 95% upper limit could not be calculated, the maximum detected concentration or the maximum detection limit was selected.

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. 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).

5.5.22.2.1 General and Site-Specific Parameters

Several general and site-specific parameters were chosen for analysis at SWMU 22. Since process water was released to this SWMU, the soil samples were analyzed for fluoride, total phosphorus and elemental phosphorus. The analytical data for these parameters are summarized in Table 5.5.22-1 and shown on Figures 5.5.22-2 through 5.5.22-4.

Fluoride concentrations ranged from 58.6 mg/kg to 198 mg/kg, and are above the background concentrations (*see* Table 5.5.22-1). Fluoride is elevated at all locations along the length of the SWMU and no increasing or decreasing concentrations trends are observed in the data set. The data point for SGW-3 1-2 foot depth interval cannot be compared to the other data points because the laboratory used the wrong extraction method for this sample.

Total phosphorus concentrations may also be elevated do the release of process water at this SWMU. The concentrations are about two orders of magnitude higher than the mean concentration reported for Silver Bow County (i.e., 880 mg/kg)[1].

Elemental phosphorus was detected in 2 of the 11 soil samples at concentrations ranging from not detected at 0.00047 mg/kg to 0.00084 mg/kg. Samples from the 2-12 inch interval at SGW-4 and SW-5 contained 0.00084 mg/kg and 0.00055 mg/kg of elemental phosphorus, respectively. Elemental phosphorus was not detected in any of the 0-2 inch depth samples.

5.5.22.2.2 Metals

The analytical laboratory and correlated XRF data were combined to assist the delineation of the hazardous constituents. Hazardous constituent concentrations based on the XRF data were estimated using the linear equations presented in Section 5.4.2 for the respective hazardous constituents. The correlation coefficient (R^2) is greater than 0.7 for these hazardous constituents. The metals data are presented in Table 5.5.22-2. The 2009 XRF evaluation provided data for arsenic, cadmium, chromium, lead, manganese, selenium, silver, uranium, vanadium, and zinc.

5.5.22.2.2.1 Group A

The metals included in Group A are arsenic, cadmium, chromium and copper. The distribution of these metal constituents in the 0 to 2-inch, the 2 to 12-inch, 1-2 feet, and 4-5 feet are shown on Figures 5.5.22-5 through 5.5.22-8, respectively. The group A metals are generally elevated in samples from this SWMU, although arsenic and copper concentrations do not exceed the maximum concentration in the background data set. Cadmium and chromium concentrations are above the background concentrations especially in the top two feet of soil. The concentrations decrease with depth and are consistent with background in the 4- to 5-foot depth interval.

5.5.22.2.2.2 Group B

The metals included in Group B are iron, lead, manganese, and nickel. The distribution of these metal constituents in the 0 to 2-inch, the 2 to 12-inch, 1-2 feet, and 4-5 feet are shown on Figures 5.5.22-9 through 5.5.22-12, respectively. Iron, lead and manganese concentrations are consistent with background concentrations. Elevated nickel concentrations are observed across the SWMU. Although the nickel concentrations from the XRF instrument did not correlate sufficiently with

[1] U.S. Geological Survey Open-File Report 2004-1001
URL: http://mrdata.usgs.gov/geochem/doc/averages/countydata.htm

laboratory data to calculate nickel concentrations for the deeper interval samples, the XRF concentrations decrease with depth at each location (*see* Table 1 of Appendix 5.4.2-B).

5.5.22.2.2.3 Group C

The metals included in Group C are selenium, silver, uranium vanadium, and zinc. The distribution of these metal constituents in the 0 to 2-inch, the 2 to 12-inch, 1-2 feet, and 4-5 feet are shown on Figures 5.5.22-13 through 5.5.22-16, respectively. Group C metals are present at concentrations above background concentrations across the SWMU and the concentrations decrease with depth. Selenium and uranium were not detected in the deepest interval (i.e., 4- to 5-foot). Silver was either not detected or the concentration was consistent with background in this interval. Zinc concentrations are consistent with background in this interval. Vanadium concentrations in this interval remain above background, but the concentrations are lower than the shallower samples.

5.5.22.2.2.4 Group D

The metals included in Group D are barium, beryllium, cobalt, mercury, and thallium. The distribution of these metal constituents in the 0 to 2-inch, 2 to 12-inch, 1-2 feet, and 4-5 feet intervals are shown on Figures 5.5.22-17 and 5.5.22-19, respectively. Barium and cobalt concentrations are consistent with background concentrations. Beryllium and mercury concentrations are elevated across the SWMU but the concentrations are less than two times the maximum background concentration. Thallium concentrations are an order of magnitude higher than the maximum background concentration. The XRF instrument did not provide data for these compounds. Therefore, the 1- to 2-foot interval are SGW-3 is the deepest interval with known concentrations.

5.5.22.2.2.5 Group E

The metals included in Group E are antimony, calcium, magnesium, potassium, and sodium. The distribution of these metal constituents in the 0 to 2-inch, 2 to 12-inch, and 1-2 feet intervals are shown on Figures 5.5.22-20 through 5.5.22-22, respectively. Group E metals are present at concentrations above background concentrations across the SWMU. Antimony has only one usable data point, and the concentration is above the maximum background concentration. Calcium, magnesium, potassium, and sodium are not hazardous substances. Additional data is needed to fully characterize the metals distribution with depth.

5.5.22.2.2.6 Metals Delineation

Metals associated with process water were found at elevated concentrations in the surface soil samples collected at this SWMU. The metals with elevated concentrations included cadmium, chromium, nickel, selenium, silver, uranium vanadium, zinc, antimony, calcium, magnesium,

potassium, and sodium. In terms of distribution with depth, concentrations exceed background in the upper 2 feet. Metals concentrations in samples from the 4-5 feet depth interval are routinely below detection limit, below average background concentration, and/or below the maximum background concentration. Additional data is needed to fully characterize the metals distribution with depth.

5.5.22.2.3 SVOCs

The SVOC data are presented in Table 5.5.22-3. The SVOCs detected in the SWMU 22 samples belong to a subgroup of SVOCs known as polynuclear aromatic hydrocarbons (PAHs). These multi-benzene-ringed compounds are naturally present in coke, and are also a major component of creosote which is used to treat railroad ties. The presence of PAH constituents may be associated with coke or leaching from the creosote-treated railroad ties along the southern edge of the ditch.

U.S. EPA has identified seven PAH constituents as potentially carcinogenic to humans. These potential carcinogens are identified as cPAHs. The other 10 PAH compounds below are considered by the U.S. EPA as not cancer-causing constituents and are identified as nPAHs.

Although PAHs are ubiquitous in the environment (e.g. from forest fires), Montana has not published background concentrations. For the purposes of this SWMU evaluation, background is considered below detection limits. Accordingly, the PAHs detected in the SWMU samples are considered above background. Risk assessment will be necessary to evaluate whether the potential exposure to the detected concentrations represents an unacceptable risk to human health or the environment.

5.5.22.2.3.1 cPAHs - Group A

The cPAHs included in Group A are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluroanthene, and benzo(k)fluoranthene. These cPAHs were detected in samples from across the SWMU. The distribution of these cPAH constituents in the 0 to 2-inch, the 2 to 12-inch, and 1-2 feet are shown on Figures 5.5.22-23 through 5.5.22-25. The cPAH concentrations are similar between locations and sampled interval.

5.5.22.2.3.2 cPAHs - Group B

The cPAHs included in Group B are chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The distribution of these cPAH constituents in the 0 to 2-inch, 2 to 12-inch, and 1 to 2 feet are shown on Figures 5.5.22-26 through 5.5.22-28, respectively. The cPAH concentrations are similar between locations and sampled interval.

5.5.22.2.3.3 nPAHs - Group A

The nPAHs included in Group A are acenaphthene, acenaphthylene, anthracene, benzo(g,h,i)perylene, and fluoranthene. The distribution of these nPAH constituents in the 0 to 2-inch, 2 to 12-inch, and 1-2 foot intervals are shown on Figures 5.5.22-29 through 5.5.22-31. The nPAH concentrations are similar between locations and sampled interval.

5.5.22.2.3.4 nPAHs - Group B

The nPAHs included in Group A are 2-methylnaphthalene, fluorine, naphthalene, phenanthrene, and pyrene. The distribution of these nPAH constituents in the 0 to 2-inch, 2 to 12-inch, and 1 to 2 foot intervals are shown on Figures 5.5.22-32 through 5.5.22-34. The same pattern is observed for these nPAHs.

5.5.22.2.3.5 Other SVOCs

Carbazole and dibenzofuran and were detected at several sample locations along the retention ditch. The same consistent concentration pattern is seen between sample locations and depth intervals as the PAH concentrations. Phenol was detected in four samples from this SWMU and p-Cresol was detected in two samples. These four parameters are also constituents found in creosote.

Bis(2-ethylhexyl)phthalate and di-n-butylphthalate are common lab contaminants that were detected in a couple of samples.

5.5.22.2.3.5 PAH Delineation

PAH compounds were found at relatively consistent concentrations across the SWMU and within the shallow soil depth evaluated during the Phase 1 RFI. The entire length of the retention ditch has elevated PAH concentrations. A decreasing trend was not observed between the 0-2 inch, 2-12 inch and 1-2 foot depth intervals. The relative consistent concentration profile across the SWMU indicate the source of the PAHs could be from the coke particles in the slag granulation water or could be from leaching from the creosote-treated railroad ties along the southern edge of the retention ditch. Additional data is needed to fully characterize the PAH distribution with depth.

5.5.22.2.4 Radionuclides

The radionuclide data are presented in Table 5.5.22-4. The distribution of radionuclides in the 0 to 2-inch, 2-12 inch, and 1-2 feet intervals is shown on Figure 5.5.22-35 through 5.5.22-37. Radionuclide concentrations at all sample locations and depth intervals are above the background/reference area concentrations. The soil samples have a radionuclide profile similar to tailing since the soil contains Pb-210 along with the other U-238 decay chain radionuclides. This indicates that process water was

released to this area during plant operations. Elevated radionuclides concentrations are associated with the entire length of the retention ditch based on the shallow samples that were evaluated during the Phase 1 RFI. The vertical depth of elevated radionuclides has not been established since the 1-2 foot depth interval contains elevated radionuclide concentrations. Additional data is needed to fully characterize the radionuclide distribution with depth.

5.5.22.3 Groundwater Monitoring Results

There are four monitoring wells associated with SWMU 22. These wells are screened across the water table and were installed to evaluate the groundwater quality in the area of SWMU 22. MW-06-15 was installed to provide upgradient water quality data and MW-97-12, MW-06-14 and MW-EPA-3 were installed down gradient of SWMU 22 as shown on Figure 5.5.22-38. MW-EPA-3 was installed in 1988 and has been sampled six times. MW-97-12 was installed in 1997 and has been sampled 4 times. MW-06-15 and MW-06-14 were installed in 2006 and have been sampled two times.

The SWMU 22 monitoring wells were included in the site-wide groundwater quality monitoring program included in the RFI Work Plan (Barr 2009). The analytical results for the groundwater samples from SWMU2 22 monitoring wells are summarized in Tables 5.5.22-5 through 5.5.22-10. The average concentrations from the 2008 data set are charted in Appendix 5.5.22-C. The groundwater quality charts show the average concentration for the 2008 data set from the upgradient well to the downgradient wells (i.e., MW-06-15, MW-97-12, MW-06-14 and MW-EPA-3).

5.5.22.3.1 General Chemistry

General chemistry parameters for groundwater samples are summarized in Table 5.5.22-5 and the groundwater quality charts are provided in Appendix 5.5.22-C. The chloride and nitrate+nitrite data show a general decreasing trend from the upgradient well (MW-06-15) to down gradient well (MW-EPA-3).

The fluoride and total phosphorus data shows an increase in concentration in samples from MW-97-12, which is located well immediately down gradient of the retention ditch. This indicates that the process water discharged to the retention ditch has impacted the groundwater quality. At the next down gradient well (MW-06-14), the fluoride and total phosphorus concentrations are approaching the upgradient concentrations. Fluoride and total phosphorus have been released to the groundwater, but elevated concentrations are not seen further down gradient. This indicates that fluoride and total phosphorus are being attenuated along the groundwater flow path.

Fluoride concentrations in samples from MW-97-12 increased between 1997 and 2008 while total phosphorus concentrations did not exhibit an overall trend (*see* Table 5.5.22-5). Fluoride increased from 1.47 ug/l in 1997 to about 7.9 ug/l in 2008. Increasing fluoride concentrations may be a function of the dissolution of soluble fluoride complexes, as discussed in Section 5.3.2.2.1. Total phosphorus concentrations fluctuated from 5.89 ug/l in 1997 to 3.97 in May 2008 and 8.44 ug/l in September 2008. Additional fluoride and total phosphorus data are needed to continue to evaluate the groundwater quality trend over time.

Sulfate concentrations are variable from upgradient to down gradient. The upgradient sulfate concentration is about 450 ug/l, drops to about 250 ug/l at MW-97-12, increases to about 500 ug/l at MW-06-14, and falls again at MW-EPA-3 to about 130 ug/l. Overall, there is a decreasing trend from upgradient to down gradient. Sulfate concentrations in samples from MW-97-12 show a decreasing trend from 959 ug/l in 1997 to 245 ug/l in 245 ug/l (*see* Table 5.5.22-5). Sulfate concentrations at MW-EPA-3 also show a decreasing trend.

Elemental phosphorus was not detected in the groundwater samples associated with this SWMU.

5.5.22.3.2 Metals

Metals data for groundwater samples are summarized in Table 5.5.22-6 and the groundwater quality charts are provided in Appendix 5.5.22-C. As with the fluoride and total phosphorus concentrations, arsenic concentrations show an increase in concentration in samples from MW-97-12, which is located well immediately down gradient of the retention ditch. This indicates that the arsenic was released from the retention ditch. At the next downgradient well (i.e., MW-06-14), the arsenic concentrations are approaching the upgradient concentrations (*see* Table 5.5.22-6). Arsenic is attenuated along the groundwater flow path.

Manganese concentrations are higher in samples collected from down gradient wells MW-97-12 and MW-06-14. The concentration in samples from the furthest down gradient well is lower than in samples from the upgradient well (MW-06-15).

Potassium, selenium and vanadium also show a higher concentration in samples from MW-97-12 compared to samples from the upgradient well (MW-06-15). The concentrations return to near upgradient concentrations in samples from the next downgradient well (MW-06-14). Concentrations similar to MW-06-14 are seen in samples from the furthest downgradient well (MW-EPA-3).

The groundwater quality chart for iron (*see* Appendix 5.5.22-C) appears to show a similar trend as arsenic. The iron concentrations in samples from MW-97-12 are highly variable (1.39 mg/l in the May 2008 sample and 0.05 mg/l in the December 2008 sample). Additional iron data is needed to evaluate the groundwater quality trend for iron.

5.5.22.3.3 Organic Compounds

Groundwater samples were analyzed for SVOCs, volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). The analytical results are summarized in Table 5.5.22-7, 5.5.22-8 and 5.5.22-9, respectively. Organic compounds were generally not detected in the groundwater samples from SWMU 22. Bis(2-ethylhexyl)phthalate, naphthalene and phenol are SVOCs that were detected in one of two samples from the upgradient well. Chloromethane and toluene are VOCs that were also detected in one of two samples from the upgradient well. Toluene was also detected in 2 of 4 samples collected from the furthest down gradient well MW-EPA-3. The detected concentrations do not exceed drinking water standards.

PCBs were not detected in the groundwater samples.

5.5.22.3.4 Radionuclides

The analytical results for radionuclides are summarized in Table 5.5.22-10. Gross alpha and gross beta concentrations show a general decreasing trend from upgradient to down gradient. Radium-226 was not detected in groundwater samples from SWMU 22. Radium-228 was detected in two of ten samples. The detected concentrations are inconsistent with data from the same well and may be anomalous data points since Radium-228 is not associated with radionuclide decay chain sequence of phosphate ore.

5.5.22.4 Conclusions

Because process water was allowed to accumulate, evaporate, and/or infiltrate to the groundwater, hazardous constituents were released to the soil and groundwater at SWMU 22. Soil samples were collected in 2008 along the length of the retention ditch in 2008 and analyzed for general and site-specific parameters, metals, SVOCs, and radionuclides. Groundwater samples were collected upgradient and downgradient of this SWMU.

Fluoride and total phosphorus were found at elevated concentrations in samples collected across this SWMU. These parameters are also elevated in groundwater samples from MW-97-12, which is located immediately downgradient of the SWMU. These parameters are not elevated in groundwater samples collected from wells further downgradient of MW-97-12 indicating that fluoride and total

phosphorus are being attenuated along the groundwater flow path. Although fluoride concentrations in samples from MW-97-12 increased from 1998 to 2008, the increase may also reflect a lag time between removal of the source and an observable response in groundwater concentrations. Eventually, concentrations are expected to decrease because process water is no longer released to the SWMU. Elemental phosphorus was detected in 2 samples for the 2-12 inch depth interval. Elemental phosphorus was not detected in samples from the 0-2 inch interval.

Metals associated with process water were found at elevated concentrations in the surface soil samples collected across this SWMU. The metals with elevated concentrations included cadmium, chromium, nickel, selenium, silver, uranium vanadium, zinc, antimony, calcium, magnesium, potassium, and sodium. In terms of distribution with depth, concentrations exceed background in the upper 2 feet. Metals concentrations in samples from the 4-5 feet depth interval are routinely below detection limit, below average background concentration, and/or below the maximum background concentration.

PAH compounds were found at relatively consistent concentrations across the SWMU and within the shallow soil depth evaluated during the Phase 1 RFI. The entire length of the retention ditch has elevated PAH concentrations. A decreasing trend was not observed between the 0-2 inch, 2-12 inch and 1-2 foot depth intervals. The relative consistent concentration profile across the SWMU indicate the source of the PAHs could be from the coke particles in the slag granulation water or could be from leaching from the creosote-treated railroad ties along the southern edge of the retention ditch.

Elevated radionuclides concentrations are associated with the entire length of the retention ditch based on the shallow samples that were evaluated during the Phase 1 RFI. The vertical depth of elevated radionuclides has not been established since the 1-2 foot depth interval contains elevated radionuclide concentrations.

The downgradient groundwater quality for SWMU 22 indicates that fluoride, total phosphorus, sulfate, arsenic, iron, manganese, potassium, selenium and vanadium were released from SWMU 22. The concentrations for these parameters are higher in samples from MW-97-12. The groundwater quality data for samples from wells further downgradient are consistent with the upgradient water quality data which demonstrates that these parameters are being attenuated along the groundwater flow path.

Data gaps for SWMU 22 include further vertical delineation of fluoride, total phosphorus, elemental phosphorus, metals, PAHs, and radionuclides with soil depth across the SWMU. The vertical extent

has not been delineated. The horizontal extent of the SWMU is defined as boundary of the ditch. The vertical extent would be needed for a corrective measures study.

The surface and shallow subsurface soils have been characterized for this SWMU. As such, there is sufficient information to conduct the risk assessment for this SWMU. The risk assessment will identify which parameters, if any, are present at concentrations that warrant corrective measures. The dataset would be reviewed at that time and additional sampling may be necessary to inform the corrective measures study or later during the corrective measures design phase.

5.5.22.5 References

Barr 2009. Final Phase I RCRA Facility Investigation Work Plan Corrective Action Order on Consent, Docket No. RCRA-08-2004-0001, Rhodia Silver Bow Plant, Butte, Montana. March 2009.

U.S. EPA. 2002. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. U.S. Environmental Protection Agency. EPA 540-R-01-003. OSWER 9285.7-41. September 2002

Tables

Table 5.5.22-1
Soil Data - General and Site-Specific Parameters
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

			Chemical Name	Fluoride	Fluoride by Bellack	Phosphorus, elemental	Phosphorus, total
Background Mean, Exceedances **Bold**				**4.1**			
Background Maximum, Exceedances Underline				37			
Background 95% UCL, Exceedances *Italic*				*7.6*			
Location ID	**Sample Date**	**Depth**	**Sample Type**				
SGW-1	5/29/2009	0 - 2 in	N	***198***	--	< 0.00047	59200
SGW-1	5/29/2009	2 - 12 in	N	***193 J***	--	< 0.00047	47700
SGW-2	5/29/2009	0 - 2 in	N	***183***	--	< 0.00047	69100
SGW-2	5/29/2009	2 - 12 in	N	***123***	--	< 0.00047	52100
			FD	***125***	--	< 0.00047	51800
SGW-3	5/29/2009	0 - 2 in	N	***152***	--	< 0.00047	58600
SGW-3	5/29/2009	2 - 12 in	N	***126***	--	< 0.00047	56900
SGW-3	5/15/2009	1 - 2 ft	N	--	11600	< 0.00047	40800
SGW-4	5/29/2009	0 - 2 in	N	***120***	--	< 0.00047	32500
SGW-4	5/29/2009	2 - 12 in	N	***62.8***	--	**0.00084**	53100
SGW-5	5/29/2009	0 - 2 in	N	***58.6***	--	< 0.00047	32000
SGW-5	5/29/2009	2 - 12 in	N	***114***	--	**0.00055**	39600

Table 5.5.22-2
Soil Data - Metals
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

Chemical Name / Analysis Location				Antimony Lab	Arsenic Lab	Arsenic Field	Barium Lab	Beryllium Lab	Cadmium Lab	Cadmium Field	Calcium Lab	Chromium Lab	Chromium Field	Cobalt Lab	Copper Lab	Iron Lab	Lead Lab	Lead Field	Magnesium Lab	Manganese Lab	Manganese Field	Mercury Lab	Nickel Lab	Potassium Lab
Background Mean, Exceedances **Bold**				**0.50**	**23**	**23**	**150**	**0.51**	**1.6**	**1.6**	**3900**	**11**	**11**	5.9	**35**	**19600**	**17**	**17**	**3500**	540	**540**	**0.021**	**5.3**	**3000**
Background Maximum, Exceedances Underline				3.9	120	120	290	1.3	8.9	8.9	14000	48	48	9.5	300	35300	190	190	5700	1100	1100	0.20	21	5300
Background 95% UCL, Exceedances *Italic*				*1.0*	*40*	*40*	*170*	*0.55*	*1.057*	*1.057*	*4500*	*12.46*	*12.46*	6.145	*63.87*	*20600*	*34.98*	*34.98*	*3700*	570	*570*	*0.038*	*5.962*	*3200*
Location ID	**Sample Date**	**Depth**	**Sample Type**																					
SGW-1	5/18/2009	0 - 2 in	N	--	--	***53***	--	--	--	***560***	--	--	***721***	--	--	--	--	***95***	--	--	195 J	--	--	--
SGW-1	5/29/2009	0 - 2 in	N	***15.7 R***	***61.4***	--	***235***	***2.37***	***534***	--	***140000***	***860***	--	4.8	***153***	**20400**	***109***	--	***4600***	214	--	***0.389***	***142***	***7490***
SGW-1	5/18/2009	2 - 12 in	N	--	--	**33 J**	--	--	--	***260***	--	--	***663***	--	--	--	--	***60***	--	--	263 J	--	--	--
SGW-1	5/29/2009	2 - 12 in	N	***17.3 R***	***53.3***	--	***248 J***	***2.06***	***310 J***	--	***118000***	***817 J***	--	5.0	***160***	***25600***	***73.7***	--	***5790 J***	239	--	***0.303***	***121 J***	***7580***
SGW-1	5/15/2009	1 - 2 ft	N	--	--	12 J	--	--	--	< 0.2	--	--	***30***	--	--	--	--	**18 J**	--	--	150 J	--	--	--
SGW-1	5/15/2009	4 - 5 ft	N	--	--	< 14	--	--	--	< 0.2	--	--	4 J	--	--	--	--	**29**	--	--	323	--	--	--
SGW-2	5/18/2009	0 - 2 in	N	--	--	**30 J**	--	--	--	***360***	--	--	***721***	--	--	--	--	***79***	--	--	180 J	--	--	--
SGW-2	5/29/2009	0 - 2 in	N	***15.1 R***	**37.6**	--	**157**	***1.73***	***360***	--	***161000***	***917***	--	3.7	***138***	18400	***90.2***	--	***4040***	170	--	***0.385***	***180***	***6860***
SGW-2	5/18/2009	2 - 12 in	N	--	--	***50***	--	--	--	***550***	--	--	***581***	--	--	--	--	***61***	--	--	218 J	--	--	--
			FD	--	--	***49***	--	--	--	***540***	--	--	***688***	--	--	--	--	***65***	--	--	203 J	--	--	--
SGW-2	5/29/2009	2 - 12 in	N	***18.1 R***	***80.0***	--	***209***	***2.08***	***507***	--	***140000***	***731***	--	5.0	***122***	17100	***71.0***	--	***4590***	237	--	***0.257***	***124***	***7340***
			FD	***15.0 R***	***74.9***	--	***200***	***2.01***	***434***	--	***131000***	***694***	--	4.6	***124***	18000	***64.5***	--	***4550***	240	--	***0.268***	***124***	***6910***
SGW-3	5/18/2009	0 - 2 in	N	--	--	**39 J**	--	--	--	***550***	--	--	***549***	--	--	--	--	***111***	--	--	128 J	--	--	--
SGW-3	5/29/2009	0 - 2 in	N	***19.0 R***	***43.6***	--	***205***	***1.90***	***507***	--	***143000***	***645***	--	3.8	***120***	17400	***130***	--	***5310***	229	--	***0.341***	***125***	***7840***
SGW-3	5/18/2009	2 - 12 in	N	--	--	***55***	--	--	--	***570***	--	--	***590***	--	--	--	--	***56***	--	--	173 J	--	--	--
SGW-3	5/29/2009	2 - 12 in	N	***25.9 R***	***86.6***	--	***203***	***2.35***	***610***	--	***155000***	***650***	--	5.0	***106***	13400	***72.6***	--	***4370***	214	--	***0.302***	***106***	***7070***
SGW-3	5/15/2009	1 - 2 ft	N	***19.3***	***53.1***	**33 J**	***193***	***1.88***	***189***	***190***	***108000***	***555***	***540***	5.3	***108***	17700	***65.0***	***57***	***5250***	307	240 J	***0.362***	***95.3***	***6140***
SGW-3	5/15/2009	4 - 5 ft	N	--	--	< 14	--	--	--	< 0.2	--	--	7 J	--	--	--	--	**19 J**	--	--	413	--	--	--
SGW-4	5/18/2009	0 - 2 in	N	--	--	**29 J**	--	--	--	***200***	--	--	***344***	--	--	--	--	***67***	--	--	323	--	--	--
SGW-4	5/29/2009	0 - 2 in	N	***8.480 R***	**28.2**	--	***185***	***1.35***	***298***	--	***104000***	***373***	--	5.0	***86.7***	18700	***105***	--	***5600***	339	--	***0.150***	***77.3***	***5250***
SGW-4	5/18/2009	2 - 12 in	N	--	--	**37 J**	--	--	--	***510***	--	--	***508***	--	--	--	--	***103***	--	--	150 J	--	--	--
SGW-4	5/29/2009	2 - 12 in	N	***26.0 R***	***51.5***	--	***247***	***2.47***	***466***	--	***135000***	***563***	--	3.7	***102***	16300	***112***	--	***5270***	216	--	***0.277***	***78.0***	***7230***
SGW-5	5/18/2009	0 - 2 in	N	--	--	23 J	--	--	--	***210***	--	--	***401***	--	--	--	--	***45***	--	--	248 J	--	--	--
SGW-5	5/29/2009	0 - 2 in	N	***6.720 R***	**26.4**	--	**157**	***1.45***	***241***	--	***139000***	***298***	--	3.2	***68.1***	12000	***56.2***	--	***3880***	239	--	***0.099***	***49.8***	***4380***
SGW-5	5/18/2009	2 - 12 in	N	--	--	**34 J**	--	--	--	***340***	--	--	***327***	--	--	--	--	***66***	--	--	188 J	--	--	--
SGW-5	5/29/2009	2 - 12 in	N	***14.0 R***	***40.8***	--	***228***	***2.12***	***411***	--	***106000***	***352***	--	4.1	***80.9***	15200	***78.6***	--	***5470***	253	--	***0.185***	***59.7***	***6410***
SGW-5	5/15/2009	1 - 2 ft	N	--	--	14 J	--	--	--	***8 J***	--	--	***48***	--	--	--	--	16 J	--	--	338	--	--	--
SGW-5	5/15/2009	4 - 5 ft	N	--	--	< 12	--	--	--	< 0.2	--	--	6 J	--	--	--	--	11 J	--	--	***615***	--	--	--
SGW-6	5/18/2009	0 - 2 in	N	--	--	21 J	--	--	--	***79***	--	--	***139***	--	--	--	--	**19 J**	--	--	345	--	--	--
SGW-6	5/18/2009	2 - 12 in	N	--	--	11 J	--	--	--	***17 J***	--	--	< 2	--	--	--	--	10 J	--	--	293	--	--	--

Table 5.5.22-2
Soil Data - Metals
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

Chemical Name / Analysis Location				Selenium Lab	Selenium Field	Silver Lab	Silver Field	Sodium Lab	Thallium Lab	Uranium Lab	Uranium Field	Vanadium Lab	Vanadium Field	Zinc Lab	Zinc Field
Background Mean, Exceedances **Bold**				**0.41**	**0.41**	**0.73 (1)**	**0.73 (1)**	**140**	**0.35**	**1.8**	**1.8**	**41**	**41**	**59**	**59**
Background Maximum, Exceedances Underline				0.70	0.70	1.7 (1)	1.7 (1)	620	1.0	4.1	4.1	83	83	380	380
Background 95% UCL, Exceedances *Italic*				*0.47*	*0.47*	*0.346 (1)*	*0.346 (1)*	*220*	*0.462*	*1.979*	*1.979*	*43*	*43.3*	*98.46*	*98.46*
Location ID	**Sample Date**	**Depth**	**Sample Type**												
SGW-1	5/18/2009	0 - 2 in	N	--	***36***	--	***34***	--	--	--	***72***	--	***900***	--	***7063***
SGW-1	5/29/2009	0 - 2 in	N	***28.4***	--	***32.6***	--	***1550***	***17.4***	***62.4***	--	***1020***	--	***8370***	--
SGW-1	5/18/2009	2 - 12 in	N	--	***29***	--	***19***	--	--	--	***30 J***	--	***825***	--	***3193***
SGW-1	5/29/2009	2 - 12 in	N	***31.9***	--	***24.9 J***	--	***1750***	***13.2***	***41.8***	--	***917***	--	***5120 J***	--
SGW-1	5/15/2009	1 - 2 ft	N	--	< 0.7	--	< 1	--	--	--	< 7	--	***75 J***	--	***257***
SGW-1	5/15/2009	4 - 5 ft	N	--	< 1	--	***1 J***	--	--	--	< 7	--	***210***	--	***150***
SGW-2	5/18/2009	0 - 2 in	N	--	***34***	--	***24***	--	--	--	***75***	--	***1005***	--	***4489***
SGW-2	5/29/2009	0 - 2 in	N	***25.4***	--	***19.1***	--	***1360***	***13.5***	***79.3***	--	***1250***	--	***5490***	--
SGW-2	5/18/2009	2 - 12 in	N	--	***48***	--	***30***	--	--	--	***62***	--	***705***	--	***6704***
			FD	--	***48***	--	***20***	--	--	--	***56***	--	***855***	--	***5900***
SGW-2	5/29/2009	2 - 12 in	N	***47.6***	--	***19.8***	--	***1810***	***17.3***	***61.7***	--	***792***	--	***7130***	--
			FD	***45.6***	--	***18.4***	--	***1780***	***17.8***	***61.1***	--	***761***	--	***6190***	--
SGW-3	5/18/2009	0 - 2 in	N	--	***37***	--	***29***	--	--	--	***79***	--	***720***	--	***7694***
SGW-3	5/29/2009	0 - 2 in	N	***34.5***	--	***27.2***	--	***1680***	***15.8***	***65.4***	--	***871***	--	***8470***	--
SGW-3	5/18/2009	2 - 12 in	N	--	***54***	--	***20***	--	--	--	***59***	--	***750***	--	***7243***
SGW-3	5/29/2009	2 - 12 in	N	***57.9***	--	***18.8***	--	***1650***	***18.8***	***64.6***	--	***770***	--	***8070***	--
SGW-3	5/15/2009	1 - 2 ft	N	***43.9***	***41***	***24.9***	***27***	***1430***	***13.0***	***43.5***	***48***	***710***	***675***	***4640***	***3708***
SGW-3	5/15/2009	4 - 5 ft	N	--	< 4	--	< 2	--	--	--	< 12	--	***120 J***	--	**75**
SGW-4	5/18/2009	0 - 2 in	N	--	***13 J***	--	***8 J***	--	--	--	***41 J***	--	***420***	--	***3279***
SGW-4	5/29/2009	0 - 2 in	N	***17.6***	--	***17.9***	--	***1110***	***10.4***	***43.0***	--	***395***	--	***4970***	--
SGW-4	5/18/2009	2 - 12 in	N	--	***45***	--	***21***	--	--	--	***71***	--	***585***	--	***7423***
SGW-4	5/29/2009	2 - 12 in	N	***44.0***	--	***29.0***	--	***2160***	***16.8***	***49.3***	--	***632***	--	***7690***	--
SGW-5	5/18/2009	0 - 2 in	N	--	***15 J***	--	***10 J***	--	--	--	***52***	--	***450***	--	***3450***
SGW-5	5/29/2009	0 - 2 in	N	***18.2***	--	***8.5***	--	***1550***	***6.440***	***53.6***	--	***291***	--	***3650***	--
SGW-5	5/18/2009	2 - 12 in	N	--	***29***	--	***22***	--	--	--	***41 J***	--	***390***	--	***4402***
SGW-5	5/29/2009	2 - 12 in	N	***29.0***	--	***20.6***	--	***2080***	***13.8***	***41.8***	--	***411***	--	***6580***	--
SGW-5	5/15/2009	1 - 2 ft	N	--	***5 J***	--	< 1	--	--	--	***2 J***	--	***60 J***	--	***525***
SGW-5	5/15/2009	4 - 5 ft	N	--	< 3	--	< 2	--	--	--	< 9	--	***165 J***	--	18 J
SGW-6	5/18/2009	0 - 2 in	N	--	***10 J***	--	< 2	--	--	--	***18 J***	--	***210***	--	***1602***
SGW-6	5/18/2009	2 - 12 in	N	--	< 1	--	< 1	--	--	--	< 8	--	3 J	--	***257***

