

SECTION 9

PRELIMINARY
SITE CHARACTERIZATION
TERRESTRIAL VEGETATION
TECHNICAL MEMORANDUM

MOLYCORP MINE RI/FS

REVISION 0

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URS

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Terrestrial Vegetation

The purpose of this Technical Memorandum is to document and summarize the results of the vegetation studies conducted as part of the RI/FS at the Molycorp mine and tailings facility in Questa, New Mexico. Vegetation sample collection and related studies began in fall 2002 and ended in spring 2004.

The vegetation studies included three components: (1) collection and chemical analysis of plant samples, (2) measurement of plant community structure and composition in the field, and (3) rye grass bioassay studies. All sample and data collection were conducted at randomly selected sites co-located with wildlife and soils studies, except one supplemental site (RS-13A) along the Red River and 6 sample sites in the area below the tailings facility, for which wildlife data were not collected. The vegetation study methods are described in the FSP (URS 2002c), and Standard Operating Procedures (SOPs) 13.1 Plant Sample Collection, and 29.0 Plant Community Structure, Species Diversity. Sample management and decontamination are described in SOPs 9.0 Sample Management, and 6.0 Decontamination of Sampling Equipment.

The following table provides an overview of RI/FS vegetation studies:

Area	Sample Site Numbers	Number of Samples/Site Evaluations		
		Plant Sample Chemical Analysis*	Vegetation Community Evaluation	Bioassay
Reference for Mine Site	MRSS- 1, 2, 3, 4, 5, 16, 17, 18, 19, 20	54	10	10
Soil Area 3 – Mine Site Soils	MSS3-1, 2, 3, 4, 5, 6, 7, 8, 9, 10	54	10	10
Soil at Cater Ranch	CR-2, 4, 5, 6, 7, 8, 10, 11, 13, 14	52	10	10
Soil Area 14 – Tailings Impoundment	TSS14-1, 2, 3, 4, 5, 6, 7, 8, 9, 10	58	10	10
Reference for Mine Site Riparian	RSS-1, 3, 5, 7, 8, 9, 10, 11, 12, 13	60	10	10
Soil Area 9 – Red River Riparian Along Mine	RS-1, 2, 3, 4, 5, 6, 7, 8, 9, 10	60	10	10
Reference Lower Cabresto Creek Riparian	RRS- 19, 20, 25, 26, 29 (in bioassay RRS-21, 22, 23 replaces 25, 26, 29)	28	5	5
Soil Area 16 – Red River Riparian Along Tailings	RS-11, 12, 13, 13A, 14, 15, 16, 17, 18, 19, 20	66	11	10
Reference Scars	MRSS-6, 7, 8, 9, 10, 11, 12, 13, 14, 15	0	0	10
Soil Area 7 – Mine Site Scars	MSS7-1, 2, 3, 4, 5, 6, 7, 8, 9, 10	0	0	10
Soil Area 17 - South of Tailings	TSS17- 33, 35, 37, 39, 41, 42	52	6	0
Total Samples		484	82	95

*Includes aboveground and below ground samples at all sites, and washed and unwashed samples at Soil Area 17-South of Tailings

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Field sampling and data collection were conducted in several sampling events:

Dates	Sampling and Data Collection Conducted
September 25 – October 13, 2002	55 sample sites at the mine site and riparian exposure areas and their reference areas
May 28-June 5, 2003	20 sample sites at the tailings facility and reference area
September 6-10, 2003	One supplemental sample site RS-13A. Additional species observations at tailings facility, Cater Ranch, and some high elevation sites sampled later in the season the previous year
May 2-5, 2004	6 sample sites in area south of tailings facility

The plant bioassay was conducted in 2002 and 2003:

Dates	Sampling Conducted
September 27 – October 22, 2002	Collection of bulk soils for bioassay from 75 mine site, scar, and riparian exposure areas and their reference areas
October-November, 2002	Bioassay of 2002 samples conducted in lab
June 9-11, 2003	Collection of bulk soils for bioassay at 20 tailings facility and reference sample sites
June-July, 2003	Bioassay of 2003 samples conducted in lab

Sample Sites

Sample sites were pre-selected based on a randomization process and were located in the field by surveyors prior to vegetation field work. All of the original sample locations were co-located for wildlife and soil sampling. Sample site RS-13A was a supplemental sample site selected by EPA and was co-located with soil sampling. Sample sites south of the tailings were also supplemental sites, and were co-located with soils and groundwater sampling.

Sample sites were considered to be approximately 300 feet by 300 feet in dimension, centered on the stake, for collection of vegetation samples and data, in accordance with the FSP. Sampling of riparian plots was typically limited to only one side of the river or creek and was the same area used for small mammal trapping. Sampling was restricted to one side due to access restrictions, health and safety risks in crossing the waterways, or inadequate riparian habitat located on the opposing side of the waterway. Sites that were not restricted by these factors were sampled on both sides of the waterway. Sample sites sampled on both sides include: RRS-5, RRS-9, RRS-10, RRS-11, RRS-12, RRS-19, RRS-20, RRS-25, RRS-26, and RRS-29 (Figure 9-1).

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Plant Sample Collection

The FSP included collection of samples of one shrub, one forb, and one grass species at each sample site. (Table 9-2 presents a list of all plant species collected at each RI/FS sample site.) The species selected for sampling were chosen based on their abundance or dominance within the sample site, relative ease of sampling, and prior collection at other sample sites. No sample was collected when there were insufficient plants of a life form at a site, or when sampling a species would result in taking all individuals present at the sample site. At a few sites, a species from another life form was substituted where it physically resembled the target life form. This included use of narrow-leaf cottonwood as a shrub at two sites, grouse whortleberry as a forb at four sites, and broom snakeweed as a forb at one site (Scientific names of plant species collected are provided in Table 9-1.) Narrow-leaf cottonwood is normally a tree but beaver-cut individuals had a shrub-like growth form less than 3 meters tall, with numerous small-diameter stems from lower parts of the original trunk. Grouse whortleberry and broom snakeweed are low-growing subshrubs.

Each sample was a composite of at least five individuals of a species at the sample site. Above and below ground tissues were collected from the same individuals. More than five individuals were used where necessary to collect samples with adequate mass either aboveground or below ground. Grasses and rhizomatous plants were sampled from five patches located at least 1 meter apart. A patch consisted of an area of approximately 6 to 8 inches diameter for aboveground vegetation and the corresponding root mass below ground.

Aboveground plant parts were collected by clipping with stainless steel hand tools. Roots were collected by digging at the base of shrubs and by lifting forb and grass root balls from the soil with a shovel. Roots were collected from 0 to 12 inches below ground, typically from 1 to 8 inches. Aboveground shrub samples consisted of twigs and leaves from the current year's growth. Aboveground forb and grass samples included stems, leaves, and inflorescences when present, above about 1 inch height. Samples consisted of the current year's growth for forbs, and mainly of the current year's growth for grasses. Below ground samples included fine and coarse roots to a maximum diameter of ½ inch.

Plant Community Characterization

The terrestrial habitat survey followed the methods described in SOP 29.0. Transects were used to record plant cover and ground surface cover. Wandering surveys were used to locate additional species present in the sample site but not recorded on the transects.

At upland sites, transects were typically oriented around the plot center. The normal transect layout was four 25 meter transects extending out in four directions from the plot center. The initial transect direction was a compass angle randomly selected using a random number generator, and the subsequent three transects were each at 90 degrees, forming an X. Riparian sample sites were often restricted in width so that long transects of 25 meters could not be used without extending into adjacent upland vegetation. Riparian transects were therefore laid out perpendicular to the riverbank, starting at the centerpoint and spaced at regular intervals, extending from the river bank to the edge of the riparian area. A common transect layout at

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these plots was 5 to 10 transects extending from the waterway edge 3 to 20 meters with 5 to 15 meters between each transect. Data was collected at 70 to 100 transect points in riparian areas. Sites with less than 100 points areas were narrow and had dense, multi-layered vegetation, so that there were often hits in several strata at each point. Sampling was stopped after 10 or 12 transects were recorded because the amount of data collected was as large or larger than most plots with 100 points, or because there were physical limitation to adding more transects.

Plants were identified in the field when possible, or later in the lab. The principal botanical references used included Allred (1997), Carter (1997), Ivey (No date), Martin and Hutchins (1980), and Weber and Wittman (2001). Because of differences in botanical nomenclature among the various references, two references were used to determine the most current botanical names (Allred 2003 and USDA 2002). The botanical names used by Allred (2003) are used in this report.

Bioassay

A 14-day germination and growth assay of exposure area and reference soils was conducted using perennial rye grass, *Lolium perenne*. Soil samples were collected in accordance with SOP 32.0 Soil Sampling for Toxicity Testing. The bioassay was carried out by EnviroSystems, Incorporated, following standard protocol (ASTM 2001, EPA 1989). Methods and results are provided in EnviroSystems (2002, 2003), and methods are summarized below.

Soils were collected from 75 samples sites in fall 2002 and 20 sample sites in May-June 2003, and the bioassays were conducted shortly after receipt of the soils. The test used four replicates of each sample site, with five seeds each for each sample, and laboratory controls using an artificial soil.

Bulk soil samples were collected from each sample site and shipped to the lab. At the lab, soil samples were evaluated for pH and the pH was adjusted if it was outside the range of 4.0 to 10.0, per EPA protocols.

A total of 30 of the 95 samples were adjusted, as shown in the following table. Adjusted samples were collected from the mine site, mine site scars, and mine site riparian exposure and reference areas.

Soils that appeared wet were dried at room temperature prior to use, and all soils were screened through a 12.0 mm screen to remove stones and large pieces of debris. The laboratory control soil was an artificial soil prepared following the EPA protocol and consisted of 10 percent screen sphagnum peat moss, 20 percent kaolinite clay, and 70 percent fine silica sand by dry weight. The sifted soil was placed in 4-inch square planting pots, leveled, and gently compacted by hand. Seed were individually placed on the surface of the soil and then pushed below the soil surface. Pots were watered with deionized water so that all samples had a similar moisture level. A clear plastic cover was placed over the top of the containers to minimize evaporation, and was removed after germination was complete. The pots were placed in a temperature monitored room at 25 plus or minus 3 degrees C. Lighting was set on 16:8 hours light:dark. Moisture

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content was checked on a daily basis, and trays were moved to new locations to minimize variations associated with variation in light intensity and shading.

Exposure Area	Exposure Area Soil Samples			Reference Soil Samples		
	pH Adjusted ¹	Not Adjusted	Total	pH Adjusted ¹	Not adjusted	Total
Soil Area 3 – Mine Site Soils	1 (<4.0)	9	10	5	5	10
Soil Area 14 – Tailings Impoundments	0	10	10	0	10	10
Soil Area 9 – Red River Riparian along Mine Site	3	7	10	2	8	10
Soil Area 16 – Red River Riparian along Tailings Facility	0	10	10	0	5	5
Soil Area 7 – Mine Site Scars	9 (3 <4.0)	1	10	10 (8 <4.0)	0	10
Total	13	37	50	17	28	45

¹Original soil pH was 4.0 to 6.0 except as indicated.

The trays of pots were checked on a daily basis to determine the number of germinated seeds and number of surviving plants. Seeds were considered to have germinated if any green plant material was observed above the surface of the soil. At the end of the 14-day exposure period, the plants were harvested. The soil mass was carefully broken apart and the individual plants separated from the soil. Roots were washed to remove attached soil. Roots were separated from the grass blades by cutting the main stem at the soil surface. Dry weight was determined after drying for 48 hours at a temperature of 70 degrees C. Parameters measured were percent survival, blade height, root and shoot biomass, and total biomass.

Samples Analysis and QA

Vegetation samples were analyzed for 25 metals and percent solids. Analytical methods and quality assurance are described in Section 15. The results of chemical analyses were reported by the laboratory on a wet weight basis. Results on a dry weight bases were calculated from wet weight using percent solids (e.g., weight after drying divided by wet weight). Two below ground samples had insufficient volume to allow measurement of percent solids after other analyses were completed. Percent solids were estimated by comparison with other comparable samples (same or similar species, same plant part). The estimates were based on four or five comparable samples. The samples with estimated percent solids were both collected from Cater Ranch: Below ground blue grama at site CR-8, and below ground cut-leaf nightshade at site CR-10, (Figure 9-2).

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9.1 SITE CHARACTERIZATION

9.1.1 Mine Site

This section describes the samples and data collected from the mine site area and the corresponding mine site reference areas. Sampling was conducted at ten randomly located upland sites that were co-located with soils and wildlife sampling, in both the mine site and mine site reference areas.

9.1.1.1 Reference for Mine Site

Two mine site reference areas were used. The above mine site reference was located directly east of the mine in the Red River Valley and the Cabresto Creek reference was located in the next drainage to the north. The five above mine site reference sample sites are located on generally south-facing slopes 1.5 to 3 miles up-valley from the east edge of the Molycorp mine. The five Cabresto Creek reference sample sites are located on generally north-facing slopes about 2 miles north of the above mine site reference sites, and 2 to 3 miles northeast of the east edge of the Molycorp mine. Different vegetation communities generally occur at the same elevation based on aspect. Information on the topography and elevation of these sites is presented in Table 9-3. Site numbers are MRSS-1 through MRSS-5, MRSS-16 through MRSS 20 (Figure 9-1).

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites included subalpine forest, upper montane mixed conifer forest, and lower montane forest.

They had an average of 20.3 species, including relatively even numbers of tree, shrub, and forb species, and an average of 53.1 percent vegetation cover, predominantly from trees and shrubs. Most of the ground surface is covered by litter or lichen/moss, and down wood is common (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass, at each site where available. Ten shrub, 9 forb, and 8 grass samples were collected. The samples collected included 5 shrub species, 6 forb species, and 6 grass species. There was no overlap in species between the two reference areas; a sedge was collected at each of the mine site reference areas but is likely a difference species at each site. A low shrub (grouse whortleberry) was substituted as a forb for 4 of the 5 forb samples at the Cabresto Creek reference area because no suitable true forbs were found. No grass samples were collected at sites MRSS-19 and MRSS-20 because no suitable grasses were observed, and no forb was suitable for sampling at MRSS-3. Descriptive information about the samples is provided in Table 9-6.

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Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-7a through 9-7f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-7a), 15 in forbs (Table 9-7b), and 13 in grasses (Table 9-7c). Nine metals were detected in all samples - aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and zinc. Seven metals were detected half or more of samples for at least one life form - arsenic, boron, cadmium, chromium, molybdenum, nickel, and vanadium. Nine metals were non-detect in all aboveground vegetation samples or were detected in less than 50 percent of samples - antimony, beryllium, cobalt, lead, mercury, selenium, silver, sodium, and thallium. In addition, arsenic and cadmium were detected in less than half of aboveground shrub and grass samples, vanadium in none of the aboveground shrub samples, and nickel in less than half of the aboveground forb and grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Table 9-7d and 9-7e), and 22 metals in more than half of grass samples (Tables 9-7f). Twelve metals were detected in all samples - aluminum, barium, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, potassium, vanadium, and zinc. Ten metals were detected in half or more of samples for at least one life form - arsenic, boron, cadmium, chromium, lead, mercury, molybdenum, nickel, selenium, and silver. Only sodium was non-detect in all samples, and antimony, and thallium were detected in less than 50 percent of samples for all three life forms. In addition, mercury and silver were detected in less than half of shrub and forb samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-17 and results for the lab control are provided in Table 9-27 (fall 2002). Mean plant survival was 85 percent, mean plant height was 8.7 cm, and total biomass was 8.4 mg dry weight.

9.1.1.2 Soil Area 3 - Mine Site

Ten randomly selected sample sites were located on the mine site within Soil Exposure Area 3. These sites were mostly on south-facing slopes. Information on the topography and elevation of these sites is presented in Table 9-3. Site numbers are MSS3-1 through MSS3-10.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites included mostly upper montane mixed conifer forest, with smaller amounts of lower montane forest, pinyon-oak/juniper woodland, and old disturbed areas (old mine roads, cuts and fills). They had an average of 19.8 species, including relatively even numbers of tree, shrub, and forb species, and an average of 43.7 percent vegetation cover, predominantly from trees, and to a less extent from

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shrubs. The ground cover includes litter, gravel, and bare ground, and surface rock is common (Table 9-3).

Sample Collection

Samples of aboveground and belowground plant tissue were collected from a common or representative species of shrub, forb, and grass, at each site where available. Nine shrub, 8 forb, and 10 grass samples were collected. No suitable shrub or forb species were available at site MSS3-7, and no forb species at MSS3-4. The samples collected included 3 shrub species, 7 forb species, and 3 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-8a through 9-8f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-8a), 15 in forbs (Table 9-8b), and 13 in grasses (Table 9-8c). Eight metals were detected in all samples - aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and zinc. Seven metals were detected half or more of samples for at least one life form - boron, cadmium, chromium, lead, molybdenum, nickel, and vanadium. Nine metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples - antimony, arsenic, beryllium, cobalt, mercury, selenium, silver, sodium, and thallium. In addition, cadmium and vanadium were detected in less than half of aboveground shrub and grass samples, lead in less than half of aboveground shrub and forb samples, and nickel in less than half of the aboveground forb and grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-8d and 9-8e), and 22 metals in more than half of grass samples (Table 9-8f). Fourteen metals were detected in all samples - aluminum, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, potassium, vanadium, and zinc. Nine metals were detected in half or more of samples for at least one life form - arsenic, beryllium, boron, cadmium, mercury, nickel, selenium, silver, and thallium. Antimony and sodium were non-detect or detected in less than half of the samples for all three life forms. Mercury, selenium, silver, and thallium were detected in less than half of shrub and forb samples. Boron was detected in less than half of below ground grass samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-18 and results for the lab control are provided in Table 9-27. Mean plant survival was 78 percent, mean plant height was 9.4 cm, and total biomass was 6.6 mg dry weight.

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9.1.2 Tailings Facility

This section describes the samples and data collected from the tailings facility and the corresponding tailings reference areas. Sampling was conducted at 10 randomly located sites that were co-located with soils and wildlife sampling, in both areas.

9.1.2.1 Reference Soil at Cater Ranch

Ten randomly selected sites were used for collection of vegetation data, and were co-located with wildlife and soil sampling. A larger number of sample sites were used for the soils study than for vegetation. Information on the topography and elevation of these sites is presented in Table 9-3. Site sample numbers are CR-2, 4, 5, 6, 7, 8, 10, 11, 13, and 14, (Figure 9-2).

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites included rabbitbrush, sagebrush, grassland, and barren areas. They had an average of 29.9 species, mostly forbs and grasses, and an average of 14.1 percent vegetation cover, mostly from shrubs.

The ground cover of these sites is mostly bare ground and litter (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass, at each site where available. Ten shrub, 6 forb, and 10 grass samples were collected. No suitable forb species were available at sites CR-2, 4, 5, and 6. The samples collected included 3 shrub species, 6 forb species, and 6 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-9a through 9-9f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-9a), 15 in forbs (Table 9-9b), and 13 in grasses (Table 9-9c). Eight metals were detected in all samples - aluminum, barium, calcium, copper, iron, magnesium, manganese, and potassium. Fourteen metals were detected in half or more of samples for at least one life form - arsenic, boron, cadmium, chromium, cobalt, lead, molybdenum, nickel, selenium, silver, sodium, thallium, vanadium, and zinc. Three metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples - antimony, beryllium, and mercury. Silver and thallium were detected in less than half of aboveground shrub and forb samples, sodium in less than half of aboveground shrub and grass samples, and arsenic and cobalt in less than half of the aboveground forb samples.

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For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-9d and 9-9e), and 22 metals in more than half of grass samples (Table 9-9f). Twelve metals were detected in all samples - aluminum, barium, boron, calcium, cobalt, copper, iron, lead, magnesium, manganese, potassium, and vanadium. Eleven metals were detected in half or more of samples for at least one life form – arsenic, beryllium, cadmium, chromium, molybdenum, nickel, selenium, silver, sodium, thallium, and zinc. Antimony and mercury were non-detect or detected in less than half of the samples for all three life forms. Arsenic, beryllium, selenium, silver, and thallium were detected in less than half of forb samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the ten sample sites. Results are presented in Table 9-19 and results for the lab control are provided in Table 9-28. Mean plant survival was 92 percent, mean plant height was 10.7 cm, and total biomass was 7.3 mg dry weight.

9.1.2.2 Soil Area 14 – Tailings Impoundment

10 randomly selected sites were used for collection of vegetation data, and were co-located with wildlife and soil sampling. Information on the topography and elevation of these sites is presented in Table 9-3. Sample sites used for vegetation are TSS14-1 through TSS 10.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites included open to dense rabbitbrush, grassland, and revegetation areas. They had an average of 38.6 species, mostly forbs and grasses, and an average of 17.4 percent vegetation cover, mostly from grasses and shrubs. The ground cover of these sites is mostly bare ground, gravel, and litter (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass, at each site where available. Nine shrub, 10 forb, and 10 grass samples were collected. No suitable shrub species were available at site TSS14-3. The samples collected included 2 shrub species, 4 forb species, and 5 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-10a through 9-10f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-10a), 15 in forbs (Table 9-10b), and 13 in grasses (Table 9-10c). Ten metals were detected in all samples -

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aluminum, barium, boron, calcium, copper, iron, magnesium, manganese, molybdenum, and potassium. Twelve metals were detected in half or more of samples for at least one life form – arsenic, cadmium, chromium, cobalt, lead, nickel, selenium, silver, sodium, thallium, vanadium, and zinc. Three metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples – antimony, beryllium, and mercury. Arsenic, cadmium, cobalt, selenium, silver, and thallium were detected in less than half of aboveground forb samples, and sodium in less than half of aboveground shrub and grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples, and 22 metals in more than half of grass samples (Tables 9-10d through 9-10f). Fifteen metals were detected in all samples - aluminum, barium, boron, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, and vanadium. Eight metals were detected in half or more of samples for at least one life form – arsenic, beryllium, cadmium, selenium, silver, sodium, thallium, and zinc. Antimony and mercury were non-detect or detected in less than half of the samples for all three life forms. Beryllium was detected in less than half of shrub and forb samples, and selenium, silver and thallium in less than half of forb samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-20 and results for the lab control are provided in Table 9-28 (fall 2002). Mean plant survival was 93 percent, mean plant height was 10.3 cm, and total biomass was 8.9 mg dry weight.

9.1.3 Mine Site Riparian Area

Sampling was conducted at 10 randomly located sites along the Red River near and below the mine, and at 10 randomly selected riparian sites upstream of the mine and in the Cabresto Creek drainage. All sample sites were co-located with soils and wildlife sampling.

9.1.3.1 Reference for Mine Site Riparian

Sampling was conducted at 10 randomly selected riparian sites upstream of the mine and in the Cabresto Creek drainage. All sample sites were co-located with soils and wildlife sampling. Information on the topography and elevation of these sites is presented in Table 9-3.

Two mine site riparian reference areas were used. The five above mine riparian reference sample sites are located along the Red River above the Molycorp mine, with the furthest site (RRS-1) about 7 miles upstream. 8 sites were used for soil sampling, but vegetation and wildlife data was collected at only 5 sites – RRS-1 through RRS-8. Soil samples used for toxicity tests were collected at sites RRS-1 through 5.

The five upper Cabresto Creek riparian reference sample sites are located along Cabresto Creek, from approximately 1.5 miles north to 3 miles northeast of the Molycorp mine. Ten sites were

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used for soil sampling, but vegetation and wildlife data were collected at only 5 sites – RRS-9 through RRS-13.

Vegetation Community Measurement

Vegetation community data is presented in Table 9-4 and 9-5. These sites include montane riparian shrub/meadow mix and montane riparian forest, and smaller areas of dry or mesic meadow, wet meadow, and gravel bar/disturbed/sparsely vegetated. They had an average of 35.9 species, with forbs the most abundant life form, and an average of 112.2 percent vegetation cover, mostly from trees and shrubs, although forbs and grasses were also common. The ground cover of these sites was mostly litter, with bare ground and gravel also common (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass, at each site where available. Ten shrub, 10 forb, and 10 grass samples were collected. The samples collected included 4 shrub species, 6 forb species, and 6 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-11a through 9-11f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrub (Table 9-11a), 15 in forbs (Table 9-11b) and 13 in grasses (Table 9-11c). Nine metals were detected in all samples – barium, calcium, copper, iron, magnesium, manganese, molybdenum, potassium and zinc. Seven metals were detected in half or more of samples for at least one life form – aluminum, boron, cadmium, chromium, nickel, sodium, and vanadium. Nine metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples – antimony, arsenic, beryllium, cobalt, lead, mercury, selenium, silver, and thallium. In addition, chromium was detected in less than half of aboveground shrub and forb samples, vanadium in less than half of aboveground shrub and grass samples, nickel in less than half of aboveground forb and grass samples, and cadmium in less than half of aboveground grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-11d and 9-11e), and 22 metals in more than half of grass samples (Table 9-11f). Seventeen metals were detected in all samples – aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, vanadium and zinc. Five metals were detected in half or more of samples for at least one life form – boron, cadmium, mercury, selenium, and thallium. Antimony, silver and sodium were non-detect or detected in less than half of the samples for all three life forms. Mercury and thallium were detected in less than half of shrub and forb samples.

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Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-21 and results for the lab control are provided in Table 9-27. Mean plant survival was 95 percent, mean plant height was 9.8 cm, and total biomass was 8.3 mg dry weight.

9.1.3.2 Soil Area 9 – Red River Riparian Along Mine Site

The 10 mine site riparian sample sites are located in the riparian corridor of the Red River directly adjacent to the mine site, from the upper end of the mine site downstream approximately 8 miles to State Highway 522. Sites are identified as RS-1 through RS-10. Information on the topography and elevation of these sites is presented in Table 9-3.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites include montane riparian shrub/meadow mix, montane riparian forest, dry or mesic meadow, and gravel bar/disturbed/sparsely vegetated. They had an average of 35.5 species, with forbs the most common life form, and an average of 99.7 percent vegetation cover, mostly shrubs and trees, although forbs and grasses were also common. Ground cover at these sites was mostly litter, although bare ground and gravel were also common (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass at each site. Ten shrub, 10 forb, and 10 grass samples were collected. The samples collected included 6 shrub species, 7 forb species, and 5 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-11a through 9-11f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-12a), 15 in forbs (Table 9-12b), and 13 in grasses (Table 9-12c). Eight metals were detected in all samples – aluminum, barium, boron, calcium, magnesium, manganese, molybdenum, and potassium. Nine metals were detected in half or more of samples for at least one life form – cadmium, chromium, cobalt, copper, iron, lead, nickel, vanadium and zinc. Eight metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples – antimony, arsenic, beryllium, mercury, selenium, silver, sodium, and thallium. In addition, lead and vanadium were detected in less than half of aboveground shrub and grass samples, cobalt in less than half of

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aboveground forb and grass samples, and cadmium and nickel in less than half of aboveground grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-12d and 9-12e), and 22 metals in more than half of grass samples (Tables 9-12f). Fifteen metals were detected in all samples - aluminum, barium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, vanadium and zinc. Six metals were detected in half or more of samples for at least one life form – arsenic, beryllium, boron, cadmium, silver, and sodium. Antimony, mercury, selenium and thallium were non-detect or detected in less than half of the samples for all three life forms. In addition, silver was detected in less than half of shrub and forb samples, and sodium in less than half of shrub and grass samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-22 and results for the lab control are provided in Table 9-27. Mean plant survival was 95 percent, mean plant height was 9.2 cm, and total biomass was 14.4-mg dry weight.

9.1.4 Tailings Facility Riparian Areas

Sampling was conducted at 10 randomly located sites along the Red River below Highway 522, and at 5 randomly located sites along the lower portions of Cabresto Creek. All sample sites were co-located with soils and wildlife sampling.

9.1.4.1 Reference Lower Cabresto Creek Riparian

The lower Cabresto Creek reference riparian sites are located along about two miles of Cabresto Creek from the mouth of Cabresto Canyon to its confluence with the Red River. Sixteen sites were used for soil sampling, but vegetation sample collection and ecological characterization were only conducted at sites RRS-19 through RRS-29, consistent with the wildlife study. Soil samples used for toxicity tests were collected at sites RRS-19 through RRS-23. Information on the topography and elevation of these sites is presented in Table 9-3.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites are mostly montane riparian forest, with small areas of dry or mesic meadow and gravel bar/disturbed/sparsely vegetated. They had an average of 35.4 species, with forbs the most common type of species; and an average of 107.4 percent vegetation cover, mostly from trees and to a lesser extent from grasses. Ground cover at these sites was mostly litter (Table 9-3).

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Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass at each site where available. Four shrub, 5 forb, and 5 grass samples were collected. The samples collected included 3 shrub species, 4 forb species, and 2 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-13a through 9-13f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-13a), 15 in forbs (Table 9-13b), and 13 in grasses (Table 9-13c). Ten metals were detected in all samples – aluminum, barium, boron, calcium, copper, iron, magnesium, manganese, potassium and zinc. Five metals were detected in half or more of samples for at least one life form – cadmium, chromium, cobalt, lead, and molybdenum. Ten metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples – antimony, arsenic, beryllium, mercury, nickel, selenium, silver, sodium, thallium and vanadium. In addition, cobalt was non-detect in all forb and grass samples, and cadmium was detected in less than half of aboveground grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-13d and 9-13e), and 22 metals in more than half of grass samples (Table 9-13f). Fourteen metals were detected in all samples - aluminum, barium, boron, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, potassium, vanadium and zinc. Seven metals were detected in half or more of samples for at least one life form – arsenic, beryllium, cobalt, molybdenum, nickel, selenium, and sodium. Antimony, mercury, silver and thallium were non-detect or detected in less than half of the samples for all three life forms. In addition, sodium was detected in less than half of below ground shrub and grass samples, and selenium in less than half of forb and grass samples.

Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-23 and results for the lab control are provided in Table 9-27 (fall 2002). Mean plant survival was 84 percent, mean plant height was 10.2 cm, and total biomass was 9.0 mg dry weight.

9.1.4.2 Soil Area 16 – Red River Riparian Along Tailings

Eleven sample sites were located in the riparian corridor of the Red River directly adjacent to or down river from the tailings facility. The sites were located along about 2.5 miles of the Red River from Highway 522 to the Red River State Fish Hatchery. Ten of the sites (RS-1 through RS-10) were randomly located sites used for vegetation, soils and wildlife data collection in

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2003. Site RS-13A was added in 2003. Information on the topography and elevation of these sites is presented in Table 9-3.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites include montane shrub/meadow mix, mesic or dry meadow, foothills shrub (in the Red River Canyon), gravel bar/disturbed/sparsely vegetated, and small areas of wet meadow. They had an average of 35.0 species, with forbs, shrubs, and grasses all common; and an average of 98.3 percent vegetation cover, mostly from shrubs, grasses and forbs. Ground cover at these sites was mostly litter and bare ground (Table 9-3)

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass at each site where available. Eleven shrub, 11 forb, and 11 grass samples were collected. The samples collected included 3 shrub species, 6 forb species, and 5 grass species. Descriptive information about the samples is provided in Table 9-6.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for aboveground and below ground shrub, forb, and grass (Tables 9-14a through 9-14f). The results vary by life form and plant part.

In aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-14a), 15 in forbs (Table 9-14b), and 13 in grasses (Table 9-14c). Nine metals were detected in all samples – aluminum, barium, boron, calcium, iron, magnesium, manganese, potassium and zinc. Nine metals were detected in half or more of samples for at least one life form – cadmium, chromium, copper, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Seven metals were non-detect in all aboveground samples or were detected in less than 50 percent of samples – antimony, arsenic, beryllium, mercury, selenium, silver, and thallium. In addition, cobalt was detected in less than half of aboveground shrub and grass samples, lead and vanadium was detected in less than half of aboveground shrub samples, and cadmium and nickel in less than half of aboveground grass samples.

For below ground plants, 20 metals were detected in more than half of shrub and forb samples (Tables 9-14d and 9-14e), and 22 metals in more than half of grass samples (Table 9-14f). Nine metals were detected in all samples - aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and zinc. Eleven metals were detected in half or more of samples for at least one life form – arsenic, beryllium, boron, cadmium, chromium, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Antimony, mercury, selenium, silver, and thallium were non-detect or detected in less than half of the samples for all three life forms.

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Bioassay

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-24 and results for the lab control are provided in Table 9-27. Mean plant survival was 90 percent, mean plant height was 8.6 cm, and total biomass was 5.9 mg dry weight.

9.1.5 Scars

Soils were collected for bioassay at 10 randomly located locations on scars with the mine site, and 10 randomly selected locations on scars above the mine site, on south-facing slopes above the Red River. Sites were co-located with soil sampling, but no other vegetation or wildlife data collection or sampling was conducted at these sites.

9.1.5.1 Reference Scars

Ten randomly located sites were used for collection of soils for bioassay. Sample sites are MRSS-6 through MRSS-15.

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-25 and results for the lab control are provided in Table 9-27. Mean plant survival was 88 percent, mean plant height was 8.2 cm, and total biomass was 5.0 mg dry weight.

9.1.5.2 Soil Area 7 - Mine Site Scars

Ten randomly located sites were used for collection of soils for bioassay. Sample sites are MSS7-1 through MSS7-10.

Perennial ryegrass bioassays were conducted using soils collected from each of the 10 sample sites. Results are presented in Table 9-26 and results for the lab control are provided in Table 9-27 (fall 2002). Mean plant survival was 95 percent, mean plant height was 10.7 cm, and total biomass was 10.6 mg dry weight.

9.1.6 Soil Area 17 - South of Tailings

Sampling was conducted at 6 randomly located sites below the tailings in the fall of 2003. Sample sites were co-located with soils and groundwater sample collection. No bioassays were conducted at these sites. Sample sites are identified as TSS17-33 through TSS-42. Information on the topography and elevation of these sites is presented in Table 9-3.

Vegetation Community Measurement

Vegetation community data are presented in Tables 9-4 and 9-5. These sites included mesic meadow, wet meadow, and smaller areas of riparian shrub, and disturbed (weedy areas).

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They had an average of 35.8 species, mostly forbs and grasses, and an average of 61.3 percent vegetation cover, mostly from grasses and forbs. Ground cover at these sites was mostly litter, surface water from shallow flooding in wet meadows, and bare ground (Table 9-3).

Sample Collection

Samples of aboveground and below ground plant tissue were collected from a common or representative species of shrub, forb, and grass at each site where available. One shrub, 6 forb, and 6 grass samples were collected. The samples collected included 1 shrub species, 2 forb species, and 2 grass species. Descriptive information about the samples is provided in Table 9-6. Each collection of plant material was split into two samples, one unwashed similar to all other RI/FS vegetation samples, and one washed in the field.

Chemical Characteristics

Plant samples were analyzed for 25 metals and percent solids. Results are presented in dry weight for unwashed aboveground and below ground shrub, forb, and grass (Tables 9-15a through 9-15f), and for washed vegetation (Tables 9-16 through 9-16). Results vary by life form and plant part.

In unwashed aboveground plants, 13 metals were detected in more than half of shrubs (Table 9-15a), 17 in forbs (Table 9-15b), and 15 in grasses (Table 9-15c). Ten metals were detected in all samples – aluminum, barium, calcium, chromium, copper, iron, magnesium, manganese, potassium and zinc. Eight metals were detected in half or more of samples for at least one life form – boron, cadmium, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Seven metals were non-detect in all unwashed aboveground samples or were detected in less than 50 percent of samples – antimony, arsenic, beryllium, mercury, selenium, silver, and thallium. In addition, cadmium, cobalt, and sodium were detected in less than half of aboveground shrub and grass samples, nickel was detected in less than half of aboveground shrub and forb samples, and molybdenum in less than half of aboveground shrub samples.

For unwashed below ground plants, 19 metals were detected in more than half of shrub, forb and grass samples (Tables 9-15d through 9-15f). Fifteen metals were detected in all samples - aluminum, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, vanadium, and zinc. Six metals were detected in half or more of samples for at least one life form – arsenic, boron, cadmium, mercury, molybdenum, and sodium. Antimony, selenium, silver and thallium were non-detect or detected in less than half of the samples for all three life forms. Arsenic was non-detect in more than half of shrub and forb samples, sodium in more than half of shrub and grass samples, and mercury in more than half of forb and grass samples.

Washed vegetation had fewer detected metals. For washed aboveground vegetation, 11 metals were detected in more than half of shrub samples (Table 9-16a), 13 in forb samples (Table 9-16b), and 11 metals in more than half of grass samples (Tables 9-16c). Seven metals were detected in all samples – barium, calcium, iron, magnesium, manganese, potassium and zinc. Six metals were detected in half or more of samples for at least one life form – aluminum, boron,

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cadmium, chromium, copper, and molybdenum. Twelve metals were detected in less than 50 percent of samples for all three life forms, including antimony, arsenic, beryllium, cobalt, lead, mercury, nickel, selenium, silver, sodium, thallium, and vanadium. In addition, cadmium was non-detect in all aboveground shrub and grass samples, molybdenum was non-detect in all washed aboveground shrub samples, and boron was detected in less than half of aboveground grass samples.

In washed below ground vegetation, 14 metals were detected in more than half of shrub samples (Table 9-16d), 15 in forb samples (Table 9-16e), and 18 in washed below ground grass samples (Table 9-16f). Eleven metals were detected in all samples - aluminum, barium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, potassium, and zinc. Nine metals were detected in half or more of samples for at least one life form – arsenic, beryllium, boron, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Five metals were detected in less than half of samples for all three life forms – antimony, mercury, selenium, silver, and thallium. In addition, arsenic, beryllium, cobalt, lead, and nickel were non-detect in more than half of shrub and forb samples, sodium in more than half of shrub samples, and boron in more than half of grass samples.

9.2 SUMMARY

9.2.1 Mine Site

Ten reference and 10 mine site exposure area sample sites were used. Sample and data collection included plant community characterization of each site, plant sample collection, and ryegrass bioassay.

The mean number of species and vegetation cover at the exposure and reference area are presented in Figures 9-3 and 9-4, respectively. Numbers of species and percent cover were generally similar for each life form, except Soil Area 3 had lower shrub and total cover. Numbers of species were relatively evenly divided among the four life forms. Most of the cover was provided by trees and shrubs. A mean of about 20 species was observed in each area, and mean total cover was around 45 to 50 percent.

Twenty-seven aboveground and 27 below ground vegetation samples were collected in the mine site reference and in Soil Area 3. Several shrub and grass species were collected in both areas but there was little overlap in forb species (Figures 9-11 through 9-13).

Mean concentrations of selected metals are presented in Figures 9-24 through 9-49. Nine metals were detected in all aboveground samples in both areas – aluminum, barium, calcium, copper, iron, magnesium, potassium, and zinc. Six additional metals were detected in more than half of samples for one or more life forms in both areas – boron, cadmium, chromium, molybdenum, nickel, and vanadium. In addition, arsenic was detected in more than half of samples of at least one life form in the reference area, and lead in Soil Area 3.

Eleven metals were detected in all below ground samples in both areas – the same nine metals as in aboveground, plus cobalt and vanadium. Eleven additional metals were detected in more than

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half of samples from one or more life forms in each area – arsenic, beryllium, boron, cadmium, chromium, lead, mercury, molybdenum, nickel, selenium and silver. In addition, thallium was detected in more than half of samples from one or more life forms at Soil Area 3.

Results of the ryegrass bioassay are summarized in Figures 9-51 through 9-55. All of these samples were analyzed in 2002. Soil Area 3 had lower mean survival than other areas, but other results are within the range of results from the other areas and controls. There was no consistent difference between the results for the mine site reference area and Soil Area 3. All areas had lower plant height than the 2002 controls.

9.2.2 Tailings Facility

Ten reference and 10 tailings facility exposure area sample sites were used. Sample and data collection included plant community characterization of each site, plant sample collection, and ryegrass bioassay.

The mean number of species and vegetation cover at the exposure and reference area are presented in Figures 9-5 and 9-6. The tailings facility had more forb and grass species, and total species. The reference area had higher shrub cover and lower grass cover. The mean total species were 30 at Cater Ranch and 38 at the tailings facility, and mean total cover was 14 to 17 percent.

Twenty-six reference aboveground and below ground vegetation samples were collected and 29 Soil Area 14 aboveground and below ground samples. Several of the same shrub and grass species were collected in both areas but there was little overlap in forb species (Figures 9-14 through 9-16).

Mean concentrations of selected metals are presented in Figures 9-24 through 9-49. Eight metals were detected in all aboveground samples in both areas – aluminum, barium, calcium, copper, iron, magnesium, manganese, and potassium. Fourteen additional metals were detected in more than half of samples for one or more life forms, in both areas. Three metals were detected in less than half of samples of all life forms in both areas – antimony, beryllium, and mercury.

Twelve metals were detected in all below ground samples in both areas – the same eight metals as in aboveground vegetation, plus boron, cobalt, lead, and vanadium. Eleven additional metals were detected in more than half of samples from one or more life forms in each area – arsenic, beryllium, cadmium, chromium, lead, mercury, molybdenum, nickel, selenium, silver, sodium, thallium, and zinc. Two metals were detected in less than half of samples of all life forms in both areas – antimony and mercury. Concentrations of molybdenum were higher at the tailings facility than the reference and other exposure areas (Figures 9-38 and 9-39).

Results of the ryegrass bioassay are summarized in Figures 9-51 through 9-55. All of these samples were analyzed in 2003. Results are generally similar for the tailings facility reference and Soil Area 14, except the reference area had lower mean root biomass. Both areas had higher mean aboveground and lower mean root biomass than the 2003 controls.

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9.2.3 Mine Site Riparian Area

Ten reference and ten mine site riparian exposure area sample sites were used. Sample and data collection included plant community characterization of each site, plant sample collection, and ryegrass bioassay.

The mean number of species and vegetation cover at the exposure and reference area are presented in Figures 9-7 and 9-8. Numbers of species was very similar for both areas, and included all four life forms. Tree cover was higher and shrub cover was lower at the reference area. There was a mean total of about 35 species recorded in each area, and a mean total cover of about 100 to 110 percent.

Twenty-nine reference aboveground and below ground vegetation samples were collected and 30 Soil Area 9 aboveground and below ground samples. Several of the same shrub, forb, and grass species were collected in both areas (Figures 9-17 through 9-19).

Mean concentrations of selected metals are presented in Figures 9-24 through 9-49. Five metals were detected in all aboveground samples in both areas – barium, calcium, magnesium, manganese, and potassium. Eight additional metals were detected in more than half of samples for one or more life forms, in both areas – aluminum, boron, cadmium, chromium, copper, iron, vanadium, and zinc. Seven metals were detected in less than half of samples for all life forms in both areas – antimony, arsenic, beryllium, mercury, selenium, silver, and thallium.

Fifteen metals were detected in all below ground samples in both areas – aluminum, barium, calcium, chromium, cobalt, copper iron, lead, magnesium, manganese, molybdenum, nickel, potassium, vanadium, and zinc. Four additional metals were detected in more than half of samples from one or more life forms in each area – arsenic, beryllium, boron, and cadmium. Mercury, selenium, and thallium were detected in less than half of samples from all life forms at the reference area, and silver and sodium in Soil Area 9.

Results of the ryegrass bioassay are summarized in Figures 9-51 through 9-55. All of these samples were analyzed in 2002. Results are generally similar between the mine site riparian reference and Soil Area 9, except that Soil Area 9 had higher mean root biomass and total biomass, the highest of any of the exposure and reference areas. All areas had lower plant height than the 2002 controls.

9.2.4 Tailings Facility Riparian Area

Five reference and 11 mine site riparian exposure area sample sites were used. Sample and data collection included plant community characterization of each site, plant sample collection, and ryegrass bioassay.

The mean number of species and vegetation cover at the exposure and reference area are presented in Figures 9-9 and 9-10. Numbers of species was similar, although the reference had more tree species. Tree cover was much higher at the reference, and shrub, forb and grass cover higher in Soil Area 16. Total cover was similar. There was a mean total of about 35 species in each area, and about 100 percent vegetation cover.

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Fourteen reference aboveground and below ground vegetation samples were collected and 33 Soil Area 16 aboveground and below ground samples. One shrub, forb and grass species were collected in both areas (Figures 9-17 through 9-19).

Mean concentrations of selected metals are presented in Figures 9-24 through 9-49. Nine metals were detected in all aboveground samples in both areas – aluminum, barium, boron, calcium, iron, magnesium, manganese, potassium, and zinc. Six additional metals were detected in more than half of samples for one or more life forms, in both areas – cadmium, chromium, cobalt, copper, lead and molybdenum. Nickel, sodium and vanadium were detected in more than half of samples for one or more life forms in Soil Area 16, but not in the reference area. Seven metals were detected in less than half of samples for all life forms in both areas – antimony, arsenic, beryllium, mercury, selenium, silver, and thallium.

Nine metals were detected in all below ground samples in both areas – aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and zinc. Eleven additional metals were detected in more than half of samples from one or more life forms in each area – arsenic, beryllium, boron, cadmium, chromium, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Antimony, mercury, selenium, and thallium were detected in less than half of samples from all life forms in both areas.

Results of the ryegrass bioassay are summarized in Figures 9-51 through 9-55. All of these samples were analyzed in 2002. Soil Area 16 had lower mean aboveground and root biomass compared to the reference area. All areas had lower mean plant height than the 2002 controls.

9.2.5 Scars

Results of the ryegrass bioassay are summarized in Figures 9-51 through 9-55. All of these samples were analyzed in 2002. Soil Area 7 had higher mean aboveground and root biomass than the reference scars. The reference scars had the lowest biomass of any of the treatments. All areas had lower mean plant height than the 2002 controls.

9.2.6 South of Tailings

Six sample sites were used. Sample and data collection included plant community characterization of each site, and plant sample collection. Both unwashed and washed samples were analyzed.

The mean number of species and vegetation cover at the exposure and reference area are presented in Figures 9-9 and 9-10.

Thirteen unwashed and 13 washed aboveground and below ground vegetation samples were collected. One shrub, and two forb and grass species were collected (Figures 9-17 through 9-19).

Mean concentrations of selected unwashed metals concentrations are presented in Figures 9-24 through 9-49. The list of detected metals in unwashed aboveground plant material was similar to Soil Area 16. Eight metals were detected in all aboveground samples in both areas – aluminum, barium, calcium, iron, magnesium, manganese, potassium, and zinc. Ten additional metals were

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detected in more than half of samples for one or more life forms, in both areas – boron, cadmium, chromium, cobalt, copper, lead molybdenum, nickel, sodium, and vanadium. Seven metals were detected in less than half of samples for all life forms in both areas – antimony, arsenic, beryllium, mercury, selenium, silver, and thallium.

Nine metals were detected in all unwashed below ground samples in both areas – aluminum, barium, calcium, copper, iron, magnesium, manganese, potassium, and zinc. Eleven additional metals were detected in more than half of samples from one or more life forms in each area – arsenic, beryllium, boron, cadmium, chromium, cobalt, lead, molybdenum, nickel, sodium, and vanadium. Mercury was detected in more than half of samples from one or more life forms in Soil Area 17, but not in Soil Area 16. Antimony, selenium, silver, and thallium were detected in less than half of samples from all life forms in both areas.

The results of washing are illustrated in Figure 9-50. Washing resulted in fewer detections in aboveground washed plant tissue. Seven metals were detected in all samples, rather than 10, and six metals were detected in one or more life forms, rather than eight. Twelve metals were detected in less than half of samples, rather than seven. Metals with reduced detections included aluminum, chromium, cobalt, lead, nickel, sodium, and vanadium. For below ground washed plant material, metals with reduced detections included beryllium, cobalt, lead, and nickel.

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TERRESTRIAL VEGETATION
TABLES

Table 9-1
List Of Plant Species Collected
RI/FS Vegetation Studies

Common Name	Scientific Name	Upland Sample Sites	Riparian Sample Sites
Shrubs			
Big sagebrush	<i>Artemisia tridentata</i>	CR-6, 8, 10, 11; TSS14-4, 9, 10	
Common juniper	<i>Juniperus communis</i>	MRSS-16, 19, 20; MSS3-9	
Common mountain mahogany	<i>Cercocarpus montanus</i>	MRSS-1, 3, 4; MSS3-3, 4, 8	
Drummond's willow	<i>Salix drummondiana</i>		RRS-1, 11, 12, 20, 26 RS-3, 5,
Greene's rabbitbrush	<i>Ericameria filifolia</i>	CR-7	
Mountain alder	<i>Alnus incana</i>		RRS-3, 7, 8, 10, 13 RS-2, 7, 11, 15, 16, 19
Narrow-leaf cottonwood	<i>Populus angustifolia</i>		RRS-8, 19
Park willow	<i>Salix monticola</i>		RRS-5
Red raspberry	<i>Rubus idaeus</i>		RS-8
Round-leaf snowberry	<i>Symphoricarpos oreophilus</i>	MRSS-2, 5	
Rubber rabbitbrush	<i>Ericameria nauseosa</i>	MSS3-5, 6, 10; CR-2, 4, 5, 13, 14; TSS14-1, 2, 5, 6, 7, 8,	
Sandbar willow	<i>Salix exigua</i>		RRS-25 RS-9, 10, 12, 13, 13A, 14, 18, 20
Scouler's willow	<i>Salix scouleriana</i>	MRSS-18	
Water birch	<i>Betula occidentalis</i>		RS-6
Wax currant	<i>Ribes cereum</i>	MSS3-1, 2	
Waxflower	<i>Jamesia americana</i>	MRSS-17	
Whitestem gooseberry	<i>Ribes inerme</i>		TSS17-31
Wood's rose	<i>Rosa woodsii</i>		RRS-17 RS-1, 4
not collected		MSS3-7; TSS14-3	RRS-29
Forbs			
Blue trumpets	<i>Ipomopsis laxiflora</i>	CR-11	
Alfalfa	<i>Medicagoativa</i>	TSS14-1, 5, 6, 7, 9, 10	RRS-19
Broadleaf pepperweed	<i>Lepidium latifolium</i>		RS-20 TSS17-31, 33, 35
Broom snakeweed*	<i>Gutierrezia sarothrae</i>	CR-13	
Burdock	<i>Arctium minus</i>		RS-19
Butter and eggs	<i>Linaria vulgaris</i>		RRS-7

Table 9-1
List Of Plant Species Collected
RI/FS Vegetation Studies

Common Name	Scientific Name	Upland Sample Sites	Riparian Sample Sites
Common dandelion	<i>Taraxacum officinale</i>		RS-3, 9, 10, 13, 14, 15, 18 RRS-25, 26, TSS17-37, 39, 41
Common mullein	<i>Verbascum thapsus</i>	MSS3-5	
Cow parsnip	<i>Heracleum maximum</i>		RRS-10 RS-8
Curlycup gumweed	<i>Grindelia squarrosa</i>	TSS14-3	
Cut-leaf blazing-star	<i>Mentzelia laciniata</i>	TSS14-8	
Cutleaf coneflower	<i>Rudbeckia laciniata</i>		RS-17
Cut-leaf nightshade	<i>Solanum triflorum</i>	CR-10	
Douglas dustymaiden	<i>Chaenactis douglasii</i>	MRSS-17	
False boneset	<i>Brickellia eupatorioides</i>	CR-14	
False Solomon's seal	<i>Maianthemum sp.</i>		RS-6
Fendler's meadowrue	<i>Thalictrum fendleri</i>	MSS3-3	RRS-8, 11 RS-4
Field sagewort	<i>Artemisia campestris</i>	MRSS-1	RS-2, 5
Fragrant snakeweed	<i>Ageratina herbacea</i>	MSS3-6	
Grouse whortleberry*	<i>Vaccinium scoparium</i>	MRSS-16, 18, 19, 20	
Hairy goldenaster	<i>Heterotheca villosa</i>	MSS3-2 TSS14-2, 4	
Indian hemp	<i>Apocynum cannabinum</i>		RS-1
James wildbuckwheat	<i>Eriogonum jamesii</i>	MRSS-4 MSS3-1, 8	
Large leaf avens	<i>Geum macrophyllum</i>		RRS-1, 5, 9
Ox-eye daisy	<i>Leucanthemum vulgare</i>		RRS-3
Red clover	<i>Trifolium pratense</i>		RS-13A
Rocky groundsel	<i>Packera werneriaefolia</i>	MSS3-9	
Rothrock Townsend Daisy	<i>Townsendia rothrockii</i>	MRSS-2	
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	CR-8	
Silvery lupine	<i>Lupinus argenteus</i>	CR-7	RS-7 RRS-29
Tufted geranium	<i>Geranium caespitosum</i>		RRS-12, 13
Western yarrow	<i>Achillea millefolium</i>		RRS-20
Wintercress	<i>Barbarea vulgaris</i>		RS-11, 12, 16,
Woodland strawberry	<i>Fragaria vesca</i>	MRSS-5	
Wooton's groundsel	<i>Senecio wootoni</i>	MSS3-10	
Not collected		MRSS-3, 7 MSS3-4 CR-2, 4, 5, 6	

**Table 9-1
 List Of Plant Species Collected
 RI/FS Vegetation Studies**

Common Name	Scientific Name	Upland Sample Sites	Riparian Sample Sites
Grasses			
Blue grama	<i>Bouteloua gracilis</i>	MRSS-2 MSS3-4, 8 CR-8	
Canada reedgrass	<i>Calamagrostis canadensis</i>		RRS-9, 12 RS-8
Creeping bentgrass	<i>Agrostis stolonifera</i>		RRS-1, 5 RS-14
Crested wheatgrass	<i>Agropyron cristatum</i>	CR-11, TSS14-3, 7	
Fringed brome	<i>Bromus ciliatus</i>		RRS-9, 13 RS-1
Kentucky bluegrass	<i>Poa pratensis</i>		RRS-11 RS-12, 13,
Letterman's needlegrass	<i>Achnatherum lettermannii</i>	MRSS-5	
Longleaf squirreltail	<i>Elymus longifolius</i>	TSS14-4, 8	
Muhly	<i>Muhlenbergia sp.</i>	MRSS-16	
Nebraska sedge	<i>Carex nebrascensis</i>		RS-13A TSS17-35, 37, 41
New Mexico needlegrass	<i>Achnatherum perplexum</i>	MRSS-1, 4 MSS3-1, 2, 5, 6, 7, 9, 10	
Orchardgrass	<i>Dactylis glomerata</i>		RRS-25
Prairie junegrass	<i>Koeleria macrantha</i>	MRSS-17 MSS3-3	
Quackgrass	<i>Elymus repens</i>		RS-10
Sand dropseed	<i>Sporobolus cryptandrus</i>	CR-5, 10, 1 TSS14-1, 2, 5	RS-19
Sedge (upland)	<i>Carex sp.</i>	MRSS-3, 18	
Smooth brome	<i>Bromus inermis</i>		RRS-3, 7, 8, 19, 20, 25, 26 RS-2, 3, 4, 5, 6, 7, 11, 15, 16, 17, 18, 20 TSS17-31, 33, 39
Sleepy grass	<i>Achnatherum robustum</i>	CR-7 TSS14-6, 9	RS-8
Timothy	<i>Phleum pretense</i>		RRS-10
Tumblegrass	<i>Schedonnardus paniculatus</i>	CR-6	
Western wheatgrass	<i>Elymus smithii</i>	CR-2, 4, 13 TSS14-10	
Not collected		MRSS-19, 20	

*Subshrub sampled as forb

**Table 9-2
 Plant Species Collected at each RI/FS Sample Site**

Site	Shrub Species	Forb Species	Grass Species
Reference for Mine Site			
MRSS-1	Common mountain mahogany	Field sagewort	New Mexico needlegrass
MRSS-2	Round-leaf snowberry	Rothrock Townsend daisy	Blue grama
MRSS-3	Common mountain mahogany	not collected	Sedge
MRSS-4	Common mountain mahogany	James wildbuckwheat	New Mexico needlegrass
MRSS-5	Round-leaf snowberry	Woodland strawberry	Letterman's needlegrass
MRSS-16	Common juniper	Grouse whortleberry	Muhly
MRSS-17	Waxflower	Douglas dustymaiden	Prairie junegrass
MRSS-18	Scouler's willow	Grouse whortleberry	Sedge
MRSS-19	Common juniper	Grouse whortleberry	not collected
MRSS-20	Common juniper	Grouse whortleberry	not collected
Number of Samples	10	9	8
Number of species	5	6	6
Soil Area 3 – Mine Site Soils			
MSS3-1	Wax currant	James wildbuckwheat	New Mexico needlegrass
MSS3-2	Wax currant	Hairy goldenaster	New Mexico needlegrass
MSS3-3	Common mountain mahogany	Fendler's meadowrue	Prairie junegrass
MSS3-4	Common mountain mahogany	Not collected	Blue grama
MSS3-5	Rubber rabbitbrush	Common mullein	New Mexico needlegrass
MSS3-6	Rubber rabbitbrush	Fragrant snakeroot	New Mexico needlegrass
MSS3-7	not collected	Not collected	New Mexico needlegrass
MSS3-8	Common mountain mahogany	James wildbuckwheat	Blue grama
MSS3-9	Common juniper	Rocky groundsel	New Mexico needlegrass
MSS3-10	Rubber rabbitbrush	Wooton's groundsel	New Mexico needlegrass
Number of Samples	9	8	10
Number of species	3	7	3
Reference Soil at Cater Ranch			
CR-2	Rubber rabbitbrush	Not collected	Western wheatgrass
CR-4	Rubber rabbitbrush	Not collected	Western wheatgrass
CR-5	Rubber rabbitbrush	Not collected	Sand dropseed
CR-6	Big sagebrush	Not collected	Tumblegrass
CR-7	Greene's rabbitbrush	Silver lupine	Sleepy grass
CR-8	Big sagebrush	Scarlet globemallow	Blue grama
CR-10	Big sagebrush	Cut-leaf nightshade	Sand dropseed
CR-11	Big sagebrush	Blue trumpets	Crested wheatgrass
CR-13	Rubber rabbitbrush	Broom snakeweed	Western wheatgrass
CR-14	Rubber rabbitbrush	False boneset	Sand dropseed
Number of Samples	10	6	10

**Table 9-2
 Plant Species Collected at each RI/FS Sample Site**

Site	Shrub Species	Forb Species	Grass Species
Number of species	3	6	6
Soils Area 14 – Tailings Impoundment			
TSS14-1	Rubber rabbitbrush	Alfalfa	Sand dropseed
TSS14-2	Rubber rabbitbrush	Hairy goldenaster	Sand dropseed
TSS14-3	Not collected	Curlycup gumweed	Crested wheatgrass
TSS14-4	Big sagebrush	Hairy goldenaster	Longleaf squirreltail
TSS14-5	Rubber rabbitbrush	Alfalfa	Sand dropseed
TSS14-6	Rubber rabbitbrush	Alfalfa	Sleepy grass
TSS14-7	Rubber rabbitbrush	Alfalfa	Crested wheatgrass
TSS14-8	Rubber rabbitbrush	Cut-leaf blazing-star	Longleaf squirreltail
TSS14-9	Big sagebrush	Alfalfa	Sleepy grass
TSS14-10	Big sagebrush	Alfalfa	Western wheatgrass
Number of Samples	9	10	10
Number of species	2	4	5
Reference for Mine Site Riparian			
RRS-1	Drummond's willow	Large leaf avens	Creeping bentgrass
RRS-3	Mountain alder	Ox-eye daisy	Smooth brome
RRS-5	Park willow	Large leaf avens	Creeping bentgrass
RRS-7	Mountain alder	Butter and eggs	Smooth brome
RRS-8	Narrow-leaf cottonwood	Fendler's meadowrue	Smooth brome
RRS-9	Mountain alder	Large leaf avens	Fringed brome/Canada reedgrass (mix)
RRS-10	Mountain alder	Cow parsnip	Timothy
RRS-11	Drummond's willow	Fendler's meadowrue	Kentucky bluegrass
RRS-12	Drummond's willow	Tufted geranium	Canada reedgrass
RRS-13	Mountain alder	Tufted geranium	Fringed brome
Number of Samples	10	10	10
Number of species	4	6	6
Soil Area 9 – Red River Riparian Along Mine Site			
RS-1	Wood's rose	Indian hemp	Fringed brome
RS-2	Mountain alder	Field sagewort	Smooth brome
RS-3	Drummond's willow	Common dandelion	Smooth brome
RS-4	Wood's rose	Fendler's meadowrue	Smooth brome
RS-5	Drummond's willow	Field sagewort	Smooth brome
RS-6	Water birch	False Solomon's seal	Smooth brome
RS-7	Mountain alder	Silvery lupine	Smooth brome
RS-8	Red raspberry	Cow parsnip	Canada reedgrass
RS-9	Sandbar willow	Common dandelion	Sleepygrass
RS-10	Sandbar willow	Common dandelion	Quackgrass

**Table 9-2
 Plant Species Collected at each RI/FS Sample Site**

Site	Shrub Species	Forb Species	Grass Species
Number of Samples	10	10	10
Number of species	6	7	5
Reference Lower Cabresto Creek Riparian			
RRS-19	Narrowleaf cottonwood	Alfalfa	Smooth brome
RRS-20	Drummond's willow	Western yarrow	Smooth brome
RRS-25	Sandbar willow	Common dandelion	Orchardgrass
RRS-26	Drummond's willow	Common dandelion	Smooth brome
RRS-29	not collected	Silvery lupine	Smooth brome
Number of Samples	4	5	5
Number of species	3	4	2
Soil Area 16 – Red River Riparian Along Tailings			
RS-11	Mountain alder	Wintercress	Smooth brome
RS-12	Sandbar willow	Wintercress	Kentucky bluegrass
RS-13	Sandbar willow	Common dandelion	Kentucky bluegrass
RS-13A	Sandbar willow	Red clover	Nebraska sedge
RS-14	Sandbar willow	Common dandelion	Creeping bentgrass
RS-15	Mountain alder	Common dandelion	Smooth brome
RS-16	Mountain alder	Wintercress	Smooth brome
RS-17	Wood's rose	Cutleaf coneflower	Smooth brome
RS-18	Sandbar willow	Common dandelion	Smooth brome
RS-19	Mountain alder	Burdock	Sand dropseed
RS-20	Sandbar willow	Broadleaf pepperweed	Smooth brome
Number of Samples	11	11	11
Number of species	3	6	5
Soil Area 17- South of Tailings			
TSS17-31	Whitestem gooseberry	Broadleaf pepperweed	Smooth brome
TSS17-33	NA	Broadleaf pepperweed	Smooth brome
TSS17-35	NA	Broadleaf pepperweed	Nebraska sedge
TSS 17-37	NA	Common dandelion	Nebraska sedge
TSS17-39	NA	Common dandelion	Smooth brome
TSS17-41	NA	Common dandelion	Nebraska sedge
Number of Samples	1	6	6
Number of species	1	2	2

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)						Soil Surface Observations	
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock		Plant Base
Mine Site												
Reference for Mine Site												
MRSS-1	31	E to SE	8646	Hill, rounded to east, smooth steep slope	35	23	31	1	0	6	4	
MRSS-2	21	SE	8553	Slope to southeast is rolling, site is higher on west, in drainage on east	61	16	21	0	0	0	2	
MRSS-3	10	S	8554	Rolling alluvial fan, channeled in part	59	3	27	4	2	1	4	Erosion and deposition channels in debris fan
MRSS-4	35	WSW/ENE	8786	center point is on ridge, which is narrow to the NW and broadens out and is more gentle to SE	47	20	30	1	0	2	0	Soft gravelly surface
MRSS-5	11/32	S/W	8838	East half is steep hillside, west is gently to moderately sloping debris flow, channeled	48	8	31	2	9	2	0	Two slopes at site South=5/ West=11
MRSS-16	9	NW	9164	Mostly on gentle slope, west part is steep V-shaped valley which was not sampled	67	10	1	8	14	0	0	
MRSS-17	29	SW	9184	Mostly a smooth steep slope, less steep toward bottom, fold to NW.	43	7	42	3	2	2	1	
MRSS-18	35	N	9303	Even, steep, north facing slope	60	12	6	4	16	1	1	
MRSS-19	31	NNW	9488	Smooth steep slope	54	3	0	11	31	0	1	
MRSS-20	25	NNW	9778	Steep smooth slope	74	3	0	7	15	0	1	
Mean					54.8	10.5	18.9	4.1	8.9	1.4	1.4	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)							Soil Surface Observations
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock	Plant Base	
Mine Site												
Soil Area 3 - Mine Site Soils												
MSS3-1	32	S	9059	Uniform steep slope rising from a small shelf and cut slope formed by old mine road	32	6	53	1	0	8	0	Natural slopes nearby have more litter and shrub cover
MSS3-2	27	SE	9579	Even slope above mine road	33	13	40	3	0	11	0	Loose gravelly soil
MSS3-3	28	S	8489	Very steep V-shaped valley, narrow bottom	52	18	8	9	4	7	2	Rock outcrops on N-facing slope
MSS3-4	30	S	7932	Steep hillside, curves around to face southeast or east on east part of study area.	55	36	6	0	0	1	2	
MSS3-5	3	S	9330	Bench formed by old mine road. Very steep cut slope above and fill slope below not safely accessible. Slope and aspect are for terrace.	27	0	40	4	0	22	7	Rock and gravel above and below
MSS3-6	20	SSW	8138	Uniform slope except for old road cut and fill	50	7	19	2	4	17	1	
MSS3-7	28	SE	9153	Mostly smooth slope, large cutbank and old mine road on lower side, top of ridge on upper side. Forest continues on other side of ridge for a short distance to a cliff	69	8	12	4	1	4	2	
MSS3-8	28	SW	8231	Mostly even slope	43	19	29	2	0	2	5	
MSS3-9	32	ESE	9874	Steep, even slope except for road cuts. Center point is located at T-intersection of old mine roads	41	13	41	4	0	1	0	
MSS3-10	20	S to SE	9519	Moderate slope on top and side of knoll	38	9	46	3	0	0	3	
Mean					44.0	12.9	29.4	3.2	0.9	7.3	2.2	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)							Soil Surface Observations
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock	Plant Base	
Tailings Facility												
Reference Soil at Cater Ranch												
CR-2	0.5	NW	7516	Flat , gently undulating	59	41	0	0	0	0	0	Soil loose, but most of soil stabilized by vegetation or litter, exposed areas deflated by wind, some patches of puddled clods
CR-4	0.5	W	7528	Gently undulating	46	54	0	0	0	0	0	Soil surface very soft and powdery
CR-5	0.5	NNW	7544	Very flat	21	78	1	0	0	0	0	Soil soft on surface, dusty
CR-6	1	N	7556	Flat, gently undulating	85	14	0	0	0	0	1	Soil soft, silty, dusty, 1-2 inches of deflation evident around shrub roots and old grass bases, soils form soft polygons with cracks 1 inch deep
CR-7	1	NNW	7572	Flat	4	92	1	0	0	0	3	Much bare silt and gravel
CR-8	2	WNW	7590	Slight undulations	22	76	2	0	0	0	0	Soil mostly bare, with soft crust
CR-10	0.5	W	7630	Slightly undulating	15	81	0	0	0	1	3	Ground surface soft, irregular surface of raised old grass bases and microbasins with soft cracks
CR-11	3	W	7710	Gently undulating	13	77	6	0	0	1	3	Cobbles 1% of surface. Soil mostly bare, slightly soft.
CR-13	0.5	W	7596	Flat, gently undulating	18	78	1	0	0	0	3	Ground surface soft, mosaic of puddle crust and areas of open gravel with lots of microtopography included old grass bases, hoof prints and clods
CR-14	0.5	W	7575	Flat, gently undulating, Latir Creek channel and banks are undifferentiated	30	66	0	0	0	0	4	Old prairie dog mounds have rounded gravel and pebbles. Soil surface pebbly and gravelly along Latir Creek.
Mean					31.3	65.7	1.1	0.0	0.0	0.2	1.7	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)							Soil Surface Observations
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock	Plant Base	
Tailings Facility												
Soil Area 14 - Tailings Impoundments												
TSS14-1	2	NW	7521	Level, slightly undulating	29	36	26	0	0	6	3	Soil surface gravelly, pebbly, or sandy from tailings. About 2% of surface is tailings
TSS14-2	2	SE	7526	Irregular topography	20	73	4	0	0	0	3	Tailing evident in large blowout and in former ponded area. Some oxidized tailing. Surface soil sandy by berm and blowout, loamy further away. Site appears to include some natural ground.
TSS14-3	2	SW	7516	Flat and gently undulating	18	23	57	0	0	0	2	Soil gravelly and compacted in most areas. No surface tailing. Grasses pedastalled 2-3 inches suggesting that wind erosion has occurred.
TSS14-4	2	W	7524	Flat, gently undulating	33	26	40	0	0	0	1	Ground surface has 10% tailings
TSS14-5	2	NE	7582	Gently sloping, undulating	31	45	22	0	0	0	2	About 3% of ground surface is exposed tailings from burrowing animals
TSS14-6	0.5	Irregular	7587	Flat/very slightly undulating surface	22	67	9	0	0	0	2	About 1% of surface is tailings brought up by burrowing animals. Surface soils that don't have gravel, have a soft crust with cracks.
TSS14-7	4	SSW	7532	Basin and berm	14	30	51	0	0	0	5	Covered tailings have compacted surface, berms are sandy or gravelly, exposed tailing in basins.
TSS14-8	2	SW	7540	Flat slope, low ridges (to 2 feet) from construction equipment	14	75	10	0	0	1	0	Surface is mix of tailing and cover material
TSS14-9	0 - 2	NA	7582	Irregularly undulating	13	59	15	0	3	2	8	About 5% of surface is tailings at gopher mounds, rest has thin veneer of small gravel
TSS14-10	0 - 2	NA	7583	Flat	26	51	20	0	0	1	2	30% gopher mounds, separated by low gravelly areas.
Mean					22.0	48.5	25.4	0.0	0.3	1.0	2.8	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)						Soil Surface Observations	
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock		Plant Base
Mine Site Riparian Area												
Reference for Mine Site Riparian												
RRS-1	0 - 3	N	8863	Low alluvial terrace on south side of river	67	7	1	3	17	0	5	
RRS-3	2	N	7920	Gently sloping valley bottom, one side of river	77	11	9	2	0	0	1	
RRS-5	0	NA	8556	Low and middle terraces and slopes between them, on both sides of river	46	13	35	0	0	4	1	Gravel on north, loamy on south if river
RRS-7	0	NA	8201	Low terrace, back channel, on north side of river	36	53	4	3	0	4	0	Much recent sand deposits
RRS-8	0	NA	8170	Flat /undulating alluvial terrace 8 feet above stream, rising slightly to road	79	4	13	0	0	0	4	
RRS-9	2	NNW	8918	Floodplain terrace on both sides of creek, wider to north, mostly flat	67	5	16	2	1	8	1	
RRS-10	0	NA	8771	Flat to gently rising floodplain terraces on both sides of creek	85	6	0	2	2	5	0	Loamy floodplain deposit
RRS-11	0	NA	8652	Floodplain terrace about 3-4 feet above creek on both sides, level/undulating.	85	1	1	1	3	0	9	
RRS-12	3	ESE	8446	Alluvial terrace, narrow on south, broader to north. Aspect is north side	88	5	1	1	0	4	1	
RRS-13	4	NNW	8327	Wide alluvial bench with some mounds and rolling terrain	92	0	2	1	2	1	1	
Mean					72.2	10.5	8.2	1.5	2.5	2.6	2.3	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)							Soil Surface Observations
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock	Plant Base	
Mine Site Riparian Area												
Soil Area 9 - Red River Riparian Along Mine Site												
RS-1	8	ESE	8129	Narrow alluvial bench on one side of river	91	3	2	1	0	0	3	
RS-2	0	NA	7959	Alluvial terrace, mostly several feet above river.	64	17	14	2	0	3	0	
RS-3	0	NA	7920	Flat and undulating flood plain, bordered by berm 3-8 feet high	32	19	37	2	0	8	1	Gravel and cobble
RS-4	0	NA	7749	Level terrace bordering beaver pond on east side. West side is mostly flood debris and soft sediment below beaver dam	64	22	1	6	1	2	4	
RS-5	0	NA	7645	West side is terrace about 5 feet above river. East and is only about 2 feet above river but is divided by a gravel berm 3 or 4 feet high	48	22	23	0	2	5	0	Very gravelly on surface in center and east side, conifer forest floor on west
RS-6	2 - 5	S	7544	Floodplain terrace and stream slope	93	5	0	0	0	1	1	
RS-7	0 - 2	NA	7445	Mostly level terrace, includes steep slopes adjacent to river and ditch in middle with 3:1	54	7	22	0	0	13	2	2% surface water
RS-8	0	NA	7378	Flat, rolling, valley bottom	87	3	0	5	2	1	2	
RS-9	0	NA	7339	Generally flat valley bottom, partly includes elevated terrace and depression	65	31	1	1	0	2	0	
RS-10	0	NA	7303	Valley bottom, site gently sloping to river, numerous stream channels from new beaver dam just upstream	41	20	4	9	0	0	3	23% surface water, leakage from beaver dam
Mean					64	14.9	10.4	2.6	0.5	3.5	1.6	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)						Soil Surface Observations	
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock		Plant Base
Tailings Facility Riparian Area												
Reference Lower Cabresto Creek Riparian												
RRS-19	15	NW	7657	East side of creek has a steep 5 feet rise to a terrace that rolls/slopes up away from creek. West side has a short steep slope and a broad flat terrace. Slope and aspect from east side.	69	17	10	0	0.0	0.0	3.0	
RRS-20	9	SE	7612	Broad floodplain/terrace, sloping up to a pasture on west of creek, undulating and continuing past edge of site on east. Slope and aspect from west side.	96	0	0	3	0.0	0.0	1.0	Mildly to moderately rocky
RRS-25	9	ESE	7511	East side of creek is flat, rolling valley bottom except 3-5 foot drop to creek. West side has lower bank, more even slope to creek. Slope and aspect from west side.	87	5	2	1	0.0	1.0	3.0	
RRS-26	5	SE/NW	7501	Floodplain of Cabresto Creek, flat, undulating	93	6	0	0	0.0	1.0	0.0	
RRS-29	0	NA	7447	Undulating floodplain with creek channel in middle, about 4 feet deep	87	6	1	2	0.0	2.0	2.0	
Mean					86	6.8	2.6	1.2	0.0	0.8	1.8	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)							Soil Surface Observations
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock	Plant Base	
Tailings Facility Riparian Areas												
Soil Area 16 - Red River Riparian Along Tailings Facility												
RS-11	0	NA	7245	Mostly flat valley bottom/low terrace, slight rise away from creek.	84	6	5	1	0	2	2	
RS-12	0	NA	7239	Low alluvial terrace along stream and higher terrace with gravel bar. First terrace about 2 ft above river, second about 4 feet above 1st	61	2	28	3	2	4	0	
RS-13	0	NA	7233	Alluvial floodplain, very gently sloping to north from 3-4 ft high stream bank	51	41	0	1	1	0	4	4% surface water
RS-13A	2	S	7223	Broad floodplain/terrace, flat/gently slope to north	42	7	0	20	0	0	4	
RS-14	10	SE	7211	Narrow floodplain/alluvial terrace	65	24	1	3	0	0	7	
RS-15	8	SE	7178	Narrow floodplain/alluvial terrace	70	23	1	1	0	5	0	
RS-16	12	ESE	7167	Alluvial terrace and 10-15 foot high slope to river	73	10	0	3	0	14	0	
RS-17	5	SE	7142	Floodplain terrace and 10 foot high slope to river. River slope is 30 degrees.	68	12	3	0	0	13	4	
RS-18	1.5	S	7129	Alluvial terrace and 4 foot river slope. Terrace rises away from river to edge of talus.	51	17	2	0	0	28	2	
RS-19	28	ESE	7124	Narrow alluvial bench and slope to river edge	40	39	3	0	0	27	1	
RS-20	7	S	7095	Low alluvial terrace/gravel bar, four foot high slope and second alluvial terrace	41	22	26	1	0	10	0	
Mean					58.7	18.5	6.3	3.0	0.3	9.4	2.2	