Table 5.5.22-3
Soil Data - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

Chemical Name				1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,2-Diphenylhydrazine	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene
Location ID	Sample Date	Depth	Sample Type													
SGW-1	5/29/2009	0 - 2 in	N	< 0.012	< 0.020	< 0.016	< 0.020	< 0.019	< 0.019	< 0.016	< 0.018	< 0.017	< 0.12	< 0.016	< 0.017	< 0.011
SGW-1	5/29/2009	2 - 12 in	N	< 0.012	< 0.019	< 0.016 J	< 0.019	< 0.019	< 0.018	< 0.015	< 0.017 R	< 0.016 R	< 0.12	< 0.016	< 0.017	< 0.011
SGW-2	5/29/2009	0 - 2 in	N	< 0.012	< 0.019	< 0.016	< 0.020	< 0.019	< 0.018 R	< 0.015 R	< 0.018 R	< 0.016	< 0.12 R	< 0.016	< 0.017	< 0.011
SGW-2	5/29/2009	2 - 12 in	N	< 0.012	< 0.020	< 0.016	< 0.020	< 0.019	< 0.019 R	< 0.016 R	< 0.018 R	< 0.017 R	< 0.12 R	< 0.016	< 0.017	< 0.011
			FD	< 0.012	< 0.019	< 0.016	< 0.020	< 0.019	< 0.019	< 0.016	< 0.018	< 0.016	< 0.12	< 0.016	< 0.017	< 0.011
SGW-3	5/29/2009	0 - 2 in	N	< 0.012	< 0.019	< 0.015	< 0.019	< 0.018	< 0.018	< 0.015	< 0.017	< 0.016	< 0.12	< 0.016	< 0.017	< 0.011
SGW-3	5/29/2009	2 - 12 in	N	< 0.012	< 0.019	< 0.015	< 0.019	< 0.018	< 0.018 R	< 0.015 R	< 0.017 R	< 0.016	< 0.12 R	< 0.016	< 0.016	< 0.011
SGW-3	5/15/2009	1 - 2 ft	N	< 0.012	< 0.019	< 0.016	< 0.020	< 0.019	< 0.018	< 0.015	< 0.018	< 0.016	< 0.12	< 0.016	< 0.017	< 0.011
SGW-4	5/29/2009	0 - 2 in	N	< 0.011	< 0.018	< 0.015	< 0.019	< 0.018	< 0.018 R	< 0.015 R	< 0.017 R	< 0.016 R	< 0.12 R	< 0.015	< 0.016	< 0.010
SGW-4	5/29/2009	2 - 12 in	N	< 0.012	< 0.020	< 0.016	< 0.020	< 0.019	< 0.019 R	< 0.016 R	< 0.018 R	< 0.017	< 0.12 R	< 0.016	< 0.017	< 0.011
SGW-5	5/29/2009	0 - 2 in	N	< 0.011	< 0.018	< 0.015 J	< 0.019	< 0.018	< 0.018	< 0.015	< 0.017	< 0.016 R	< 0.12	< 0.015	< 0.016	< 0.010
SGW-5	5/29/2009	2 - 12 in	N	< 0.012	< 0.018	< 0.015	< 0.019	< 0.018	< 0.018	< 0.015	< 0.017	< 0.016	< 0.12	< 0.015	< 0.016	< 0.011

Table 5.5.22-3
Soil Data - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

Chemical Name				2-Chlorophenol	2-Methyl-4,6-dinitrophenol	2-Methylnaphthalene	2-Nitroaniline	2-Nitrophenol	3,3`-Dichlorobenzidine	3-Nitroaniline	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene
Location ID	Sample Date	Depth	Sample Type																
SGW-1	5/29/2009	0 - 2 in	N	< 0.011	< 0.16	**0.13 J**	< 0.018	< 0.015	< 0.029	< 0.19	< 0.013	< 0.018	< 0.016	< 0.018	< 0.20	< 0.16	**0.026 J**	**0.026 J**	**0.079 J**
SGW-1	5/29/2009	2 - 12 in	N	< 0.011 R	< 0.15	**0.10 J**	< 0.018	< 0.015	< 0.028 R	< 0.19	< 0.013	< 0.018 R	< 0.015	< 0.017	< 0.19	< 0.16	**0.026 J**	**0.019 J**	**0.072 J**
SGW-2	5/29/2009	0 - 2 in	N	< 0.011 R	< 0.15 R	**0.054 J**	< 0.018	< 0.015	< 0.029	< 0.19	< 0.013	< 0.018 R	< 0.015	< 0.017	< 0.19	< 0.16	**0.014 J**	< 0.017	**0.041 J**
SGW-2	5/29/2009	2 - 12 in	N	< 0.011 R	< 0.16 R	**0.12 J**	< 0.018	< 0.015 R	< 0.029	< 0.19	< 0.013	< 0.018 R	< 0.016	< 0.018	< 0.20	< 0.16 R	**0.036 J**	**0.029 J**	**0.088 J**
			FD	< 0.011	< 0.16	**0.12 J**	< 0.018	< 0.015	< 0.029	< 0.19	< 0.013	< 0.018	< 0.016	< 0.017	< 0.19	< 0.16	**0.056 J**	**0.049 J**	**0.14 J**
SGW-3	5/29/2009	0 - 2 in	N	< 0.011	< 0.15	**0.066 J**	< 0.018	< 0.015	< 0.028	< 0.18	< 0.013	< 0.018	< 0.015	< 0.017	< 0.19	< 0.15	< 0.014	< 0.017	**0.042 J**
SGW-3	5/29/2009	2 - 12 in	N	< 0.011 R	< 0.15 R	**0.11 J**	< 0.018	< 0.015	< 0.028	< 0.18	< 0.013	< 0.018 R	< 0.015	< 0.017	< 0.19	< 0.15	**0.030 J**	**0.028 J**	**0.11 J**
SGW-3	5/15/2009	1 - 2 ft	N	< 0.011	< 0.16	**0.043 J**	< 0.018	< 0.015	< 0.029	< 0.19	< 0.013	< 0.018	< 0.016	< 0.017	< 0.19	< 0.16	< 0.015	< 0.017	**0.037 J**
SGW-4	5/29/2009	0 - 2 in	N	< 0.0099 R	< 0.15 R	**0.035 J**	< 0.017	< 0.014 R	< 0.027	< 0.18	< 0.013	< 0.017 R	< 0.015	< 0.016	< 0.18	< 0.15 R	< 0.014	< 0.016	**0.025 J**
SGW-4	5/29/2009	2 - 12 in	N	< 0.011 R	< 0.16 R	**0.071 J**	< 0.018	< 0.015	< 0.029	< 0.19	< 0.013	< 0.018 R	< 0.016	< 0.017	< 0.20	< 0.16	**0.022 J**	< 0.017	**0.040 J**
SGW-5	5/29/2009	0 - 2 in	N	< 0.0099	< 0.15	**0.052 J**	< 0.017	< 0.014	< 0.027	< 0.18	< 0.013	< 0.017	< 0.015	< 0.016	< 0.18	< 0.15	< 0.014	**0.020 J**	**0.039 J**
SGW-5	5/29/2009	2 - 12 in	N	< 0.010	< 0.15	**0.088 J**	< 0.017	< 0.014	< 0.028	< 0.18	< 0.013	< 0.017	< 0.015	< 0.017	< 0.18	< 0.15	**0.021 J**	< 0.017	**0.057 J**

Table 5.5.22-3
Soil Data - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

			Chemical Name	Benzidine	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Benzoic Acid	Benzyl alcohol	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether	Bis(2-chloroisopropyl)ether	Bis(2-ethylhexyl)phthalate	Butyl benzyl phthalate	Carbazole	Chrysene	Dibenz(a,h)anthracene
Location ID	Sample Date	Depth	Sample Type																
SGW-1	5/29/2009	0 - 2 in	N	< 0.45 R	**0.24 J**	**0.32 J**	**0.50**	**0.41**	**0.16 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.018	**0.052 J**	**0.29 J**	**0.094 J**
SGW-1	5/29/2009	2 - 12 in	N	< 0.44 R	**0.21 J**	**0.29 J**	**0.44**	**0.33 J**	**0.16 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.017	**0.044 J**	**0.27 J**	**0.079 J**
SGW-2	5/29/2009	0 - 2 in	N	< 0.44 R	**0.12 J**	**0.14 J**	**0.21 J**	**0.18 J**	**0.060 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.017	**0.026 J**	**0.14 J**	**0.038 J**
SGW-2	5/29/2009	2 - 12 in	N	< 0.45 R	**0.31 J**	**0.40**	**0.55**	**0.43**	**0.18 J**	< 0.15 R	< 0.018	< 0.012	< 0.013	< 0.016	< 0.020	< 0.018	**0.053 J**	**0.34 J**	**0.10 J**
			FD	< 0.45 R	**0.41**	**0.65**	**0.74**	**0.51**	**0.33 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.018	**0.094 J**	**0.52**	**0.12 J**
SGW-3	5/29/2009	0 - 2 in	N	< 0.44 R	**0.11 J**	**0.14 J**	**0.20 J**	**0.16 J**	**0.062 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.017	**0.029 J**	**0.14 J**	< 0.029
SGW-3	5/29/2009	2 - 12 in	N	< 0.44 R	**0.32 J**	**0.49**	**0.57**	**0.52**	**0.21 J**	< 0.15	< 0.018	< 0.012	< 0.012	< 0.015	**0.024 J**	< 0.017	**0.062 J**	**0.39**	**0.13 J**
SGW-3	5/15/2009	1 - 2 ft	N	< 0.45 R	**0.12 J**	**0.20 J**	**0.23 J**	**0.21 J**	**0.087 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	< 0.020	< 0.018	**0.029 J**	**0.15 J**	**0.053 J**
SGW-4	5/29/2009	0 - 2 in	N	< 0.42 R	**0.093 J**	**0.14 J**	**0.21 J**	**0.17 J**	**0.070 J**	< 0.14 R	< 0.017	< 0.011	< 0.012	< 0.015	< 0.019	< 0.017	**0.024 J**	**0.16 J**	< 0.028
SGW-4	5/29/2009	2 - 12 in	N	< 0.45 R	**0.16 J**	**0.26 J**	**0.41**	**0.35 J**	**0.14 J**	< 0.15	< 0.018	< 0.012	< 0.013	< 0.015	**0.025 J**	< 0.018	**0.030 J**	**0.19 J**	**0.058 J**
SGW-5	5/29/2009	0 - 2 in	N	< 0.42 R	**0.15 J**	**0.20 J**	**0.27 J**	**0.15 J**	**0.081 J**	< 0.14 R	< 0.017	< 0.011	< 0.012	< 0.015	**0.035 J**	< 0.017	< 0.012	**0.18 J**	**0.045 J**
SGW-5	5/29/2009	2 - 12 in	N	< 0.43 R	**0.18 J**	**0.23 J**	**0.31 J**	**0.25 J**	**0.12 J**	< 0.14	< 0.017	< 0.012	< 0.012	< 0.015	< 0.019	< 0.017	**0.039 J**	**0.22 J**	**0.051 J**

Table 5.5.22-3
Soil Data - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

		Chemical Name	Dibenzofuran	Diethyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd)pyrene	Isophorone	Naphthalene
Location ID	**Sample Date**	**Depth** / **Sample Type**														
SGW-1	5/29/2009	0 - 2 in N	**0.050 J**	< 0.015	< 0.018	< 0.013	< 0.026	**0.32 J**	**0.031 J**	< 0.016	< 0.015	< 0.014	< 0.023	**0.36**	< 0.015	**0.13 J**
SGW-1	5/29/2009	2 - 12 in N	**0.048 J**	< 0.015	< 0.017	< 0.013	< 0.025	**0.33 J**	**0.027 J**	< 0.016	< 0.015	< 0.013	< 0.023	**0.34 J**	< 0.015	**0.14 J**
SGW-2	5/29/2009	0 - 2 in N	**0.027 J**	< 0.015	< 0.018	< 0.013	< 0.025	**0.17 J**	**0.015 J**	< 0.016	< 0.015	< 0.013	< 0.023	**0.15 J**	< 0.015	**0.065 J**
SGW-2	5/29/2009	2 - 12 in N	**0.055 J**	< 0.016	< 0.018	< 0.013	< 0.026	**0.38**	**0.044 J**	< 0.016	< 0.016	< 0.014	< 0.023	**0.41**	< 0.015	**0.15 J**
		FD	**0.061 J**	< 0.015	< 0.018	< 0.013 J	< 0.026	**0.49**	**0.044 J**	< 0.016	< 0.015	< 0.014	< 0.023	**0.58**	< 0.015	**0.17 J**
SGW-3	5/29/2009	0 - 2 in N	**0.031 J**	< 0.015	< 0.017	< 0.013	< 0.025	**0.14 J**	**0.024 J**	< 0.016	< 0.015	< 0.013	< 0.023	**0.13 J**	< 0.015	**0.076 J**
SGW-3	5/29/2009	2 - 12 in N	**0.048 J**	< 0.015	< 0.017	< 0.013	< 0.025	**0.41**	**0.031 J**	< 0.016	< 0.015	< 0.013	< 0.023	**0.48**	< 0.015	**0.14 J**
SGW-3	5/15/2009	1 - 2 ft N	**0.024 J**	< 0.015	< 0.018	**0.017 J**	< 0.026	**0.13 J**	< 0.014	< 0.016	< 0.015	< 0.014	< 0.023	**0.18 J**	< 0.015	**0.048 J**
SGW-4	5/29/2009	0 - 2 in N	**0.018 J**	< 0.015	< 0.017	< 0.013	< 0.024	**0.17 J**	**0.017 J**	< 0.015	< 0.015	< 0.013	< 0.022	**0.16 J**	< 0.014	**0.051 J**
SGW-4	5/29/2009	2 - 12 in N	**0.027 J**	< 0.015	< 0.018	< 0.013	< 0.026	**0.23 J**	**0.019 J**	< 0.016	< 0.015	< 0.014	< 0.023	**0.31 J**	< 0.015	**0.073 J**
SGW-5	5/29/2009	0 - 2 in N	**0.030 J**	< 0.015	< 0.017	< 0.013 J	< 0.024	**0.15 J**	**0.015 J**	< 0.015	< 0.015	< 0.013	< 0.022	**0.14 J**	< 0.014	**0.049 J**
SGW-5	5/29/2009	2 - 12 in N	**0.040 J**	< 0.015	< 0.017	< 0.013	< 0.025	**0.24 J**	**0.030 J**	< 0.015	< 0.015	< 0.013	< 0.022	**0.27 J**	< 0.015	**0.10 J**

Table 5.5.22-3
Soil Data - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/kg]

			Chemical Name	Nitrobenzene	N-Nitrosodimethylamine	N-Nitrosodi-n-propylamine	N-Nitrosodiphenylamine	o-Cresol	p-Cresol	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	Pyridine
Location ID	**Sample Date**	**Depth**	**Sample Type**											
SGW-1	5/29/2009	0 - 2 in	N	< 0.028	< 0.027	< 0.021	**0.024 J**	< 0.018	< 0.018	< 0.14	**0.30 J**	**0.024 J**	**0.28 J**	< 0.022
SGW-1	5/29/2009	2 - 12 in	N	< 0.027	< 0.026	< 0.020	< 0.019	< 0.018	< 0.018	< 0.13	**0.28 J**	< 0.021	**0.29 J**	< 0.021 R
SGW-2	5/29/2009	0 - 2 in	N	< 0.028	< 0.027	< 0.020	< 0.019	< 0.018	< 0.018	< 0.13 R	**0.16 J**	< 0.021	**0.14 J**	< 0.021
SGW-2	5/29/2009	2 - 12 in	N	< 0.028	< 0.027	< 0.021	< 0.020	< 0.018 R	< 0.018 R	< 0.14 R	**0.39**	**0.021 R**	**0.34 J**	< 0.022
			FD	< 0.028	< 0.027	< 0.021	< 0.020	< 0.018	**0.028 J**	< 0.14	**0.45**	**0.031 J**	**0.51**	< 0.022 J
SGW-3	5/29/2009	0 - 2 in	N	< 0.027	< 0.026	< 0.020	< 0.019	< 0.018	< 0.018	< 0.13	**0.17 J**	< 0.021	**0.16 J**	< 0.021 J
SGW-3	5/29/2009	2 - 12 in	N	< 0.027	< 0.026	< 0.020	< 0.019	< 0.018	< 0.018	< 0.13 R	**0.37**	**0.026 J**	**0.40**	< 0.021 J
SGW-3	5/15/2009	1 - 2 ft	N	< 0.028	< 0.027	< 0.021	< 0.019	< 0.018	**0.021 J**	< 0.14	**0.12 J**	< 0.021	**0.13 J**	< 0.021
SGW-4	5/29/2009	0 - 2 in	N	< 0.027	< 0.026	< 0.020	< 0.018	< 0.017 R	< 0.017 R	< 0.13 R	**0.14 J**	**0.028 R**	**0.16 J**	< 0.020 J
SGW-4	5/29/2009	2 - 12 in	N	< 0.028	< 0.027	< 0.021	< 0.020	< 0.018	< 0.018	< 0.14 R	**0.20 J**	< 0.021	**0.21 J**	< 0.022
SGW-5	5/29/2009	0 - 2 in	N	< 0.027	< 0.026	< 0.020	< 0.018	< 0.017	< 0.017	< 0.13	**0.14 J**	< 0.020	**0.19 J**	< 0.020 J
SGW-5	5/29/2009	2 - 12 in	N	< 0.027	< 0.026	< 0.020	< 0.019	< 0.017	< 0.017	< 0.13	**0.21 J**	**0.033 J**	**0.25 J**	< 0.020 J

Table 5.5.22-4
Soil Data - Radionuclides
SWMU 22
Rhodia Silver Bow Plant
[concentrations in pCi/g]

			Chemical Name	Lead 210	Radium 226	Thorium 230	Uranium 234	Uranium 235	Uranium 238
Background Mean, Exceedances **Bold**					**3.6**	**0.96**	**0.73**		**0.78**
Background Maximum, Exceedances Underline					12	3.4	2.8		2.7
Background 95% UPL, Exceedances *Italic*					*5.0*	*1.7*	*1.6*		*1.6*
Location ID	**Sample Date**	**Depth**	**Sample Type**						
SGW-1	05/29/2009	0 - 2 in	N	28 +/- 2.3	***30 +/- 2.1***	***20 +/- 1.5***	***24 +/- 1.7***	1.1 +/- 0.44	***22.6 +/- 1.6***
SGW-1	05/29/2009	2 - 12 in	N	22 +/- 2	***19 +/- 1.7***	***15 +/- 1.4***	***16 +/- 1.3***	0.65 +/- 0.33	***15.2 +/- 1.3***
SGW-2	05/29/2009	0 - 2 in	N	32 +/- 2	***19 +/- 1.5***	***21 +/- 1.5***	***25 +/- 2.4***	0.82 +/- 0.51	***27.2 +/- 2.5***
SGW-2	05/29/2009	2 - 12 in	N	30 +/- 2.1	***24 +/- 1.9***	***21 +/- 1.5***	***21 +/- 1.6***	0.74 +/- 0.34	***19.7 +/- 1.5***
			FD	29 +/- 2	***23 +/- 1.8***	***19 +/- 1.6***	***21 +/- 1.6***	2.5 +/- 0.57	***18.7 +/- 1.5***
SGW-3	05/29/2009	0 - 2 in	N	44 +/- 2.5	***29 +/- 2***	***21 +/- 1.5***	***21 +/- 1.6***	1.3 +/- 0.4	***22 +/- 1.6***
SGW-3	05/29/2009	2 - 12 in	N	25 +/- 2.4	***28 +/- 2.1***	***17 +/- 1.4***	***19 +/- 1.5***	0.71 +/- 0.36	***18.9 +/- 1.4***
SGW-3	05/15/2009	1 - 2 ft	N	24 +/- 2.1	***19 +/- 1.6***	***13 +/- 1.3***	***14 +/- 1.3***	1.7 +/- 0.45	***13.7 +/- 1.2***
SGW-4	05/29/2009	0 - 2 in	N	29 +/- 2.1	***15 +/- 1.5***	***13 +/- 1.1***	***14 +/- 1.2***	0.94 +/- 0.34	***13.5 +/- 1.2***
SGW-4	05/29/2009	2 - 12 in	N	32 +/- 2.2	***22 +/- 1.9***	***18 +/- 1.4***	***18 +/- 1.4***	0.85 +/- 0.36	***18.3 +/- 1.4***
SGW-5	05/29/2009	0 - 2 in	N	18 +/- 1.7	***20 +/- 1.7***	***17 +/- 1.4***	***16 +/- 1.5***	1.3 +/- 0.45	***16.2 +/- 1.5***
SGW-5	05/29/2009	2 - 12 in	N	< 12	***20 +/- 1.7***	***14 +/- 1.2***	***15 +/- 1.1***	1 +/- 0.32	***13.5 +/- 1.1***

Table 5.5.22-5
Groundwater Quality - General and Site Specific Parameters
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Alkalinity, bicarbonate, as CaCO3	Alkalinity, bicarbonate, as HCO3	Alkalinity, carbonate, as CaCO3	Alkalinity, total	Calcium Hardness @ CaCO3	Chloride	Cyanide	Fluoride	Nitrate + Nitrite, as N	Nitrogen, ammonia (NH3), as N	Nitrogen, Nitrate (NO3)	Nitrogen, Nitrite (NO2)	Phosphate, as P	Phosphorus, elemental (white)	Phosphorus, total	Solids, total dissolved	Sulfate
Location ID	Sample Date	Sample Type																	
MW-06-15	05/21/2008	N	**210**	--	< 2	--	--	**197**	--	< 0.2	**8.19**	< 0.05	--	--	--	< 0.0000234	**0.11**	--	**429**
MW-06-15	09/17/2008	N	**222**	--	< 2	--	--	**167**	--	**0.114 J**	**8.25**	< 0.05	--	--	--	< 0.0000234	**0.10**	--	**461**
MW-97-12	11/05/1997	N	--	--	**56**	--	--	**173**	--	**1.47**	--	--	**9.04**	< 0.05	--	--	**5.89**	**1970**	**959**
MW-97-12	10/12/1998	N	--	**96**	ND	**78**	**750**	**133**	--	**2.30**	--	--	**7.56**	< 0.05	--	--	**6.26**	**1390**	**655**
MW-97-12	05/27/2008	N	**116**	--	< 2	--	--	**136**	--	**7.8**	**7.08**	< 0.05	--	--	--	--	**3.97**	--	**236**
MW-97-12	06/09/2008	N	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0000234	--	--	--
MW-97-12	09/23/2008	N	**112**	--	< 2	--	--	**140**	--	**7.9**	**7.39**	< 0.05	--	--	--	0.000112 R	**8.44**	--	**245**
MW-97-12	12/15/2008	N	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0000234	--	--	--
MW-06-14	05/27/2008	N	**102**	--	< 2	--	--	**146**	--	< 0.2	**5.90**	< 0.05	--	--	--	--	**0.16**	--	**558**
MW-06-14	06/09/2008	N	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.0000234	--	--	--
MW-06-14	09/18/2008	N	**103**	--	< 2	--	--	**151**	--	**0.081 J**	**6.66**	< 0.05	--	--	--	< 0.0000234	**0.14**	--	**487**
MW-EPA-3	11/05/1997	N	--	--	--	**186**	--	**52**	--	**0.28**	--	--	**3.20**	< 0.05	--	--	**0.08**	**604**	**186**
MW-EPA-3	10/12/1998	N	--	**212**	ND	**174**	**314**	**51**	--	**0.26**	--	--	**2.70**	< 0.05	--	--	**0.07**	**585**	**174**
MW-EPA-3	07/15/2003	N	--	--	--	--	--	--	--	**0.81**	--	--	--	--	< 1.0	< 0.0001	< 0.02	--	--
MW-EPA-3	07/24/2003	N	--	--	--	--	--	--	< 0.0100	**0.78 J**	--	--	--	--	< 0.324	< 0.0001	**0.043**	--	--
MW-EPA-3	05/15/2008	N	**138**	--	< 2	--	--	**71.7**	--	**0.2**	**3.68**	< 0.05	--	--	--	< 0.0000234	**0.05**	--	**133**
MW-EPA-3	09/16/2008	N	**138**	--	< 2	--	--	**65.0**	--	**0.30**	**3.95**	< 0.05	--	--	--	< 0.0000234	**0.05**	--	**117**

Table 5.5.22-6
Groundwater Quality - Metals
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name / Analysis Location			Aluminum Lab	Aluminum Lab	Antimony Lab	Antimony Lab	Arsenic Lab	Arsenic Lab	Arsenic III Lab	Arsenic V Lab	Barium Lab	Barium Lab	Beryllium Lab	Beryllium Lab	Cadmium Lab	Cadmium Lab	Calcium Lab	Chromium Lab	Chromium Lab	Cobalt Lab	Cobalt Lab	Copper Lab	Copper Lab	Iron Lab
Location ID	**Sample Date**	**Sample Type**																						
MW-06-15	05/21/2008	N	--	--	--	**0.00006**	--	**0.0032**	--	--	--	**0.0248**	--	< 0.00002	--	< 0.00002	**198**	--	**0.0005**	--	**0.00095**	--	**0.0019 J**	--
MW-06-15	09/17/2008	N	--	--	--	**0.00007**	--	**0.0037**	--	--	--	**0.0222**	--	< 0.0036	--	**0.00003**	**227**	--	< 0.00063	--	< 0.0016	--	< 0.859446 R	--
MW-06-15	12/11/2008	N	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.004589**	--
MW-97-12	11/05/1997	N	**0.1**	--	< 0.05	--	**0.109**	--	--	--	< 0.1	--	< 0.001	--	< 0.001	--	**331**	< 0.01	--	< 0.01	--	< 0.01	--	**0.14**
MW-97-12	10/12/1998	N	< 0.1	--	< 0.003	--	--	**0.093**	**0.083**	**0.010**	< 0.1	--	< 0.001	--	< 0.001	--	**245**	< 0.01	--	< 0.01	--	< 0.01	--	< 0.03
MW-97-12	05/27/2008	N	--	--	--	< 0.00023	--	**0.0688**	--	--	--	**0.0466**	--	**0.00012**	--	**0.00005**	**136**	--	**0.0010**	--	**0.00091**	--	< 0.0026	--
MW-97-12	09/23/2008	N	--	--	--	**0.00223 R**	--	**0.0681 R**	--	--	--	**0.05607 R**	--	**0.00479 R**	--	**0.00588 R**	**140 R**	--	**0.0072 R**	--	**0.00808 R**	--	**3.18 R**	--
MW-97-12	12/15/2008	N	--	--	--	**0.00023**	--	**0.0618**	--	--	--	**0.0296**	--	**0.000060**	--	< 0.00002	**121**	--	**0.00043**	--	**0.000493**	--	**0.000918**	--
MW-06-14	05/27/2008	N	--	--	--	< 0.00007	--	**0.0042**	--	--	--	**0.0279**	--	< 0.00002	--	**0.00003**	**216**	--	< 0.0006	--	**0.00170**	--	< 0.0019	--
MW-06-14	09/18/2008	N	--	--	--	**0.00010**	--	**0.0040**	--	--	--	**0.0513**	--	< 0.000064	--	**0.00004**	**208**	--	< 0.00070	--	< 0.0018	--	< 0.008987	--
MW-06-14	12/11/2008	N	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-EPA-3	08/09/1988	N	--	< 0.028	--	< 0.029	--	< 0.0038 B	--	--	--	< 0.0567 B	--	< 0.001	--	< 0.005	**69.9**	--	< 0.005	--	< 0.006 B	--	< 0.0077 B	--
MW-EPA-3	11/05/1997	N	< 0.1	--	< 0.05	--	**0.005**	--	--	--	< 0.1	--	< 0.001	--	< 0.001	--	**99**	< 0.01	--	< 0.01	--	< 0.01	--	< 0.03
MW-EPA-3	10/12/1998	N	< 0.1	--	< 0.003	--	--	**0.006**	**0.003**	**0.003**	< 0.1	--	< 0.001	--	< 0.001	--	**95**	< 0.01	--	< 0.01	--	< 0.01	--	< 0.03
MW-EPA-3	07/24/2003	N	< 0.0300	< 0.0097 J	**0.00017 J**	< 0.0020	**0.0033 BQQ**	**0.0032**	--	--	**0.0542 BQQ**	**0.0610**	< 0.0010	< 0.0010	**0.00031 J**	< 0.0010	--	< 0.0020	**0.00011 J**	**0.00066 BQQ**	**0.00041 J**	**0.00091 J**	**0.0011 J**	--
MW-EPA-3	05/15/2008	N	--	--	--	**0.00005**	--	**0.0035**	--	--	--	**0.0592**	--	< 0.00002	--	< 0.00002	**86.6**	--	**0.0002**	--	**0.00039**	--	< 0.0020	--
MW-EPA-3	09/16/2008	N	--	--	--	**0.00006**	--	**0.0039**	--	--	--	< 0.0628	--	< 0.000020	--	< 0.00002	**88.9**	--	< 0.00036	--	< 0.000371	--	< 0.001032	--

Table 5.5.22-6
Groundwater Quality - Metals
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Iron	Lead	Lead	Magnesium	Manganese	Manganese	Mercury	Mercury	Nickel	Nickel	Phosphorus, total	Potassium	Selenium	Selenium	Silver	Silver	Sodium	Strontium	Thallium	Thallium	Uranium	Vanadium
Analysis Location			Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab
Location ID	Sample Date	Sample Type																						
MW-06-15	05/21/2008	N	**0.024**	--	**0.00012**	**38 R**	--	**0.00287**	--	< 0.0002	--	**0.0014**	--	**17.4**	--	**0.0083**	--	< 0.00002	**86.6**	--	--	< 0.00002	**0.0216**	--
MW-06-15	09/17/2008	N	< 0.22 R	--	< 0.002258	**44.5**	--	< 0.0050	--	< 0.00020	--	**0.0023**	--	**19.0**	--	**0.0107**	--	< 0.000206	**104**	--	--	< 0.000020	**0.024377**	--
MW-06-15	12/11/2008	N	**0.023**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-97-12	11/05/1997	N	--	< 0.01	--	**47**	**0.08**	--	< 0.001	--	< 0.01	--	--	**30**	**0.03**	--	< 0.005	--	**117**	**1.6**	< 0.1	--	**0.001**	< 0.1
MW-97-12	10/12/1998	N	--	< 0.01	--	**34**	**0.01**	--	< 0.001	--	< 0.01	--	**5.5**	**30**	**0.025**	--	< 0.005	--	**103**	**1.2**	< 0.1	--	--	< 0.1
MW-97-12	05/27/2008	N	**1.39**	--	< 0.00091	**16.6**	--	**0.0218**	--	< 0.0002	--	**0.0017**	--	**29.1**	--	**0.0307**	--	< 0.00002	**76**	--	--	**0.00003**	**0.000797**	--
MW-97-12	09/23/2008	N	**1.65 R**	--	**0.00272 R**	**18.1 R**	--	**0.03106 R**	--	< 0.0002 R	--	**0.0107 R**	--	**31.1 R**	--	**0.036 R**	--	**0.00089 R**	**78.9 R**	--	--	**0.00098 R**	**0.00016 R**	--
MW-97-12	12/15/2008	N	**0.050**	--	< 0.000050	**15.5**	--	**0.0029**	--	< 0.0002	--	**0.0014**	--	**27.4**	--	**0.0275**	--	< 0.000050	**71.3**	--	--	< 0.000020	**0.000712**	--
MW-06-14	05/27/2008	N	**0.242**	--	< 0.00022	**42.4**	--	**0.00853**	--	< 0.0002	--	**0.0026**	--	**16.6**	--	**0.0090**	--	< 0.00002	**63.4**	--	--	**0.00002**	**0.009020**	--
MW-06-14	09/18/2008	N	**1.53 R**	--	< 0.001228	**41.5**	--	**0.0250**	--	< 0.00020	--	**0.0032**	--	**17.9**	--	**0.0108**	--	< 0.000020	**67.7**	--	--	**0.000030**	**0.008372**	--
MW-06-14	12/11/2008	N	< 0.020	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-EPA-3	08/09/1988	N	< 0.020	--	< 0.0059 C	**14.2**	--	< 0.005	--	< 0.0002	--	< 0.009	--	**10.9**	--	< 0.002 J	--	< 0.004	**29.7**	--	--	--	--	--
MW-EPA-3	11/05/1997	N	--	< 0.01	--	**20**	< 0.01	--	< 0.001	--	< 0.01	--	--	**13**	< 0.005	--	< 0.005	--	**60**	**0.6**	< 0.1	--	**0.0362**	< 0.1
MW-EPA-3	10/12/1998	N	--	< 0.01	--	**19**	< 0.01	--	< 0.001	--	< 0.01	--	< 0.1	**12**	< 0.005	--	< 0.005	--	**52**	**0.5**	< 0.1	--	--	< 0.1
MW-EPA-3	07/24/2003	N	--	< 0.0010	**0.000060 J**	--	**0.00071 BQQJ**	**0.0017 J**	< 0.0020	< 0.00020	**0.0102 BQQ**	**0.0096**	--	--	**0.0028 J**	**0.0034 J**	**0.000026 J**	< 0.0010	--	--	< 0.0010	**0.000040 J**	--	**0.0062 BQQ**
MW-EPA-3	05/15/2008	N	**0.043**	--	< 0.00021	**17.2**	--	**0.00171**	--	< 0.0002	--	**0.0008**	--	**11.6**	--	**0.0044**	--	< 0.00002	**33.6**	--	--	< 0.00002	**0.0140**	--
MW-EPA-3	09/16/2008	N	< 0.16	--	< 0.000216	**17.7**	--	**0.0069**	--	< 0.00020	--	**0.0010**	--	**12.2**	--	**0.0056**	--	< 0.000020	**36.4**	--	--	< 0.000020	**0.014702**	--