**Table 9-3
 Topography and Ground Surface**

Sample No.	Slope (Degrees)	Aspect	Elevation	Topography	Ground Cover (Percent)						Soil Surface Observations	
					Litter	Bare Ground	Gravel	Wood	Lichen/moss	Rock		Plant Base
Tailings Facility Riparian Areas												
Soil Area 17 - South of Tailings Facility												
TSS17-33	9	SSE		Alluvial terrace and upper terrace slope. Moderate slope on upper 1/2, shallower at bottom.	72	24	0	0	0	1	3	
TSS17-35	5	SSE		Lower river terrace, gentle rise to mix terrace. All wet.	55	5	0	0	0	0	1	39% surface water
TSS17-37	4	S		Sloping alluvial valley. Spring in middle of pasture, low terrace to north	73	0	0	0	0	0	5	22% surface water
TSS17-39	4	S		Gently sloping alluvial valley, ditch on east is an raised berm about 2-3 feet above field, road to well has shallow ditches at each side	77	16	0	0	0	0	7	
TSS17-41	2	SSW		Relatively level, except sparsely vegetated levee within willows is elevated approximately 3 feet, and 3 foot deep channel below road,	52	30	0	1	0	1	1	15% surface water
TSS17-42	7	SSE	7385	Gently sloping alluvial terrace	78	8	0	1	0	1	3	9% surface water
Mean					67.8	13.8	0.0	0.3	0.0	0.5	3.3	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		MRSS-1	MRSS-2	MRSS-3	MRSS-4	MRSS-5	MRSS-16	MRSS-17	MRSS-18	MRSS-19	MRSS-20	
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	100
TREES												
<i>Abies concolor</i>	White Fir	P	5	P		3	2	7	18	4	9	
<i>Abies arizonica</i>	Corkbark fir						3		4			
<i>Acer glabrum</i>	Rocky mountain maple								1			
<i>Juniperus scopulorum</i>	Rocky mountain juniper	6	17	P								
<i>Picea engelmannii</i>	Engelmann spruce					23	21		3	25	9	
<i>Picea pungens</i>	Blue spruce			P								
<i>Pinus edulis</i>	Pinon pine	9										
<i>Pinus flexilis</i>	Limber pine	4		10	14	3		10	1	11		
<i>Pinus ponderosa</i>	Ponderosa pine	4		14	P	1						
<i>Populus tremuloides</i>	Quaking aspen			P		4	4		1	P	5	
<i>Pseudotsuga menziesii</i>	Douglas fir	1	7	P	15	10	9	10	1	2	34	
Subtotal - Number of Tree Species		6.0	3.0	7.0	3.0	6.0	5.0	3.0	7.0	5.0	4.0	4.9
Subtotal - Percent Tree Cover		24.0	29.0	24.0	29.0	44.0	39.0	27.0	29.0	42.0	57.0	34.4
SHRUBS												
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick						4					
<i>Artemisia frigida</i>	Fringed sage	P	P		P	P						
<i>Berberis (Mahonia) repens</i>	Creeping barberry				P	P	P	2	P			
<i>Cercocarpus montanus</i>	Common mountain mahogany	8	10	P	2			3				
<i>Clematis columbiana</i>	Rock clematis						P		P		P	
<i>Ericameria nauseosa</i>	Rubber rabbitbrush		P									
<i>Jamesia americana</i>	Waxflower							3				
<i>Juniperus communis</i>	Common juniper			P		P	8		2	P	P	
<i>Pachystima myrsinites</i>	Mountain lover, Oregon boxleaf						6	P	5	2	5	
<i>Prunus virginiana</i>	Chokecherry		2									
<i>Quercus gambellii</i>	Gambel oak	7	29		P							
<i>Ribes cereum</i>	Wax current	P	P		1	1						
<i>Rosa woodsii</i>	Wood's rose					P		P	P			
<i>Salix scouleriana</i>	Scouler's willow						P		1	P	P	
<i>Shepherdia canadensis</i>	Russet buffaloberry					P			P			
<i>Symphoricarpos albus</i>	Common snowberry		3									
<i>Symphoricarpos rotundifolius</i>	Round-leaf snowberry	P	14	P	P	4		2				
<i>Vaccinium scoparium</i>	Grouse whortleberry						8		9	13	9	
<i>Yucca glauca</i>	Plains yucca	P	1									
Subtotal - Number of Shrub Species		6.0	9.0	3.0	6.0	7.0	7.0	6.0	8.0	4.0	5.0	6.1
Subtotal - Percent Shrub Cover		15.0	59.0	0.0	3.0	5.0	26.0	10.0	17.0	15.0	14.0	16.4
FORBS												
<i>Achillea millefolium</i>	Western yarrow					P						
<i>Antennaria parviflora</i>	Little-leaf pussytoes						2		P			
<i>Antennaria sp.</i>	Pussytoes					P						
<i>Apocynum androsaemifolium</i>	Spreading dogbane						P					
<i>Aquilegia sp.</i>	Columbine								P			
<i>Artemisia campestris</i>	Field sagewort	P										
<i>Artemisia ludoviciana</i>	Louisiana sagewort		P									
<i>Bahia dissecta</i>	Ragged-leaf bahia	P										
<i>Brickellia grandiflora</i>	Tasselflower brickellbush		P									
<i>Chaenactis douglasii</i>	Douglas dustymaiden				P	P		P				

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		MRSS-1	MRSS-2	MRSS-3	MRSS-4	MRSS-5	MRSS-16	MRSS-17	MRSS-18	MRSS-19	MRSS-20	
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	
FORBS												
<i>Chenopodium leptophyllum</i>	Narrowleaf goosefoot	P	P									
<i>Chimaphila umbellata</i>	Pipsissewa							P			P	
<i>Cirsium sp.</i>	Thistle		P									
<i>Erigeron eximius</i>	Spruce-fir daisy							P		1	P	P
<i>Eriogonum jamesii</i>	James buckwheat, Antelope sage	P	P		P							
<i>Erodium cicutarium</i>	Red-stemmed filaree	P										
<i>Fragaria vesca</i>	Woodland strawberry					P						
<i>Fragaria sp.</i>	Strawberry						1	1	P	P		
<i>Geranium caespitosum</i>	Tufted geranium								P			
<i>Goodyera repens</i>	Dwarf rattlesnake plantain								P		P	
<i>Linnaea borealis</i>	American twinflower								3	P	P	
<i>Maianthemum sp.</i>	False Solomon's seal								P			
<i>Oreochrysum parryi</i>	Parry's goldenrod								P	P		
<i>Orthilia secunda</i>	Sidebells								P	P		
<i>Penstemon sp.</i>	Penstemon, Beardtongue	P	P			P						
<i>Pseudocymopterus montanus</i>	Mountain parsley					P						
<i>Pterosperma andromeda</i>	Pinedrops											P
<i>Pyrola sp.</i>	Wintergreen									1	P	
<i>Saxifraga bronchialis</i>	Spotted saxifrage							P		P		
<i>Solidago multiradiata</i>	Rocky mountain goldenrod							P				
<i>Solidago simplex</i>	Mt. Albert goldenrod				P							
<i>Solidago velutina</i>	Three-nerve goldenrod		P									
<i>Taraxacum officinale</i>	Common dandelion	P						P				
<i>Thlaspi montanum</i>	Wild candytuft					P		P				
<i>Townsendia rothrockii</i>	Rothrock Townsend daisy		1									
<i>Unidentified forb species</i>			P			P	1	P			1	
Subtotal - Number of Forb Species		7.0	9.0	100.0	3.0	9.0	9.0	4.0	10.0	8.0	7.0	16.6
Subtotal - Percent Forb Cover		0.1	1.0	1.0	0.0	0.1	4.0	1.0	4.0	1.0	1.0	1.3
GRASSES AND GRASS-LIKE PLANTS												
<i>Acnatherum lettermannii</i>	Letterman's needlegrass					P						
<i>Achnatherum perplexum</i>	New Mexico needlegrass	3		P	P	P	P					
<i>Blepharoneuron tricholepis</i>	Pine dropseed	P										
<i>Bouteloua gracilis</i>	Blue grama	1	5									
<i>Bromus ciliatus</i>	Fringed brome						P		P		P	
<i>Calamagrostis stricta</i>	Slender reedgrass								P	P		
<i>Carex sp.</i>	Sedge		P	P	P	P	P	P	P			
<i>Koeleria macrantha</i>	Prairie junegrass						P	P				
<i>Muhlenbergia sp.</i>	Muhly						P					
<i>Piptatherum micranthum</i>	Littleseed ryegrass	P	1									
<i>Unidentified grass species</i>									1			
Subtotal - Number of Grass Species		4.0	3.0	2.0	2.0	3.0	5.0	2.0	4.0	1.0	1.0	2.7
Subtotal - Percent Grass Cover		4.0	6.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.1
TOTAL NUMBER OF SPECIES		23.0	24.0	112.0	14.0	25.0	26.0	15.0	29.0	18.0	17.0	30.3
TOTAL PERCENT COVER OF SPECIES		43.1	95.0	25.0	32.0	49.1	69.0	38.0	51.0	58.0	72.0	53.2

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		MSS3-1	MSS3-2	MSS3-3	MSS3-4	MSS3-5	MSS3-6	MSS3-7	MSS3-8	MSS3-9	MSS3-10	
Number of Transect Points		100	100	100	100	100	100	100	100	100	99	
TREES												
<i>Abies concolor</i>	White fir	3	5	45		1	23	2		7	10	
<i>Acer glabrum</i>	Rocky mountain maple									P		
<i>Juniperus scopulorum</i>	Rocky mountain juniper		8	1	13	P	5	1	3	P		
<i>Pinus edulis</i>	Pinon pine	8	P		28	P	3	4	36			
<i>Pinus flexilis</i>	Limber pine	P	P			1		4		P	1	
<i>Pinus ponderosa</i>	Ponderosa pine	5	3				4	14		8	5	
<i>Populus angustifolia</i>	Narrowleaf cottonwood	P	P			3				P		
<i>Populus tremuloides</i>	Quaking aspen			4						13	P	
<i>Psuedotsuga menziesii</i>	Douglas fir	6	1	11		10	1	4		18	4	
Subtotal - Number of Tree Species		6.0	7.0	4.0	2.0	6.0	5.0	6.0	2.0	8.0	5.0	5.1
Subtotal - Percent Tree Cover		22.0	17.0	61.0	41.0	15.0	36.0	29.0	39.0	46.0	20.2	32.6
SHRUBS												
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick									P	1	
<i>Artemisia frigida</i>	Fringed sage		P	P	P	P	P		P	P		
<i>Berberis fendleri</i>	Fendler's barberry			P								
<i>Berberis (Mahonia) repens</i>	Creeping barberry		1	1						1		
<i>Cercocarpus montanus</i>	Common mountain mahogany		2	1	4		P	P	9	P		
<i>Clematis columbiana</i>	Rock clematis									P		
<i>Clematis ligusticifolia</i>	Western white clematis			P								
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	P				2	P				P	
<i>Fendlera rupicola</i>	Cliff fendlerbush					P	2					
<i>Holodiscus dumosus</i>	Ocean spray, Rock spiraea					P						
<i>Jamesia americana</i>	Waxflower					P	P			P		
<i>Juniperus communis</i>	Common juniper									P		
<i>Opuntia polyacantha</i>	Plains prickly pear				P				P			
<i>Pachystima myrsinites</i>	Mountain lover, Oregon boxleaf									P		
<i>Prunus virginiana</i>	Chokecherry			8								
<i>Quercus gambellii</i>	Gambel oak	3	9	7	8	P	7		1			
<i>Rhus trilobata</i>	Skunkbrush sumac			1								
<i>Ribes cereum</i>	Wax current	P	P							P		
<i>Ribes leptanthum</i>	Trumpet gooseberry			2		2						
<i>Rosa woodsii</i>	Wood's rose									P		
<i>Salix scouleriana</i>	Scouler's willow		P									
<i>Symphoricarpos rotundifolius</i>	Round-leaf snowberry		P	7		P				1		
<i>Yucca baccata</i>	Banana yucca	P			P							
<i>Yucca glauca</i>	Plains yucca	P	P		1		P					
Subtotal - Number of Shrub Species		5.0	8.0	10.0	6.0	8.0	7.0	1.0	4.0	11.0	2.0	6.2
Subtotal - Percent Shrub Cover		3.0	12.0	27.0	13.0	4.0	9.0	0.0	10.0	2.0	1.0	8.1

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		MSS3-1	MSS3-2	MSS3-3	MSS3-4	MSS3-5	MSS3-6	MSS3-7	MSS3-8	MSS3-9	MSS3-10	
Number of Transect Points		100	100	100	100	100	100	100	100	100	99	
FORBS												
<i>Achillea millefolium</i>	Western yarrow		P									
<i>Ageratina herbacea</i>	Fragrant snakeroot	P						1			P	
<i>Antennaria sp.</i>	Pussytoes		P						P			
<i>Apocynum androsaemifolium</i>	Spreading dogbane		P									
<i>Bahia dissecta</i>	Ragged-leaf bahia			P		P	P					
<i>Cycloloma atriplicifolium</i>	Winged pigweed									P		
<i>Erigeron sp.</i>	Daisy		P									
<i>Eriogonum jamesii</i>	James buckwheat, Antelope sage	P		P	P			P		1		
<i>Gayophytum diffusum</i>	Spreading groundsmoke		P									
<i>Heterotheca villosa</i>	Hairy goldenaster		1					P				
<i>Heuchera sp.</i>	Alumroot			P								
<i>Ipomopsis aggregata</i>	Scarlet gillia	P	P						P	P		
<i>Machaeranthera canescens</i>	Hoary tansyaster				P							
<i>Machaeranthera pinnatifida</i>	Perennial goldenweed				P							
<i>Mentha arvensis</i>	Field mint	P										
<i>Mentzelia sp.</i>	Blazingstar	P										
<i>Mirabilis linearis</i>	Narrow-leaved desert four o'clock	P		P	P							
<i>Penstemon sp.</i>	Penstemon, Beardtougue									P		
<i>Pericome caudata</i>	Taperleaf							P				
<i>Saxifraga bronchialis</i>	Spotted saxifrage			3								
<i>Senecio eremophilus</i>	Desert ragwort, Groundsel		P							P		
<i>Senecio (Packera) wernerifolius</i>	Rocky groundsel, Alpine butterweed								P	P		
<i>Senecio wootonii</i>	Wooton's ragwort, Grounsel										P	
<i>Solidago velutina</i>	Three-nerve goldenrod	P	P							P	P	
<i>Thalictrum fendleri</i>	Fender's meadowrue			1								
<i>Townsendia rothrockii</i>	Rothrock Townsend daisy		P									
<i>Verbascum thapsus</i>	Common mullein		P				P	P				
<i>Verbena macdouglaii</i>	Spike verbena							P				
<i>Viola sp.</i>	Violet			P								
<i>Unidentified forb species</i>				0				P		P	P	
Subtotal - Number of Forb Species		7.0	11.0	8.0	4.0	2.0	8.0	3.0	3.0	8.0	3.0	5.7
Subtotal - Percent Forb Cover		0.0	1.0	4.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.7
GRASSES AND GRASS-LIKE PLANTS												
<i>Achnatherum perplexum</i>	New Mexico needlegrass	P	P	P		9	1	2	5	P	1	
<i>Blepharoneuron tricholepis</i>	Pine dropseed	P						P				
<i>Bouteloua curtipendula</i>	Sideoats grama				P							
<i>Bouteloua gracilis</i>	Blue grama				1		P	P	1			
<i>Carex sp.</i>	Sedge	P	P							P		
<i>Elymus longifolius</i>	Longleaf squirreltail		P									
<i>Koeleria macrantha</i>	Pairie jungrass		P	P								
<i>Piptatherum micranthum</i>	Littleseed ricegrass		P						P			
<i>Poa sp.</i>	Bluegrass						1					
<i>Unidentified grass species</i>		P		1						1		
Subtotal - Number of Grass Species		4.0	5.0	3.0	2.0	1.0	4.0	2.0	3.0	3.0	1.0	2.8
Subtotal - Percent Grass Cover		0.0	0.0	1.0	1.0	9.0	2.0	2.0	6.0	1.0	1.0	2.3
TOTAL NUMBER OF SPECIES		22.0	31.0	25.0	14.0	17.0	24.0	12.0	12.0	30.0	11.0	19.8
TOTAL PERCENT COVER OF SPECIES		25.0	30.0	93.0	55.0	28.0	48.0	31.0	56.0	49.0	22.0	43.7

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		CR-2	CR-4	CR-5	CR-6	CR-7	CR-8	CR-10	CR-11	CR-13	CR-14	
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	100
TREES												
<i>Juniperus scopulorum</i>	Rocky Mountain juniper										P	P
<i>Pinus edulis</i>	Pinon pine									P		
<i>Ulmus pumila</i>	Siberian Elm							P				
Subtotal - Number of Tree Species		0	0	0	0	0	0	1	0	1	1	1
Subtotal - Percent Tree Cover		0	0	0	0	0	0	0	0	0	0	0
SHRUBS												
<i>Artemisia frigida</i>	Fringed sage		P								P	
<i>Artemisia tridentata</i>	Big sagebrush		P		1	P	5	4	19	2	P	
<i>Clematis ligusticifolia</i>	Western white clematis			P			P			P		
<i>Ericameria filifolia</i>	Greene's rabbitbrush		P		P	1	P	P	P	P	P	
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	9	27	3	14	4	1	5	P	5	1	
<i>Gutierrezia sarothrae</i>	Broom snakeweed	P	P		P	P	P	P	P	1	P	
<i>Opuntia polyacantha</i>	Common prickly pear							P	P	P		
<i>Tetradymia canescens</i>	Spineless horsebrush					P						
<i>Yucca glauca</i>	Soapweed yucca								P			
Subtotal - Number of Shrub Species		2	5	2	4	5	5	5	6	7	4	4.5
Subtotal - Percent Shrub Cover		9	27	3	15	5	6	9	19	8	1	10.2
FORBS												
<i>Agoseris sp.</i>	Goat chicory						P					
<i>Amaranthus blitoides</i>	Prostrate pigweed			P							P	
<i>Amaranthus hybridus</i>	Smooth amaranth	P		P			P					
<i>Arabis divaricarpa</i>	Spreading rock cress								P			
<i>Artemisia dracuncululus</i>	Tarragon	P										
<i>Asclepias speciosa</i>	Showy milkweed						P					
<i>Astragalus sp.</i>	Milkveltch	P	P									
<i>Brickellia eupatorioides</i>	False boneset										P	
<i>Chaetopappa ericoides</i>	Sand aster									P		
<i>Chamaesyce serpyllifolia</i>	Thyme-leaf spurge	P	P	P	P	P	P	P	P	P	P	
<i>Chenopodium berlandieri</i>	Lambs quarters							P		P		
<i>Chenopodium leptophyllum</i>	Narrowleaf goosefoot										P	
<i>Cirsium arvense</i>	Canada thistle	P										
<i>Cleome serrulata</i>	Rocky Mountain beeplant										P	
<i>Cosmos parviflorus</i>	Southwestern cosmos						P					
<i>Descurainia ramosissima</i>	Villa grove tansymustard							P	P			
<i>Dyssodia papposa</i>	Fetid-marigold					P	P			P		
<i>Erigeron divergens</i>	Spreading daisy								P			
<i>Eriogonum jamesii</i>	James's buckwheat, Antelope sage								P			
<i>Eriogonum microthecum</i>	Simpon's wild-buckwheat								P			
<i>Helianthus annuus</i>	Common sunflower		P	P		P	P			P	P	
<i>Ipomopsis laxiflora</i>	Blue tumpets		P			P		P	P	P		
<i>Kochia scoparia</i>	Mexican-fireweed, Kochia	P		P		P	P		P	P	P	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										
		CR-2	CR-4	CR-5	CR-6	CR-7	CR-8	CR-10	CR-11	CR-13	CR-14	Mean
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	
FORBS												
<i>Lappula occidentalis (redowskii)</i>	Spiny sheepbur							P	1	P	P	
<i>Lepidium montanum</i>	Jone's pepperweed	P										
<i>Lupinus argenteus</i>	Silvery lupine					1						
<i>Lygodesmia juncea</i>	Rush skeleton plant									P	P	
<i>Machaeranthera canescens</i>	Hoary tansyaster								P	P	P	
<i>Machaeranthera pinnatifida</i>	Perennial goldenrod	P		P	P			P	P	P	P	P
<i>Medicago sativa</i>	Alfafa					P						
<i>Mentzelia laciniata</i>	Cut-leaf blazing-star	P			P							
<i>Mertensia lanceolata</i>	Prairie bluebells										P	
<i>Mirabilis linearis</i>	Narrow-leaved desert four o'clock	P						P		P	P	P
<i>Oenothera coronopifolia</i>	Crown-leaf evening primrose	P	P	P				P	P		P	P
<i>Orobanche lucoviciana</i>	Louisiana broomrape		P									
<i>Physalis foetans</i>	New Mexico groundcherry							P			P	P
<i>Portulaca oleracea</i>	Garden purslane	P	P	P	P	P	P	P	P		P	P
<i>Potentilla sp.</i>	Cinquefoil										P	
<i>Salsola collina</i>	Slender Russian thistle	P			P			P				
<i>Salsola tragus (iberica)</i>	Prickly Russian thistle	P	P	P	P	P	P				P	P
<i>Salvia reflexa</i>	Lanceleaf sage							P			P	P
<i>Schkurhia multiflora</i>	New Mexico threadleaf				P	P	P	P	P		P	
<i>Senecio spartioides</i>	Broom ragwort, Groundsel								P	P		
<i>Sisymbrium altissimum</i>	Tall hedgemustard									P		
<i>Solanum rostratum</i>	Buffalo-bur	P										
<i>Solanum triflorum</i>	Cut-leaf nightshade	P				P	P	P	P	P	P	P
<i>Solidago nemoralis</i>	Gray goldenrod										P	
<i>Sphaeralcea coccinea</i>	Scarlet globemallow	P						P	P	P	P	P
<i>Symphotrichum sp.</i>	Aster							P				
<i>Taraxacum officinale</i>	Common dandelion	P										
<i>Tragopogon pratensis</i>	Meadow salsify	P										
<i>Verbascum thapsus</i>	Common mullein										P	
<i>Verbena bracteata</i>	Carpet vervain				P	P			P		P	
<i>Verbena macdougalii</i>	Spike verbena							P				
<i>Verbesina encelioides</i>	Golden crownbeard				P	P			P		P	P
<i>Vicia americana</i>	American vetch					P						
<i>Unknown forb species</i>								P			P	P
Subtotal - Number of Forb Species		19	8	9	10	18	21	15	16	27	18	16.1
Subtotal - Percent Forb Cover		0	0	0	0	1	0	1	0	0	0	0.2
GRASSES AND GRASS-LIKE PLANTS												
<i>Achnatherum (Oryzopsis) hymenoides</i>	Indian ricegrass	P										
<i>Achnatherum (Stipa) robustum</i>	Sleepy grass	P	P	P	P	1	P			1	P	
<i>Agropyron cristatum</i>	Crested wheatgrass				P	P	P	2	2	P		
<i>Aristida purpurea</i>	Purple threeawn							P	P			

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		CR-2	CR-4	CR-5	CR-6	CR-7	CR-8	CR-10	CR-11	CR-13	CR-14	
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	
GRASSES AND GRASS-LIKE PLANTS												
<i>Bouteloua gracilis</i>	Blue grama	P	P	P	P	P	3	2	1	P	5	
<i>Carex sp.</i>	Sedge			P	P		P			P		
<i>Distichlis spicata</i>	Inland saltgrass	P	P									
<i>Elymus longifolius</i>	Longleaf squirreltail	P	P	P	P	P	P		P			
<i>Elymus smithii</i>	Western wheatgrass	1	1	P	P	P				P	P	
<i>Juncus arcticus</i>	Baltic rush	9										
<i>Muhlenbergia richardsonis</i>	Mat muhly	P		P	P					P	P	
<i>Muhlenbergia torreyi</i>	Ring muhly	P	P			P	P	P	P	P		
<i>Munroa squarrosa</i>	False buffalo grass	P	P	P	P	P	P	P	P	P	P	
<i>Panicum capillare</i>	Witchgrass									P		
<i>Pleuraphis jamesii</i>	James's galleta	P										
<i>Schedonnardus paniculatus</i>	Tumble grass	P			P					P		
<i>Sporobolus airoides</i>	Alkali sacaton	6	P		P							
<i>Sporobolus cryptandrus</i>	Sand dropseed	P	1	P	P	P	1	P	P	1	P	
<i>Unknown grass species</i>					P							
Subtotal - Number of Grass Species		14.0	9.0	8.0	12.0	8.0	8.0	6.0	7.0	11.0	6.0	8.9
Subtotal - Percent Grass Cover		16.0	2.0	0.1	0.1	1.0	4.0	4.0	3.0	2.0	5.0	3.7
TOTAL NUMBER OF SPECIES		35.0	22.0	19.0	26.0	31.0	35.0	26.0	30.0	46.0	29.0	29.9
TOTAL PERCENT COVER		25.0	29.0	3.1	15.1	7.0	10.0	14.0	22.0	10.0	6.0	14.1

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean	
		TSS14-1	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7	TSS14-8	TSS14-9	TSS14-10		
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	100	
TREES													
<i>Elaeagnus angustifolia</i>	Russian olive									P			
<i>Juniperus scopulorum</i>	Rocky Mountain juniper		P										
<i>Pinus edulis</i>	Pinon pine		P		P								
<i>Populus angustifolia</i>	Narrowleaf cottonwood		P	P					P				
<i>Populus deltoides</i>	Plains cottonwood		P								P		
<i>Ulmus pumila</i>	Siberian elm								P				
Subtotal - Number of Tree Species		0.0	4.0	1.0	1.0	0.0	0.0	2.0	1.0	1.0	0.0	1.0	1.0
Subtotal - Percent Tree Cover		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SHRUBS													
<i>Artemisia frigida</i>	Fringed sage		P					P					
<i>Artemisia tridentata</i>	Big sagebrush	P	P		P	P	P	P	P	P	P	P	
<i>Ericameria depressa</i>	Longflower rabbitbrush	P											
<i>Ericameria filifolia (Chrysothamnus Greenei)</i>	Greene's rabbitbrush		P					P			P	P	
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	P	6	P	19	13	6	3	P	3	1		
<i>Gutierrezia sarothrae</i>	Broom snakeweed	P			P		P			P	P		
<i>Rhus trilobata</i>	Skunkbush sumac		P										
<i>Salix exigua</i>	Sandbar willow		P	P				P					
<i>Yucca glauca</i>	Soapweed yucca												
Subtotal - Number of Shrub Species		4.0	6.0	2.0	3.0	2.0	5.0	3.0	2.0	4.0	4.0	3.5	
Subtotal - Percent Shrub Cover		0.0	6.0	0.0	19.0	13.0	6.0	3.0	0.0	3.0	1.0	5.1	
FORBS													
<i>Amaranthus blitoides</i>	Prostrate pigweed		P										
<i>Amaranthus hybridus</i>	Smooth amaranth		P	P		P		P					
<i>Artemisia campestris</i>	Field sagewort			P	P	P				P			
<i>Bahia dissecta</i>	Ragged-leaf bahia	P	P	P	P	P	P	1	P	P	P		
<i>Brickellia eupatorioides</i>	False boneset		P		P				P				
<i>Chamaesyce serpyllifolia</i>	Thymeleaf sandmat		P	P		P	P				P		
<i>Chenopodium berlandieri</i>	Lambsquarters		P	P				P	P		P		
<i>Chenopodium cycloides</i>	Sandhill goosefoot			P									
<i>Cirsium vulgare</i>	Bull thistle							P					
<i>Convolvulus arvensis</i>	Field bindweed						P						
<i>Conyza canadensis</i>	Canadian horseweed			P				P					
<i>Cycloloma atriplicifolia</i>	Winged pigweed		P										
<i>Descurainia ramosissima</i>	Villa grove tansymustard			P						P			
<i>Dyssodia papposa</i>	Fetid marigold			P				P	P	P	P		
<i>Erigeron divergens</i>	Running fleabane	P		P				P	P				
<i>Erigeron (little)</i>	Daisy	P											
<i>Eriogonum cernuum</i>	Nodding buckwheat				P								
<i>Euphorbia davidii</i>	David's spurge					P							
<i>Grindelia squarrosa</i>	Curlycup gumweed	P	P	P	P	P	P	P	P	P	P	P	
<i>Helianthus annuus</i>	Common sunflower	P	P	P	P	P	P	P	P	P	P	P	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean	
		TSS14-1	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7	TSS14-8	TSS14-9	TSS14-10		
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	100	
FORBS													
<i>Heterotheca villosa</i>	Hairy goldenaster	P	P		P	1	P	P		P	P		
<i>Hymenopappus filifolius</i>	Fineleaf hymenopappus				P								
<i>Hymenoxys richardsonii</i>	Pingue rubberweed							P					
<i>Kochia scoparia</i>	Mexican-fireweed	P		P				P	P	P	P		
<i>Lactuca serriola</i>	Prickly lettuce	P		P				P	P				
<i>Lappula occidentalis (redowskii)</i>	Stickseed	P	P	P	P	P		P	P	P	P		
<i>Lappula squarrosa</i>	European stickseed					P							
<i>Linum lewisii</i>	Prairie flax	P								P	P		
<i>Linum arsitatum</i>	Flax (yellow)		P										
<i>Lithospermum incisum</i>	Stoneseed					P							
<i>Machaeranthera canescens</i>	Hoary tansyaster	1	P	P	P	P	P	P	P	P	P	P	
<i>Machaeranthera pinnatifida (Haplopappus spinulosus)</i>	Lacy tansyaster	P						P		P	P		
<i>Medicago sativa</i>	Alfafa	1	P	P	P	P	P	5		P	1		
<i>Melilotus officinalis</i>	Yellow sweet clover			P				P	P				
<i>Mentzelia laciniata</i>	Adonis blazingstar	1	P	P	P	P	P	P	P	P	P		
<i>Penstemon linarioides</i>	Toadflax beardtongue		P		P								
<i>Penstemon spp.</i>	Beardtongue					P							
<i>Physalis foetans</i>	New Mexico groundcherry		P	P	P								
<i>Physalis hederifolia</i>	Ivyleaf groundcherry		P										
<i>Polygonum erectum</i>	Erect knotweed			P									
<i>Portulaca oleracea</i>	Little hogweed		P										
<i>Potentilla sp.</i>	Cinquefoil	P		P									
<i>Rayjacksonia annua</i>	Viscid tansyaster							P					
<i>Rumex salicifolius</i>	Willow dock			P									
<i>Salsola collina</i>	Slender Russian thistle	P	P	P	P		P	P	P	P	P		
<i>Salsola tragus (iberica)</i>	Prickly Russian thistle	P	P	P	P	P	P	P	P	P	P		
<i>Salvia reflexa</i>	Lanceleaf sage		P			P							
<i>Senecio spartioides</i>	Broom ragwort	P	P	P	P	P	P	P	P	P	P	P	
<i>Sisymbrium altissimum</i>	Tall hedgemustard		P	P		P		P	P	P	P		
<i>Solanum triflorum</i>	Cutleaf nightshade			P									
<i>Sphaeralcea coccinea</i>	Scarlet globemallow						P			P	P		
<i>Symphyotrichum fendleri</i>	Fendler's aster			P			P						
<i>Taraxacum officinale</i>	Dandelion			P	P			P	P	P			
<i>Tragopogon dubius</i>	Yellow salsify	P		P				P	P				
<i>Tragopogon pratensis</i>	Meadow salsify							P					
<i>Tragopogon spp.</i>	Salsify				P		P	P			P		
<i>Verbascum thapsus</i>	Common mullein					P		P	P				
<i>Verbena bracteata</i>	Bigbract verbena			P									
<i>Verbena macdougalii</i>	Spike verbena	P			P								
<i>Verbesina encelioides</i>	Golden crownbeard	P	P		P	P					P		
<i>Zinnia grandiflora</i>	Rocky mountain zinnia		P										
<i>Unknown sp.</i>		P	P			P				P			
Subtotal - Number of Forb Species		22.0	27.0	32.0	21.0	22.0	16.0	28.0	20.0	21.0	20.0	22.9	
Subtotal - Percent Forb Cover		3.0	0.0	0.0	0.0	1.0	0.0	6.0	0.0	0.0	1.0	1.1	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean	
		TSS14-1	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7	TSS14-8	TSS14-9	TSS14-10		
Number of Transect Points		100	100	100	100	100	100	100	100	100	100	100	
GRASSES AND GRASS-LIKE PLANTS													
<i>Achnatherum (Oryzopsis) hymenoides</i>	Indian ricegrass	8	7		9	3	P	P	P	P	2		
<i>Achnatherum lettermannii</i>	Letterman's needlegrass		P										
<i>Achnatherum robustum (Stipa robusta)</i>	Sleepy grass	P	P		P	P	1	P	P	P	2		
<i>Agropyron cristatum</i>	Crested wheatgrass	P		3		P	P	6	P	12	P		
<i>Aristida purpurea</i>	Purple threeawn	P			P	P	P			1			
<i>Bouteloua curtipendula</i>	Sideoats grama		P										
<i>Bouteloua gracilis</i>	Blue grama	P	P		P	P	1		P	P	P		
<i>Bromus inermis</i>	Smooth brome		P	P				P	P				
<i>Bromus tectorum</i>	Cheatgrass	P	P	P	1	P	P	P	P				
<i>Elymus elongatus</i>	Tall wheatgrass	P									P		
<i>Elymus hispidus (Agropyron intermedium)</i>	Intermediate wheatgrass	4	P			P			P	P	2		
<i>Elymus longifolius</i>	Longleaf squirreltail	P	P	2	3	5	9	1	P	P	P		
<i>Elymus repens</i>	Quackgrass								P				
<i>Elymus smithii</i>	Western wheatgrass	P	P	P		P			P	P	6		
<i>Elymus spicatus (Pseudoroegneria spicata)</i>	Bluebunch wheatgrass										P		
<i>Elymus trachycaulus.</i>	Slender wheatgrass	P	P						1	P			
<i>Heterostipa comata</i>	Needle and thread					P				P	P		
<i>Hordeum jubatum</i>	Foxtail barley			P				P	P				
<i>Leymus ambiguus</i>	Rocky Mountain wildrye		P										
<i>Muhlenbergia torreyi.</i>	Ring muhly		P										
<i>Phragmites australis</i>	Common reed							P					
<i>Pleuraphis jamesii</i>	James's galleta		P										
<i>Poa pratensis</i>	Kentucky bluegrass								P				
<i>Psathyrostachys juncea</i>	Russian wildrye					P							
<i>Schedonnardus paniculatus</i>	Tumble grass				P		P			P			
<i>Schizachyrium scoparium</i>	Little bluestem		P										
<i>Sporobolus airoides</i>	Alkali sacaton		P										
<i>Sporobolus cryptandrus</i>	Sand dropseed	5	4	P	3	7	2	P	P	P	2		
<i>Unknown sp.</i>			P										
Subtotal - Number of Grass Species		12.0	18.0	7.0	8.0	12.0	9.0	9.0	14.0	12.0	11.0	11.2	
Subtotal - Percent Grass Cover		17.0	11.0	5.0	16.0	15.0	13.0	7.0	1.0	13.0	14.0	11.2	
TOTAL NUMBER OF SPECIES		38.0	55.0	42.0	33.0	36.0	30.0	42.0	37.0	38.0	35.0	38.6	
TOTAL PERCENT COVER		20.0	17.0	5.0	35.0	29.0	19.0	16.0	1.0	16.0	16.0	17.4	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RRS-1	RRS-3	RRS-5	RRS-7	RRS-8	RRS-9	RRS-10	RRS-11	RRS-12	RRS-13	
Number of Transect Points		100	100	99	70	100	101	100	80	100	99	
TREES												
<i>Abies concolor</i>	White fir					12	1	4	10	1	1	
<i>Acer glabrum</i>	Rocky mountain maple					P		1	4	9	20	
<i>Juniperus scopulorum</i>	Rocky Mountain juniper					1				2		
<i>Picea engelmannii</i>	Engelmann spruce	46						6				
<i>Picea pungens</i>	Blue spruce			8	P	2	35	14	15	2	P	
<i>Pinus flexilis</i>	Limber pine			P								
<i>Pinus ponderosa</i>	Ponderosa pine				P	3						
<i>Populus angustifolia</i>	Narrowleaf cottonwood		6	42	6	44		3		29	45	
<i>Populus tremuloides</i>	Quaking aspen						4	35	8	4		
<i>Pseudotsuga menziesii</i>	Douglas fir			7	1	36		3	3	40	40	
Subtotal - Number of Tree Species		1.0	1.0	4.0	4.0	7.0	4.0	6.0	5.0	7.0	5.0	4.4
Subtotal - Percent Tree Cover		46.0	6.0	57.6	10.0	98.0	45.5	60.0	50.0	87.0	107.1	56.7
SHRUBS												
<i>Alnus incana</i>	Mountain alder		11	4	11	1	11	4	7	28	2	
<i>Artemisia frigida</i>	Fringed sage					P						
<i>Berberis fendleri</i>	Fendler's barberry					P						
<i>Berberis (Mahonia) repens</i>	Creeping barberry					P				P		
<i>Cercocarpus montanus</i>	Common mountain mahogany				P							
<i>Clematis columbiana</i>	Rock clematis					P						
<i>Clematis ligusticifolia</i>	Western white clematis					P						
<i>Cornus sericea</i>	Redosier dogwood	10		1				1	5			
<i>Ericameria nauseosa</i>	Rubber rabbitbrush					P						
<i>Jamesia americana</i>	Waxflower								1			
<i>Juniperus communis</i>	Common juniper					P	2	1		1		
<i>Pentaphylloides floribunda</i>	Shrubby cinquefoil	P	P		P							
<i>Prunus virginiana</i>	Chokecherry					1			1			
<i>Quercus gambellii</i>	Gambel oak					1		P				
<i>Ribes cereum</i>	Wax current			P		P						
<i>Ribes inerme</i>	Whitestem gooseberry							2	2	P	P	
<i>Rosa woodsii</i>	Wood's rose	2	1	P	1	P	1	4	P	1	2	
<i>Ribes leptanthum</i>	Trumpet gooseberry	P						P				
<i>Rubus idaeus</i>	Red respberry	1						1				
<i>Salix drummondiana</i>	Drummond's willow	P	27		8		20	13	25	3		
<i>Salix exigua</i>	Sandbar willow							P				
<i>Salix lucida</i>	Shining willow						P					
<i>Salix monticola</i>	Park willow	2	37	2	3		3	1	1			
<i>Shepherdia canadensis</i>	Russet buffaloberry							P				
<i>Symphoricarpos rotundifolius</i>	Round-leaf snowberry	P			3	3		3		P	P	
Subtotal - Number of Shrub Species		8.0	5.0	5.0	7.0	13.0	10.0	10.0	8.0	7.0	5.0	7.8
Subtotal - Percent Shrub Cover		15.0	76.0	7.1	37.1	6.0	39.6	27.0	52.5	33.0	4.0	29.7
FORBS												
<i>Achillea millefolium</i>	Western yarrow		1		P	P	P	2	P	1		
<i>Aconitum columbianum</i>	Columbian monkshood	1	P				P		P	P		
<i>Actaea rubra</i>	Red baneberry	P										
<i>Antennaria sp.</i>	Pussytoes					P						
<i>Anthemis cotula</i>	Stinking chamomile, mayweed				1							
<i>Apocynum cannabinum</i>	Indain hemp				P							
<i>Arabis hirsuta</i>	Hairy rock-cress	P				P						
<i>Artemisia campestris</i>	Field sagewort		P			P		P				
Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
Number of Transect Points		100	100	99	70	100	101	100	80	100	99	
FORBS												
<i>Astragalus sp.</i>	Milkvetch	P				P						

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

<i>Bahia dissecta</i>	Ragged-leaf bahia					P						
<i>Barbarea vulgaris</i>	Wintercress	1	1									
<i>Campanula sp.</i>	Bellflower							P				
<i>Cardamine cordifolia</i>	Heartleaf bittercress	3								P		
<i>Cerastium sp.</i>	Chickweed	P					P	2				
<i>Chamerion angustifolium</i>	Fireweed	P		P	P			1	P			
<i>Chenopodium sp.</i>	Goosefoot					P						
<i>Cirsium parryi</i>	Parry's thistle	1					P					
<i>Cirsium sp.</i>	Thistle					P		P		P		
<i>Cycloloma atriplicifolium</i>	Winged pigweed					P						
<i>Daucus carota</i>	Queen Anne's lace	1										
<i>Epilobium ciliatum</i>	Fringed willowherb	1		P				P				
<i>Erigeron eximius</i>	Spruce-fir daisy	3										
<i>Erigeron peregrinus</i>	Subalpine fleabane daisy	P										
<i>Fragaria sp.</i>	Strawberry	2					1		P	P	1	
<i>Galium mexicanum</i>	Mexican bedstraw	2										
<i>Galium triflorum</i>	Fragrant bedstraw										1	
<i>Galium sp.</i>	Bestraw						2		P			
<i>Geranium caespitosum</i>	Tufted geranium	1					P	P	P	P	1	2
<i>Geum macrophyllum</i>	Large leaf avens	4		P		P	2	P	P			
<i>Goodyera repens</i>	Dwarf rattlesnake plantain											P
<i>Herculeum maximum</i>	Cow parsnip	3	6	P	P		1	P	6	3		
<i>Hydrophyllum fendleri</i>	Fendler's waterleaf						P					
<i>Leucanthemum vulgare</i>	Ox-eye daisy		P	1	P							
<i>Linaria vulgaris</i>	Butter and eggs		1		2							
<i>Machaeranthera canescens</i>	Hoary tansyaster			P								
<i>Maianthemum sp.</i>	False Solomon's seal					P						
<i>Melilotus officinalis</i>	Yellow sweetclover				P	P						
<i>Mentha arvensis</i>	Field mint									P		
<i>Mimulus guttatus</i>	Seep monkey-flower	P										
<i>Oenothera sp.</i>	Evening primrose				P							
<i>Oreochrysum parryi</i>	Parry's goldenrod	P										
<i>Osmorhiza depauperata</i>	Lesser sweet cicely								P		1	
<i>Osmorhiza sp.</i>	Sweet cicely	P										
<i>Plantago lanceolata</i>	Narrowleaf plantain		1									
<i>Plantago major</i>	Common plantain		1									
<i>Potentilla gracilis</i>	Elmer's cinquefoil	P					P					
<i>Potentilla sp.</i>	Cinquefoil							P				
<i>Pterospora andromeda</i>	Pinedrops										P	
<i>Ranunculus sp.</i>	Buttercup	P										
<i>Rudbeckia laciniata</i>	Cutleaf coneflower			P	P			1	1	1	P	
<i>Rumex acetosella</i>	Sheep sorrel		2	P	P		1					
<i>Rumex altissimus</i>	Pale dock	P	P									
<i>Saxifraga odontoloma</i>	Brook saxifrage	P	P									
<i>Senecio sanguisorboides</i>	Burnet groundsel	P										
<i>Senecio triangularis</i>	Arrow-leaf groundsel	P					P					
<i>Sidalcea candida</i>	White checker-mallow	P										
<i>Silene antirrhina</i>	Sleepy catchfly							P				

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RRS-1	RRS-3	RRS-5	RRS-7	RRS-8	RRS-9	RRS-10	RRS-11	RRS-12	RRS-13	
Number of Transect Points		100	100	99	70	100	101	100	80	100	99	
FORBS												
<i>Solidago velutina</i>	Three-nerve goldenrod					P						
<i>Stachys pilosa</i>	Hairy hedgenettle				1							
<i>Symphyotrichum fendleri</i>	Fender's aster	P										
<i>Symphyotrichum foliaceum</i>	Alpine aster	P										
<i>Symphyotrichum lanceolatum (Aster herperius)</i>	Wooton's aster				P							
<i>Taraxacum officinale</i>	Common dandelion	2	6		1		1	P				
<i>Thalictrum fendleri</i>	Fender's meadowrue				1	P	P	P	1	P		
<i>Tragopogon sp.</i>	Salsify			P								
<i>Trifolium sp.</i>	Clover	P	2				1	P	P		P	
<i>Urtica dioica</i>	Stinging nettle	1					1		P			
<i>Veronica sp.</i>	Speedwell	P										
<i>Vicia americana</i>	American vetch							1				
<i>Viola sp.</i>	Violet	P					1	P				
<i>Woodsia oregana</i>	Oregon cliff-fern	P										
<i>Unidentified forb species</i>		4			1		3	1		1		
Subtotal - Number of Forb Species		40.0	14.0	9.0	17.0	13.0	22.0	19.0	13.0	11.0	7.0	16.5
Subtotal - Percent Forb Cover		30.0	21.0	1.0	10.0	0.0	13.9	8.0	10.0	6.0	5.1	10.5
GRASSES AND GRASS-LIKE PLANTS												
<i>Achnatherum perplexum</i>	New Mexico needlegrass	1										
<i>Agrostis gigantea</i>	Redtop				2							
<i>Agrostis stolonifera</i>	Creeping bentgrass	3	P	6	4				1	P		
<i>Blepharoneuron tricholepis</i>	Pine dropseed				1		1					
<i>Bouteloua gracilis</i>	Blue grama					P						
<i>Bromus ciliatus</i>	Fringed brome	P		1	P	P	P		1		5	
<i>Bromus inermis</i>	Smooth Brome		6	1	8	2						
<i>Calamagrostis canadensis</i>	Canada reedgrass						5	4	1	2		
<i>Carex sp.</i>	Sedge	4				P		5		P		
<i>Dactylis glomerata</i>	Orchardgrass				P			P				
<i>Deschampsia cespitosa</i>	Tufted hairgrass	P										
<i>Elymus lanceolatus</i>	Streambank wheatgrass				1							
<i>Elymus repens</i>	Quackgrass		2	P	2			P				
<i>Elymus trachycaulus</i>	Slender wheatgrass					1			P			
<i>Equistum arvense</i>	Field horsetail	1					1	7	1	2		
<i>Festuca idahoensis</i>	Idaho fescue	P										
<i>Glyceria striata</i>	Fowl mannagrass	P										
<i>Juncus arcticus</i>	Baltic rush							1				
<i>Juncus ensifolius</i>	Swordleaf rush	P										
<i>Koeleria macrantha</i>	Prairie jungrass					P		P				
<i>Phleum pratense</i>	Timothy							1				
<i>Poa compressa</i>	Canada bluegrass			P	2							
<i>Poa pratensis</i>	Kentucky bluegrass		12		2			P	P			
<i>Poa reflexa</i>	Nodding bluegrass							1	P			
<i>Poa sp.</i>	Bluegrass	3	7	1	3		2	10	5	4	1	
<i>Trisetum spicatum</i>	Spike oats	1										
<i>Unidentified grass species</i>					1	P						
Subtotal - Number of Grass Species		11.0	5.0	6.0	12.0	7.0	5.0	11.0	8.0	5.0	2.0	7.2
Subtotal - Percent Grass Cover		13.0	27.0	9.1	37.1	3.0	8.9	29.0	11.3	8.0	6.1	15.3
TOTAL NUMBER OF SPECIES		60.0	25.0	24.0	40.0	40.0	41.0	46.0	34.0	30.0	19.0	35.9
TOTAL PERCENT COVER		104.0	130.0	74.8	94.2	107.0	107.9	124.0	123.8	134.0	122.3	112.2

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	
Number of Transect Points		80	100	100	101	100	80	100	100	100	100	
TREES												
<i>Abies concolor</i>	White fir			2	3	7	1					
<i>Acer glabrum</i>	Rocky mountain maple					P						
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	4	1	P	P	1	1	3	5	P		
<i>Picea engelmannii</i>	Englemann spruce	1	P									
<i>Picea pungens</i>	Blue spruce	16										
<i>Pinus edulis</i>	Pinon pine					1						
<i>Pinus flexilis</i>	Limber pine					3						
<i>Pinus ponderosa</i>	Ponderosa pine	2	9	P		3	4	4				
<i>Populus angustifolia</i>	Narrowleaf cottonwood	41	12	22	24	7		37	24	13	6	
<i>Pseudotsuga menziesii</i>	Douglas fir	26	4			16	2					
Subtotal - Number of Tree Species		6.0	5.0	4.0	3.0	8.0	4.0	3.0	2.0	2.0	1.0	3.8
Subtotal - Percent Tree Cover		112.5	26.0	24.0	26.7	38.0	10.0	44.0	29.0	13.0	6.0	32.9
SHRUBS												
<i>Alnus incana</i>	Mountain alder	3	17	4	P	8	40	15	39	2	19	
<i>Artemisia frigida</i>	Fringed sage			P	P				1			
<i>Berberis fendleri</i>	Fendler barberry	P										
<i>Berberis (Mahonia) repens</i>	Creeping barberry	1					38		1			
<i>Clematis ligusticifolia</i>	Western white clematis	P						P	6	11		
<i>Cornus sericea</i>	Redosier dogwood	1							5			
<i>Ericameria nauseosa</i>	Rubber rabbitbrush		1			1	1	1		5		
<i>Fallugia paradoxa</i>	Apache plume		2					P				
<i>Juniperus communis</i>	Common juniper	3										
<i>Pentaphylloides floribunda</i>	Shrubby cinquefoil		P	P								
<i>Physocarpus monogynus</i>	Mountain ninebark						P					
<i>Prunus virginiana</i>	Chokecherry				9				3			
<i>Quercus gambellii</i>	Gambel oak	2						P				
<i>Rhus trilobata</i>	Skunkbrush sumac									2		
<i>Ribes inerme</i>	Whitestem gooseberry		P		2		3					
<i>Ribes leptanthum</i>	Trumpet gooseberry									P		
<i>Rosa woodsii</i>	Wood's rose	11	P	2	25	1	7	5	9	2	4	
<i>Rubus idaeus</i>	Red raspberry			P	1				19		1	
<i>Salix bebbiana</i>	Bebb willow						2		3			
<i>Salix drummondiana</i>	Drummond's willow			4		1	3			13	P	
<i>Salix exigua</i>	Sandbar willow			1	P	P			P	8	22	
<i>Salix lucida</i>	Shining willow			1							3	
<i>Salix monticola</i>	Park willow	P	3	1	P	5			4	3	1	
<i>Symphoricarpos albus</i>	Common snowberry								P			
<i>Symphoricarpos rotundifolius</i>	Round-leaf snowberry	2	P	P	1					P		
Subtotal - Number of Shrub Species		10.0	8.0	10.0	9.0	6.0	8.0	6.0	12.0	10.0	7.0	8.6
Subtotal - Percent Shrub Cover		28.8	23.0	13.0	37.6	16.0	117.5	21.0	90.0	46.0	50.0	44.3

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	
Number of Transect Points		80	100	100	101	100	80	100	100	100	100	
FORBS												
<i>Achillea millefolium</i>	Western yarrow		P	1	P	P		P	P		1	
<i>Ageratina herbacea</i>	Fragrant snakeroot	P				P						
<i>Allium sp</i>	Onion								P			
<i>Antennaria sp.</i>	Pussytoes	P	1			P						
<i>Apocynum cannabinum</i>	Indian hemp	1					1					
<i>Arabis sp</i>	Rock cress					P						
<i>Arctium minus</i>	Burdock								P		P	
<i>Artemisia campestris</i>	Field sagewort	1	2	P	P	1					P	
<i>Artemisia dracunculus</i>	Tarragon								1	P		
<i>Artemisia ludoviciana</i>	Louisiana sagewort					P			1			
<i>Bahia dissecta</i>	Ragged-leaf bahia		P	P		P				P		
<i>Barbarea vulgaris</i>	Wintercress	1			1			1			1	
<i>Brickellia grandiflora</i>	Tasselflower brickellbush		P									
<i>Cardamine cordifolia</i>	Heartleaf bittercress							1				
<i>Cirsium sp.</i>	Thistle				P			1			4	
<i>Conyza canadensis</i>	Canadian horseweed									P		
<i>Cosmos parviflorus</i>	Southwestern cosmos							P				
<i>Cycloloma atriplicifolium</i>	Winged pigweed		P									
<i>Cynoglossum officinale</i>	Hound's tongue								P		P	
<i>Epilobium ciliatum</i>	Fringed willowherb				P				P		1	
<i>Erigeron divergens</i>	Spreading daisy		P									
<i>Erigeron elatior</i>	Tall daisy	P										
<i>Erigeron flagellaris</i>	Whiplash daisy					1						
<i>Erigeron sp</i>	Daisy		P						P			
<i>Fragaria sp.</i>	Strawberry								P			
<i>Galium aparine</i>	Sticky-willy								P			
<i>Geranium caespitosum</i>	Tufted geranium				P				1			
<i>Geum macrophyllum</i>	Large leaf avens				P				P			
<i>Grindelia squarrosa</i>	Curly-cup gumweed							P		P		
<i>Heracleum maximum</i>	Cow parsnip		1				P	P	1			
<i>Heterotheca villosa</i>	Hairy goldenaster							P				
<i>Humulus lupulus</i>	Common hops						1					
<i>Ipomopsis aggregata</i>	Scarlet gilia		P									
<i>Kochia scoparia</i>	Mexican fireweed, Kochia									P	P	
<i>Lactuca serriola</i>	Prickly lettuce				P						P	
<i>Lepidium montanum</i>	Jone's pepperweed			P								
<i>Leucanthemum vulgare</i>	Ox-eye daisy		P	1	1	P					P	
<i>Linaria dalmatica</i>	Dalmatian toadflax										P	
<i>Lupinus caudatus</i>	Tailcup lupine							P		P		
<i>Lycopus americanus</i>	American water horehound						P					
<i>Machaeranthera canescens</i>	Hoary tansyaster			P						1		

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	
Number of Transect Points		80	100	100	101	100	80	100	100	100	100	
FORBS												
<i>Machaeranthera pinnatifida</i>	Perennial goldenweed								P			
<i>Maianthemum sp.</i>	False Solomon's seal						3		P			
<i>Medicago sativa</i>	Alfalfa							4		1		
<i>Melilotus alba</i>	White sweetclover										P	
<i>Melilotus officinalis</i>	Yellow sweetclover			1	P	P						
<i>Mentha arvensis</i>	Field mint						P					
<i>Mentha x rotundifolius</i>	Roundleaf mint										P	
<i>Mentzelia sp.</i>	Blazingstar			P								
<i>Mirabilis linearis</i>	Narrow-leaf desert four o'clock								P			
<i>Nasturtium officinale</i>	Watercress				P							
<i>Oenothera sp.</i>	Evening primrose			P	1				1			
<i>Penstemon barbatus</i>	Scarlet penstemon		1									
<i>Penstemon sp.</i>	Penstemon, Beardtongue	P			P	P						
<i>Potentilla anserina</i>	Silverweed										1	
<i>Reseda lutea</i>	Yellow mignonette										P	
<i>Rudbeckia laciniata</i>	Cutleaf coneflower				1	P			P			
<i>Rumex acetosella</i>	Sheep sorrel		P	1	P	P	P				4	
<i>Rumex altissimus</i>	Pale dock									1		
<i>Rumex aquaticus</i>	Western dock				P						P	
<i>Salsola collina</i>	Slender Russian thistle								P			
<i>Senecio spartioides</i>	Broom ragwort, Groundsel										P	
<i>Solidago canadensis</i>	Canadian goldenrod								1	1		
<i>Solidago velutina</i>	Three-nerve goldenrod					1						
<i>Symphotrichum lanceolatum (Aster hesperius)</i>	Wooton's aster										1	
<i>Symphotrichum sp.</i>	Aster		P	P	P	1	P			1		
<i>Taraxacum officinale</i>	Common dandelion	P	1	1	P	P				P	3	
<i>Thalictrum fendleri</i>	Fendler's meadowrue	P	P	P	1	P			P	P		
<i>Trifolium pratense</i>	Red clover			P							5	
<i>Trifolium repens</i>	White clover			2							P	
<i>Urtica dioica</i>	Stinging nettle				4				3			
<i>Verbascum thapsus</i>	Common mullein		P	P	P	P				1	P	
<i>Verbena macdougalii</i>	Spike verbena									P	P	
<i>Vicia americana</i>	American vetch								P			
<i>Unidentified forb species</i>		P						1	P		1	
Subtotal - Number of Forb Species		10.0	17.0	16.0	21.0	18.0	8.0	15.0	20.0	16.0	24.0	16.5
Subtotal - Percent Forb Cover		3.8	6.0	7.0	8.9	4.0	6.3	9.0	8.0	6.0	22.0	8.1

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)										Mean
		RS-1	RS-2	RS-3	RS-4	RS-5	RS-6	RS-7	RS-8	RS-9	RS-10	
Number of Transect Points		80	100	100	101	100	80	100	100	100	100	
GRASSES AND GRASS-LIKE PLANTS												
<i>Achnatherum perplexum</i>	New Mexico needlegrass					P						
<i>Achnatherum robustum</i>	Sleepygrass								P	P		
<i>Agropyron cristatum</i>	Creasted wheatgrass									P		
<i>Agrostis gigantea</i>	Red top			P	5							
<i>Agrostis stolonifera</i>	Creeping bentgrass		3	7	1		9	1	10	1	7	
<i>Alopecurus aequalis</i>	Shortawn foxtail				1							
<i>Blepharoneuron tricholepis</i>	Pine dropseed		P									
<i>Bouteloua gracilis</i>	Blue grama								1			
<i>Bromus ciliatus</i>	Fringed brome	P							P	P		
<i>Bromus inermis</i>	Smooth brome		12	4	2	2	8	9		3	3	
<i>Bromus tectorum</i>	Cheatgrass, Downy brome									2		
<i>Calamagrostis canadensis</i>	Canada reedgrass								4			
<i>Carex aquatilis</i>	Water sedge				P							
<i>Carex sp.</i>	Sedge		P			1	1	P	1			
<i>Dactylis glomerata</i>	Orchardgrass						2					
<i>Elymus lanceolatus</i>	Streambank wheatgrass		P									
<i>Elymus repens</i>	Quackgrass		P	P			2	2		1	P	
<i>Equisetum arvense</i>	Field horsetail							3	1		P	
<i>Hordeum jubatum</i>	Foxtail barley										1	
<i>Juncus balticus</i>	Baltic rush				1						P	
<i>Juncus ensifolius</i>	Swordleaf rush										P	
<i>Poa compressa</i>	Canada bluegrass					1						
<i>Poa pratensis</i>	Kentucky bluegrass		P	P		1					P	
<i>Poa sp.</i>	Bluegrass		3	1	7	1	1		4		5	
<i>Sporobolus cryptandrus</i>	Sand dropseed										1	
<i>Unidentified grass species</i>			1		1							
Subtotal - Number of Grass Species		1.0	9.0	6.0	8.0	6.0	6.0	5.0	8.0	7.0	10.0	6.6
Subtotal - Percent Grass Cover		0.0	19.0	12.0	17.8	6.0	28.8	15.0	21.0	7.0	17.0	14.4
TOTAL NUMBER OF SPECIES		27.0	39.0	36.0	41.0	38.0	26.0	29.0	42.0	35.0	42.0	35.5
TOTAL PERCENT COVER		145.1	74.0	56.0	91.0	64.0	162.6	89.0	148.0	72.0	95.0	99.7

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)					Mean
		RRS-19	RRS-20	RRS-25	RRS-26	RRS-29	
Number of Transect Points		99	100	100	100	101	
TREES							
<i>Acer negundo</i>	Arizona boxelder	2					
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	2	37	28	36	6	
<i>Malus pumila</i>	Apple			P			
<i>Picea pungens</i>	Blue spruce				P		
<i>Pinus edulis</i>	Twoneedle pinyon			P			
<i>Pinus ponderosa</i>	Ponderosa pine	P					
<i>Populus X acuminata</i>	Lanceleaf cottonwood			10	3	3	
<i>Populus angustifolia</i>	Narrowleaf cottonwood	34	35	45	44	71	
<i>Populus deltoides</i>	Plains cottonwood	P					
<i>Populus tremuloides</i>	Quaking aspen	9					
<i>Pseudotsuga menziesii</i>	Douglas fir	1	5				
Subtotal - Number of Tree Species		7.0	3.0	5.0	4.0	3.0	4.4
Subtotal - Percent Tree Cover		48.5	77.0	83.0	83.0	79.2	74.1
SHRUBS							
<i>Alnus incana</i>	Mountain alder				P	3	
<i>Betula occidentalis</i>	Water birch	P					
<i>Berberis (Mahonia) fremontii</i>	Fremont's mahonia			P			
<i>Clematis ligusticifolia</i>	Western white clematis	P	P	3	1	14	
<i>Ericameria nauseosa</i>	Rubber rabbitbrush			P		1	
<i>Escobaria vivipara</i>	Spinystar	P					
<i>Opuntia macrorhiza</i>	Twistedspine prickly pear			1			
<i>Opuntia polyacantha</i>	Plains prickly pear	P					
<i>Prunus virginiana</i>	Chokecherry				P		
<i>Quercus gambellii</i>	Gambel oak	P	P				
<i>Rhus trilobata</i>	Skunkbrush sumac			1	3		
<i>Ribes leptanthum</i>	Trumpet gooseberry			P	2	P	
<i>Rosa woodsii</i>	Wood's rose	P	2	P		2	
<i>Rubus idaeus</i>	Red raspberry				P		
<i>Salix drummondiana</i>	Drummond's willow	P	5	1	P	2	
<i>Salix exigua</i>	Sandbar willow			P			
<i>Salix lucida</i>	Shining willow					P	
<i>Symphoricarpos rotundifolius</i>	Round-leaf snowberry	P	P	P	1		
<i>Vitis sp.</i>	Grape	P					
Subtotal - Number of Shrub Species		9.0	5.0	10.0	8.0	7.0	7.8
Subtotal - Percent Shrub Cover		9.1	7.0	6.0	7.0	21.8	10.2
FORBS							
<i>Achillea millefolium</i>	Western yarrow		P		P		
<i>Aconitum columbianum</i>	Columbian monkshood					P	
<i>Antennaria sp.</i>	Pussytoes		P				
<i>Arctium minus</i>	Burdock	P			P	P	
<i>Artemisia dracuncululus</i>	Tarragon	P		1			
<i>Asclepias speciosa</i>	Showy milkweed					P	
<i>Asparagus officinalis</i>	Garden asparagus					P	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)					Mean
		RRS-19	RRS-20	RRS-25	RRS-26	RRS-29	
Number of Transect Points		99	100	100	100	101	
FORBS							
<i>Bahia dissecta</i>	Ragged-leaf bahia		P	P	P		
<i>Bidens tenuisecta</i>	Slimlobe beggarticks					P	
<i>Brickellia grandiflora</i>	Tasselflower brickellbush		P				
<i>Chenopodium leptophyllum</i>	Narrowleaf goosefoot	P					
<i>Chenopodium sp.</i>	Goosefoot			P		P	
<i>Cicuta maculatum</i>	Spotted water hemlock					P	
<i>Cirsium sp.</i>	Thistle				P	P	
<i>Cycloloma atriplicifolium</i>	Winged pigweed					P	
<i>Epilobium ciliatum</i>	Fringed willowherb				P	P	
<i>Erigeron sp.</i>	Daisy	P	P			P	
<i>Geranium caespitosum</i>	Tufted geranium		P			P	
<i>Helianthus annuus</i>	Common sunflower				P		
<i>Heracleum maximum</i>	Cow parsnip					P	
<i>Heterotheca villosa</i>	Hairy golden aster		P	P			
<i>Kochia scoparia</i>	Mexican fireweed, Kochia	1					
<i>Lactuca serriola</i>	Bristly sheepbur					P	
<i>Lepidium sp.</i>	Pepperweed				P		
<i>Lupinus argenteus</i>	Slivery lupine	P	P			P	
<i>Machaeranthera canescens</i>	Hoary tansyaster				P		
<i>Maianthemum sp.</i>	False Solomon's seal		P				
<i>Medicago lupulina</i>	Black medic					1	
<i>Medicago sativa</i>	Alfalfa	7	2	8	1	P	
<i>Melilotus albus</i>	White sweetclover	P			P		
<i>Melilotus officinalis</i>	Yellow sweetclover	2	1		P		
<i>Nasturtium officinale</i>	Watercress					1	
<i>Physalis sp.</i>	Ground cherry			P	P		
<i>Plantago major</i>	Common plantain			1			
<i>Platanthera sp.</i>	Bog orchid					P	
<i>Polygonum persicaria</i>	Spotted lady thumb					P	
<i>Portulaca oleracea</i>	Garden purslane	P					
<i>Rudbeckia laciniata</i>	Cutleaf coneflower					P	
<i>Rumex sp.</i>	Dock				P		
<i>Salsola collina</i>	Slender Russian thistle			P	1		
<i>Selaginella sp.</i>	Spikemoss		1				
<i>Sisymbrium altissimum</i>	Tall hedgemustard				P		
<i>Solidago canadensis</i>	Candian goldenrod	P			P		
<i>Symphotrichum sp.</i>	Aster				P		
<i>Taraxacum officinale</i>	Common dandelion	2	P	P	1	1	
<i>Tragopogon sp.</i>	Salsify				P		
<i>Trifolium sp.</i>	Clover	1		1	P		
<i>Verbascum thapsus</i>	Common mullein		P				
<i>Vicia americana</i>	American vetch		P		P		
<i>Viguiera multiflora</i>	Showy goldeneye	P					
<i>Unidentified forb species</i>		P		1			
Subtotal - Number of Forb Species		15.0	15.0	11.0	21.0	22.0	16.8
Subtotal - Percent Forb Cover		13.1	4.0	12.0	3.0	3.0	7.0