Table 5.5.22-6
Groundwater Quality - Metals
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Vanadium	Zinc	Zinc
Analysis Location			Lab	Lab	Lab
Location ID	Sample Date	Sample Type			
MW-06-15	05/21/2008	N	**0.0040**	--	**0.0016**
MW-06-15	09/17/2008	N	**0.0033**	--	< 0.0972 R
MW-06-15	12/11/2008	N	--	--	< 0.0039
MW-97-12	11/05/1997	N	--	**0.02**	--
MW-97-12	10/12/1998	N	--	< 0.01	--
MW-97-12	05/27/2008	N	**0.0094**	--	< 0.0035
MW-97-12	09/23/2008	N	**0.0112 R**	--	**0.485 R**
MW-97-12	12/15/2008	N	**0.0084**	--	< 0.0029
MW-06-14	05/27/2008	N	**0.0033**	--	< 0.0022
MW-06-14	09/18/2008	N	**0.0039**	--	< 0.0081
MW-06-14	12/11/2008	N	--	--	--
MW-EPA-3	08/09/1988	N	< 0.0084 B	--	< 0.0155 B
MW-EPA-3	11/05/1997	N	--	< 0.01	--
MW-EPA-3	10/12/1998	N	--	< 0.01	--
MW-EPA-3	07/24/2003	N	**0.0061**	**0.00098 J**	**0.00051 J**
MW-EPA-3	05/15/2008	N	**0.0062**	--	< 0.0023
MW-EPA-3	09/16/2008	N	**0.0053**	--	< 0.0020

Table 5.5.22-7
Groundwater Quality - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,4-Dinitrotoluene	2,6-Dinitrotoluene	2-Chloronaphthalene	2-Chlorophenol
Location ID	Sample Date	Sample Type													
MW-06-15	05/21/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022 R	< 0.00017	< 0.000018	< 0.000033	< 0.000041	< 0.000054
MW-06-15	09/17/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022	< 0.00017 R	< 0.000018	< 0.000033	< 0.000041	< 0.000054
MW-97-12	05/27/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022 R	< 0.00017	< 0.000018	< 0.000033	< 0.000041	< 0.000054
MW-06-14	05/27/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022 R	< 0.00017	< 0.000018	< 0.000033	< 0.000041	< 0.000054
MW-EPA-3	08/09/1988	N	< 0.01	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01	< 0.01	--	--	< 0.01	< 0.01	< 0.01
MW-EPA-3	05/15/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022 R	< 0.00017	< 0.000018	< 0.000033	< 0.000041	< 0.000054
MW-EPA-3	09/16/2008	N	< 0.000016	< 0.000022	< 0.000021	< 0.000029	< 0.000031	< 0.000058	< 0.000047	< 0.0022	< 0.00017 R	< 0.000018	< 0.000033	< 0.000041	< 0.000054

Table 5.5.22-7
Groundwater Quality - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			2-Methyl-4,6-dinitrophenol	2-Methylnaphthalene	2-Nitroaniline	2-Nitrophenol	3,3`-Dichlorobenzidine	3-Nitroaniline	4-Bromophenyl phenyl ether	4-Chloro-3-methylphenol	4-Chloroaniline	4-Chlorophenyl phenyl ether	4-Nitroaniline	4-Nitrophenol	Acenaphthene	Acenaphthylene	Anthracene	Azobenzene
Location ID	Sample Date	Sample Type																
MW-06-15	05/21/2008	N	< 0.000025	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.000026	< 0.000015	< 0.000024	< 0.000021
MW-06-15	09/17/2008	N	< 0.000025 R	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.0000044	< 0.0000034	< 0.0000036	< 0.000021
MW-97-12	05/27/2008	N	< 0.000025	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.000026	< 0.000015	< 0.000024	< 0.000021
MW-06-14	05/27/2008	N	< 0.000025	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.000026	< 0.000015	< 0.000024	< 0.000021
MW-EPA-3	08/09/1988	N	--	< 0.01	< 0.05	< 0.01	--	--	--	< 0.01	< 0.01	--	--	--	--	< 0.01	--	--
MW-EPA-3	05/15/2008	N	< 0.000025	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.000026	< 0.000015	< 0.000024	< 0.000021
MW-EPA-3	09/16/2008	N	< 0.000025 R	< 0.000026	< 0.000024	< 0.000063	< 0.00043	< 0.000029	< 0.000026	< 0.000037	< 0.000025	< 0.000027	< 0.000019	< 0.00028	< 0.000026	< 0.000015	< 0.000024	< 0.000021

Table 5.5.22-7
Groundwater Quality - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Benzoic acid	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-chloroisopropyl) ether	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Carbazole	Chrysene	Dibenz(a,h) anthracene	Dibenzofuran	Diethyl phthalate
Location ID	Sample Date	Sample Type																	
MW-06-15	05/21/2008	N	< 0.000018	< 0.000031	< 0.000017	< 0.000019	< 0.000024	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	**0.00024 J**	< 0.000018	< 0.000018	< 0.000028	< 0.000017	< 0.000018	< 0.000028
MW-06-15	09/17/2008	N	< 0.0000026	< 0.0000043	< 0.0000023	< 0.0000029	< 0.0000025	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	< 0.00017	< 0.000018	< 0.000018	< 0.0000034	< 0.0000025	< 0.000018	< 0.000029
MW-97-12	05/27/2008	N	< 0.000018	< 0.000031	< 0.000017	< 0.000019	< 0.000024	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	< 0.00033	< 0.000039	< 0.000018	< 0.000028	< 0.000017	< 0.000018	< 0.000040
MW-06-14	05/27/2008	N	< 0.000018	< 0.000031	< 0.000017	< 0.000019	< 0.000024	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	< 0.00020	< 0.000018	< 0.000018	< 0.000028	< 0.000017	< 0.000018	< 0.000032
MW-EPA-3	08/09/1988	N	--	--	--	--	--	< 0.05	< 0.01	< 0.01	< 0.01	< 0.01	--	--	--	--	--	--	--
MW-EPA-3	05/15/2008	N	< 0.000018	< 0.000031	< 0.000017	< 0.000019	< 0.000024	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	< 0.0014	< 0.000018	< 0.000018	< 0.000028	< 0.000017	< 0.000018	< 0.000012
MW-EPA-3	09/16/2008	N	< 0.000018	< 0.000031	< 0.000017	< 0.000019	< 0.000024	< 0.0011 R	< 0.000073	< 0.000024	< 0.000035	< 0.000026	< 0.00013	< 0.000040	< 0.000018	< 0.000028	< 0.000017	< 0.000018	< 0.000025

Table 5.5.22-7
Groundwater Quality - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno(1,2,3-cd) pyrene	Isophorone	Naphthalene	Nitrobenzene	N-Nitrosodimethylamine	N-Nitrosodi-n-propylamine
Location ID	Sample Date	Sample Type															
MW-06-15	05/21/2008	N	< 0.000021	< 0.00013	< 0.000018	< 0.000020	< 0.000027	< 0.000022	< 0.000027 R	< 0.00019 R	< 0.000024	< 0.000021	< 0.000016	**0.000054 J**	< 0.000028	< 0.00042	< 0.000037
MW-06-15	09/17/2008	N	< 0.000021	< 0.000065	< 0.000018	< 0.0000044	< 0.0000038	< 0.000022	< 0.000027 R	< 0.00019 R	< 0.000024 R	< 0.0000026	< 0.000016	< 0.000021	< 0.000028	< 0.00042	< 0.000037
MW-97-12	05/27/2008	N	< 0.000021	< 0.00013	< 0.000018	< 0.000020	< 0.000027	< 0.000022	< 0.000027	< 0.00019 R	< 0.000024	< 0.000021	< 0.000016	< 0.000033	< 0.000028	< 0.00042	< 0.000037
MW-06-14	05/27/2008	N	< 0.000021	< 0.000079	< 0.000018	< 0.000020	< 0.000027	< 0.000022	< 0.000027	< 0.00019 R	< 0.000024	< 0.000021	< 0.000016	< 0.000022	< 0.000028	< 0.00042	< 0.000037
MW-EPA-3	08/09/1988	N	< 0.01	--	--	--	--	--	< 0.01	< 0.01	< 0.01	--	< 0.01	< 0.01	< 0.01	--	< 0.01
MW-EPA-3	05/15/2008	N	< 0.000021	< 0.000042	< 0.000018	< 0.000022	< 0.000027	< 0.000022	< 0.000027	< 0.00019 R	< 0.000024	< 0.000021	< 0.000016	< 0.000022	< 0.000028	< 0.00042	< 0.000037
MW-EPA-3	09/16/2008	N	< 0.000021	< 0.000052	< 0.000018	< 0.000020	< 0.000027	< 0.000022	< 0.000027 R	< 0.00019 R	< 0.000024 R	< 0.000021	< 0.000016	< 0.000022	< 0.000028	< 0.00042	< 0.000037

Table 5.5.22-7
Groundwater Quality - SVOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

		Chemical Name	N-Nitrosodiphenylamine	o-cresol	p-cresol	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	Pyridine
Location ID	Sample Date	Sample Type								
MW-06-15	05/21/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034	< 0.000022	**0.00091**	< 0.000019	--
MW-06-15	09/17/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034 R	< 0.0000050	< 0.000063	< 0.0000035	< 0.0014 R
MW-97-12	05/27/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034	< 0.000022	< 0.0014	< 0.000019	--
MW-06-14	05/27/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034	< 0.000022	< 0.0012	< 0.000019	--
MW-EPA-3	08/09/1988	N	--	< 0.01	< 0.01	--	--	< 0.01	--	--
MW-EPA-3	05/15/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034	< 0.000022	< 0.00098	< 0.000019	--
MW-EPA-3	09/16/2008	N	< 0.000048	< 0.00011	< 0.00012	< 0.00034 R	< 0.000022	< 0.000063	< 0.000019	< 0.0014 R

Table 5.5.22-8
Groundwater Quality - VOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

		Chemical Name	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloro-1-propene	1,1-Dichloroethane	1,1-Dichloroethylene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane
Location ID	Sample Date	Sample Type													
MW-06-15	05/21/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084
MW-06-15	09/17/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084
MW-97-12	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-97-12	05/27/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084
MW-06-14	05/27/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084
MW-EPA-3	08/09/1988	N	--	< 0.005	< 0.005	< 0.005	--	< 0.005	< 0.005	--	--	--	--	--	--
MW-EPA-3	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-EPA-3	05/15/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084
MW-EPA-3	09/16/2008	N	< 0.000047	< 0.000050	< 0.000064	< 0.000061	< 0.000051	< 0.000042	< 0.00010	< 0.00010	< 0.00014	< 0.00013	< 0.000037	< 0.00022	< 0.000084

Table 5.5.22-8
Groundwater Quality - VOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

		Chemical Name	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloroethylene	1,2-Dichloroethylene, cis	1,2-Dichloroethylene, trans	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichloro-1-propene, cis	1,3-Dichloro-1-propene, trans	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane
Location ID	Sample Date	Sample Type													
MW-06-15	05/21/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050
MW-06-15	09/17/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050
MW-97-12	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-97-12	05/27/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050
MW-06-14	05/27/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050
MW-EPA-3	08/09/1988	N	--	< 0.005	< 0.005	--	--	< 0.005	--	< 0.005	< 0.005	--	--	--	--
MW-EPA-3	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-EPA-3	05/15/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050
MW-EPA-3	09/16/2008	N	< 0.000044	< 0.000073	--	< 0.000045	< 0.000048	< 0.000042	< 0.000042	< 0.000038	< 0.000041	< 0.000041	< 0.000032	< 0.000054	< 0.000050

Table 5.5.22-8
Groundwater Quality - VOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

	Chemical Name		2-Chloroethyl vinyl ether	2-Hexanone	Acetone	Acrolein	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Butyl benzene	Butylbenzene, sec	Butylbenzene, tert	Carbon disulfide	Carbon tetrachloride	Chlorobenzene
Location ID	Sample Date	Sample Type																	
MW-06-15	05/21/2008	N	< 0.00019 R	< 0.0029	< 0.0025	< 0.0020	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080 J	< 0.000072	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045
MW-06-15	09/17/2008	N	< 0.00019 R	< 0.0029	< 0.011	< 0.0020	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080 J	< 0.000072	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045
MW-97-12	11/05/1997	N	--	--	--	--	--	< 0.0010	--	--	--	--	--	--	--	--	--	--	--
MW-97-12	05/27/2008	N	< 0.00019 R	< 0.0029	< 0.0025	< 0.0020	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080	< 0.000072 J	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045
MW-06-14	05/27/2008	N	< 0.00019 R	< 0.0029	< 0.0025	< 0.0020	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080	< 0.000072 J	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045
MW-EPA-3	08/09/1988	N	--	< 0.005	< 0.055 B	--	--	< 0.005	--	--	< 0.005	< 0.005	< 0.01	--	--	--	< 0.005	< 0.005	< 0.005
MW-EPA-3	11/05/1997	N	--	--	--	--	--	< 0.0010	--	--	--	--	--	--	--	--	--	--	--
MW-EPA-3	05/15/2008	N	< 0.00019 R	< 0.0029	< 0.0025	< 0.0020	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080	< 0.000072	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045
MW-EPA-3	09/16/2008	N	< 0.00019 R	< 0.0029	< 0.0035	< 0.0020 R	< 0.00031	< 0.000045	< 0.000027	< 0.000091	< 0.000036	< 0.000080	< 0.000072 R	< 0.000056	< 0.000036	< 0.000038	< 0.000045	< 0.000068	< 0.000045

Table 5.5.22-8
Groundwater Quality - VOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	Chlorotoluene o-	Chlorotoluene p-	Cumene (isopropyl benzene)	Cymene p- (Toluene isopropyl p-)	Dibromomethane (methylene bromide)	Dichlorodifluoromethane (CFC-12)	Ethyl benzene	Hexachlorobutadiene	Iodomethane
Location ID	Sample Date	Sample Type													
MW-06-15	05/21/2008	N	< 0.000057	< 0.00013	< 0.000042	**0.00013 J**	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027 R
MW-06-15	09/17/2008	N	< 0.000057	< 0.00013	< 0.000042	< 0.000070	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027
MW-97-12	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	< 0.0010	--	--
MW-97-12	05/27/2008	N	< 0.000057	< 0.00013	< 0.000042	< 0.000053	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027
MW-06-14	05/27/2008	N	< 0.000057	< 0.00013	< 0.000042	< 0.000053	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027
MW-EPA-3	08/09/1988	N	< 0.005	< 0.01	< 0.005	< 0.01	--	--	--	--	--	--	< 0.005	--	--
MW-EPA-3	11/05/1997	N	--	--	--	--	--	--	--	--	--	--	< 0.0010	--	--
MW-EPA-3	05/15/2008	N	< 0.000057	< 0.00013	< 0.000042	< 0.000053	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027 R
MW-EPA-3	09/16/2008	N	< 0.000057	< 0.00013	< 0.000042	< 0.000053	< 0.000035	< 0.000025	< 0.000031	< 0.000044	< 0.000089	< 0.000083	< 0.000042	< 0.00019	< 0.00027

Table 5.5.22-8
Groundwater Quality - VOCs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

		Chemical Name	Methyl ethyl ketone	Methyl isobutyl ketone	Methyl tertiary butyl ether (MTBE)	Methylene chloride	Naphthalene	Propylbenzene	Styrene	Tetrachloroethylene	Toluene	Trichloroethylene	Trichlorofluoromethane	Vinyl acetate	Vinyl chloride	Xylene, m & p	Xylene, o	Xylenes, total
Location ID	Sample Date	Sample Type																
MW-06-15	05/21/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010	< 0.000037	< 0.000039	< 0.000077	**0.00036 J**	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--
MW-06-15	09/17/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010	< 0.000037	< 0.000039	< 0.000077	< 0.00013	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--
MW-97-12	11/05/1997	N	--	--	--	--	--	--	--	--	< 0.0010	--	--	--	--	< 0.0010	< 0.0010	--
MW-97-12	05/27/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010 J	< 0.000037	< 0.000039	< 0.000077	< 0.000060	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--
MW-06-14	05/27/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010 J	< 0.000037	< 0.000039	< 0.000077	< 0.000060	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--
MW-EPA-3	08/09/1988	N	< 0.01	< 0.01	--	< 0.011 B	--	--	< 0.005	< 0.005	< 0.005	< 0.005	--	< 0.01	< 0.01	--	--	< 0.005
MW-EPA-3	11/05/1997	N	--	--	--	--	--	--	--	--	**0.00024 J**	--	--	--	--	< 0.0010	< 0.0010	--
MW-EPA-3	05/15/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010	< 0.000037	< 0.000039	< 0.000077	**0.000050 J**	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--
MW-EPA-3	09/16/2008	N	< 0.0038	< 0.0030	< 0.000070	< 0.00023	< 0.00010	< 0.000037	< 0.000039	< 0.000077	< 0.00046	< 0.000061	< 0.000086	< 0.00091	< 0.000071	< 0.000078	< 0.000037	--

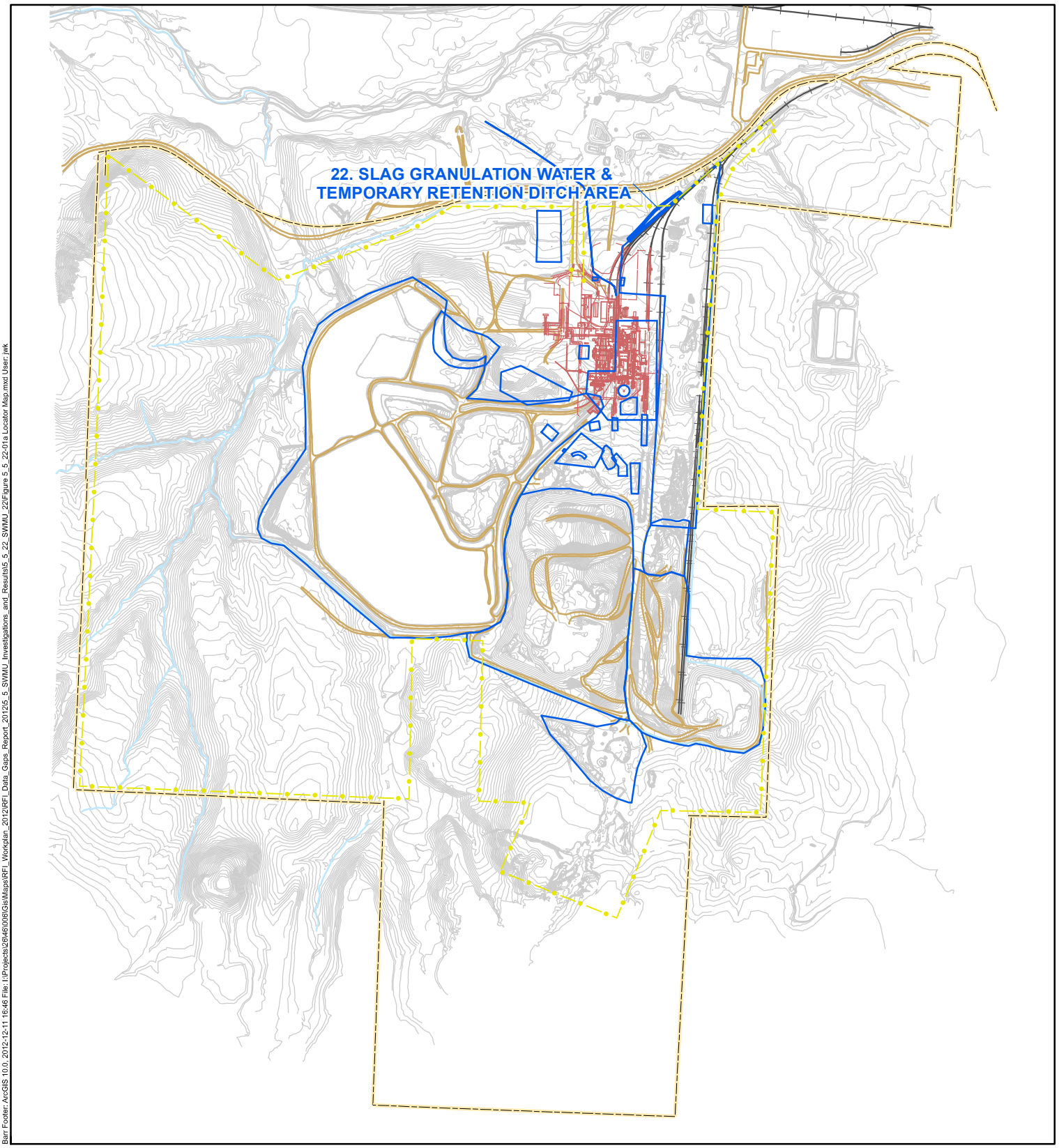
Table 5.5.22-9
Groundwater Quality - PCBs
SWMU 22
Rhodia Silver Bow Plant
[concentrations in mg/l]

Chemical Name			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Location ID	Sample Date	Sample Type									
MW-06-15	05/21/2008	N	< 0.0000094	< 0.000020	< 0.000023	< 0.000013	< 0.0000054	< 0.0000070	< 0.0000031	< 0.0000048	< 0.0000065
MW-97-12	05/27/2008	N	< 0.0000094	< 0.000020	< 0.000023	< 0.000013	< 0.0000054	< 0.0000070	< 0.0000031	< 0.0000048	< 0.0000065
MW-06-14	05/27/2008	N	< 0.0000094	< 0.000020	< 0.000023	< 0.000013	< 0.0000054	< 0.0000070	< 0.0000031	< 0.0000048	< 0.0000065
MW-EPA-3	05/15/2008	N	< 0.0000094	< 0.000020	< 0.000023	< 0.000013	< 0.0000054	< 0.0000070	< 0.0000031	< 0.0000048	< 0.0000065

Table 5.5.22-10
Groundwater Quality - Radionuclides
SWMU 22
Rhodia Silver Bow Plant
[concentrations in pCi/l]

		Chemical Name	Cesium 137	Gross Alpha (radiation)	Gross Beta (radiation)	Radium 226	Radium 228	Strontium 90	Uranium
Location ID	Sample Date	Sample Type							
MW-06-15	05/21/2008	N	--	**27 +/- 8.9**	**30 +/- 7.7**	< 0.21	< 0.85	--	--
MW-06-15	09/17/2008	N	--	**19 +/- 7.3**	**28 +/- 8.2**	< 0.4	< 0.71	--	--
MW-97-12	11/05/1997	N	--	< 1.0	--	< 0.2	**2.2 +/- 0.3**	< 2.0	--
MW-97-12	05/27/2008	N	--	< 2.2	**24 +/- 4.5**	< 0.52	< 0.74	--	--
MW-97-12	09/23/2008	N	--	**4.9 +/- 3.6**	**35 +/- 5.7**	< 0.22	< 0.77	--	--
MW-06-14	05/27/2008	N	--	**4 +/- 3.8**	**21 +/- 6**	< 0.3	< 0.81	--	--
MW-06-14	09/18/2008	N	--	**7.9 +/- 4.3**	**23 +/- 6.1**	< 0.23	**5.1 +/- 1**	--	--
MW-EPA-3	08/09/1988	N	--	--	--	< 1	--	--	**14 +/- 2**
MW-EPA-3	11/05/1997	N	--	< 1.0	--	< 0.2	< 1.0	< 2.0	--
MW-EPA-3	07/15/2003	N	< 49.1	**7.06 +/- 1.57**	**23.1 +/- 5.28**	< 2.03	--	--	--
MW-EPA-3	07/24/2003	N	< 40.0	**8.82 +/- 1.77 J**	**6.48 +/- 1.41**	< 1.58	--	--	--
MW-EPA-3	05/15/2008	N	--	**7.4 +/- 2.8**	**18 +/- 3.5**	< 0.17	< 0.73	--	--
MW-EPA-3	09/17/2008	N	--	**7.1 +/- 2.9**	**15 +/- 3.4**	< 0.26	< 1.4	--	--

Figures



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SWMU 22

Other SWMUs

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Property Boundary

Fence Line

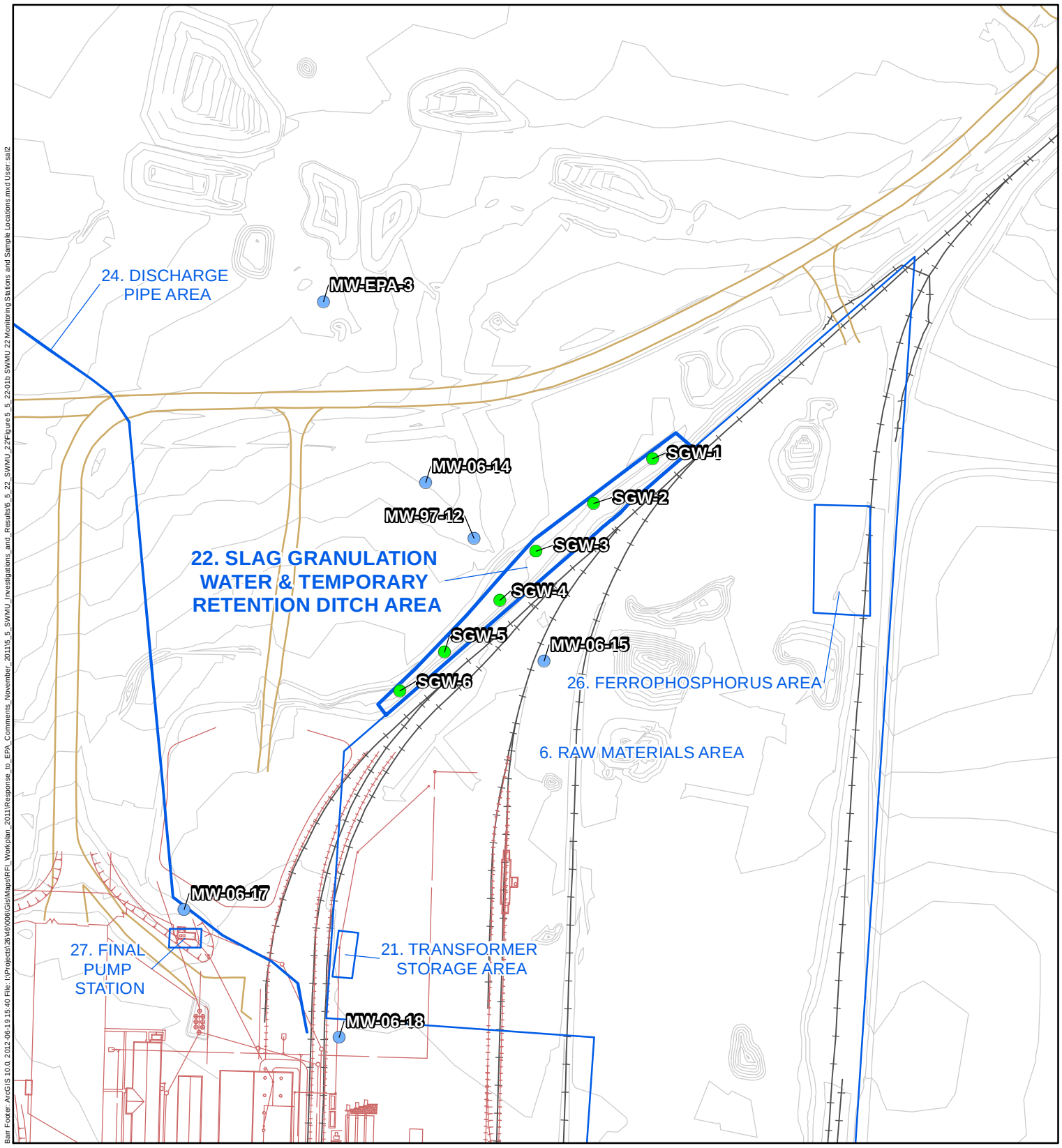
N

Feet

1,000 0 1,000

Figure 5.5.22-1a

SWMU 22 LOCATION
Rhodia Silver Bow Plant
Montana



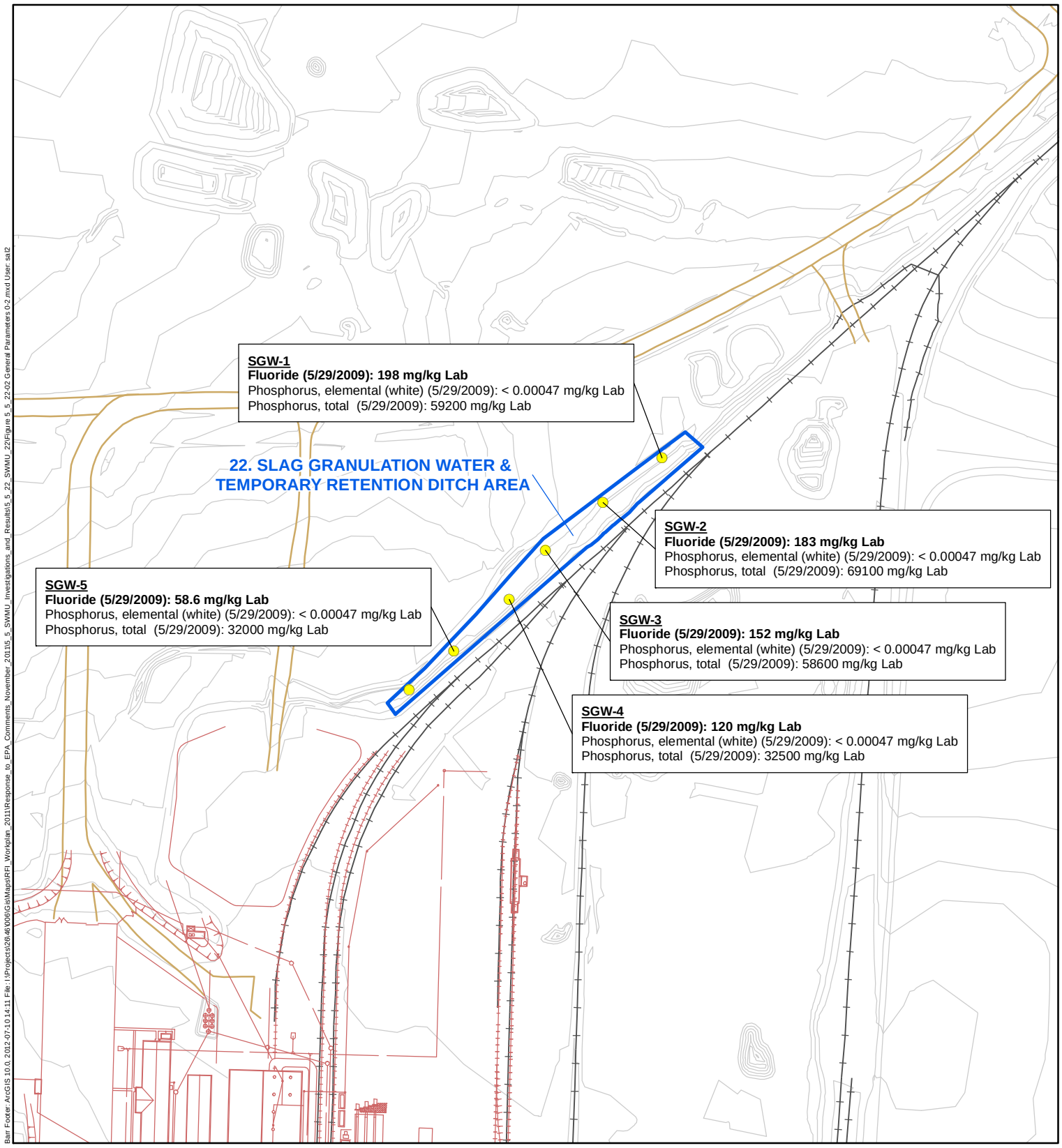
Monitoring Well
Soil Sample
SWMU 22
Other SWMUs
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

N

Feet
200 0 200

Figure 5.5.22-1b

SWMU 22
MONITORING STATIONS
AND SAMPLE LOCATIONS
Rhodia Silver Bow Plant
Montana



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Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