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)					Mean
		RRS-19	RRS-20	RRS-25	RRS-26	RRS-29	
Number of Transect Points		99	100	100	100	101	
GRASSES AND GRASS-LIKE PLANTS							
<i>Achnatherum robustum</i>	Sleepygrass			P			
<i>Agrostis stolonifera</i>	Creeping bentgrass		P	3	1	7	
<i>Bouteloua gracilis</i>	Blue grama		P				
<i>Bromus ciliatus</i>	Fringed brome	P					
<i>Bromus inermis</i>	Smooth brome	6	P	8	10	8	
<i>Carex utriculata</i>	Beaked sedge					P	
<i>Carex sp.</i>	Sedge	P					
<i>Dactylis glomerata</i>	Orchardgrass		P	P			
<i>Elymus longifolius</i>	Longleaf squirreltail	P					
<i>Elymus repens</i>	Quackgrass	P			2		
<i>Equisetum arvense</i>	Field horsetail				P	7	
<i>Equisetum laevigatum</i>	Smooth horsetail			1		13	
<i>Juncus ensifolius</i>	Swordleaf rush					P	
<i>Phleum pratense</i>	Timothy				1	3	
<i>Piptatherum micranthum</i>	Littleseed ryegrass			P			
<i>Poa pratensis</i>	Kentucky bluegrass				3		
<i>Poa sp.</i>	Bluegrass		3	4		10	
<i>Unidentified grass species</i>		P					
Subtotal - Number of Grass Species		6.0	5.0	7.0	6.0	8.0	6.4
Subtotal - Percent Grass Cover		6.1	3.0	16.0	17.0	47.5	17.9
TOTAL NUMBER OF SPECIES		37.0	28.0	33.0	39.0	40.0	35.4
TOTAL PERCENT COVER		76.8	91.0	117.0	110.0	151.5	109.3

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)											Mean	
		RS-11	RS-12	RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20		
Number of Transect Points		100	100	102	75	100	100	100	100	103	100	110	100	
TREES														
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	1		8		26		11		1	P			
<i>Populus angustifolia</i>	Narrowleaf cottonwood	16	7	10	P								2	
<i>Ulmus pumila</i>	Siberian elm												P	
Subtotal - Number of Tree Species		2.0	1.0	2.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	2.0	1.1
Subtotal - Percent Tree Cover		17.0	7.0	17.6	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	2.0	4.4
SHRUBS														
<i>Alnus incana</i>	Mountain alder	52	24	13	P	P	24	42	36	1	14	4		
<i>Artemisia frigida</i>	Fringed sage									P	2	P		
<i>Artemisia tridentata</i>	Big sagebrush					1		5	1	6		1		
<i>Atriplex canescens</i>	Four-wing saltbush										1			
<i>Berberis fendleri</i>	Fendler barberry					P	1							
<i>Berberis fremontii</i>	Desert Oregon-grape							3						
<i>Betula occidentalis</i>	Water birch					5								
<i>Cercocarpus montanus</i>	Common mountain mahogany		P											
<i>Clematis ligusticifolia</i>	Western white clematis	P	1			4	2	11	11	8	12	2		
<i>Ericameria nauseosa</i>	Rubber rabbitbrush		P			2	1	P	P	1		1		
<i>Ericameria parryi</i>	Parry's rabbitbrush							1		2		5		
<i>Gutierrezia sarothrae</i>	Broom snakeweed										P			
<i>Prunus virginiana</i>	Chokecherry							16		2				
<i>Rhus trilobata</i>	Skunkbush sumac									4				
<i>Ribes aureum</i>	Golden currant									1	P			
<i>Ribes inerme</i>	Whitestem gooseberry	1		P	P	P	P	2					P	
<i>Ribes leptanthum</i>	Trumpet gooseberry							1		2				
<i>Rosa woodsii</i>	Wood's rose	P				P		2	8	11	5	P		
<i>Rubus idaeus</i>	Red raspberry	1	1				P							
<i>Salix bebbiana</i>	Bebb willow	2												
<i>Salix drummondiana</i>	Drummond's willow	P									P			
<i>Salix eriocephala</i>	Missouri willow				23									
<i>Salix exigua</i>	Sandbar willow	5	26	9	5	9	2	P	1	6	P	8		
<i>Salix lucida</i>	Shining willow	16	8	10										
<i>Salix monticola</i>	Park willow	5	2	1			P							
<i>Vitis sp.</i>	Grape							P						
Subtotal - Number of Shrub Species		10.0	8.0	5.0	4.0	9.0	8.0	12.0	6.0	13.0	8.0	9.0	8.4	
Subtotal - Percent Shrub Cover		82.0	62.0	32.4	28.0	21.0	30.0	83.0	55.3	44.0	30.9	21.0	44.5	
FORBS														
<i>Achillea millefolium</i>	Western yarrow		P	P	P	P								
<i>Angelica sp.</i>	Angelica										2			
<i>Arctium minus</i>	Burdock	P			P	P			P	4	P			
<i>Artemisia campestris</i>	Field sagewort							P						
<i>Atriplex prostrata</i>	Hastate orach				1									
<i>Bahia dissecta</i>	Ragged-leaf bahia											P		
<i>Barbarea vulgaris</i>	Wintercress	2	2	1	3		1	P	1					
<i>Cerastium sp.</i>	Chickweed		P		P									
<i>Cicuta maculatum</i>	Spotted water hemlock								P	P	P	P		
<i>Cirsium arvense</i>	Canada thistle	P			3									
<i>Cirsium vulgare</i>	Bull thistle				P									

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)											Mean
		RS-11	RS-12	RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20	
Number of Transect Points		100	100	102	75	100	100	100	103	100	110	100	
FORBS													
<i>Cirsium sp.</i>	Thistle		1	2			P	P	1	P		P	
<i>Conyza canadensis</i>	Canadian horseweed		1									P	
<i>Cynoglossum officinale</i>	Hound's tongue	P	P	P	1	P	P					P	
<i>Epilobium ciliatum</i>	Fringed willowherb	P	P	P	P				P	P	1		
<i>Erigeron flagellaris</i>	Whiplash daisy											P	
<i>Erigeron sp.</i>	Daisy					P							
<i>Erodium cicutarium</i>	Red-stemmed filaree										3	5	
<i>Galium triflorum</i>	Fragrant bedstraw		P										
<i>Geranium caespitosum</i>	Tufted geranium	P	P										
<i>Geum allepicum</i>	Yellow avens				P								
<i>Geum macrophyllum</i>	Large-leaf avens	P	P		P		P						P
<i>Grindelia squarrosa</i>	Curly-cup gumweed												P
<i>Heracleum maximum</i>	Cow parsnip	P	1				P	P	5	P	P	P	
<i>Humulus lupulus</i>	Common hops							2	3	P	3		
<i>Iva axillaris</i>	Deer root				P								
<i>Lactuca serriola</i>	Prickly lettuce				1								
<i>Lactuca tatarica</i>	Russian blue lettuce				P								
<i>Lemna minor</i>	Common duckweed			1									
<i>Lepidium densiflorum</i>	Miner's pepperweed				1								
<i>Lepidium latifolium</i>	Broadleaf pepperweed								3	P		3	
<i>Leucanthemum vulgare</i>	Ox-eye daisy		P		P	P	1						P
<i>Machaeranthera canescens</i>	Hoary tansyaster		P		P								
<i>Maianthemum sp.</i>	False Solomon's seal	P											
<i>Marrubium vulgare</i>	Horehound								P		P		
<i>Medicago lupulina</i>	Black medic				P								1
<i>Medicago sativa</i>	Alfalfa								P				1
<i>Melilotus albus</i>	White sweetclover		P		P	P				1			4
<i>Melilotus officinalis</i>	Yellow sweetclover				P			P	1	P			1
<i>Mentha arvensis</i>	Field mint				P								
<i>Mimulus guttatus</i>	Seep monkey-flower				1								
<i>Nasturtium officinale</i>	Watercress							P	1	P	P		
<i>Oenothera sp.</i>	Evening primrose		1				P	P					P
<i>Pericome caudata</i>	Taperleaf								1	19	26		
<i>Plantago major</i>	Common plantain				P		P			P			P
<i>Potentilla anserina</i>	Silverweed				P	P							
<i>Potentilla sp.</i>	Cinquefoil		1										
<i>Rudbeckia laciniata</i>	Cutleaf coneflower	P							P	P			
<i>Rumex acetosella</i>	Sheep sorrel	P	4			P							P
<i>Rumex altissimus</i>	Pale dock		1										
<i>Rumex crispus</i>	Curly dock								P				
<i>Rumex salicifolius</i>	Willow dock				1								
<i>Rumex sp.</i>	Dock					P				P			
<i>Saponaria officinalis</i>	Bouncing-Bet		P										
<i>Saxifraga odontoloma</i>	Brook saxifrage	P											
<i>Senecio spartioides</i>	Broom ragwort		P										
<i>Sidalcea neomexicana</i>	New Mexico checker-mallow				P								
<i>Solidago canadensis</i>	Canada goldenrod				P								

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)												
		RS-11	RS-12	RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20	Mean	
Number of Transect Points		100	100	102	75	100	100	100	100	103	100	110	100	
FORBS														
<i>Sonchus arvensis</i>	Field sow-thistle											P		
<i>Sphaeralcea sp.</i>	Globemallow										P	P	P	
<i>Symphotrichum falcatum</i>	White prairie aster												P	
<i>Symphotrichum lanceolatum</i>	Wooton's aster				P			P		P	P		P	
<i>Taraxacum officinale</i>	Common dandelion			7	P	1	1			P			P	
<i>Thalictrum fendleri</i>	Fendler's meadowrue	P												
<i>Tragopogon sp.</i>	Salsify									1				
<i>Trifolium pratense</i>	Red clover				P									1
<i>Trifolium repens</i>	White clover				4									
<i>Trifolium sp.</i>	Clover		2	11	1	3	2							
<i>Urtica dioica</i>	Stinging nettle	P			1									
<i>Verbascum thapsus</i>	Common mullein		1	P	P		P		P	P			P	
<i>Verbena bracteata</i>	Carpet vervain									P				
<i>Veronica americana</i>	American brooklime				P									
<i>Unidentified forb species</i>		P										P	P	
Subtotal - Number of Forb Species		15.0	22.0	9.0	35.0	11.0	12.0	8.0	18.0	18.0	13.0	28.0	17.2	
Subtotal - Percent Forb Cover		2.0	15.0	21.6	18.0	4.0	5.0	2.0	16.5	20.0	35.5	16.0	14.1	
GRASSES AND GRASS-LIKE PLANTS														
<i>Achnatherum robustum</i>	Sleepygrass					P	P							
<i>Agrostis stolonifera</i>	Creeping bentgrass	2	1	13	25	12	10	2	7	1	1	1		
<i>Bouteloua gracilis</i>	Blue grama												P	
<i>Bromus ciliatus</i>	Fringed brome	1												
<i>Bromus inermis</i>	Smooth brome	P		1		1	9	8	13	11	1	1		
<i>Carex aquatilis</i>	Water sedge						1							
<i>Carex nebrascensis</i>	Nebraska sedge			9	43		P		3			P		
<i>Carex pellita (lanuginosa)</i>	Wooly sedge				24									
<i>Carex utriculata</i>	Beaked sedge			1					2					
<i>Carex sp.</i>	Sedge	1				4			1					
<i>Dactylis glomerata</i>	Orchardgrass						1							
<i>Eleocharis palustris</i>	Common spikerush		1		18	1	1		2	1	2			
<i>Elymus canadensis</i>	Canada wildrye										2			
<i>Elymus repens</i>	Quackgrass				1						1			
<i>Equisetum arvense</i>	Field horsetail		1		P		1		1	1				
<i>Equisetum hyemale</i>	Scouringrush horsetail								2					
<i>Equisetum laevigatum</i>	Smooth horsetail		P	1	P	1	1		8	7			P	
<i>Festuca pratensis</i>	Meadow fescue								1					
<i>Glyceria grandis</i>	American mannagrass				P									
<i>Hordium jubatum</i>	Foxtail barley				P									
<i>Juncus arcticus</i>	Baltic rush			2	P	2	1		4					
<i>Juncus ensifolius</i>	Swordleaf rush		P		P									
<i>Juncus tenuis</i>	Poverty rush				P									
<i>Juncus sp.</i>	Rush											P		
<i>Muhlenbergia racemosa</i>	Green muhly									P				
<i>Muhlenbergia richardsonis</i>	Mat muhly												1	
<i>Phleum pratense</i>	Timothy	P			P									
<i>Poa pratensis</i>	Kentucky bluegrass		2	24	12				2				2	
<i>Poa sp.</i>	Bluegrass	2				11	12					1		

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)											
		RS-11	RS-12	RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18	RS-19	RS-20	Mean
Number of Transect Points		100	100	102	75	100	100	100	103	100	110	100	
GRASSES AND GRASS-LIKE PLANTS													
<i>Sporobolus cryptandrus</i>	Sand dropseed										P	8	
<i>Typha latifolia</i>	Broadleaf cattail								3				
<i>Unidentified grass species</i>			1					1				1	
Subtotal - Number of Grass Species		6.0	7.0	7.0	14.0	8.0	11.0	3.0	13.0	6.0	9.0	8.0	8.4
Subtotal - Percent Grass Cover		6.0	6.0	50.0	123.0	32.0	37.0	11.0	47.6	21.0	7.3	14.0	32.3
TOTAL NUMBER OF SPECIES		33.0	38.0	23.0	54.0	29.0	32.0	23.0	38.0	38.0	30.0	47.0	35.0
TOTAL PERCENT COVER		107.0	90.0	121.6	170.0	58.0	73.0	96.0	120.4	86.0	73.7	53.0	95.3

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)						Mean
		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-42	
Number of Transect Points		100	100	100	100	100	100	
TREES								
<i>Juniperus scopulorum</i>	Rocky Mountain juniper				P	2	P	
<i>Populus angustifolia</i>	Narrowleaf cottonwood	P			P	P		
<i>Ulmus pumila</i>	Siberian elm	P						
Subtotal - Number of Tree Species		2.0	1.0	0.0	2.0	2.0	1.0	1.4
Subtotal - Percent Tree Cover		0.0	0.0	0.0	0.0	2.0	0.0	0.4
SHRUBS								
<i>Berberis fendleri</i>	Fendler barberry				P			
<i>Clematis ligusticifolia</i>	Western white clematis					P		
<i>Ericameria nauseosa</i>	Rubber rabbitbrush, chamiso	1		P	P		2	
<i>Prunus sp.</i>	Plum	P						
<i>Ribes inerme</i>	Whitestem gooseberry	P	P			P	1	
<i>Ribes leptanthum</i>	Trumpet gooseberry				P			
<i>Rosa woodsii</i>	Wood's rose		P					
<i>Salix exigua</i>	Sandbar willow		5		P	16		
<i>Salix lucida</i>	Shining willow					P		
<i>Syringa vulgaris</i>	Common lilac	P						
Subtotal - Number of Shrub Species		4.0	3.0	1.0	4.0	4.0	2.0	3.2
Subtotal - Percent Shrub Cover		1.0	5.0	0.0	0.0	16.0	3.0	4.4
FORBS								
<i>Achillea millefolium</i>	Western yarrow	P	P	P	3	5		
<i>Ambrosia artemisiifolia</i>	Annual ragweed	6					3	
<i>Arctium minus</i>	Burdock		P		P	P		
<i>Artemisia ludoviciana</i>	Louisiana sagewort						P	
<i>Barbarea vulgaris</i>	Wintercress		1			1		
<i>Camelina microcarpa</i>	Little false flax				P			
<i>Cardaria draba</i>	Hoary cress, white top	2		P			2	
<i>Cerastium sp.</i>	Chickweed					P		
<i>Chenopodium album</i>	Lambs quarters	7						
<i>Chenopodium sp.</i>	Goosefoot	P			P	P		
<i>Cirsium arvense</i>	Canada thistle	1	1	P	P	1	P	
<i>Cirsium vulgare</i>	Bull thistle	2	P			P	P	
<i>Convolvulus arvensis</i>	Field bindweed	P						
<i>Cynoglossum officinale</i>	Hound's tongue	P	P		P	P	P	
<i>Descurainia sp.</i>	Tansymustard	P		P	P	P	P	
<i>Epilobium ciliatum</i>	Fringed willowherb			P				
<i>Erigeron flagellaris</i>	Whiplash daisy (trailing fleabane)					P	P	
<i>Erodium cicutarium</i>	Red stemmed filaree	P			P	P	P	
<i>Grindelia squarrosa</i>	Curly-cup gumweed	P			1	1	P	
<i>Heracleum maximum</i>	Cow parsnip		P					
<i>Iris missouriensis</i>	Rocky Mountain iris	P			P			
<i>Kochia scoparia</i>	Mexican fireweed	3	1		P	P		
<i>Lepidium latifolium</i>	Broadleaf pepperweed	3	1				2	
<i>Malva parviflora</i>	Smallflower cheeseweed	7			P		P	
<i>Marrubium vulgare</i>	Horehound						P	
<i>Medicago sativa</i>	Alfalfa	1		P	P		P	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)						Mean
		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-31	
Number of Transect Points		100	100	100	100	100	100	
FORBS								
<i>Mentha arvensis</i>	Field mint		P					
<i>Mimulus guttatus</i>	Seep monkey-flower			P				
<i>Nasturtium officinale</i>	Watercress			1		P	P	
<i>Oenothera sp.</i>	Evening primrose					P		
<i>Plantago major</i>	Common plantain				P	P		
<i>Polygonum convolvulus</i>	Black bindweed, climbing buckwheat	P						
<i>Potentilla anserina</i>	Silverweed		P	P	P	P	1	
<i>Ranunculus cymbalaria</i>	Alkali buttercup		P	P		P		
<i>Rumex acetosella</i>	Sheep sorrel					2		
<i>Rumex crispus</i>	Curly dock						P	
<i>Rumex salicifolius</i>	Willow dock	P	P		P			
<i>Sisymbrium altissimum</i>	Tall hedgemustard					P		
<i>Sisymbrium officinale</i>	Hedgemustard	P	P		P	2		
<i>Symphotrichum lanceolatum (Aster herperius)</i>	Wooton's aster			P	3	2		
<i>Taraxacum officinale</i>	Common dandelion	P	P	P	5	3	P	
<i>Tragopogon sp.</i>	Salsify				P		P	
<i>Trifolium pratense</i>	Red clover		P		P	P		
<i>Trifolium sp.</i>	Clover		P	5	3	4		
<i>Urtica dioica</i>	Stinging nettle	P	P		P	1	2	
<i>Verbascum thapsus</i>	Common mullein				P	P	P	
<i>Verbena macdougalii</i>	Spike verbena	P						
<i>Veronica americana</i>	American brooklime						1	
<i>Unidentified forb species</i>			P	P		2	P	
Subtotal - Number of Forb Species		24.0	20.0	14.0	24.0	28.0	23.0	22.0
Subtotal - Percent Forb Cover		32.0	4.0	6.0	15.0	24.0	11.0	16.2
GRASSES AND GRASS-LIKE PLANTS								
<i>Achnatherum robustum (Stipa robusta)</i>	Sleepygrass	5					2	
<i>Agrostis stolonifera</i>	Creeping bentgrass		1	3	1	P	2	
<i>Bromus inermis</i>	Smooth brome	5	P	P	4	1	1	
<i>Bromus tectorum</i>	Cheatgrass, Downy brome	P			1	1		
<i>Carex nebrascensis</i>	Nebraska sedge		26	40	P	7	24	
<i>Carex pellita (Carex lanuginosa)</i>	Wooly sedge		8	2		2	3	
<i>Carex sp.</i>	Sedge	P		3	P			
<i>Eleocharis palustris</i>	Common spikerush		P	1	P	P		
<i>Elymus repens</i>	Quackgrass			1	P			
<i>Elymus smithii</i>	Western wheatgrass	P			P		P	
<i>Equistum arvense</i>	Field horsetail					P		
<i>Equistum laevigatum</i>	Smooth horsetail				P	P	P	
<i>Hordeum jubatum</i>	Foxtail barley	P					P	

**Table 9-4
PLANT SPECIES COVER AND OCCURRENCE (REFERENCE FOR MINE SITE)**

Scientific Name	Common Name	Percent Cover from Transect (Number) and Other Species Observed (P)						Mean
		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-31	
Number of Transect Points		100	100	100	100	100	100	
GRASSES AND GRASS-LIKE PLANTS								
<i>Juncus arcticus</i>	Baltic rush		1	4		2		
<i>Koeleria macrantha</i>	Prairie junegrass						1	
<i>Phleum pratense</i>	Timothy				3			
<i>Poa palustris</i>	Fowl bluegrass						P	
<i>Poa pratensis</i>	Kentucky bluegrass		14	10	44	15	11	
<i>Scirpus pallidus</i>	Pale bulrush			P				
<i>Triglochin maritimum</i>	Arrowgrass		P					
Subtotal - Number of Grass Species		6.0	8.0	10.0	11.0	10.0	11.0	9.0
Subtotal - Percent Grass Cover		10.0	50.0	64.0	53.0	28.0	44.0	41.0
TOTAL NUMBER OF SPECIES		36.0	32.0	25.0	41.0	44.0	37.0	35.6
TOTAL PERCENT COVER		43.0	59.0	70.0	68.0	70.0	58.0	62.0

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference for Mine Site															
MRSS-1	Lower montane/ pinon/juniper transition	10/6/2002	24	15	0	4	43	6	6	7	4	23	Moderate hedging on mountain mahogany. No hedging on juniper.	Based on hedging, site is used by mule deer	Upper end on one transect is on old mine road, which has much grass. Fairly thick PJ-oak-mtn mahogany shrub with some emergent trees.
MRSS-2	Lower montane oak/juniper forest	10/6/2002	29	59	1	6	95	3	9	9	3	24	Good. Moderate hedging on mountain mahogany. One Douglas fir has many yellow needles	Based on hedging, site is used by mule deer	Mostly dense brush except west side which is a shrub savanna of mtn. Mahogany and blue grama.
MRSS-3	Upper montane mixed conifer	10/6/2002	24	0	0	0	24	7	3	0	2	12	One dead ponderosa pine, others are losing old needles. Warm site south facing	NA	Recently thinned, lots of slash piles with both brown and green needles. Very sparse ground cover. Little ground disturbance from thinning operations. Slash piles are mostly concolor fir and Douglas fir. Juniper also removed.
MRSS-4	Upper montane mixed conifer	10/6/2002	29	3	0	0	32	3	6	3	2	14	Good. Limber pine is losing older needles. Moderate hedging on mountain mahogany.	Based on hedging, site is used by mule deer	All samples collected from southeast slope and top of ridge southeast of center point. The rest of the area has almost no grasses, forbs, or shrubs.
MRSS-5	Upper montane mixed conifer	10/6/2002	44	5	0	0	49	6	7	9	3	25	One giant witches broom. A number with dead saplings (natural thinning)	NA	Recent thinning of trees in general area, but not in sample location. South-facing slope is juniper, mtn. Mahogany, and ponderosa pine. There is 1-2% herbaceous cover that was not picked up on transect - mostly strawberry and mahonia.
MRSS-16	Subalpine mixed conifer	10/3/2002 (ecology), 9/28/2002 (plant sampling), 9/7/2003 (additions to species list)	39	26	4	0	69	5	7	9	5	26	Good	None	Recently thinned, lots of down wood and slash on the forest floor. Two old roads partially in transect.
MRSS-17	Upper montane mixed conifer	10/3/2002 (ecology), 9/28/02 (plant sampling)	27	10	1	0	38	3	6	4	2	15	Good	None	Mostly semi-barren slope

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference for Mine Site															
MRSS-18	Subalpine mixed conifer	10/3/2002 (ecology), 9/28/2002 (plant sampling), 9/7/2003 (additions to species list)	29	17	4	1	51	7	8	10	4	29	Good. One concolor fir snapped of at 2 m.		Forest has been harvested or thinned. Much slash w/o bark, open tree canopy, good regeneration.
MRSS-19	Subalpine mixed conifer	10/3/2002 (ecology), 9/28/2002 (plant sampling), 9	42	15	1	0	58	5	4	8	1	18	Good. Grouse whortleberry had mostly lost leaves and cover of this species is an estimate based on stem position.		Forest has been harvested or thinned. Much slash w/o bark, trees mostly have a narrow canopy and are tall (80 ft?)
MRSS-20	Subalpine mixed conifer	10/3/2002 (ecology), 9/28/2002 (plant sampling), 9/7/2003 (additions to species list)	57	14	1	0	72	4	5	7	1	17	A few dead plants. Overall looks normal.		Grouse whortleberry had mostly lost leaves and cover of this species is an estimate based on stem position. Cool subalpine site. Lichens and moss very evident.
Mean			34.4	16.4	1.2	1.1	53.1	4.9	6.1	6.6	2.7	20.3			
Soil Area 3 - Mine Site Soils															
MSS3-1	Upper montane mixed conifer	10/10/2002	22	3	0	0	25	6	5	7	4	22	Much of the oak has dead stems. Dead Douglas fir present. Harsh exposed site	None	Transect is representative of the area around the center point, but natural slopes have more litter and shrub cover.
MSS3-2	Upper montane mixed conifer	10/11/2002	17	12	1	0	30	7	8	11	5	31	Many standing dead and snapped off Douglas fir. Mountain mahogany heavily browsed. Few green leaves left of Gamble oak, all are colored or fallen	Based on hedging, site is used by mule deer	The large numbers of dead trees appears to be localized and is likely related to storms or insects. Healthier forest occurs on upper part of site and further uphill. The center and lower part of site is very sunny and open due to lack of live trees. Old road is vegetated including narrowleaf cottonwood.
MSS3-3	Upper montane mixed conifer	9/30/2002	61	27	4	1	93	4	10	8	3	25	Lots of dead leaves on corkbark fir and Douglas fir		NA
MSS3-4	Pinyon/oak/juniper	9/30/2002, 10/13/02 (photos)	41	13	0	1	55	2	6	4	2	14	Plants look healthy. Mature mahogany moderately hedged, oak mostly colored.	Based on hedging, site is used by mule deer	NA

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 3 - Mine Site Soils															
MSS3-5	Old disturbed	10/10/2002	15	4	0	9	28	6	8	2	1	17	Much of needlegrass was old/degenerate, /fairy ring with dead centers and patches.	None	Natural slopes above and below cut slopes have vegetation similar to MSS3-6. Young trees scattered throughout road terrace, grasses mostly on edges.
MSS3-6	Lower montane mixed conifer, old disturbance	10/1/2002	36	9	1	2	48	5	7	8	4	24	Good		Old road partly vegetated, cut slopes mostly bare.
MSS3-7	Upper montane mixed conifer	10/1/2002	29	0	0	2	31	6	1	3	2	12	Good. Large dead Douglas fir on transect has bark on trunk but not on limbs.	None	Ground almost bare. No shrubs. Scattered young trees.
MSS3-8	Pinyon/oak/juniper	10/1/2002	39	10	1	6	56	2	4	3	3	12	Nothing unused observed. One pinyon on transect had sparse foliage.		NA
MSS3-9	Mostly upper montane aspen/mixed conifer, about 10% old disturbance	10/10/2002	46	2	0	1	49	8	11	8	3	30	Fall seasonal changes - aspen and currant leaves were yellow, snowberry leaves mostly gone, mountain mahogany leaves were gone.		Much of transect located on old mine roads. Undisturbed forest had 1-3% shrub cover and <1% herb cover.. Most common shrubs are snowberry and currant.
MSS3-10	Mostly upper montane (white fir and ponderosa), about 10% old disturbance	9/30/2002 (ecology), 9/25/02 (plant sampling)	20.2	1	0	1	22.2	5	2	3	1	11	Good.		Very low percent ground cover (almost bare). Old mine road at top of hill has higher forb cover (same species as on natural ground), plus some rabbitbrush on rubble piles. There is a dense stand of younger trees on adjacent north-facing slope.
Mean			32.6	8.1	0.7	2.3	43.7	5.1	6.2	5.7	2.8	19.8			
Reference Soil at Cater Ranch															
CR-2	Rabbitbrush and meadow	6/3/2003 (sampling and ecology), 9/7/2003 (additions to species list)	0	9	0	16	25	0	2	19	14	35	Mostly good, blue grama in poor condition. Rabbitbrush has good foliage.	Many cowpies	Site probably has groundwater within rooting zone of meadow species such as alkali sacaton and Baltic rush. Annuals relatively sparse in September, about 3% cover, mostly common purslane and thymeleaf spurge.
CR-4	Rabbitbrush	5/31/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	27	0	2	29	0	5	8	9	22	Mostly healthy, but blue grama and alkali sacaton in large poor-condition mats. Rabbitbrush very tall (3-5 feet) with dense foliage and branching	Harvester ants, cattle tracks, and old cowpies	Site probably has groundwater within root depth of rabbitbrush and grasses.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference Soil at Cater Ranch															
CR-5	"Barren"	5/29/2003 (sampling and ecology), 9/7/2003 (additions to specie list)	0	3	0	0	3	0	2	9	8	19	All plants healthy, except spring-germinated kochia was dead, probably from dry conditions.	Old cowpies, cattle bedding areas, cattle trails. Harvester ants. Abandoned prairie dog burrows	Remarkably low cover and diversity. May be abandoned agricultural land. Lots of dead kochia, older plants from previous years and "zillions" of 1/4 inch tall dead kochia that germinated earlier in spring. About 12% cover of annuals on September 7.
CR-6	Rabbitbrush	6/2/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	15	0	0	15	0	4	10	12	26	Poor condition. Rabbitbrush mostly leafless or have leaves only at base, about 20% of normal foliage.		Live shrub cover about 15%. Grasses much less than 1% cover, mostly tumblegrass, with only a few mats of blue grama.
CR-7	Open rabbitbrush	5/29/2003 (sampling and ecology), 9/10/2003 (additions to specie list)	0	5	1	1	7	0	5	18	8	31	Rabbitbrush mostly dead or killed to base, other plants healthy but small	Old cowpies	Very barren looking in spring. Area is just north of abandoned irrigation pond. Many annuals in September.
CR-8	Open sagebrush	5/29/2003 (sampling and ecology), 9/7/2003 (additions to specie list)	0	6	0	4	10	1	5	21	8	35	Big sagebrush and rabbitbrush have only 10% of normal foliage. Many old rabbitbrush dead but many young ones. Blue grama very short	Meadowlark nest. Horned lizard. Harvester ants common. Old cowpies. Rodent holes	Ditch crosses east-west through site, has atypical vegetation including Siberian elm, western virgin's-bower, and showy milkweed. Annuals common in fall, about 20% cover, mostly false buffalo grass, thymeleaf spurge, and New Mexico threadleaf
CR-10	Open sagebrush and rabbitbrush	5/31/2003 (sampling and ecology), 9/7/2003 (additions to species list)	0	9	1	4	14	0	5	15	6	26	Rubber rabbitbrush has about 60% of normal foliage, big sagebrush about 80%. Many dead grass clumps	Crested wheatgrass has few flower heads because grazed. Lots of old cowpies, some old horse droppings. Rodent holes. Harvester ants. Large horned lizard	Center point about 356 feet south of property line. Sagebrush more dense close to fence and very dense on property to north. Many annuals in fall.
CR-11	Sagebrush	6/5/2003 (sampling and ecology), 9/7/2003 (additions to species list)	0	19	0	3	22	1	6	16	7	30	Big sagebrush looks excellent, 1-3 feet tall. Blue grama in poor condition. Crested wheatgrass is good but mostly under shrubs. Numerous dead grass clumps.	Numerous cattle tracks, but few cowpies. Gopher trapping site.	Prickly pear common

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference Soil at Cater Ranch															
CR-13	Open rabbitbrush	6/2/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	8	0	2	10	1	7	27	11	46	Rabbitbrush has 10% or less of normal foliage, sagebrush about 50%. Lots of old dead grass clumps and young rabbitbrush.	Cowpies, harvester ants	Site is just south of irrigation ditch
CR-14	Open rabbitbrush, blue grama, and "barren"	6/2/2003 (sampling and ecology), 9/7/2003 (additions to species list)	0	1	0	5	6	1	4	18	6	29	Rabbitbrush mostly killed to base and sprouting from base, 95% of normal foliage missing. Blue grama somewhat sparse.	Lots of cowpies. Harvester ants. West side appears to be formed prairie dog colony. Cattle bedding occurs under lone juniper, soil deflated around base. Prairie dog colony.	Site heterogeneous. "Barren" is mostly kochia and cowpies. Latir Creek crosses site but does not have distinct vegetation or topography.
Mean			0.0	10.2	0.2	3.7	14.1	0.4	4.5	16.1	8.9	29.9			
Soil Area 14 - Tailings Impoundments															
TSS14-1	Grassland	6/3/2003 (sampling and ecology), 9/8/2003 (additions to species list)	0	0	3	17	20	0	4	22	12	38	Good. Sand dropseed very short. Much standing dead plant material	Gopher and elk sign	
TSS14-2	Rabbitbrush, grass, tailings playa	6/3/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	6	0	11	17	4	6	27	18	55	Good, except some small cottonwoods and most sandbar willow are dead or dying.	Elk sign. Lots of burrows.	Heterogeneous site, high plant species diversity. Presence of dead sandbar willow, cottonwoods and some other species probably due to moisture from past tailing deposition, site is now drier. Site appears to include some areas of natural ground surface.
TSS14-3	Sparse grassland	6/4/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	0	0	5	5	1	2	32	7	42	About 30% of grass tufts are dead. Much of the community is annuals which were not alive at the time of the survey.	Elk droppings, meadowlark, horse droppings.	Appears to be recently revegetated. Vegetation growth is irregularly distributed.
TSS14-4	Open rabbitbrush to dense rabbitbrush	6/4/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	19	0	16	35	1	3	21	8	33	Mostly good, scattered dead grass clumps	Lots of rodent holes. Large den (coyote?) in old pipe. Rodent trail between half-buried pipe sections. Few harvester ant nests.	

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 14 - Tailings Impoundments															
TSS14-5	Rabbitbrush	6/4/2003 (sampling and ecology), 9/8/2003 (additions to species list)	0	13	1	15	29	0	2	22	12	36	Some alfalfa and Indian ricegrass are senescent. Rabbitbrush has about 60% of normal foliage, some are dead. Rabbitbrush 2 feet or less tall.	Horse, elk, and cattle droppings. Lots of elk sign. Gophers.	Most of plant diversity is south of diagonal road. Tailing partly vegetated. Cover and diversity similar on 9/8/2003 to early June.
TSS14-6	Open rabbitbrush	5/30/2003 (sampling and ecology), 9/7/2003 (additions to species list)	0	6	0	13	19	0	5	16	9	30	Rabbitbrush has about half of normal foliage, but appears healthy.	Mule deer droppings. Some active gopher mounds	This site looked about the same in early September as in late May.
TSS14-7	Revegetation area, disturbed (berms) and tailings playa	5/30/2003 (sampling and ecology), 9/10/2003 (additions to species list)	0	3	6	7	16	2	3	28	9	42	All good except willows in tailing basins are 25-30% leafy/alive. <i>Phragmites</i> alive, not vigorous	Killdeer. Elk grazing on crested wheatgrass and alfalfa, and elk droppings. Few gophers.	Most of area with surface tailings has open willow stand with understory of upland plants, dry and sparse. Covered basin has soils that are hard to dig, can't confirm there are tailings here. Wheatgrass in lines from seeding. Berms are sandy or gravelly, have abundant blazing-star and robust kochia
TSS14-8	Revegetation area	5/30/2003 (sampling and ecology), 9/8/2003 (additions to species list)	0	0	0	1	1	1	2	20	14	37	Live vegetation is healthy. Much standing dead sweetclover and Russian thistle.		Many revegetation species, but not growing in lines - not obviously seeded. Shrubs to 1 foot tall. Overall cover about 1% but up to 105 in localized areas. Cover and diversity on September 8 similar to late May.
TSS14-9	Open shrub savanna	5/28/2003 (sampling and ecology), 9/8/2003 (additions to species list)	0	3	0	13	16	1	4	21	12	38	Some large alfalfa plants are dead, and some sagebrush heavily hedged. Shrubs to 3 feet tall, grasses 4-8 inches tall, alfalfa about 1 foot, half of final site.	Many elk and deer droppings, elk especially common. One harvester ant colony. Rabbit. Gophers abundant - 5% of surface. Yellow-headed blackbird at nearby lake.	NA
TSS14-10	Open shrub savanna	5/28/2003 (sampling and ecology), 9/8/2003 (additions to species list)	0	1	1	14	16	0	4	20	11	35	Good. Grasses mostly 8-10 inches tall, shrubs 3 feet.	Ground squirrel, numerous gopher mounds	Shrub cover about 1%, not caught on transect. Vegetation cover somewhat lower on gopher mounds than on adjacent gravelly areas.
Mean			0.0	5.1	1.1	11.2	17.4	1.0	3.5	22.9	11.2	38.6			

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference for Mine Site Riparian															
RRS-1	Mostly montane riparian shrub/meadow mix and conifer forest, about 10% wet meadow	10/2/02 (ecology), 9/27/02 (plant sampling), 9/10/03 (additions to species list)	46	15	30	13	104	1	8	40	11	60	Cool site-many plants were gone from seasonal change during 2002 sampling, too late to identify. Dogwood cover on transect estimated from stems because leaves mostly gone. Site was revisited earlier in season in 2003 to identify plants missed in 2002. One upturned spruce rootball on transect.		East end of site a little higher and drier - spruce forest. West end includes willows and a swamp oxbox. Cool, north-facing site sheltered from the sun. Extremely diverse vegetation.
RRS-3	Montane riparian shrub/meadow mix, mesic and dry meadow	10/2/2002	6	76	21	27	130	1	5	14	5	25	Many leaves yellow from fall. Willows and cottonwoods are hedged from browsing. Shrubby cinquefoil also heavily hedged.	Based on hedging, site is used by mule deer	Rural area, edge of town of Red River, houses nearby. Linear groves of alder and willow, very thick and multistemmed, divided by lanes of low herbaceous vegetation. Also includes gravelly terrace to east, and gravel path.
RRS-5	Montane riparian forest, gravel bar/disturbed/ sparsely vegetated, and montane riparian shrub/meadow mix	10/13/2002 (ecology), 9/27/2002 (plant sampling)	57.6	7.1	1	9.1	74.8	4	5	9	6	24	Cottonwood and willow colored, some leaves lost.	None	Heterogeneous site, includes both sides of river, and campground, forest, willow shrub and gravel bar. Diversity may have been reduced by trampling from campground users. Forest on south side has been thinned. Gravel bars sparsely vegetated.
RRS-7	Montane riparian shrub/meadow mix, mesic and dry meadow, gravel bar/disturbed /sparsely vegetated	10/4/2002	10	37.1	10	37.1	94.2	4	7	17	12	40	Good	None	Strip of alder and willow occurs on outer edge of riparian, rest of area is mostly grasses, some very robust. Very diverse with many upland species.
RRS-8	Montane riparian forest	10/13/2002 (ecology), 9/27/2002 (plant sampling)	98	6	0	3	107	7	13	13	7	40	Cottonwoods all colored.		West of center point is mostly Douglas fir forest with some cottonwoods and sparse ground cover. To east is an open woodland with sparse to moderate ground cover and more cottonwoods. Upland meadow occurs between riparian and road on east side. Diversity greatest on east side.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference for Mine Site Riparian															
RRS-9	Montane riparian shrub/meadow mix, montane riparian forest	10/3/2002	45.5	39.6	13.9	8.9	107.9	4	10	22	5	41	Seasonal change, many leaves fallen. Willows and alder cover estimated from live branches on plants.		Lots of spruce. South side of transect is a low meadow with spruce. North side is big willows and alders, with spruce toward edge of floodplain. One old side channel on north partly included.
RRS-10	Montane riparian shrub/meadow mix	10/12/2002 (ecology), 9/29/02 (plant sampling)	60	27	8	29	124	6	10	19	11	46	All leaves turned, many fallen. Lots of estimating cover based on stem architecture. Several forbs unidentified because too late in season, could have been more species in season.		High diversity. Alluvial terrace is meadow-like with shrubs common on narrower sections and along edge of water
RRS-11	Montane riparian shrub/meadow mix	10/12/2002 (ecology), 9/29/02 (plant sampling)	50	52.5	10	11.3	123.8	5	8	13	8	34	Most leaves fallen		NA
RRS-12	Montane riparian shrub/meadow mix, montane riparian forest	10/2/2002 (ecology), 9/29/2002 (plant sampling)	87	33	6	8	134	7	7	11	5	30	Fall color		West half has lots of heavy conifer cover with an overstory of narrowleaf cottonwood and little ground cover. East half mostly shrub riparian with grassy understory
RRS-13	Montane riparian forest	10/2/2002	107.1	4	5.1	6.1	122.3	5	5	7	2	19	Lots of dead Douglas fir		Many tall trees.
Mean			56.7	29.7	10.5	15.3	112.2	4.4	7.8	16.5	7.2	35.9			
Soil Area 9 - Red River Riparian Along Mine Site															
RS-1	Montane riparian forest	10/4/2002	112.5	28.8	3.8	0	145.1	6	10	10	1	27	Cottonwoods yellow, leaves falling		Trail present. West end of site trampled.
RS-2	Montane riparian shrub/meadow mix, mesic and dry meadow, gravel bar/disturbed/sparsely vegetated	10/4/2002	26	23	6	19	74	5	8	17	9	39	Cottonwoods mostly yellow. No toxic symptoms noted		Alder and mountain willow confined to narrow strip along stream. No large cottonwoods.
RS-3	Gravel bar /disturbed/ sparsely vegetated, montane riparian shrub/meadow mix, montane riparian forest	10/12/2002 (ecology), 9/26/02 (plant sampling)	24	13	7	12	56	4	10	16	6	36	Most leaves colored	None	Linear strip of willows and dense grass about 4 m wide located between two gravel bars on east end. Sandy or muddy shorelines has creeping bentgrass and sparse sandbar willow. East end of site is narrowleaf cottonwood and willows with grass ground cover.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 9 - Red River Riparian Along Mine Site															
RS-4	Montane riparian shrub/meadow mix, montane riparian forest, gravel bar/ disturbed /sparsely vegetated, mesic and dry meadow, and wet meadow	10/11/2002 (ecology), 9/26/02 (plant sampling)	26.7	37.6	8.9	17.8	91	3	9	21	8	41	Rose leaves are mostly colored. Cottonwood leaves mostly gone. Marsh grasses difficult to ID.		Beaver pond adjacent. High diversity on sediment deposits along stream below beaver dam.
RS-5	Montane mixed riparian forest, gravel bar/ disturbed /sparsely vegetated, montane riparian shrub/meadow mix	10/12/2002 (ecology), 9/26/02 (plant sampling)	38	16	4	6	64	8	6	18	6	38	Most cottonwood and willows are colored and have lost some leaves. Alder behind gravel berm by river have remarkably small leaves.		Fairly dry riparian area. A narrow strip along stream in the center and east of site contains willows and grass. East side is mostly gravelly berms, grassy basins, and undulating terrain with depauperate alder and willow and scattered conifers. West side is dense stand of Douglas fir with a few large and small cottonwoods, and scattered alder along a low bluffing facing the stream.
RS-6	Montane riparian shrub/meadow mix	10/4/2002	10	117.5	6.3	28.8	162.6	4	8	8	6	26	Birch green and glossy		Alder on edge of terrace along stream. Birch and rose on low terrace 2-5 feet above stream. Creeping bentgrass mostly along stream, smooth brome in patches on terrace. East part bordered by meadow and upland forest patch.
RS-7	Montane riparian shrub/meadow mix, montane riparian forest, meadow (mesic, dry), gravel bar/ disturbed /sparsely vegetated	10/4/2002	44	21	9	15	89	3	6	15	5	29	Cottonwood and alder still mostly green here		Ditch is lined with alders. Large cottonwoods at edge of alluvial terrace.
RS-8	Montane riparian shrub/meadow mix, montane conifer forest, gravel bar/ disturbed /sparsely vegetated	10/9/2002	29	90	8	21	148	2	12	20	8	42	Good	Not grazed.	Nice healthy diverse riparian stand. Only major area of raspberries observed along river. Alder thicket extends 5 to 10 m from river, bordered by a semi-opening with cottonwood overstory. There is a swale to the south with a willow and sedge wetland that was outside of the site.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 9 - Red River Riparian Along Mine Site															
RS-9	Montane riparian shrub/meadow mix, gravel bar/disturbed /sparsely vegetated	10/1/2002 (ecology), 10/3/2002 (plant sampling)	13	46	6	7	72	2	10	16	7	35	Good. Seasonal change.		Heterogeneous site on south side of river. Includes dense willow along stream, Red River Road about 6 m wide, and drier riparian on south side of road with scattered willows and young cottonwood, and a dry depression with dead alder. Site is bordered on south by bluff 15 feet tall with cottonwoods along a ditch. Road not included in transect.
RS-10	Montane riparian shrub/meadow mix, gravel bar/ disturbed /sparsely vegetated, mesic and dry meadow	10/11/2002	6	50	22	17	95	1	7	24	10	42	Sandbar willow and alder mostly still green, cottonwood mostly yellow.	None	High diversity. Much of site inundated by shallow water - return flows from upstream beaver dam.
Mean			32.9	44.3	8.1	14.4	99.7	3.8	8.6	16.5	6.6	35.5			
Reference Lower Cabresto Creek Riparian															
RRS-19	Montane riparian woodland, meadow (mesic, dry), gravel bar/disturbed/ sparsely vegetated	10/7/2002	48.5	0	13.1	6.1	67.7	7	9	15	6	37	Low herbaceous cover but high diversity on east side of creek.		Mostly agricultural weed species (alfalfa, smooth brome) on west side, which grades into a house yard with picnic tables and a trampoline. East side dominated by cottonwood and aspen with very low herbaceous cover.
RRS-20	Montane riparian woodland	10/7/2002	77.0	7	4	3	91.0	3	5	15	5	28	Willows are mostly depauperate, with few live stems. Cottonwood leaves are mostly fallen either because this is either a cold pocket or soils are dry. Cabresto Creek has no water at this location, but there is some ponded water just upstream.	Some cowpies.	Dry floodplain along a dry creek. Lots of spindly juniper under a canopy of large cottonwood. Open understory, lots of litter. West side is mostly alfalfa and smooth brome.
RRS-25	Montane riparian woodland, mesic and dry meadow	10/9/2002	83.0	6	12	16	117.0	5	10	11	7	33	Soil moist but most deciduous leaves are gone. Lots of estimating cottonwood cover on transect. Stream dry, and may be dry under normal conditions since trees are growing in middle of streambed.	No evidence of grazing.	Willows and cottonwoods only grow along and in the middle of streambed. Most of site has large junipers and cottonwoods with a grassy understory. Transect may have underestimated grass cover. Two young pinyons.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Reference Lower Cabresto Creek Riparian															
RRS-26	Montane riparian woodland	10/9/2002	83.0	7	3	17	110.0	4	8	21	6	39	Cottonwoods appear to be stressed, with few leaves on the trees and few yellow leaves on the ground. Leaves on the ground are mostly brown, suggesting they were lost earlier in season. The few willows are depauperate. Western virgin's-bower is mostly leafless. creek is dry, with poorly defined banks		Some wetland plants occur along creek suggesting it flows at some seasons. Many young juniper downstream. Several houses nearby.
RRS-29	Montane riparian woodland	10/9/2002	79.2	21.8	3	47.5	151.5	3	7	22	8	40	Willows and cottonwoods are yellow, many leaves on ground.	None	Inactive irrigation ditch on west side has marsh vegetation. Several houses nearby. Cottonwoods are mixed age. Large area of horsetail on west. East terrace has mostly smooth brome and alfalfa under cottonwoods.
Mean			74.1	8.4	7.0	17.9	107.4	4.4	7.8	16.8	6.4	35.4			
Soil Area 16 - Red River Riparian Along Tailings Facility															
RS-11	Mostly montane riparian shrub/meadow mix, some gravel bar/ disturbed /sparsely vegetated	10/11/2002 (ecology), 10/3/2002), plant sampling	17.0	82	2	6	107.0	2	10	15	6	33	Willow leaves yellow or fallen. Alder leaves half fallen.	No evidence of recent grazing. One rubbing tree. Lanes through shrub suggest area has been grazed.	Mostly an alder swamp, with tall shining willow. Dense tall shrub stands with herbaceous lanes between them. Lots of litter, low ground cover. Belt of cottonwoods at edge of terrace is outside of study site.
RS-12	Montane riparian shrub/meadow mix, some gravel bar/ disturbed /sparsely vegetated	10/11/2002 (ecology), 10/3/2002), plant sampling	7.0	62	15	6	90.0	1	8	22	7	38	Many willow and alder leaves have fallen	Lanes through shrub suggest area has been grazed but no recent evidence of grazing.	Dense shrub on first terrace and at back of second terrace. Low terrace has wetland vegetation, and upper terrace has sparse ground cover under willows. Gravel bars have mostly common mullein and sheep sorrel.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 16 - Red River Riparian Along Tailings Facility															
RS-13	Montane riparian shrub/meadow mix, mesic and dry meadow	10/9/2002	17.6	32.4	21.6	50	121.6	2	5	9	7	23	Most willow and cottonwood are yellow. Alder leaves are mostly gone.	Shrubs all hedged up in a V-shape. Whole area actively grazed.	In agricultural area, closely cropped pastures come almost to the river. Center point is in a pasture on edge of river. No clear boundary between pasture and riparian area, and pastures were considered to be part of the riparian area (edge of floodplain 1/4 mile to north). Understory of riparian shrub is mostly pasture grasses, and grazed short. Most grasses about 1 inch high. Pasture contains wetland species but is mostly upland. Irrigation flows into Red River at two points, and forms marshy habitat under riparian shrub cover.
RS-13A	Montane riparian shrub/meadow mix, wet meadow	9/9/2003	0.0	28	18	123	169.0	1	4	35	14	54	Good. Vegetation very lush.		Much of meadow is inundated or saturated to the surface. Willow very dense but has a good herbaceous cover.
RS-14	Mesic and dry meadow, montane riparian shrub/meadow mix	10/7/2002	26.0	21	4	32	83.0	1	9	11	8	29	Heavily cropped cattle pasture, many shrubs are short and hard to ID. Half of willows eaten to within a couple of feet of ground.	Active and locally heavy grazing.	Area east of center point is a narrow meadow pasture with sparse small willows. Area to west is mostly sandbar willow, much browsed. A number of larger junipers occur on edge of floodplain. Adjacent upland is basalt bouldery slopes and cliffs with big sagebrush, rubber rabbitbrush and fourwing salthush
RS-15	Mesic and dry meadow, montane riparian shrub/meadow mix	10/7/2002	11.0	30	5	37	83.0	1	8	12	11	32	Willows heavily browsed and trampled, and smaller alders are browsed. Grasses are clipped like a lawn, and additional grass species may have been present that were unidentifiable. Large dead Douglas fir.	Active and locally heavy grazing. Many cowpies.	Did not include wetland plants on edge of stream within streambank
RS-16	Montane riparian shrub/meadow mix, mesic and dry meadow	10/8/2002	0.0	83	2	11	96.0	0	12	8	3	23	Chokecherry has lost most leaves. Hops much eaten by insects. Grapes have only brown shriveled leaves.		Flat terrace is mostly open meadow with scattered rabbitbrush. Slope to stream is thick jungle of alder, chokecherry and vines. Upland slope is basalt boulders and big sagebrush.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 16 - Red River Riparian Along Tailings Facility															
RS-17	Montane riparian shrub/meadow mix, wet meadow, mesic and dry meadow (mesic, dry)	10/8/2002	1.0	55.3	16.5	47.6	120.4	1	6	18	13	38	Cattails mostly brown from seasonal change, hard to tell this years growth. Some leafless alders		Alder and cattail occur in seepage areas at back of terrace; alder and birch on terrace slope to river, and herbaceous species on drier parts of terrace.
RS-18	Foothills shrub, montane riparian shrub/meadow mix, gravel bar/disturbed/ sparsely vegetated	10/8/2002	0.0	44	20	21	85.0	1	13	18	6	38	Many plants have already changed colors or lost leaves. Some estimating of cover on transects based on stem architecture.		Horsetails are scattered on terrace, sometimes in seepy areas. Alders and willows are fairly scattered. Upper part of terrace is shrub with Woods rose, chokecherry, golden currant, western virgin's-bower, big sagebrush, taperleaf and other species.
RS-19	Foothills shrub, montane riparian shrub/meadow mix, gravel bar/disturbed/ sparsely vegetated	10/8/2002	0.0	30.9	35.5	7.3	73.7	0	8	13	9	30	Taperleaf mostly frosted, cover estimated from stem architecture.		Road has mostly filaree on it. Alders growing in boulders right along edge of river. Much of slope is a tangle of taperleaf, western virgin's-bower, wild hops and (in places) burdock. Seeps scattered near base of lower slope, with wetland plants.
RS-20	Mesic and dry meadow, gravel bar/disturbed/ sparsely vegetated, montane riparian shrub/meadow mix	10/8/2002	2.0	21	16	14	53.0	2	9	28	8	47	Most sandbar willow have turned yellow. Rabbitbrush in flower.		Large junipers on edge of upper terrace. Sandbar willow occurs on break between terraces and on lower terrace. Some small cottonwoods on lower terrace. Upper terrace is mostly herbaceous vegetation and dry, lower is shrub with moist understory or open gravel/cobble. Lots of diversity.
Mean			7.4	44.5	14.1	32.3	98.3	1.1	8.4	17.2	8.4	35.0			
Soil Area 17 - South of Tailings															
TSS17-33	Weeds, mesic meadow, plum thicket	5/4/2004	0	1	32	10	43	2	4	24	6	36	Robust weeds.	Cowpies common but no recent ones	Very weedy on upper slope, more grass meadow below. Larger cottonwoods along ditch. Transect did not include plum woodland because fence difficult to cross. Ground vegetation similar, but much more bluegrass. Very green in woodland.

**Table 9-5
 ECOLOGICAL SUMMARY**

Sample No.	Plant Community	Dates Evaluated	Vegetation Cover					Number of Plant Species					Plant Health Observations	Grazing/Wildlife Observations	Other Notes
			Tree	Shrub	Forb	Grass	Total	Tree	Shrub	Forb	Grass	Total			
Soil Area 17 - South of Tailings															
TSS17-35	Mostly wet meadow, about 10% montane riparian shrub/meadow mix	5/4/2004	0	5	4	50	59	1	3	20	8	32	Heavy thatch. Where there is no thatch from recent grazing, plants are green	Some gopher activity, some cowpies in main field and lots more in willow area to south.	Much of site inundated or saturated to surface, and much has heavy thatch with only Nebraska sedge and Kentucky bluegrass poking through at this season. Vegetation was sampled by pulling thatch out of way. Samples collected on raised island
TSS17-37	Wet meadow	5/3/2004	0	0	6	64	70	0	1	14	10	25	Good.	Some recent cowpies. Cow and horse manure not abundant. East field grazed short, west field not recently grazed.	Mostly grazed short (60%), but part of transect in uncut field to west that had heavy thatch (40%).
TSS17-39	Mesic meadow	5/2/2004	0	0	15	53	68	2	4	24	11	41	Very heavily grazed and difficult to identify grasses.	Vegetation very short from grazing, recently grazed by cattle. Many cattle and horse droppings. A few ground squirrel burrows, some gophers. Chickadee, red-winged blackbird. Frogs calling from ditch on east side.	Thin litter except for manure. Old cars and machinery lined up on north side. Most dandelions in bloom. Mesic conditions, no wetland patches. Ditch on east side.
TSS17-41	Mesic meadow, wet meadow, montane riparian shrub/meadow mix	5/3/2004	2	16	24	28	70	2	4	28	10	44	Vegetation very short from grazing.	Heavy grazing.	Hay spread on ground in one area for feeding livestock. Water in meadow is collected into a single channel so that the willows and meadow to the south and southwest are dry. An area of juniper and grass to the north is slightly elevated and dry. Large pile of trash - furniture, old mattresses. Also trailer/camp site. Sparsely vegetated levee within willows
TSS17-42	Mesic meadow, wet meadow, some weedy areas	5/4/2004	0	3	11	44	58	1	2	23	11	37	Good. Much thatch on lower meadow, delaying growth of mostly wet meadow specie. One active spring with seepy green path	Gophers. Cow and horse droppings. Ruined buildings .	Currant bushes at upper end of terrace and base of hill, but ruins.
Mean			0.3	4.2	15.3	41.5	61.3	1.3	3.0	22.2	9.3	35.8			

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site						
MRSS-1	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	Average 5 feet tall, 4 foot diameter; moderate herbivory; samples have 15% of leaf area affected by insects; >90% of sample is from current years growth	Includes twigs and leaves	Depth 3-6 inches, mostly woody roots, some fibrous, 0.125-0.25 mm diameter, reddish to dark brown
MRSS-1	Field sagewort <i>Artemisia campestris</i>	Forb	5	6 inches tall, in patches 3 feet in diameter	Includes leaves and stems	Depth 4-6 inches, rhizomes, 1-10 mm diameter, light brown
MRSS-1	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Vegetative growth 6 inches high and wide, 14 inches tall in flower; 10% of sample is brown/dry (mostly tips), otherwise green and healthy appearance	Includes leaves, stems, inflorescences	Depth 5 inches, dense fibrous mat of roots, roots up to 1 mm diameter
MRSS-2	Round-leaf snowberry <i>Symphoricarpos rotunifolius</i>	Shrub	5	3 ft tall, 4 foot diameter; 5% brown spots caused by onset of leaf senescence.	Includes twigs and leaves	Depth 9 inches, 90% woody and 10% fibrous roots, <1-4 mm diameter, light to dark brown
MRSS-2	Rothrock Townsend daisy <i>Townsendia rothrockii</i>	Forb	5	2-3 inches tall, mostly vegetative, small holes and tattered edges from herbivory and/or pathogens	Includes leaves and stems	Depth 3 inches, fibrous roots and taproots, 0.125-0.25 diameter, brown to white
MRSS-2	Blue grama <i>Bouteloua gracilis</i>	Grass	5	Vegetative growth averages 5 inches tall, 4 inches diameter, inflorescences 10 inches tall, 10% of sample is brown/dry,	Includes leaves, stalks, and seedheads. 15% of samples were mature seed head and stalks from current year with stalks still green.	Depth 4 inches, thick dense fibrous roots, 1 mm diameter, beige to light brown
MRSS-3	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	5 feet tall, moderate to heavy herbivory, 35% leaf area affected by insect damage,	Includes twigs and leaves, sample comprised of current and 1 yr old branches and foliage	Depth 5 inches, woody roots, 1-6 mm diameter, reddish brown to brown
MRSS-3	Sedge <i>Carex</i> sp.	Grass	5 patches	[patches are 8 inches tall, 6 inches diameter; 15-20% brown/dry blade and blade tips	Includes only leaves	Depth 5 inches, dense fibrous roots, <1-2 mm diameter, light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site						
MRSS-4	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	5 feet tall, 3 feet diameter, moderate to heavy herbivory of shoots, 10-15% insect damage, brown spots on 10% of foliage	Includes twigs and leaves, sample consists mostly of current years growth	Depth 6 inches, mostly woody but also some fibrous roots, <1-5 mm diameter, orange-ish or reddish brown to brown
MRSS-4	James buckwheat <i>Eriogonum jamesii</i>	Forb	5	2 inches tall, 7 inches in diameter, flowering, 5-10% of the leaves show color change due to onset of senescing, flowers are 4-5 inches tall (white and pinkish)	Includes leaves, inflorescences, and stems	Depth 7 inches, woody prominent taproot, brown to orange-ish brown
MRSS-4	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Vegetative growth 6 inches tall, 7 inches diameter, inflorescences 12 inches tall, 10% of sample has some brown/dry blades	Includes blades and flowers	Depth 5 inches, dense fibrous roots, up to 1 mm diameter, beige to light brown
MRSS-5	Round-leaf snowberry <i>Symphoricarpos rotunifolius</i>	Shrub	5	3 feet tall, some mild herbivory at branch ends, vegetation looked green and healthy, some branches were very short, others lacked leaves possibly from browsing	Includes leaves and branches	Depth 8 inches, 95% woody and 5% fibrous roots, 1-5 mm diameter, brown to dark brown
MRSS-5	Woodland strawberry <i>Fragaria vesca</i>	Forb	5	4 inches tall, 5 inches diameter, mostly vegetative	Includes leaves and stems	Depth 2-3 inches, some fibrous roots (1 mm diameter) and a taproot (3 mm diameter), pale yellow
MRSS-5	Letterman's needlegrass <i>Acnatherum lettermannii</i>	Grass	5	7 inches tall, mostly vegetative, mild herbivory on 2-3 plants in area, 20% of sample was brown/dry	Includes leaves and stems	Depth 6 inches, fibrous roots, <1-2 mm diameter, light to dark brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site						
MRSS-16	Common juniper <i>Juniperus communis</i>	Shrub	5	3 feet tall, mostly vegetative	Includes leaves, branches, and few berries	Depth 8 inches, woody roots, 5 mm diameter, red to brown
MRSS-16	Grouse whortleberry <i>Vaccinium scoparium</i>	Forb (substitute)	5 patches	Low shrub sampled as forb because no true forbs available; 3-6 inches tall, some brown spots, almost all green	Includes leaves and stems	Depth 2-5 inches, woody roots, 4 mm diameter, brown to reddish brown
MRSS-16	Muhly <i>Muhlenbergia</i> sp.	Grass	5	large basal clumps 8-10 inches tall, all vegetative, 20% yellowing foliage, some foliage removed by grazing	Only leaves	Depth 6 inches, fine fibrous roots, <1 mm diameter, brown
MRSS-17	Waxflower <i>Jamesia americana</i>	Shrub	5	8 feet tall, some dry fruit, <1% brown spots	Includes leaves and branches	Depth to 1 foot, woody roots, up to 5 mm diameter, white to light brown
MRSS-17	Douglas dustymaiden <i>Chaenactis douglasii</i>	Forb	10	Vegetative rosettes 3 inches tall, 4 inches diameter, flowering stems to 10 inches.	Includes mostly leaves, one plant collected with fruiting inflorescence	Depth 9 inches, short taproot or caudex, plus fibrous roots, to 3 mm diameter but mostly 1 mm, beige to light brown, some upper parts are pink
MRSS-17	Prairie junegrass <i>Koeleria macrantha</i>	Grass	Above = 6 Below = 5	12-16 inches tall in flowers, 4-5 inches in vegetative	Includes leaves, stems, and seedheads	Depth 8 inches, profuse fibrous roots, 1 mm diameter
MRSS-18	Scouler's willow <i>Salix scouleriana</i>	Shrub	5	6 feet tall, 5-10% of leaves collected are yellowing, <1% necrosis, current year growth	Includes stems and leaves from current years growth	Depth > 1 foot, woody roots, average 4 mm diameter (to 7 mm), brown (outside) and red (inner bark)
MRSS-18	Grouse whortleberry <i>Vaccinium scoparium</i>	Forb (substitute)	5 patches	Low shrub sampled as forb because no true forbs available; 5 inches tall, <1% raised welts and brown spots, 15% of sample yellowing from fall	Includes leaves and stems	Depth 6 inches, woody roots and underground stems
MRSS-18	Sedge <i>Carex</i> sp.	Grass	Above = 10 Below = 5	4-5 inches tall, 4-6 inch diameter, narrow leaved bunch sedge, 50% yellowing foliage, mostly vegetative	Includes mostly leaves, stems and seedheads from 1 plant	Depth 8 inch, fibrous roots, brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site						
MRSS-19	Common juniper <i>Juniperus communis</i>	Shrub	5	1 foot tall, average 4 foot diameter; some black and brown spots on foliage, <1% small nibbles	Includes branches and foliage, only this year growth, mostly 1.5-2 inches long	Depth 5 inches; woody roots; 2-3 mm average diameter, to 8 mm diameter; grey, light brown, and red
MRSS-19	Grouse whortleberry <i>Vaccinium scoparium</i>	Forb (substitute)	5 patches	Low shrub sampled as forb because no true forbs available; 4 inches tall, senescing from seasonal change, many leaves already fallen	Includes leaves and stems, only collected stems that had retained their leaves	Depth 0-5 inches, mostly woody some fibrous roots, many are like underground stems, to 3 mm diameter, reddish brown
MRSS-20	Common juniper <i>Juniperus communis</i>	Shrub	5	1 foot tall, average 4 foot diameter, some black and brown spots from pathogen or herbivory, 1% small nibbles from insect,	Includes branches and foliage, only this year growth, mostly 1.5-2 inches long	Depth 5 inches; woody roots; 2-3 mm average diameter, grey, light brown, and red
MRSS-20	Grouse whortleberry <i>Vaccinium scoparium</i>	Forb (substitute)	5 patches	Low shrub sampled as forb because no true forbs available; 4 inches tall, senescing from seasonal change, 90% leaves fallen	Includes stems and leaves, collected only stems that retained most of their foliage	Depth 0-5 inches, mostly woody, some fibrous roots, many are like underground stems, to 3 mm diameter, reddish brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 3 - Mine Site Soils						
MSS3-1	Wax currant <i>Ribes cereum</i>	Shrub	5	5 feet tall	Includes leaves and twigs	Depth 12 inches, fibrous roots, <1-1 mm diameter, brown
MSS3-1	James buckwheat <i>Eriogonum jamesii</i>	Forb	5 groups	2 inches tall, 6 inch diameter, edge of a few leaves changing to a red color due to onset of seasonal change	Includes leaves and stems	Depth 3 inches, woody roots and taproot, 3-8 mm diameter, reddish brown
MSS3-1	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Basal clumps 5 inches tall, 6 inches diameter, flowering culms 10 inches, mostly flowering/fruited, 15-20% brown in sample-mostly at tips of blades	Includes leaves and stems, sample was 65% flowering stalks	Depth 6 inches, all fibrous roots, <1-2 mm diameter, grayish brown to light brown
MSS3-2	Wax currant <i>Ribes cereum</i>	Shrub	5	Average 4 feet tall, 20% yellowed leaves due to season change	Includes twigs, leaves, and buds	Depth 12 inches, fibrous roots, up to 2 mm diameter, brown
MSS3-2	Hairy goldenaster <i>Heterotheca villosa</i>	Forb	5	4 inches tall, 5 inches diameter,	Include leaves and stems, 40% of sample is dried seedheads	Depth 2-4 inches, woody roots, 2-10 mm diameter, brown
MSS3-2	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Basal clumps 5 inches tall, 6 inches diameter; inflorescences 9 inches tall, mostly flowering/fruited; 25% of foliage is browning-mostly at blade tips, from seasonal change	Includes leaves and inflorescences	Depth 5 inches, fibrous roots, <1-2 mm diameter, beige to grayish
MSS3-3	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	5 feet tall, heavily browsed, little growth this year	Included twigs and leaves	Depth 5 inches, mostly woody and some fibrous roots, 3-4 mm diameter, grey
MSS3-3	Fendler's meadowrue <i>Thalictrum fendleri</i>	Forb	10	6 inches tall, 4 inch diameter, some individuals beginning to turn yellow and/or senescing from seasonal change	Includes leaves and stems	Depth 5 inches, fibrous roots and rhizomes, 4 inches between rhizomes, 1-4 mm diameter, pale beige to tan
MSS3-3	Prairie junegrass <i>Koeleria macrantha</i>	Grass	5	Basal clumps 4-5 inches tall, 8 inches diameter, flowering culms 8-16 inches tall, tips of blades were brown	Mostly foliage, some inflorescences	Depth 5 inches, dense fibrous roots, up to 1 mm diameter, brown

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 3 - Mine Site Soils						
MSS3-4	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	4 feet tall, moderate-heavily browsed from previous season (most likely prior winter), some brown spots	Includes leaves and twigs, sample is mostly current years growth	Depth 2-6 inches, mostly woody roots, some fibrous roots, <1-4 mm diameter, reddish brown to brown
MSS3-4	Blue grama <i>Bouteloua gracilis</i>	Grass	6	Foliage 4 inches tall, inflorescences 8 inches tall, growing in discrete clumps	Includes leaves, stems, and flowering parts, all sampled plants had flowering culms	Depth to 8 inches, fine fibrous roots, <1mm diameter
MSS3-5	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	8 inches tall, 12 inch diameter, abundant dried seedheads	Includes leaves and twigs, 15-25%	Depth 3-6 inches, woody roots, 2-10 mm diameter, red brown
MSS3-5	Common mullein <i>Verbascum thapsus</i>	Forb	5	Young rosettes 1-2 inches tall, 4 inches diameter, generally 3 whorls of leaves	Foliage only	Depth to 8 inches, fibrous roots, <1 mm diameter, brown, irregular branching
MSS3-5	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Basal leaves 4 inches tall, flowering culms 18 inches, mostly flowering/fruited; 50% of foliage beginning to fade to brown or red, but mostly green	Includes blades, stems, and flowering parts, sample consists of 60-70% flowering stalks	Depth 5 inches, fibrous roots <1 -2 mm diameter, 2-6 inches length, beige to grayish
MSS3-6	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	3 feet tall, 2 feet diameter, moderate to very heavy browse on tops of shrubs	Includes leaves and twigs	Depth 4-10 inches, fine but rubbery roots, deeply rooted in rocky soil, 2-5 mm diameter, pale tan to yellowish tan
MSS3-6	Fragrant snakeroot <i>Ageratina herbacea</i>	Forb	5	12 inches tall, minor amount of browse over the entire plant, one old flower stalk observed	Includes leaves and stems	Depth 4 inches, woody and fibrous roots, <1-2 mm diameter, up to 7 inches in length, light brown
MSS3-6	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	8 inches tall, 5 inch diameter, fruiting- seeds are mature	Includes leaves and flowering culms	Depth 5 inches, fibrous roots, up to 1 mm diameter, 3-8 inch diameter, pale beige to tan
MSS3-7	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	7 inches tall, current years inflorescences are about 6-7 inches	Includes leaves, stems, inflorescences	Depth 6 inches, deeply rooted fibrous roots, 1 mm diameter, beige
MSS3-8	Common mountain mahogany <i>Cercocarpus montanus</i>	Shrub	5	5 feet tall, 4 feet diameter, some insect damage, moderate to heavy browsing on tops of plants, some leaves beginning to yellow	Includes leaves and twigs	Depth 2-6 inches, woody and fibrous roots, 1-4 mm diameter, reddish to dark brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 3 - Mine Site Soils						
MSS3-8	James buckwheat <i>Eriogonum jamesii</i>	Forb	5	2-3 inches tall, 3 inch diameter, flowering stalks 5 inches tall	Includes leaves, stems, inflorescences	Depth 6 inches, woody roots and taproot, 2-5 mm diameter, brown to orange-ish brown
MSS3-8	Blue grama <i>Bouteloua gracilis</i>	Grass	5	Leaves 5 inches tall, flowering culms 10-12 inches tall	Includes blades, stem and inflorescences	Depth 6 inches, fibrous roots, up to 1 mm diameter, beige to tan
MSS3-9	Common Juniper <i>Juniperus communis</i>	Shrub	5	3 feet tall, 9 foot diameter, green healthy vegetation	Includes leaves and twigs	Depth 5 inches, mostly woody and some fibrous roots, <1-10 mm diameter, reddish brown
MSS3-9	Rocky groundsel <i>Packera werneriaefolia</i>	Forb	5 groups	3 inches tall, 7 inch diameter, 10% insect herbivory on leaf area	Includes leaves and stems	Depth 6 inches, fibrous roots, up to 2 mm diameter, brown
MSS3-9	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	5	Basal leaves 4 inches tall, 10 inch diameter, flowering culms 8 inches tall, 5-10% of foliage had brown at tips of blades	Includes blades, stems and flowering parts	Depth 5 inches, fibrous roots, <1-2 mm diameter, beige to light brown
MSS3-10	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	50-60 cm tall, 70 cm diameter, a few insect galls present, only growing in old disturbed areas	Includes leaves, twigs, seedheads	Depth 3-6 inches, woody and fibrous roots, <1-5 mm diameter, half is 1-5 mm, half <1 mm; light to dark brown
MSS3-10	Wooton's groundsel <i>Senecio wootonii</i>	Forb	6	1-3 inches tall, 4-6 inches length, mild to moderate browsing especially on flower stalks, thick leaves	Includes leaves and stems	Depth 5 inches, fleshy roots extending from a central stubby taproot, 1-2 mm diameter, pale beige to pink
MSS3-10	New Mexico needlegrass <i>Acnatherum perplexum</i>	Grass	Above = 5 Below = 8	12 inches tall, 3-5 inch diameter	Includes foliage, inflorescences	Depth to 5 inches, fibrous roots, up to 2 mm diameter, beige/light grey

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference Soil at Cater Ranch						
CR-2	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	2-3 feet tall, 1-3 foot diameter moderate to intense browsing, many plants are trampled	Includes leaves and stems	Depth 3-8 inches, fibrous and woody, taproot, < 2-10 mm diameter, pale brown to brown
CR-2	Western wheatgrass <i>Elymus smithii</i>	Grass	5	3-5 inches tall, some minor herbivory	All leaves	Depth 3-5 inches, mostly rhizomes with some fibrous roots, <2 mm in diameter, light brown
CR-4	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	3 feet tall, 4 feet in diameter; insect galls on all plants, slight visible dust	Includes leaves and twigs	Depth <1-8 inches, woody and fibrous roots, <2-12 mm diameter, light brown
CR-4	Western wheatgrass <i>Elymus smithii</i>	Grass	Above = 7 Below = 5	3-5 inches tall, most plants small	Only leaves	Depth 2-4 inches, long rhizomes and fibrous roots, <2 mm diameter, light brown; some plants had more developed fibrous roots and fewer rhizomes
CR-5	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	24 inches tall, 18 inches diameter, 15-20% shrubs appear dead, slight visible dust	Includes leaves and twigs	Depth 1-15 inches, woody and fibrous roots, < 1-10 mm diameter, light brown
CR-5	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	30	3-5 inches tall, slight to moderate visible dust	Includes leaves and inflorescences	Depth 1-4 inches, fibrous roots, 0.1-0.5 mm diameter, light brown
CR-6	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	3-4 feet tall, average 3 foot diameter, low to moderate herbivory near ends of branches, plants healthy	Includes leaves and twigs	Depth 2-4 inches, woody and fibrous roots, <2-6 mm diameter, brown
CR-6	Tumblegrass <i>Schedonnardus paniculatus</i>	Grass	5	2-4 inches, mostly vegetative, some plants were budding	Includes stems and leaves	Depth 3-4 inches, fibrous and rhizomes, 1-2 mm diameter, light brown with whitish rhizomes.
CR-7	Greene's rabbitbrush <i>Ericameria filifolia</i>	Shrub	5	6 to 18 inches tall and 8-12 inches diameter	Includes leaves and twigs	Depth 0.25-5 inches, woody and fibrous roots, 1-5 mm, brown
CR-7	Silvery lupine <i>Lupinus argenteus</i>	Forb	Above = 13 Below = 5	1-2 inches tall, fairly widespread but small plants	Includes leaves and stems	Depth 1-8 inches, woody roots, 0-12 mm diameter, light to dark brown
CR-7	Sleepy grass <i>Acnatherum robustum</i>	Grass	5	4-8 inches tall, 4-6 inches in diameter, slightly dusty	All leaves	Depth 2-6 inches, fibrous roots, <2 mm diameter, pale brown to grayish brown
CR-8	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	3 feet tall, 1 foot diameter, looked somewhat bare	Includes leaves and twigs	Depth 1-10 inches, woody and fibrous roots, <1-8 mm diameter, brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference Soil at Cater Ranch						
CR-8	Scarlet globemallow <i>Sphaeralcea coccinea</i>	Forb	9	1.5 inches tall and wide, little visible dust	Includes leaves and stems	Depth 0.5-4 inches, fibrous roots, 1-3 mm diameter, light brown
CR-8	Blue grama <i>Bouteloua gracilis</i>	Grass	5	1-3 inches tall, all plants in mats or fairy rings	Includes leaves, stems and 2-3 inflorescences	Depth 1-3 inches, mostly fibrous roots with some short rhizomes, <2 mm diameter, light brown, roots have very little mass and tend to hold soil well
CR-10	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	2-3 feet tall, 1-4 feet in diameter, moderate browse	Includes leaves and twigs	Depth 3-8 inches, fibrous and woody roots, <2-10 mm diameter, pale brown to brown
CR-10	Cut-leaf nightshade <i>Solanum triflorum</i>	Forb	35	1.5 x 3 inches, very small roots, slight dust on stems	Includes leaves and stems	Depth 0.25-3 inches, fibrous roots, 1-4 mm diameter, White, slightly moist, difficult to collect adequate mass
CR-10	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	15	3-6 inches tall, very few fruiting plants, some minor herbivory, numerous seedlings	Includes mostly leaves and a few inflorescences	Depth 2-5 inches, fibrous roots, <1 mm diameter, light brown, fragile roots - easily broken
CR-11	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	2-3 feet tall, 1-3 feet in diameter, some herbivory	Includes leaves and twigs	Depth 4-12 inches, mostly woody roots, some fibrous, 2-12 mm diameter, dark brown
CR-11	Blue trumpets <i>Ipomopsis laxiflora</i>	Forb	7	4 x 8 inches tall, slight visible dust, mostly vegetative some purple flowers	Includes leaves and stems, some flowers	Depth 0.25-6 inches, fibrous taproot, <2-8 mm diameter
CR-11	Crested wheatgrass <i>Agropyron cristatum</i>	Grass	8	4-12 inches tall, all plants flowering with seed heads, 5 of 8 plants had slight grazing - likely cattle; most plants growing in or near sagebrush	Includes leaves and inflorescences	Depth 3-5 inches, fibrous roots, <1 mm diameter, light brown
CR-13	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	1.5 feet tall, 2.5 feet in diameter, slight visible dust, sparse foliage (10-15 percent of canopy), nsect galls on all plants	Includes leaves and twigs	Depth 0.25-1.5 inches, woody and fibrous roots, <2-12 mm diameter, light brown to brown
CR-13	Broom snakeweed <i>Gutierrezia sarothrae</i>	Forb (substitute)	5	Sub-shrub sampled as forb because no forb available; 3-8 inches tall, plants are robust and common	Includes leaves and stems	Depth 1-5 inches, mostly woody roots, some fibrous near the surface, 0.1-0.5 mm diameter, light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference Soil at Cater Ranch						
CR-13	Western wheatgrass <i>Elymus smithii</i>	Grass	5 patches	4-6 inches tall, patch 2-3 feet diameter, moderate dust	All leaves	Depth 2-4 inches, fibrous roots and rhizomes, pale brown to brown
CR-14	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	2-3 feet tall, 2 foot diameter, moderate to intense herbivory	Includes leaves and twigs	Depth 2-8 inches, fibrous and woody roots, <2-4 mm diameter, brown to pale brown
CR-14	False boneset <i>Brickellia eupatorioides</i>	Forb	5	10 inches tall, 10 inches in diameter, slight visible dust	Includes leaves and stems	Depth 2-8 inches, fibrous and woody taproots, <2-10 mm diameter, brown
CR-14	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	Above = 6 Below = 8	2-5 inches tall, plants vary in health, some robust while others are small, Plants collected in flower were still in "the boot"	Includes leaves, inflorescences	Depth 1-5 inches, fibrous roots, <1 mm diameter, light brown
Soil Area 14 - Tailings Impoundments						
TSS14-1	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Forb	5	12 x 18 inches, grayish-white oval shaped insect galls, various spots on foliage, slight visible dust	Includes twigs and leaves	Depth 0.25-5 inches, woody and fibrous roots, 2-12 mm diameter, brown
TSS14-1	Alfalfa <i>Medicago sativa</i>	Forb	5	6-8 inches tall, 6 inches diameter, all healthy plants, all green	Includes stems and leaves	Depth 2-8 inches, woody and fibrous taproot, 1-4 mm diameter, pale brown
TSS14-1	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	Above = 15 Below = 10	1-3 inches tall, some fruits from last year, new growth very short	All leaves	Depth 3-6 inches, fibrous roots, <1 mm diameter, light brown
TSS14-2	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	3 feet tall, 1-3 feet diameter, some insect galls, minor to moderate browse	Includes twigs and leaves	Depth 3-12 inches, woody and fibrous roots, <1-9 mm diameter, pale brown to brown
TSS14-2	Hairy goldenaster <i>Heterotheca villosa</i>	Forb	6	4 x 3 inches, slight to moderate dust	Includes stems and leaves	Depth 0.25-5 inches, taproot and fibrous roots, 2-10 mm diameter, light to medium brown
TSS14-2	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	Above = 5 Below = 8	3-8 inches tall	All leaves	Depth 3-8 inches, fibrous roots, <1mm diameter, light brown
TSS14-3	Curlycup gumweed <i>Grindelia squarrosa</i>	Forb	Above = 5 Below = 8	6-10 inches tall, plants healthy and robust	Includes stems and leaves	Depth 4-6 inches, pale taproot with fibrous roots along sides, <0.5 inch diameter
TSS14-3	Crested wheatgrass <i>Agropyron cristatum</i>	Grass	7	4-8 inches tall, 4-5 inches diameter, about 20% of leaves had brown tips	Includes leaves and inflorescences	Depth 0.5-4 inches, fibrous roots, <2 mm diameter, light brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
TSS14-4	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	1.5 to 3 feet tall, appear healthy	Includes twigs and leaves	Depth 3-8 inches, long woody roots, <0.5 inch diameter, brown
TSS14-4	Hairy goldenaster <i>Heterotheca villosa</i>	Forb	5	3 x 5 inches, slight visible dust	Includes stems and leaves	Depth 0.25-5 inches, fibrous taproot, 2-12 mm diameter, light brown
TSS14-4	Longleaf squirreltail <i>Elymus longifolius</i>	Grass	6	6 inches tall, 3-5 inches diameter, flowering	Includes culms and inflorescences and relatively few green leaves	Depth 4 inches, fibrous roots, <2 mm in diameter, light brown
TSS14-5	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	6	6 x 18 inches, insect galls on all plants, two caterpillars on one, slight visible dust	Includes twigs and leaves	Depth 0.25-8 inches, woody and fibrous roots, <2 - 12 mm diameter, brown
Soil Area 14 - Tailings Impoundments						
TSS14-5	Alfalfa <i>Medicago sativa</i>	Forb	5	6-10 inches tall, 6-10 inches diameter	Includes stems and leaves	Depth 2-8 inches, woody and fibrous taproot, 2-10 mm in diameter, tan
TSS14-5	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	Above = 8 Below = 11	5-10 inches tall, plants robust and healthy	All leaves	Depth 3-6 inches, fibrous roots <1 mm diameter, light brown
TSS14-6	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	18- 36 inches tall, numerous galls, small caterpillars on plants with sparse foliage	Includes twigs and leaves	Depth 3-8 inches, woody and fibrous roots, 1-12 mm diameter, brown
TSS14-6	Alfalfa <i>Medicago sativa</i>	Forb	5	4 x 7 inches, slight herbivory on 3 of 5 plants, slight visible dust	Includes stems and leaves	Depth not recorded, fibrous root and taproots, 2-10 mm diameter, brown
TSS14-6	Sleepy grass <i>Acnatherum robustum</i>	Grass	5	6-12 inches tall, 8 inches diameter	All leaves	Depth 0-5 inches, fibrous roots <2 mm diameter, pale tan to tan
TSS14-7	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	2.5 feet tall, 2 to 4 feet diameter, mild to moderate herbivory (20 to 50% browsed)	Includes twigs and leaves	Depth 2-8 inches, woody and fibrous roots, <3 mm in diameter, pale tan to tan
TSS14-7	Alfalfa <i>Medicago sativa</i>	Forb	5	4 x 5 inches, herbivory present on 20 to 40% of plants	Includes stems and leaves	Depth 0.5 to 8 inches, fibrous root and taproot, 2-10 mm in diameter, brown
TSS14-7	Crested wheatgrass <i>Agropyron cristatum</i>	Grass	5	4-8 inches tall, partial herbivory mostly likely elk (based on tracks), seed heads from last year still visible, plants look healthy, lady bugs observed	Includes leaves, culms and inflorescences	Depth 1-4 inches, fibrous root, <1 mm diameter, light brown

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 14 - Tailings Impoundments						
TSS14-8	Rubber rabbitbrush <i>Ericameria nauseosa</i>	Shrub	5	6-8 inches x 8-15 inches, purple blue insect galls on 4 of 5 samples (2-4 mm)	Includes twigs and leaves	Depth 0.5-6 inches, woody and fibrous roots, 2-12 mm diameter, brown
TSS14-8	Cut-leaf blazing-star <i>Mentzelia laciniata</i>	Forb	Top = 7 Bottom = 26	4-8 inches tall	Includes stem and leaves	Depth 3-5 inches, white fleshy taproot, 1-4 mm diameter
TSS14-8	Longleaf squirreltail <i>Elymus longifolius</i>	Grass	5	6-9 inches tall, 6 inches in diameter, some flowering, some dust near base of plant	Includes leaves, culms	Depth 4 inches, fibrous roots, 2 mm in diameter, tan to grayish tan
TSS14-9	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	10 to 20 inches tall	Includes twigs and leaves	Depth <1 - 6 inches, woody and fibrous roots, 3-8 mm diameter, brown
TSS14-9	Alfalfa <i>Medicago sativa</i>	Forb	5	About 0.5 to 1 foot tall	Includes stem and leaves	To 9 inches, fibrous roots and taproot, 1-8 mm diameter, light to medium brown
TSS14-9	Sleepy grass <i>Acnatherum robustum</i>	Grass	Above = 5 Below = 9	6 to 36 inches tall	Mostly leaves, 1 inflorescence	Depth 0-4 inches, fibrous roots <2 mm diameter, pale brown
TSS14-10	Big sagebrush <i>Artemisia tridentata</i>	Shrub	5	12-14 inches tall, most plants relatively small	Includes twigs and leaves	Depth 2-8 inches, wood roots 0.1-0.5 inch diameter, fibrous roots <0.1 inch diameter, brown
TSS14-10	Alfalfa <i>Medicago sativa</i>	Forb	5	About 3-6 inches tall	Includes stems and leaves	Depth 4 inches to 1 foot, fibrous root and taproot, 5 to 10 mm diameter, light to medium brown
TSS14-10	Western wheatgrass <i>Elymus smithii</i>	Grass	5 patches	4-8 inches tall, patches are 3 foot diameter	Mostly leaves	Depth 0.5-4 inches, rhizomes and fibrous roots, 1-3 mm diameter, pale tan to brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site Riparian						
RRS-1	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	8 feet tall, leaves are 1-2% heavily eaten by insects, moderate browsing of the leaves, 2/3 of the foliage is yellowing from seasonal change	Includes leaves and twigs	Depth 5-9 inches, long woody roots with fibrous roots at nodes, most of weight is woody, brown
RRS-1	Large leaf avens <i>Geum macrophyllum</i>	Forb	10	Rsettes 3 inches, with leaves mostly flat to ground, longest leaves 4-6 inches, slight yellowing of leaves	Includes mostly leaves, with two flowering stems from this year	Depth 4 inches, course to fine fibrous roots, short caudex only partly included, some plants have fine soil adhering to roots more so than other samples, beige
RRS-1	Creeping bentgrass <i>Agrostis stolonifera</i>	Grass	5	Average 1 foot tall, most of foliage is 6-8 inches tall, one patch 18 inches tall	Includes flowering stalks and blades	Depth 4 inches, light rhizomes and 70% brown fibrous roots
RRS-3	Mountain alder <i>Alnus incana</i>	Shrub	5	10 feet tall, 5 foot diameter, mostly green leaves with 10-35% browning due to onset of senescence, some reddish brown, mature catkins	Includes leaves, catkins, and twigs	Depth 2 inches, woody roots, <1-3 mm diameter, reddish dark brown, with bacterial root nodules
RRS-3	Ox-eye daisy <i>Leucanthemum vulgare</i>	Forb	5	2.5-16 inches tall, 5 inch diameter, 3% mild brown spotting, some flowers beginning to die but still intact with good color	Includes stems, leaves, and flowers	Depth 7 inches, taproot and fibrous roots, 3-5 mm diameter, pale taproot, light brown
RRS-3	Smooth brome <i>Bromus inermis</i>	Grass	5	18-24 inches tall, small brown spots on less than 5% of leaves, lots of worms in soil	Includes leaves and stems	Depth 3-5 inches, fleshy rhizome 2-3 mm in diameter with fibrous attached roots 1 mm diameter fibers, tan to brown
RRS-5	Park willow <i>Salix monticola</i>	Shrub	5	6-7 feet tall, 50% yellowing	Includes leaves and twigs	Depth 4 inches, mostly woody with few fibrous roots, 3 mm diameter, all root samples under canopy close to trunk base

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site Riparian						
RRS-5	Large leaf avens <i>Geum macrophyllum</i>	Forb	25-50	3-6 inches tall, 1/4 are yellowing from seasonal change	Includes leaves and stems	Depth 5 inches, taproot and fibrous roots, 1-2 mm diameter, beige to light brown, root nodules
RRS-5	Creeping bentgrass <i>Agrostis stolonifera</i>	Grass	5 patches	12-18 inches tall, mostly fruiting	Includes leaves, stems, and inflorescences	Depth 2-3 inches, rhizomes with buds and fine fibrous roots, brown
RRS-7	Mountain alder <i>Alnus incana</i>	Shrub	5	6-8 feet tall, grey and brown spots on leaves (end of season), no observed pathogens or herbivory	Includes leaves and twigs	Depth 4-8 inches, woody and fibrous roots, root nodules, 0.125-0.25 inch diameter, light brown
RRS-7	Butter and eggs <i>Linaria vulgaris</i>	Forb	5 groups	6 inches tall, 6 inch diameter, color on <5% of individuals starting to fade from green to yellowish green	Includes leaves and stems	Depth 4 inches, fibrous roots and rhizomes, <1-3 mm diameter, yellowish tan to white
RRS-7	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	Foliage mostly 6 inches tall, flowering stems 16 inches tall, Some browning and graying of leaf tips - 10-15% of leaf area	Includes leaves and few flowering stems	Depth 4 inches, fibrous roots and rhizomes, <1-2 mm diameter, pale beige to light brown
RRS-8	Narrow-leaf cottonwood <i>Populus angustifolia</i>	Shrub (Substitute)	5	Beaver-cut shrub-like tree used for shrub sample. 6-8 feet tall, stems are sprouts from beaver-cut stumps, some brown spot on leaves cause by onset of senescing	Includes leaves and twigs	Depth 4 inches, 10% woody to fleshy roots and 90% small scattered fibrous roots, 3-4 mm diameter
RRS-8	Fendler's meadowrue <i>Thalictrum fendleri</i>	Forb	5 patches	3-6 inches tall, 4-6 inches diameter, one plant starting to yellow	Includes leaves and stems	Depth 4 inches, rubbery fibrous roots and rhizomes, up to 2 mm diameter, brown to yellow brown
RRS-8	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	4-9 inches tall	Includes leaves and few flowering stems	Depth 3 inches, rhizomes and fibrous roots, <1-2 mm diameter, pale beige to light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site Riparian						
RRS-9	Mountain alder <i>Alnus incana</i>	Shrub	6	6 feet tall, collected green leaves from mostly green shrubs, brown spots on leaves mostly due to onset of leaf drop	Includes leaves and twigs	Depth 2-6 inches, mostly woody roots, 10% fibrous roots, 3% root nodules, average 5 mm diameter, brown to red
RRS-9	Large leaf avens <i>Geum macrophyllum</i>	Forb	6	Low to ground, 6-12 inch diameter, some small holes and brown spots, some soil on leaves because some of the leaves are on the ground	All leaves	Depth 5 inches, multiple fleshy taproots and some fibrous roots, 1-2 mm diameter, pale beige to light brown
RRS-9	Fringed brome/Canada needlegrass <i>Bromus ciliatus/ Calamagrostis canadensis</i>	Grass	6 patches	6-18 inches tall, some brown spots from pathogens, 25% yellowing leaves	All leaves	Depth 0.5 to 5 inches, rhizomes and fibrous roots, 1-3 mm diameter, pale to dark brown
RRS-10	Mountain alder <i>Alnus incana</i>	Shrub	5	5-10 feet tall, small brown spots from pathogens, minimal herbivory	Includes leaves and twigs	Depth 3-12 inches, mostly woody sample, few fibrous roots, some root nodules, roots 1-6 mm diameter
RRS-10	Cow parsnip <i>Heracleum maximum</i>	Forb	5	Low to ground, 1-2 foot diameter, a few small brown spots and holes due to pathogen and/or herbivory	Includes leaves	Depth 8 inches, fleshy roots coming off of thick deep taproot, 1.5 cm top diameter, fibrous roots 1-2 mm diameter, pale beige-light brown
RRS-10	Timothy <i>Phleum pratense</i>	Grass	5	3 feet tall, seed heads starting to shatter, leaves starting to brown	Includes leaves, stems and inflorescences	Depth 5 inches, dense fibrous roots with adhering soil, difficult to separate, <1 mm diameter

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference For Mine Site Riparian						
RRS-11	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	10 feet tall, green/yellowing foliage selected from plants were mostly yellow or had fallen leaves, small brown spots on leaves, 5% of sample affected by herbivory, sample about 10% yellow	Includes leaves and twigs	Depth 2-5 inches, shallow woody roots and fibrous roots, <1-5 mm diameter, reddish to dark brown
RRS-11	Fendler's meadowrue <i>Thalictrum fendleri</i>	Forb	5 patches	4-12 inches tall, brown spots on most leaves, tiny white spots on one plant, 3% yellowing leaves	Includes leaves and stems	Depth 3-6 inches, fleshy roots and rhizomes, short distance (2-4 inches) between rhizomes, 2-3 mm in diameter, light brown
RRS-11	Kentucky bluegrass <i>Poa pratensis</i>	Grass	5 patches	6 inches tall, mostly matted, 80% green, 20% tan /yellow attached to green parts, few inflorescences	Includes leaves and stems	Depth 3 inches, fibrous roots and about 20% rhizomes, rhizomes 2 mm diameter, pale tan/yellow, fibrous very fine, brown
RRS-12	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	12 feet tall, minimal herbivory	Includes leaves and twigs	Depth 2-9 inches, woody roots and some fibrous roots, <1-5 mm diameter, reddish-dark brown
RRS-12	Tufted geranium <i>Geranium caespitosum</i>	Forb	10	4 inches tall, 4 inches diameter, some red to brownish spots covering <5% of leaf material, only greener leaves collected	Only leaves	Depth 5 inches, large taproot with fibrous roots extending off, taproot 1-4 mm diameter, fibrous roots 1 mm, brown to orangish brown
RRS-12	Canada reedgrass <i>Calamagrostis canadensis</i>	Grass	6	Two feet tall, 1/3 of foliage is yellow to tan, mostly lowerleaves attached to stem	Includes leaves and stems	Depth 4 inches, fine fibrous roots and rhizomes, 2mm diameter, rhizomes are tan, fibrous are brown
RRS-13	Mountain alder <i>Alnus incana</i>	Shrub	5	10 feet tall, 6 foot diameter, some insect damage, <5% brown spot on most leaves due to onset of fall	Includes leaves and twigs	Depth 5 inches, woody and fibrous roots, <1-4 mm diameter, bacterial root nodules, reddish-dark brown
RRS-13	Tufted geranium <i>Geranium caespitosum</i>	Forb	5	6 inches tall, basal tufts with 6+ leaves, 10 inch diameter, minimal amount of brownish to reddish spot due to onset of senescence	All leaves	Depth 5 inches, semi-woody taproot with fibrous extensions, <1-4 mm diameter
RRS-13	Fringed brome <i>Bromus ciliatus</i>	Grass	5	4-16 inches tall (average 10 inches), minimal brown spots on foliage, 3 of 5 plants growing over burned log	Includes leaves and stems	Depth 2-3 inches, fibrous roots <1 - 2 mm, beige

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 9 - Red River Riparian Along Mine Site						
RS-1	Wood's rose <i>Rosa woodsii</i>	Shrub	5	2-3 feet tall, 5-10% tattered leaves from insects	includes twigs and leaves	Depth 0.5-6 inches, woody and fibrous roots, 0.125-0.25 mm diameter, dark brown
RS-1	Indian hemp <i>Apocynum cannabinum</i>	Forb	5	24 inches tall, 5 inches diameter, <5% mild yellowing of leaf area	Includes leaves and stems	Depth 5 inches, woody thick rhizomes, 3-6 mm diameter, dark brown but white at tips of growing rhizomes
RS-1	Fringed brome <i>Bromus ciliatus</i>	Grass	5 patches	Mostly 5 inches tall, flowering stems 20 inches, 5% browning on tips of blades	Includes leaves and 2-3 flowering stems	Depth 4 inches, thinly matted fibrous roots with few rhizomes, <1 -1 mm diameter, beige
RS-2	Mountain alder <i>Alnus incana</i>	Shrub	5	10 feet in height, 5-10% tattered leaves from insects	Includes twigs and leaves	Depth 4-6 inches, fibrous woody roots, 2-6 mm diameter, reddish brown, reddish to dark brown nodules
RS-2	Field sagewort <i>Artemisia campestris</i>	Forb	5	12 inches tall, 8 inch diameter, 5-10% die-back at the base of each plant	Includes leaves and stems	Depth 4 inches; fibrous, woody, semi-woody (fleshy) roots, and thick prominent rhizomes, <1-2 mm diameter, pale beige-tan
RS-2	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	7 inches tall, 5 inch diameter, 5% browning leaf tips	Includes leaves and stems	Depth 5 inches, fibrous roots with rhizomes, <1-4 mm diameter, pale beige to brown, rhizomes lighter in color than fibrous
RS-3	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	8 feet tall, vigorous plants	Includes twigs and leaves	Depth 0-4 inches, woody fibrous roots, up to 4 mm diameter, mostly <2 mm, brown
RS-3	Common dandelion <i>Taraxacum officinale</i>	Forb	5	Basal clumps 8 inches in diameter, some leaves yellowing	Includes many leaves and one stem and receptacle with seeds dispersed	Depth 3 inches, dense but very fine fibrous roots and long taproots that run laterally not vertically, 0.5 -1 mm diameter for fibrous roots, 12 mm diameter for taproot
RS-3	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	6 to 12 inches tall, samples taken from 1 foot circle within large patches	Includes leaves, stems, and a few inflorescences with seeds	Depth 3 inches, dense fine fibrous roots and long rhizomes, <2mm diameter, fibrous roots brown, rhizome white to brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 9 - Red River Riparian Along Mine Site						
RS-4	Wood's rose <i>Rosa woodsii</i>	Shrub	5	3-5 feet tall, leaves turning color, slight to moderate herbivory, few hips per plant	Includes leaves, twigs and some fruit	Depth 2-5 inches, mostly woody but some fibrous roots, to 4 mm diameter, dark brown
RS-4	Fendler's meadowrue <i>Thalictrum fendleri</i>	Forb	5 patches	8-15 inches tall, clusters with 6-8 closely spaced stems	Includes leaves and stems	Depth 4 inches, rhizomes and fibrous root mass, root mass continuous throughout site, to 3mm diameter, light brown
RS-4	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	4-12 inches tall, 10% of sample had some browning leaves, mostly at tips	Includes 90% leaves, 10% stems and inflorescences	Depth 5 inches, dense mat of fibrous roots with rhizomes, <1-3 mm diameter, beige to light brown
RS-5	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	4-8 feet tall, many dead stems, plants near stream are healthy	Includes leaves and twigs	Depth 1-4 inches; woody fibrous root; 3-4 mm diameter; gray, brown and reddish brown, nodules on roots
RS-5	Field sagewort <i>Artemisia campestris</i>	Forb	5	18 inches tall some individual have very little basal herbage, most plants have old flower spikes (that were not included in sample)	Includes 80% flower spikes of current year and 20% basal herbage	Depth 4 inches, fibrous roots and taproot, 5 mm diameter, roots mostly spreading, taproot is short, pale brown
RS-5	Smooth brome <i>Bromus inermis</i>	Grass	3 patches	Foliage about 6 inches tall, mostly past flowering	Includes leaves, stems and some inflorescences	Depth 0-3 inches, long rhizomes and fine fibrous roots coming off rhizomes
RS-6	Water birch <i>Betula occidentalis</i>	Shrub	5	1-8 feet tall, 5-10% insect damage on leaves, small oval holes with brown rims to 0.25 inches from pathogen and/or herbivory	Includes leaves and twigs	Depth 3-6 inches, woody fibrous roots, 0.25 inch diameter, reddish brown
RS-6	False Solomon seal <i>Maianthemum</i> sp.	Forb	5	12 inches tall, 5 inches wide, green healthy individuals, 5% browning at tips of leaves	Includes leaves and stems	Depth 3 inches, rhizomes and few fibrous roots, semi-woody in texture, <1-3 mm diameter, pale beige
RS-6	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	18 inches, green and healthy vegetation, less than 5% browning at tips of blades, current year seed heads	Includes leaves, stems and seed heads	Depth 5 inches, 90% fibrous roots with some rhizomes, <1-2 mm diameter, beige to brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 9 - Red River Riparian Along Mine Site						
RS-7	Mountain alder <i>Alnus incana</i>	Shrub	5	8 feet tall, 4 feet in diameter, 5% holes from herbivory (insect), 5-10% brown spots due to onset of senescing.	Includes leaves, branches, buds, and male catkins	Depth 2-6 inches, woody fibrous roots, many root nodules, <1-5 mm diameter, reddish-dark brown
RS-7	Silvery lupine <i>Lupinus argenteus</i>	Forb	5	17 inches tall, 10 inch diameter, plants looked healthy, many are old, flowers were present from the previous season's bloom	includes leaves, stems, and old flowers	Depth 5 inches, woody with thick rhizomes, 1-5 mm diameter with rhizome as thickest point, yellowish-tan to brown
RS-7	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	4-10 inches, dark spots and strips on <1% of sample from pathogen, plants were 95% green	includes leaves, stems and seed heads	Depth 2-3 inches, fine fibrous roots with some rhizomes, up to 3-4 mm diameter for rhizomes, pale beige to brown
RS-8	Red raspberry <i>Rubus idaeus</i>	Shrub	5	2 feet tall, 3 foot diameter, 1% small holes up to 1 mm from herbivory (insect) and/or pathogen	Includes leaves and stems	Depth 3 inches, woody fibrous roots and rhizomes, <1-5 mm diameter, brown
RS-8	Cow parsnip <i>Heracleum maximum</i>	Forb	5	1.5 feet tall - stalks were 2-3 feet long but bent over, 2.5 feet diameter, 20% insect damage of leaf area, 7% brown and light green areas on leaves	Includes leaves and stalks	Depth 6 inches, root sample is consists mostly of fleshy/ rubbery roots extending from the thick taproot, 1-10 mm in diameter, yellowish white to beige in color
RS-8	Canada reedgrass <i>Calamagrostis canadensis</i>	Grass	5	1 foot tall, 10-20% brown leaves	Includes leaves and stems	Depth 4 inches, fibrous with rhizomes, <1-4 mm diameter, yellowish brown to light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 9 - Red River Riparian Along Mine Site						
RS-9	Sandbar willow <i>Salix exigua</i>	Shrub	5	4-12 feet tall, foliage mostly yellowing so the greenest plants were selected for sampling, one sample had orange spots growing on underside of a couple of leaves, minimal herbivory	Includes leaves and twigs	Depth 6 inches, woody fibrous roots, 0.125 inches diameter, white to brown
RS-9	Common dandelion <i>Taraxacum officinale</i>	Forb	Above = 5 Below = 7	4-8 inches in diameter	All leaves	Depth 2-6 inches, insects on roots, some white fungus or mold on root system, to 0.50 inches diameter, pale white to brown
RS-9	Sleepygrass <i>Acnatherum robustum</i>	Grass	5	1 foot tall with fruiting stems to 2 feet, small brown spots on <5% of leaves in <5% of sample,	Includes leaves, stems and seedheads	Depth 4-6 inches, fibrous roots, 5% "white stuff" on one sampled root system, 2 mm diameter, light to dark brown
RS-10	Sandbar willow <i>Salix exigua</i>	Shrub	5	10 feet tall	Includes leaves and twigs	Depth 12 inches, fibrous roots, up to 5 mm diameter, brown
RS-10	Common dandelion <i>Taraxacum officinale</i>	Forb	5	4 inches tall, 6 inch diameter, vegetative and flowering	Includes leaves, stems and flowers	Depth 6 inches, taproot with fibrous roots coming off, up to 5 mm diameter, brown
RS-10	Quackgrass <i>Elymus repens</i>	Grass	5 patches	2.5 feet tall, 90% sample is flowering stems with leaves, 15% brown blades tips and seed heads	Includes blades, stems, and seed heads	Depth 4 inches, rhizomes with some fibrous roots, <1-3 mm diameter, beige to light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference Lower Cabresto Creek Riparian						
RRS-19	Narrow-leaf cottonwood <i>Populus angustifolia</i>	Shrub (Substitute)	5	Beaver-cut tree growing in shrub-form, 2.5 feet tall, 2 feet diameter, 15% insect herbivory of leaf area, 5% brown spots due to onset of senescence	Includes leaves and twigs	Depth 4 inches, woody and fibrous roots, <1 -5 mm diameter, grayish brown to brown
RRS-19	Alfalfa <i>Medicago sativa</i>	Forb	5	10 inches tall, 9 inches in diameter, green, healthy vegetation	Includes leaves and stems	Depth 10 inches, woody and fibrous roots and taproots, mostly taproot in sample, 1-10 mm diameter, pale/flesh colored to brown
RRS-19	Smooth brome <i>Bromus inermis</i>	Grass	5	6-10 inches tall, 10 inch diameter, 5-10% of sample consisted of brown leaf tissue, mostly at blade tips and seed heads	Includes leaves, stems, seedheads	Depth 5 inches, dense fibrous roots and rhizomes, <1-3 mm in diameter, beige to brown
RRS-20	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	5 feet tall, 3 feet diameter, 5% insect damage of leaf area affected, 20% of leaves in sample are pale green from onset of senescence, plants have relatively few live stems	Includes leaves and twigs	Depth 4 inches, woody and fibrous roots, <1 -10 mm diameter, beige to light orangish-brown
RRS-20	Western yarrow <i>Achillea millefolium</i>	Forb	5	2 foot diameter, 1-2 inches tall	Mostly leaves	Depth 1-2 inches, taproot and fibrous roots, <1-2 mm diameter, brown to purple
RRS-20	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	8 inches tall, 10-15% brown material in sample, primarily at blade tips	Includes leaves and stems	Depth 5 inches, dense fibrous roots and rhizomes, <1-3 mm diameter, brown to beige
RRS-25	Sandbar willow <i>Salix exigua</i>	Shrub	5	4 feet tall, tattered leaf edges, small holes, yellow/brown spots due to season change, 2% damage due to insects	Includes leaves and twigs	Depth 3-6 inches, woody and fibrous roots and rhizomes, <1mm-1cm diameter, brown to reddish
RRS-25	Common dandelion <i>Taraxacum officinale</i>	Forb	12	0.5 inches tall, 4 inches in diameter, 5% minor insect damage of leaf area affected, some damage from trampling on 25% of leaves	All leaves	Depth 5 inches, taproot, 2-6 mm diameter, beige to dark brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Reference Lower Cabresto Creek Riparian						
RRS-25	Orchardgrass <i>Dactylis glomerata</i>	Grass	5	9 inches tall, 6 inch diameter, <5% of sample is brown	Includes leaves and stems	Depth 6 inches, very dense fibrous mat of roots, <1-1 mm diameter, light brown
RRS-26	Drummond's willow <i>Salix drummondiana</i>	Shrub	5	7 feet tall, 5% small holes up to 4 mm diameter due to insect damage, tattered leaf edges, brown/yellow spots due to seasonal change	Includes leaves and twigs	Depth 6 inches, sample from secondary roots coming off large taproot, woody and fibrous, <1-5 mm diameter, brown to reddish brown
RRS-26	Common dandelion <i>Taraxacum officinale</i>	Forb	8	0.5 inches tall, 4 inch diameter, 5-10% insect damage affecting leaf area, 20% broken/torn leaves due to trampling	All leaves	Depth 4 inches, taproot and fibrous roots, sample is primarily taproot material, 1-6 mm diameter, beige to dark brown
RRS-26	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	12 inches tall, 10% browning at tips and base of blades	Includes half leaves and half stems with seedheads	Depth 4 inches, fairly dense fibrous mat of roots and rhizomes, <1-3 mm diameter, beige to brown
RRS-29	Silvery lupine <i>Lupinus argenteus</i>	Forb	5	2 feet tall	Includes leaves and stems	Depth 3-6 inches; woody and fibrous roots, taproots, and rhizomes; <1 mm to 1 cm diameter, light brown
RRS-29	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	7 inches tall, 5-10% of sample is brown and dry-mostly at blade tips and edges	Includes leaves and stems	Depth 4 inches, rhizomes and dense fibrous mat of roots, <1-2 mm diameter, beige to brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 16 - Red River Riparian Along Tailings						
RS-11	Mountain alder <i>Alnus incana</i>	Shrub	5	6-12 feet tall, all alder in area are browning - leaves have brown holes and browning edges	Includes leaves, twigs, catkins	Depth 3 inches to 1 foot, woody roots and rhizomes, 0.125 to 0.25 inch diameter, reddish brown (outside) white (inside)
RS-11	Wintercress <i>Barbarea vulgaris</i>	Forb	5	3-6 inches tall, 1 foot diameter, small holes and brown spots from pathogen and /or herbivory	Includes leaves	Depth 1-4 inches; woody roots, taproot, and fibrous roots; woody = 0.25 inch diameter, fibrous = 0.125 inches diameter and taproot 0.5 inch diameter, brownish white
RS-11	Smooth brome <i>Bromus inermis</i>	Grass	5	1-2 feet tall, small brown dots on small portion of samples	Includes leaves, stems, seedheads	Depth 4 inches, fibrous, <1mm diameter, tan to brown
RS-12	Sandbar willow <i>Salix exigua</i>	Shrub	5	5-10 feet tall, small black/brown spots and black bumps on leaves	Includes leaves and twigs	Depth 2-8 inches; woody, fibrous roots; <0.125 to 0.5 inches diameter, brown (outside) and white (inside)
RS-12	Wintercress <i>Barbarea vulgaris</i>	Forb	5	3 inches tall	All leaves	Depth 1-4 inches; woody, fibrous, taproot; 0.125 to 0.25 inch diameter; light brown to reddish brown (outside) and white (inside)
RS-12	Kentucky bluegrass <i>Poa pratensis</i>	Grass	5	6-18 inches tall, 5% rust-brown portions of leaves	Includes leaves and stems	Depth 1-5 inches, woody and fibrous roots with rhizomes, 2-3 mm diameter, white woody and rhizomes, brown fibrous
RS-13	Sandbar willow <i>Salix exigua</i>	Shrub	5	7 feet tall, tattered edges, small holes yellow/brown spots due to season change, 1% damage due to insects	Includes leaves and twigs	Depth 3-6 inches, woody and fibrous roots and rhizomes, 1 mm- 1 cm diameter, reddish brown

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 16 - Red River Riparian Along Tailings						
RS-13	Common dandelion <i>Taraxacum officinale</i>	Forb	5	0.5 inches tall, 4 inches in diameter, 45% moderate to heavy cattle browsing and trampling	All leaves	Depth 5 inches, taproot and fibrous roots, <1-7 mm diameter, beige to brown
RS-13	Kentucky bluegrass <i>Poa pratensis</i>	Grass	5 patches	4 inches tall, site was heavily grazed and trampled by cattle but samples were selected from plants that were less grazed, 15% of sample is brown or partially brown	Includes leaves and stems	Depth 5 inches, very dense fibrous root mass and rhizomes, <1-2 mm in diameter, beige to brown
RS-13A	Sandbar willow <i>Salix exigua</i>	Shrub	5	7 feet tall, some black spots on leaves, 2-4 mm diameter, 5-10% of leaf surface	Includes leaves and twigs	Depth 0-6 inches, woody roots, 2-8 mm diameter, dark reddish-brown
RS-13A	Red clover <i>Trifolium pratense</i>	Forb	6	16-30 inches tall, most plants very large and flowering	Includes leaves, stems, flower heads	Depth 0-3.5 inches, taproot and fibrous lateral roots, 0.2-3 mm diameter, light brown
RS-13A	Nebraska sedge <i>Carex nebrascensis</i>	Grass	Above = 7 Below = 5	10-14 inches tall, growing in 1-4 inches of water	All leaves	Depth 1-4 inches, mostly stout rhizomes with some fibrous, 3-8 mm diameter, white
RS-14	Sandbar willow <i>Salix exigua</i>	Shrub	5	2-3 feet tall, 15% tattered edges from insects, 2% brown/yellow spots (change of season)	Includes leaves and twigs	Depth 3-6 inches, woody and fibrous root and rhizomes, 1 mm- 1 cm diameter reddish brown
RS-14	Common dandelion <i>Taraxacum officinale</i>	Forb	11	1 inch tall, 3 inches in diameter, heavily trampled from cattle - 65% of leaves broken or torn from trampling	All leaves	Depth 6 inches, mostly taproot material, some fibrous roots, 1-8 mm diameter, beige to light brown
RS-14	Creeping bentgrass <i>Agrostis stolonifera</i>	Grass	5	6 inches tall, 5% browning at tips	Includes leaves and stems	Depth 4 inches, dense fibrous roots with rhizomes, <1-3 mm diameter, beige to brown
RS-15	Mountain alder <i>Alnus incana</i>	Shrub	5	11 feet tall, small holes in leaves, tattered edges, large brown spots from pathogen or fall onset, some insect damage affecting 15-20% of the leaves	Includes leaves and twigs	Depth 6 inches, mainly woody roots, few fibrous roots, some root nodules, <1-6 mm diameter, orange/reddish brown to dark brown
RS-15	Common dandelion <i>Taraxacum officinale</i>	Forb	5	0.5 inches tall, 50% damage from cattle trampling - leaves broken off or torn	Mostly leaves, 1 stem and inflorescence	Depth 6 inches, taproot and fibrous roots, mostly taproot, 3-10 mm diameter for taproot, <1 mm for fibrous roots, beige to yellowish beige
RS-15	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	4 inches tall, moderate to heavily grazed and trampled by cattle, <5% of sample is brown at tips	Includes leaves and stems	Depth 3 inches, fibrous roots and rhizomes, <1-3 mm diameter, beige to light brown, rhizomes lighter than fibrous roots

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 16 - Red River Riparian Along Tailings						
RS-16	Mountain alder <i>Alnus incana</i>	Shrub	5	15 feet tall, small holes, tattered edges of leaves, brown spots up to 0.5 inches, 2% insect damage	Includes leaves and twigs	Depth 6 inches to 1 foot, woody roots and fibrous roots, <1-8 mm diameter, orange brown root nodules, roots brown to reddish brown
RS-16	Wintercress <i>Barbarea vulgaris</i>	Forb	5	4 inches tall, 10 inches in diameter, about 10% of leaf area affected by insects, 4 out of 5 individuals were growing next to the river, one individual was growing about 20 feet from river	All leaves	Depth 6 inches, fibrous roots and a taproot, 1-4 mm diameter, white to light brown
RS-16	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	7 inches tall, green and healthy looking, 5% brown	Includes leaves and stems	Depth 4 inches, dense fibrous mat of roots and rhizomes, <1-2 mm diameter, beige to light brown
RS-17	Wood's rose <i>Rosa woodsii</i>	Shrub	5	4 feet tall, 2 foot diameter, tattered edges on leaves, <1% insect damage to leaves	Includes leaves and twigs	Depth 3 inches, woody roots, <1 mm to 1 cm diameter, dark brown
RS-17	Cutleaf coneflower <i>Rudbeckia laciniata</i>	Forb	5	18 inches tall, 8 inches in diameter, some insect herbivory affecting 5-10% of leaf area, 5% browning on edges of leaves.	Includes leaves and stems	Depth 5 inches; fibrous, rubbery/fleshy roots, and taproots; <1-7 mm diameter, pale beige to light brown
RS-17	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	6 inches tall, 4 inches in diameter, 5-10% of sample is brown on edges and tips of leaves	Includes leaves and stems	Depth 5 inches, dense fibrous roots and rhizomes, <1-3 mm diameter, beige to light brown
RS-18	Sandbar willow <i>Salix exigua</i>	Shrub	5	4 feet tall; small holes, tattered edges, and small brown spots due to season changes; 2% insect damage to leaves	Includes leaves and twigs	Depth 6-12 inches, woody and fibrous roots with rhizomes, <1mm to 1cm diameter, brown to reddish brown
RS-18	Common dandelion <i>Taraxacum officinale</i>	Forb	11	1 inch tall, 4 inch diameter, some mild insect and/ or cattle trampling damage, 5-10% of leaves affected - holes, torn edges, broken leaves	Includes leaves, plus two flowers and stems	Depth 5 inches, mostly taproot and some fibrous roots, <1-6 mm diameter, beige to dark brown
RS-18	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	4 inches tall, 5 inch diameter, 5-10% of sample is brown and or dry-mostly at tips or at leaf base	Includes blades and stems	Depth 4 inches, fibrous with rhizomes, <1-2mm diameter, beige to light brown

Table 9-6
PLANT SAMPLE DESCRIPTIONS

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 16 - Red River Riparian Along Tailings						
RS-19	Mountain alder <i>Alnus incana</i>	Shrub	Above = 5 Below = 4	12 feet tall, tattered leaves, small holes, brown spots (season change), 2% insect damage	Includes twigs and leaves	Depth 6-10 inches, woody and fibrous roots, root nodules, <1mm-1cm diameter, reddish brown
RS-19	Burdock <i>Arctium minus</i>	Forb	5	1.5 feet tall, 2 feet diameter, minimal insect damage affecting 5% of leaf area, large green leaves, mildly dirty from road dust and erosion	Includes leaves and stems	Depth 8 inches, taproot, 0.125 -0.25 inches diameter, yellow-beige to brown
RS-19	Sand dropseed <i>Sporobolus cryptandrus</i>	Grass	5 patches	6 inches tall, 10% of sample is brown and/or dry-mostly at blade base	Includes leaves and stems	Depth 4 inches, dense fibrous root mass with rhizomes, <1-2 mm diameter, beige to tan
RS-20	Sandbar willow <i>Salix exigua</i>	Shrub	5	3 feet tall, 3 feet diameter, minor insect damage on about 5%of leaf area, 10% of leaves have brown spots	Includes leaves and twigs	Depth 6 inches, mostly woody roots, some fibrous, <1-10 mm in diameter, beige to dark reddish brown
RS-20	Broadleaf pepperweed <i>Lepidium latifolium</i>	Forb	5	6 inches tall, small holes, tattered leaf edges, small brown spots (season change), 5% insect damage	Includes leaves and stems	Depth 6-12 inches, woody roots with taproot, <0.125-0.25 inches diameter, light brown to white
RS-20	Smooth brome <i>Bromus inermis</i>	Grass	5 patches	6 inches tall, 5 inch diameter, 5% brown edges on leaves	Includes leaves and stems	Depth 5 inches, dense fibrous roots and rhizomes, <1-2 mm diameter, light brown

**Table 9-6
 PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 17 - South of Tailings						
TSS17-33	Broadleaf pepperweed <i>Lepidium latifolium</i>	Forb	5	3-6 inches tall, no flowers observed, mostly vegetative	Includes leaves and stems	Depth 1-6 inches, woody taproot, many soil rhizomes between plants, 1-10 mm diameter, brown
TSS17-33	Smooth brome <i>Bromus inermis</i>	Grass	5	3-8 inches tall, mostly vegetative, no flowers were observed, two groups were mostly tufted and included 95% fibrous roots and 5% rhizomes, three groups were more widespread and contained 95% rhizomes and 5% fibrous	Includes blades	Depth 1-5 inches, 50% fine fibrous roots, 50% long rhizomes, 1-3 mm diameter
TSS17-35	Broadleaf pepperweed <i>Lepidium latifolium</i>	Forb	5	3-6 inches tall, mostly vegetative, some insect holes on leaves,	Includes leaves and stems	Depth 1-5 inches, most plants had relatively small taproot and larger rhizomes, 2-5 mm diameter, light brown
TSS17-35	Nebraska sedge <i>Carex nebrascensis</i>	Grass	Above = 8 Below = 5	2-4 inches tall, mostly vegetative, one belowground group and two above were grazed, plants just emerging, max height 4-5 inches, most plants taken from areas with saturated soil	Included blades	Depth 1-8 inches, 95% long rhizomes with 5% fibrous roots, 1-3 mm diameter, brown
TSS17-37	Common dandelion <i>Taraxacum officinale</i>	Forb	Above = 42 Below = 35	1-2 inches tall, nearly all plants were flowering, herbivory from cattle and horses, all plants were very short, likely due to past grazing	Includes stem, leaves, buds, and flowers	Depth 1-5 inches, 95% taproot and 5% fibrous, 1-3 mm diameter, dark brown
TSS17-37	Nebraska sedge <i>Carex nebrascensis</i>	Grass	Above = 9 Below = 7	2-5 inches tall, only a few plants were flowering the rest was vegetative, staminate flowers only, herbivory primarily from horse and cattle, most plants were recently grazed-missing tops of leaves, saturated soil	Includes blades and flowers	Depth 1-6 inches, 95% long rhizomes and 5% fibrous roots, 1-2 mm diameter, most root partially covers with mud

**Table 9-6
PLANT SAMPLE DESCRIPTIONS**

Sample No.	Species	Plant Type	No. of Plants Sampled	Plant Size/Health	Above Ground Sample	Below Ground Sample
Soil Area 17 - South of Tailings						
TSS17-39	Common dandelion <i>Taraxacum officinale</i>	Forb	28 individual plants	3 inches, most plants were flowering, plants were widespread in field	Includes stems, leaves, buds, and flowers	Depth 1-5 inches, 95% taproot and 5% fibrous, several plants formed into one taproot, 1-5 mm diameter, dark brown
TSS17-39	Smooth brome <i>Bromus inermis</i>	Grass	5	5 inches, Mostly vegetative, herbivory present from cattle and horse	Includes blades	Depth 1-3 inches, 90% rhizomes and 10% fibrous roots, 1-2 mm diameter, tan to light brown
TSS17-41	Common dandelion <i>Taraxacum officinale</i>	Forb	35 individual plants	1-4 inches, nearly all plants were flowering, no herbivory observed although other plants in area were visibly grazed	Include stems, leaves, buds, and flowers	Depth 1-6 inches, 95% taproot and 5% fibrous roots, 1-10 mm diameter, long dark brown taproot
TSS17-41	Nebraska sedge <i>Carex nebrascensis</i>	Grass	Above = 11 Below = 5	3-5 inches, most collected material was vegetative with some staminate flowers, herbivory on tops of plants, sediment observed on plants in water, collected in area with saturated soil or 1-4 inch standing water	Includes blades and flowers	Depth 0-5 inches, 99% long rhizomes and 1% fibrous, 1-4 mm diameter, light brown
TSS17-42	Smooth brome <i>Bromus inermis</i>	Grass	5	3-6 inches tall, no flowers observed, mostly vegetative, some herbivory on one of five probably cattle	Includes leaves and stems	Depth 2-5 inches, fibrous roots with some rhizomes, <1-2 mm diameter, one group has saturated soil
TSS17-42	Whitestem gooseberry <i>Ribes inerme</i>	Shrub	5	1-2 m tall, nearly all plants are flowering	Only tips of plant collected	Depth 1-8 inches, woody roots, 2-11 mm diameter, dark brown/reddish woody roots, roots are smaller laterals with larger vertical roots
TSS17-42	Broadleaf pepperweed <i>Lepidium latifolium</i>	Forb	5	3-8 inches tall, no plants were flowering, mostly vegetative, some herbivory-small holes in leaves about 1 mm, some visible dust	Includes leaves and stems	Depth 1-6 inches, woody taproot, many soil rhizomes between plants, 1-12 mm diameter, rhizomes about 3 inches deep

Table 9-7a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			40.5	53.4	47	47.8
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			33.2	272	98.4	79.1
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.061	0.34	ND	ND		
Arsenic	T	mg/Kg-Dry	10	10	No SLC	0.061	0.34	ND	0.099		
Barium	T	mg/Kg-Dry	10	100	No SLC			14.8	164	69.7	49.9
Beryllium	T	mg/Kg-Dry	10	10	No SLC	0.023	0.05	ND	0.056		
Boron	T	mg/Kg-Dry	10	100	No SLC			11.1	57	27.5	24.4
Cadmium	T	mg/Kg-Dry	10	40	No SLC	0.057	0.14	ND	1.8		
Calcium	T	mg/Kg-Dry	10	100	No SLC			7530	35300	13000	10100
Chromium	T	mg/Kg-Dry	10	60	No SLC	0.53	0.75	ND	2.2	0.7	0.51
Cobalt	T	mg/Kg-Dry	10	10	No SLC	0.25	0.42	ND	1.2		
Copper	T	mg/Kg-Dry	10	100	No SLC			2	6.9	4.2	4.5
Iron	T	mg/Kg-Dry	10	100	No SLC			50.2	269	128	120
Lead	T	mg/Kg-Dry	10	0	No SLC	0.18	1.5	ND	ND		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			971	2950	1840	1700
Manganese	T	mg/Kg-Dry	10	100	No SLC			44.8	204	95.6	83.3
Mercury	T	mg/Kg-Dry	10	10	No SLC	0.028	0.04	ND	0.055		
Molybdenum	T	mg/Kg-Dry	10	60	No SLC	0.27	1.2	ND	3.4	1.3	1
Nickel	T	mg/Kg-Dry	10	50	No SLC	1.6	2.7	ND	5	2	1.5
Potassium	T	mg/Kg-Dry	10	100	No SLC			4020	12600	7350	6610
Selenium	T	mg/Kg-Dry	10	10	No SLC	0.061	0.34	ND	0.097		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.16	0.29	ND	ND		
Sodium	T	mg/Kg-Dry	10	0	No SLC	65	164	ND	ND		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.02	0.17	ND	ND		
Vanadium	T	mg/Kg-Dry	10	0	No SLC	0.32	0.63	ND	ND		
Zinc	T	mg/Kg-Dry	10	100	No SLC			12.1	73.8	27.5	19.9

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-7b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			29.8	50.4	39.4	40.9
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			246	2780	926	764
Antimony	T	mg/Kg-Dry	9	0	No SLC	0.06	0.47	ND	ND		
Arsenic	T	mg/Kg-Dry	9	55.6	No SLC	0.06	0.37	ND	1.9	0.49	0.33
Barium	T	mg/Kg-Dry	9	100	No SLC			44.3	551	169	118
Beryllium	T	mg/Kg-Dry	9	33.3	No SLC	0.032	0.057	ND	0.24		
Boron	T	mg/Kg-Dry	9	100	No SLC			23.3	60.7	34	29.8
Cadmium	T	mg/Kg-Dry	9	77.8	No SLC	0.29	0.73	ND	0.54	0.23	0.14
Calcium	T	mg/Kg-Dry	9	100	No SLC			7620	15000	10800	10900
Chromium	T	mg/Kg-Dry	9	88.9	No SLC	0.87	0.87	ND	5.4	2	1.9
Cobalt	T	mg/Kg-Dry	9	44.4	No SLC	0.34	0.59	ND	4.4		
Copper	T	mg/Kg-Dry	9	100	No SLC			8.2	18.3	11.4	9.6
Iron	T	mg/Kg-Dry	9	100	No SLC			77.1	9780	2030	1260
Lead	T	mg/Kg-Dry	9	33.3	No SLC	0.5	8.4	ND	43.3		
Magnesium	T	mg/Kg-Dry	9	100	No SLC			1380	5330	2860	2680
Manganese	T	mg/Kg-Dry	9	100	No SLC			90.9	893	352	320
Mercury	T	mg/Kg-Dry	9	0	No SLC	0.032	0.057	ND	ND		
Molybdenum	T	mg/Kg-Dry	9	55.6	No SLC	0.16	0.35	ND	20.5	6.2	4.6
Nickel	T	mg/Kg-Dry	9	44.4	No SLC	2.2	3.7	ND	11.2		
Potassium	T	mg/Kg-Dry	9	100	No SLC			3640	29500	11900	9240
Selenium	T	mg/Kg-Dry	9	33.3	No SLC	0.06	0.9	ND	0.66		
Silver	T	mg/Kg-Dry	9	0	No SLC	0.21	0.4	ND	ND		
Sodium	T	mg/Kg-Dry	9	11.1	No SLC	110	393	ND	163		
Thallium	T	mg/Kg-Dry	9	0	No SLC	0.04	0.24	ND	ND		
Vanadium	T	mg/Kg-Dry	9	55.6	No SLC	0.44	0.53	ND	6.8	1.8	1.6
Zinc	T	mg/Kg-Dry	9	100	No SLC			19.9	79	39.8	35.7

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-7c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	8	100	No SLC			40.9	73.7	51.2	48.5
Metals											
Aluminum	T	mg/Kg-Dry	8	100	No SLC			67.6	806	242	155
Antimony	T	mg/Kg-Dry	8	0	No SLC	0.041	0.39	ND	ND		
Arsenic	T	mg/Kg-Dry	8	25	No SLC	0.26	0.39	ND	0.28		
Barium	T	mg/Kg-Dry	8	100	No SLC			10.7	68.5	29.9	26.4
Beryllium	T	mg/Kg-Dry	8	0	No SLC	0.019	0.049	ND	ND		
Boron	T	mg/Kg-Dry	8	62.5	No SLC	4.8	8.1	ND	30.9	7.8	4.8
Cadmium	T	mg/Kg-Dry	8	12.5	No SLC	0.051	0.23	ND	0.031		
Calcium	T	mg/Kg-Dry	8	100	No SLC			3290	6650	4770	4190
Chromium	T	mg/Kg-Dry	8	75	No SLC	0.8	0.9	ND	1.6	1	1.2
Cobalt	T	mg/Kg-Dry	8	0	No SLC	0.22	0.44	ND	ND		
Copper	T	mg/Kg-Dry	8	100	No SLC			2.3	5	3.9	3.8
Iron	T	mg/Kg-Dry	8	100	No SLC			100	853	373	296
Lead	T	mg/Kg-Dry	8	0	No SLC	0.61	3.2	ND	ND		
Magnesium	T	mg/Kg-Dry	8	100	No SLC			613	1630	1010	924
Manganese	T	mg/Kg-Dry	8	100	No SLC			27	343	129	63.9
Mercury	T	mg/Kg-Dry	8	0	No SLC	0.02	0.039	ND	ND		
Molybdenum	T	mg/Kg-Dry	8	100	No SLC			1.4	16.1	6.9	5.8
Nickel	T	mg/Kg-Dry	8	25	No SLC	1.3	2.7	ND	4.9		
Potassium	T	mg/Kg-Dry	8	100	No SLC			5510	11900	7670	7360
Selenium	T	mg/Kg-Dry	8	12.5	No SLC	0.041	0.39	ND	0.11		
Silver	T	mg/Kg-Dry	8	0	No SLC	0.13	0.27	ND	ND		
Sodium	T	mg/Kg-Dry	8	12.5	No SLC	57.3	226	ND	118		
Thallium	T	mg/Kg-Dry	8	0	No SLC	0.027	0.2	ND	ND		
Vanadium	T	mg/Kg-Dry	8	50	No SLC	0.27	0.61	ND	1.3	0.46	0.33
Zinc	T	mg/Kg-Dry	8	100	No SLC			15.7	35.8	25	23.2

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-7d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			39.3	59	51.4	53.5
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			911	3000	1860	1650
Antimony	T	mg/Kg-Dry	10	20	No SLC	0.063	0.38	ND	0.09		
Arsenic	T	mg/Kg-Dry	10	90	No SLC	0.38	0.38	ND	1.5	0.84	0.79
Barium	T	mg/Kg-Dry	10	100	No SLC			35.5	294	130	110
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.041	0.17	0.12	0.12
Boron	T	mg/Kg-Dry	10	90	No SLC	7.9	7.9	ND	14.2	10.3	10.8
Cadmium	T	mg/Kg-Dry	10	60	No SLC	0.093	0.44	ND	0.89	0.35	0.23
Calcium	T	mg/Kg-Dry	10	100	No SLC			4320	13000	9440	9430
Chromium	T	mg/Kg-Dry	10	100	No SLC			1.1	6.5	2.9	2.3
Cobalt	T	mg/Kg-Dry	10	100	No SLC			0.51	2	1.3	1.3
Copper	T	mg/Kg-Dry	10	100	No SLC			3.7	12.2	7.9	7.9
Iron	T	mg/Kg-Dry	10	100	No SLC			1060	5040	2990	2810
Lead	T	mg/Kg-Dry	10	80	No SLC	4.2	4.4	ND	16	7.9	8.3
Magnesium	T	mg/Kg-Dry	10	100	No SLC			621	2500	1320	1190
Manganese	T	mg/Kg-Dry	10	100	No SLC			90	246	147	132
Mercury	T	mg/Kg-Dry	10	20	No SLC	0.026	0.041	ND	0.14		
Molybdenum	T	mg/Kg-Dry	10	70	No SLC	0.39	1.3	ND	8.4	2.5	0.97
Nickel	T	mg/Kg-Dry	10	50	No SLC	1.9	2.5	ND	7.4	3.7	3.2
Potassium	T	mg/Kg-Dry	10	100	No SLC			2420	4360	3350	3320
Selenium	T	mg/Kg-Dry	10	50	No SLC	0.27	0.95	ND	0.35	0.22	0.21
Silver	T	mg/Kg-Dry	10	40	No SLC	0.17	0.28	ND	0.37		
Sodium	T	mg/Kg-Dry	10	0	No SLC	77	307	ND	ND		
Thallium	T	mg/Kg-Dry	10	30	No SLC	0.042	0.2	ND	0.054		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			1.2	5.1	3.4	3.7
Zinc	T	mg/Kg-Dry	10	100	No SLC			16.3	69.1	41.7	35

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-7e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			46	54.8	51.4	52.3
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			1230	6130	3340	2440
Antimony	T	mg/Kg-Dry	9	44.4	No SLC	0.29	0.33	ND	0.12		
Arsenic	T	mg/Kg-Dry	9	100	No SLC			0.48	3.9	1.8	0.96
Barium	T	mg/Kg-Dry	9	100	No SLC			70.5	237	139	130
Beryllium	T	mg/Kg-Dry	9	100	No SLC			0.059	0.41	0.19	0.15
Boron	T	mg/Kg-Dry	9	88.9	No SLC	5.4	5.4	ND	26.1	10.1	6.8
Cadmium	T	mg/Kg-Dry	9	66.7	No SLC	0.071	0.38	ND	0.66	0.31	0.24
Calcium	T	mg/Kg-Dry	9	100	No SLC			2870	9170	5200	5060
Chromium	T	mg/Kg-Dry	9	100	No SLC			1.3	18.5	5.7	3.3
Cobalt	T	mg/Kg-Dry	9	100	No SLC			0.93	5.9	2.3	1.8
Copper	T	mg/Kg-Dry	9	100	No SLC			7	26.7	12.9	8.6
Iron	T	mg/Kg-Dry	9	100	No SLC			1300	13000	5920	3940
Lead	T	mg/Kg-Dry	9	100	No SLC			5.3	39.8	18.8	11.1
Magnesium	T	mg/Kg-Dry	9	100	No SLC			566	3960	1580	1120
Manganese	T	mg/Kg-Dry	9	100	No SLC			125	721	361	307
Mercury	T	mg/Kg-Dry	9	22.2	No SLC	0.029	0.035	ND	0.036		
Molybdenum	T	mg/Kg-Dry	9	88.9	No SLC	0.55	0.55	ND	34.6	8.1	4.2
Nickel	T	mg/Kg-Dry	9	66.7	No SLC	1.9	2.1	ND	11.3	5.2	3.5
Potassium	T	mg/Kg-Dry	9	100	No SLC			1050	9610	4300	2870
Selenium	T	mg/Kg-Dry	9	55.6	No SLC	0.33	0.72	ND	0.59	0.26	0.22
Silver	T	mg/Kg-Dry	9	11.1	No SLC	0.14	0.23	ND	0.33		
Sodium	T	mg/Kg-Dry	9	0	No SLC	79.2	250	ND	ND		
Thallium	T	mg/Kg-Dry	9	44.4	No SLC	0.15	0.15	ND	0.059		
Vanadium	T	mg/Kg-Dry	9	100	No SLC			1.4	15.2	6.6	3.8
Zinc	T	mg/Kg-Dry	9	100	No SLC			11.6	82.8	36.8	27