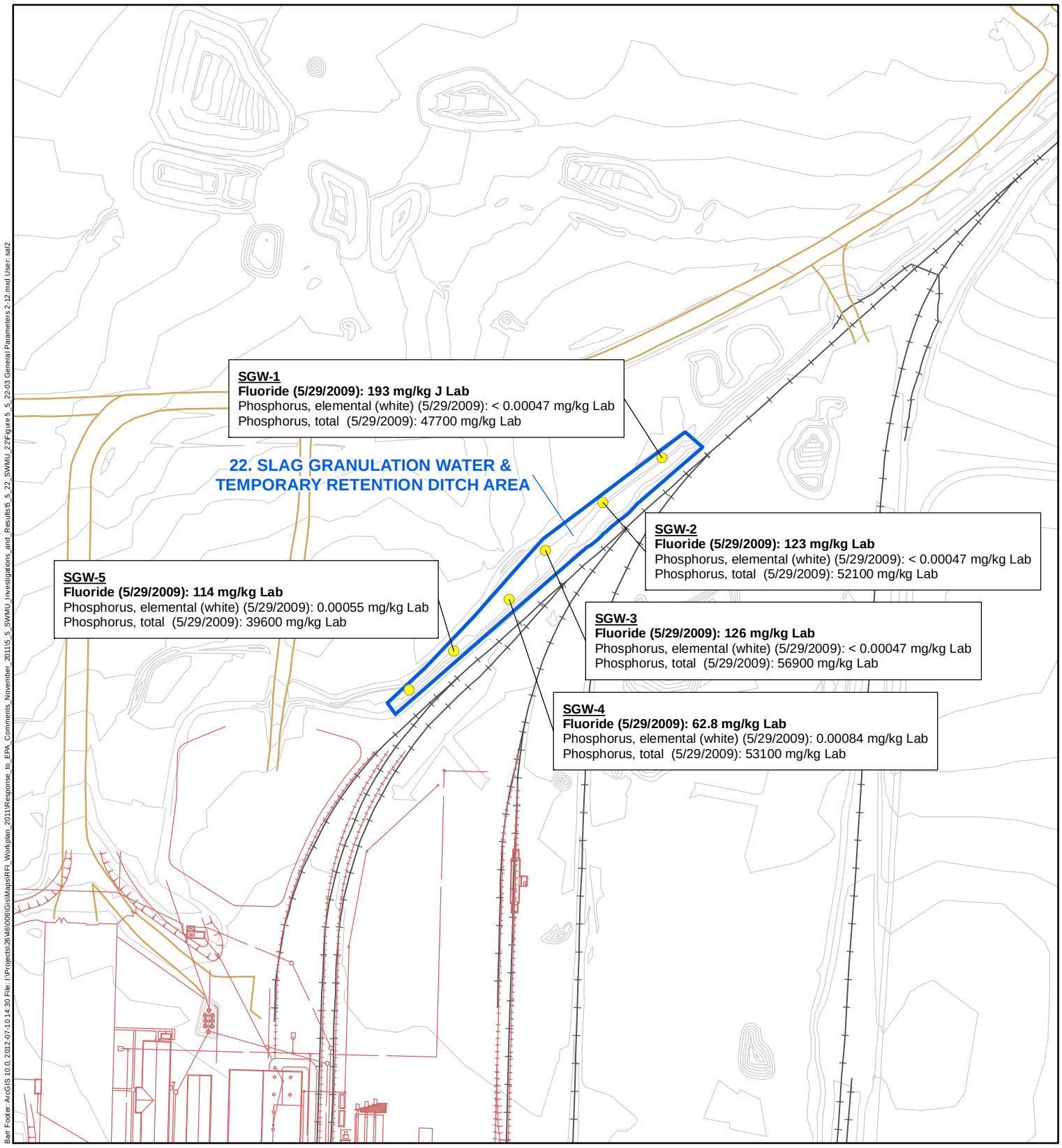
N

Feet

200 0 200

Figure 5.5.22-2

SWMU 22
GENERAL PARAMETERS
0-2 INCHES
Rhodia Silver Bow Plant
Montana



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Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

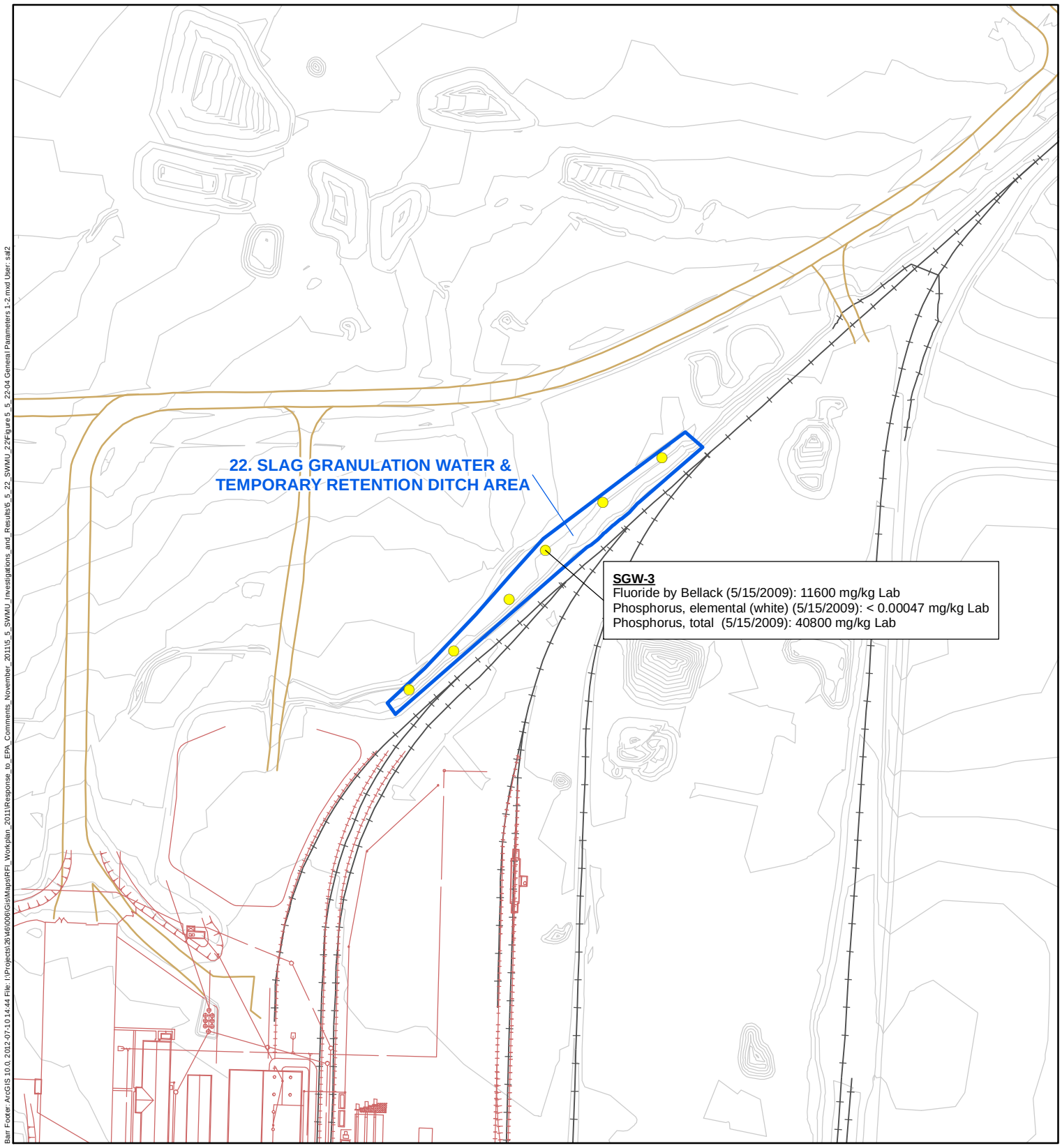
N

Feet

200 0 200

Figure 5.5.22-3

SWMU 22
GENERAL PARAMETERS
2-12 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

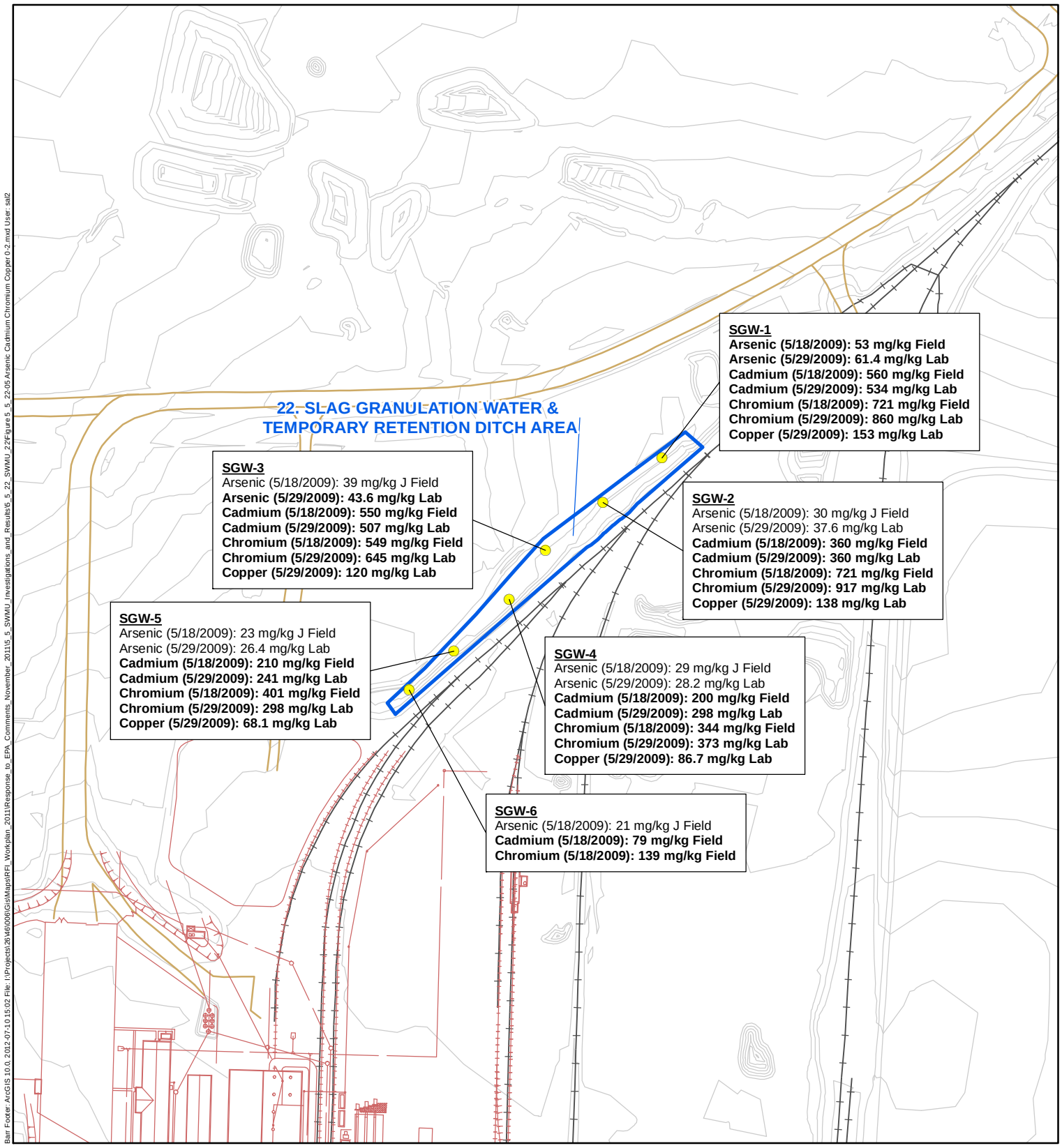
N

Feet

200 0 200

Figure 5.5.22-4

SWMU 22
GENERAL PARAMETERS
1-2 FEET
Rhodia Silver Bow Plant
Montana



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Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

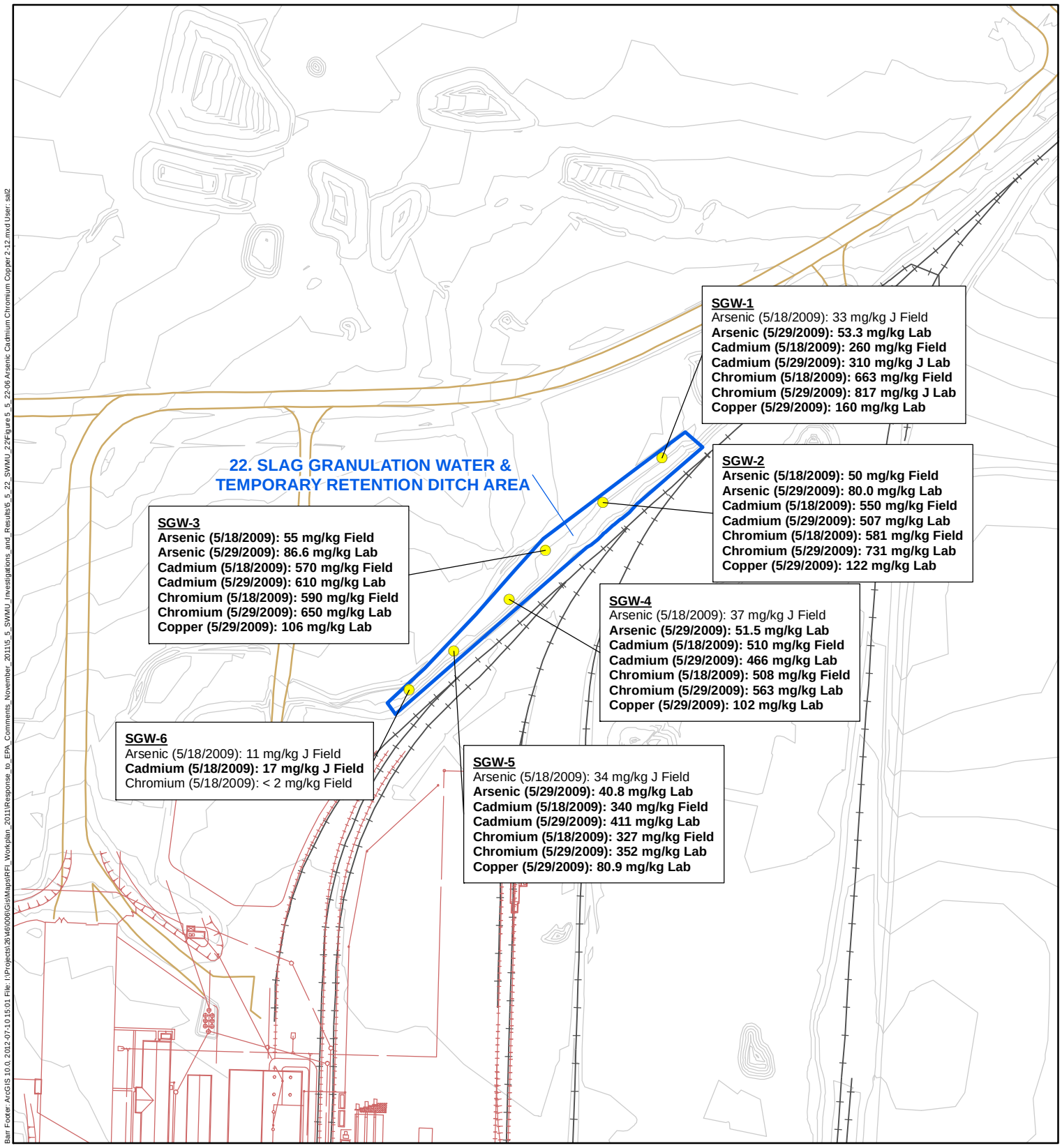
N

Feet

200 0 200

Figure 5.5.22-5

SWMU 22
ARSENIC, CADMIUM,
CHROMIUM, AND COPPER, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

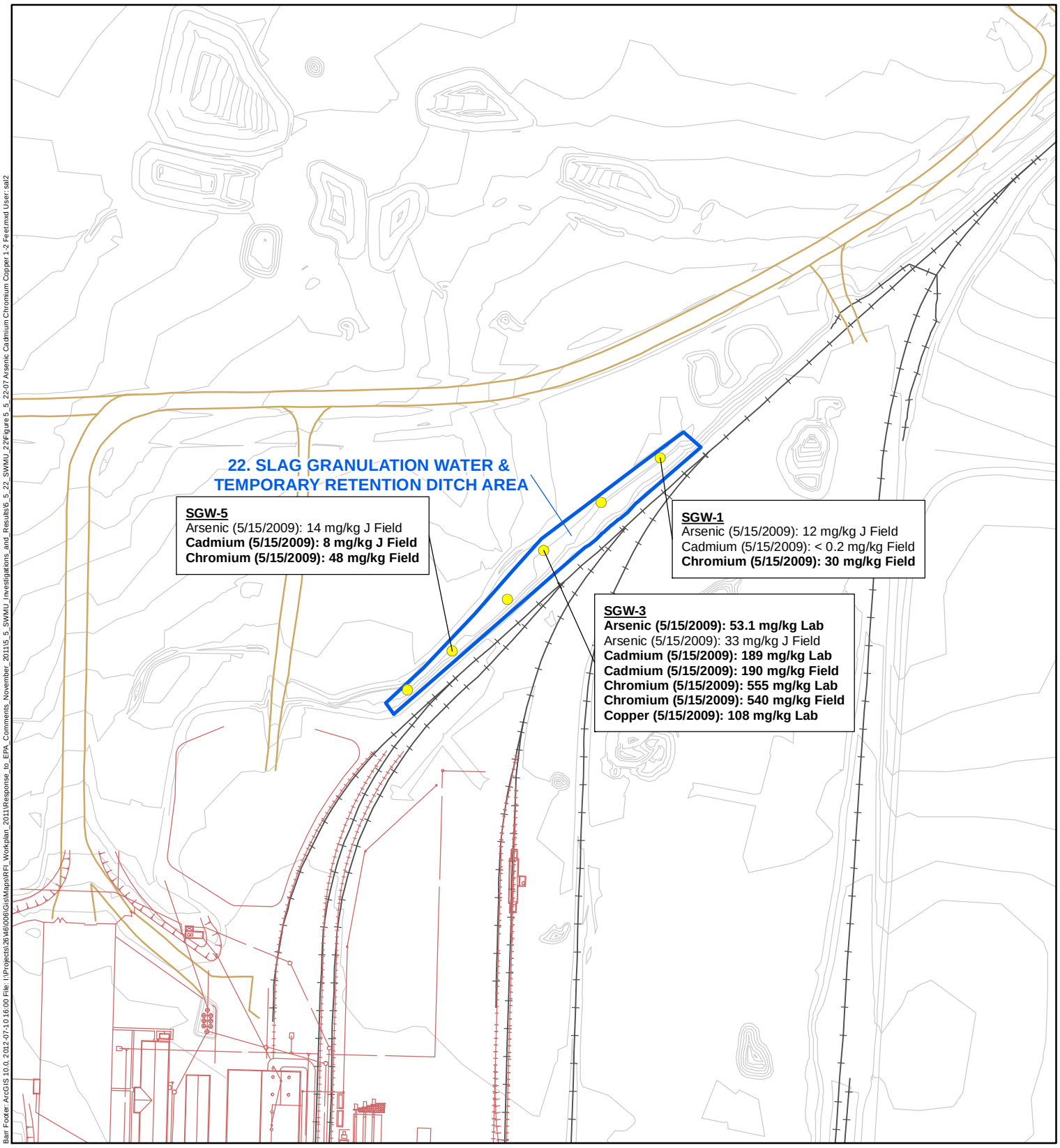
N

Feet

200 0 200

Figure 5.5.22-6

SWMU 22
ARSENIC, CADMIUM, CHROMIUM, AND COPPER, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 16:00 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_23\Figure 5_5_22-07 Arsenic Cadmium Chromium Copper 1-2 Feet.mxd User: sal2

Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

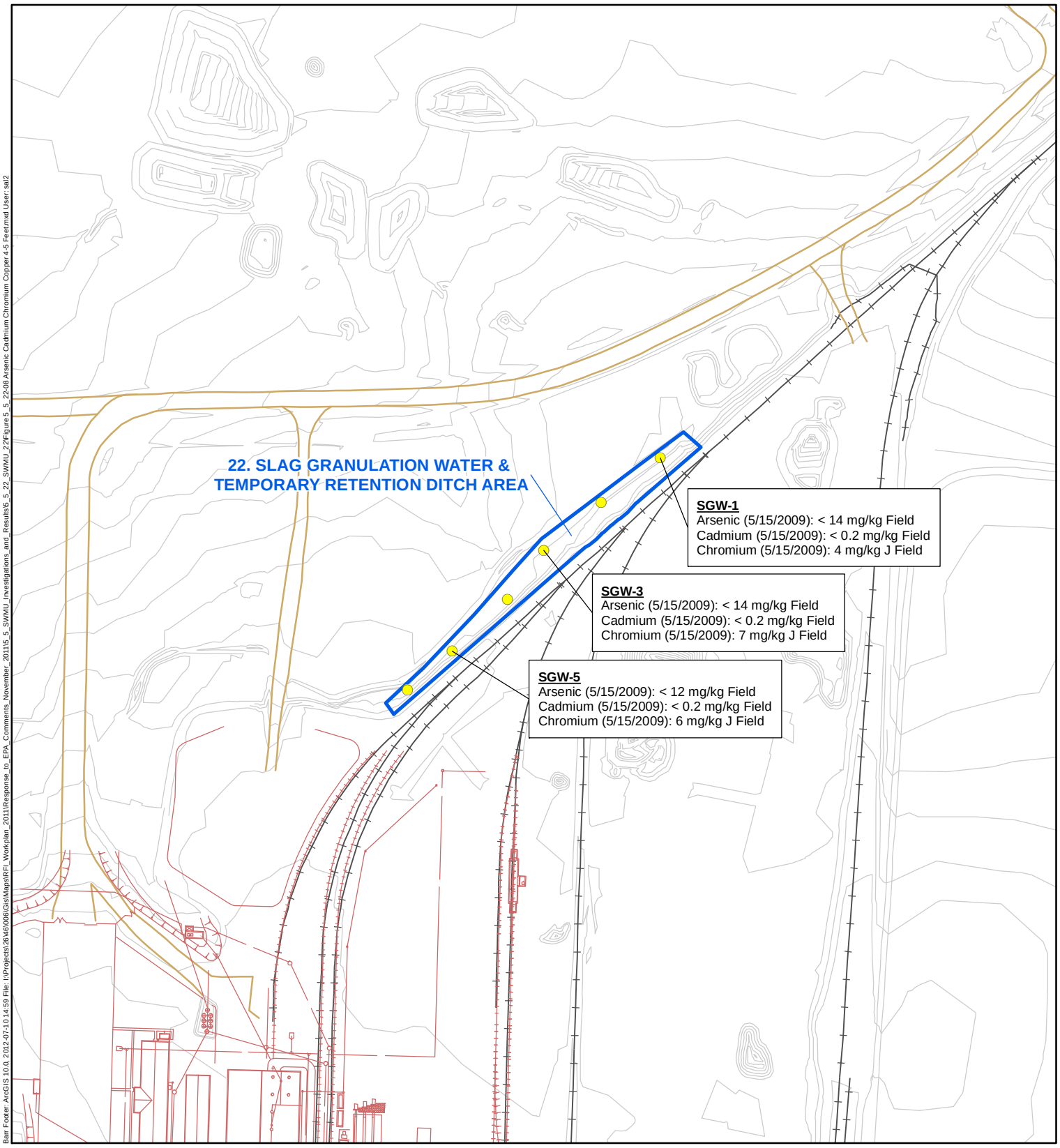
Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

N

Feet
200 0 200

Figure 5.5.22-7

SWMU 22
ARSENIC, CADMIUM, CHROMIUM, AND COPPER, 1-2 FEET
Rhodia Silver Bow Plant
Montana



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Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

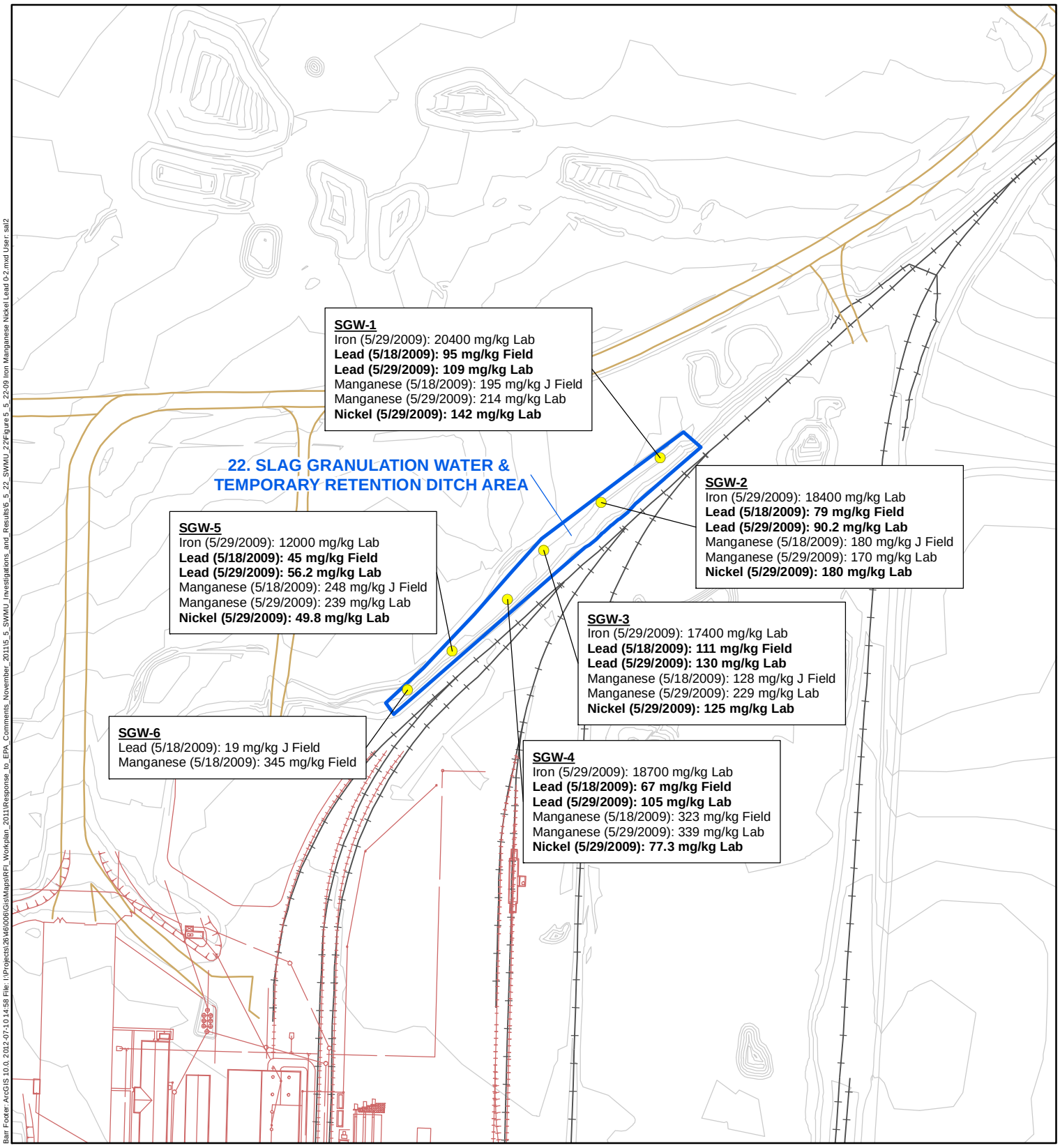
N

Feet

200 0 200

Figure 5.5.22-8

SWMU 22
ARSENIC, CADMIUM, CHROMIUM, AND COPPER, 4-5 FEET
Rhodia Silver Bow Plant
Montana



Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

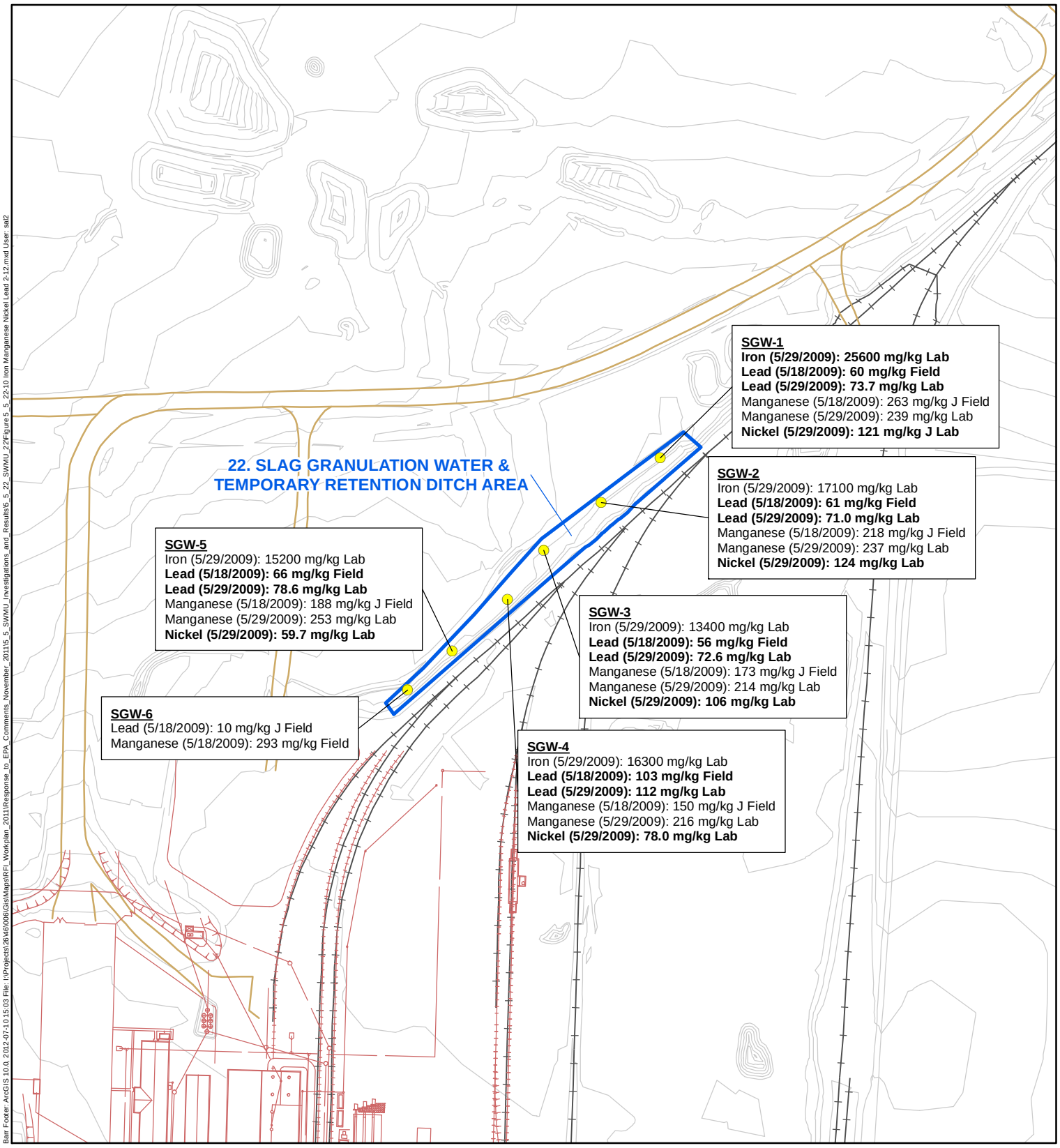
N

Feet

200 0 200

Figure 5.5.22-9

SWMU 22
IRON, MANGANESE, NICKEL, AND LEAD, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

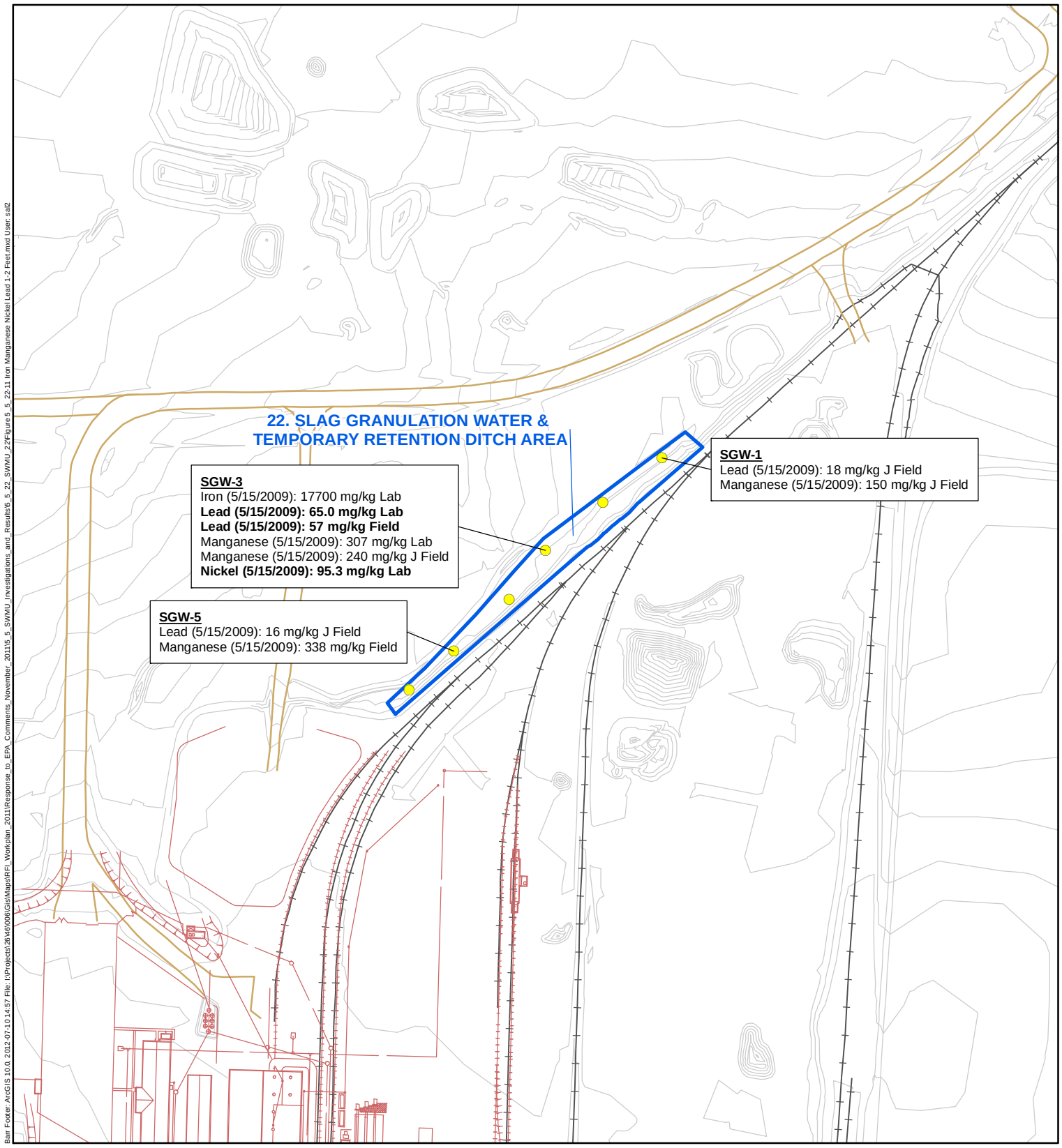
Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

N

Feet
200 0 200

Figure 5.5.22-10

SWMU 22
IRON, MANGANESE, NICKEL, AND LEAD, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



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Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