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-7f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Reference for Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	8	100	No SLC			55.4	75.4	64.4	64.1
Metals											
Aluminum	T	mg/Kg-Dry	8	100	No SLC			4550	11400	7770	6910
Antimony	T	mg/Kg-Dry	8	25	No SLC	0.19	0.28	ND	0.12		
Arsenic	T	mg/Kg-Dry	8	100	No SLC			2.4	5	3.7	3.8
Barium	T	mg/Kg-Dry	8	100	No SLC			115	488	227	205
Beryllium	T	mg/Kg-Dry	8	100	No SLC			0.29	1.1	0.54	0.5
Boron	T	mg/Kg-Dry	8	62.5	No SLC	0.69	4	ND	4.8	2.1	1.5
Cadmium	T	mg/Kg-Dry	8	75	No SLC	0.17	0.17	ND	1	0.3	0.17
Calcium	T	mg/Kg-Dry	8	100	No SLC			2860	6240	4160	3890
Chromium	T	mg/Kg-Dry	8	100	No SLC			6.5	24.7	10.5	7.8
Cobalt	T	mg/Kg-Dry	8	100	No SLC			2.7	13.2	6.4	5.9
Copper	T	mg/Kg-Dry	8	100	No SLC			8.4	35.6	19.9	19.4
Iron	T	mg/Kg-Dry	8	100	No SLC			9100	22300	15600	15400
Lead	T	mg/Kg-Dry	8	100	No SLC			15.7	95.2	40.4	35.6
Magnesium	T	mg/Kg-Dry	8	100	No SLC			1100	4330	2420	2060
Manganese	T	mg/Kg-Dry	8	100	No SLC			361	1280	582	457
Mercury	T	mg/Kg-Dry	8	62.5	No SLC	0.021	0.029	ND	0.044	0.025	0.027
Molybdenum	T	mg/Kg-Dry	8	100	No SLC			1	37.3	15.6	16.2
Nickel	T	mg/Kg-Dry	8	100	No SLC			3.8	32.4	13.6	11.5
Potassium	T	mg/Kg-Dry	8	100	No SLC			1970	3740	2980	3010
Selenium	T	mg/Kg-Dry	8	62.5	No SLC	0.28	1	ND	1.8	0.58	0.39
Silver	T	mg/Kg-Dry	8	62.5	No SLC	0.12	0.21	ND	0.47	0.21	0.18
Sodium	T	mg/Kg-Dry	8	0	No SLC	62.2	217	ND	ND		
Thallium	T	mg/Kg-Dry	8	37.5	No SLC	0.11	0.14	ND	0.15		
Vanadium	T	mg/Kg-Dry	8	100	No SLC			8.5	25.2	13.6	12
Zinc	T	mg/Kg-Dry	8	100	No SLC			40.2	164	66.2	52.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			44.4	55.5	49.4	50.7
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			57.1	366	163	97.5
Antimony	T	mg/Kg-Dry	9	0	No SLC	0.064	0.52	ND	ND		
Arsenic	T	mg/Kg-Dry	9	11.1	No SLC	0.064	0.36	ND	0.34		
Barium	T	mg/Kg-Dry	9	100	No SLC			5.1	64.5	30.2	12.3
Beryllium	T	mg/Kg-Dry	9	0	No SLC	0.027	0.053	ND	ND		
Boron	T	mg/Kg-Dry	9	100	No SLC			14.4	64.8	35.8	28.8
Cadmium	T	mg/Kg-Dry	9	44.4	No SLC	0.041	0.14	ND	1		
Calcium	T	mg/Kg-Dry	9	100	No SLC			7820	26300	12600	9060
Chromium	T	mg/Kg-Dry	9	66.7	No SLC	0.61	0.79	ND	1	0.56	0.41
Cobalt	T	mg/Kg-Dry	9	0	No SLC	0.23	0.42	ND	ND		
Copper	T	mg/Kg-Dry	9	100	No SLC			2.3	13	7.4	7.1
Iron	T	mg/Kg-Dry	9	100	No SLC			60	582	213	133
Lead	T	mg/Kg-Dry	9	33.3	No SLC	0.27	1.1	ND	3.7		
Magnesium	T	mg/Kg-Dry	9	100	No SLC			1060	3250	1870	1560
Manganese	T	mg/Kg-Dry	9	100	No SLC			38.4	245	114	84.3
Mercury	T	mg/Kg-Dry	9	11.1	No SLC	0.028	0.036	ND	0.037		
Molybdenum	T	mg/Kg-Dry	9	88.9	No SLC	0.96	0.96	ND	6.3	2.4	2.4
Nickel	T	mg/Kg-Dry	9	55.6	No SLC	0.6	2.4	ND	2.9	1.2	0.9
Potassium	T	mg/Kg-Dry	9	100	No SLC			4790	14500	8960	7810
Selenium	T	mg/Kg-Dry	9	11.1	No SLC	0.29	1.4	ND	0.19		
Silver	T	mg/Kg-Dry	9	0	No SLC	0.19	0.78	ND	ND		
Sodium	T	mg/Kg-Dry	9	0	No SLC	70.1	165	ND	ND		
Thallium	T	mg/Kg-Dry	9	0	No SLC	0.043	0.18	ND	ND		
Vanadium	T	mg/Kg-Dry	9	33.3	No SLC	0.27	0.51	ND	0.61		
Zinc	T	mg/Kg-Dry	9	100	No SLC			17.6	47.7	33.1	31.7

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	8	100	No SLC			21.5	42.5	32.9	33.8
Metals											
Aluminum	T	mg/Kg-Dry	8	100	No SLC			177	1410	534	427
Antimony	T	mg/Kg-Dry	8	0	No SLC	0.38	0.92	ND	ND		
Arsenic	T	mg/Kg-Dry	8	25	No SLC	0.38	0.61	ND	1.7		
Barium	T	mg/Kg-Dry	8	100	No SLC			20.7	104	52.2	51.2
Beryllium	T	mg/Kg-Dry	8	12.5	No SLC	0.038	0.072	ND	0.047		
Boron	T	mg/Kg-Dry	8	100	No SLC			24.4	87	43	33.6
Cadmium	T	mg/Kg-Dry	8	62.5	No SLC	0.054	0.19	ND	1	0.36	0.25
Calcium	T	mg/Kg-Dry	8	100	No SLC			9910	22800	14800	14300
Chromium	T	mg/Kg-Dry	8	87.5	No SLC	1.4	1.4	ND	3	1.6	1.1
Cobalt	T	mg/Kg-Dry	8	37.5	No SLC	0.31	0.58	ND	0.96		
Copper	T	mg/Kg-Dry	8	100	No SLC			5.1	26.4	10.8	7.5
Iron	T	mg/Kg-Dry	8	100	No SLC			258	4550	1110	645
Lead	T	mg/Kg-Dry	8	37.5	No SLC	1	2.4	ND	31.1		
Magnesium	T	mg/Kg-Dry	8	100	No SLC			1720	4090	2940	3100
Manganese	T	mg/Kg-Dry	8	100	No SLC			55.5	169	101	102
Mercury	T	mg/Kg-Dry	8	0	No SLC	0.035	0.07	ND	ND		
Molybdenum	T	mg/Kg-Dry	8	100	No SLC			1.6	11.6	4.5	3.5
Nickel	T	mg/Kg-Dry	8	37.5	No SLC	0.76	3.6	ND	1.8		
Potassium	T	mg/Kg-Dry	8	100	No SLC			10300	37600	19100	17200
Selenium	T	mg/Kg-Dry	8	0	No SLC	0.38	2.4	ND	ND		
Silver	T	mg/Kg-Dry	8	0	No SLC	0.26	1.6	ND	ND		
Sodium	T	mg/Kg-Dry	8	12.5	No SLC	104	268	ND	313		
Thallium	T	mg/Kg-Dry	8	0	No SLC	0.18	0.3	ND	ND		
Vanadium	T	mg/Kg-Dry	8	62.5	No SLC	0.46	0.76	ND	3.5	1.1	0.78
Zinc	T	mg/Kg-Dry	8	100	No SLC			24.9	83.3	43.7	40.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			41.6	59.1	51.5	51.1
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			47.2	1030	260	121
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.052	0.47	ND	ND		
Arsenic	T	mg/Kg-Dry	10	10	No SLC	0.25	0.41	ND	0.052		
Barium	T	mg/Kg-Dry	10	100	No SLC			3.7	24.6	14.2	13.7
Beryllium	T	mg/Kg-Dry	10	10	No SLC	0.026	0.04	ND	0.068		
Boron	T	mg/Kg-Dry	10	90	No SLC	6.4	6.4	ND	24.5	9.7	7.4
Cadmium	T	mg/Kg-Dry	10	0	No SLC	0.038	0.15	ND	ND		
Calcium	T	mg/Kg-Dry	10	100	No SLC			2910	5600	4260	4180
Chromium	T	mg/Kg-Dry	10	70	No SLC	0.79	1.6	ND	7.2	1.4	0.72
Cobalt	T	mg/Kg-Dry	10	10	No SLC	0.22	0.37	ND	1.2		
Copper	T	mg/Kg-Dry	10	100	No SLC			2.9	6.7	4.8	5
Iron	T	mg/Kg-Dry	10	100	No SLC			81.9	1840	443	210
Lead	T	mg/Kg-Dry	10	50	No SLC	0.35	1.8	ND	5.3	1.2	0.46
Magnesium	T	mg/Kg-Dry	10	100	No SLC			657	2100	1020	904
Manganese	T	mg/Kg-Dry	10	100	No SLC			36.1	143	66.6	46
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.025	0.038	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			1.5	12.5	6	5
Nickel	T	mg/Kg-Dry	10	20	No SLC	0.21	2.3	ND	3.4		
Potassium	T	mg/Kg-Dry	10	100	No SLC			4890	14500	7700	6980
Selenium	T	mg/Kg-Dry	10	10	No SLC	0.3	1.2	ND	0.087		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.17	1.1	ND	ND		
Sodium	T	mg/Kg-Dry	10	0	No SLC	70.3	210	ND	ND		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.035	0.19	ND	ND		
Vanadium	T	mg/Kg-Dry	10	40	No SLC	0.24	0.48	ND	2.6		
Zinc	T	mg/Kg-Dry	10	100	No SLC			17	57.6	30.1	29.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			43.7	60.4	50.7	48.7
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			1030	6710	2460	1950
Antimony	T	mg/Kg-Dry	9	0	No SLC	0.05	0.55	ND	ND		
Arsenic	T	mg/Kg-Dry	9	88.9	No SLC	0.36	0.36	ND	2.9	1.3	1
Barium	T	mg/Kg-Dry	9	100	No SLC			23.1	305	81	54.8
Beryllium	T	mg/Kg-Dry	9	66.7	No SLC	0.035	0.11	ND	0.36	0.16	0.076
Boron	T	mg/Kg-Dry	9	88.9	No SLC	12.8	12.8	ND	15	10	11.4
Cadmium	T	mg/Kg-Dry	9	100	No SLC			0.048	0.87	0.36	0.25
Calcium	T	mg/Kg-Dry	9	100	No SLC			3360	14700	9720	9810
Chromium	T	mg/Kg-Dry	9	100	No SLC			1.1	21	5.3	3.7
Cobalt	T	mg/Kg-Dry	9	100	No SLC			0.43	7.6	1.9	0.94
Copper	T	mg/Kg-Dry	9	100	No SLC			5.7	24.7	13.6	10.3
Iron	T	mg/Kg-Dry	9	100	No SLC			1240	9960	4470	3780
Lead	T	mg/Kg-Dry	9	100	No SLC			3.3	42.1	14.5	9.1
Magnesium	T	mg/Kg-Dry	9	100	No SLC			866	2840	1390	1200
Manganese	T	mg/Kg-Dry	9	100	No SLC			73.8	449	210	171
Mercury	T	mg/Kg-Dry	9	0	No SLC	0.026	0.037	ND	ND		
Molybdenum	T	mg/Kg-Dry	9	100	No SLC			0.56	10	4.4	3.1
Nickel	T	mg/Kg-Dry	9	88.9	No SLC	2.5	2.5	ND	19.1	4.4	1.5
Potassium	T	mg/Kg-Dry	9	100	No SLC			2210	10700	5120	4530
Selenium	T	mg/Kg-Dry	9	44.4	No SLC	0.27	1.4	ND	0.59		
Silver	T	mg/Kg-Dry	9	22.2	No SLC	0.17	0.82	ND	0.77		
Sodium	T	mg/Kg-Dry	9	11.1	No SLC	66.1	177	ND	157		
Thallium	T	mg/Kg-Dry	9	11.1	No SLC	0.14	0.18	ND	0.083		
Vanadium	T	mg/Kg-Dry	9	100	No SLC			2.3	15.5	5	3.8
Zinc	T	mg/Kg-Dry	9	100	No SLC			29.3	122	56.2	56.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	8	100	No SLC			25	54.8	43.5	47.3
Metals											
Aluminum	T	mg/Kg-Dry	8	100	No SLC			911	11100	4010	3660
Antimony	T	mg/Kg-Dry	8	0	No SLC	0.28	0.73	ND	ND		
Arsenic	T	mg/Kg-Dry	8	87.5	No SLC	0.33	0.33	ND	6.4	1.5	0.74
Barium	T	mg/Kg-Dry	8	100	No SLC			32.1	608	168	116
Beryllium	T	mg/Kg-Dry	8	87.5	No SLC	0.35	0.35	ND	1.3	0.27	0.16
Boron	T	mg/Kg-Dry	8	75	No SLC	5.1	10.9	ND	19.5	12.2	13.9
Cadmium	T	mg/Kg-Dry	8	75	No SLC	0.045	0.2	ND	0.72	0.35	0.26
Calcium	T	mg/Kg-Dry	8	100	No SLC			4640	13100	8270	8660
Chromium	T	mg/Kg-Dry	8	100	No SLC			0.82	18.4	6.7	5.5
Cobalt	T	mg/Kg-Dry	8	100	No SLC			0.4	7.9	2.5	1.7
Copper	T	mg/Kg-Dry	8	100	No SLC			6.6	46.1	22.7	23.6
Iron	T	mg/Kg-Dry	8	100	No SLC			1030	17700	8010	7750
Lead	T	mg/Kg-Dry	8	100	No SLC			2.3	120	29.7	17.9
Magnesium	T	mg/Kg-Dry	8	100	No SLC			712	5440	2480	2230
Manganese	T	mg/Kg-Dry	8	100	No SLC			48.5	730	238	150
Mercury	T	mg/Kg-Dry	8	0	No SLC	0.029	0.064	ND	ND		
Molybdenum	T	mg/Kg-Dry	8	100	No SLC			1.1	18.8	6.2	4.2
Nickel	T	mg/Kg-Dry	8	100	No SLC			0.82	18.6	5.6	3.9
Potassium	T	mg/Kg-Dry	8	100	No SLC			2900	20100	9570	7690
Selenium	T	mg/Kg-Dry	8	0	No SLC	0.28	1.9	ND	ND		
Silver	T	mg/Kg-Dry	8	12.5	No SLC	0.21	2	ND	1.1		
Sodium	T	mg/Kg-Dry	8	0	No SLC	73.4	369	ND	ND		
Thallium	T	mg/Kg-Dry	8	12.5	No SLC	0.15	0.32	ND	0.25		
Vanadium	T	mg/Kg-Dry	8	100	No SLC			1.6	19.1	9.1	9.5
Zinc	T	mg/Kg-Dry	8	100	No SLC			13.1	91.6	51.4	38.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-8f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Soil Area 3 - Mine Site Soils
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			53.5	74.7	66.1	64.8
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			4490	15500	7340	6680
Antimony	T	mg/Kg-Dry	10	10	No SLC	0.2	0.35	ND	0.08		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			1.3	10.2	4.6	3.3
Barium	T	mg/Kg-Dry	10	100	No SLC			59.3	367	147	121
Beryllium	T	mg/Kg-Dry	10	90	No SLC	0.21	0.21	ND	0.88	0.43	0.31
Boron	T	mg/Kg-Dry	10	30	No SLC	0.41	4.3	ND	5.5		
Cadmium	T	mg/Kg-Dry	10	50	No SLC	0.032	0.041	ND	0.45	0.15	0.095
Calcium	T	mg/Kg-Dry	10	100	No SLC			1890	7100	4500	4570
Chromium	T	mg/Kg-Dry	10	100	No SLC			3.5	42.5	12.1	9.9
Cobalt	T	mg/Kg-Dry	10	100	No SLC			1.9	19.2	4.8	3.1
Copper	T	mg/Kg-Dry	10	100	No SLC			8.7	39.5	22.6	17.3
Iron	T	mg/Kg-Dry	10	100	No SLC			6910	23600	14100	13600
Lead	T	mg/Kg-Dry	10	100	No SLC			14.5	125	51.8	31.9
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1000	5750	2060	1620
Manganese	T	mg/Kg-Dry	10	100	No SLC			113	1300	615	602
Mercury	T	mg/Kg-Dry	10	70	No SLC	0.024	0.041	ND	0.052	0.03	0.028
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			4.2	18.4	10.5	9.6
Nickel	T	mg/Kg-Dry	10	100	No SLC			3.2	42	9.2	5.7
Potassium	T	mg/Kg-Dry	10	100	No SLC			1540	4280	3200	3370
Selenium	T	mg/Kg-Dry	10	70	No SLC	0.25	0.94	ND	1.6	0.66	0.47
Silver	T	mg/Kg-Dry	10	60	No SLC	0.15	0.2	ND	2.3	0.55	0.17
Sodium	T	mg/Kg-Dry	10	0	No SLC	46.6	144	ND	ND		
Thallium	T	mg/Kg-Dry	10	90	No SLC	0.12	0.12	ND	0.37	0.19	0.17
Vanadium	T	mg/Kg-Dry	10	100	No SLC			8.7	35.5	15.3	12.1
Zinc	T	mg/Kg-Dry	10	100	No SLC			25.4	154	66.9	54.2

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			30.8	41	36.7	37.9
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			200	1350	646	483
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.023	1.3	ND	ND		
Arsenic	T	mg/Kg-Dry	10	50	No SLC	0.37	0.54	ND	0.18	0.17	0.18
Barium	T	mg/Kg-Dry	10	100	No SLC			6.9	43.8	16	13.5
Beryllium	T	mg/Kg-Dry	10	0	No SLC	0.025	0.11	ND	ND		
Boron	T	mg/Kg-Dry	10	100	No SLC			21.6	80.3	39.4	35.1
Cadmium	T	mg/Kg-Dry	10	80	No SLC	0.082	0.084	ND	0.88	0.31	0.19
Calcium	T	mg/Kg-Dry	10	100	No SLC			5090	13300	7860	7370
Chromium	T	mg/Kg-Dry	10	60	No SLC	0.94	1.5	ND	5.1	1.8	1.2
Cobalt	T	mg/Kg-Dry	10	50	No SLC	0.5	0.88	ND	0.52	0.31	0.31
Copper	T	mg/Kg-Dry	10	100	No SLC			10.3	24.3	14.7	13.5
Iron	T	mg/Kg-Dry	10	100	No SLC			254	1440	742	569
Lead	T	mg/Kg-Dry	10	90	No SLC	0.19	0.19	ND	1.3	0.59	0.64
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1430	2950	1920	1790
Manganese	T	mg/Kg-Dry	10	100	No SLC			38.8	81.1	60.6	62.1
Mercury	T	mg/Kg-Dry	10	20	No SLC	0.037	0.05	ND	0.051		
Molybdenum	T	mg/Kg-Dry	10	90	No SLC	0.74	0.74	ND	2.8	1	0.74
Nickel	T	mg/Kg-Dry	10	70	No SLC	0.53	0.7	ND	8.1	2.3	1.7
Potassium	T	mg/Kg-Dry	10	100	No SLC			11300	23500	17800	17900
Selenium	T	mg/Kg-Dry	10	60	No SLC	1.5	2.2	ND	1.6	0.78	0.8
Silver	T	mg/Kg-Dry	10	20	No SLC	0.0047	0.57	ND	0.0082		
Sodium	T	mg/Kg-Dry	10	30	No SLC	71.5	121	ND	122		
Thallium	T	mg/Kg-Dry	10	30	No SLC	0.0047	0.27	ND	0.017		
Vanadium	T	mg/Kg-Dry	10	90	No SLC	0.8	0.8	ND	2.6	1	0.68
Zinc	T	mg/Kg-Dry	10	90	No SLC	37.6	37.6	ND	51	33.8	32.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			13	34.1	24.4	27.2
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			746	3460	1920	1590
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.3	3.2	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.5	1.3	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			21.1	46.2	34.3	33.5
Beryllium	T	mg/Kg-Dry	6	16.7	No SLC	0.065	0.35	ND	0.085		
Boron	T	mg/Kg-Dry	6	100	No SLC			19.6	49.8	31	29.1
Cadmium	T	mg/Kg-Dry	6	50	No SLC	0.13	0.18	ND	1.4	0.33	0.11
Calcium	T	mg/Kg-Dry	6	100	No SLC			6150	19200	12100	11800
Chromium	T	mg/Kg-Dry	6	50	No SLC	2	3.7	ND	6.8	3.4	2.3
Cobalt	T	mg/Kg-Dry	6	33.3	No SLC	0.57	2.8	ND	1.9		
Copper	T	mg/Kg-Dry	6	100	No SLC			7.5	17.9	12.9	13.7
Iron	T	mg/Kg-Dry	6	100	No SLC			925	4280	2350	1860
Lead	T	mg/Kg-Dry	6	83.3	No SLC	1.2	1.2	ND	4.2	2.1	1.6
Magnesium	T	mg/Kg-Dry	6	100	No SLC			2300	5620	3490	3140
Manganese	T	mg/Kg-Dry	6	100	No SLC			64.5	138	85.5	67.8
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.05	0.12	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	83.3	No SLC	0.94	0.94	ND	12.1	3.5	1.4
Nickel	T	mg/Kg-Dry	6	66.7	No SLC	0.65	1.1	ND	2.6	1.6	1.6
Potassium	T	mg/Kg-Dry	6	100	No SLC			12900	34900	22600	22000
Selenium	T	mg/Kg-Dry	6	0	No SLC	2.1	5.2	ND	ND		
Silver	T	mg/Kg-Dry	6	16.7	No SLC	0.27	0.74	ND	0.33		
Sodium	T	mg/Kg-Dry	6	66.7	No SLC	124	150	ND	362	167	162
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.26	0.64	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			1.2	7.3	3.9	3.3
Zinc	T	mg/Kg-Dry	6	100	No SLC			32	66.2	41.9	38.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			38.9	62.5	43.9	42
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			361	2570	1080	854
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.023	1	ND	ND		
Arsenic	T	mg/Kg-Dry	10	80	No SLC	0.36	0.41	ND	0.27	0.17	0.17
Barium	T	mg/Kg-Dry	10	100	No SLC			14.9	40.9	27.2	27.6
Beryllium	T	mg/Kg-Dry	10	30	No SLC	0.023	0.17	ND	0.11		
Boron	T	mg/Kg-Dry	10	90	No SLC	5.1	5.1	ND	28.7	11.1	8.3
Cadmium	T	mg/Kg-Dry	10	70	No SLC	0.0064	0.071	ND	0.079	0.03	0.023
Calcium	T	mg/Kg-Dry	10	100	No SLC			3540	8320	5690	5650
Chromium	T	mg/Kg-Dry	10	80	No SLC	2.5	2.8	ND	11.3	3.3	1.9
Cobalt	T	mg/Kg-Dry	10	100	No SLC			0.16	1.3	0.52	0.46
Copper	T	mg/Kg-Dry	10	100	No SLC			4.3	17.3	10.2	10.2
Iron	T	mg/Kg-Dry	10	100	No SLC			464	3260	1300	998
Lead	T	mg/Kg-Dry	10	90	No SLC	0.56	0.56	ND	2.1	0.84	0.67
Magnesium	T	mg/Kg-Dry	10	100	No SLC			914	2780	1780	1800
Manganese	T	mg/Kg-Dry	10	100	No SLC			38	137	71.3	66
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.024	0.043	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	90	No SLC	2.8	2.8	ND	14.3	3.3	2
Nickel	T	mg/Kg-Dry	10	90	No SLC	0.67	0.67	ND	4.2	1.8	1.3
Potassium	T	mg/Kg-Dry	10	100	No SLC			7320	21500	14400	15100
Selenium	T	mg/Kg-Dry	10	80	No SLC	1.5	1.7	ND	2.3	0.62	0.4
Silver	T	mg/Kg-Dry	10	50	No SLC	0.0032	0.18	ND	0.36	0.05	0.0052
Sodium	T	mg/Kg-Dry	10	20	No SLC	23.4	195	ND	111		
Thallium	T	mg/Kg-Dry	10	80	No SLC	0.18	0.21	ND	0.028	0.029	0.01
Vanadium	T	mg/Kg-Dry	10	100	No SLC			0.69	4.6	1.9	1.9
Zinc	T	mg/Kg-Dry	10	90	No SLC	11.2	11.2	ND	35.2	22.6	23.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			38	67.2	54	53.7
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			994	4050	2300	1950
Antimony	T	mg/Kg-Dry	10	10	No SLC	0.014	1	ND	0.027		
Arsenic	T	mg/Kg-Dry	10	90	No SLC	0.43	0.43	ND	0.66	0.4	0.38
Barium	T	mg/Kg-Dry	10	100	No SLC			28.6	73	37.9	33.6
Beryllium	T	mg/Kg-Dry	10	50	No SLC	0.05	0.21	ND	0.21	0.097	0.09
Boron	T	mg/Kg-Dry	10	100	No SLC			9.1	26.9	15.1	14.5
Cadmium	T	mg/Kg-Dry	10	100	No SLC			0.097	0.99	0.43	0.31
Calcium	T	mg/Kg-Dry	10	100	No SLC			5500	19700	10100	8720
Chromium	T	mg/Kg-Dry	10	90	No SLC	2.6	2.6	ND	14	5.9	6
Cobalt	T	mg/Kg-Dry	10	100	No SLC			0.6	2.1	1.2	1.1
Copper	T	mg/Kg-Dry	10	100	No SLC			8.8	22	14.7	14.6
Iron	T	mg/Kg-Dry	10	100	No SLC			1260	4270	2770	2580
Lead	T	mg/Kg-Dry	10	100	No SLC			0.8	2.6	1.7	1.5
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1300	5230	2670	1900
Manganese	T	mg/Kg-Dry	10	100	No SLC			54.2	101	78.9	77.8
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.022	0.045	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	80	No SLC	0.5	0.74	ND	2.8	0.75	0.5
Nickel	T	mg/Kg-Dry	10	100	No SLC			1.1	8	3.3	3.1
Potassium	T	mg/Kg-Dry	10	100	No SLC			3460	15600	7850	6670
Selenium	T	mg/Kg-Dry	10	50	No SLC	1.1	1.7	ND	0.48	0.49	0.52
Silver	T	mg/Kg-Dry	10	60	No SLC	0.16	0.55	ND	0.3	0.092	0.051
Sodium	T	mg/Kg-Dry	10	70	No SLC	132	191	ND	1340	316	212
Thallium	T	mg/Kg-Dry	10	50	No SLC	0.13	0.21	ND	0.037	0.055	0.051
Vanadium	T	mg/Kg-Dry	10	100	No SLC			2.5	10.7	7.1	7.4
Zinc	T	mg/Kg-Dry	10	90	No SLC	22.5	22.5	ND	34.1	23.8	23.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	5	100	No SLC			37.8	57.2	45.8	44.2
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			635	5350	2640	2400
Antimony	T	mg/Kg-Dry	6	0	No SLC	0.73	1.9	ND	ND		
Arsenic	T	mg/Kg-Dry	6	33.3	No SLC	0.3	0.44	ND	1.3		
Barium	T	mg/Kg-Dry	6	100	No SLC			14.8	78.3	50.8	52.5
Beryllium	T	mg/Kg-Dry	6	16.7	No SLC	0.037	0.42	ND	0.12		
Boron	T	mg/Kg-Dry	6	100	No SLC			10.5	20.6	14.8	14.7
Cadmium	T	mg/Kg-Dry	6	83.3	No SLC	0.086	0.086	ND	0.42	0.28	0.32
Calcium	T	mg/Kg-Dry	6	100	No SLC			3500	34900	12900	9550
Chromium	T	mg/Kg-Dry	6	83.3	No SLC	2	2	ND	13.5	5.9	5.3
Cobalt	T	mg/Kg-Dry	6	100	No SLC			0.64	3.8	1.8	1.7
Copper	T	mg/Kg-Dry	6	100	No SLC			4.5	22.7	15.9	17.8
Iron	T	mg/Kg-Dry	6	100	No SLC			912	6960	3250	2940
Lead	T	mg/Kg-Dry	6	100	No SLC			0.7	5	2.3	2.1
Magnesium	T	mg/Kg-Dry	6	100	No SLC			1420	5480	2890	2430
Manganese	T	mg/Kg-Dry	6	100	No SLC			50.4	200	104	96.1
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.028	0.062	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	100	No SLC			0.81	3.8	1.9	1.5
Nickel	T	mg/Kg-Dry	6	100	No SLC			0.66	8.5	3.6	2.8
Potassium	T	mg/Kg-Dry	6	100	No SLC			3550	21100	11100	11700
Selenium	T	mg/Kg-Dry	6	16.7	No SLC	1.2	3	ND	2.2		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.17	0.35	ND	ND		
Sodium	T	mg/Kg-Dry	6	83.3	No SLC	298	298	ND	392	247	231
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.15	0.37	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			2	12.7	7.1	6.9
Zinc	T	mg/Kg-Dry	6	100	No SLC			17.8	74.6	35.2	25.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-9f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Reference Soil at Cater Ranch
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			70.3	98.8	81.2	80.3
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			2470	13500	6550	6020
Antimony	T	mg/Kg-Dry	10	30	No SLC	0.02	0.59	ND	0.05		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.32	1.1	0.62	0.58
Barium	T	mg/Kg-Dry	10	100	No SLC			41.7	110	65.2	57.3
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.08	0.66	0.39	0.43
Boron	T	mg/Kg-Dry	10	100	No SLC			2	12.8	5.5	5
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.037	0.037	ND	0.21	0.077	0.064
Calcium	T	mg/Kg-Dry	10	100	No SLC			3170	23100	11600	8480
Chromium	T	mg/Kg-Dry	10	100	No SLC			3.2	20.2	10.6	10.4
Cobalt	T	mg/Kg-Dry	10	100	No SLC			1.2	4.5	2.6	2.2
Copper	T	mg/Kg-Dry	10	100	No SLC			12	22.7	15.2	14.7
Iron	T	mg/Kg-Dry	10	100	No SLC			2690	16200	7790	7490
Lead	T	mg/Kg-Dry	10	100	No SLC			1.2	8.3	4.5	4.4
Magnesium	T	mg/Kg-Dry	10	100	No SLC			2130	7640	3710	3210
Manganese	T	mg/Kg-Dry	10	100	No SLC			107	296	195	185
Mercury	T	mg/Kg-Dry	10	40	No SLC	0.019	0.034	ND	0.038		
Molybdenum	T	mg/Kg-Dry	10	80	No SLC	0.84	1.7	ND	3	1.3	1.2
Nickel	T	mg/Kg-Dry	10	100	No SLC			3.3	12.1	6.7	5.7
Potassium	T	mg/Kg-Dry	10	100	No SLC			2340	5210	3750	3890
Selenium	T	mg/Kg-Dry	10	80	No SLC	0.018	0.97	ND	1.4	0.4	0.26
Silver	T	mg/Kg-Dry	10	90	No SLC	0.21	0.21	ND	0.14	0.045	0.024
Sodium	T	mg/Kg-Dry	10	80	No SLC	30.6	202	ND	354	238	261
Thallium	T	mg/Kg-Dry	10	80	No SLC	0.099	0.12	ND	0.13	0.066	0.057
Vanadium	T	mg/Kg-Dry	10	100	No SLC			8.4	28.9	15.5	15.3
Zinc	T	mg/Kg-Dry	10	100	No SLC			19.5	57.7	35.3	32.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			30.4	39	33.9	33.5
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			195	748	381	328
Antimony	T	mg/Kg-Dry	9	0	No SLC	0.025	1.3	ND	ND		
Arsenic	T	mg/Kg-Dry	9	66.7	No SLC	0.47	0.63	ND	0.41	0.24	0.23
Barium	T	mg/Kg-Dry	9	100	No SLC			4.2	14.4	9.5	8.7
Beryllium	T	mg/Kg-Dry	9	22.2	No SLC	0.028	0.091	ND	0.041		
Boron	T	mg/Kg-Dry	9	100	No SLC			23.9	76.5	42.5	35
Cadmium	T	mg/Kg-Dry	9	77.8	No SLC	0.53	0.91	ND	1.2	0.59	0.46
Calcium	T	mg/Kg-Dry	9	100	No SLC			6910	9420	7850	7810
Chromium	T	mg/Kg-Dry	9	100	No SLC			0.58	6.4	1.7	0.99
Cobalt	T	mg/Kg-Dry	9	66.7	No SLC	0.54	1.1	ND	0.33	0.29	0.26
Copper	T	mg/Kg-Dry	9	100	No SLC			19.1	47.5	30.2	29.2
Iron	T	mg/Kg-Dry	9	100	No SLC			228	1080	484	406
Lead	T	mg/Kg-Dry	9	88.9	No SLC	0.78	0.78	ND	2.5	1.1	0.84
Magnesium	T	mg/Kg-Dry	9	100	No SLC			1960	2390	2130	2090
Manganese	T	mg/Kg-Dry	9	100	No SLC			58	220	111	108
Mercury	T	mg/Kg-Dry	9	0	No SLC	0.041	0.056	ND	ND		
Molybdenum	T	mg/Kg-Dry	9	100	No SLC			13.5	230	91.4	86.9
Nickel	T	mg/Kg-Dry	9	77.8	No SLC	0.82	0.91	ND	3.6	1.8	2
Potassium	T	mg/Kg-Dry	9	100	No SLC			16000	32800	23600	21500
Selenium	T	mg/Kg-Dry	9	66.7	No SLC	1.2	2	ND	1.5	0.63	0.6
Silver	T	mg/Kg-Dry	9	55.6	No SLC	0.0061	0.6	ND	0.013	0.072	0.013
Sodium	T	mg/Kg-Dry	9	0	No SLC	30.4	406	ND	ND		
Thallium	T	mg/Kg-Dry	9	66.7	No SLC	0.24	0.32	ND	0.016	0.051	0.011
Vanadium	T	mg/Kg-Dry	9	88.9	No SLC	1.1	1.1	ND	2.8	1.1	0.87
Zinc	T	mg/Kg-Dry	9	88.9	No SLC	107	107	ND	245	122	101

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			16.8	35	23.2	22.9
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			187	2270	1020	665
Antimony	T	mg/Kg-Dry	10	0	No SLC	1.1	2.4	ND	ND		
Arsenic	T	mg/Kg-Dry	10	20	No SLC	0.55	0.95	ND	1.4		
Barium	T	mg/Kg-Dry	10	100	No SLC			11	34.6	22.1	23.7
Beryllium	T	mg/Kg-Dry	10	0	No SLC	0.062	0.27	ND	ND		
Boron	T	mg/Kg-Dry	10	100	No SLC			16.9	60.3	33.5	31.3
Cadmium	T	mg/Kg-Dry	10	40	No SLC	0.21	0.32	ND	2.5		
Calcium	T	mg/Kg-Dry	10	100	No SLC			14100	27700	18900	17300
Chromium	T	mg/Kg-Dry	10	70	No SLC	1.5	3.2	ND	7.7	3	2.3
Cobalt	T	mg/Kg-Dry	10	30	No SLC	0.8	1.9	ND	2.2		
Copper	T	mg/Kg-Dry	10	100	No SLC			14.2	60.3	25.4	20.1
Iron	T	mg/Kg-Dry	10	100	No SLC			420	3740	1420	964
Lead	T	mg/Kg-Dry	10	80	No SLC	1.3	1.5	ND	19.1	4.1	2.4
Magnesium	T	mg/Kg-Dry	10	100	No SLC			2790	6370	3870	3570
Manganese	T	mg/Kg-Dry	10	100	No SLC			56.4	427	131	87
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.043	0.089	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			68.3	903	260	179
Nickel	T	mg/Kg-Dry	10	80	No SLC	1.3	1.5	ND	5.3	2.5	2.5
Potassium	T	mg/Kg-Dry	10	100	No SLC			19800	33000	26900	27100
Selenium	T	mg/Kg-Dry	10	0	No SLC	1.8	3.8	ND	ND		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.39	0.93	ND	ND		
Sodium	T	mg/Kg-Dry	10	50	No SLC	146	792	ND	475	258	255
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.23	0.51	ND	ND		
Vanadium	T	mg/Kg-Dry	10	70	No SLC	1.6	2	ND	11.4	4.3	3.8
Zinc	T	mg/Kg-Dry	10	100	No SLC			42.6	203	103	81.1

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			34.9	46.1	41.4	42.1
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			189	900	388	299
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.021	0.87	ND	ND		
Arsenic	T	mg/Kg-Dry	10	70	No SLC	0.36	0.49	ND	0.43	0.23	0.2
Barium	T	mg/Kg-Dry	10	100	No SLC			6.7	16.2	10.8	10.2
Beryllium	T	mg/Kg-Dry	10	20	No SLC	0.021	0.062	ND	0.043		
Boron	T	mg/Kg-Dry	10	100	No SLC			3.8	14.6	7.9	7.3
Cadmium	T	mg/Kg-Dry	10	70	No SLC	0.091	0.17	ND	0.2	0.084	0.06
Calcium	T	mg/Kg-Dry	10	100	No SLC			2150	5510	3670	3680
Chromium	T	mg/Kg-Dry	10	100	No SLC			1.1	4.6	2.3	1.8
Cobalt	T	mg/Kg-Dry	10	70	No SLC	0.45	0.77	ND	0.76	0.28	0.22
Copper	T	mg/Kg-Dry	10	100	No SLC			4.7	19.7	11.1	10.5
Iron	T	mg/Kg-Dry	10	100	No SLC			217	1470	523	388
Lead	T	mg/Kg-Dry	10	90	No SLC	1.2	1.2	ND	3.7	1.5	0.91
Magnesium	T	mg/Kg-Dry	10	100	No SLC			875	1410	1150	1100
Manganese	T	mg/Kg-Dry	10	100	No SLC			31.4	106	59.2	57.8
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.035	0.043	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			20	138	71.5	72.1
Nickel	T	mg/Kg-Dry	10	70	No SLC	0.47	0.62	ND	7.2	1.7	0.81
Potassium	T	mg/Kg-Dry	10	100	No SLC			10400	24900	16500	16200
Selenium	T	mg/Kg-Dry	10	50	No SLC	0.037	1.4	ND	1.6	0.49	0.47
Silver	T	mg/Kg-Dry	10	60	No SLC	0.0046	0.49	ND	0.067	0.061	0.032
Sodium	T	mg/Kg-Dry	10	10	No SLC	26.6	147	ND	127		
Thallium	T	mg/Kg-Dry	10	70	No SLC	0.18	0.24	ND	0.053	0.045	0.027
Vanadium	T	mg/Kg-Dry	10	100	No SLC			0.43	2.4	0.93	0.82
Zinc	T	mg/Kg-Dry	10	90	No SLC	24.7	24.7	ND	119	47	39.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			43.9	58.3	52.2	53.6
Metals											
Aluminum	T	mg/Kg-Dry	9	100	No SLC			945	6970	3170	3510
Antimony	T	mg/Kg-Dry	9	22.2	No SLC	0.017	0.76	ND	0.081		
Arsenic	T	mg/Kg-Dry	9	100	No SLC			0.44	1.6	0.98	0.76
Barium	T	mg/Kg-Dry	9	100	No SLC			12	143	52.3	38.6
Beryllium	T	mg/Kg-Dry	9	44.4	No SLC	0.021	0.5	ND	0.25		
Boron	T	mg/Kg-Dry	9	100	No SLC			5.7	18.7	12.2	12.5
Cadmium	T	mg/Kg-Dry	9	100	No SLC			0.27	2.5	0.86	0.73
Calcium	T	mg/Kg-Dry	9	100	No SLC			3800	23100	10000	6690
Chromium	T	mg/Kg-Dry	9	100	No SLC			2.5	13.7	6.8	5.2
Cobalt	T	mg/Kg-Dry	9	100	No SLC			0.9	3.9	1.9	1.5
Copper	T	mg/Kg-Dry	9	100	No SLC			16	61.7	34.7	37.1
Iron	T	mg/Kg-Dry	9	100	No SLC			1080	8290	3750	3260
Lead	T	mg/Kg-Dry	9	100	No SLC			1.7	24.6	9.2	4.6
Magnesium	T	mg/Kg-Dry	9	100	No SLC			1010	3710	2490	2850
Manganese	T	mg/Kg-Dry	9	100	No SLC			33.6	246	118	115
Mercury	T	mg/Kg-Dry	9	0	No SLC	0.027	0.034	ND	ND		
Molybdenum	T	mg/Kg-Dry	9	100	No SLC			6.9	203	67.4	51.4
Nickel	T	mg/Kg-Dry	9	100	No SLC			2.8	8.1	5	3.8
Potassium	T	mg/Kg-Dry	9	100	No SLC			4800	10700	7800	7210
Selenium	T	mg/Kg-Dry	9	66.7	No SLC	0.81	1.2	ND	1.2	0.36	0.13
Silver	T	mg/Kg-Dry	9	66.7	No SLC	0.15	0.38	ND	0.13	0.086	0.072
Sodium	T	mg/Kg-Dry	9	77.8	No SLC	143	218	ND	706	411	487
Thallium	T	mg/Kg-Dry	9	66.7	No SLC	0.15	0.23	ND	0.067	0.062	0.06
Vanadium	T	mg/Kg-Dry	9	100	No SLC			3	25.2	9.4	7.4
Zinc	T	mg/Kg-Dry	9	77.8	No SLC	23.6	40.5	ND	177	59.4	47

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			22	54	34.8	32.4
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			1480	6550	2950	2270
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.77	1.6	ND	ND		
Arsenic	T	mg/Kg-Dry	10	80	No SLC	0.49	0.53	ND	1.9	0.88	0.84
Barium	T	mg/Kg-Dry	10	100	No SLC			17	72.8	42.1	40.9
Beryllium	T	mg/Kg-Dry	10	10	No SLC	0.053	0.5	ND	0.096		
Boron	T	mg/Kg-Dry	10	100	No SLC			13.6	27.1	19.5	17.6
Cadmium	T	mg/Kg-Dry	10	50	No SLC	0.13	0.56	ND	2.2	0.54	0.28
Calcium	T	mg/Kg-Dry	10	100	No SLC			8690	19400	13900	14400
Chromium	T	mg/Kg-Dry	10	100	No SLC			2.5	17.3	7.9	6.5
Cobalt	T	mg/Kg-Dry	10	100	No SLC			0.88	4.5	1.9	1.7
Copper	T	mg/Kg-Dry	10	100	No SLC			10.7	43.8	24.1	21.6
Iron	T	mg/Kg-Dry	10	100	No SLC			1660	8640	3340	2930
Lead	T	mg/Kg-Dry	10	100	No SLC			1.9	18.2	7.1	5.2
Magnesium	T	mg/Kg-Dry	10	100	No SLC			865	4390	2370	2380
Manganese	T	mg/Kg-Dry	10	100	No SLC			51.3	286	119	94.5
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.03	0.068	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			30.5	833	332	252
Nickel	T	mg/Kg-Dry	10	100	No SLC			1.9	9.5	4.6	4.5
Potassium	T	mg/Kg-Dry	10	100	No SLC			3640	24100	9450	6740
Selenium	T	mg/Kg-Dry	10	0	No SLC	1.3	2.5	ND	ND		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.25	0.84	ND	ND		
Sodium	T	mg/Kg-Dry	10	70	No SLC	263	664	ND	1430	777	838
Thallium	T	mg/Kg-Dry	10	10	No SLC	0.16	0.41	ND	0.31		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			5.2	14.5	8.7	8
Zinc	T	mg/Kg-Dry	10	100	No SLC			23.6	120	57.3	46.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-10f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Soil Area 14 - Tailings Impoundments
Summary of Results

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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			70.9	88.6	82.1	83.1
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			2960	15400	10100	9780
Antimony	T	mg/Kg-Dry	10	30	No SLC	0.059	0.52	ND	0.11		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.78	3.8	2.5	2.9
Barium	T	mg/Kg-Dry	10	100	No SLC			28.3	243	109	93
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.19	1.2	0.64	0.57
Boron	T	mg/Kg-Dry	10	100	No SLC			1.7	7.9	5.2	5.5
Cadmium	T	mg/Kg-Dry	10	80	No SLC	0.0047	0.061	ND	1.7	0.36	0.23
Calcium	T	mg/Kg-Dry	10	100	No SLC			4000	31500	13700	9410
Chromium	T	mg/Kg-Dry	10	100	No SLC			7.1	22	14.2	14.3
Cobalt	T	mg/Kg-Dry	10	100	No SLC			1.3	9.3	4.1	3.1
Copper	T	mg/Kg-Dry	10	100	No SLC			14.3	111	45.2	36.2
Iron	T	mg/Kg-Dry	10	100	No SLC			3350	17700	10700	10800
Lead	T	mg/Kg-Dry	10	100	No SLC			5	33.3	19.1	16.2
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1310	4550	3570	3730
Manganese	T	mg/Kg-Dry	10	100	No SLC			146	621	293	284
Mercury	T	mg/Kg-Dry	10	40	No SLC	0.018	0.023	ND	0.042		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			6.4	94.5	49.3	50.6
Nickel	T	mg/Kg-Dry	10	100	No SLC			4.9	19.3	11.2	9.9
Potassium	T	mg/Kg-Dry	10	100	No SLC			2520	4040	2990	2880
Selenium	T	mg/Kg-Dry	10	70	No SLC	0.021	0.85	ND	1.2	0.52	0.35
Silver	T	mg/Kg-Dry	10	90	No SLC	0.27	0.27	ND	0.3	0.15	0.13
Sodium	T	mg/Kg-Dry	10	60	No SLC	26.5	56.9	ND	341	140	162
Thallium	T	mg/Kg-Dry	10	80	No SLC	0.11	0.11	ND	0.16	0.085	0.076
Vanadium	T	mg/Kg-Dry	10	100	No SLC			6.8	28.7	20.9	22.3
Zinc	T	mg/Kg-Dry	10	90	No SLC	26	26	ND	118	74.1	67.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
 ND = Non Detected Value

Table 9-11a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			32.9	41.8	37.7	38.6
Metals											
Aluminum	T	mg/Kg-Dry	10	70	No SLC	102	119	ND	395	127	87.2
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.075	0.47	ND	ND		
Arsenic	T	mg/Kg-Dry	10	0	No SLC	0.075	0.47	ND	ND		
Barium	T	mg/Kg-Dry	10	100	No SLC			6.6	44.4	24.2	22.3
Beryllium	T	mg/Kg-Dry	10	10	No SLC	0.029	0.069	ND	0.059		
Boron	T	mg/Kg-Dry	10	100	No SLC			5.5	63.2	26.1	27.4
Cadmium	T	mg/Kg-Dry	10	50	No SLC	0.054	0.16	ND	3.5	0.87	0.44
Calcium	T	mg/Kg-Dry	10	100	No SLC			9610	29900	16400	16000
Chromium	T	mg/Kg-Dry	10	20	No SLC	0.62	1.2	ND	2.8		
Cobalt	T	mg/Kg-Dry	10	40	No SLC	0.39	0.78	ND	0.79		
Copper	T	mg/Kg-Dry	10	100	No SLC			4.1	13.3	7.9	7.6
Iron	T	mg/Kg-Dry	10	100	No SLC			120	571	219	168
Lead	T	mg/Kg-Dry	10	30	No SLC	0.61	1.3	ND	0.85		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1870	5500	3300	3010
Manganese	T	mg/Kg-Dry	10	100	No SLC			58.4	590	256	231
Mercury	T	mg/Kg-Dry	10	10	No SLC	0.036	0.052	ND	0.077		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			0.32	5.8	1.7	0.76
Nickel	T	mg/Kg-Dry	10	90	No SLC	2.8	2.8	ND	10.2	4.4	3.8
Potassium	T	mg/Kg-Dry	10	100	No SLC			3770	17300	10100	9630
Selenium	T	mg/Kg-Dry	10	20	No SLC	0.091	0.47	ND	0.18		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.26	1.2	ND	ND		
Sodium	T	mg/Kg-Dry	10	50	No SLC	108	232	ND	196	117	125
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.05	0.23	ND	ND		
Vanadium	T	mg/Kg-Dry	10	10	No SLC	0.29	0.86	ND	0.93		
Zinc	T	mg/Kg-Dry	10	100	No SLC			34.5	279	126	110

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-11b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			17.3	30.9	23.4	21.9
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			55.3	943	384	352
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.12	0.87	ND	ND		
Arsenic	T	mg/Kg-Dry	10	10	No SLC	0.12	0.87	ND	0.14		
Barium	T	mg/Kg-Dry	10	100	No SLC			18.2	67.6	43.7	43
Beryllium	T	mg/Kg-Dry	10	0	No SLC	0.049	0.098	ND	ND		
Boron	T	mg/Kg-Dry	10	100	No SLC			25.6	78.3	38.8	33.5
Cadmium	T	mg/Kg-Dry	10	60	No SLC	0.14	0.28	ND	1.1	0.32	0.17
Calcium	T	mg/Kg-Dry	10	100	No SLC			11400	29100	17700	15600
Chromium	T	mg/Kg-Dry	10	40	No SLC	1.1	2.5	ND	6.8		
Cobalt	T	mg/Kg-Dry	10	10	No SLC	0.51	1.1	ND	0.71		
Copper	T	mg/Kg-Dry	10	100	No SLC			4.7	17.7	8.7	7.1
Iron	T	mg/Kg-Dry	10	100	No SLC			104	1820	687	606
Lead	T	mg/Kg-Dry	10	30	No SLC	0.49	2.9	ND	1.8		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			2460	6550	3850	3440
Manganese	T	mg/Kg-Dry	10	100	No SLC			75.7	342	140	114
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.052	0.087	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			0.53	30.7	4.7	1.6
Nickel	T	mg/Kg-Dry	10	30	No SLC	3.2	6.4	ND	6.4		
Potassium	T	mg/Kg-Dry	10	100	No SLC			17500	44100	24300	21800
Selenium	T	mg/Kg-Dry	10	30	No SLC	0.49	0.87	ND	1		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.35	1.7	ND	ND		
Sodium	T	mg/Kg-Dry	10	20	No SLC	134	522	ND	334		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.041	0.46	ND	ND		
Vanadium	T	mg/Kg-Dry	10	50	No SLC	0.68	1.3	ND	3.2	1.1	0.76
Zinc	T	mg/Kg-Dry	10	100	No SLC			28.3	305	87.7	56.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-11c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			26.6	50.4	39.7	39.3
Metals											
Aluminum	T	mg/Kg-Dry	10	90	No SLC	66	66	ND	326	120	83.1
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.074	0.6	ND	ND		
Arsenic	T	mg/Kg-Dry	10	20	No SLC	0.34	0.6	ND	0.11		
Barium	T	mg/Kg-Dry	10	100	No SLC			6.4	62.3	30.4	27.8
Beryllium	T	mg/Kg-Dry	10	0	No SLC	0.032	0.066	ND	ND		
Boron	T	mg/Kg-Dry	10	80	No SLC	4.2	4.3	ND	8	4.9	4.5
Cadmium	T	mg/Kg-Dry	10	40	No SLC	0.05	0.2	ND	0.27		
Calcium	T	mg/Kg-Dry	10	100	No SLC			3140	7770	5420	5450
Chromium	T	mg/Kg-Dry	10	50	No SLC	0.75	1.9	ND	4.7	1.6	1
Cobalt	T	mg/Kg-Dry	10	0	No SLC	0.3	0.74	ND	ND		
Copper	T	mg/Kg-Dry	10	100	No SLC			1.8	7.7	4.2	4
Iron	T	mg/Kg-Dry	10	100	No SLC			80	1250	279	157
Lead	T	mg/Kg-Dry	10	30	No SLC	0.3	2.1	ND	3.7		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			671	2360	1450	1470
Manganese	T	mg/Kg-Dry	10	100	No SLC			39.9	612	202	135
Mercury	T	mg/Kg-Dry	10	10	No SLC	0.032	0.06	ND	0.047		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			0.47	30.6	4.6	1.6
Nickel	T	mg/Kg-Dry	10	0	No SLC	0.46	3.6	ND	ND		
Potassium	T	mg/Kg-Dry	10	100	No SLC			7120	21200	13300	11700
Selenium	T	mg/Kg-Dry	10	20	No SLC	0.34	0.6	ND	0.4		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.22	1.5	ND	ND		
Sodium	T	mg/Kg-Dry	10	20	No SLC	87.7	272	ND	138		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.025	0.3	ND	ND		
Vanadium	T	mg/Kg-Dry	10	20	No SLC	0.32	0.75	ND	0.95		
Zinc	T	mg/Kg-Dry	10	100	No SLC			15	57	35	35.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-11d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			44.2	57.4	50	49.2
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			2010	9080	4460	3850
Antimony	T	mg/Kg-Dry	10	20	No SLC	0.061	0.36	ND	0.088		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.41	4.6	1.7	1.4
Barium	T	mg/Kg-Dry	10	100	No SLC			33.5	334	119	98.2
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.17	1.1	0.41	0.37
Boron	T	mg/Kg-Dry	10	90	No SLC	6.7	6.7	ND	16.6	7.3	6.5
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.29	0.29	ND	2.2	0.88	0.53
Calcium	T	mg/Kg-Dry	10	100	No SLC			4940	23500	9390	7850
Chromium	T	mg/Kg-Dry	10	100	No SLC			3.4	17	10.1	10.3
Cobalt	T	mg/Kg-Dry	10	100	No SLC			1.9	9.4	4.6	4.5
Copper	T	mg/Kg-Dry	10	100	No SLC			10.3	113	32.9	17.8
Iron	T	mg/Kg-Dry	10	100	No SLC			2650	16200	9040	6840
Lead	T	mg/Kg-Dry	10	100	No SLC			4.2	38.2	15.9	12.8
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1610	4160	2720	2670
Manganese	T	mg/Kg-Dry	10	100	No SLC			172	611	325	264
Mercury	T	mg/Kg-Dry	10	20	No SLC	0.026	0.046	ND	0.049		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			0.7	70.4	10.4	1.8
Nickel	T	mg/Kg-Dry	10	100	No SLC			4.1	28.5	10.9	9.1
Potassium	T	mg/Kg-Dry	10	100	No SLC			2880	5010	3750	3540
Selenium	T	mg/Kg-Dry	10	60	No SLC	0.32	2.2	ND	0.86	0.52	0.48
Silver	T	mg/Kg-Dry	10	10	No SLC	0.22	0.84	ND	0.34		
Sodium	T	mg/Kg-Dry	10	10	No SLC	82.2	157	ND	206		
Thallium	T	mg/Kg-Dry	10	30	No SLC	0.11	0.18	ND	0.066		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			4.4	26.2	12.7	10.8
Zinc	T	mg/Kg-Dry	10	100	No SLC			68.6	278	139	104

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-11e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			33.5	54.1	42.9	40.3
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			2900	15100	6870	6390
Antimony	T	mg/Kg-Dry	10	20	No SLC	0.22	0.48	ND	0.082		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.78	7.1	2.5	2.1
Barium	T	mg/Kg-Dry	10	100	No SLC			80	278	136	118
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.22	0.93	0.48	0.41
Boron	T	mg/Kg-Dry	10	90	No SLC	13.7	13.7	ND	19	10.4	10
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.053	0.053	ND	2.4	0.71	0.49
Calcium	T	mg/Kg-Dry	10	100	No SLC			2620	13200	7700	7680
Chromium	T	mg/Kg-Dry	10	100	No SLC			4.9	36.2	14.4	13.3
Cobalt	T	mg/Kg-Dry	10	100	No SLC			2.1	12.6	5.9	5.4
Copper	T	mg/Kg-Dry	10	100	No SLC			10.5	197	53	20.4
Iron	T	mg/Kg-Dry	10	100	No SLC			4780	30400	13400	13100
Lead	T	mg/Kg-Dry	10	100	No SLC			10.1	86.9	30.5	23.3
Magnesium	T	mg/Kg-Dry	10	100	No SLC			2120	9330	4450	3940
Manganese	T	mg/Kg-Dry	10	100	No SLC			251	806	387	348
Mercury	T	mg/Kg-Dry	10	40	No SLC	0.028	0.04	ND	1.5		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			1	161	23.9	3.7
Nickel	T	mg/Kg-Dry	10	100	No SLC			4.7	39.8	14.1	12.3
Potassium	T	mg/Kg-Dry	10	100	No SLC			3180	12000	6950	6180
Selenium	T	mg/Kg-Dry	10	70	No SLC	0.38	0.48	ND	2.7	0.75	0.45
Silver	T	mg/Kg-Dry	10	10	No SLC	0.22	1.2	ND	0.87		
Sodium	T	mg/Kg-Dry	10	30	No SLC	84	230	ND	707		
Thallium	T	mg/Kg-Dry	10	30	No SLC	0.11	0.24	ND	0.58		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			7	60.7	20.7	15.9
Zinc	T	mg/Kg-Dry	10	100	No SLC			67.6	343	138	119

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-11f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Reference for Mine Site Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			35.7	79	57.5	58.5
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			4610	13000	9520	9250
Antimony	T	mg/Kg-Dry	10	30	No SLC	0.2	0.45	ND	0.093		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			1.6	4.8	2.9	2.4
Barium	T	mg/Kg-Dry	10	100	No SLC			70.5	414	178	109
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.28	0.97	0.75	0.81
Boron	T	mg/Kg-Dry	10	70	No SLC	0.47	0.73	ND	12	3.3	2.6
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.041	0.041	ND	1.7	0.8	0.7
Calcium	T	mg/Kg-Dry	10	100	No SLC			3480	15200	7520	6670
Chromium	T	mg/Kg-Dry	10	100	No SLC			7.5	35.5	19.6	19.8
Cobalt	T	mg/Kg-Dry	10	100	No SLC			3	12.6	9.1	8.4
Copper	T	mg/Kg-Dry	10	100	No SLC			15.4	143	47.7	19.9
Iron	T	mg/Kg-Dry	10	100	No SLC			7440	26700	18500	18100
Lead	T	mg/Kg-Dry	10	100	No SLC			8.5	76.6	35.1	27.1
Magnesium	T	mg/Kg-Dry	10	100	No SLC			2910	6750	4630	4250
Manganese	T	mg/Kg-Dry	10	100	No SLC			390	961	612	525
Mercury	T	mg/Kg-Dry	10	70	No SLC	0.024	0.03	ND	0.07	0.032	0.032
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			0.8	143	19.6	2.3
Nickel	T	mg/Kg-Dry	10	100	No SLC			6	28.4	18.1	16.9
Potassium	T	mg/Kg-Dry	10	100	No SLC			2010	6500	3430	3350
Selenium	T	mg/Kg-Dry	10	70	No SLC	0.4	2.7	ND	1.3	0.81	0.75
Silver	T	mg/Kg-Dry	10	30	No SLC	0.13	0.31	ND	0.64		
Sodium	T	mg/Kg-Dry	10	20	No SLC	69	118	ND	86.6		
Thallium	T	mg/Kg-Dry	10	50	No SLC	0.11	0.22	ND	0.19	0.11	0.11
Vanadium	T	mg/Kg-Dry	10	100	No SLC			12	39	26	22.6
Zinc	T	mg/Kg-Dry	10	100	No SLC			65	248	142	137

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			30.1	46.7	40.9	42.1
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			33.9	544	204	110
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.34	0.66	ND	ND		
Arsenic	T	mg/Kg-Dry	10	0	No SLC	0.34	0.44	ND	ND		
Barium	T	mg/Kg-Dry	10	100	No SLC			4.5	59.6	16.9	11.5
Beryllium	T	mg/Kg-Dry	10	20	No SLC	0.03	0.073	ND	0.13		
Boron	T	mg/Kg-Dry	10	100	No SLC			12.5	83.9	37.5	26.3
Cadmium	T	mg/Kg-Dry	10	70	No SLC	0.1	0.17	ND	4.1	1.6	1.1
Calcium	T	mg/Kg-Dry	10	100	No SLC			8730	28900	16000	13500
Chromium	T	mg/Kg-Dry	10	70	No SLC	0.63	1.1	ND	5.1	1.1	0.58
Cobalt	T	mg/Kg-Dry	10	50	No SLC	0.32	0.83	ND	1.2	0.46	0.38
Copper	T	mg/Kg-Dry	10	100	No SLC			3	15.6	7.7	7
Iron	T	mg/Kg-Dry	10	90	No SLC	133	133	ND	661	250	120
Lead	T	mg/Kg-Dry	10	20	No SLC	0.32	2	ND	2.1		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1500	5350	3300	2840
Manganese	T	mg/Kg-Dry	10	100	No SLC			42.8	1120	293	204
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.033	0.053	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			1.5	46.1	10.1	3.5
Nickel	T	mg/Kg-Dry	10	90	No SLC	2	2	ND	9.8	4.5	4.3
Potassium	T	mg/Kg-Dry	10	100	No SLC			5250	12600	8160	8030
Selenium	T	mg/Kg-Dry	10	10	No SLC	0.34	1.7	ND	0.68		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.21	0.47	ND	ND		
Sodium	T	mg/Kg-Dry	10	10	No SLC	80.7	218	ND	129		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.17	0.22	ND	ND		
Vanadium	T	mg/Kg-Dry	10	40	No SLC	0.34	0.93	ND	0.95		
Zinc	T	mg/Kg-Dry	10	90	No SLC	13.1	13.1	ND	374	185	178

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			13.9	36.4	23.9	21.6
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			58.3	2740	761	359
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.093	1.7	ND	ND		
Arsenic	T	mg/Kg-Dry	10	10	No SLC	0.093	1.2	ND	1.7		
Barium	T	mg/Kg-Dry	10	100	No SLC			3.4	127	54	40.3
Beryllium	T	mg/Kg-Dry	10	20	No SLC	0.047	0.12	ND	0.23		
Boron	T	mg/Kg-Dry	10	100	No SLC			20.5	49.4	29.8	27.8
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.19	0.19	ND	4.9	1.6	1.1
Calcium	T	mg/Kg-Dry	10	100	No SLC			5480	35700	14100	11600
Chromium	T	mg/Kg-Dry	10	70	No SLC	1.2	3.3	ND	8.7	2.7	1.6
Cobalt	T	mg/Kg-Dry	10	30	No SLC	0.5	1.5	ND	4		
Copper	T	mg/Kg-Dry	10	90	No SLC	5.3	5.3	ND	34	15.1	13.8
Iron	T	mg/Kg-Dry	10	100	No SLC			108	7070	1630	577
Lead	T	mg/Kg-Dry	10	50	No SLC	1	4.5	ND	19.3	4.6	1.7
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1750	9360	3720	3130
Manganese	T	mg/Kg-Dry	10	100	No SLC			32.7	729	234	142
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.044	0.11	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			4.6	35.6	12.8	11.6
Nickel	T	mg/Kg-Dry	10	70	No SLC	3.1	6.4	ND	9.7	4.6	4.2
Potassium	T	mg/Kg-Dry	10	100	No SLC			14800	52100	29300	28700
Selenium	T	mg/Kg-Dry	10	20	No SLC	0.093	4.7	ND	1.5		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.26	0.86	ND	ND		
Sodium	T	mg/Kg-Dry	10	10	No SLC	102	1060	ND	289		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.062	0.58	ND	ND		
Vanadium	T	mg/Kg-Dry	10	50	No SLC	0.65	1.5	ND	7.7	2	0.73
Zinc	T	mg/Kg-Dry	10	100	No SLC			46.1	330	131	106

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			30.1	48.9	38.5	37.5
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			49.1	509	139	107
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.29	0.64	ND	ND		
Arsenic	T	mg/Kg-Dry	10	0	No SLC	0.29	0.53	ND	ND		
Barium	T	mg/Kg-Dry	10	100	No SLC			9.5	43.6	22.7	23.3
Beryllium	T	mg/Kg-Dry	10	10	No SLC	0.031	0.072	ND	0.043		
Boron	T	mg/Kg-Dry	10	100	No SLC			4.3	10.7	7.4	6.8
Cadmium	T	mg/Kg-Dry	10	20	No SLC	0.071	0.3	ND	0.82		
Calcium	T	mg/Kg-Dry	10	100	No SLC			4290	7520	6230	6620
Chromium	T	mg/Kg-Dry	10	70	No SLC	1	1.5	ND	5.1	1.5	0.73
Cobalt	T	mg/Kg-Dry	10	0	No SLC	0.28	0.81	ND	ND		
Copper	T	mg/Kg-Dry	10	100	No SLC			4.2	10.1	7.4	7.7
Iron	T	mg/Kg-Dry	10	90	No SLC	150	150	ND	912	260	196
Lead	T	mg/Kg-Dry	10	30	No SLC	0.51	2	ND	2.9		
Magnesium	T	mg/Kg-Dry	10	100	No SLC			965	2190	1810	1910
Manganese	T	mg/Kg-Dry	10	100	No SLC			48.6	605	177	124
Mercury	T	mg/Kg-Dry	10	10	No SLC	0.033	0.05	ND	0.043		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			2.2	48.5	13.1	6.5
Nickel	T	mg/Kg-Dry	10	10	No SLC	0.28	2.7	ND	1		
Potassium	T	mg/Kg-Dry	10	100	No SLC			10600	28100	18800	18600
Selenium	T	mg/Kg-Dry	10	0	No SLC	0.29	1.7	ND	ND		
Silver	T	mg/Kg-Dry	10	0	No SLC	0.22	0.45	ND	ND		
Sodium	T	mg/Kg-Dry	10	20	No SLC	85.9	216	ND	134		
Thallium	T	mg/Kg-Dry	10	0	No SLC	0.15	0.26	ND	ND		
Vanadium	T	mg/Kg-Dry	10	20	No SLC	0.33	0.93	ND	1.2		
Zinc	T	mg/Kg-Dry	10	100	No SLC			24.4	124	53.2	43.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			36.2	56.2	49.1	50.8
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			1350	7350	2900	2370
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.24	0.66	ND	ND		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.39	3.6	1.3	0.8
Barium	T	mg/Kg-Dry	10	100	No SLC			38.5	255	110	106
Beryllium	T	mg/Kg-Dry	10	90	No SLC	0.22	0.22	ND	0.64	0.27	0.26
Boron	T	mg/Kg-Dry	10	100	No SLC			6.2	19.8	10.2	8
Cadmium	T	mg/Kg-Dry	10	90	No SLC	0.28	0.28	ND	2	1	0.88
Calcium	T	mg/Kg-Dry	10	100	No SLC			3810	10700	7610	7970
Chromium	T	mg/Kg-Dry	10	100	No SLC			3	17.1	6.7	5
Cobalt	T	mg/Kg-Dry	10	100	No SLC			0.86	5.1	3.3	4.1
Copper	T	mg/Kg-Dry	10	100	No SLC			19.7	46.8	31.5	30.3
Iron	T	mg/Kg-Dry	10	100	No SLC			2260	12400	6120	4940
Lead	T	mg/Kg-Dry	10	100	No SLC			6.3	42.7	18.1	14.7
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1220	2710	2100	2080
Manganese	T	mg/Kg-Dry	10	100	No SLC			64.2	678	297	288
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.025	0.041	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			4.2	117	23	12.8
Nickel	T	mg/Kg-Dry	10	100	No SLC			2.8	14.4	9.1	9.9
Potassium	T	mg/Kg-Dry	10	100	No SLC			2500	9780	4390	3770
Selenium	T	mg/Kg-Dry	10	30	No SLC	0.24	1.8	ND	1.2		
Silver	T	mg/Kg-Dry	10	40	No SLC	0.15	0.41	ND	0.55		
Sodium	T	mg/Kg-Dry	10	40	No SLC	87.3	279	ND	153		
Thallium	T	mg/Kg-Dry	10	10	No SLC	0.11	0.22	ND	0.14		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			2.8	15.8	7.1	5.8
Zinc	T	mg/Kg-Dry	10	100	No SLC			49.4	223	135	148

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			28.6	55	39.7	39.4
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			1200	8220	3280	2670
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.29	0.84	ND	ND		
Arsenic	T	mg/Kg-Dry	10	80	No SLC	0.41	0.56	ND	5.1	1.4	0.8
Barium	T	mg/Kg-Dry	10	100	No SLC			45.8	307	128	86.6
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.06	0.64	0.3	0.26
Boron	T	mg/Kg-Dry	10	100	No SLC			4.7	26.9	13.6	12.5
Cadmium	T	mg/Kg-Dry	10	100	No SLC			0.53	3.6	1.4	1.2
Calcium	T	mg/Kg-Dry	10	100	No SLC			3300	17800	6260	4570
Chromium	T	mg/Kg-Dry	10	100	No SLC			2.7	24.9	8	5.6
Cobalt	T	mg/Kg-Dry	10	100	No SLC			1.2	8.4	4	2.6
Copper	T	mg/Kg-Dry	10	100	No SLC			18.5	77.3	40.7	30.5
Iron	T	mg/Kg-Dry	10	100	No SLC			2220	21600	7850	5580
Lead	T	mg/Kg-Dry	10	100	No SLC			7.8	58.4	22.6	19.2
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1930	4530	2880	2850
Manganese	T	mg/Kg-Dry	10	100	No SLC			107	507	315	282
Mercury	T	mg/Kg-Dry	10	0	No SLC	0.027	0.054	ND	ND		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			8.4	132	32	19.7
Nickel	T	mg/Kg-Dry	10	100	No SLC			4.4	22.1	12.9	13
Potassium	T	mg/Kg-Dry	10	100	No SLC			4590	18200	10300	9630
Selenium	T	mg/Kg-Dry	10	30	No SLC	0.33	2.2	ND	1.7		
Silver	T	mg/Kg-Dry	10	10	No SLC	0.21	0.42	ND	0.38		
Sodium	T	mg/Kg-Dry	10	50	No SLC	97.4	652	ND	392	184	161
Thallium	T	mg/Kg-Dry	10	10	No SLC	0.15	0.28	ND	0.18		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			3.3	23.8	9	6.8
Zinc	T	mg/Kg-Dry	10	100	No SLC			67.5	224	136	136

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-12f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Soil Area 9 - Red River Riparian along Mine Site
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	10	100	No SLC			42.2	65.7	57.2	60.8
Metals											
Aluminum	T	mg/Kg-Dry	10	100	No SLC			3290	9650	7110	7480
Antimony	T	mg/Kg-Dry	10	0	No SLC	0.18	0.55	ND	ND		
Arsenic	T	mg/Kg-Dry	10	100	No SLC			0.91	5	3	2.8
Barium	T	mg/Kg-Dry	10	100	No SLC			98.8	477	208	176
Beryllium	T	mg/Kg-Dry	10	100	No SLC			0.27	0.84	0.64	0.7
Boron	T	mg/Kg-Dry	10	90	No SLC	0.63	0.63	ND	5.4	2.7	2.3
Cadmium	T	mg/Kg-Dry	10	100	No SLC			0.34	19.2	3	1.3
Calcium	T	mg/Kg-Dry	10	100	No SLC			3650	10300	5540	4410
Chromium	T	mg/Kg-Dry	10	100	No SLC			4.7	23	16.4	18.3
Cobalt	T	mg/Kg-Dry	10	100	No SLC			3.1	15.3	8.1	7.8
Copper	T	mg/Kg-Dry	10	100	No SLC			24.6	80.5	60.3	65.7
Iron	T	mg/Kg-Dry	10	100	No SLC			6400	26500	15800	15800
Lead	T	mg/Kg-Dry	10	100	No SLC			15.3	87.8	48	52.6
Magnesium	T	mg/Kg-Dry	10	100	No SLC			1920	4820	3670	4090
Manganese	T	mg/Kg-Dry	10	100	No SLC			229	971	599	615
Mercury	T	mg/Kg-Dry	10	30	No SLC	0.024	0.038	ND	0.048		
Molybdenum	T	mg/Kg-Dry	10	100	No SLC			11.6	914	124	32
Nickel	T	mg/Kg-Dry	10	100	No SLC			7.8	34.2	19.8	20.2
Potassium	T	mg/Kg-Dry	10	100	No SLC			2850	7090	4170	3870
Selenium	T	mg/Kg-Dry	10	30	No SLC	0.78	2.4	ND	1.2		
Silver	T	mg/Kg-Dry	10	70	No SLC	0.23	0.28	ND	0.58	0.31	0.26
Sodium	T	mg/Kg-Dry	10	40	No SLC	79.9	396	ND	128		
Thallium	T	mg/Kg-Dry	10	40	No SLC	0.12	0.18	ND	0.17		
Vanadium	T	mg/Kg-Dry	10	100	No SLC			7.3	27.9	18.4	18.6
Zinc	T	mg/Kg-Dry	10	100	No SLC			122	419	198	169

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	4	100	No SLC			37.9	44.8	41.3	41.2
Metals											
Aluminum	T	mg/Kg-Dry	4	100	No SLC			78.6	152	104	93
Antimony	T	mg/Kg-Dry	4	0	No SLC	0.45	0.63	ND	ND		
Arsenic	T	mg/Kg-Dry	4	0	No SLC	0.34	0.45	ND	ND		
Barium	T	mg/Kg-Dry	4	100	No SLC			19.7	30.3	23.3	21.6
Beryllium	T	mg/Kg-Dry	4	0	No SLC	0.033	0.044	ND	ND		
Boron	T	mg/Kg-Dry	4	100	No SLC			27	104	51	36.5
Cadmium	T	mg/Kg-Dry	4	100	No SLC			0.33	2.1	1.3	1.4
Calcium	T	mg/Kg-Dry	4	100	No SLC			21400	30000	24900	24100
Chromium	T	mg/Kg-Dry	4	75	No SLC	1	1	ND	0.83	0.68	0.69
Cobalt	T	mg/Kg-Dry	4	50	No SLC	0.47	0.47	ND	1.5	0.69	0.51
Copper	T	mg/Kg-Dry	4	100	No SLC			3.4	7	5.2	5.3
Iron	T	mg/Kg-Dry	4	100	No SLC			96.6	161	130	132
Lead	T	mg/Kg-Dry	4	50	No SLC	0.19	0.32	ND	0.42	0.27	0.28
Magnesium	T	mg/Kg-Dry	4	100	No SLC			3570	5150	4390	4420
Manganese	T	mg/Kg-Dry	4	100	No SLC			30	187	115	121
Mercury	T	mg/Kg-Dry	4	0	No SLC	0.037	0.042	ND	ND		
Molybdenum	T	mg/Kg-Dry	4	50	No SLC	0.4	0.65	ND	1.1	0.58	0.5
Nickel	T	mg/Kg-Dry	4	0	No SLC	2.2	2.9	ND	ND		
Potassium	T	mg/Kg-Dry	4	100	No SLC			6940	10400	9180	9690
Selenium	T	mg/Kg-Dry	4	0	No SLC	0.9	1.7	ND	ND		
Silver	T	mg/Kg-Dry	4	0	No SLC	0.25	0.31	ND	ND		
Sodium	T	mg/Kg-Dry	4	0	No SLC	94.1	160	ND	ND		
Thallium	T	mg/Kg-Dry	4	0	No SLC	0.17	0.22	ND	ND		
Vanadium	T	mg/Kg-Dry	4	0	No SLC	0.47	0.61	ND	ND		
Zinc	T	mg/Kg-Dry	4	100	No SLC			104	512	291	274

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	5	100	No SLC			15.9	26.3	21	20.8
Metals											
Aluminum	T	mg/Kg-Dry	5	100	No SLC			147	578	369	350
Antimony	T	mg/Kg-Dry	5	0	No SLC	0.61	1.5	ND	ND		
Arsenic	T	mg/Kg-Dry	5	20	No SLC	0.6	1	ND	1.4		
Barium	T	mg/Kg-Dry	5	100	No SLC			18.2	69.5	33.9	26.2
Beryllium	T	mg/Kg-Dry	5	0	No SLC	0.061	0.2	ND	ND		
Boron	T	mg/Kg-Dry	5	100	No SLC			14.5	40.9	28.2	28.3
Cadmium	T	mg/Kg-Dry	5	60	No SLC	0.1	0.13	ND	0.57	0.32	0.38
Calcium	T	mg/Kg-Dry	5	100	No SLC			11000	21900	16800	18300
Chromium	T	mg/Kg-Dry	5	100	No SLC			1.2	2.9	1.7	1.5
Cobalt	T	mg/Kg-Dry	5	0	No SLC	0.52	0.94	ND	ND		
Copper	T	mg/Kg-Dry	5	100	No SLC			6.8	20.8	14.6	13.5
Iron	T	mg/Kg-Dry	5	100	No SLC			271	1040	624	552
Lead	T	mg/Kg-Dry	5	60	No SLC	0.56	0.82	ND	1.9	1.1	1.1
Magnesium	T	mg/Kg-Dry	5	100	No SLC			2360	4440	3290	3230
Manganese	T	mg/Kg-Dry	5	100	No SLC			69.2	253	117	94.3
Mercury	T	mg/Kg-Dry	5	0	No SLC	0.061	0.11	ND	ND		
Molybdenum	T	mg/Kg-Dry	5	80	No SLC	2.5	2.5	ND	21.2	6.1	2
Nickel	T	mg/Kg-Dry	5	20	No SLC	4.2	5.8	ND	1.9		
Potassium	T	mg/Kg-Dry	5	100	No SLC			15200	60600	39300	39100
Selenium	T	mg/Kg-Dry	5	20	No SLC	0.61	4	ND	4.9		
Silver	T	mg/Kg-Dry	5	0	No SLC	0.42	0.58	ND	ND		
Sodium	T	mg/Kg-Dry	5	40	No SLC	202	220	ND	273		
Thallium	T	mg/Kg-Dry	5	0	No SLC	0.3	0.5	ND	ND		
Vanadium	T	mg/Kg-Dry	5	40	No SLC	0.56	1.1	ND	1.6		
Zinc	T	mg/Kg-Dry	5	100	No SLC			51	118	84	95.6

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	5	100	No SLC			21.6	35.6	28.3	26.6
Metals											
Aluminum	T	mg/Kg-Dry	5	100	No SLC			67.6	173	119	116
Antimony	T	mg/Kg-Dry	5	0	No SLC	0.62	1.1	ND	ND		
Arsenic	T	mg/Kg-Dry	5	0	No SLC	0.39	0.74	ND	ND		
Barium	T	mg/Kg-Dry	5	100	No SLC			11.7	24.5	19.8	21.7
Beryllium	T	mg/Kg-Dry	5	0	No SLC	0.045	0.069	ND	ND		
Boron	T	mg/Kg-Dry	5	100	No SLC			4.1	15.2	10.6	11
Cadmium	T	mg/Kg-Dry	5	40	No SLC	0.077	0.12	ND	0.21		
Calcium	T	mg/Kg-Dry	5	100	No SLC			3760	7950	6430	7180
Chromium	T	mg/Kg-Dry	5	100	No SLC			0.7	2.3	1.4	1.5
Cobalt	T	mg/Kg-Dry	5	0	No SLC	0.48	0.74	ND	ND		
Copper	T	mg/Kg-Dry	5	100	No SLC			7.9	13	9.8	8.4
Iron	T	mg/Kg-Dry	5	100	No SLC			131	281	196	195
Lead	T	mg/Kg-Dry	5	80	No SLC	0.91	0.91	ND	0.68	0.51	0.51
Magnesium	T	mg/Kg-Dry	5	100	No SLC			1860	2660	2190	2230
Manganese	T	mg/Kg-Dry	5	100	No SLC			60.2	141	97.7	96.3
Mercury	T	mg/Kg-Dry	5	0	No SLC	0.048	0.074	ND	ND		
Molybdenum	T	mg/Kg-Dry	5	80	No SLC	3.4	3.4	ND	17.7	6.1	3.1
Nickel	T	mg/Kg-Dry	5	0	No SLC	0.45	4.6	ND	ND		
Potassium	T	mg/Kg-Dry	5	100	No SLC			21500	54600	35700	33400
Selenium	T	mg/Kg-Dry	5	0	No SLC	1.6	2.9	ND	ND		
Silver	T	mg/Kg-Dry	5	0	No SLC	0.31	0.49	ND	ND		
Sodium	T	mg/Kg-Dry	5	20	No SLC	102	174	ND	316		
Thallium	T	mg/Kg-Dry	5	0	No SLC	0.2	0.37	ND	ND		
Vanadium	T	mg/Kg-Dry	5	0	No SLC	0.53	0.97	ND	ND		
Zinc	T	mg/Kg-Dry	5	100	No SLC			43.3	91.6	67.6	70.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	4	100	No SLC			47.7	56.4	50.5	49
Metals											
Aluminum	T	mg/Kg-Dry	4	100	No SLC			762	4000	2340	2300
Antimony	T	mg/Kg-Dry	4	25	No SLC	0.28	0.52	ND	0.53		
Arsenic	T	mg/Kg-Dry	4	75	No SLC	0.28	0.28	ND	4.7	2.1	1.8
Barium	T	mg/Kg-Dry	4	100	No SLC			10.3	77.6	45.3	46.8
Beryllium	T	mg/Kg-Dry	4	100	No SLC			0.059	0.72	0.42	0.45
Boron	T	mg/Kg-Dry	4	100	No SLC			7.8	14.5	12.3	13.5
Cadmium	T	mg/Kg-Dry	4	100	No SLC			0.64	1.1	0.78	0.69
Calcium	T	mg/Kg-Dry	4	100	No SLC			8230	17900	14900	16700
Chromium	T	mg/Kg-Dry	4	100	No SLC			1.3	8.5	5.1	5.3
Cobalt	T	mg/Kg-Dry	4	75	No SLC	0.36	0.36	ND	3.5	1.9	2
Copper	T	mg/Kg-Dry	4	100	No SLC			7.1	15.4	11	10.8
Iron	T	mg/Kg-Dry	4	100	No SLC			1740	9280	5330	5160
Lead	T	mg/Kg-Dry	4	100	No SLC			2.3	14.6	9.4	10.4
Magnesium	T	mg/Kg-Dry	4	100	No SLC			1480	2630	1940	1820
Manganese	T	mg/Kg-Dry	4	100	No SLC			56.6	548	273	245
Mercury	T	mg/Kg-Dry	4	0	No SLC	0.028	0.034	ND	ND		
Molybdenum	T	mg/Kg-Dry	4	75	No SLC	0.98	0.98	ND	3.4	1.8	1.7
Nickel	T	mg/Kg-Dry	4	50	No SLC	2	2.3	ND	8.9	4.6	4.3
Potassium	T	mg/Kg-Dry	4	100	No SLC			4420	6770	5590	5580
Selenium	T	mg/Kg-Dry	4	50	No SLC	0.28	1.3	ND	1.7	1	1.1
Silver	T	mg/Kg-Dry	4	0	No SLC	0.21	0.23	ND	ND		
Sodium	T	mg/Kg-Dry	4	25	No SLC	82.9	139	ND	102		
Thallium	T	mg/Kg-Dry	4	0	No SLC	0.14	0.17	ND	ND		
Vanadium	T	mg/Kg-Dry	4	100	No SLC			0.96	9.9	5.5	5.6
Zinc	T	mg/Kg-Dry	4	100	No SLC			97	198	162	177

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	5	100	No SLC			29.7	46.4	38	37.2
Metals											
Aluminum	T	mg/Kg-Dry	5	100	No SLC			948	3840	2430	2690
Antimony	T	mg/Kg-Dry	5	0	No SLC	0.32	0.77	ND	ND		
Arsenic	T	mg/Kg-Dry	5	60	No SLC	0.32	1.1	ND	1.9	0.76	0.55
Barium	T	mg/Kg-Dry	5	100	No SLC			34.5	60.5	51.6	55.5
Beryllium	T	mg/Kg-Dry	5	80	No SLC	0.14	0.14	ND	0.42	0.23	0.17
Boron	T	mg/Kg-Dry	5	100	No SLC			10.6	27.9	19.1	17.7
Cadmium	T	mg/Kg-Dry	5	100	No SLC			0.14	0.64	0.38	0.4
Calcium	T	mg/Kg-Dry	5	100	No SLC			5170	13400	8910	8520
Chromium	T	mg/Kg-Dry	5	100	No SLC			2.4	7.8	5.7	6.7
Cobalt	T	mg/Kg-Dry	5	100	No SLC			0.97	3.2	1.9	2
Copper	T	mg/Kg-Dry	5	100	No SLC			9.7	31	20.7	21.2
Iron	T	mg/Kg-Dry	5	100	No SLC			1810	8010	4510	4550
Lead	T	mg/Kg-Dry	5	100	No SLC			3.4	11.8	7.4	6.9
Magnesium	T	mg/Kg-Dry	5	100	No SLC			1960	3280	2340	2100
Manganese	T	mg/Kg-Dry	5	100	No SLC			111	339	192	133
Mercury	T	mg/Kg-Dry	5	0	No SLC	0.03	0.057	ND	ND		
Molybdenum	T	mg/Kg-Dry	5	80	No SLC	2.3	2.3	ND	23.2	7	2.8
Nickel	T	mg/Kg-Dry	5	80	No SLC	3.4	3.4	ND	7	5.1	5.7
Potassium	T	mg/Kg-Dry	5	100	No SLC			4910	14600	11000	13200
Selenium	T	mg/Kg-Dry	5	0	No SLC	0.38	2.1	ND	ND		
Silver	T	mg/Kg-Dry	5	0	No SLC	0.23	0.37	ND	ND		
Sodium	T	mg/Kg-Dry	5	60	No SLC	116	191	ND	979	314	95.5
Thallium	T	mg/Kg-Dry	5	0	No SLC	0.16	0.26	ND	ND		
Vanadium	T	mg/Kg-Dry	5	100	No SLC			2.4	12.4	6.6	6.4
Zinc	T	mg/Kg-Dry	5	100	No SLC			47.8	159	90.8	87.1

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-13f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Reference Lower Cabresto Creek Riparian
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	5	100	No SLC			45.7	59.4	54.8	55.6
Metals											
Aluminum	T	mg/Kg-Dry	5	100	No SLC			2870	11900	7210	6950
Antimony	T	mg/Kg-Dry	5	0	No SLC	0.29	0.55	ND	ND		
Arsenic	T	mg/Kg-Dry	5	100	No SLC			1.5	3.3	2.4	2.4
Barium	T	mg/Kg-Dry	5	100	No SLC			54	171	87.3	69.7
Beryllium	T	mg/Kg-Dry	5	80	No SLC	0.28	0.28	ND	0.91	0.67	0.82
Boron	T	mg/Kg-Dry	5	100	No SLC			1.6	18.2	7	4.1
Cadmium	T	mg/Kg-Dry	5	100	No SLC			0.38	0.79	0.53	0.49
Calcium	T	mg/Kg-Dry	5	100	No SLC			6280	15500	9770	7500
Chromium	T	mg/Kg-Dry	5	100	No SLC			9.2	28.4	15.1	12
Cobalt	T	mg/Kg-Dry	5	100	No SLC			2.4	8.4	5.7	5.8
Copper	T	mg/Kg-Dry	5	100	No SLC			16.4	59.1	26.4	18.5
Iron	T	mg/Kg-Dry	5	100	No SLC			4530	18700	12300	13000
Lead	T	mg/Kg-Dry	5	100	No SLC			15.1	33.4	22.1	20.2
Magnesium	T	mg/Kg-Dry	5	100	No SLC			3000	5430	3910	3940
Manganese	T	mg/Kg-Dry	5	100	No SLC			208	522	400	403
Mercury	T	mg/Kg-Dry	5	0	No SLC	0.026	0.037	ND	ND		
Molybdenum	T	mg/Kg-Dry	5	100	No SLC			2.2	55.1	16.8	3.2
Nickel	T	mg/Kg-Dry	5	100	No SLC			4.6	19.5	12.1	11.7
Potassium	T	mg/Kg-Dry	5	100	No SLC			3300	8270	5340	4910
Selenium	T	mg/Kg-Dry	5	20	No SLC	0.31	1.2	ND	1.6		
Silver	T	mg/Kg-Dry	5	0	No SLC	0.19	0.26	ND	ND		
Sodium	T	mg/Kg-Dry	5	20	No SLC	75.3	143	ND	254		
Thallium	T	mg/Kg-Dry	5	20	No SLC	0.13	0.18	ND	0.26		
Vanadium	T	mg/Kg-Dry	5	100	No SLC			6.6	30.1	17.6	17.4
Zinc	T	mg/Kg-Dry	5	100	No SLC			127	172	148	143

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-14a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			34.6	50.7	42.1	42.2
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			47.8	3200	383	98.2
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.3	1.1	ND	ND		
Arsenic	T	mg/Kg-Dry	11	0	No SLC	0.34	1.6	ND	ND		
Barium	T	mg/Kg-Dry	11	100	No SLC			5.2	157	28	17.5
Beryllium	T	mg/Kg-Dry	11	9.1	No SLC	0.031	0.1	ND	0.3		
Boron	T	mg/Kg-Dry	11	100	No SLC			5.1	211	68.7	63.4
Cadmium	T	mg/Kg-Dry	11	54.5	No SLC	0.047	0.057	ND	7.2	1.7	0.86
Calcium	T	mg/Kg-Dry	11	100	No SLC			5250	34700	16800	13900
Chromium	T	mg/Kg-Dry	11	81.8	No SLC	0.69	0.87	ND	9.7	2.1	0.85
Cobalt	T	mg/Kg-Dry	11	36.4	No SLC	0.35	0.75	ND	6.1		
Copper	T	mg/Kg-Dry	11	100	No SLC			5.5	30.2	9.8	8
Iron	T	mg/Kg-Dry	11	100	No SLC			57.8	8740	927	147
Lead	T	mg/Kg-Dry	11	45.5	No SLC	0.18	0.37	ND	18.1		
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1760	7370	3420	3100
Manganese	T	mg/Kg-Dry	11	100	No SLC			20.1	761	218	110
Mercury	T	mg/Kg-Dry	11	9.1	No SLC	0.03	0.041	ND	0.088		
Molybdenum	T	mg/Kg-Dry	11	72.7	No SLC	0.58	1.9	ND	11.2	3	2
Nickel	T	mg/Kg-Dry	11	63.6	No SLC	2.4	2.9	ND	13.8	4.2	2.8
Potassium	T	mg/Kg-Dry	11	100	No SLC			5330	12900	8470	7630
Selenium	T	mg/Kg-Dry	11	0	No SLC	0.34	1.6	ND	ND		
Silver	T	mg/Kg-Dry	11	0	No SLC	0.21	0.43	ND	ND		
Sodium	T	mg/Kg-Dry	11	81.8	No SLC	156	708	ND	372	204	155
Thallium	T	mg/Kg-Dry	11	0	No SLC	0.15	0.22	ND	ND		
Vanadium	T	mg/Kg-Dry	11	18.2	No SLC	0.43	0.75	ND	8.9		
Zinc	T	mg/Kg-Dry	11	100	No SLC			13.9	594	187	84.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-14b

**Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results**

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			17.1	29.8	21.4	20.2
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			155	11700	2500	1850
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.57	2.2	ND	ND		
Arsenic	T	mg/Kg-Dry	11	18.2	No SLC	0.67	2.4	ND	1.2		
Barium	T	mg/Kg-Dry	11	100	No SLC			8.5	185	80.5	64.9
Beryllium	T	mg/Kg-Dry	11	45.5	No SLC	0.064	0.2	ND	0.52		
Boron	T	mg/Kg-Dry	11	100	No SLC			16.4	103	35.2	27.5
Cadmium	T	mg/Kg-Dry	11	72.7	No SLC	0.1	0.18	ND	2.9	0.72	0.61
Calcium	T	mg/Kg-Dry	11	100	No SLC			7340	27000	16400	16800
Chromium	T	mg/Kg-Dry	11	81.8	No SLC	1.9	2.4	ND	11.3	5.2	4.7
Cobalt	T	mg/Kg-Dry	11	63.6	No SLC	0.86	1.1	ND	7.1	2.3	2
Copper	T	mg/Kg-Dry	11	100	No SLC			8.1	34.7	20.4	18.8
Iron	T	mg/Kg-Dry	11	100	No SLC			260	14600	4780	3080
Lead	T	mg/Kg-Dry	11	90.9	No SLC	0.45	0.45	ND	22.6	8.6	7
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1870	7100	4020	3970
Manganese	T	mg/Kg-Dry	11	100	No SLC			53.9	446	214	173
Mercury	T	mg/Kg-Dry	11	0	No SLC	0.035	0.094	ND	ND		
Molybdenum	T	mg/Kg-Dry	11	100	No SLC			2.6	39.9	14.9	10.9
Nickel	T	mg/Kg-Dry	11	54.5	No SLC	0.9	5.8	ND	14.3	6.4	4.4
Potassium	T	mg/Kg-Dry	11	100	No SLC			16400	50000	32200	32400
Selenium	T	mg/Kg-Dry	11	0	No SLC	0.64	3.9	ND	ND		
Silver	T	mg/Kg-Dry	11	0	No SLC	0.32	0.7	ND	ND		
Sodium	T	mg/Kg-Dry	11	63.6	No SLC	179	1160	ND	1810	529	450
Thallium	T	mg/Kg-Dry	11	0	No SLC	0.27	0.49	ND	ND		
Vanadium	T	mg/Kg-Dry	11	90.9	No SLC	1.2	1.2	ND	21	5.9	4.5
Zinc	T	mg/Kg-Dry	11	100	No SLC			35.9	164	101	99.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-14c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			23.7	58.6	35.7	35.5
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			62.3	1590	639	583
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.33	1.8	ND	ND		
Arsenic	T	mg/Kg-Dry	11	9.1	No SLC	0.27	0.72	ND	0.62		
Barium	T	mg/Kg-Dry	11	100	No SLC			11.8	56.8	29.9	23.7
Beryllium	T	mg/Kg-Dry	11	9.1	No SLC	0.026	0.13	ND	0.053		
Boron	T	mg/Kg-Dry	11	100	No SLC			4.8	13.3	7.3	6.8
Cadmium	T	mg/Kg-Dry	11	45.5	No SLC	0.039	0.28	ND	0.43		
Calcium	T	mg/Kg-Dry	11	100	No SLC			3570	6730	5070	4910
Chromium	T	mg/Kg-Dry	11	90.9	No SLC	1.2	1.2	ND	4.8	2.4	1.7
Cobalt	T	mg/Kg-Dry	11	45.5	No SLC	0.39	0.93	ND	0.92		
Copper	T	mg/Kg-Dry	11	90.9	No SLC	3.4	3.4	ND	19.1	9.8	7.3
Iron	T	mg/Kg-Dry	11	100	No SLC			105	2370	1080	1050
Lead	T	mg/Kg-Dry	11	72.7	No SLC	0.2	0.42	ND	5.6	1.6	1
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1130	2980	1980	1960
Manganese	T	mg/Kg-Dry	11	100	No SLC			60.9	238	134	135
Mercury	T	mg/Kg-Dry	11	0	No SLC	0.027	0.072	ND	ND		
Molybdenum	T	mg/Kg-Dry	11	100	No SLC			2	11.8	5.7	4.7
Nickel	T	mg/Kg-Dry	11	18.2	No SLC	0.79	4.3	ND	6.1		
Potassium	T	mg/Kg-Dry	11	100	No SLC			14000	41600	24800	22100
Selenium	T	mg/Kg-Dry	11	0	No SLC	0.33	2.4	ND	ND		
Silver	T	mg/Kg-Dry	11	0	No SLC	0.19	0.54	ND	ND		
Sodium	T	mg/Kg-Dry	11	54.5	No SLC	95	457	ND	910	210	114
Thallium	T	mg/Kg-Dry	11	0	No SLC	0.14	0.35	ND	ND		
Vanadium	T	mg/Kg-Dry	11	63.6	No SLC	0.5	0.93	ND	3.1	1.4	1.2
Zinc	T	mg/Kg-Dry	11	100	No SLC			18.3	96.1	49.6	54.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-14d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			16.4	52	41.7	44.3
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			125	18000	4080	2740
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.31	1.5	ND	ND		
Arsenic	T	mg/Kg-Dry	11	63.6	No SLC	0.32	0.5	ND	4.1	1.1	0.65
Barium	T	mg/Kg-Dry	11	100	No SLC			10.6	312	103	80
Beryllium	T	mg/Kg-Dry	11	90.9	No SLC	0.039	0.039	ND	0.85	0.29	0.26
Boron	T	mg/Kg-Dry	11	100	No SLC			5.2	81.8	19.9	10.2
Cadmium	T	mg/Kg-Dry	11	90.9	No SLC	0.051	0.051	ND	6.9	1.7	0.94
Calcium	T	mg/Kg-Dry	11	100	No SLC			4780	26000	10400	8150
Chromium	T	mg/Kg-Dry	11	90.9	No SLC	0.89	0.89	ND	20.7	6.5	5.5
Cobalt	T	mg/Kg-Dry	11	90.9	No SLC	0.42	0.42	ND	9.8	3.9	2.4
Copper	T	mg/Kg-Dry	11	100	No SLC			7.6	43.9	24.6	22.1
Iron	T	mg/Kg-Dry	11	100	No SLC			172	18900	6220	4380
Lead	T	mg/Kg-Dry	11	90.9	No SLC	0.54	0.54	ND	20.7	10.9	9.4
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1330	7500	2760	2080
Manganese	T	mg/Kg-Dry	11	100	No SLC			78.3	739	302	262
Mercury	T	mg/Kg-Dry	11	0	No SLC	0.021	0.091	ND	ND		
Molybdenum	T	mg/Kg-Dry	11	90.9	No SLC	1.1	1.1	ND	19.4	9.8	7.5
Nickel	T	mg/Kg-Dry	11	90.9	No SLC	2.7	2.7	ND	21.3	9.6	8.2
Potassium	T	mg/Kg-Dry	11	100	No SLC			2240	17800	6120	6380
Selenium	T	mg/Kg-Dry	11	0	No SLC	0.31	4.1	ND	ND		
Silver	T	mg/Kg-Dry	11	27.3	No SLC	0.21	0.59	ND	0.29		
Sodium	T	mg/Kg-Dry	11	72.7	No SLC	136	450	ND	780	314	225
Thallium	T	mg/Kg-Dry	11	0	No SLC	0.15	0.51	ND	ND		
Vanadium	T	mg/Kg-Dry	11	90.9	No SLC	0.54	0.54	ND	29.3	9.1	7.3
Zinc	T	mg/Kg-Dry	11	100	No SLC			29.4	530	184	130

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-14e

Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			24.7	45.5	33.8	30.9
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			1950	13000	4630	3310
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.31	1.5	ND	ND		
Arsenic	T	mg/Kg-Dry	11	54.5	No SLC	0.39	0.91	ND	2.3	0.93	0.55
Barium	T	mg/Kg-Dry	11	100	No SLC			50.1	206	129	117
Beryllium	T	mg/Kg-Dry	11	90.9	No SLC	0.24	0.24	ND	0.77	0.37	0.35
Boron	T	mg/Kg-Dry	11	100	No SLC			10.8	23.2	15.7	15.7
Cadmium	T	mg/Kg-Dry	11	100	No SLC			0.16	2.3	0.99	0.69
Calcium	T	mg/Kg-Dry	11	100	No SLC			4080	12200	7630	6920
Chromium	T	mg/Kg-Dry	11	100	No SLC			4.4	23.9	9.2	7.1
Cobalt	T	mg/Kg-Dry	11	100	No SLC			2	8.5	4.8	4.4
Copper	T	mg/Kg-Dry	11	100	No SLC			8.6	54.3	38.1	38.4
Iron	T	mg/Kg-Dry	11	100	No SLC			3730	13000	8240	9000
Lead	T	mg/Kg-Dry	11	100	No SLC			4.2	32.4	16.1	16.1
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1760	6010	3140	2790
Manganese	T	mg/Kg-Dry	11	100	No SLC			146	710	357	314
Mercury	T	mg/Kg-Dry	11	0	No SLC	0.026	0.065	ND	ND		
Molybdenum	T	mg/Kg-Dry	11	90.9	No SLC	3.2	3.2	ND	42.1	14.1	10.1
Nickel	T	mg/Kg-Dry	11	100	No SLC			3.1	24.7	13.2	14.2
Potassium	T	mg/Kg-Dry	11	100	No SLC			6920	17600	12500	12800
Selenium	T	mg/Kg-Dry	11	0	No SLC	0.31	2.2	ND	ND		
Silver	T	mg/Kg-Dry	11	0	No SLC	0.2	0.49	ND	ND		
Sodium	T	mg/Kg-Dry	11	81.8	No SLC	311	1010	ND	1380	606	611
Thallium	T	mg/Kg-Dry	11	0	No SLC	0.16	0.3	ND	ND		
Vanadium	T	mg/Kg-Dry	11	100	No SLC			4.1	19.6	10	7.7
Zinc	T	mg/Kg-Dry	11	100	No SLC			45.4	271	127	113

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
 ND = Non Detected Value

Table 9-14f

**Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Soil Area 16 - Red River Riparian along Tailings Facility
Summary of Results**

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	11	100	No SLC			16.9	78.4	57.3	60.3
Metals											
Aluminum	T	mg/Kg-Dry	11	100	No SLC			1670	20400	10700	8760
Antimony	T	mg/Kg-Dry	11	0	No SLC	0.22	2.5	ND	ND		
Arsenic	T	mg/Kg-Dry	11	100	No SLC			1.2	3.7	2.5	2.8
Barium	T	mg/Kg-Dry	11	100	No SLC			47.3	480	264	265
Beryllium	T	mg/Kg-Dry	11	100	No SLC			0.28	1	0.72	0.73
Boron	T	mg/Kg-Dry	11	90.9	No SLC	0.51	0.51	ND	14.2	5.7	6.4
Cadmium	T	mg/Kg-Dry	11	81.8	No SLC	0.032	0.034	ND	1.9	0.66	0.53
Calcium	T	mg/Kg-Dry	11	100	No SLC			3170	16600	7600	6150
Chromium	T	mg/Kg-Dry	11	100	No SLC			5.3	25.9	16.3	16.8
Cobalt	T	mg/Kg-Dry	11	100	No SLC			1.7	12.8	8.9	9.6
Copper	T	mg/Kg-Dry	11	100	No SLC			20.7	72.9	46.6	46.7
Iron	T	mg/Kg-Dry	11	100	No SLC			7280	23400	18000	18600
Lead	T	mg/Kg-Dry	11	100	No SLC			6.5	44.1	29	35.5
Magnesium	T	mg/Kg-Dry	11	100	No SLC			1680	7470	4540	3930
Manganese	T	mg/Kg-Dry	11	100	No SLC			127	816	559	540
Mercury	T	mg/Kg-Dry	11	18.2	No SLC	0.023	0.044	ND	0.03		
Molybdenum	T	mg/Kg-Dry	11	100	No SLC			1.8	41.7	18.4	19.7
Nickel	T	mg/Kg-Dry	11	100	No SLC			3.8	26.1	19.8	22.3
Potassium	T	mg/Kg-Dry	11	100	No SLC			2820	17700	6110	4480
Selenium	T	mg/Kg-Dry	11	18.2	No SLC	0.22	1.5	ND	0.97		
Silver	T	mg/Kg-Dry	11	45.5	No SLC	0.15	0.83	ND	0.38		
Sodium	T	mg/Kg-Dry	11	63.6	No SLC	57.3	1020	ND	1000	275	113
Thallium	T	mg/Kg-Dry	11	45.5	No SLC	0.11	0.49	ND	0.23		
Vanadium	T	mg/Kg-Dry	11	100	No SLC			3.5	35.9	23.8	24.6
Zinc	T	mg/Kg-Dry	11	100	No SLC			61	211	136	155

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15a
Vegetation - RI/FS and Dual Above-Ground Shrub Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	1	100	No SLC			38.8	38.8	38.8	38.8
Metals											
Aluminum	T	mg/Kg-Dry	1	100	No SLC			141	141	141	141
Antimony	T	mg/Kg-Dry	1	0	No SLC	1	1	ND	ND		
Arsenic	T	mg/Kg-Dry	1	0	No SLC	0.52	0.52	ND	ND		
Barium	T	mg/Kg-Dry	1	100	No SLC			10.6	10.6	10.6	10.6
Beryllium	T	mg/Kg-Dry	1	0	No SLC	0.049	0.049	ND	ND		
Boron	T	mg/Kg-Dry	1	100	No SLC			21.6	21.6	21.6	21.6
Cadmium	T	mg/Kg-Dry	1	0	No SLC	0.072	0.072	ND	ND		
Calcium	T	mg/Kg-Dry	1	100	No SLC			12100	12100	12100	12100
Chromium	T	mg/Kg-Dry	1	100	No SLC			1.3	1.3	1.3	1.3
Cobalt	T	mg/Kg-Dry	1	0	No SLC	0.26	0.26	ND	ND		
Copper	T	mg/Kg-Dry	1	100	No SLC			7.7	7.7	7.7	7.7
Iron	T	mg/Kg-Dry	1	100	No SLC			191	191	191	191
Lead	T	mg/Kg-Dry	1	100	No SLC			0.67	0.67	0.67	0.67
Magnesium	T	mg/Kg-Dry	1	100	No SLC			1890	1890	1890	1890
Manganese	T	mg/Kg-Dry	1	100	No SLC			66	66	66	66
Mercury	T	mg/Kg-Dry	1	0	No SLC	0.036	0.036	ND	ND		
Molybdenum	T	mg/Kg-Dry	1	0	No SLC	1.9	1.9	ND	ND		
Nickel	T	mg/Kg-Dry	1	0	No SLC	0.34	0.34	ND	ND		
Potassium	T	mg/Kg-Dry	1	100	No SLC			14300	14300	14300	14300
Selenium	T	mg/Kg-Dry	1	0	No SLC	1.8	1.8	ND	ND		
Silver	T	mg/Kg-Dry	1	0	No SLC	0.24	0.24	ND	ND		
Sodium	T	mg/Kg-Dry	1	0	No SLC	163	163	ND	ND		
Thallium	T	mg/Kg-Dry	1	0	No SLC	0.25	0.25	ND	ND		
Vanadium	T	mg/Kg-Dry	1	100	No SLC			0.44	0.44	0.44	0.44
Zinc	T	mg/Kg-Dry	1	100	No SLC			25.8	25.8	25.8	25.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15b
Vegetation - RI/FS and Dual Above-Ground Forb Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			16	22.6	18.5	18.3
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			225	5150	1660	1160
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.8	2.4	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.88	1.2	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			8.4	83.1	34.1	23.8
Beryllium	T	mg/Kg-Dry	6	33.3	No SLC	0.088	0.11	ND	0.33		
Boron	T	mg/Kg-Dry	6	100	No SLC			26.2	32.5	29.7	30.4
Cadmium	T	mg/Kg-Dry	6	66.7	No SLC	0.16	0.66	ND	0.62	0.37	0.35
Calcium	T	mg/Kg-Dry	6	100	No SLC			8560	23500	16400	17300
Chromium	T	mg/Kg-Dry	6	100	No SLC			1.3	5.9	2.5	1.8
Cobalt	T	mg/Kg-Dry	6	50	No SLC	0.49	0.59	ND	3	0.93	0.59
Copper	T	mg/Kg-Dry	6	100	No SLC			6.8	21.3	12.8	10.6
Iron	T	mg/Kg-Dry	6	100	No SLC			344	7130	2730	1700
Lead	T	mg/Kg-Dry	6	50	No SLC	0.84	3.2	ND	8.5	3.3	2.2
Magnesium	T	mg/Kg-Dry	6	100	No SLC			2130	4680	3320	3170
Manganese	T	mg/Kg-Dry	6	100	No SLC			53.4	622	184	108
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.062	0.1	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	50	No SLC	2.5	6.6	ND	36.6	11.2	4.6
Nickel	T	mg/Kg-Dry	6	33.3	No SLC	0.62	5.2	ND	6.7		
Potassium	T	mg/Kg-Dry	6	100	No SLC			20600	41300	31400	31700
Selenium	T	mg/Kg-Dry	6	0	No SLC	3.1	4.3	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.43	0.61	ND	ND		
Sodium	T	mg/Kg-Dry	6	50	No SLC	454	681	ND	4720	1610	1040
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.44	0.61	ND	ND		
Vanadium	T	mg/Kg-Dry	6	83.3	No SLC	0.68	0.68	ND	11.6	3.7	2.8
Zinc	T	mg/Kg-Dry	6	100	No SLC			39.8	86.7	57.3	54.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15c
Vegetation - RI/FS and Dual Above-Ground Grass Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			20.4	32.7	26.6	26
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			477	1930	928	807
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.1	1.8	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.55	0.93	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			10.8	36.3	25.4	27.1
Beryllium	T	mg/Kg-Dry	6	16.7	No SLC	0.055	0.15	ND	0.074		
Boron	T	mg/Kg-Dry	6	83.3	No SLC	10.3	10.3	ND	16.6	11.5	12
Cadmium	T	mg/Kg-Dry	6	33.3	No SLC	0.086	0.14	ND	0.17		
Calcium	T	mg/Kg-Dry	6	100	No SLC			4840	11300	6310	5450
Chromium	T	mg/Kg-Dry	6	100	No SLC			0.83	3.8	1.9	1.7
Cobalt	T	mg/Kg-Dry	6	33.3	No SLC	0.31	0.49	ND	0.93		
Copper	T	mg/Kg-Dry	6	100	No SLC			8.6	17.2	12.7	11.8
Iron	T	mg/Kg-Dry	6	100	No SLC			429	2460	1520	1700
Lead	T	mg/Kg-Dry	6	50	No SLC	0.69	2.2	ND	8.3	2.9	1.9
Magnesium	T	mg/Kg-Dry	6	100	No SLC			1430	2090	1870	1910
Manganese	T	mg/Kg-Dry	6	100	No SLC			66.1	629	283	191
Mercury	T	mg/Kg-Dry	6	16.7	No SLC	0.043	0.074	ND	0.16		
Molybdenum	T	mg/Kg-Dry	6	66.7	No SLC	3.3	4.6	ND	21.6	6.6	3.9
Nickel	T	mg/Kg-Dry	6	66.7	No SLC	2.4	4.1	ND	3.3	1.7	1.4
Potassium	T	mg/Kg-Dry	6	100	No SLC			14200	36900	24100	21700
Selenium	T	mg/Kg-Dry	6	0	No SLC	1.9	3.2	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.28	0.45	ND	ND		
Sodium	T	mg/Kg-Dry	6	16.7	No SLC	157	1100	ND	1950		
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.27	0.46	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			0.8	3.8	2	1.4
Zinc	T	mg/Kg-Dry	6	100	No SLC			27.8	95.4	49.4	45.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15d
Vegetation - RI/FS and Dual Below-Ground Shrub Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Molycorp Preliminary Site Characterization Summary
Section Nine
Revision 0
April 4, 2005
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Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	1	100	No SLC			44.3	44.3	44.3	44.3
Metals											
Aluminum	T	mg/Kg-Dry	1	100	No SLC			1480	1480	1480	1480
Antimony	T	mg/Kg-Dry	1	0	No SLC	0.79	0.79	ND	ND		
Arsenic	T	mg/Kg-Dry	1	0	No SLC	0.41	0.41	ND	ND		
Barium	T	mg/Kg-Dry	1	100	No SLC			46	46	46	46
Beryllium	T	mg/Kg-Dry	1	100	No SLC			0.1	0.1	0.1	0.1
Boron	T	mg/Kg-Dry	1	100	No SLC			26	26	26	26
Cadmium	T	mg/Kg-Dry	1	100	No SLC			0.18	0.18	0.18	0.18
Calcium	T	mg/Kg-Dry	1	100	No SLC			15700	15700	15700	15700
Chromium	T	mg/Kg-Dry	1	100	No SLC			4.3	4.3	4.3	4.3
Cobalt	T	mg/Kg-Dry	1	100	No SLC			1.2	1.2	1.2	1.2
Copper	T	mg/Kg-Dry	1	100	No SLC			14.2	14.2	14.2	14.2
Iron	T	mg/Kg-Dry	1	100	No SLC			2010	2010	2010	2010
Lead	T	mg/Kg-Dry	1	100	No SLC			5.2	5.2	5.2	5.2
Magnesium	T	mg/Kg-Dry	1	100	No SLC			2330	2330	2330	2330
Manganese	T	mg/Kg-Dry	1	100	No SLC			86.7	86.7	86.7	86.7
Mercury	T	mg/Kg-Dry	1	100	No SLC			0.056	0.056	0.056	0.056
Molybdenum	T	mg/Kg-Dry	1	100	No SLC			3.4	3.4	3.4	3.4
Nickel	T	mg/Kg-Dry	1	100	No SLC			1.9	1.9	1.9	1.9
Potassium	T	mg/Kg-Dry	1	100	No SLC			8600	8600	8600	8600
Selenium	T	mg/Kg-Dry	1	0	No SLC	1.4	1.4	ND	ND		
Silver	T	mg/Kg-Dry	1	0	No SLC	0.23	0.23	ND	ND		
Sodium	T	mg/Kg-Dry	1	0	No SLC	300	300	ND	ND		
Thallium	T	mg/Kg-Dry	1	0	No SLC	0.2	0.2	ND	ND		
Vanadium	T	mg/Kg-Dry	1	100	No SLC			5.4	5.4	5.4	5.4
Zinc	T	mg/Kg-Dry	1	100	No SLC			52.1	52.1	52.1	52.1

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15e
Vegetation - RI/FS and Dual Below-Ground Forb Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			22.7	33.6	28.3	29.3
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			1390	5940	2860	2430
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.2	1.7	ND	ND		
Arsenic	T	mg/Kg-Dry	6	16.7	No SLC	0.59	0.75	ND	1.7		
Barium	T	mg/Kg-Dry	6	100	No SLC			25	81.9	56.9	62.6
Beryllium	T	mg/Kg-Dry	6	100	No SLC			0.12	0.4	0.21	0.2
Boron	T	mg/Kg-Dry	6	100	No SLC			19.3	32.2	22.7	20.6
Cadmium	T	mg/Kg-Dry	6	83.3	No SLC	0.38	0.38	ND	0.66	0.41	0.39
Calcium	T	mg/Kg-Dry	6	100	No SLC			5660	14200	9710	9030
Chromium	T	mg/Kg-Dry	6	100	No SLC			3.2	7.3	5.5	5.6
Cobalt	T	mg/Kg-Dry	6	100	No SLC			0.83	4.7	2.3	2
Copper	T	mg/Kg-Dry	6	100	No SLC			6.9	41.9	21.7	19.6
Iron	T	mg/Kg-Dry	6	100	No SLC			1810	7910	4330	4260
Lead	T	mg/Kg-Dry	6	100	No SLC			2.7	11.5	7.6	8.4
Magnesium	T	mg/Kg-Dry	6	100	No SLC			1680	3330	2360	2120
Manganese	T	mg/Kg-Dry	6	100	No SLC			82.6	825	292	203
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.042	0.062	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	66.7	No SLC	2.4	3.4	ND	73.1	20.6	14.5
Nickel	T	mg/Kg-Dry	6	100	No SLC			0.76	7.7	4.1	4.3
Potassium	T	mg/Kg-Dry	6	100	No SLC			7650	15100	11900	12400
Selenium	T	mg/Kg-Dry	6	0	No SLC	2	2.9	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.3	0.39	ND	ND		
Sodium	T	mg/Kg-Dry	6	50	No SLC	262	715	ND	3640	1540	1240
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.29	0.42	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			3	15	7	5.7
Zinc	T	mg/Kg-Dry	6	100	No SLC			44	68.8	60.8	63.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-15f
Vegetation - RI/FS and Dual Below-Ground Grass Unwashed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			28.2	53.3	43.6	46.4
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			2160	11700	7350	6560
Antimony	T	mg/Kg-Dry	6	16.7	No SLC	0.72	1.2	ND	0.73		
Arsenic	T	mg/Kg-Dry	6	83.3	No SLC	0.36	0.36	ND	2.6	1.7	2.1
Barium	T	mg/Kg-Dry	6	100	No SLC			29	179	104	101
Beryllium	T	mg/Kg-Dry	6	100	No SLC			0.12	0.77	0.47	0.44
Boron	T	mg/Kg-Dry	6	66.7	No SLC	2	8.2	ND	15.8	8.9	9.6
Cadmium	T	mg/Kg-Dry	6	83.3	No SLC	0.47	0.47	ND	0.51	0.32	0.31
Calcium	T	mg/Kg-Dry	6	100	No SLC			1940	22700	13900	16300
Chromium	T	mg/Kg-Dry	6	100	No SLC			3.4	19.5	10.6	9.7
Cobalt	T	mg/Kg-Dry	6	100	No SLC			1.4	9.2	5.1	4.5
Copper	T	mg/Kg-Dry	6	100	No SLC			10	33.8	23.1	24.5
Iron	T	mg/Kg-Dry	6	100	No SLC			2700	16900	11000	10900
Lead	T	mg/Kg-Dry	6	100	No SLC			4	20.6	15.3	18.6
Magnesium	T	mg/Kg-Dry	6	100	No SLC			864	6890	3510	3360
Manganese	T	mg/Kg-Dry	6	100	No SLC			131	1590	640	540
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.028	0.057	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	100	No SLC			2.6	47.9	17.1	12.2
Nickel	T	mg/Kg-Dry	6	100	No SLC			2	17.6	9.6	8.8
Potassium	T	mg/Kg-Dry	6	100	No SLC			4720	12100	7280	6860
Selenium	T	mg/Kg-Dry	6	16.7	No SLC	1.3	2.2	ND	1.3		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.17	0.3	ND	ND		
Sodium	T	mg/Kg-Dry	6	33.3	No SLC	132	864	ND	1610		
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.17	0.31	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			4	33	16.2	13.8
Zinc	T	mg/Kg-Dry	6	100	No SLC			23	189	82.2	67.5

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16a
Vegetation - RI/FS Above-Ground Shrub Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	1	100	No SLC			34	34	34	34
Metals											
Aluminum	T	mg/Kg-Dry	1	100	No SLC			67.9	67.9	67.9	67.9
Antimony	T	mg/Kg-Dry	1	0	No SLC	1.1	1.1	ND	ND		
Arsenic	T	mg/Kg-Dry	1	0	No SLC	0.53	0.53	ND	ND		
Barium	T	mg/Kg-Dry	1	100	No SLC			10.9	10.9	10.9	10.9
Beryllium	T	mg/Kg-Dry	1	0	No SLC	0.056	0.056	ND	ND		
Boron	T	mg/Kg-Dry	1	100	No SLC			18.8	18.8	18.8	18.8
Cadmium	T	mg/Kg-Dry	1	0	No SLC	0.085	0.085	ND	ND		
Calcium	T	mg/Kg-Dry	1	100	No SLC			10900	10900	10900	10900
Chromium	T	mg/Kg-Dry	1	100	No SLC			1.9	1.9	1.9	1.9
Cobalt	T	mg/Kg-Dry	1	0	No SLC	0.32	0.32	ND	ND		
Copper	T	mg/Kg-Dry	1	100	No SLC			7.6	7.6	7.6	7.6
Iron	T	mg/Kg-Dry	1	100	No SLC			118	118	118	118
Lead	T	mg/Kg-Dry	1	0	No SLC	0.5	0.5	ND	ND		
Magnesium	T	mg/Kg-Dry	1	100	No SLC			1700	1700	1700	1700
Manganese	T	mg/Kg-Dry	1	100	No SLC			63.8	63.8	63.8	63.8
Mercury	T	mg/Kg-Dry	1	0	No SLC	0.044	0.044	ND	ND		
Molybdenum	T	mg/Kg-Dry	1	0	No SLC	1.6	1.6	ND	ND		
Nickel	T	mg/Kg-Dry	1	0	No SLC	0.41	0.41	ND	ND		
Potassium	T	mg/Kg-Dry	1	100	No SLC			14700	14700	14700	14700
Selenium	T	mg/Kg-Dry	1	0	No SLC	1.9	1.9	ND	ND		
Silver	T	mg/Kg-Dry	1	0	No SLC	0.29	0.29	ND	ND		
Sodium	T	mg/Kg-Dry	1	0	No SLC	217	217	ND	ND		
Thallium	T	mg/Kg-Dry	1	0	No SLC	0.26	0.26	ND	ND		
Vanadium	T	mg/Kg-Dry	1	0	No SLC	0.41	0.41	ND	ND		
Zinc	T	mg/Kg-Dry	1	100	No SLC			48.2	48.2	48.2	48.2

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16b
Vegetation - RI/FS Above-Ground Forb Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			11.4	19.6	14.7	13.5
Metals											
Aluminum	T	mg/Kg-Dry	6	66.7	No SLC	43.9	48.5	ND	417	180	104
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.9	3.2	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.94	1.7	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			1.8	21.5	10	6.5
Beryllium	T	mg/Kg-Dry	6	0	No SLC	0.097	0.18	ND	ND		
Boron	T	mg/Kg-Dry	6	83.3	No SLC	26.3	26.3	ND	38	29.5	31.8
Cadmium	T	mg/Kg-Dry	6	50	No SLC	0.2	0.65	ND	0.64	0.34	0.31
Calcium	T	mg/Kg-Dry	6	100	No SLC			9820	26300	15800	14300
Chromium	T	mg/Kg-Dry	6	66.7	No SLC	0.5	0.82	ND	2.5	1.1	0.81
Cobalt	T	mg/Kg-Dry	6	0	No SLC	0.51	0.96	ND	ND		
Copper	T	mg/Kg-Dry	6	83.3	No SLC	7.9	7.9	ND	16.9	9.7	9
Iron	T	mg/Kg-Dry	6	100	No SLC			103	915	358	198
Lead	T	mg/Kg-Dry	6	0	No SLC	0.82	2.9	ND	ND		
Magnesium	T	mg/Kg-Dry	6	100	No SLC			2360	3310	3010	3110
Manganese	T	mg/Kg-Dry	6	100	No SLC			27	115	69.1	67.8
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.077	0.15	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	83.3	No SLC	6.1	6.1	ND	24.6	8.3	5
Nickel	T	mg/Kg-Dry	6	0	No SLC	0.66	6.6	ND	ND		
Potassium	T	mg/Kg-Dry	6	100	No SLC			24100	45600	36100	37300
Selenium	T	mg/Kg-Dry	6	0	No SLC	3.3	5.7	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.47	0.86	ND	ND		
Sodium	T	mg/Kg-Dry	6	33.3	No SLC	317	2080	ND	5230		
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.47	0.82	ND	ND		
Vanadium	T	mg/Kg-Dry	6	16.7	No SLC	0.66	1	ND	1.3		
Zinc	T	mg/Kg-Dry	6	100	No SLC			34.4	67.3	48.4	43.9

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16c
Vegetation - RI/FS Above-Ground Grass Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			13.4	27.4	21.1	21.3
Metals											
Aluminum	T	mg/Kg-Dry	6	66.7	No SLC	44.7	51.5	ND	352	118	59.2
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.4	2.7	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.69	1.3	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			4.8	25.8	15.1	14.7
Beryllium	T	mg/Kg-Dry	6	0	No SLC	0.073	0.13	ND	ND		
Boron	T	mg/Kg-Dry	6	33.3	No SLC	7.6	16.3	ND	16.4		
Cadmium	T	mg/Kg-Dry	6	0	No SLC	0.11	0.2	ND	ND		
Calcium	T	mg/Kg-Dry	6	100	No SLC			2950	5850	4960	5470
Chromium	T	mg/Kg-Dry	6	83.3	No SLC	0.41	0.41	ND	3.4	1.6	1.6
Cobalt	T	mg/Kg-Dry	6	0	No SLC	0.4	0.73	ND	ND		
Copper	T	mg/Kg-Dry	6	100	No SLC			7.2	15	11.2	11.3
Iron	T	mg/Kg-Dry	6	100	No SLC			132	1040	321	161
Lead	T	mg/Kg-Dry	6	16.7	No SLC	0.62	1.9	ND	1.1		
Magnesium	T	mg/Kg-Dry	6	100	No SLC			1340	2040	1650	1530
Manganese	T	mg/Kg-Dry	6	100	No SLC			49.6	479	236	211
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.058	0.11	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	66.7	No SLC	3	4.7	ND	16.7	5.7	3.4
Nickel	T	mg/Kg-Dry	6	16.7	No SLC	0.51	4.4	ND	1.9		
Potassium	T	mg/Kg-Dry	6	100	No SLC			17500	41100	26200	22900
Selenium	T	mg/Kg-Dry	6	0	No SLC	2.4	4.6	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.36	0.66	ND	ND		
Sodium	T	mg/Kg-Dry	6	0	No SLC	227	1180	ND	ND		
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.35	0.66	ND	ND		
Vanadium	T	mg/Kg-Dry	6	16.7	No SLC	0.51	0.9	ND	0.65		
Zinc	T	mg/Kg-Dry	6	100	No SLC			26.3	44.5	37.5	39.1

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16d
Vegetation - RI/FS Below-Ground Shrub Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	1	100	No SLC			41.9	41.9	41.9	41.9
Metals											
Aluminum	T	mg/Kg-Dry	1	100	No SLC			157	157	157	157
Antimony	T	mg/Kg-Dry	1	0	No SLC	0.91	0.91	ND	ND		
Arsenic	T	mg/Kg-Dry	1	0	No SLC	0.45	0.45	ND	ND		
Barium	T	mg/Kg-Dry	1	100	No SLC			22	22	22	22
Beryllium	T	mg/Kg-Dry	1	0	No SLC	0.048	0.048	ND	ND		
Boron	T	mg/Kg-Dry	1	100	No SLC			20.8	20.8	20.8	20.8
Cadmium	T	mg/Kg-Dry	1	100	No SLC			0.095	0.095	0.095	0.095
Calcium	T	mg/Kg-Dry	1	100	No SLC			12600	12600	12600	12600
Chromium	T	mg/Kg-Dry	1	100	No SLC			0.48	0.48	0.48	0.48
Cobalt	T	mg/Kg-Dry	1	0	No SLC	0.26	0.26	ND	ND		
Copper	T	mg/Kg-Dry	1	100	No SLC			8.8	8.8	8.8	8.8
Iron	T	mg/Kg-Dry	1	100	No SLC			162	162	162	162
Lead	T	mg/Kg-Dry	1	0	No SLC	0.91	0.91	ND	ND		
Magnesium	T	mg/Kg-Dry	1	100	No SLC			1410	1410	1410	1410
Manganese	T	mg/Kg-Dry	1	100	No SLC			39.9	39.9	39.9	39.9
Mercury	T	mg/Kg-Dry	1	0	No SLC	0.041	0.041	ND	ND		
Molybdenum	T	mg/Kg-Dry	1	100	No SLC			2.2	2.2	2.2	2.2
Nickel	T	mg/Kg-Dry	1	0	No SLC	2.1	2.1	ND	ND		
Potassium	T	mg/Kg-Dry	1	100	No SLC			6110	6110	6110	6110
Selenium	T	mg/Kg-Dry	1	0	No SLC	1.6	1.6	ND	ND		
Silver	T	mg/Kg-Dry	1	0	No SLC	0.24	0.24	ND	ND		
Sodium	T	mg/Kg-Dry	1	0	No SLC	232	232	ND	ND		
Thallium	T	mg/Kg-Dry	1	0	No SLC	0.23	0.23	ND	ND		
Vanadium	T	mg/Kg-Dry	1	100	No SLC			1.8	1.8	1.8	1.8
Zinc	T	mg/Kg-Dry	1	100	No SLC			28.6	28.6	28.6	28.6

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16e
Vegetation - RI/FS Below-Ground Forb Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			14.6	28.5	22.7	23.4
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			101	362	207	170
Antimony	T	mg/Kg-Dry	6	0	No SLC	1.2	2.3	ND	ND		
Arsenic	T	mg/Kg-Dry	6	0	No SLC	0.61	1.2	ND	ND		
Barium	T	mg/Kg-Dry	6	100	No SLC			2.8	49.3	17.9	7.7
Beryllium	T	mg/Kg-Dry	6	0	No SLC	0.067	0.12	ND	ND		
Boron	T	mg/Kg-Dry	6	100	No SLC			19.6	38.4	25.2	22.4
Cadmium	T	mg/Kg-Dry	6	100	No SLC			0.28	0.75	0.45	0.43
Calcium	T	mg/Kg-Dry	6	100	No SLC			4460	10100	6390	5880
Chromium	T	mg/Kg-Dry	6	100	No SLC			0.36	2.3	1	0.65
Cobalt	T	mg/Kg-Dry	6	0	No SLC	0.35	0.68	ND	ND		
Copper	T	mg/Kg-Dry	6	100	No SLC			3.9	36.3	18.1	14.3
Iron	T	mg/Kg-Dry	6	100	No SLC			138	753	358	210
Lead	T	mg/Kg-Dry	6	0	No SLC	0.58	2.3	ND	ND		
Magnesium	T	mg/Kg-Dry	6	100	No SLC			1150	1890	1470	1450
Manganese	T	mg/Kg-Dry	6	100	No SLC			14.7	192	69.5	44.5
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.054	0.11	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	83.3	No SLC	1.3	1.3	ND	31.9	11.3	8.2
Nickel	T	mg/Kg-Dry	6	16.7	No SLC	0.46	5.1	ND	0.82		
Potassium	T	mg/Kg-Dry	6	100	No SLC			10400	17900	14700	15200
Selenium	T	mg/Kg-Dry	6	0	No SLC	2.1	4	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.33	0.63	ND	ND		
Sodium	T	mg/Kg-Dry	6	66.7	No SLC	351	1120	ND	5930	2480	2110
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.31	0.57	ND	ND		
Vanadium	T	mg/Kg-Dry	6	50	No SLC	0.47	0.89	ND	3.8	1	0.5
Zinc	T	mg/Kg-Dry	6	100	No SLC			29.3	53.8	44.1	48.9

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-16f
Vegetation - RI/FS Below-Ground Grass Washed
RI/FS Soil Area 17 - Soils South of Tailings
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	6	100	No SLC			23.4	36.9	29.9	30.5
Metals											
Aluminum	T	mg/Kg-Dry	6	100	No SLC			263	1100	646	721
Antimony	T	mg/Kg-Dry	6	16.7	No SLC	1	1.3	ND	1.8		
Arsenic	T	mg/Kg-Dry	6	50	No SLC	0.51	0.85	ND	1.6	0.79	0.55
Barium	T	mg/Kg-Dry	6	100	No SLC			10.7	41.4	22.8	21.4
Beryllium	T	mg/Kg-Dry	6	50	No SLC	0.061	0.094	ND	0.12	0.062	0.049
Boron	T	mg/Kg-Dry	6	0	No SLC	1.9	9.7	ND	ND		
Cadmium	T	mg/Kg-Dry	6	100	No SLC			0.096	0.48	0.28	0.27
Calcium	T	mg/Kg-Dry	6	100	No SLC			1750	5940	4170	4140
Chromium	T	mg/Kg-Dry	6	100	No SLC			0.67	4	2	1.5
Cobalt	T	mg/Kg-Dry	6	100	No SLC			0.57	2.1	1.2	1
Copper	T	mg/Kg-Dry	6	100	No SLC			10.6	23.5	17.4	17.3
Iron	T	mg/Kg-Dry	6	100	No SLC			930	8470	3110	2040
Lead	T	mg/Kg-Dry	6	83.3	No SLC	1.2	1.2	ND	4.5	2.4	1.9
Magnesium	T	mg/Kg-Dry	6	100	No SLC			515	1520	1080	1160
Manganese	T	mg/Kg-Dry	6	100	No SLC			84.6	657	278	124
Mercury	T	mg/Kg-Dry	6	0	No SLC	0.046	0.073	ND	ND		
Molybdenum	T	mg/Kg-Dry	6	83.3	No SLC	5.1	5.1	ND	32.9	12.3	7.4
Nickel	T	mg/Kg-Dry	6	50	No SLC	0.42	3	ND	2.3	1.3	1.3
Potassium	T	mg/Kg-Dry	6	100	No SLC			5640	12100	7970	7580
Selenium	T	mg/Kg-Dry	6	0	No SLC	1.8	2.9	ND	ND		
Silver	T	mg/Kg-Dry	6	0	No SLC	0.25	0.43	ND	ND		
Sodium	T	mg/Kg-Dry	6	50	No SLC	250	739	ND	2000	1010	935
Thallium	T	mg/Kg-Dry	6	0	No SLC	0.26	0.42	ND	ND		
Vanadium	T	mg/Kg-Dry	6	100	No SLC			1.5	12.4	4.4	2.9
Zinc	T	mg/Kg-Dry	6	100	No SLC			16.7	332	90.3	36.4

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if 50% or greater values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if 50% or greater values were detected.

T = Total Fraction
ND = Non Detected Value

Table 9-17
Rye Grass Bioassay
RI/FS Reference for Mine Site - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	6.2	11	8.7	8.8
Plant Survival	proportion	10	0.65	1	0.85	0.9
Root Biomass	mg Dry	10	1.6	18.1	6.3	4.6
Shoot Biomass	mg Dry	10	1.3	3.8	2.2	2.1
Total Biomass	mg Dry	10	3.8	19.5	8.4	6.3

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-18
Rye Grass Bioassay
RI/FS Soil Area 3 - Mine Site Soils - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	4.7	13.5	9.4	9.6
Plant Survival	proportion	10	0.4	0.95	0.78	0.85
Root Biomass	mg Dry	10	2.1	5.5	3.9	3.7
Shoot Biomass	mg Dry	10	1.4	5	2.8	2.8
Total Biomass	mg Dry	10	3.8	9.5	6.7	7.3

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-19
Rye Grass Bioassay
RI/FS Reference Soil at Cater Ranch - 2003
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	8.3	15.4	10.7	10.5
Plant Survival	Proportion	10	0.8	1	0.92	0.95
Root Biomass	mg Dry	10	1.7	8.1	3.7	2.3
Shoot Biomass	mg Dry	10	2.3	6.5	3.6	3.4
Total Biomass	mg Dry	10	4	11.5	7.3	6

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-20
Rye Grass Bioassay
RI/FS Soil Area 14 - Tailings Impoundments - 2003
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	8.1	13	10.1	9.8
Plant Survival	Proportion	10	0.85	1	0.93	0.9
Root Biomass	mg Dry	10	2.7	10.7	5.6	5.4
Shoot Biomass	mg Dry	10	2	5	3.2	3
Total Biomass	mg Dry	10	4.7	13.9	8.9	9.1

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-21
Rye Grass Bioassay
RI/FS Reference for Mine Site Riparian - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	6.5	12.6	9.8	10
Plant Survival	proportion	10	0.85	1	0.95	0.95
Root Biomass	mg Dry	10	1.8	15.5	5.5	4.7
Shoot Biomass	mg Dry	10	1.4	4.2	2.8	2.6
Total Biomass	mg Dry	10	3.2	17.8	8.3	8

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-22
Rye Grass Bioassay
RI/FS Soil Area 9 - Red River Riparian along Mine - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	6.1	12.1	9.2	8.9
Plant Survival	proportion	10	0.85	1	0.95	0.95
Root Biomass	mg Dry	10	2.5	43.3	11.4	4.5
Shoot Biomass	mg Dry	10	1.2	6.9	3	2.6
Total Biomass	mg Dry	10	4.2	50.2	14.4	7.5

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-23
Rye Grass Bioassay
RI/FS Reference Lower Cabresto Creek Riparian - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	5	8.4	13.6	10.2	9.7
Plant Survival	proportion	5	0.7	1	0.84	0.85
Root Biomass	mg Dry	5	4.9	8.6	6.2	5.7
Shoot Biomass	mg Dry	5	1.4	5	2.8	2.5
Total Biomass	mg Dry	5	7.1	11.7	9	8.9

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-24
Rye Grass Bioassay
RI/FS Soil Area 16 - Red River Riparian along Tail - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	7.8	10.8	8.6	8.5
Plant Survival	proportion	10	0.65	1	0.9	0.93
Root Biomass	mg Dry	10	2.5	9.2	3.9	3.2
Shoot Biomass	mg Dry	10	1.2	2.7	2	1.8
Total Biomass	mg Dry	10	3.9	11.5	5.9	5.1

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-25
Rye Grass Bioassay
RI/FS Reference Scars - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	4.5	10.7	8.2	8.4
Plant Survival	proportion	10	0.65	1	0.88	0.9
Root Biomass	mg Dry	10	2	5.2	3.2	3.1
Shoot Biomass	mg Dry	10	0.95	2.5	1.8	1.7
Total Biomass	mg Dry	10	3.8	7.7	5	4.8

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-26
Rye Grass Bioassay
RI/FS Soil Area 7 - Mine Site Scars - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	10	6.5	14.2	10.7	11.3
Plant Survival	proportion	10	0.85	1	0.95	0.95
Root Biomass	mg Dry	10	2.2	25.3	7.2	4.7
Shoot Biomass	mg Dry	10	1.4	6.2	3.4	3.2
Total Biomass	mg Dry	10	4.5	31.5	10.6	8.3

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

Table 9-27
Rye Grass Bioassay
Laboratory Control - 2002
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay Mean Plant Height	cm	6	11.1	14.8	12.5	12.1
Plant Survival	proportion	6	0.8	1	0.95	0.98
Root Biomass	mg Dry	6	1.8	5.7	3.5	3.2
Shoot Biomass	mg Dry	6	2.7	5.6	4.1	3.8
Total Biomass	mg Dry	6	4.4	10.4	7.6	7.9

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

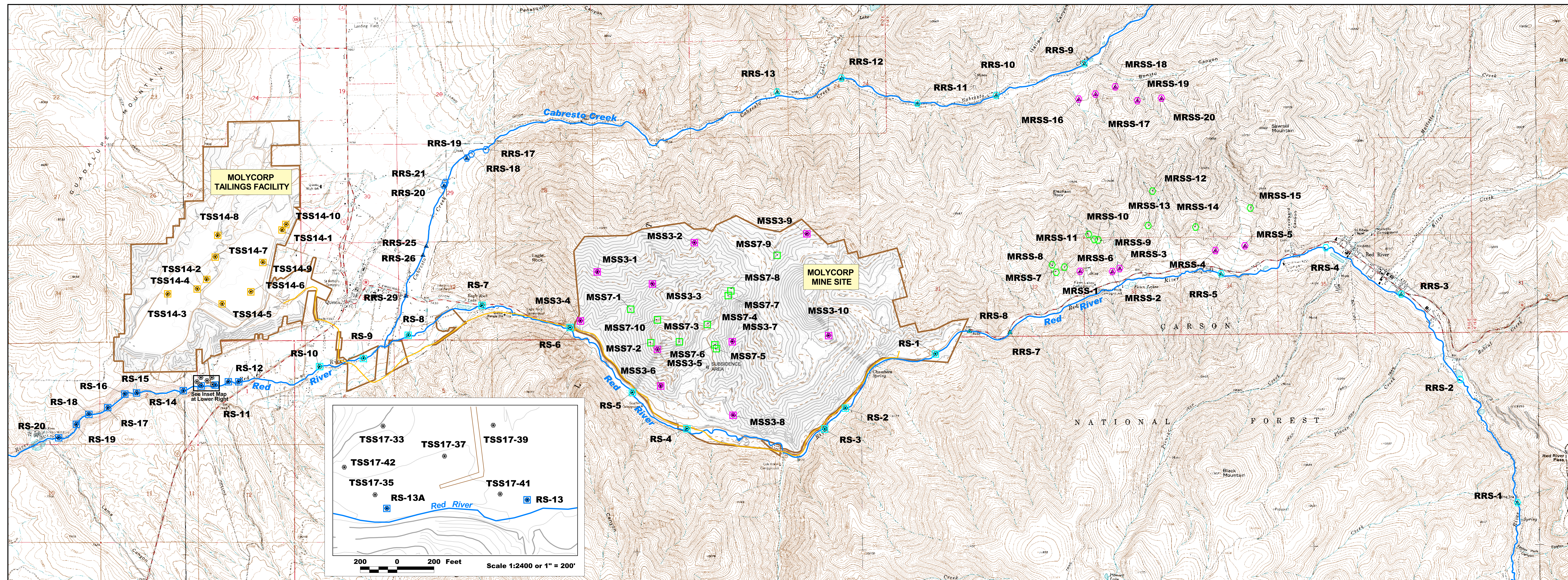
Table 9-28
Rye Grass Bioassay
Laboratory Control - 2003
Summary of Results

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Analyte	Units	Total Number of Samples	Min Value	Max Value	Mean Value	Median Value
Bioassay						
Mean Plant Height	cm	3	8.9	9.7	9.3	9.3
Plant Survival	Proportion	3	0.9	0.9	0.9	0.9
Root Biomass	mg Dry	3	3.7	5.2	4.2	3.8
Shoot Biomass	mg Dry	3	1.5	1.7	1.6	1.7
Total Biomass	mg Dry	3	5.2	6.9	5.8	5.4

cm = Centimeter
 g = Gram
 mg Dry = Milligram Dry Weight Basis

SECTION 9
TERRESTRIAL VEGETATION
FIGURES



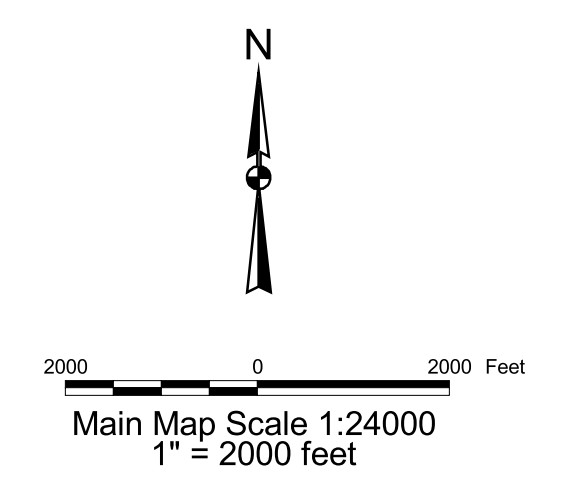
- Vegetation Sample Sites**
- Soil Area 14 - Tailings Impoundments
 - Soil Area 16 - Red River Riparian Along Tailings Facility
 - Soil Area 17 - South of Tailings
 - Soil Area 3 - Mine Site Soils
 - Soil Area 9 - Red River Riparian Along Mine Site
 - ▲ Reference Lower Cabresto Creek Riparian
 - ▲ Reference for Mine Site
 - ▲ Reference for Mine Site Riparian

- Toxicity Test Sample Sites**
- Soil Area 14 - Tailings Impoundments
 - Soil Area 16 - Red River Riparian Along Tailings Facility
 - Soil Area 3 - Mine Site Soils
 - Soil Area 7 - Mine Site Soils
 - Soil Area 9 - Red River Riparian Along Mine Site
 - Reference Lower Cabresto Creek Riparian
 - Reference Soils
 - Reference Soils for Mine Site
 - Reference for Mine Site Riparian

- Sewage Lagoon
- Tailings Pipeline
- Roads-Paved
- Roads-Unpaved
- River or Creek
- Property Lines
- Easement
- Mine Boundary

NOTES

1. Base topography taken from USGS 7.5-minute quadrangles for Questa, New Mexico (1963) and Red River, New Mexico (1963).
2. Mine Site topography provided by MolyCorp-Questa Mine (quest_sp.dwg, 2001).