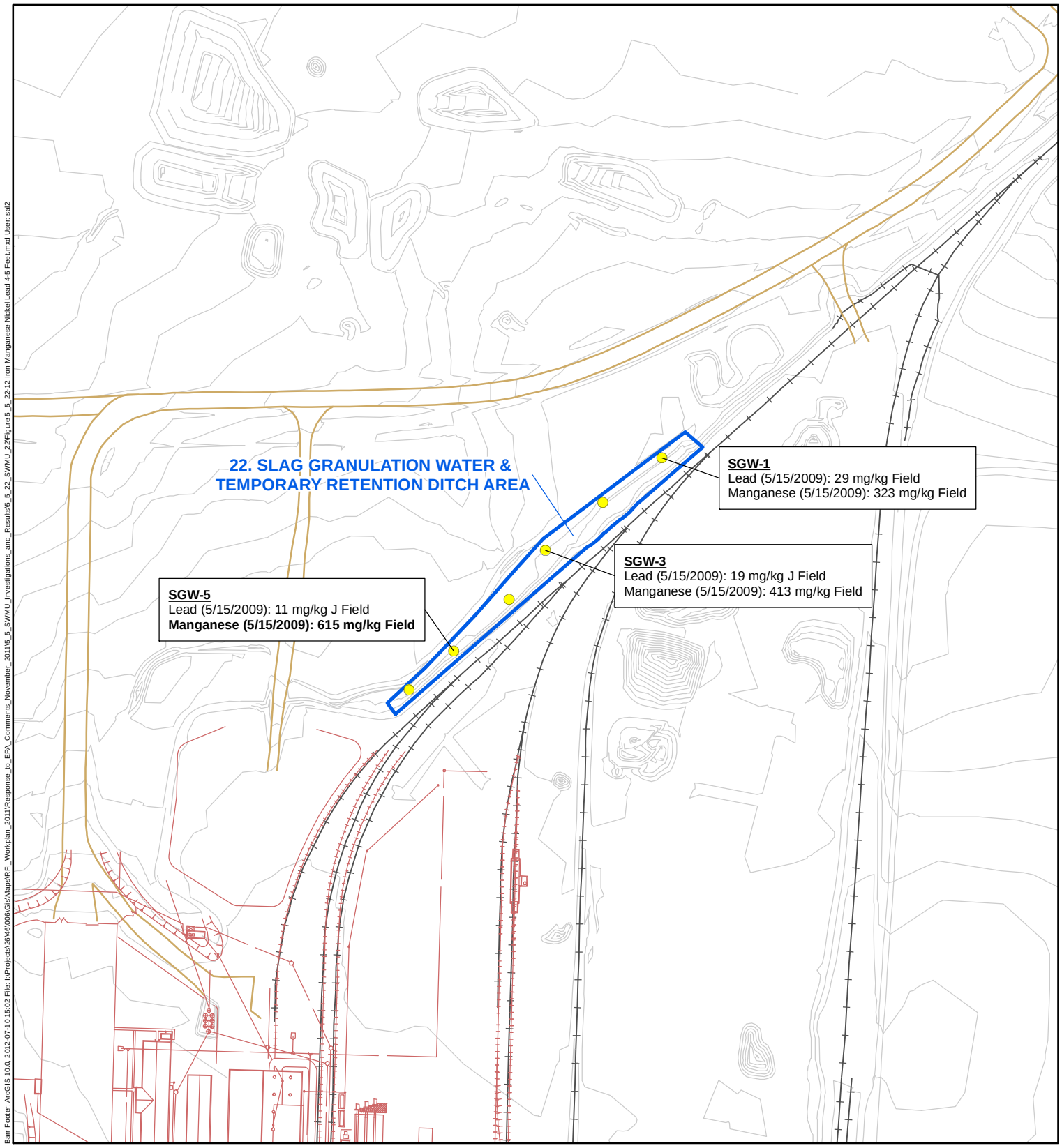
N

Feet

200 0 200

Figure 5.5.22-11

SWMU 22
IRON, MANGANESE, NICKEL, AND LEAD, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:02 File: I:\Projects\2614\0006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-12 Iron Manganese Nickel Lead 4-5 Feet.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

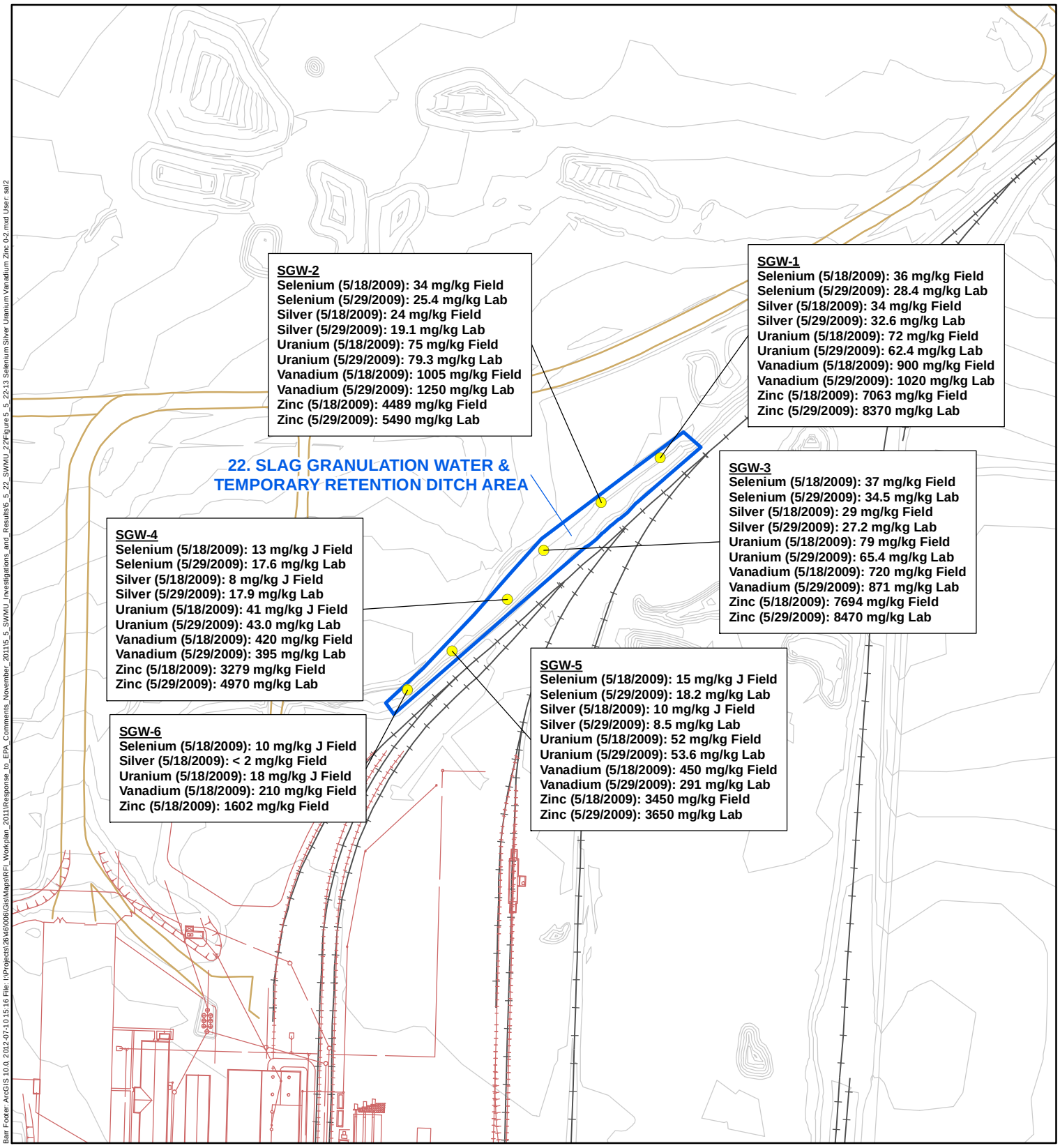
N

Feet

200 0 200

Figure 5.5.22-12

SWMU 22
IRON, MANGANESE, NICKEL, AND LEAD, 4-5 FEET
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:16 File: I:\Projects\26\46\006\GIs\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-13 Selenium Silver Uranium Vanadium Zinc 0-2.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

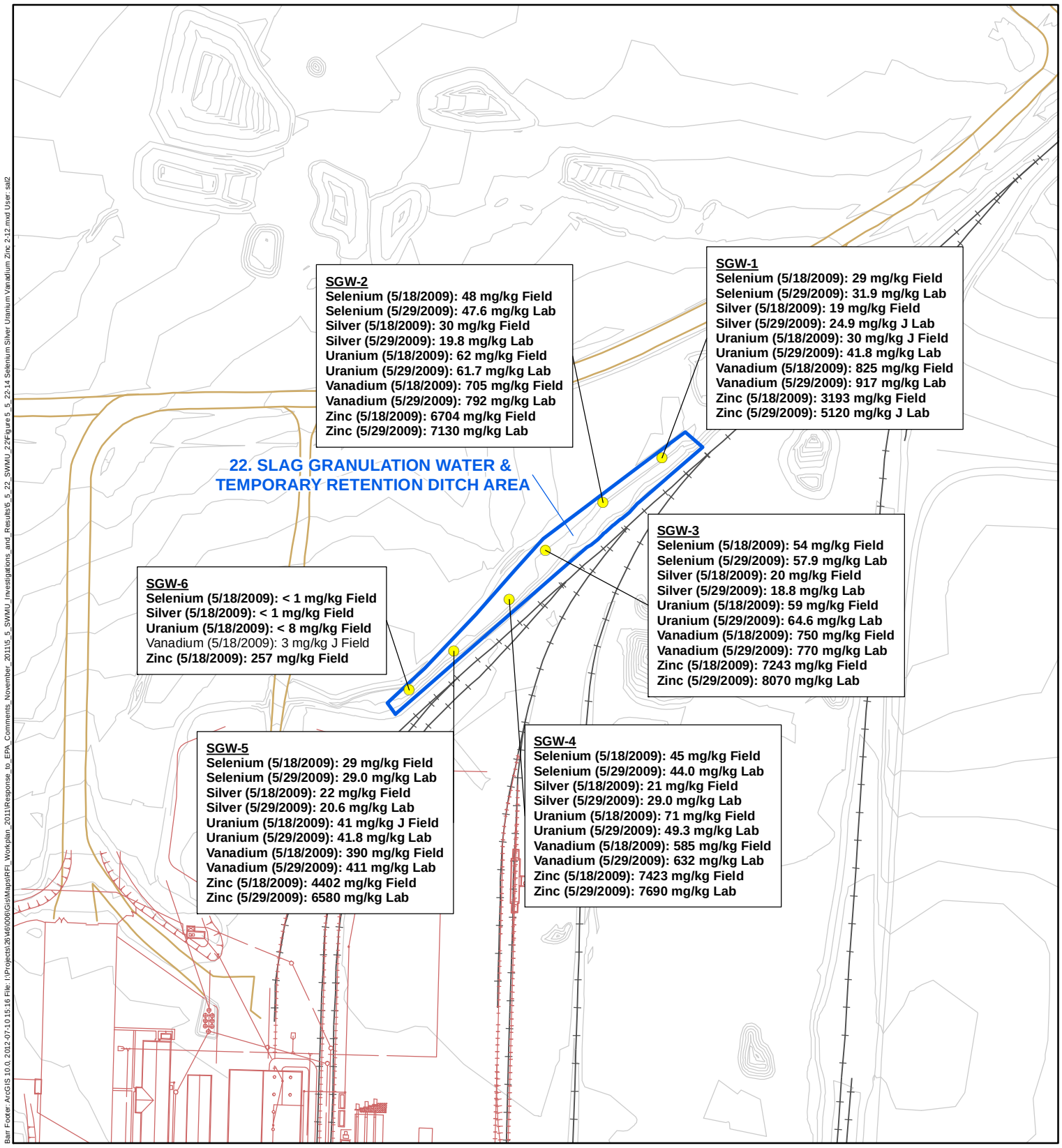
N

Feet

200 0 200

Figure 5.5.22-13

SWMU 22
SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:16 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-14 Selenium Silver Uranium Vanadium Zinc 2-12.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

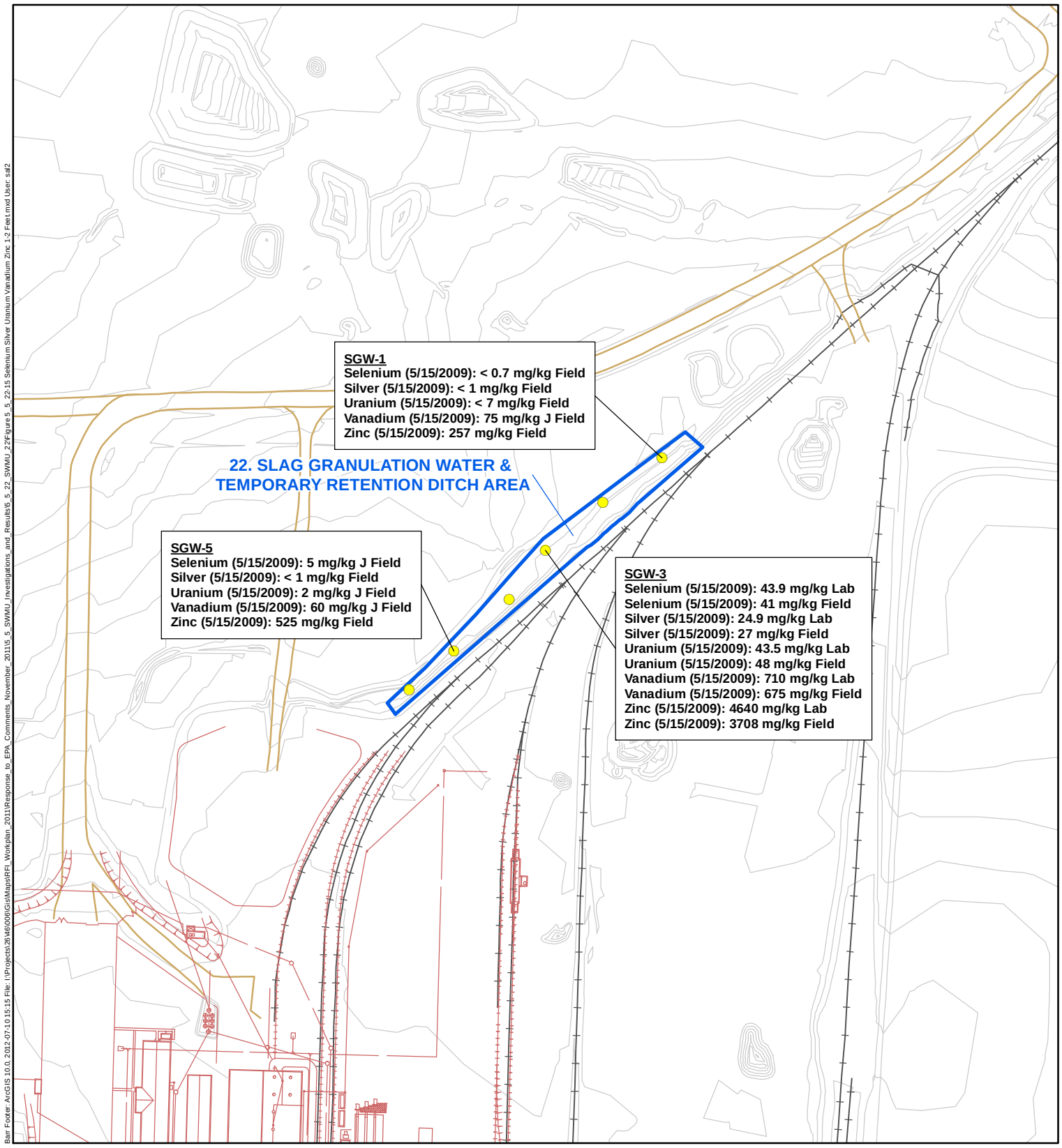
N

Feet

200 0 200

Figure 5.5.22-14

SWMU 22
SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:15 File: I:\Projects\2646\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-15 Selenium Silver Uranium Vanadium Zinc 1-2 Feet.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

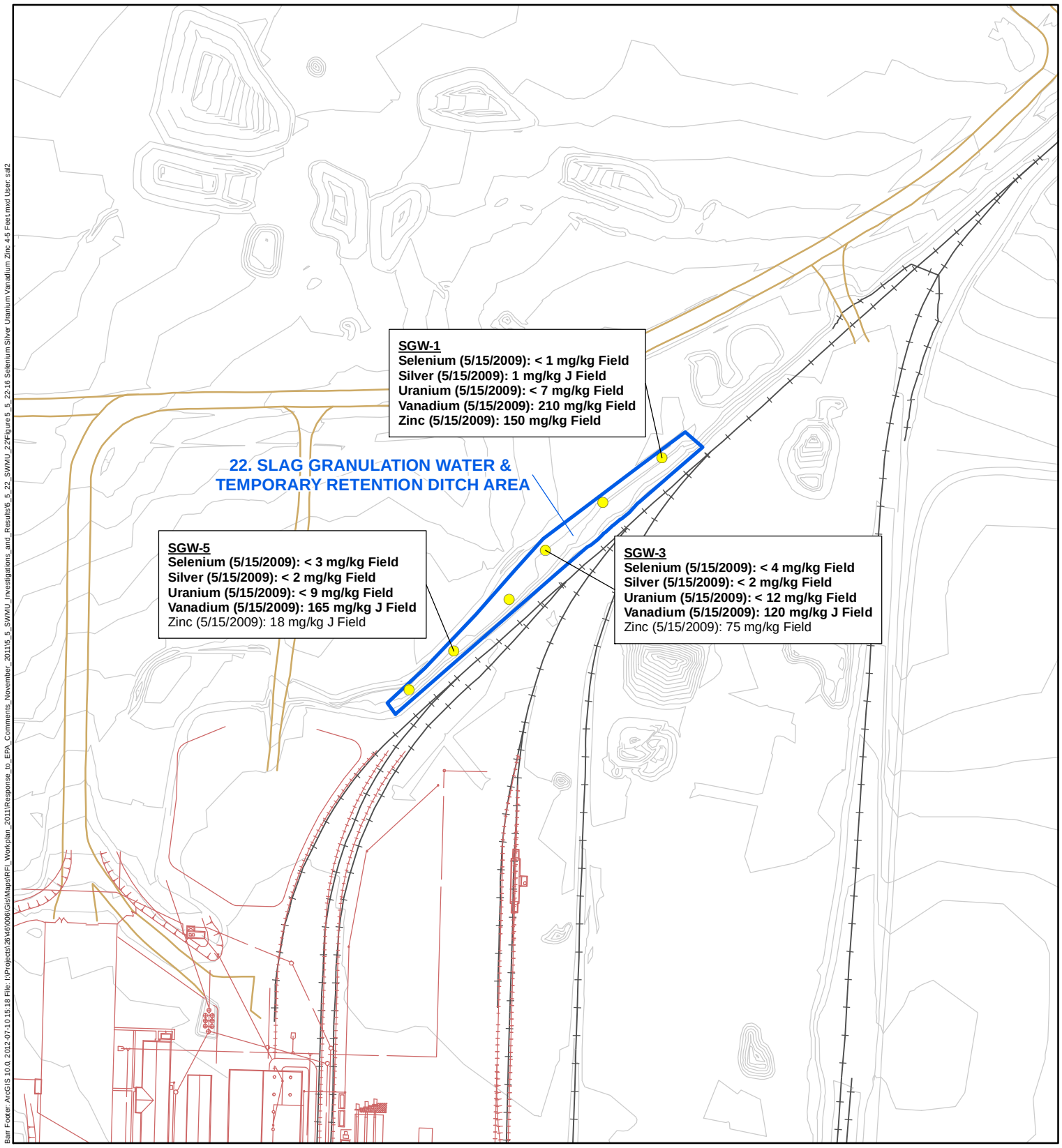
N

Feet

200 0 200

Figure 5.5.22-15

SWMU 22
SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:18 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-16 Selenium Silver Uranium Vanadium Zinc 4-5 Feet.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

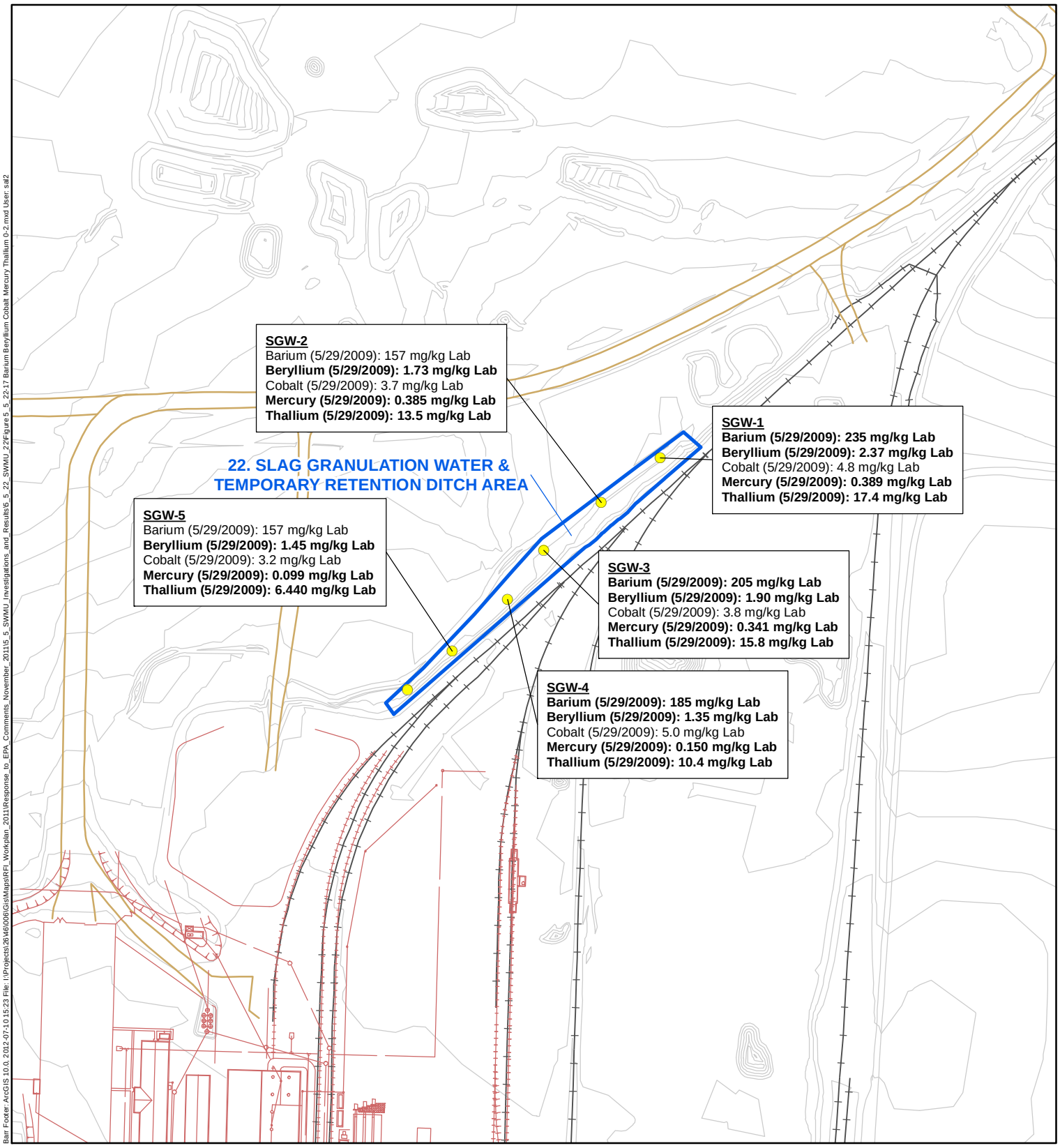
N

Feet

200 0 200

Figure 5.5.22-16

SWMU 22
SELENIUM, SILVER, URANIUM, VANADIUM, AND ZINC, 4-5 FEET
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

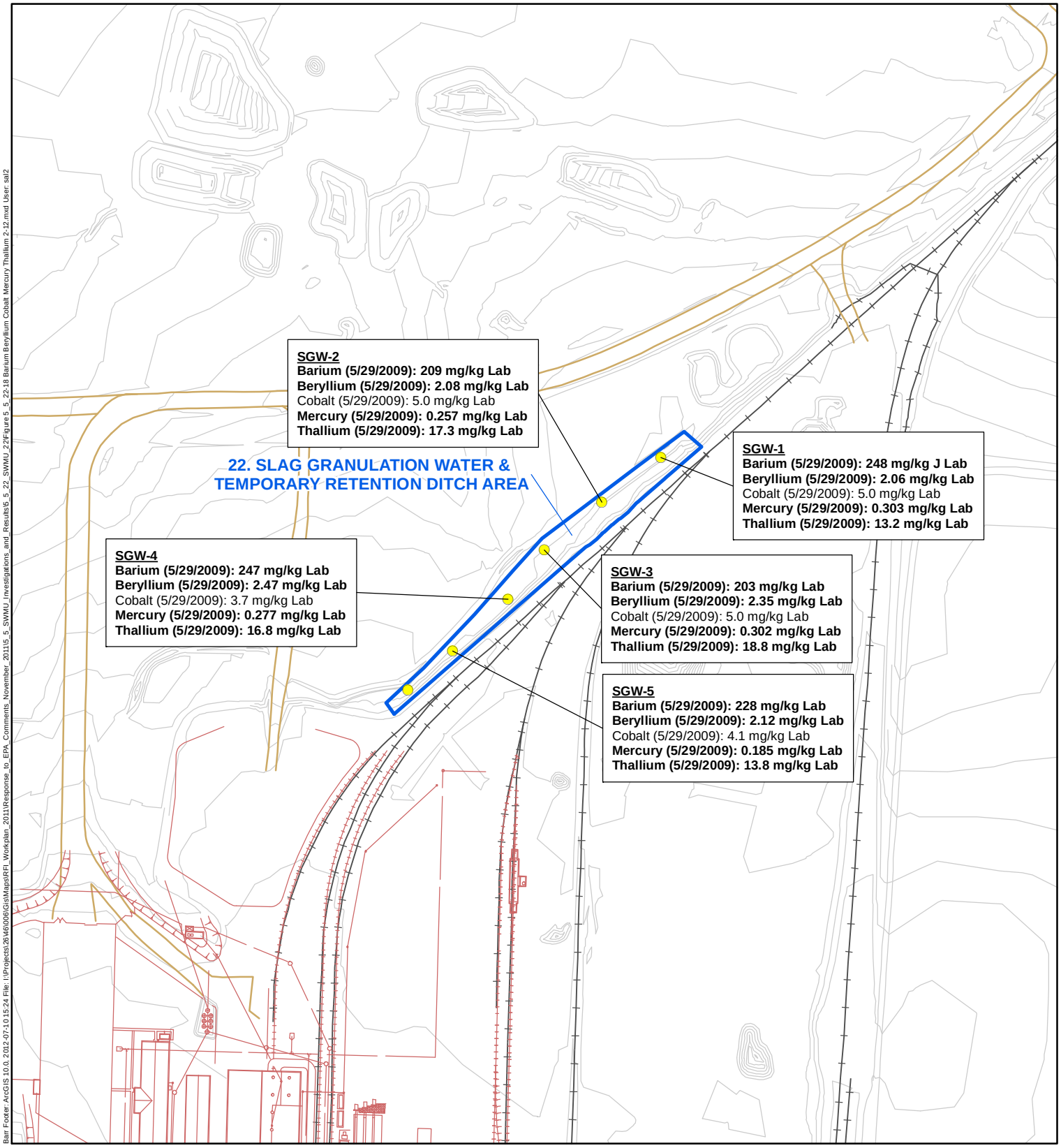
Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

N

Feet
200 0 200

Figure 5.5.22-17

SWMU 22
BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:24 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU 22\Figure 5_5_22-18 Barium Beryllium Cobalt Mercury Thallium 2-12.mxd User: sal2

Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

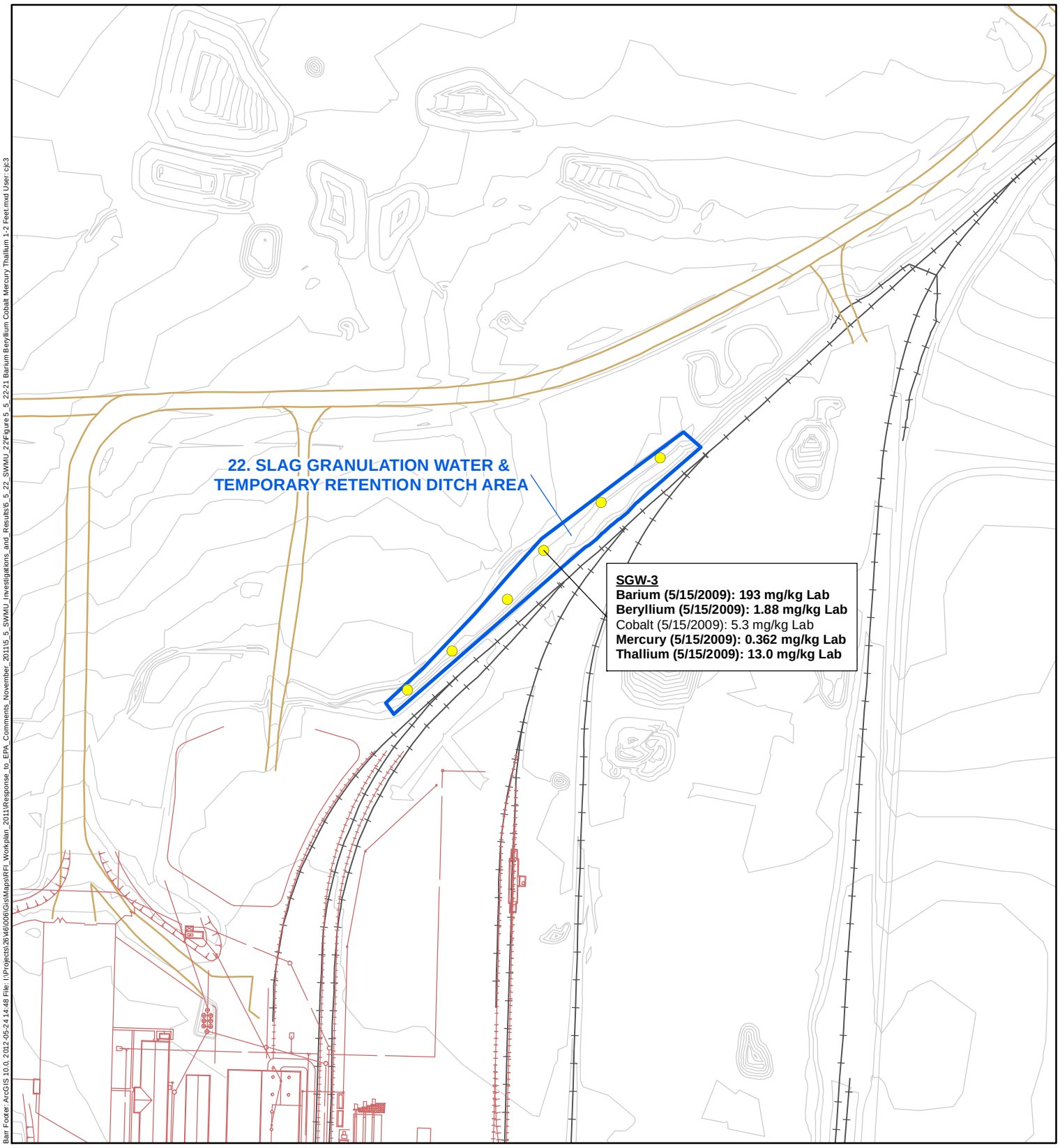
Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

N

Feet
200 0 200

Figure 5.5.22-18

SWMU 22
BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-05-24 14:48 File: I:\Projects\2614\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\5_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-21 Barium Beryllium Cobalt Mercury Thallium 1-2 Feet.mxd User: cjc3

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

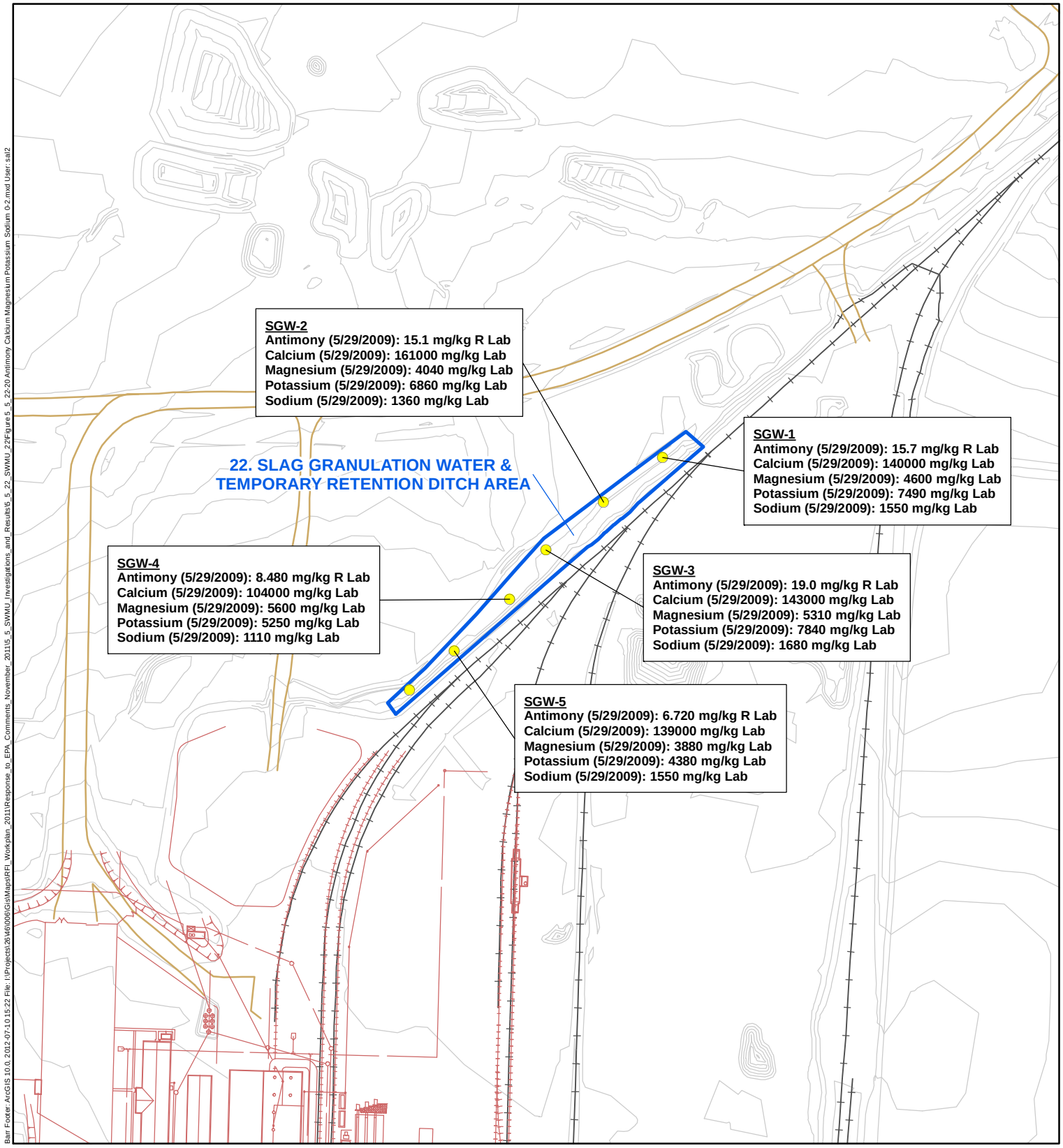
N

Feet

200 0 200

Figure 5.5.22-19

SWMU 22
BARIUM, BERYLLIUM, COBALT, MERCURY, AND THALLIUM, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

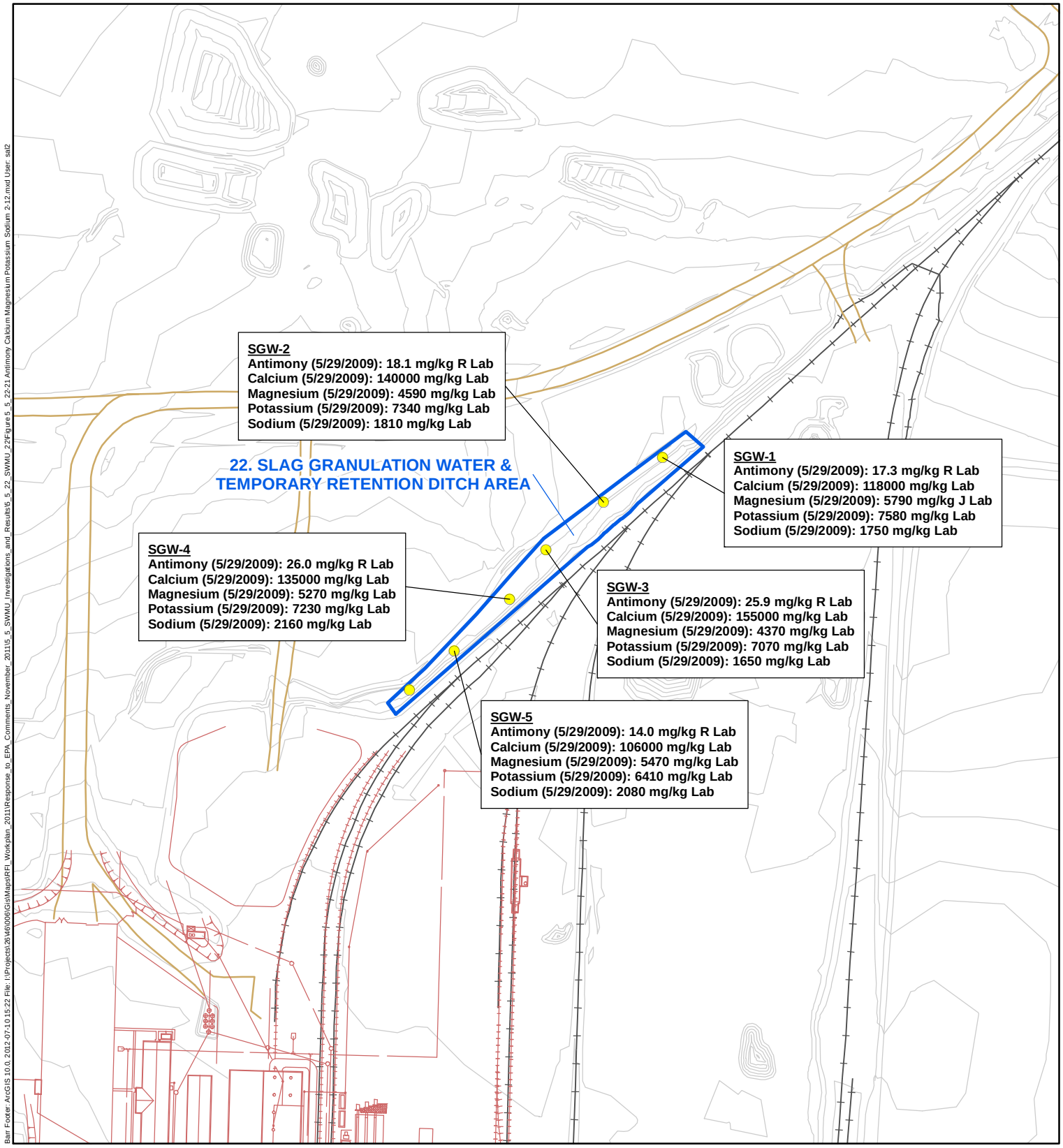
Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

N

Feet
200 0 200

Figure 5.5.22-20

SWMU 22
ANTIMONY, CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:22 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-21 Antimony Calcium Magnesium Potassium Sodium 2-12.mxd User: sal2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

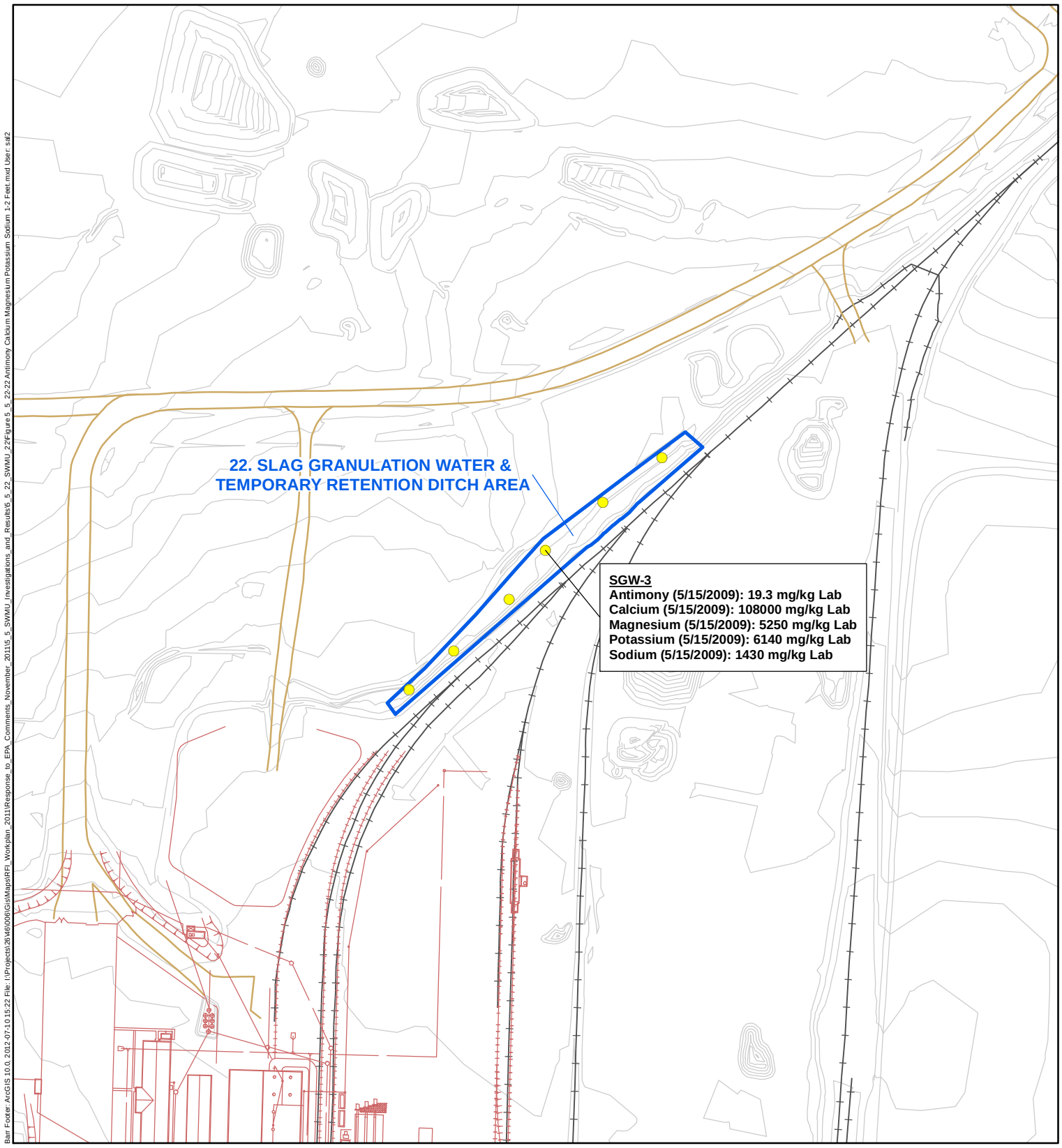
N

Feet

200 0 200

Figure 5.5.22-21

SWMU 22
ANTIMONY, CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:22 File: I:\Projects\2646\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\5_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-22 Antimony Calcium Magnesium Potassium Sodium 1-2 Feet.mxd User: sat2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

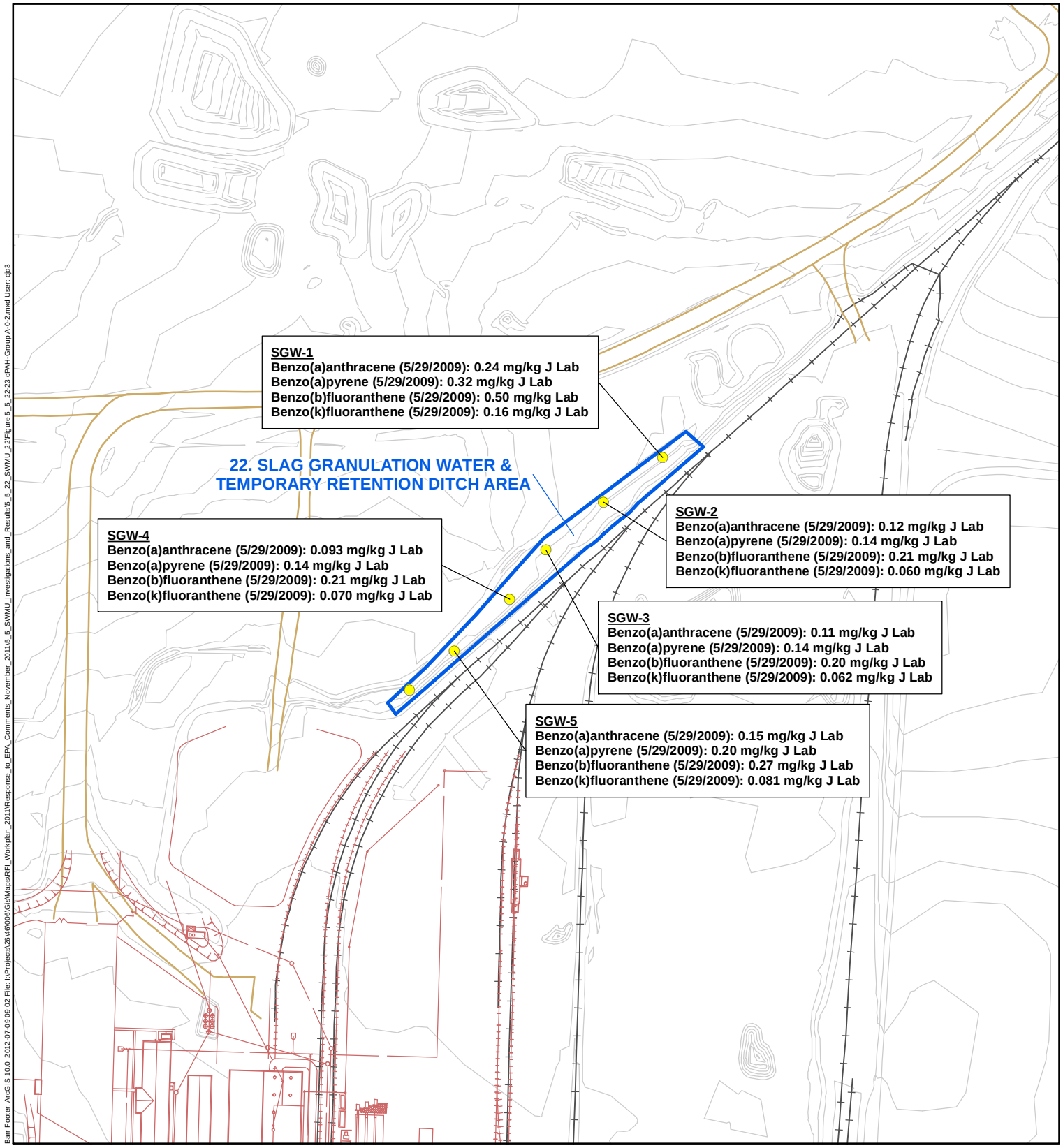
N

Feet

200 0 200

Figure 5.5.22-22

SWMU 22
ANTIMONY, CALCIUM, MAGNESIUM, POTASSIUM, AND SODIUM, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

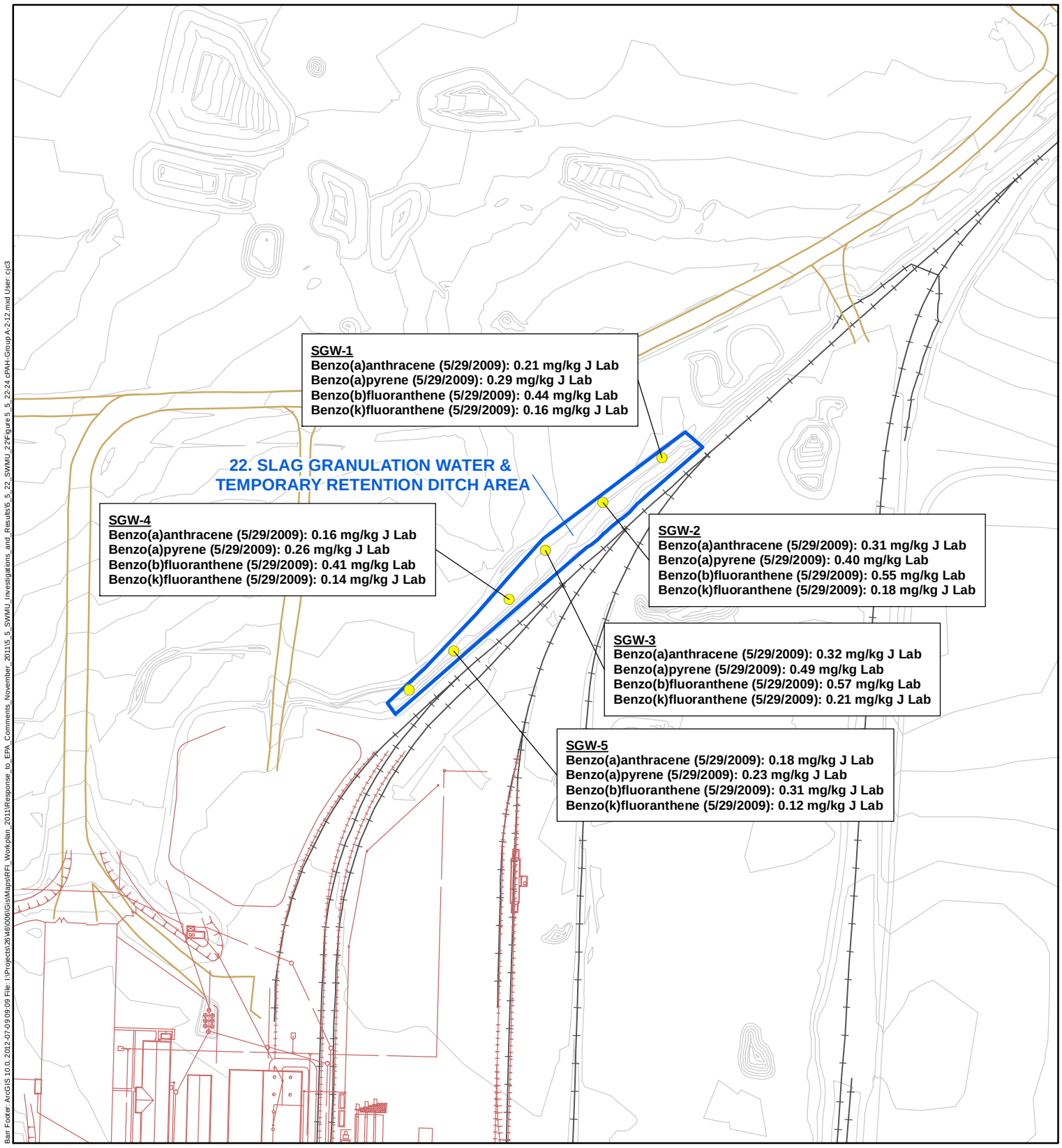
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-23

SWMU 22
cPAH GROUP A
0-2 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

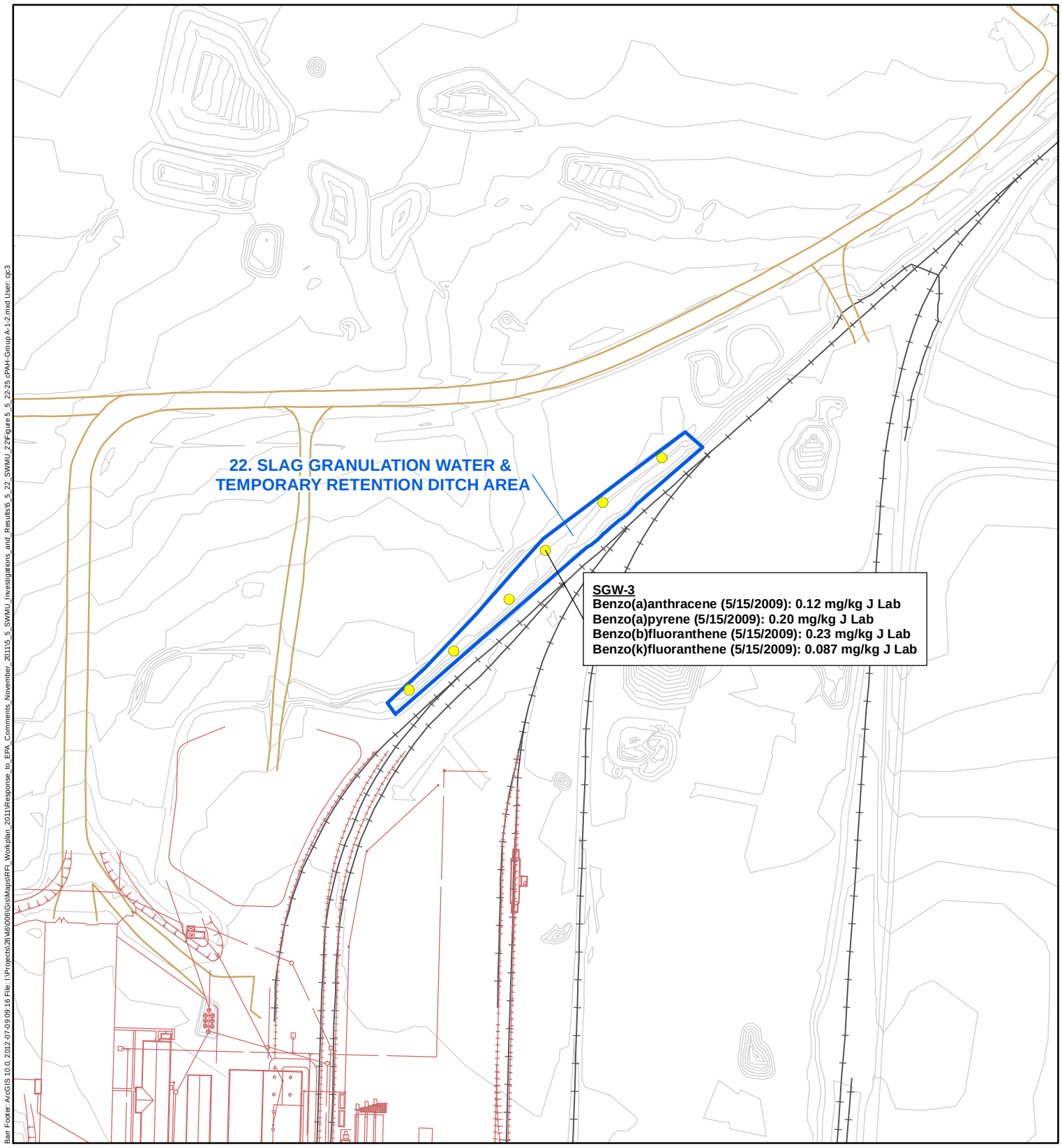
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-24

SWMU 22
cPAH GROUP A, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-09 09:16 File: I:\Projects\26\46\006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-25 cPAH-Group A-1-2.mxd User: cjc3

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that the parameter was detected.

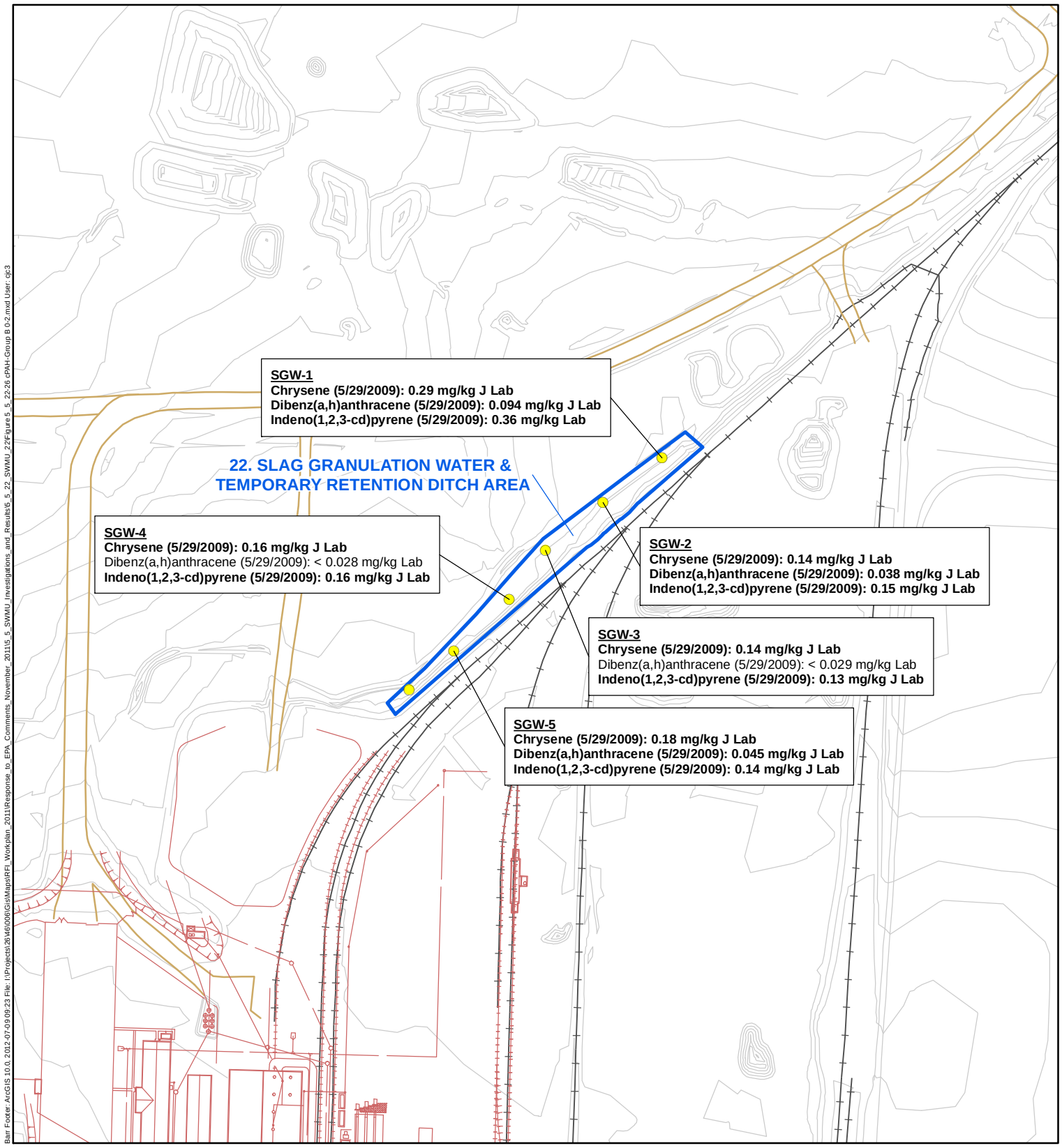
N

Feet

200 0 200

Figure 5.5.22-25

SWMU 22
cPAH GROUP A,1-2 FEET
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

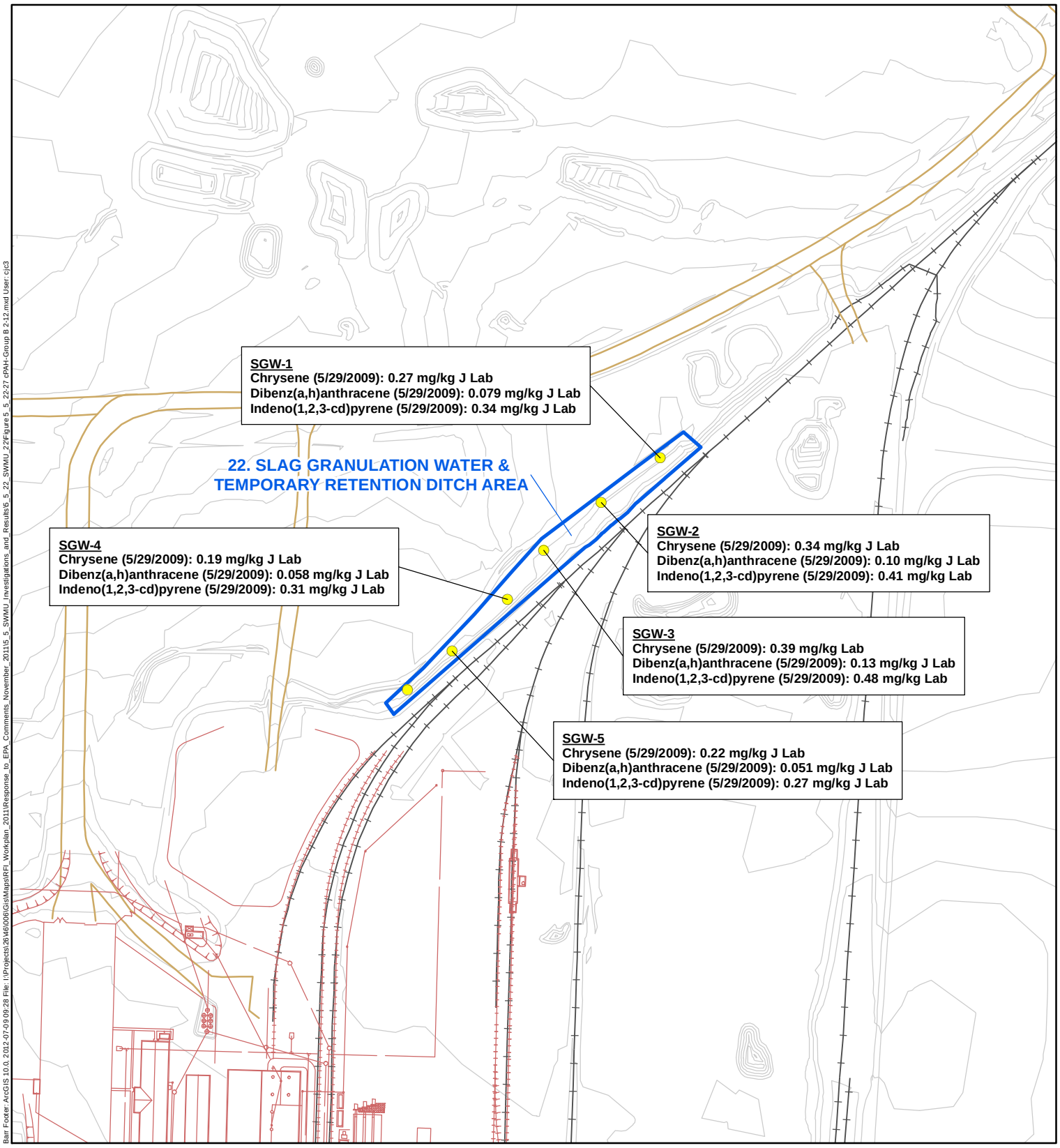
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-26

SWMU 22
cPAH GROUP B, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-09 09:28 File: I:\Projects\2646\006\GIs\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-27 cPAH-Group B 2-12.mxd User: cjc3

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that the parameter was detected.

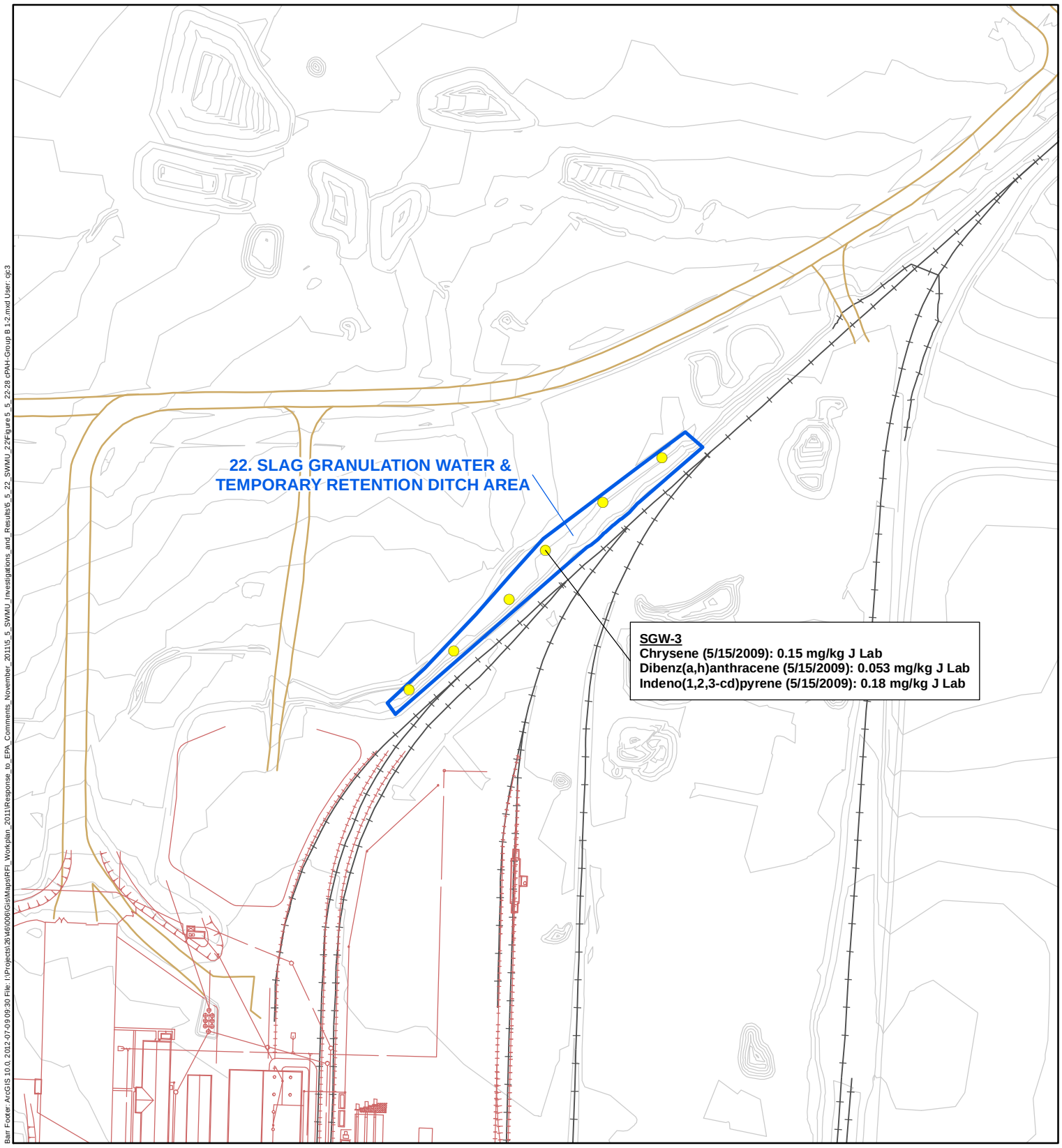
N

Feet

200 0 200

Figure 5.5.22-27

SWMU 22
cPAH GROUP B, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

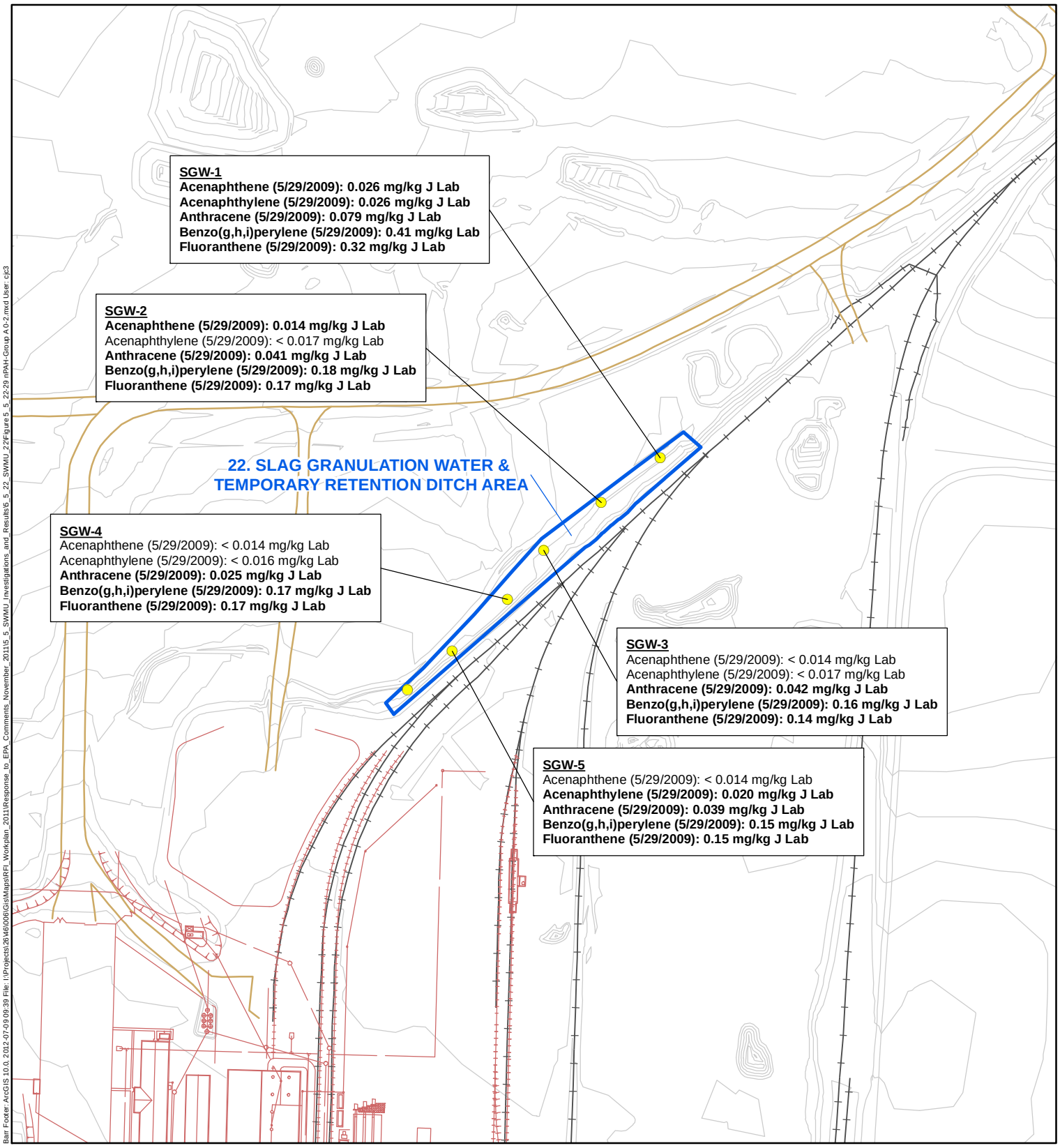
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-28

SWMU 22
cPAH GROUP B, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that the parameter was detected.