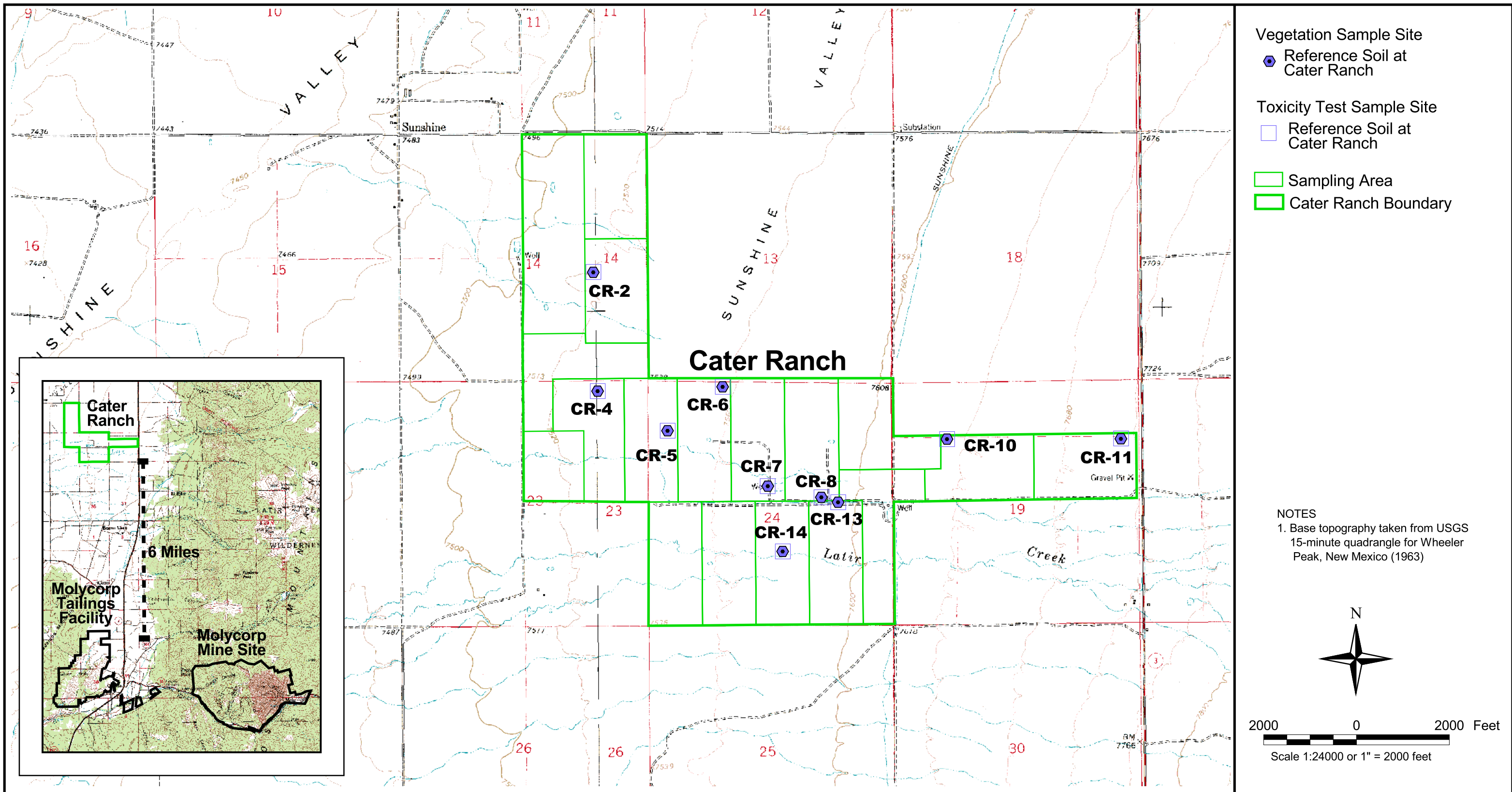


URS
 URS Center
 8181 East Tufts Avenue
 Denver, CO 80237-2637
 (303) 694-2770

APPLICATION
ArcView GIS
 FILE NAME
veg_techmemo.apr
 DRAWN BY
Denver/GIS
 DATE
3/14/2005

MOLYCORP - QUESTA MINE RI/FS
VEGETATION SAMPLE SITES

PROJECT
22236244
FIGURE 9-1
*Preliminary Site
 Characterization Report*



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APPLICATION	ArcView GIS
FILE NAME	veg_techmemo.apr
DRAWN BY	GIS/Denver
DATE	3/3/2005

MOLYCORP - QUESTA MINE RI/FS

VEGETATION SAMPLE SITES - CATER RANCH

PROJECT
 22236244

Figure 9-2

*Preliminary Site
 Characterization Report*

Figure 9-3
Mean Number of Plant Species at Mine Site Upland Locations

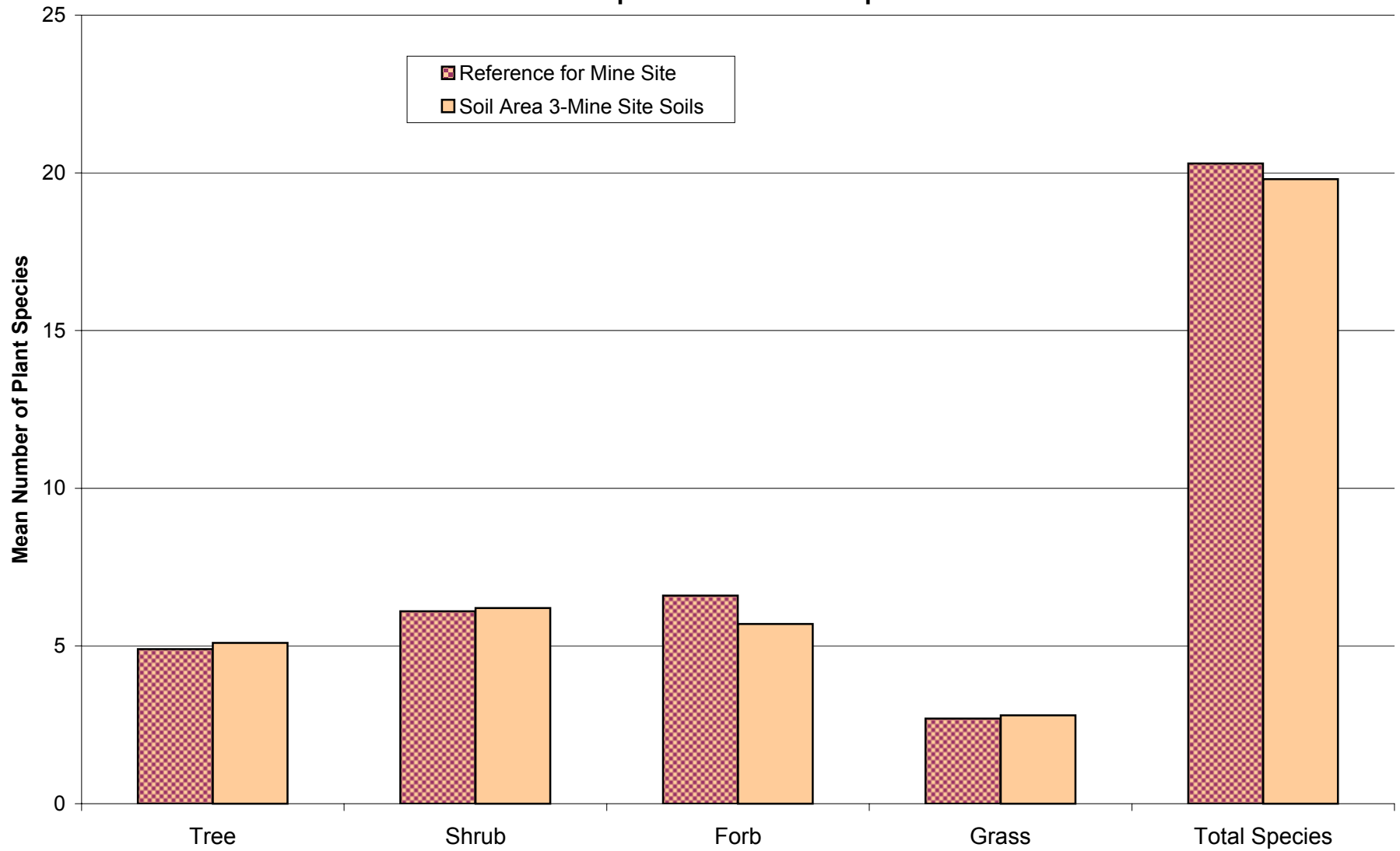


Figure 9-4
Mean Vegetation Cover at Mine Site Upland Sample Locations

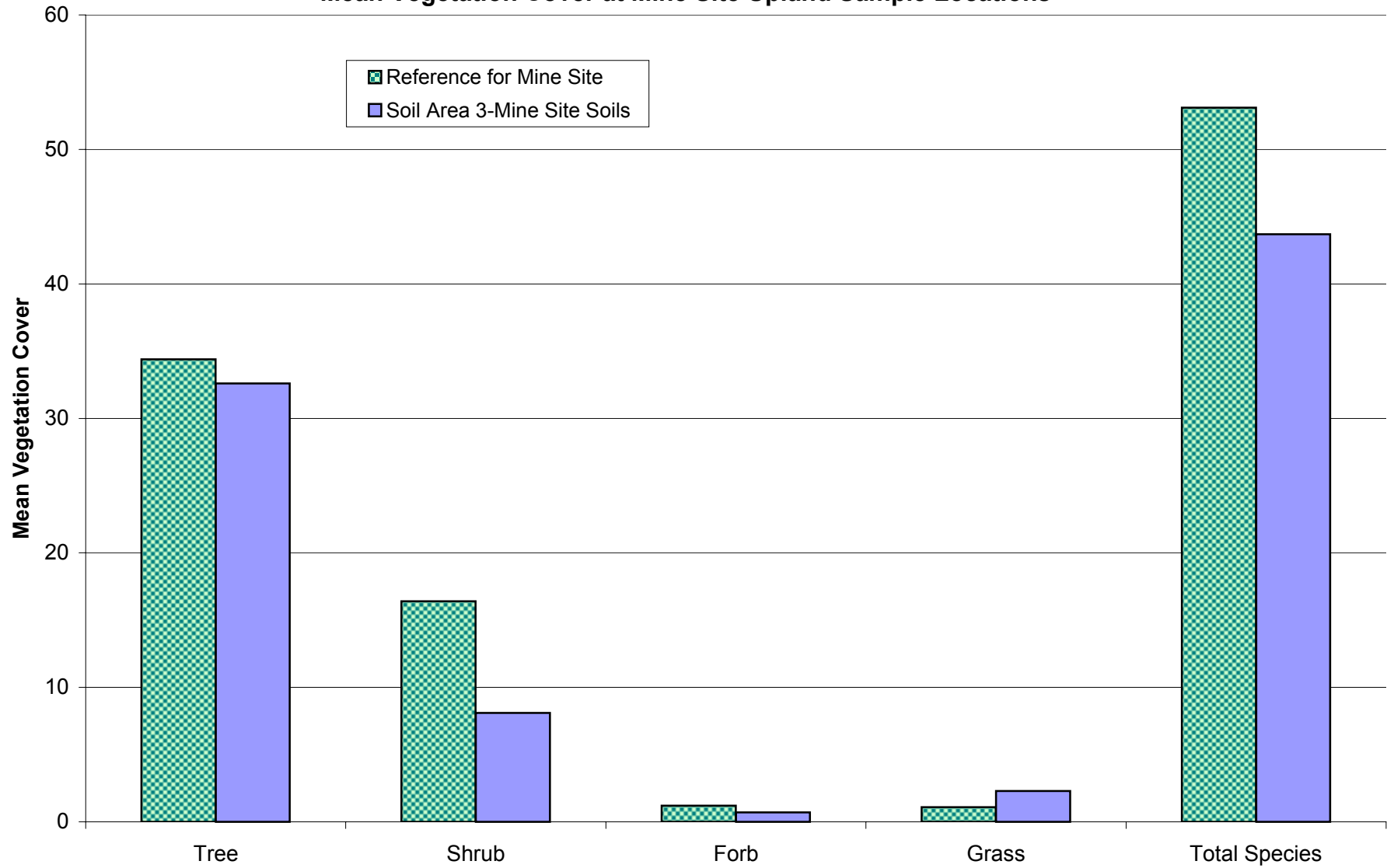


Figure 9-5
Mean Number of Plant Species at Tailings Facility Upland Locations

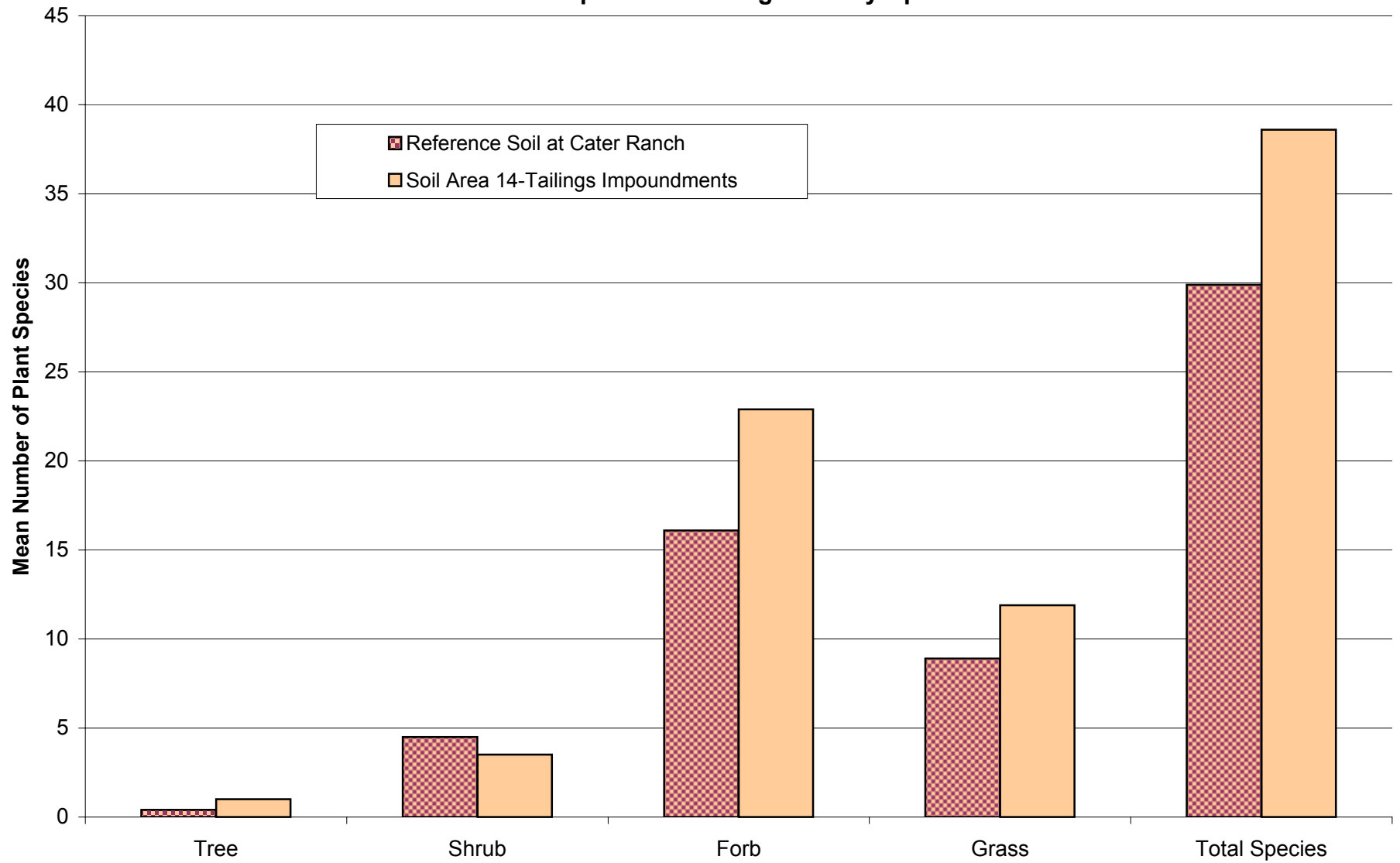


Figure 9-6
Mean Vegetation Cover at Tailings Facility Upland Locations

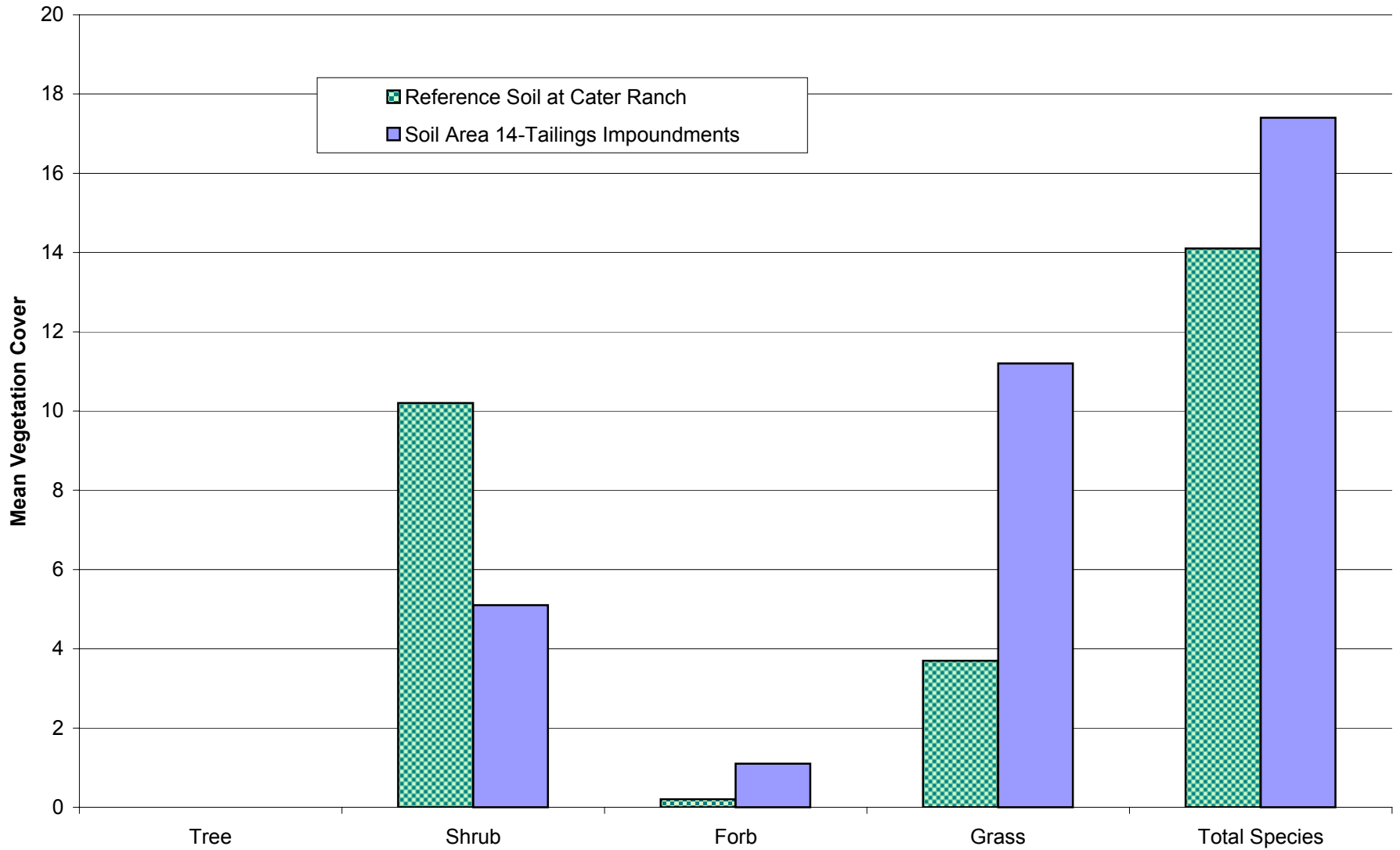


Figure 9-7
Mean Number of Plant Species at Mine Site Riparian Locations

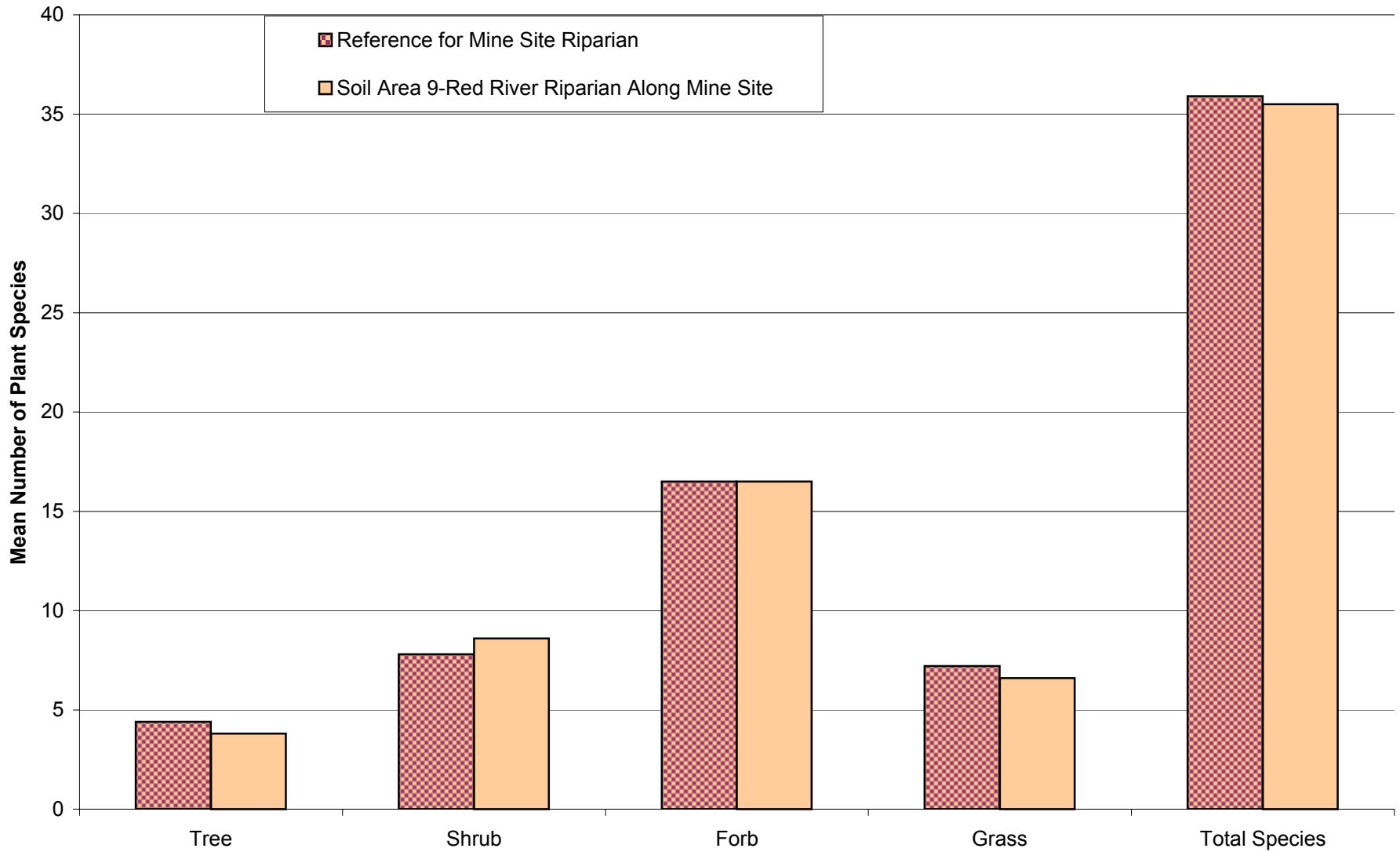


Figure 9-8
Mean Vegetation Cover at Mine Site Riparian Sample Locations

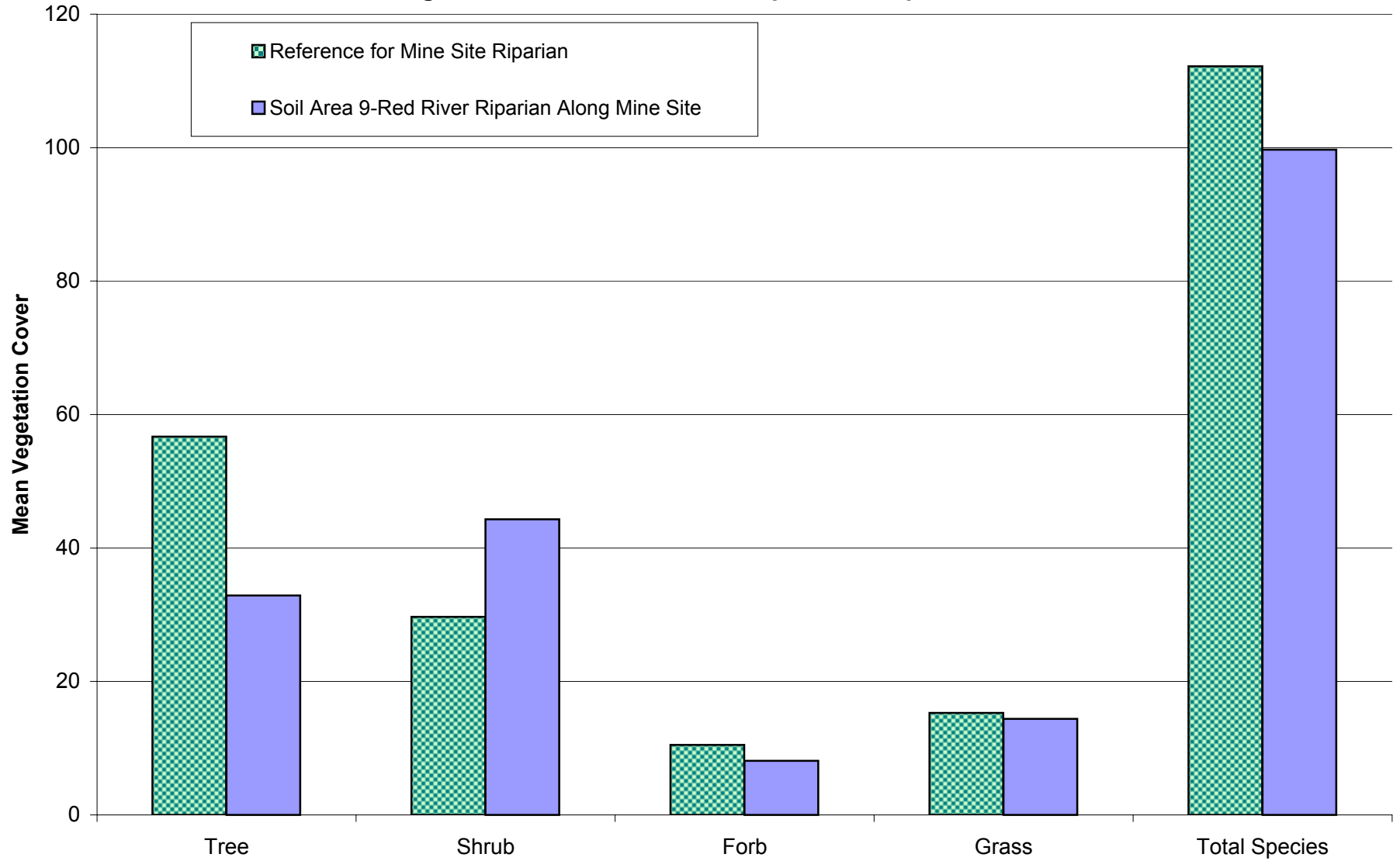


Figure 9-9
Mean Number of Plant Species at Tailing Facility Riparian Locations and South of Tailings

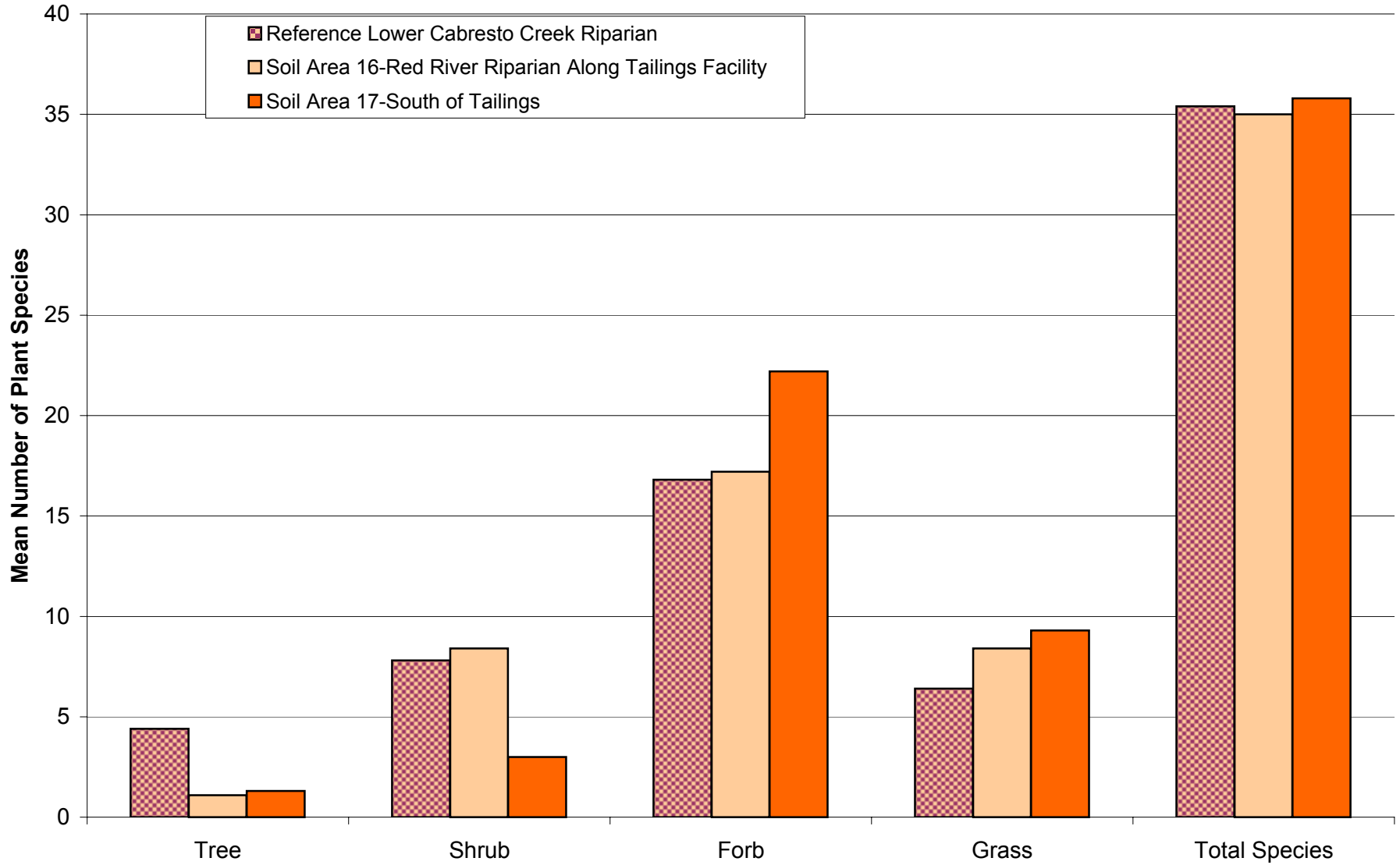


Figure 9-10
Mean Vegetation Cover at Tailings Facility Riparian Locations and South of Tailings

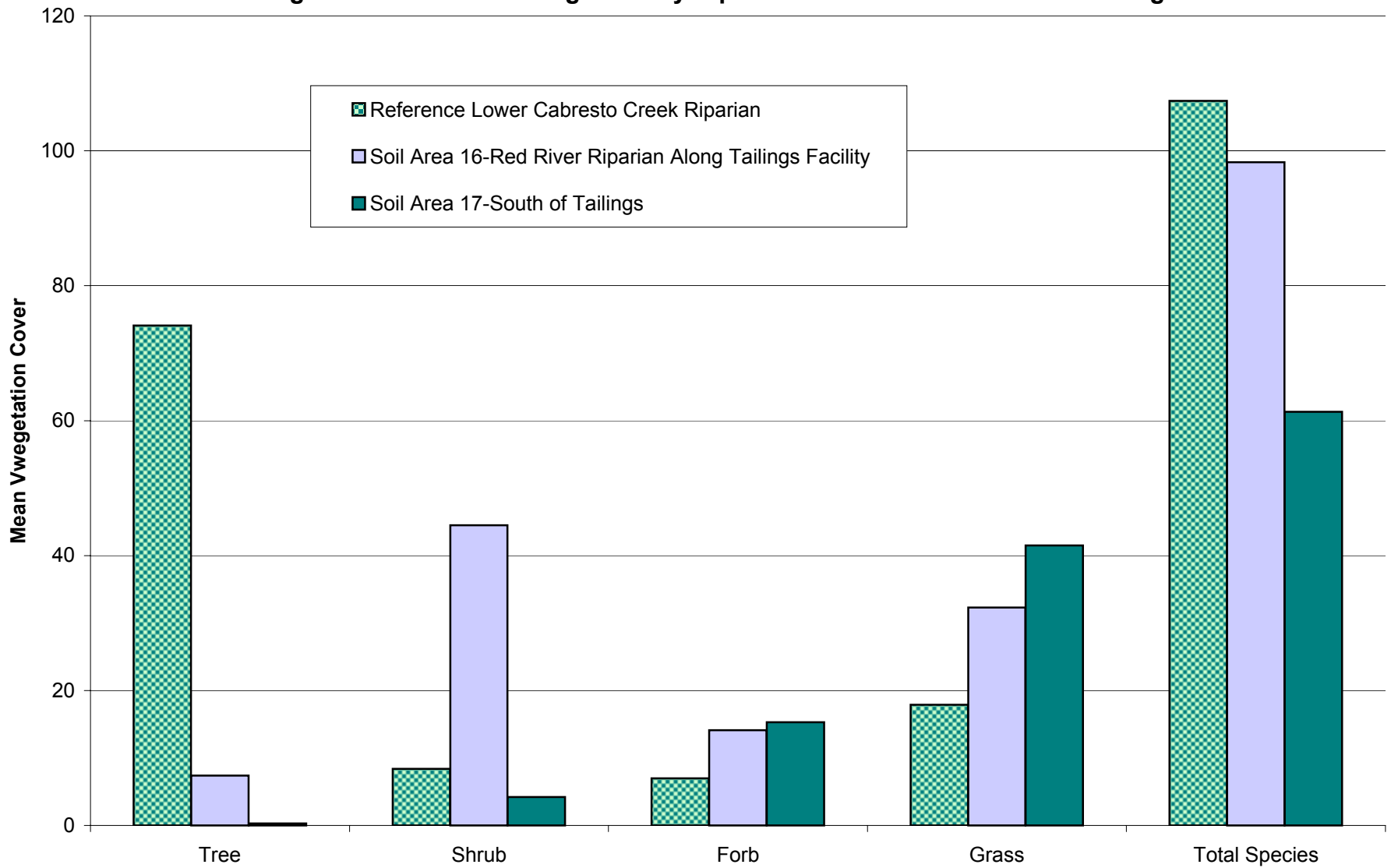


Figure 9-11
Shrub Species Collected at Mine Site Upland Sample Sites

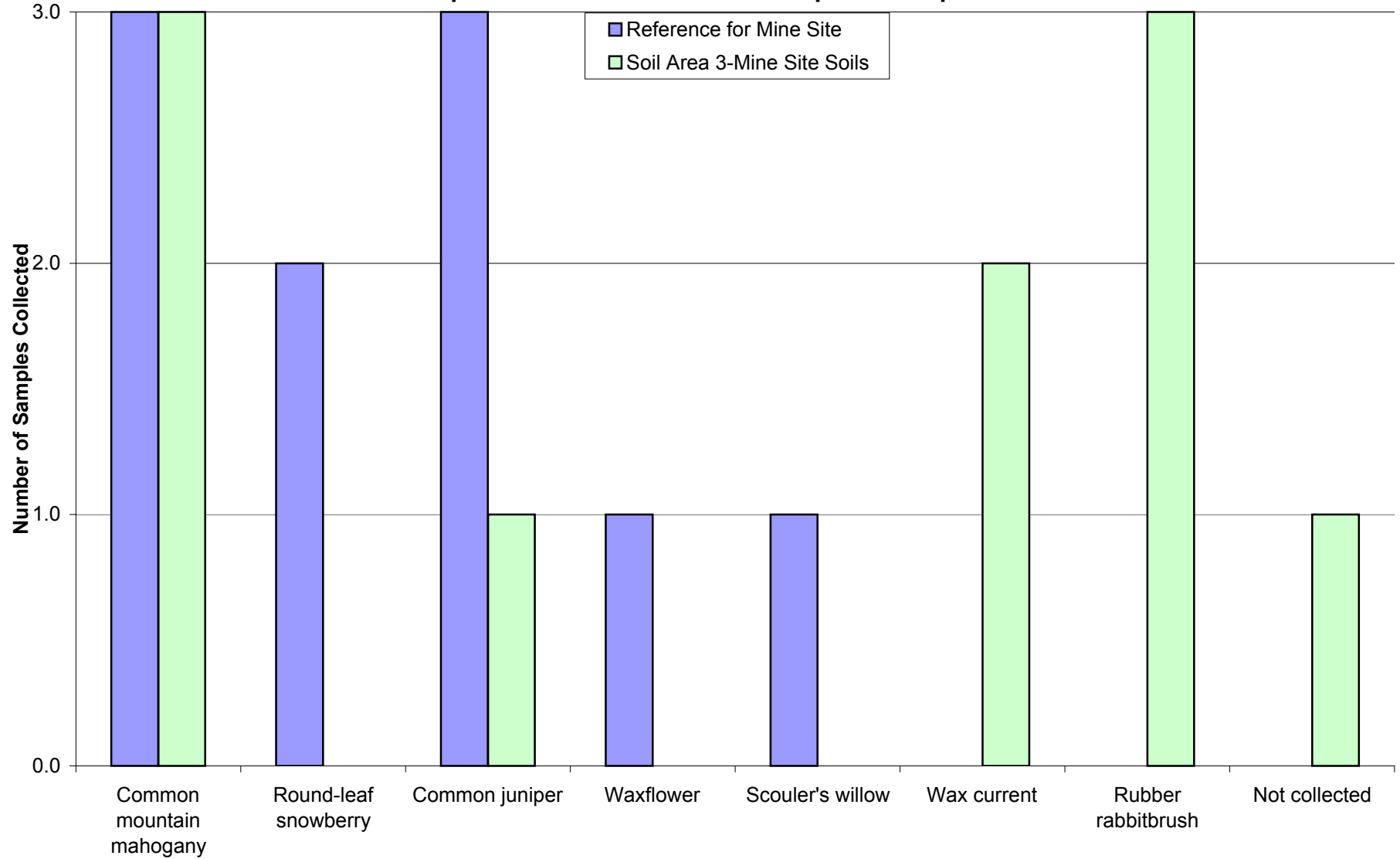


Figure 9-12
Forb Species Collected at Mine Site Upland Sample Sites

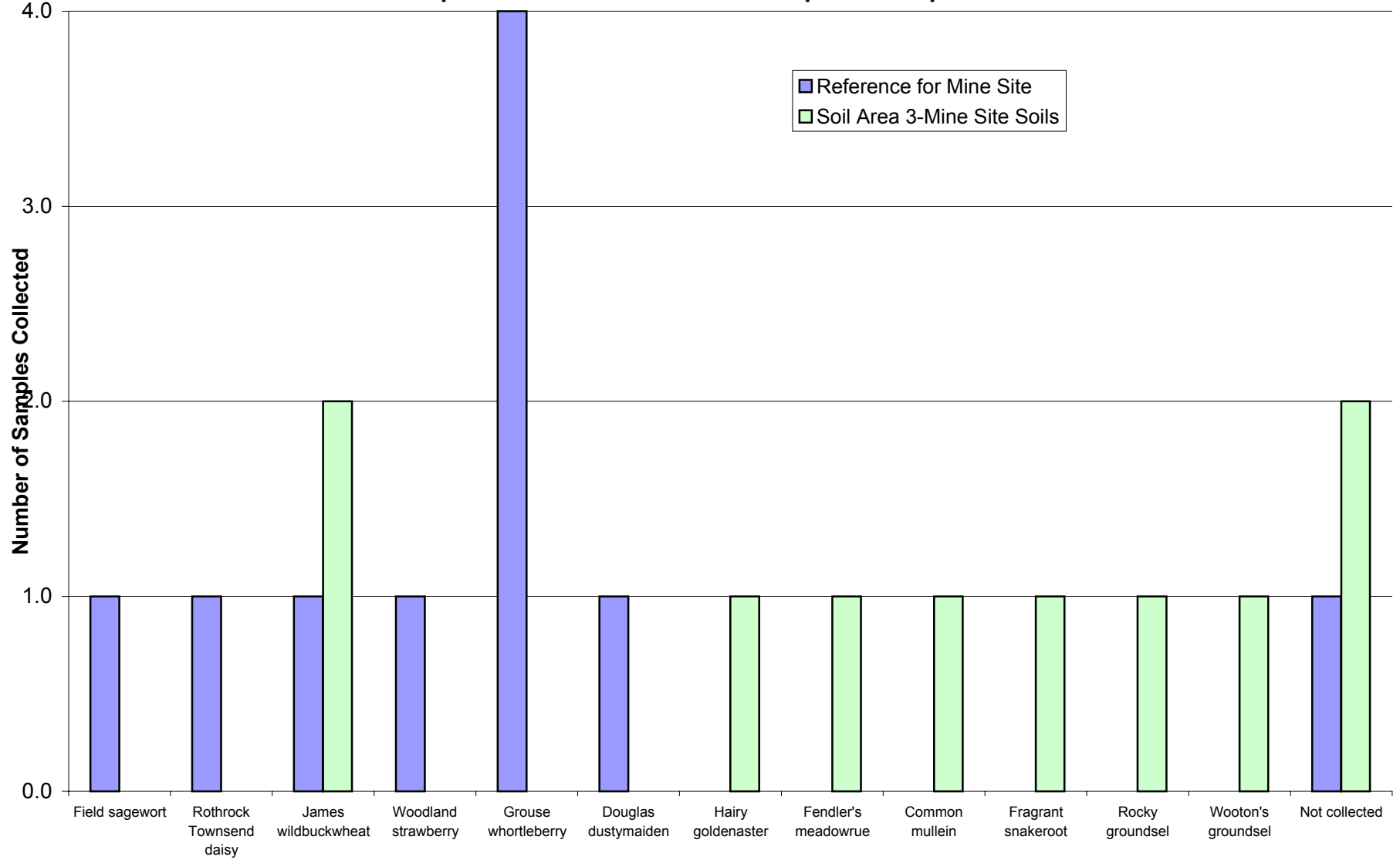


Figure 9-13
Grass Species Collected at Mine Site Upland Sample Sites

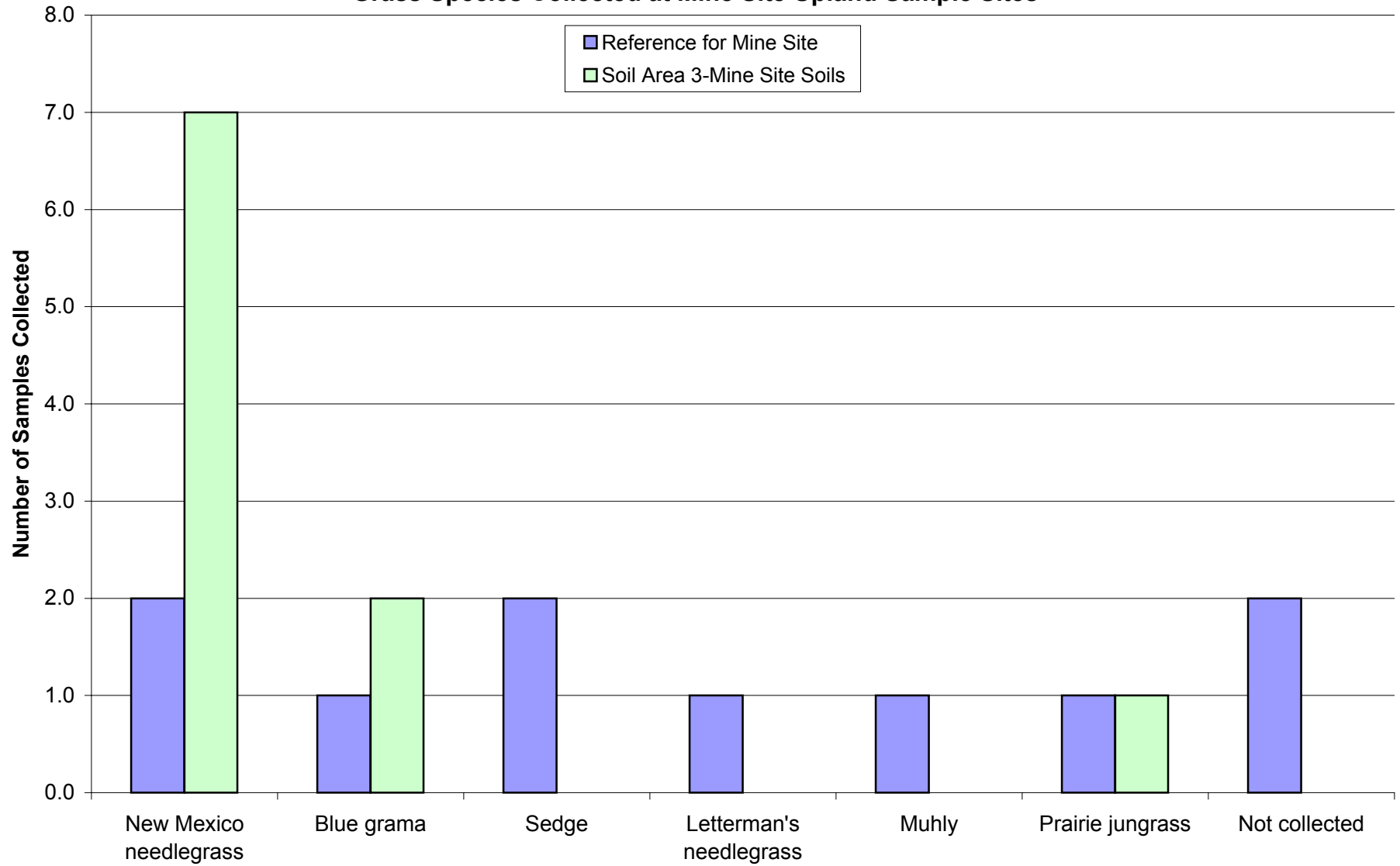


Figure 9-14
Shrub Species Collected at Tailings Facility

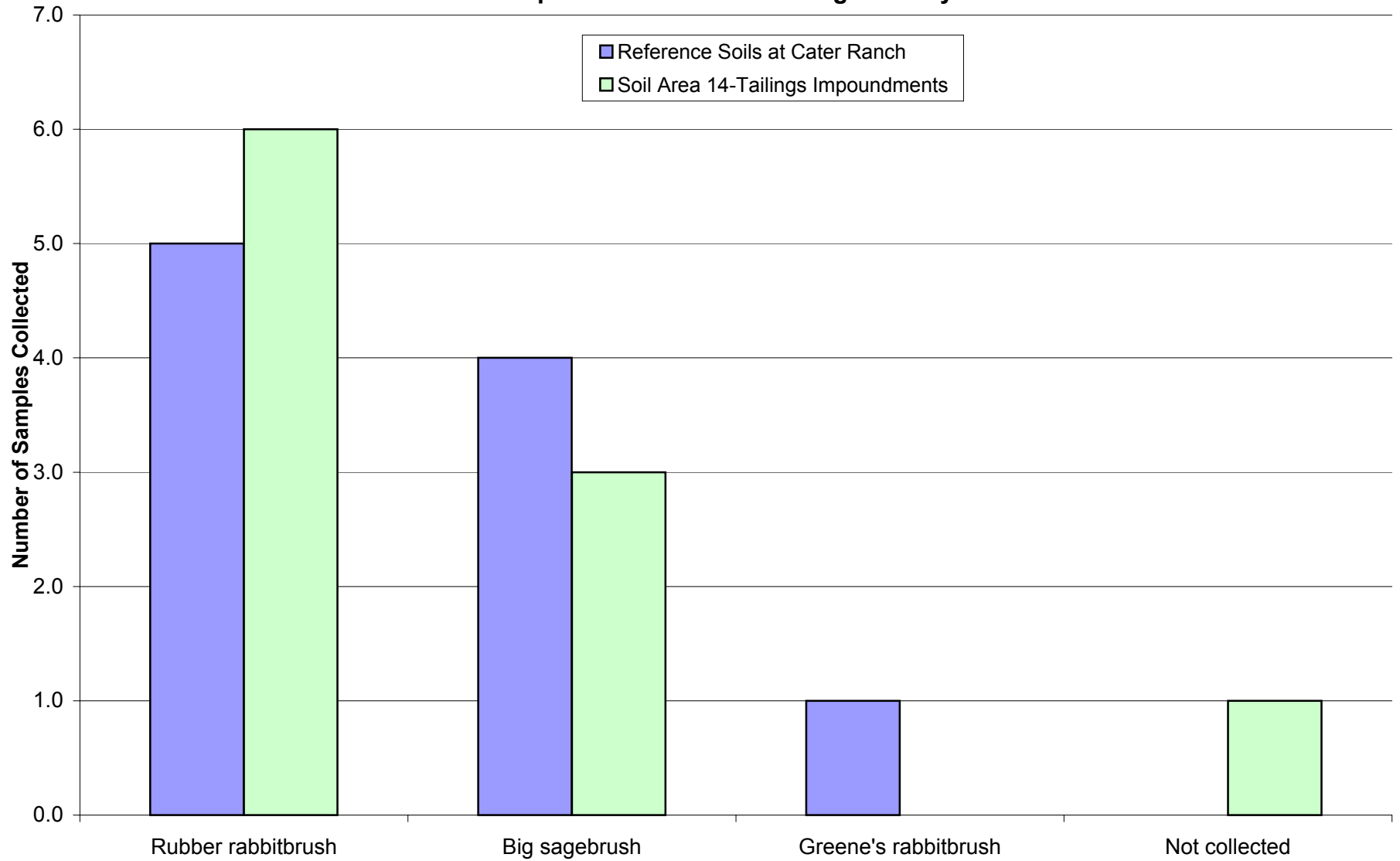


Figure 9-15
Forb Species Collected at Tailings Facility

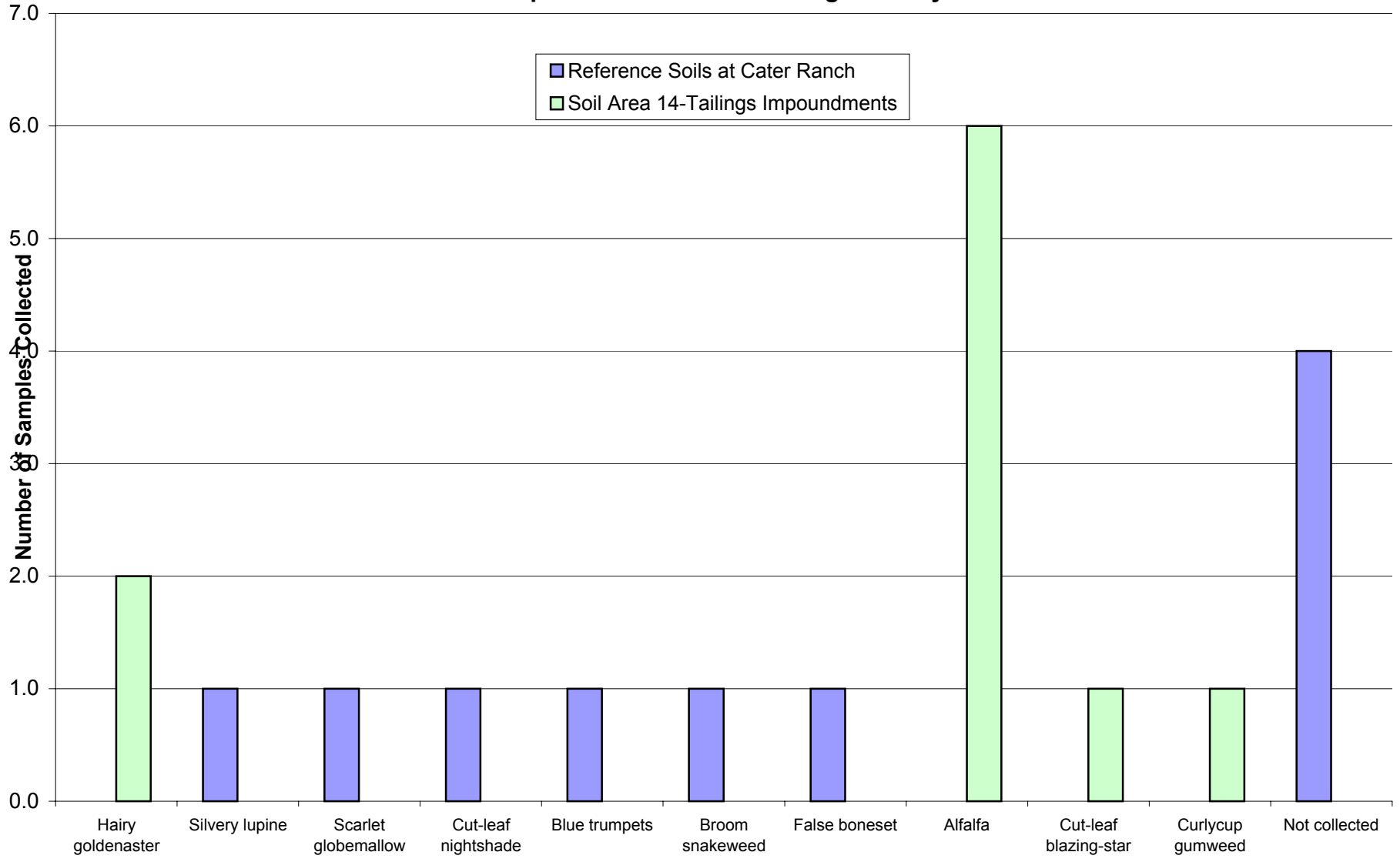


Figure 9-16
Grass Species Collected at Tailings Facility

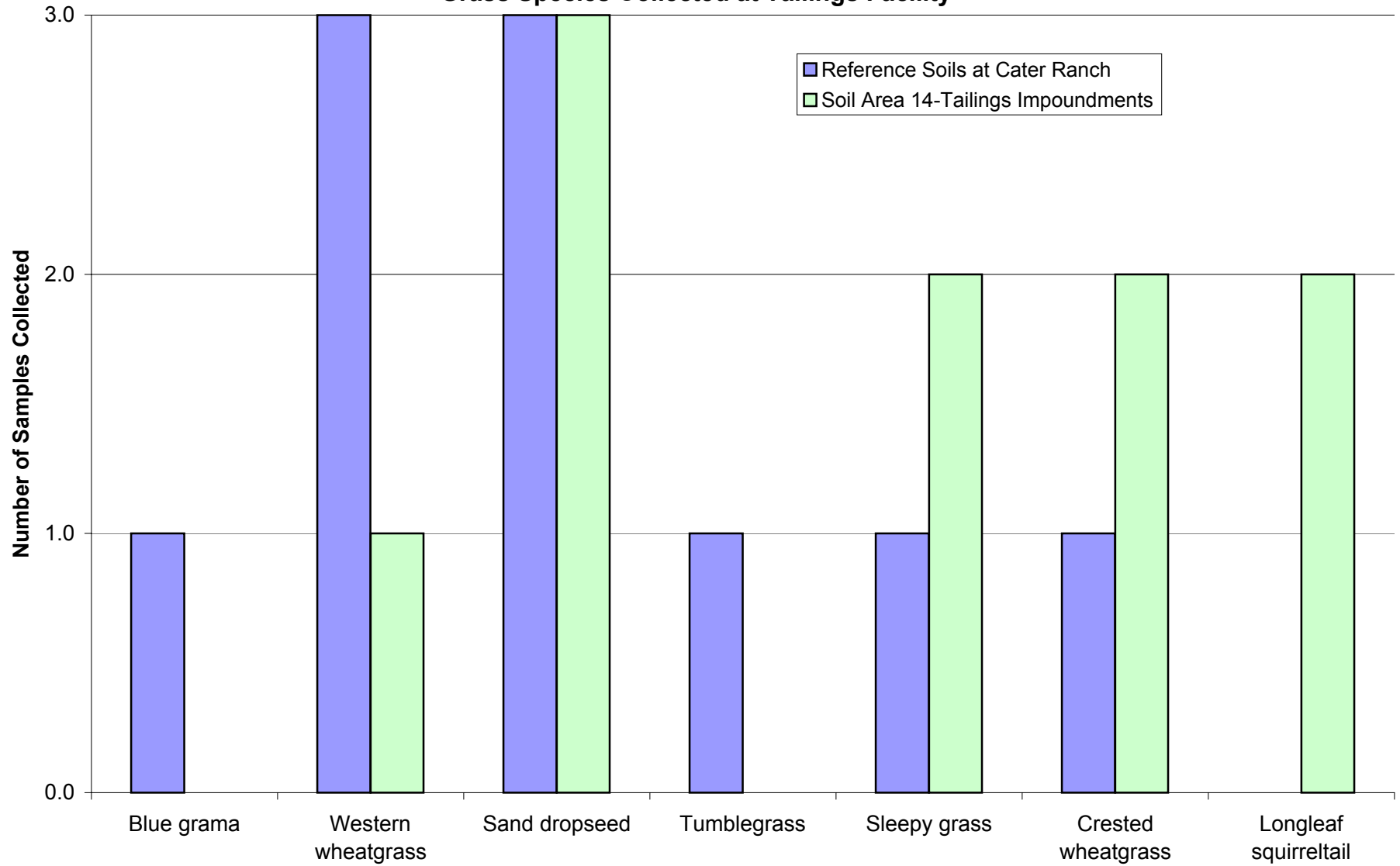


Figure 9-17
Shrub Species Collected at Mine Site Riparian Sample Sites

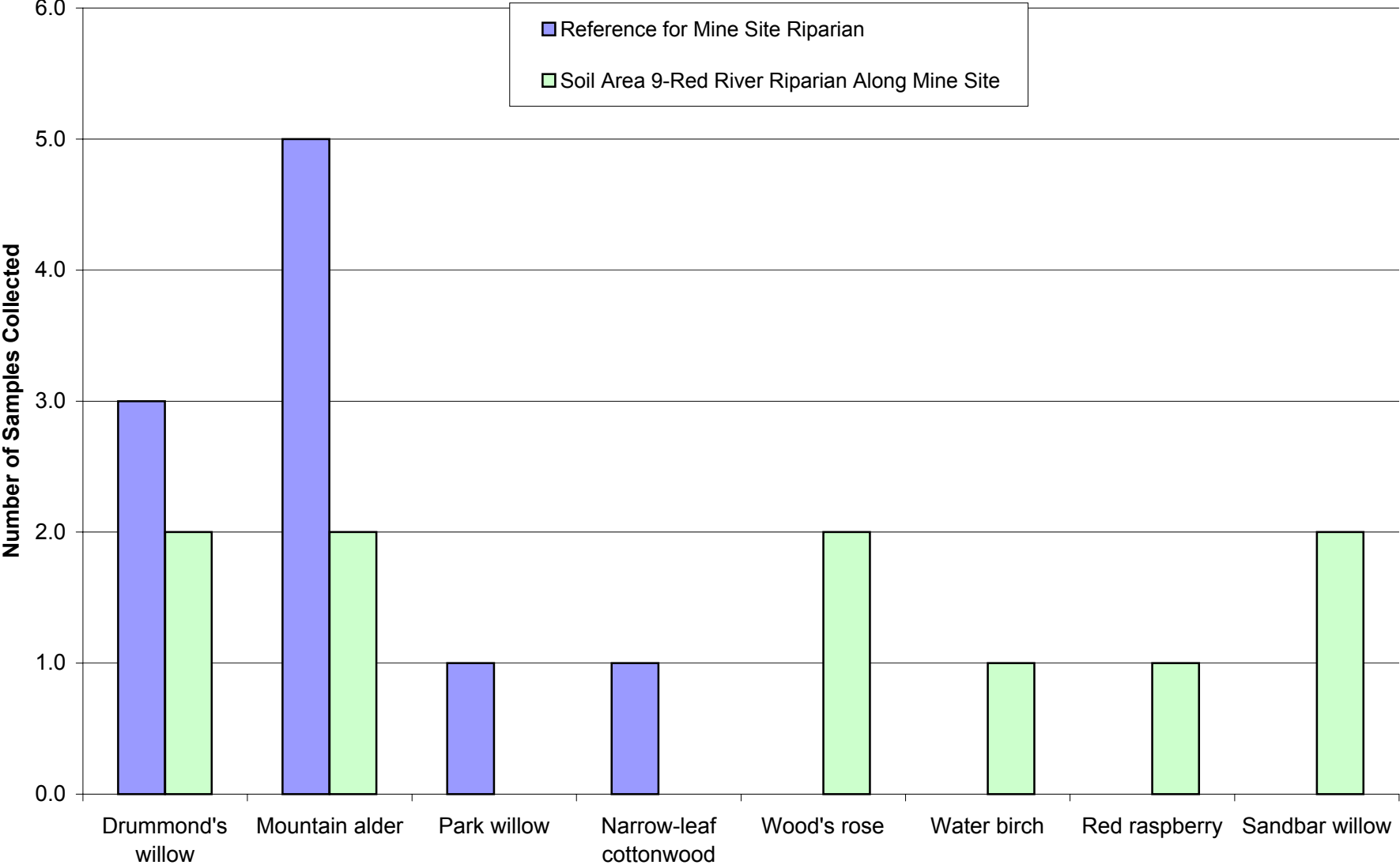


Figure 9-18
Forb Species Collected at Mine Site Riparian Sample Sites

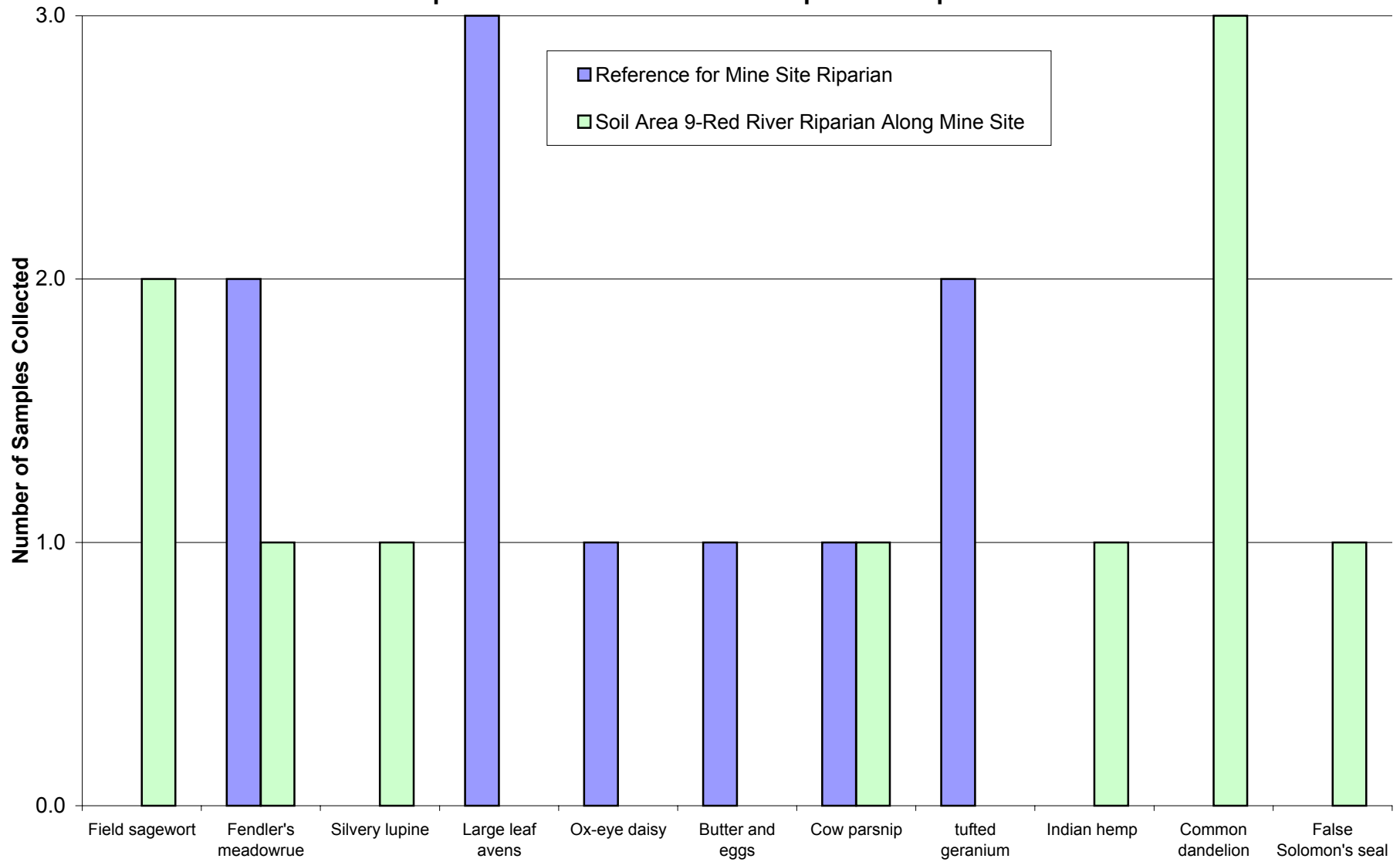


Figure 9-19
Grass Species Collected at Mine Site Riparian Sample Sites

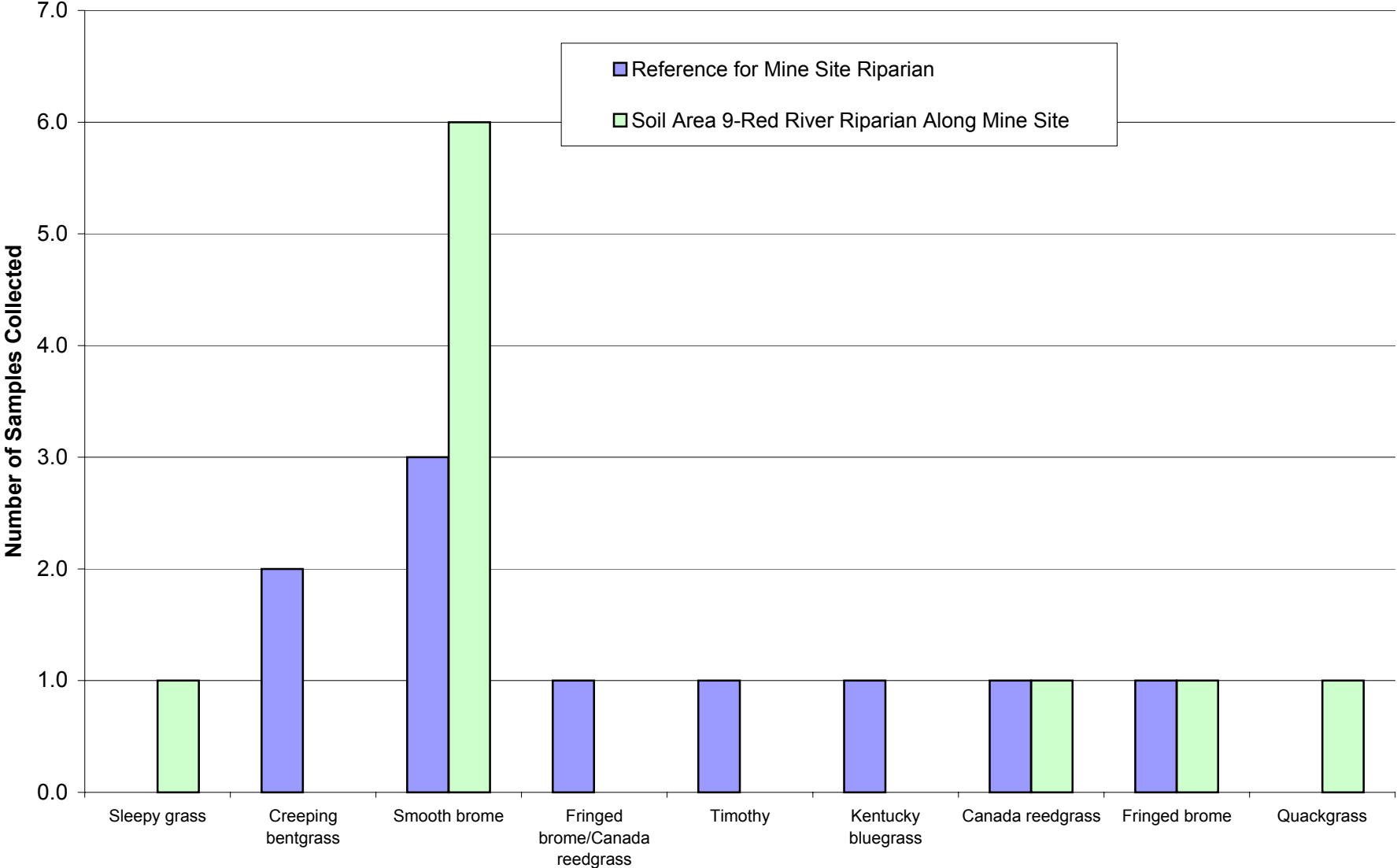


Figure 9-20
Shrub Species Collected at Tailings Facility Riparian and South of Tailings Sample Sites