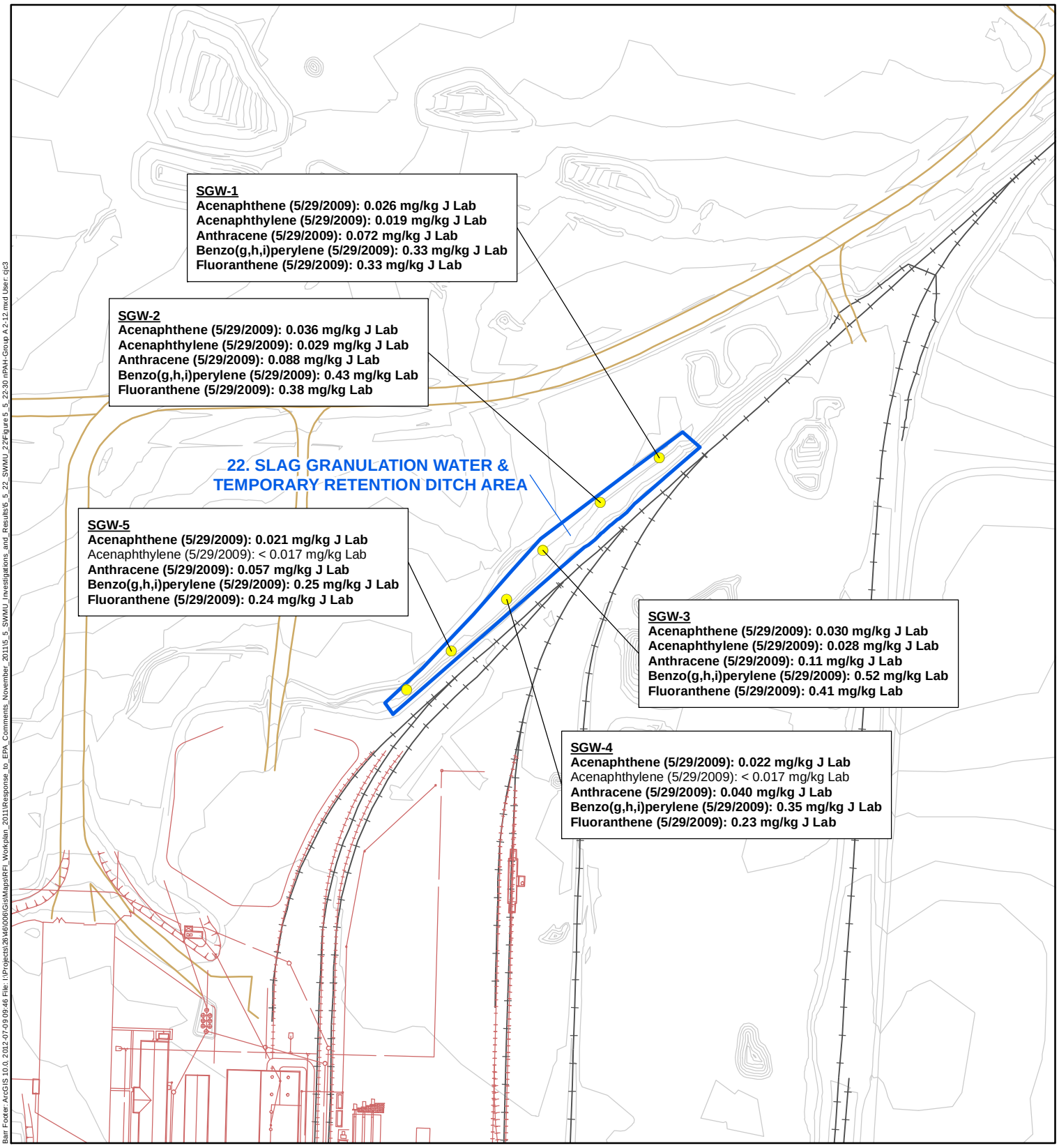
N

Feet

200 0 200

Figure 5.5.22-29

SWMU 22
nPAH GROUP A, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

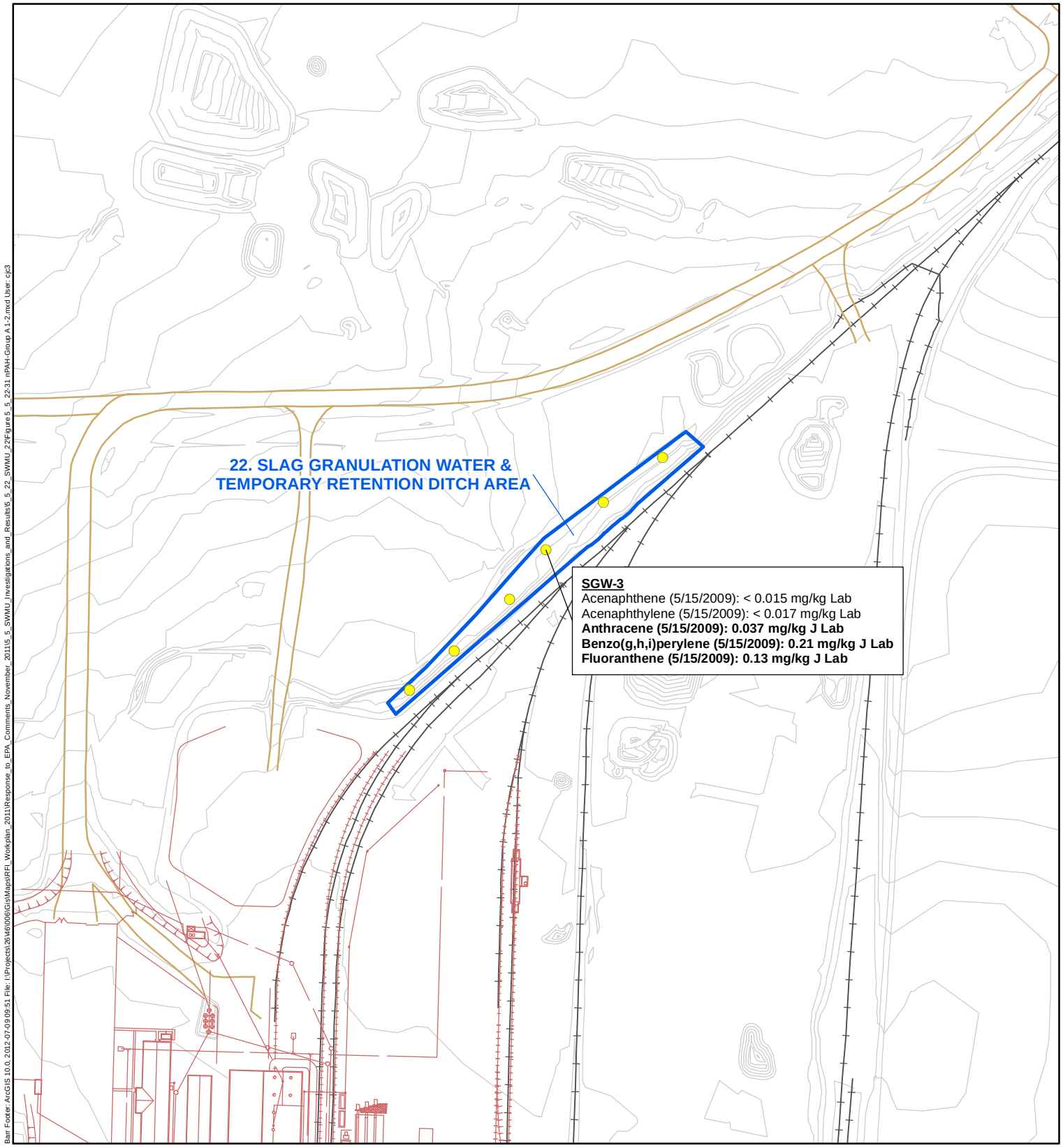
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-30

SWMU 22
nPAH GROUP A, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

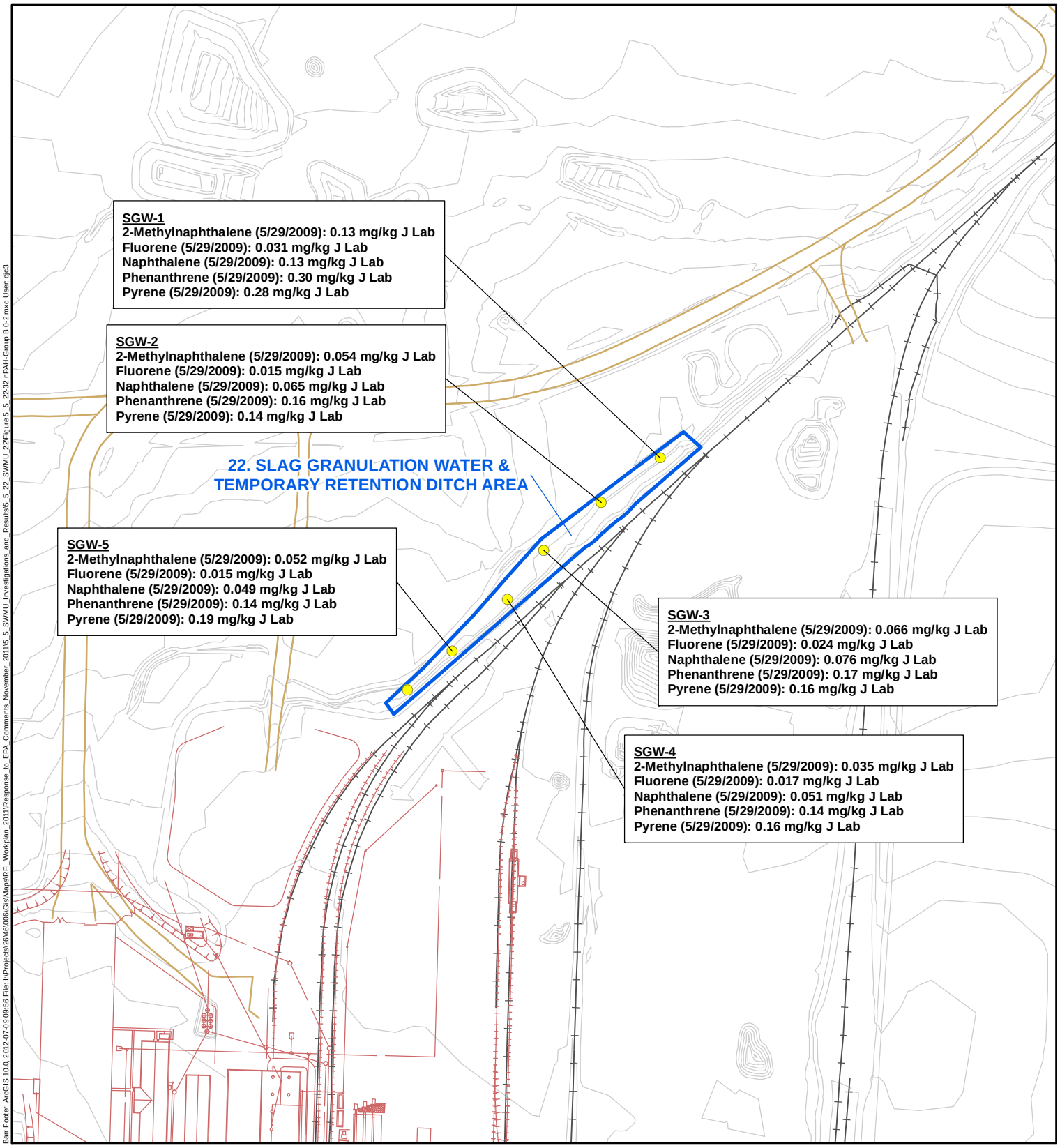
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-31

SWMU 22
nPAH GROUP A, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

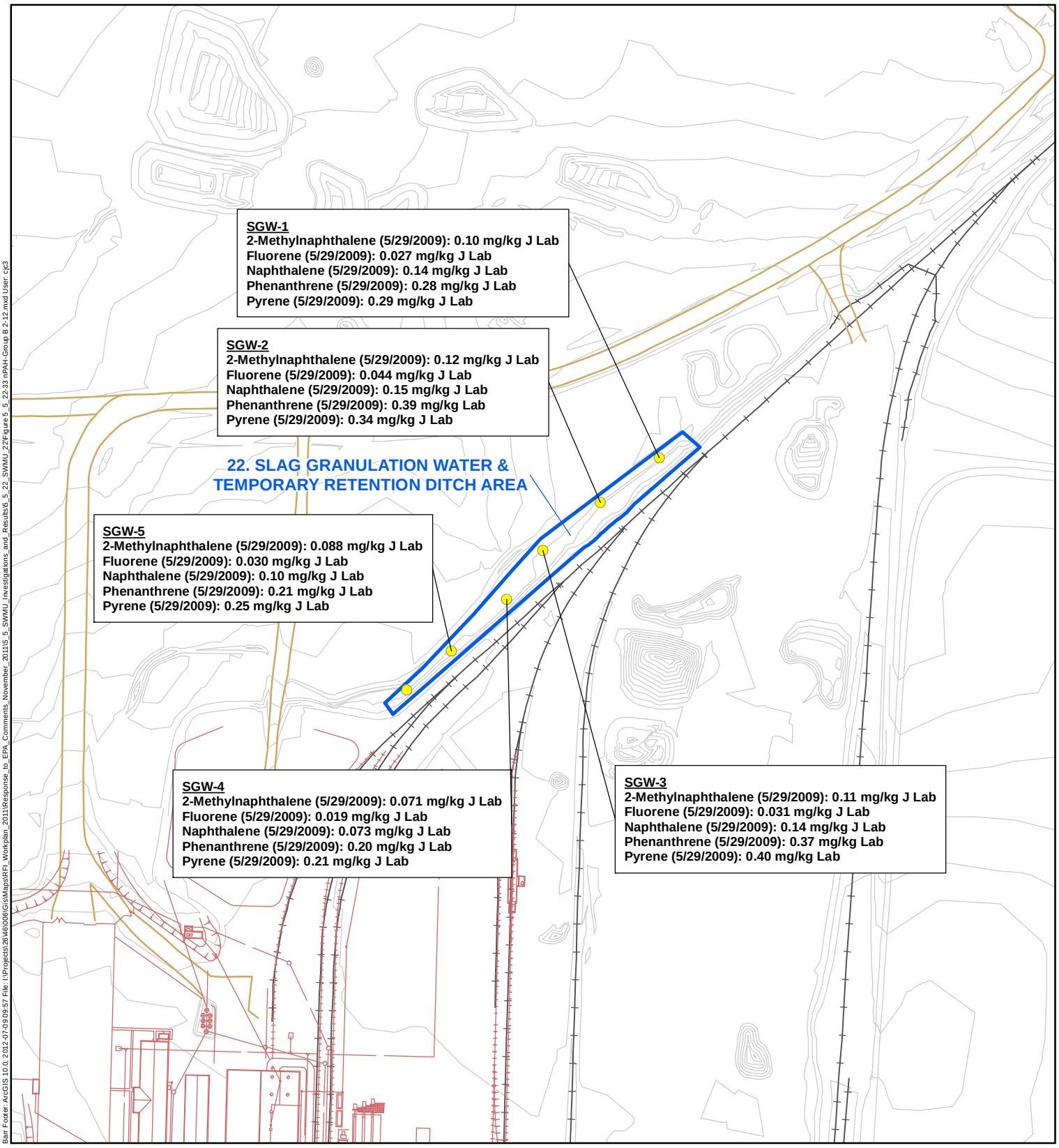
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-32

SWMU 22
nPAH GROUP B, 0-2 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

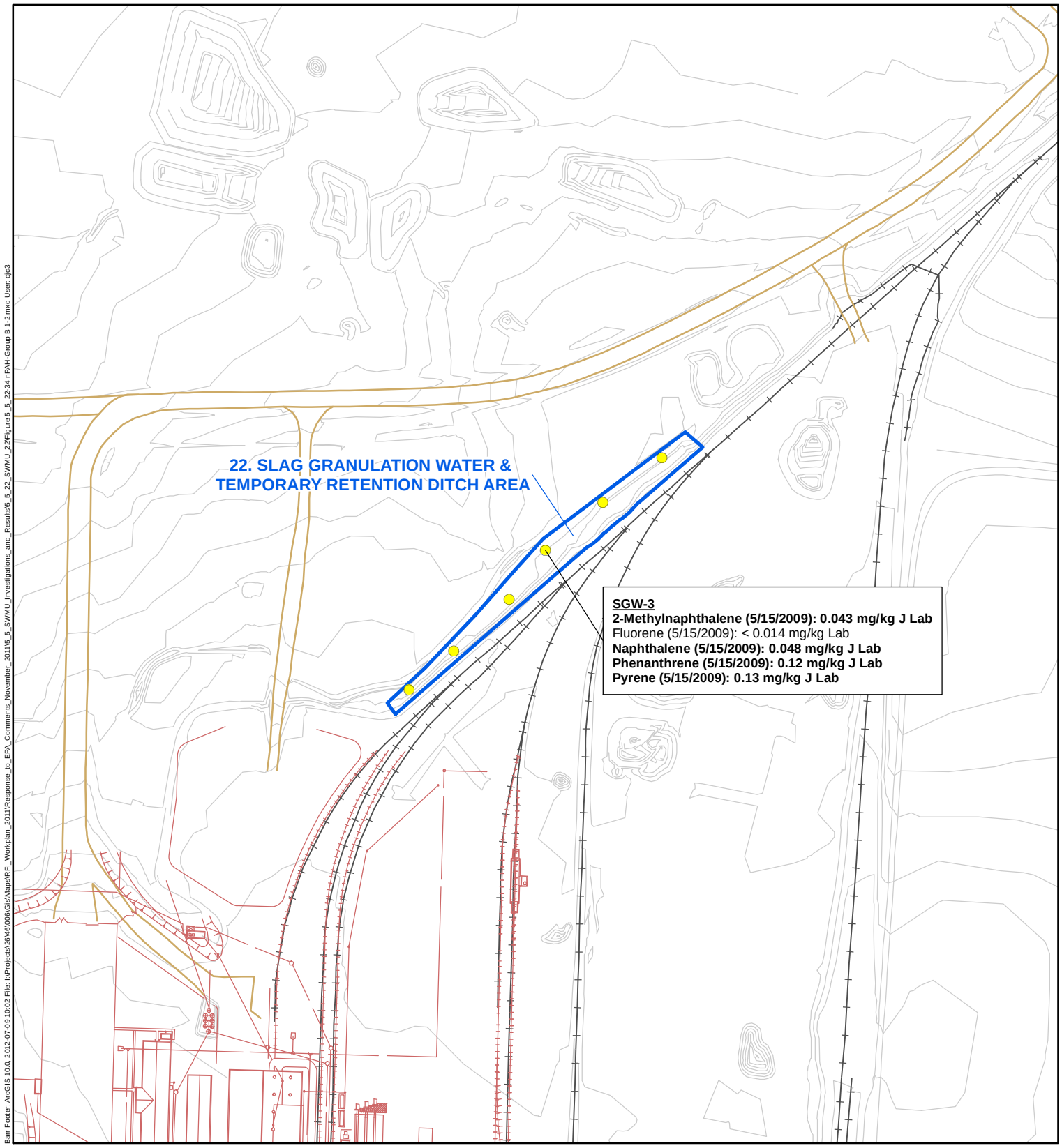
Bold font indicates that the parameter was detected.

N

Feet
200 0 200

Figure 5.5.22-33

SWMU 22
nPAH GROUP B, 2-12 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-09 10:02 File: I:\Projects\2614\0006\GisMaps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\5_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-34 nPAH-Group B 1-2.mxd User: gjc3

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that the parameter was detected.

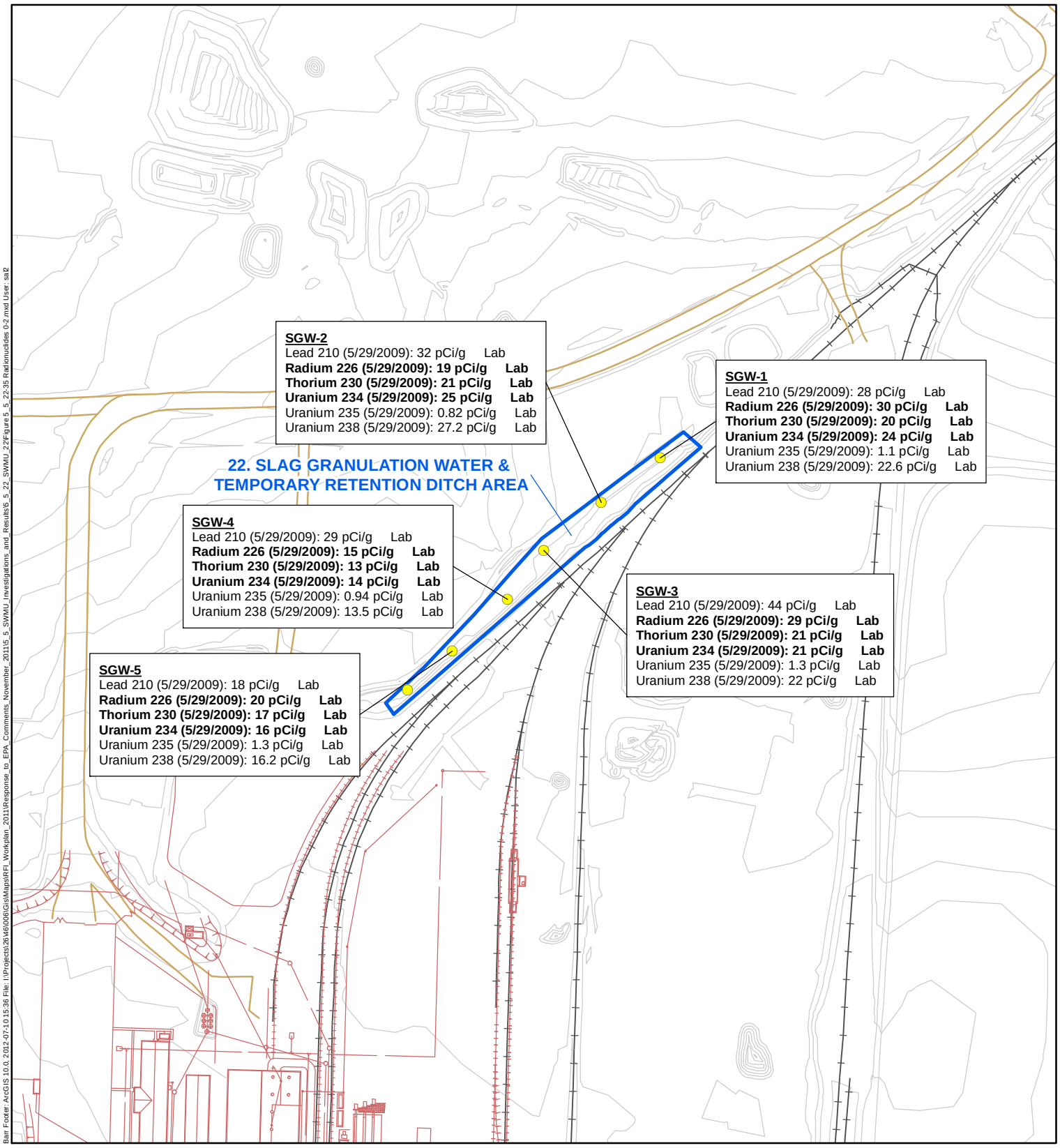
N

Feet

200 0 200

Figure 5.5.22-34

SWMU 22
nPAH GROUP B, 1-2 FEET
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:36 File: I:\Projects\2614\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-35 Radionuclides 0-2 mxd User: sa2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

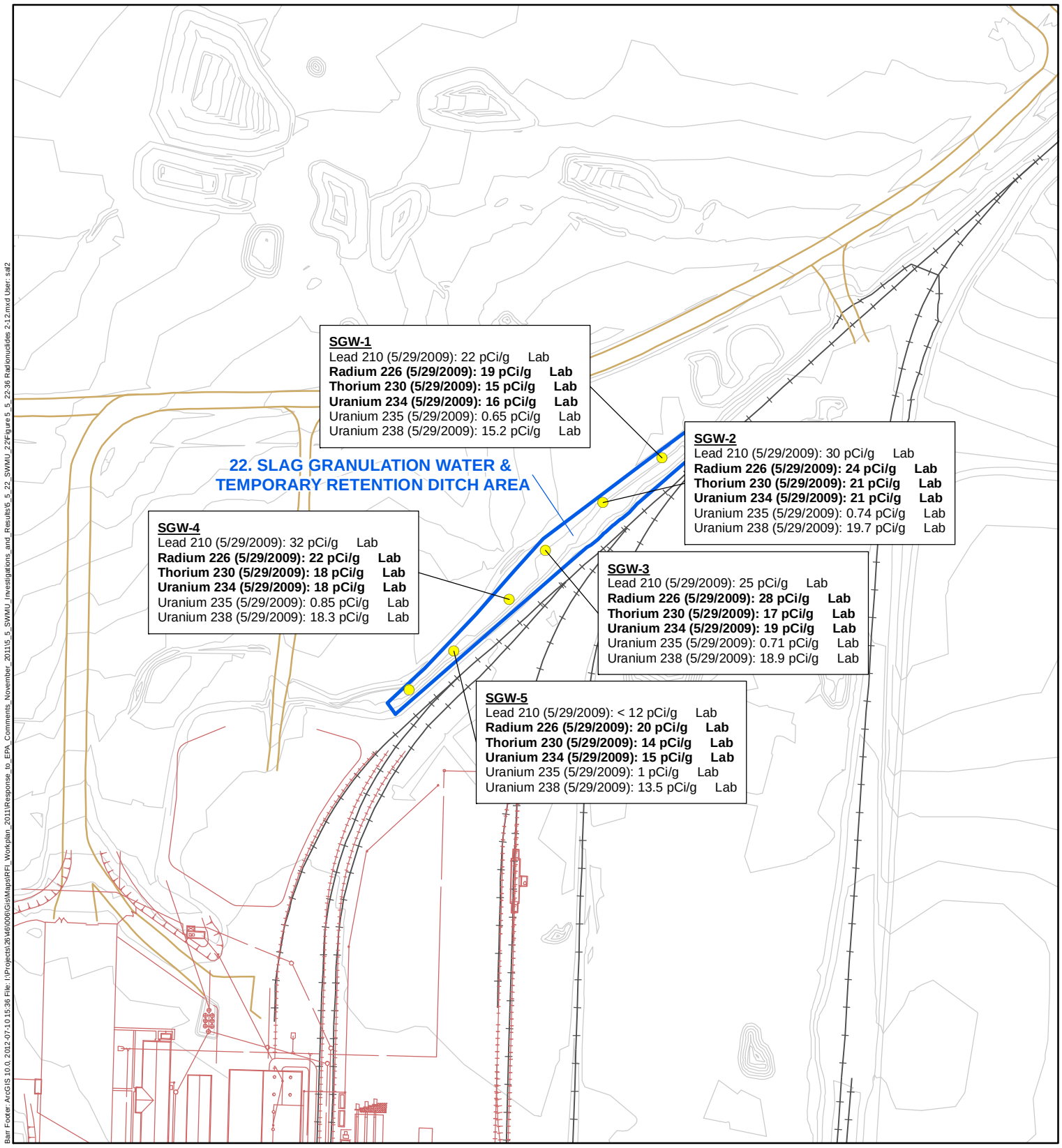
N

Feet

200 0 200

Figure 5.5.22-35

SWMU 22
RADIONUCLIDES
0-2 INCHES
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-10 15:36 File: I:\Projects\2646\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_201115_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-36 Radionuclides 2-12.mxd User: sa2

Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

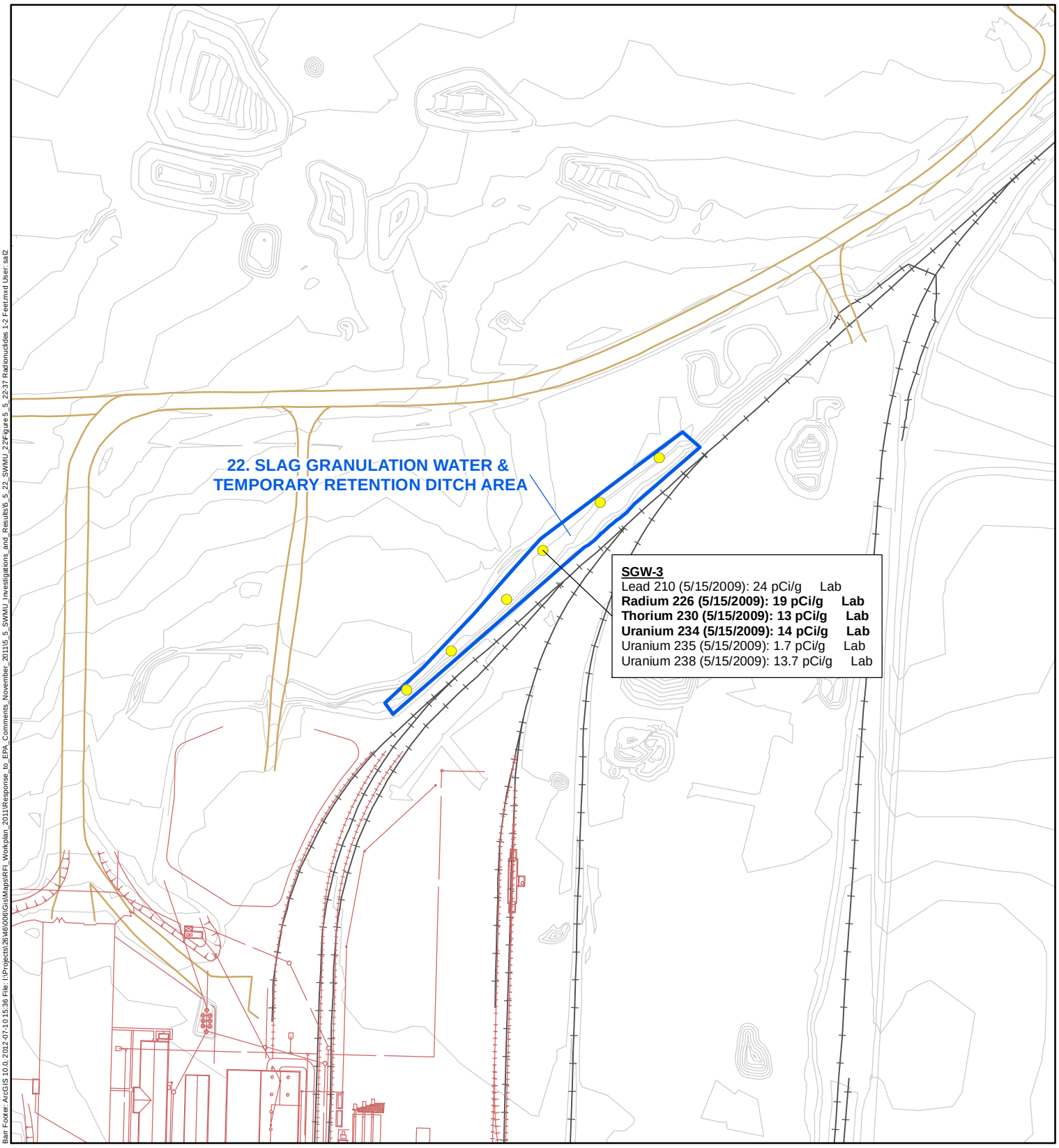
N

Feet

200 0 200

Figure 5.5.22-36

SWMU 22
RADIONUCLIDES,
2-12 INCHES
Rhodia Silver Bow Plant
Montana



Sample Location

SWMU 22

Elevation Contour

Drainage

Railroad

Road

Former Plant Structures

Bold font indicates that sample concentration is greater than the 95% UPL Reference Area Concentration.

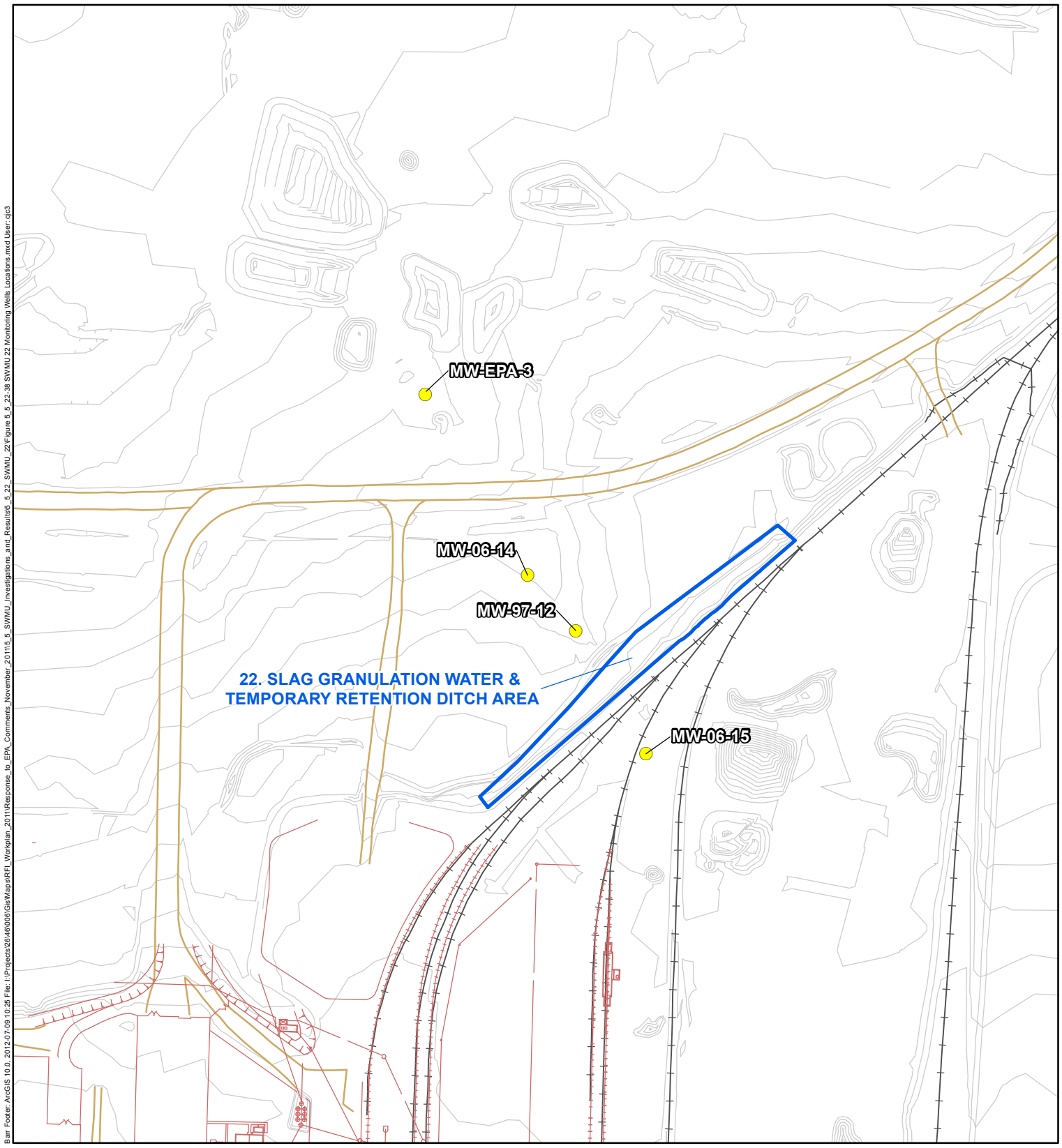
N

Feet

200 0 200

Figure 5.5.22-37

SWMU 22
RADIONUCLIDES
1-2 FEET
Rhodia Silver Bow Plant
Montana



Barr Footer: ArcGIS 10.0, 2012-07-09 10:25 File: I:\Projects\26\46\006\Gis\Maps\RFI_Workplan_2011\Response_to_EPA_Comments_November_2011\5_5_SWMU_Investigations_and_Results\5_5_22_SWMU_22\Figure 5_5_22-38 SWMU 22 Monitoring Wells Locations.mxd User: gjc3

Monitoring Well
SWMU 22
Elevation Contour
Drainage
Railroad
Road
Former Plant Structures

N

Feet
200 0 200

Figure 5.5.22-38

SWMU 22
MONITORING WELLS
LOCATIONS
Rhodia Silver Bow Plant
Montana

Appendices

Appendix 5.5.22-A

Process Water Quality

Appendix 5.5.22-A

Process Water Flow Rate and Water Quality Summary[1]
Rhodia Silver Bow Plant

Source	Stream	Flow[1] [gpm]	As [mg/L]	Ba [mg/L]	Cd [mg/L]	Cr [mg/L]	Pb [mg/L]	Hg [mg/L]	Nitrate [mg/L]	Se [mg/L]	F [mg/L]	pH
#3 Catch Basin .	Process Water, Slag Cooling	350	0.339	0.092	0.085	0.246	0.519	0.001	NA	ND	NA	6
100' Clarifier	Process Water	300	0.339	0.092	0.085	0.246	0.519	0.001	NA	ND	NA	6
Kiln Feed Building Moat	Material Handling Water	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
#1 Kiln Scrubber	Emissions Control	1,200	1.81	0.087	18.7	0.201	0.517	0.007	ND	ND	122	2
#2 Kiln Scrubber	Emissions Control	1,800	1.81	0.087	18.7	0.201	0.517	0.007	ND	ND	122	2
Lime Treatment	pH Treatment	90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hazelton Line	Slag Granulation	4,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Final Pump Station	Slag Cooling and Miscellaneous	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total		10,540										
Pond Return	From Tailing Basin	10,000	0.5	0.272	6	0.054	0.07	ND	NA	0.266	NA	5

Notes:

NA = Not available.

ND = Not detected.

[1]This table is adapted from Table 1 of the 1996 report Silver Bow Plant Tailings Pond and Groundwater Review, attached as Appendix I of the CCRA. The concentration, including those reported for Pond Return are analytical data, not mass balance calculated concentrations. Flows were estimated or measured by plant personnel.

Appendix 5.5.22-B

Test Pit Logs

PROJECT NO. | TEST PIT NO. SHEET OF

TEST PIT WALL LOG

PROJECT 26/46/006.13 LOCATION SGW-1 MAP OF ____ WALL OF PIT

ELEVATION ____ CONTRACTOR ____ DATE EXCAVATED 5/15/09

WATER LEVEL AND DATE ____ EXCAVATION METHOD ____ LOGGER SKN/JRS4

APPROXIMATE DIMENSIONS LENGTH 10' WIDTH 4½' DEPTH 5' REMARKS None

ELEVATION | DEPTH BELOW SURFACE ( ) | SAMPLE: INTERVAL | SAMPLE: TYPE AND NUMBER

0-10" Black (5Y 2.5/1) Topsoil clayey Silt (CL-ML) Roots

10"-1'11" Dark Reddish Brw 2.5YR (2.5/3) Fine to Med SAND (SP) Some to little clayey Silt (micr & roots)

1'11-5' Reddish Brown 5YR (4/3) Fine to COARSE SAND & Fine to cobble Gravel Stratified

COMMENTS

Length 10'

LENGTH

PROJECT NO.

TEST PIT NO.

SHEET OF

TEST PIT WALL LOG

PROJECT Rhodia 26/46/006.13 LOCATION SGW-3 MAP OF WALL OF PIT

ELEVATION CONTRACTOR Montana - Gary DATE EXCAVATED

WATER LEVEL AND DATE EXCAVATION METHOD Hoe LOGGER JLSH / JKN

APPROXIMATE DIMENSIONS LENGTH 8' WIDTH 4½' DEPTH 5' REMARKS

ELEVATION	DEPTH BELOW SURFACE ( )	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER
	1		
	2		
	3		
	4		
	5		

Top Soil Organic, Black, OL
Roots.
0 - 1'8"

Reddish Brown, 2.5YR 5/3
SAND
Fine to med with Silt (SM)
Some little coarse SAND
Wood fiber debris

Yellowish Brown (5/4) 10YR
Fine to med SAND (SP) (Abundant mica)
and coarse gravel to cobble
1'8" - 5'

4 3 2 1 0 1 2 3 4
LENGTH

COMMENTS

Length 8 feet

PROJECT NO.

TEST PIT NO.

SHEET OF

TEST PIT WALL LOG

PROJECT Rhodia 26/46 1006-13 LOCATION SGW-5 MAP OF WALL OF PIT

ELEVATION CONTRACTOR GARY DATE EXCAVATED

WATER LEVEL AND DATE EXCAVATION METHOD HOE LOGGER JCS Y/ SKN

APPROXIMATE DIMENSIONS LENGTH 11' WIDTH 4½ DEPTH 5' REMARKS

ELEVATION	DEPTH BELOW SURFACE ( )	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER
	1		
	2		
	3		
	4		
	5		

7 6 5 4 3 2 1 0 1 2 3 4

Top Soil ORGANIC, BLACK, OL
ROOTS/PLANT
0-18"

6" to 18"
Reddish Brown 2.5YR 5/3
Fine to med SAND & SILT (dry)
some little COARSE SAND

Length 11'

Yellowish BROWN (5/4) 10YR
fine to med SAND (SP). Abundant Mica
and COARSE gravel to cobble
18" to 5'
Silt lense & cobble

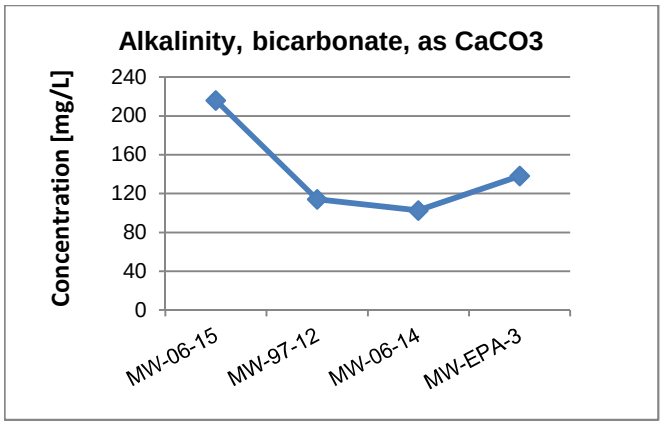
LENGTH

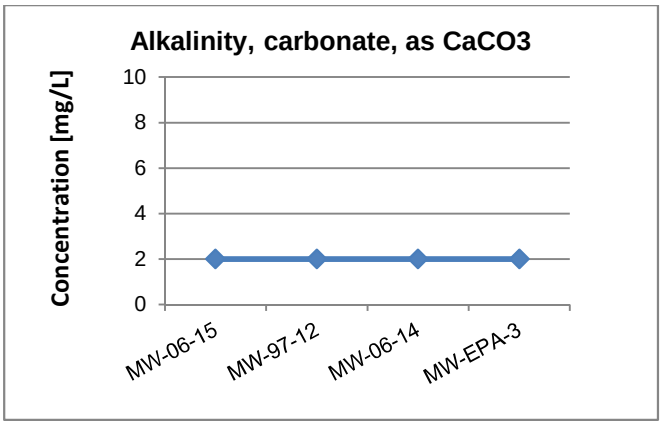
COMMENTS

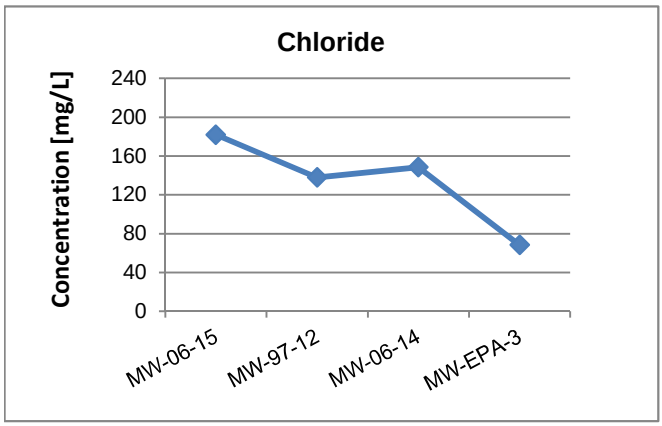
Appendix 5.5.22-C

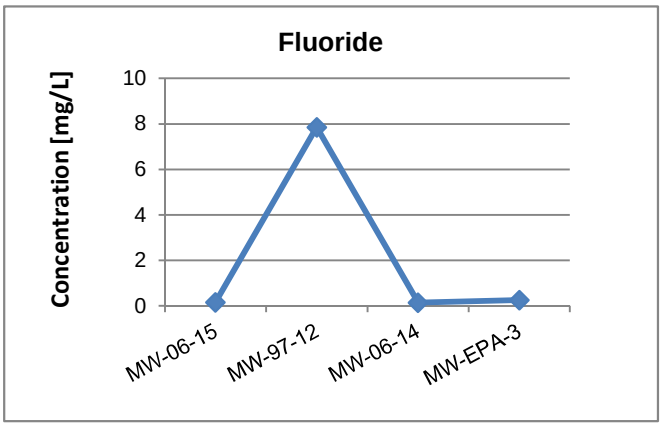
Groundwater Quality Charts, SWMU 22 Monitoring Wells

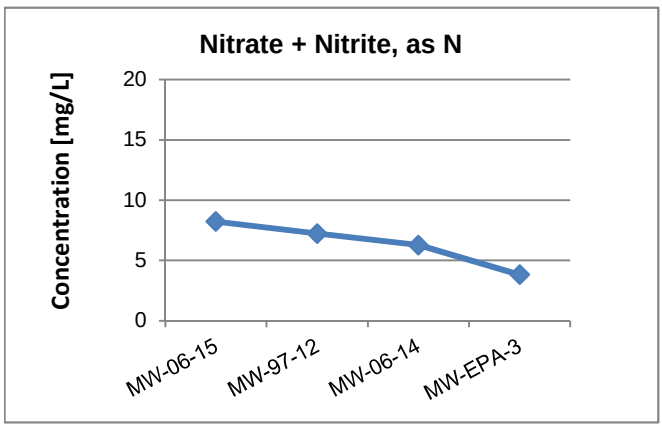
Appendix 5.5.22-C
Groundwater Quality Charts
SWMU 22 Monitoring Wells

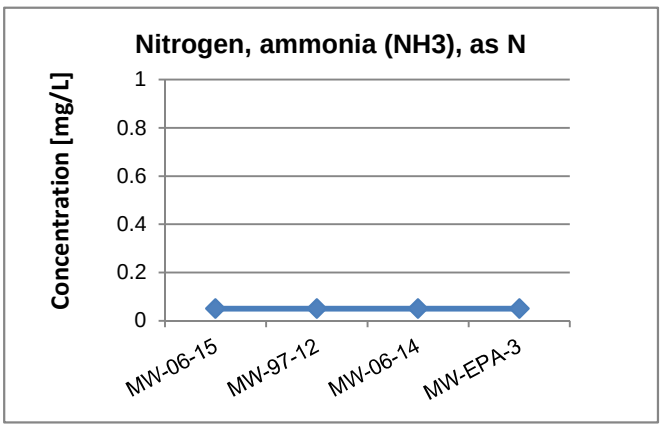


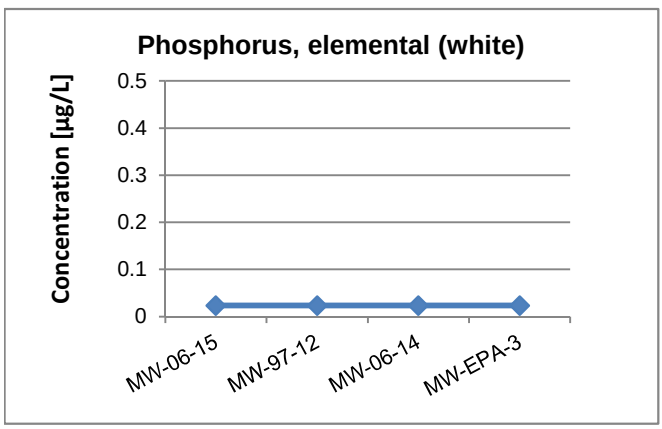


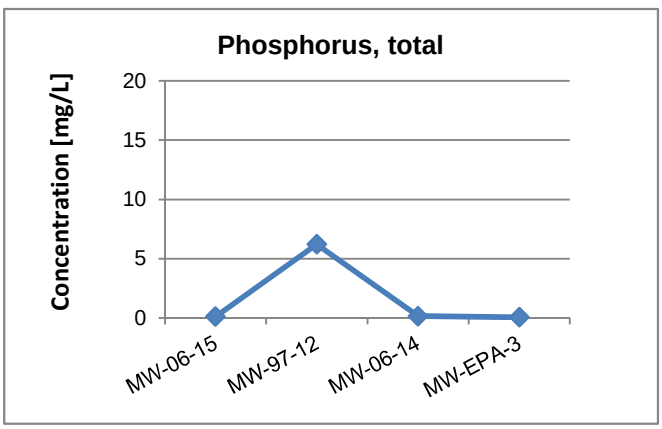




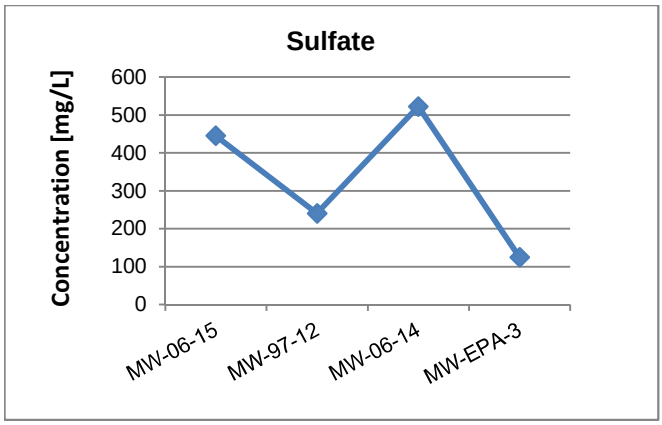








Appendix 5.5.22-C
Groundwater Quality Charts
SWMU 22 Monitoring Wells



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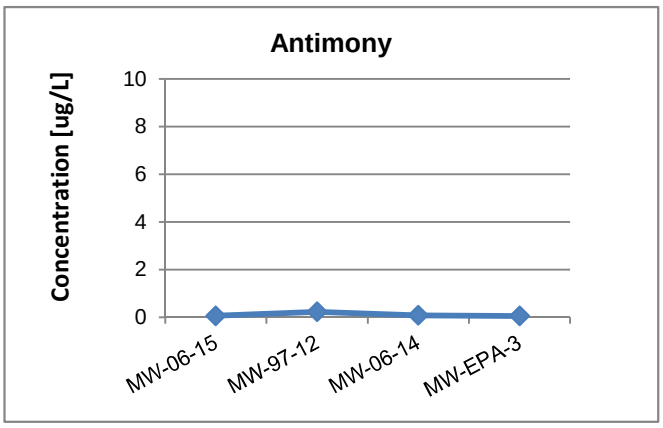
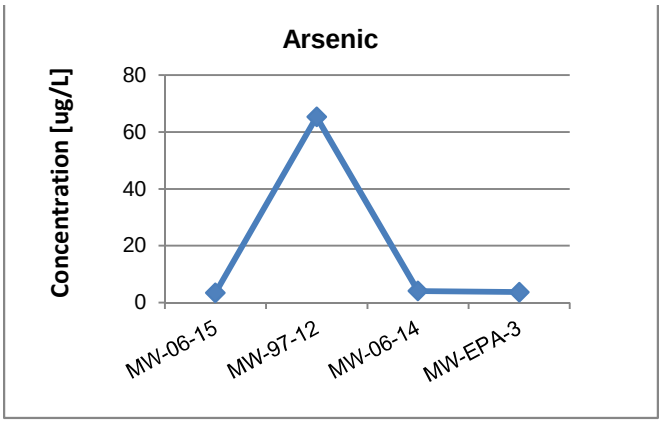
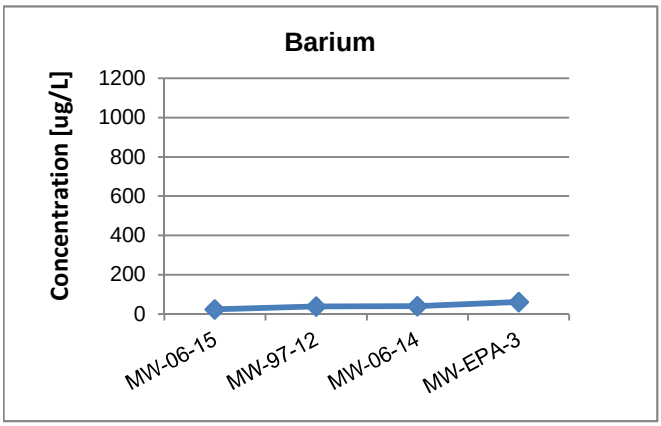
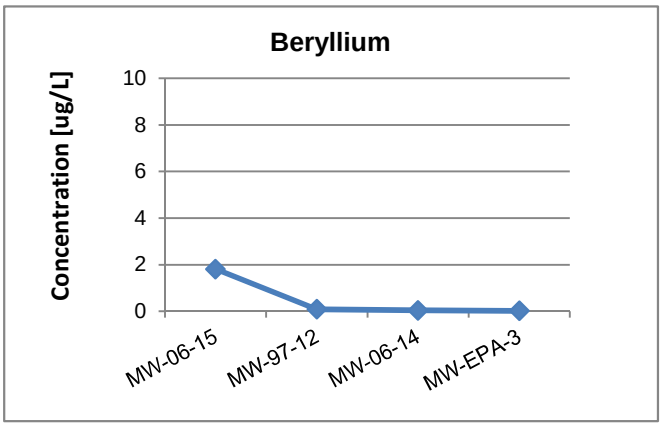
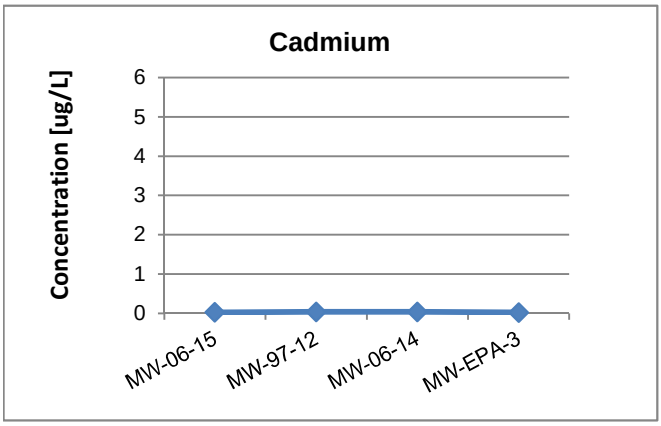
Groundwater Quality Charts
SWMU 22 Monitoring Wells

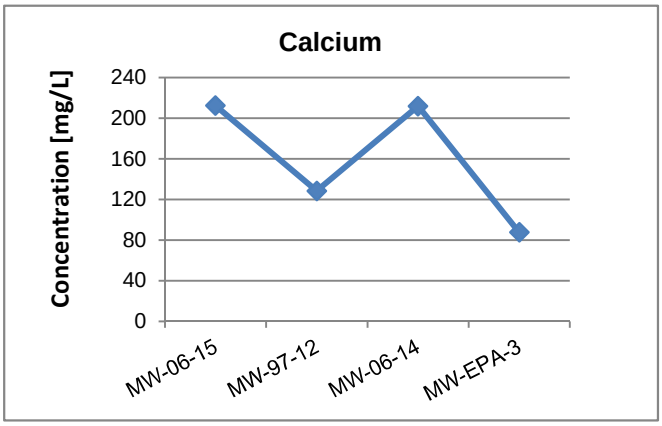


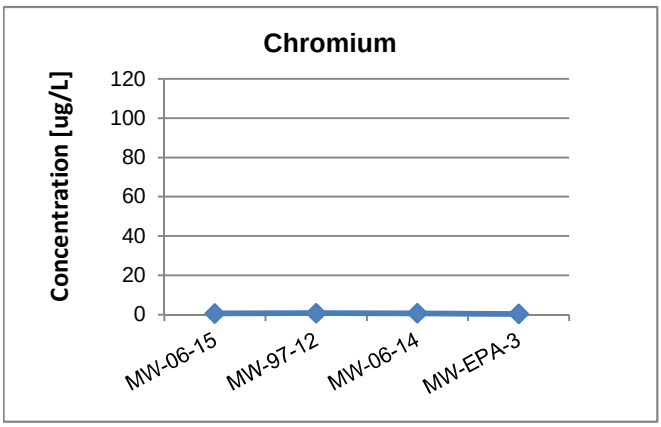


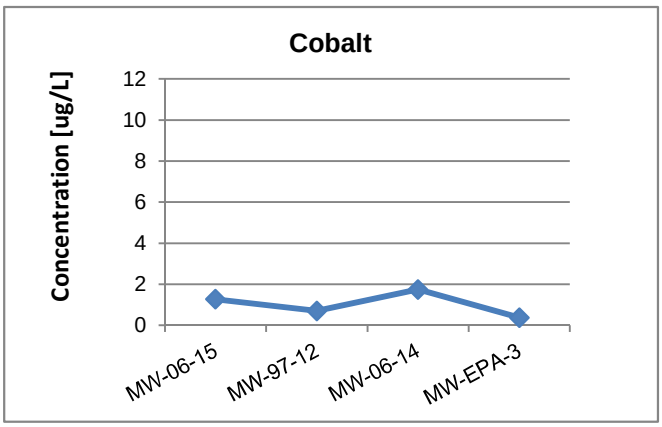












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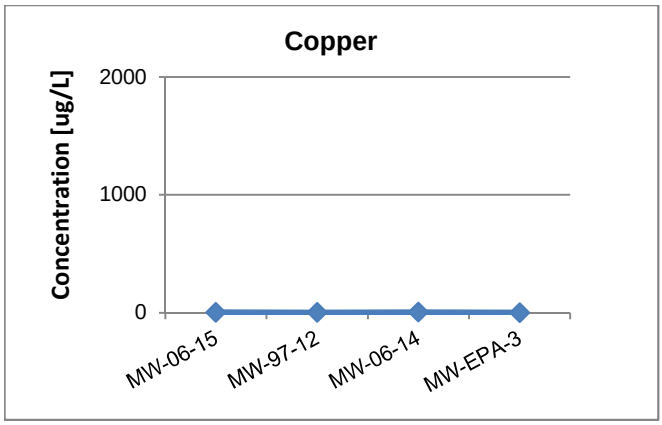
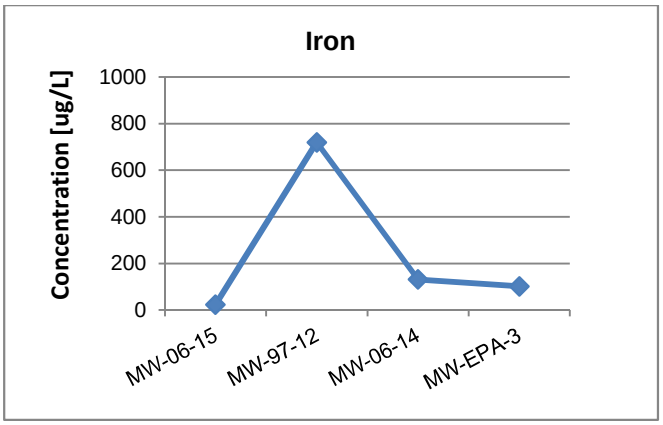
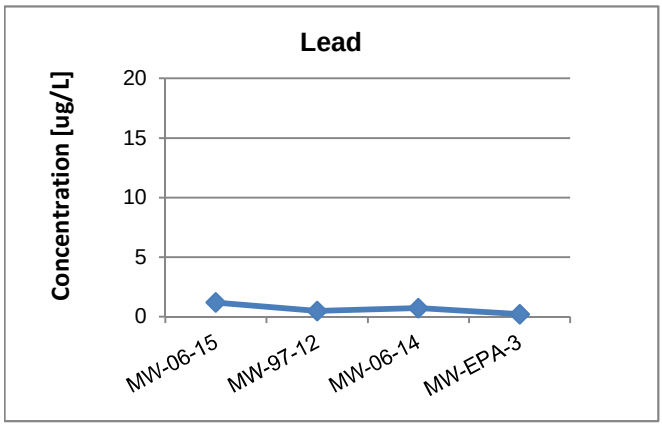
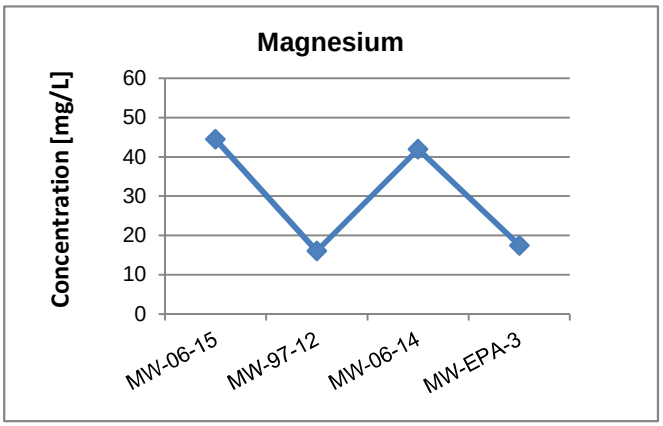
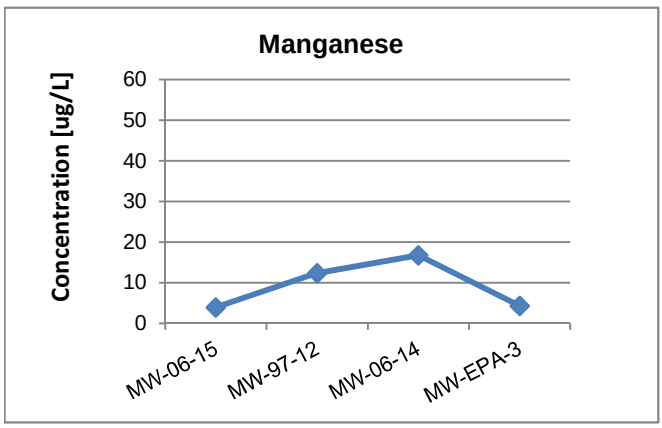
Groundwater Quality Charts
SWMU 22 Monitoring Wells

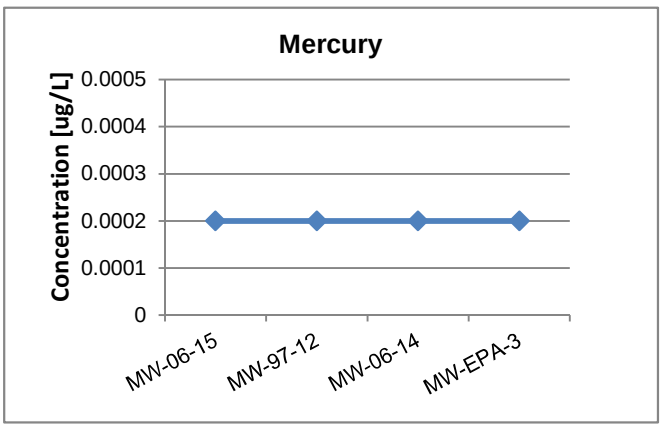


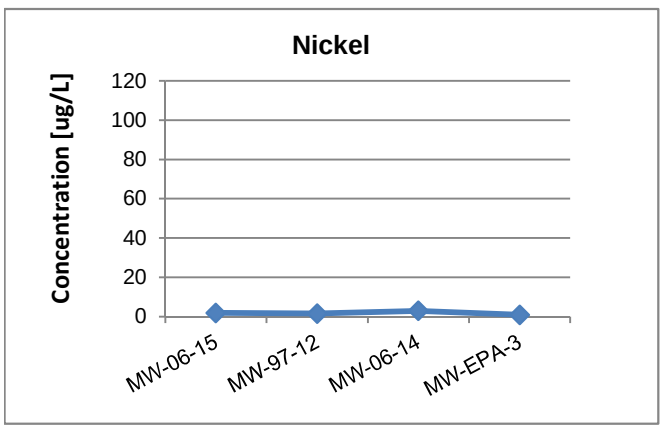


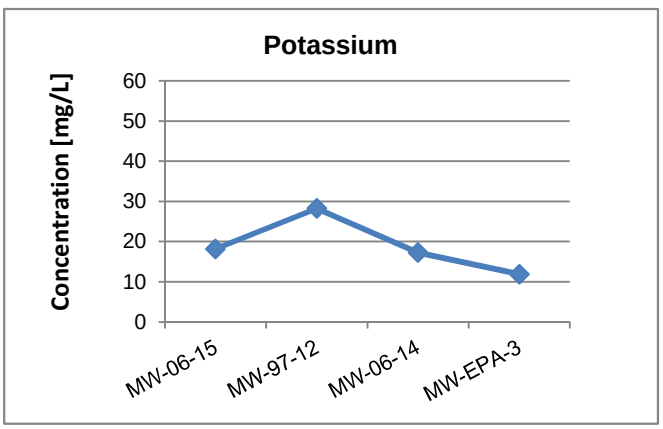












Appendix 5.5.22-C
Groundwater Quality Charts
SWMU 22 Monitoring Wells