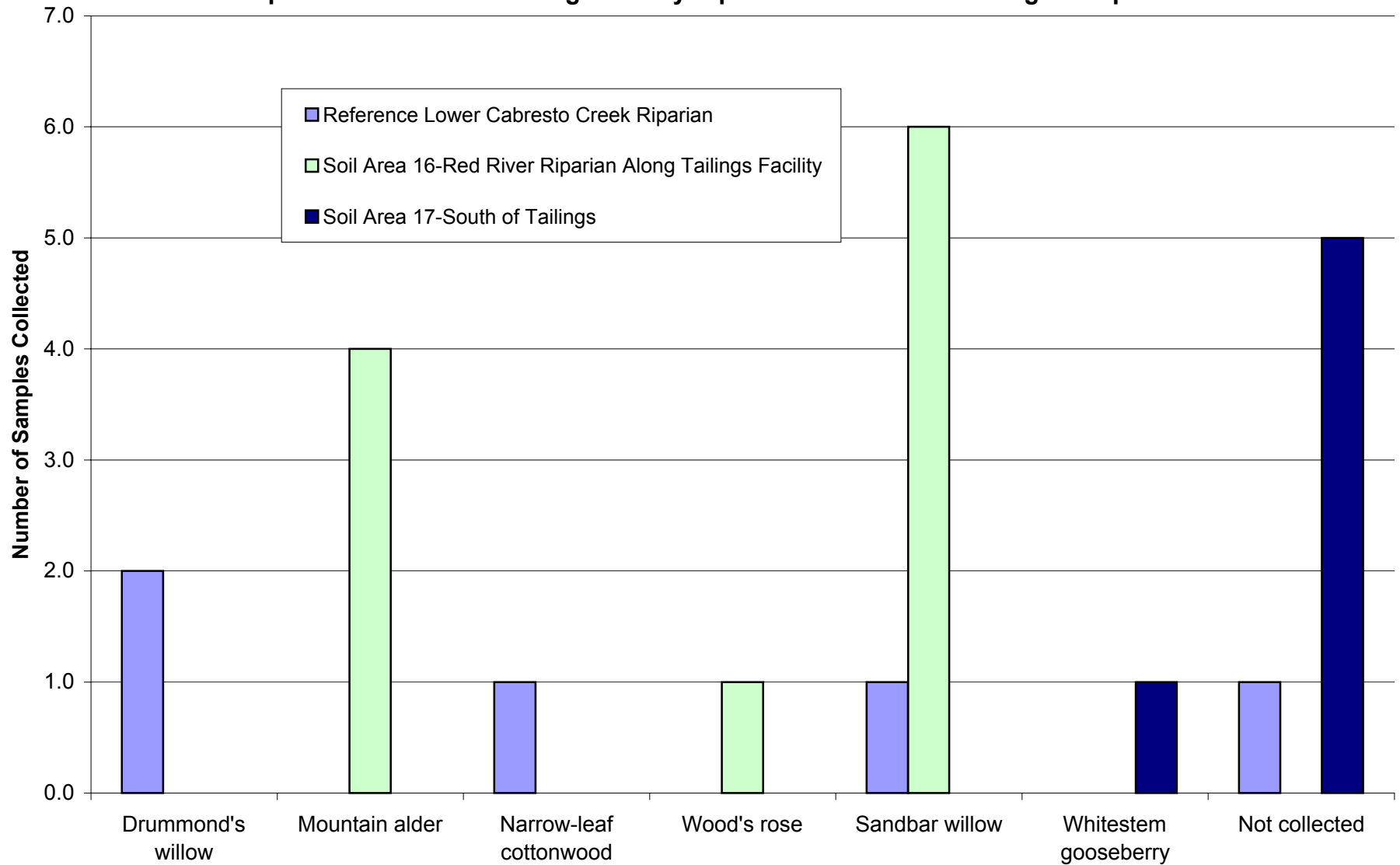


Figure 9-21
Forb Species Collected at Tailings Facility Riparian and South of Tailings Sample Sites

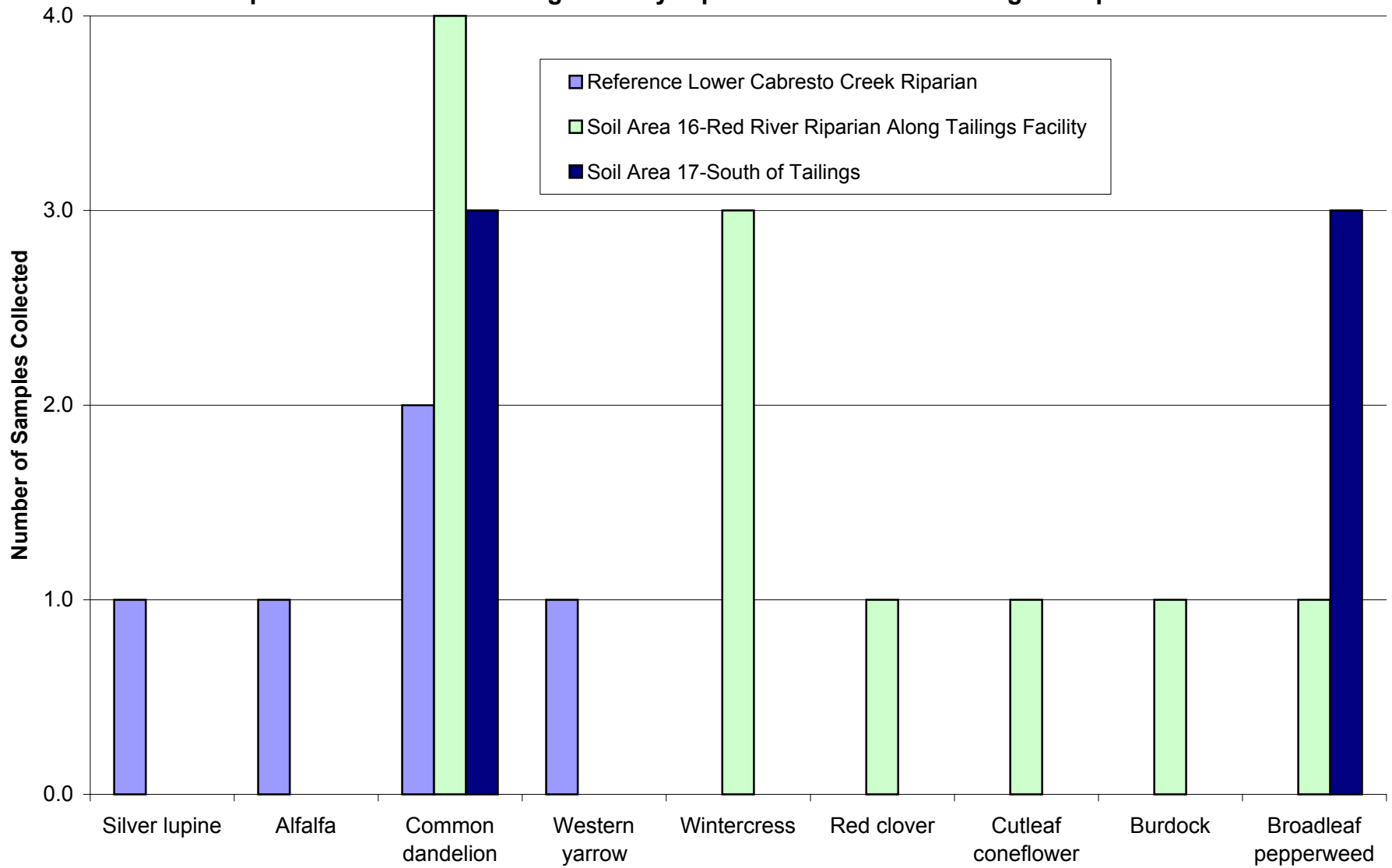


Figure 9-22
Grass Species Collected at Tailings Facility Riparian and South of Tailings Sample Sites

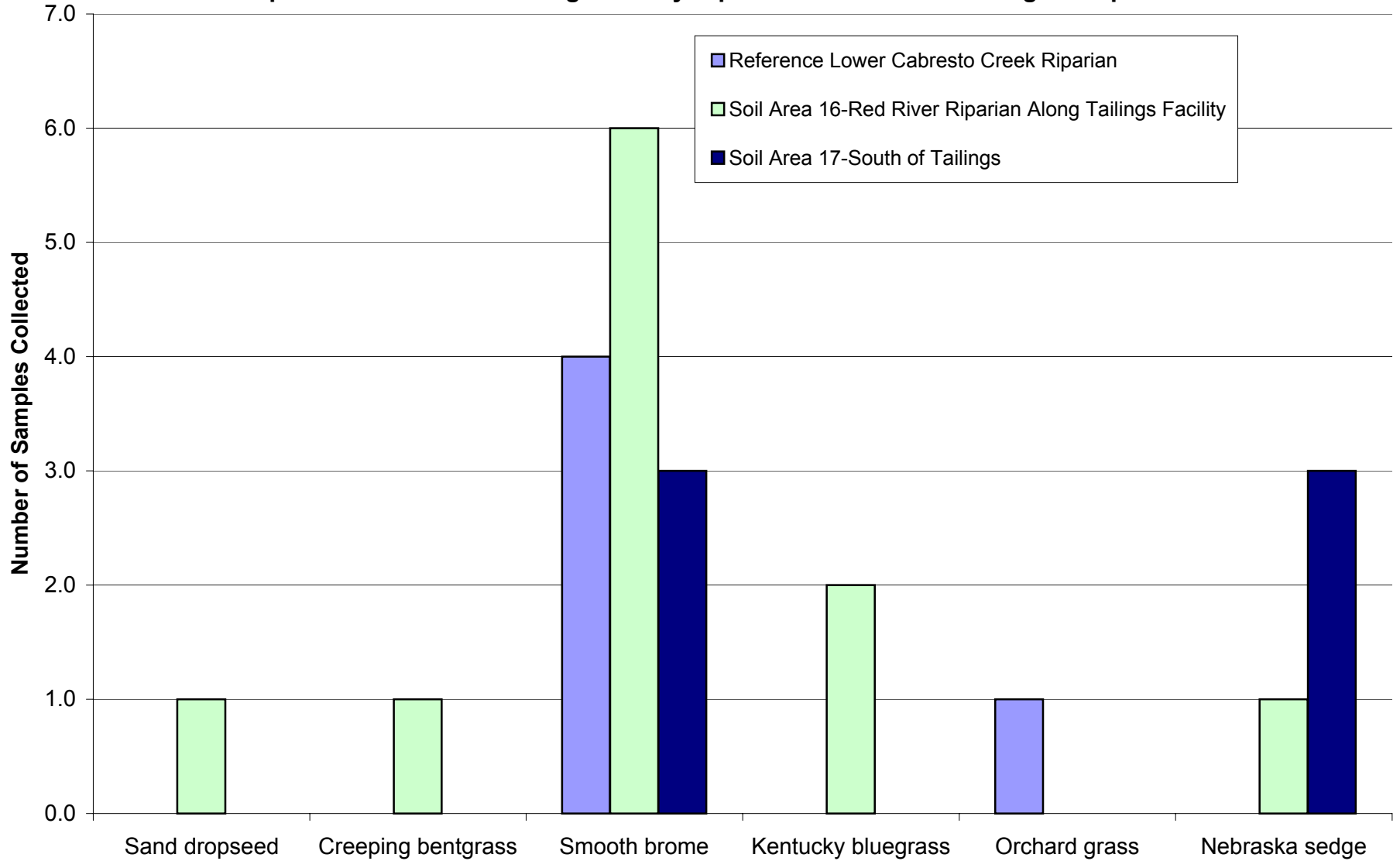


Figure 9-23
Mean Barium Concentrations in Aboveground Plant Tissue

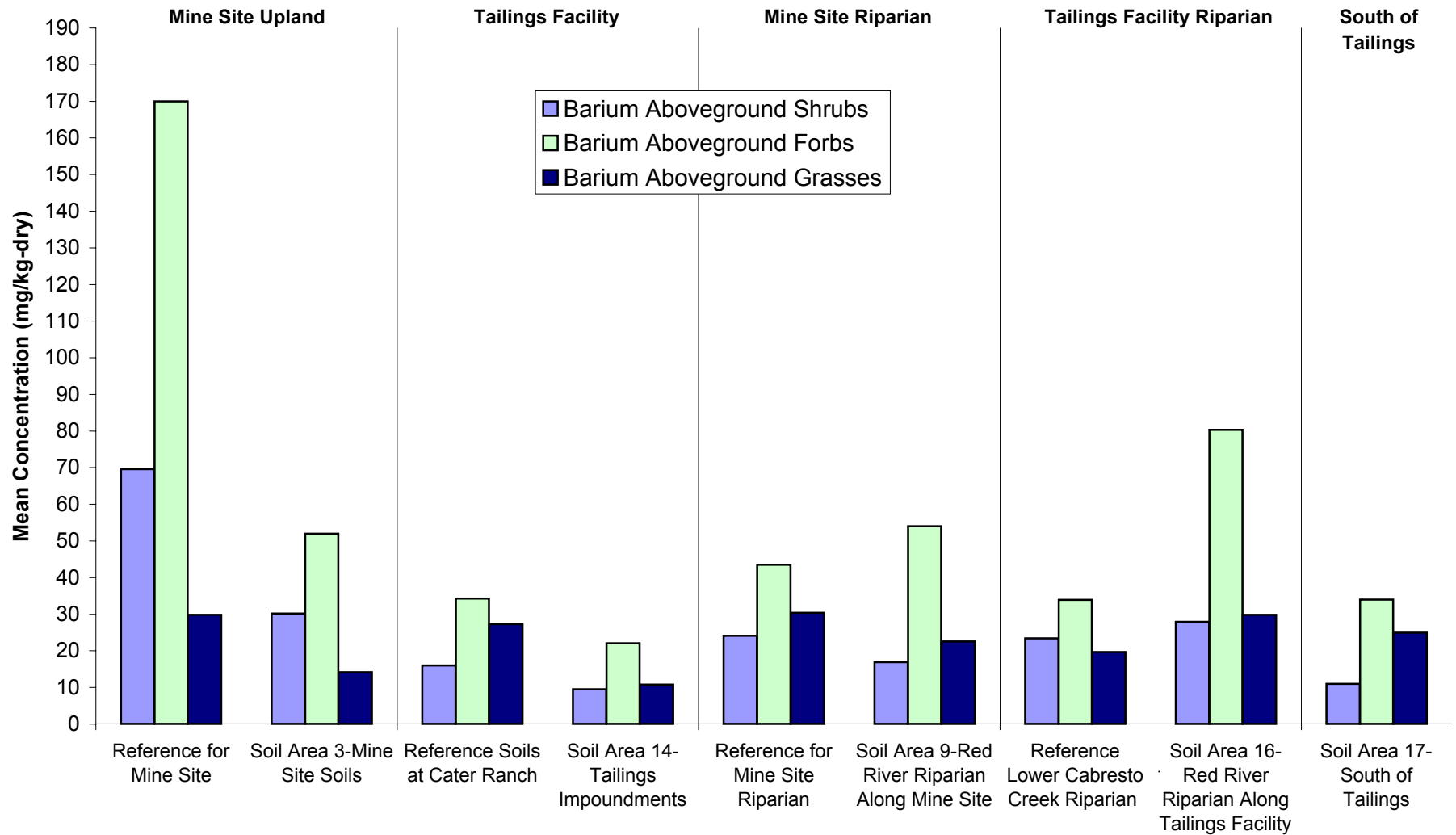


Figure 9-24
Mean Barium Concentrations in Below Ground Plant Tissue

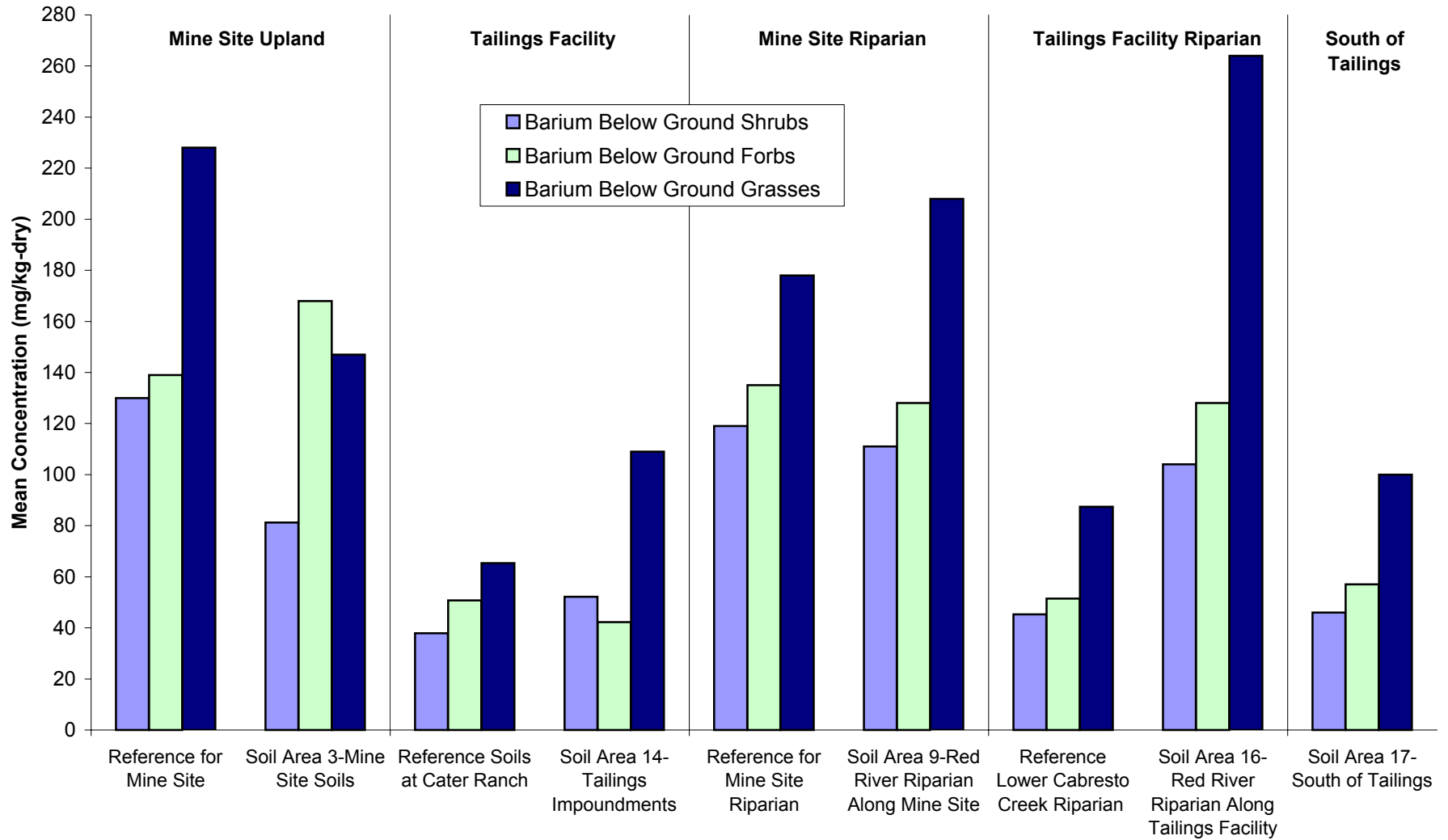


Figure 9-25
Mean Boron Concentrations in Aboveground Plant Tissue

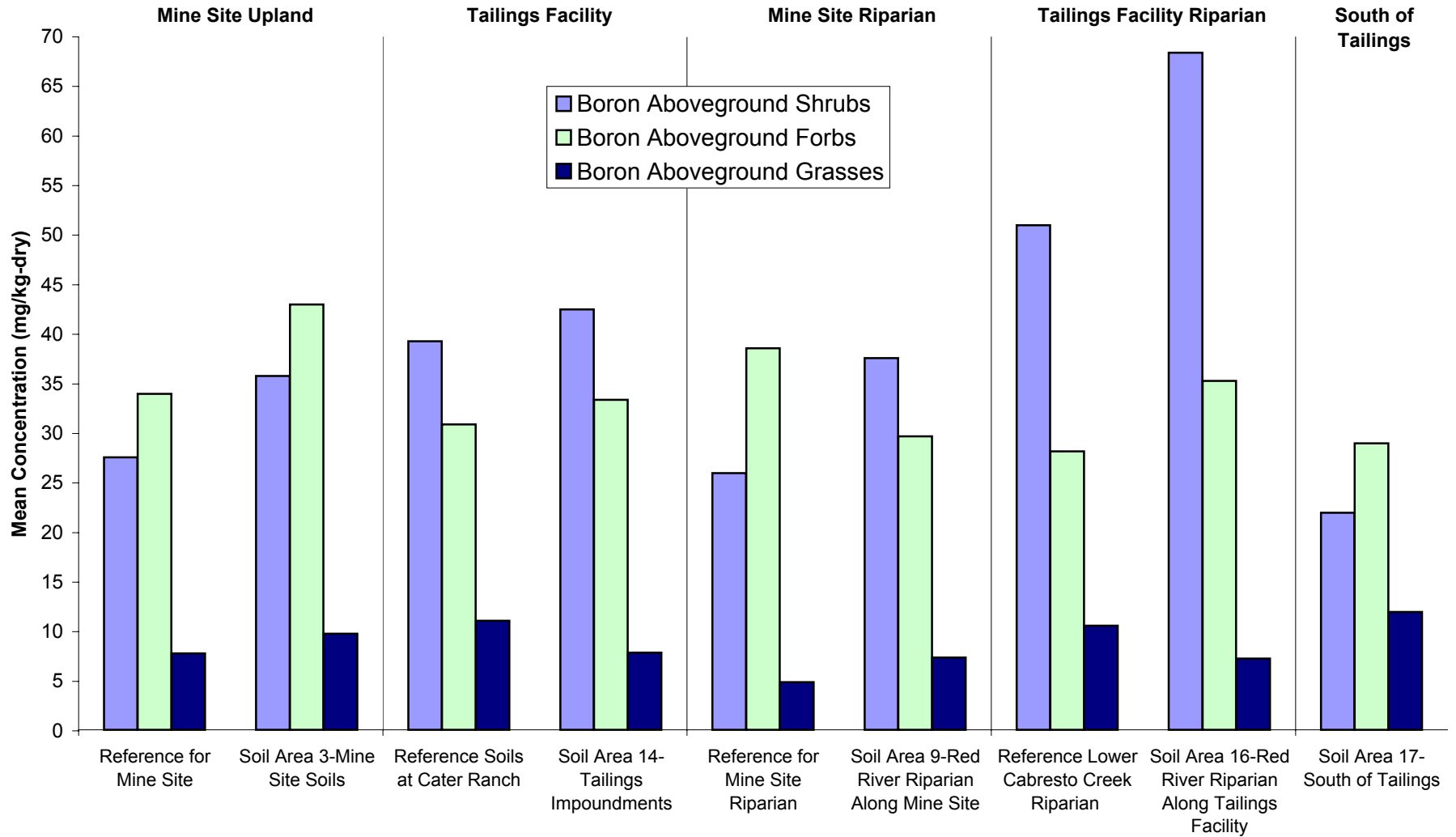
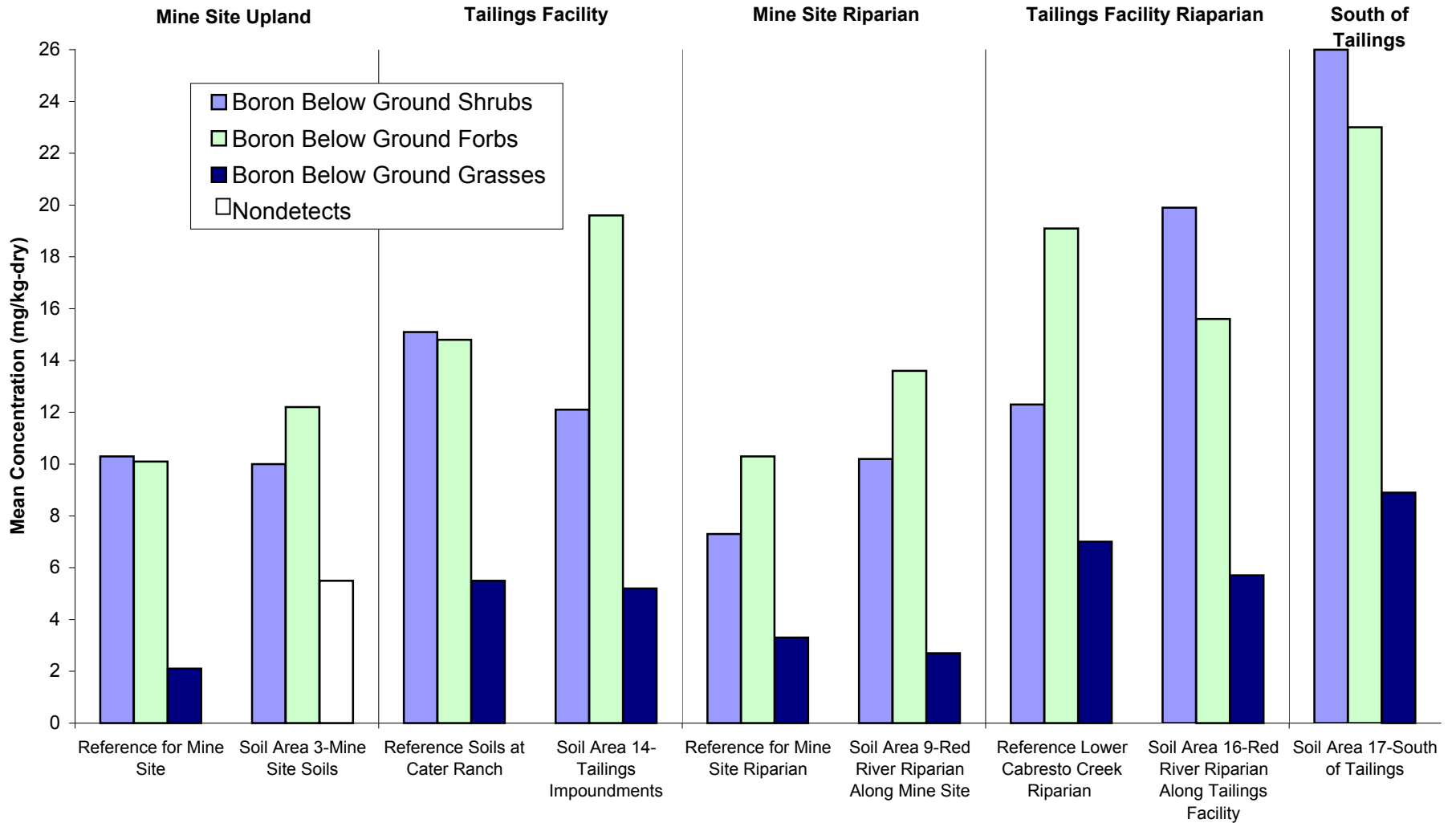
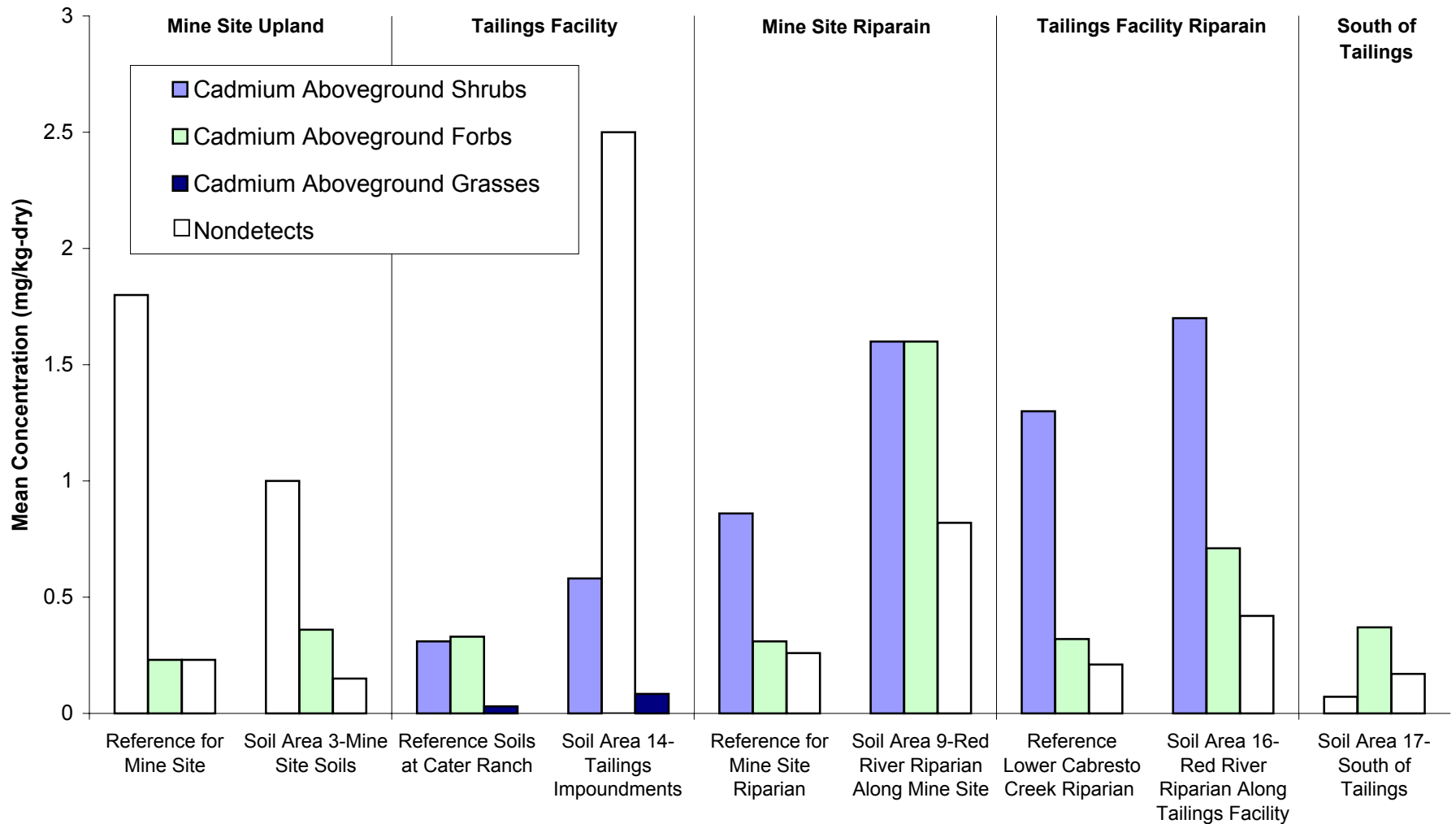


Figure 9-26
Mean Boron Concentrations in Below Ground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-27
Mean Cadmium Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-28
Mean Cadmium Concentrations in Below Ground Plant Tissue

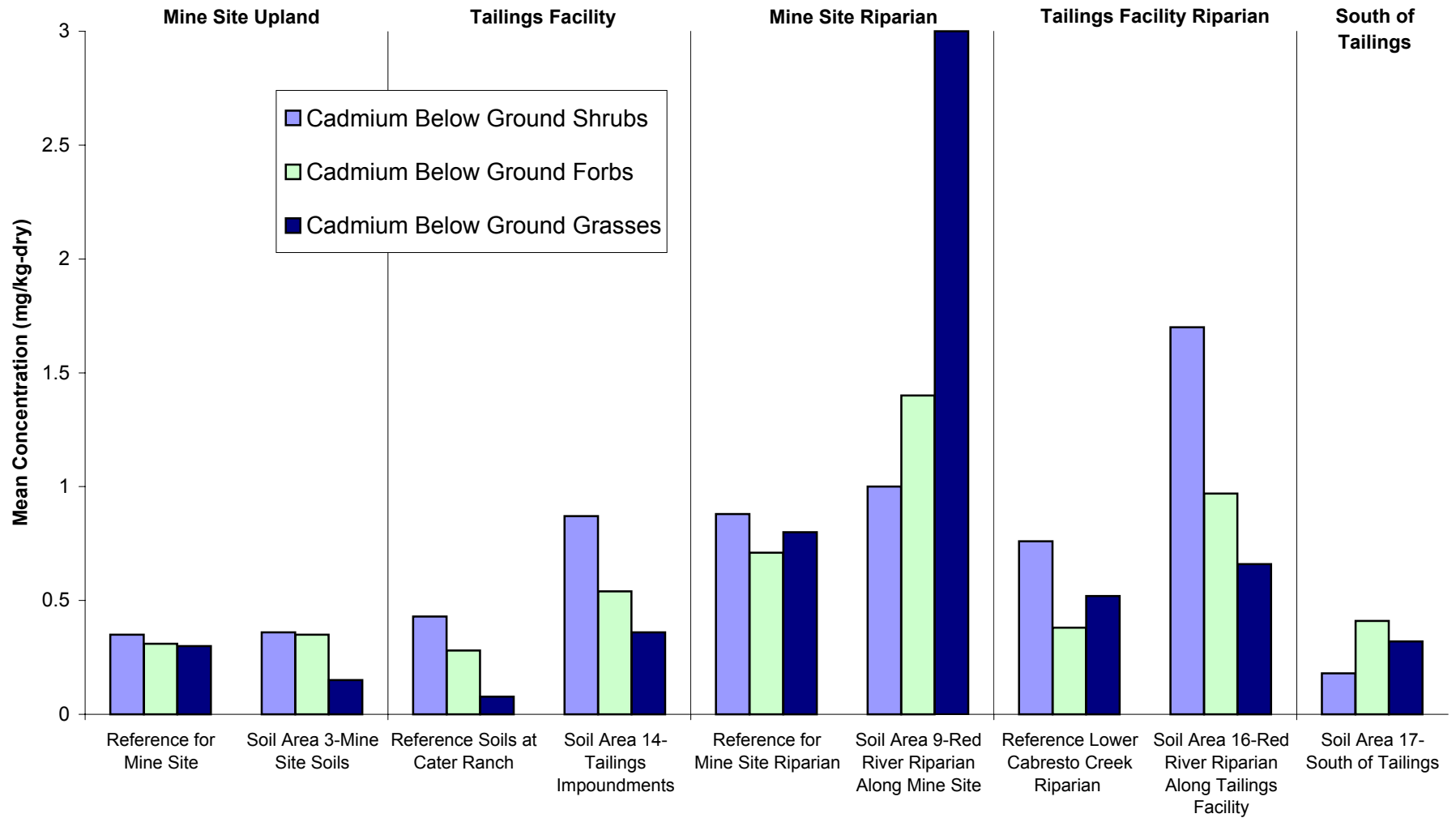
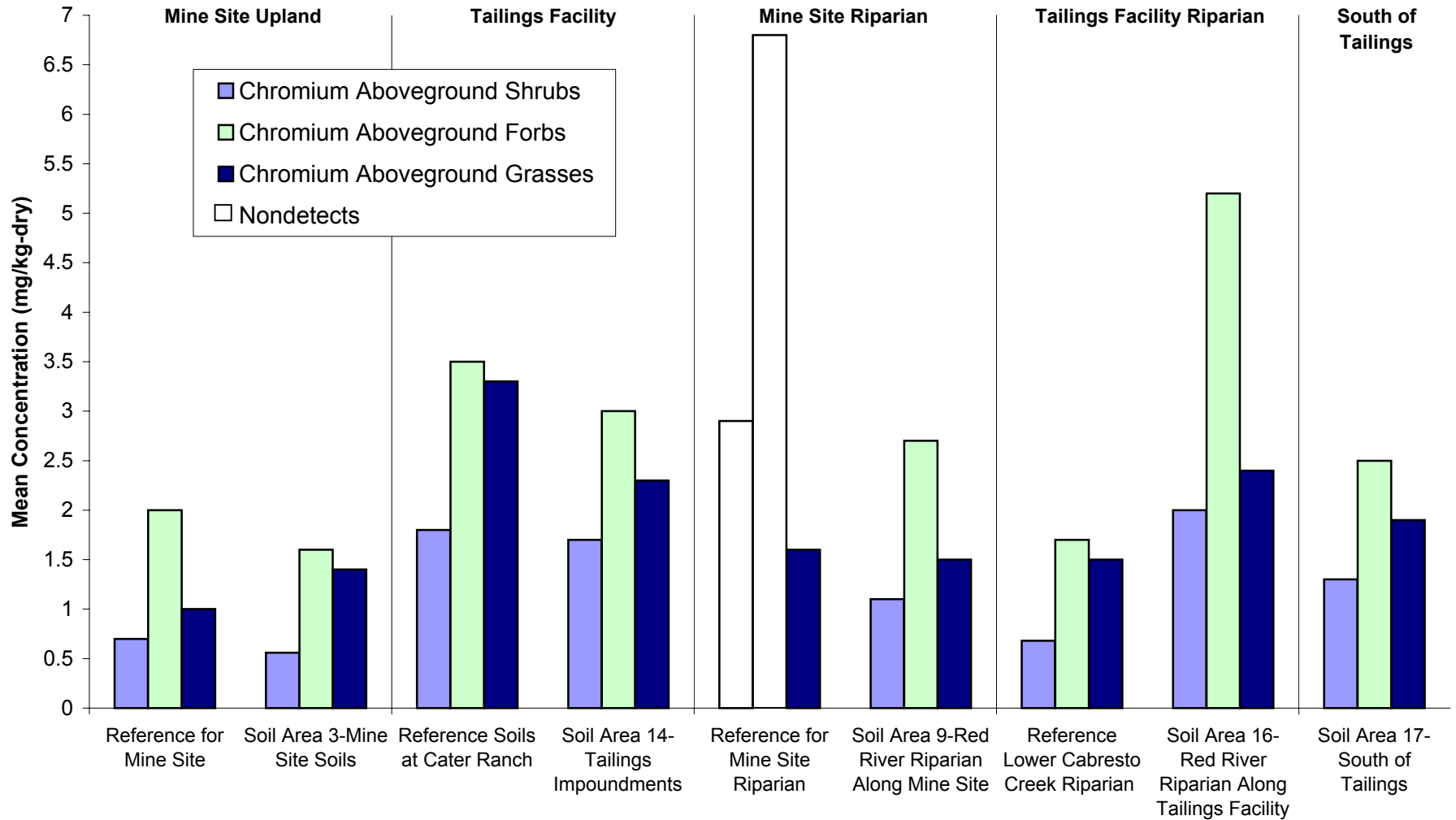


Figure 9-29
Mean Chromium Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-30
Mean Chromium Concentrations in Below Ground Plant Tissue

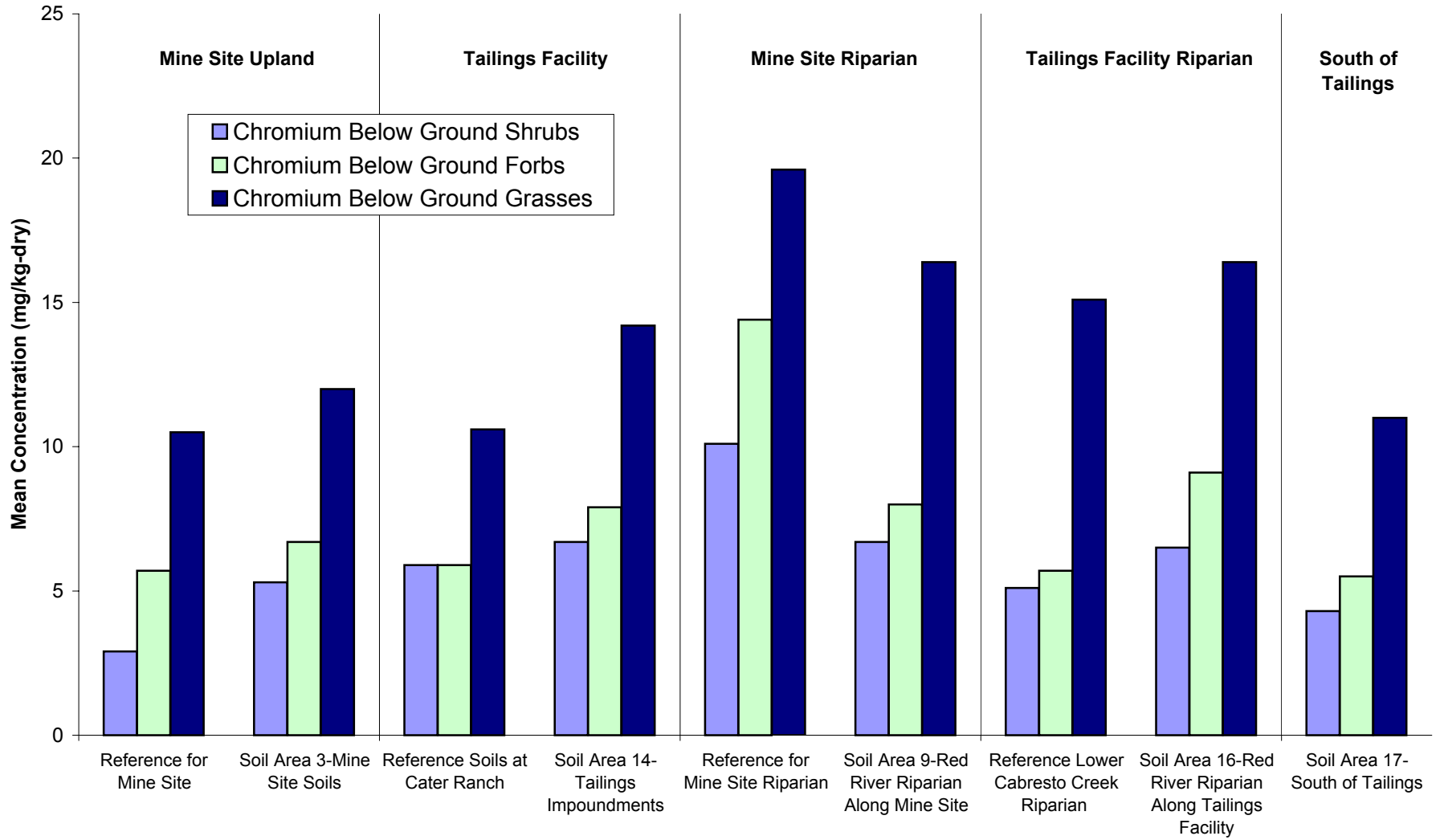


Figure 9-31
Mean Copper Concentrations in Aboveground Plant Tissue

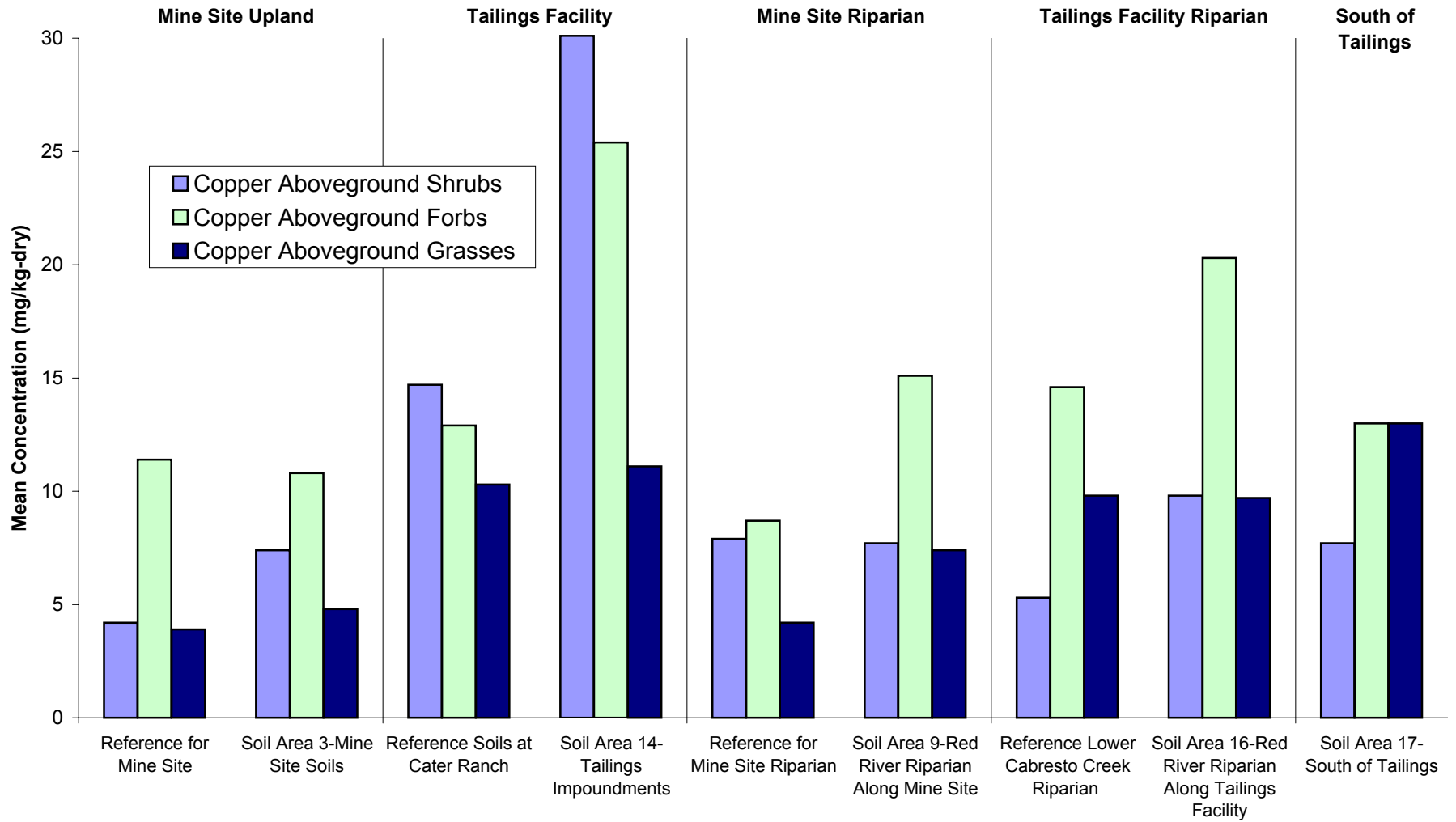


Figure 9-32
Mean Copper Concentrations in Below Ground Plant Tissue

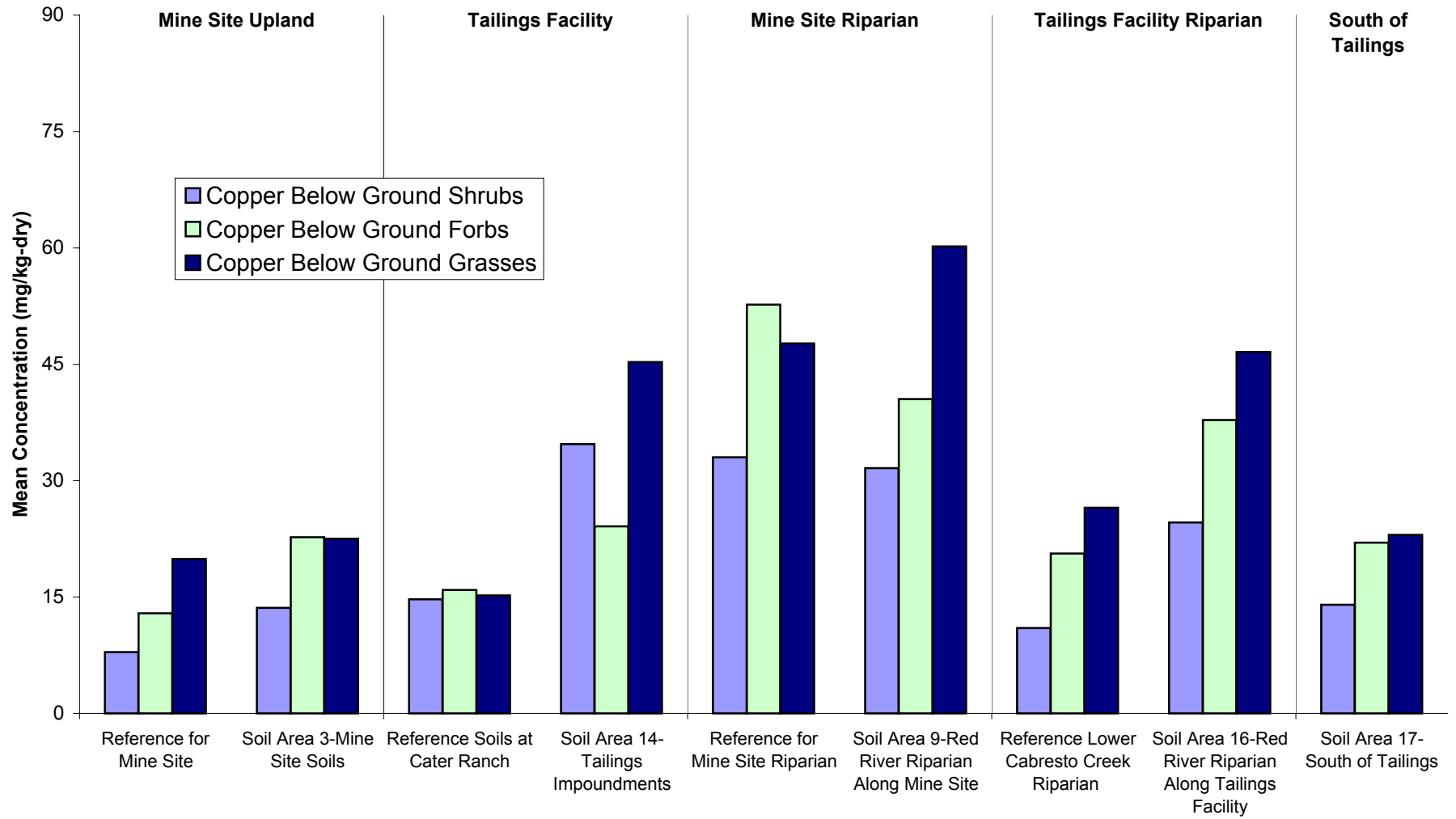
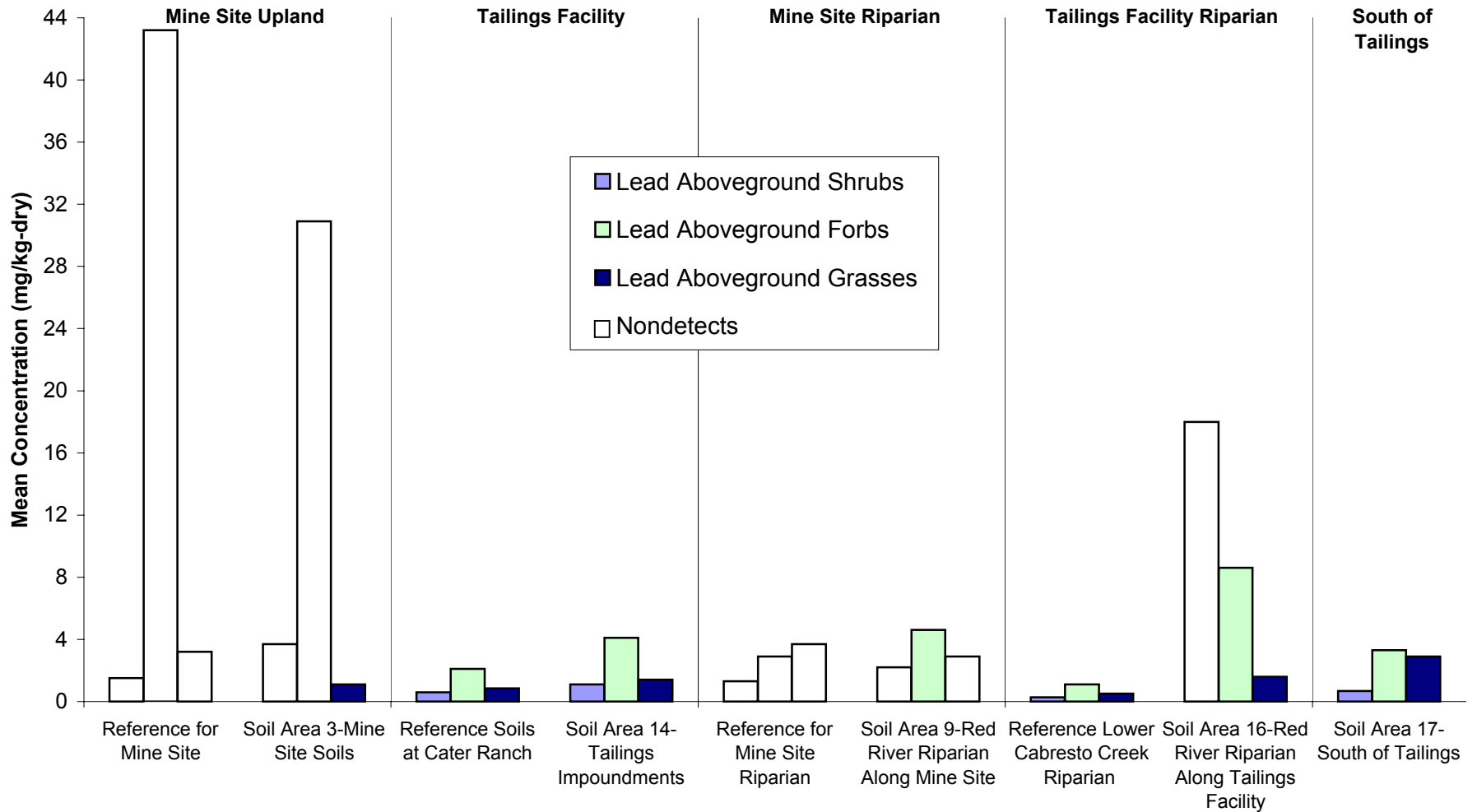


Figure 9-33
Mean Lead Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-34
Mean Lead Concentrations in Below Ground Plant Tissue

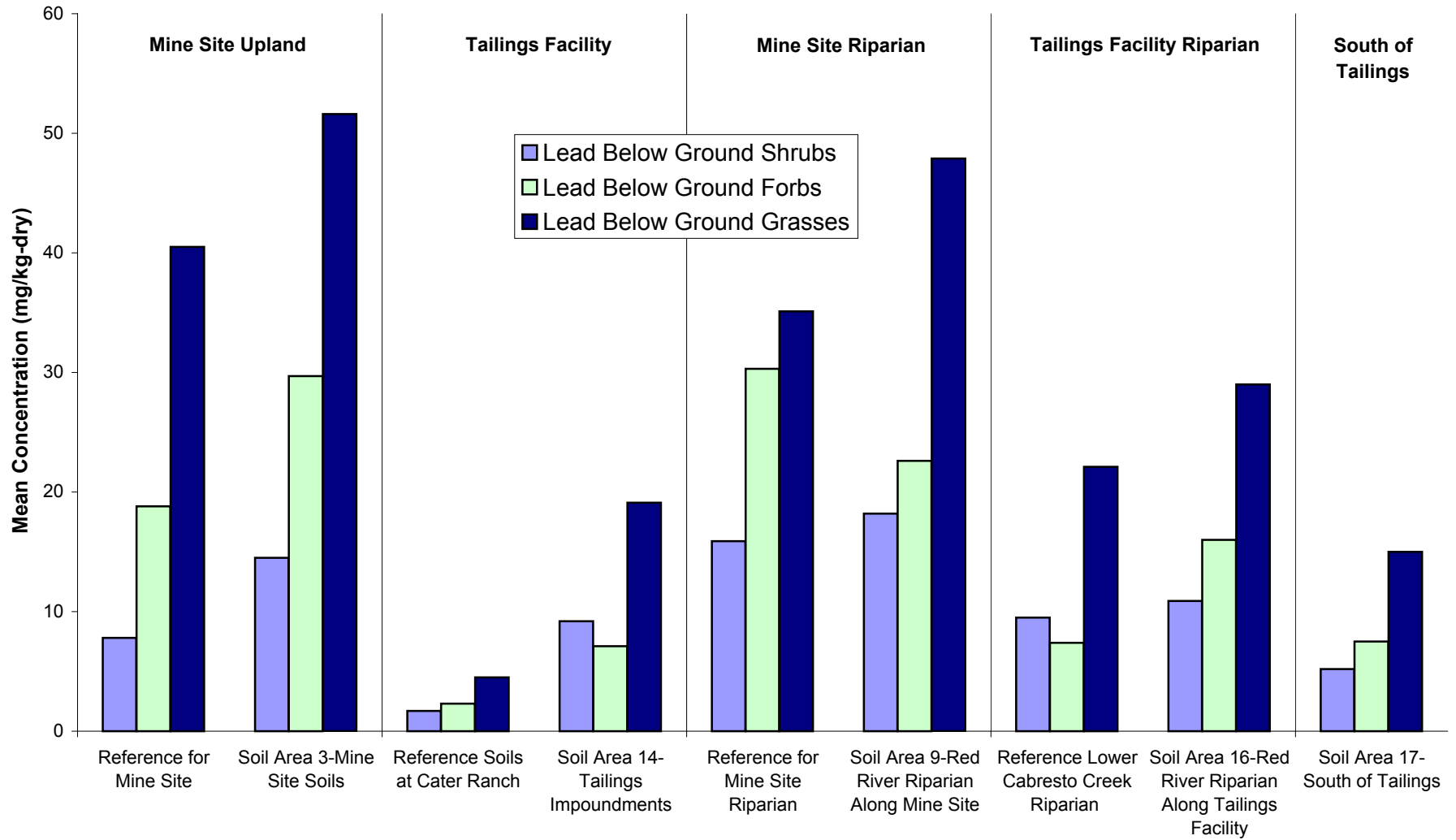


Figure 9-35
Mean Manganese Concentrations in Aboveground Plant Tissue

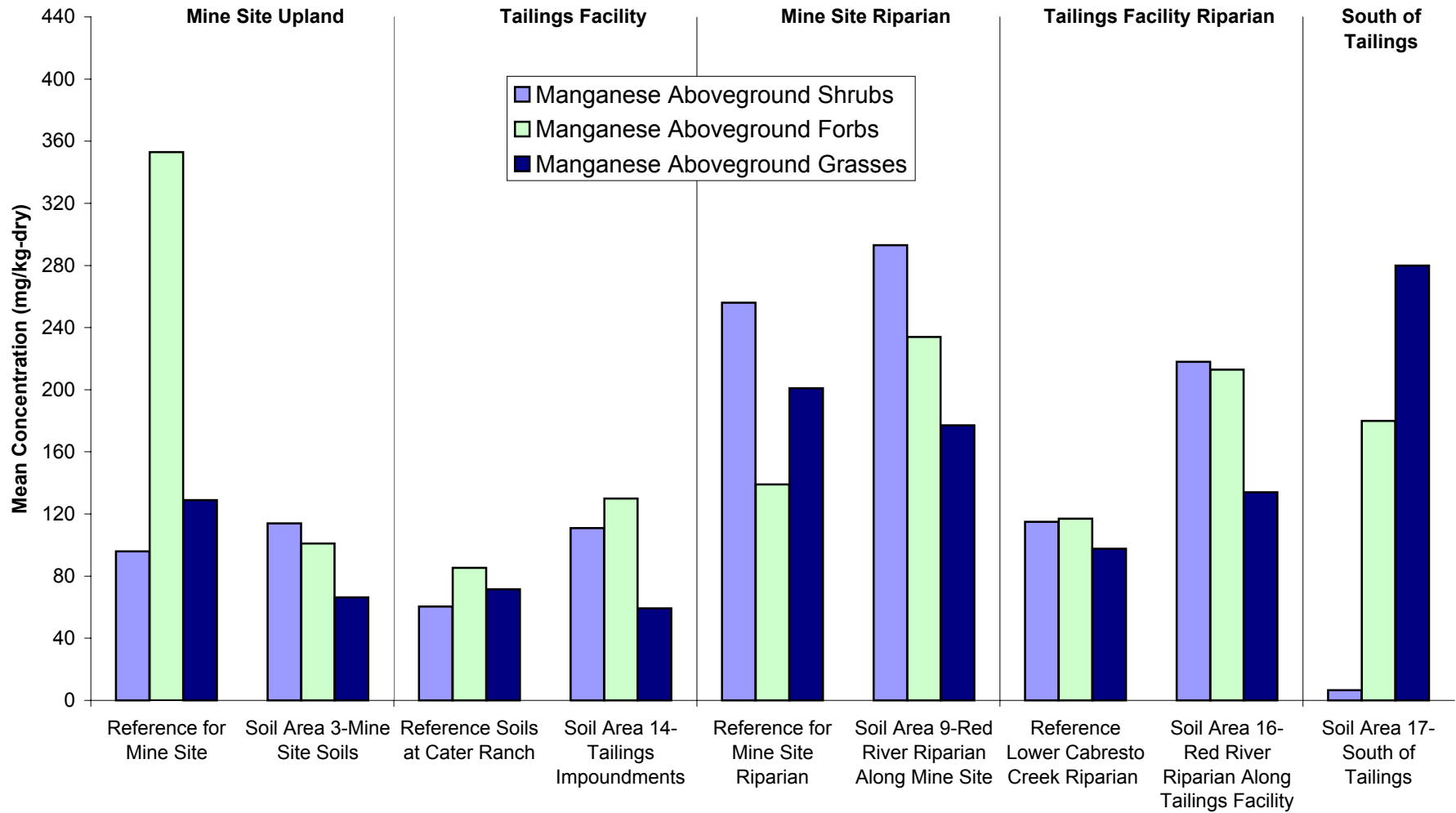


Figure 9-36
Mean Manganese Concentrations in Below Ground Plant Tissue

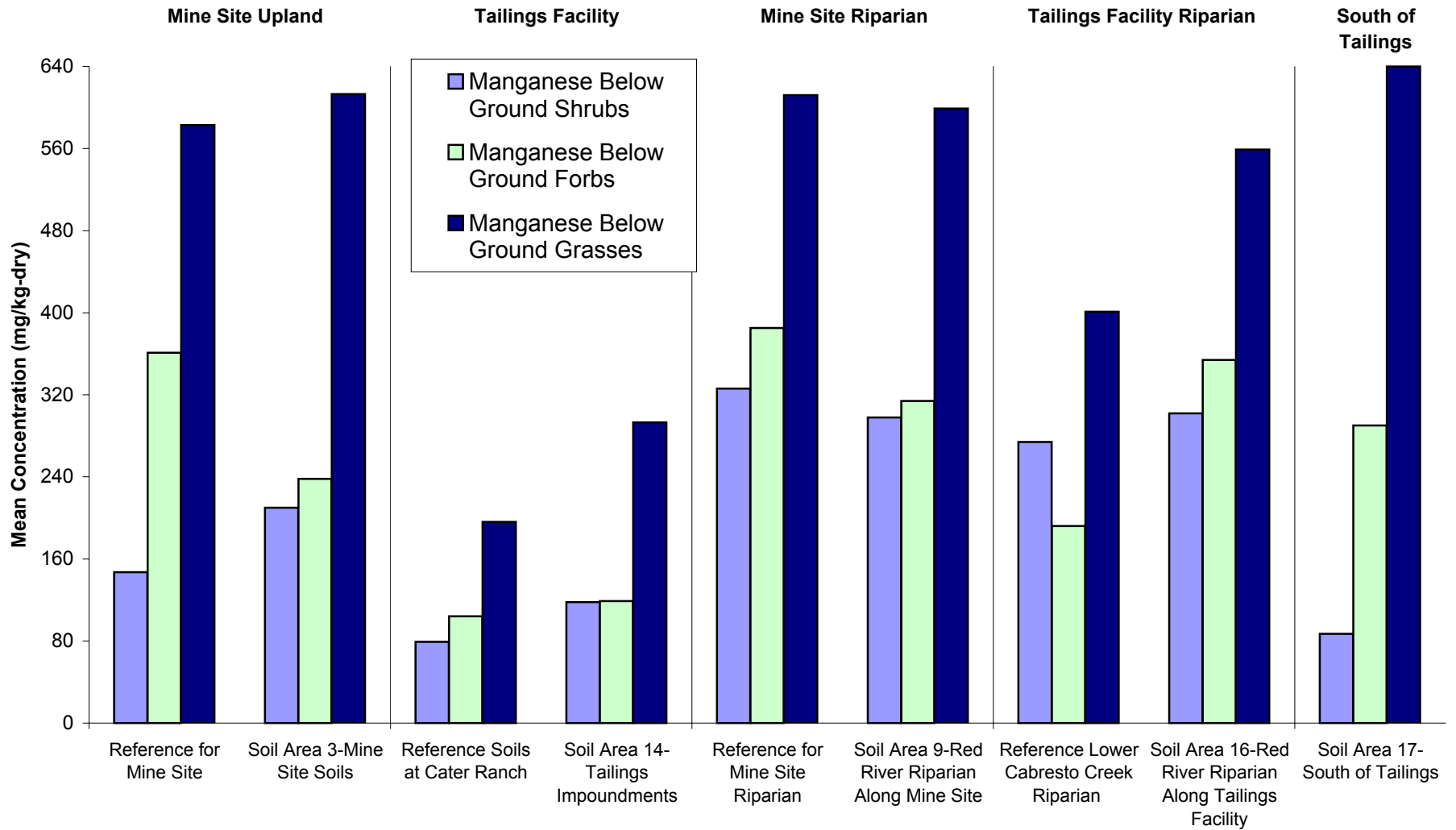
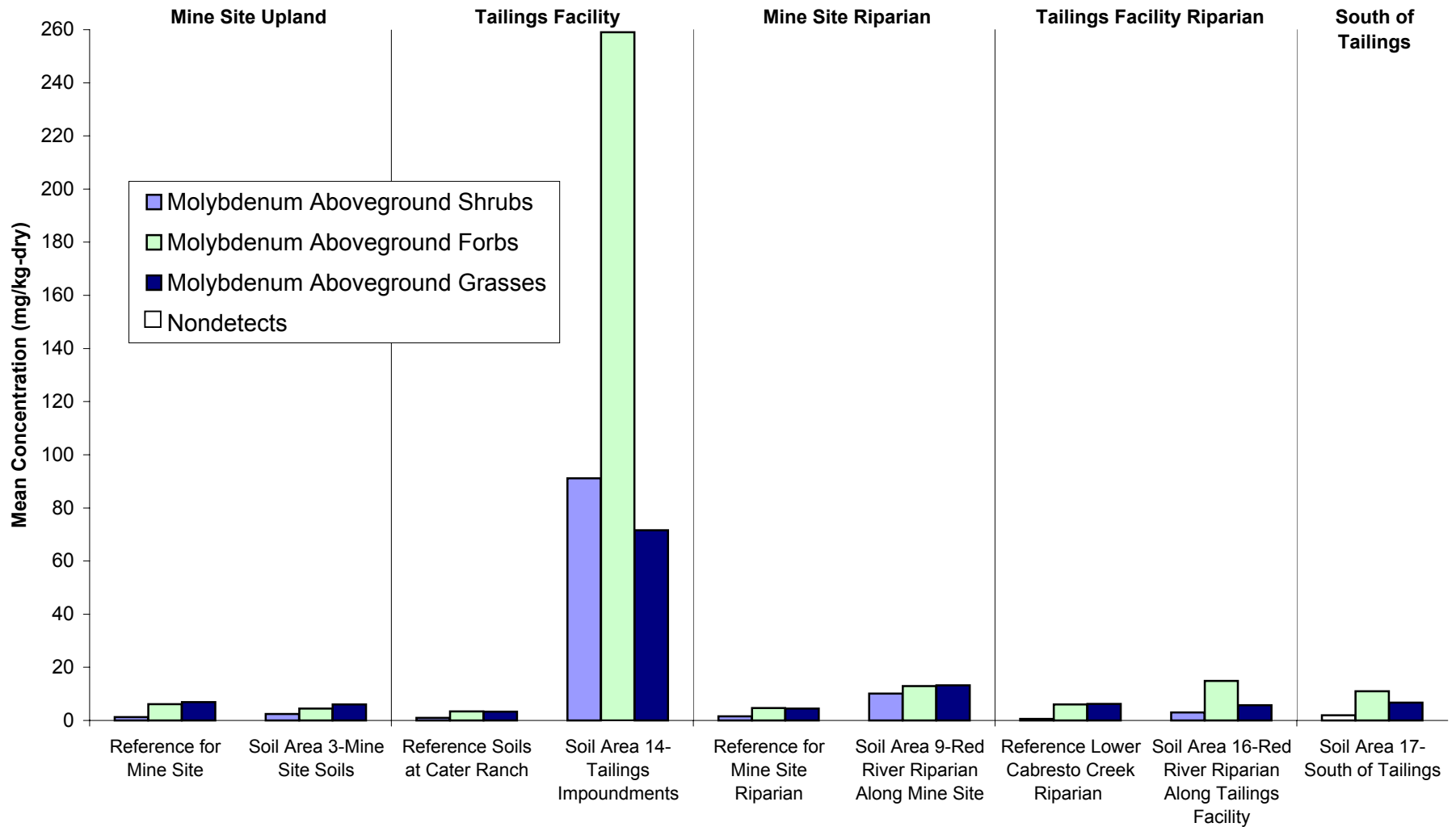


Figure 9-37
Mean Molybdenum Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-38
Mean Molybdenum Concentrations in Below Ground Plant Tissue

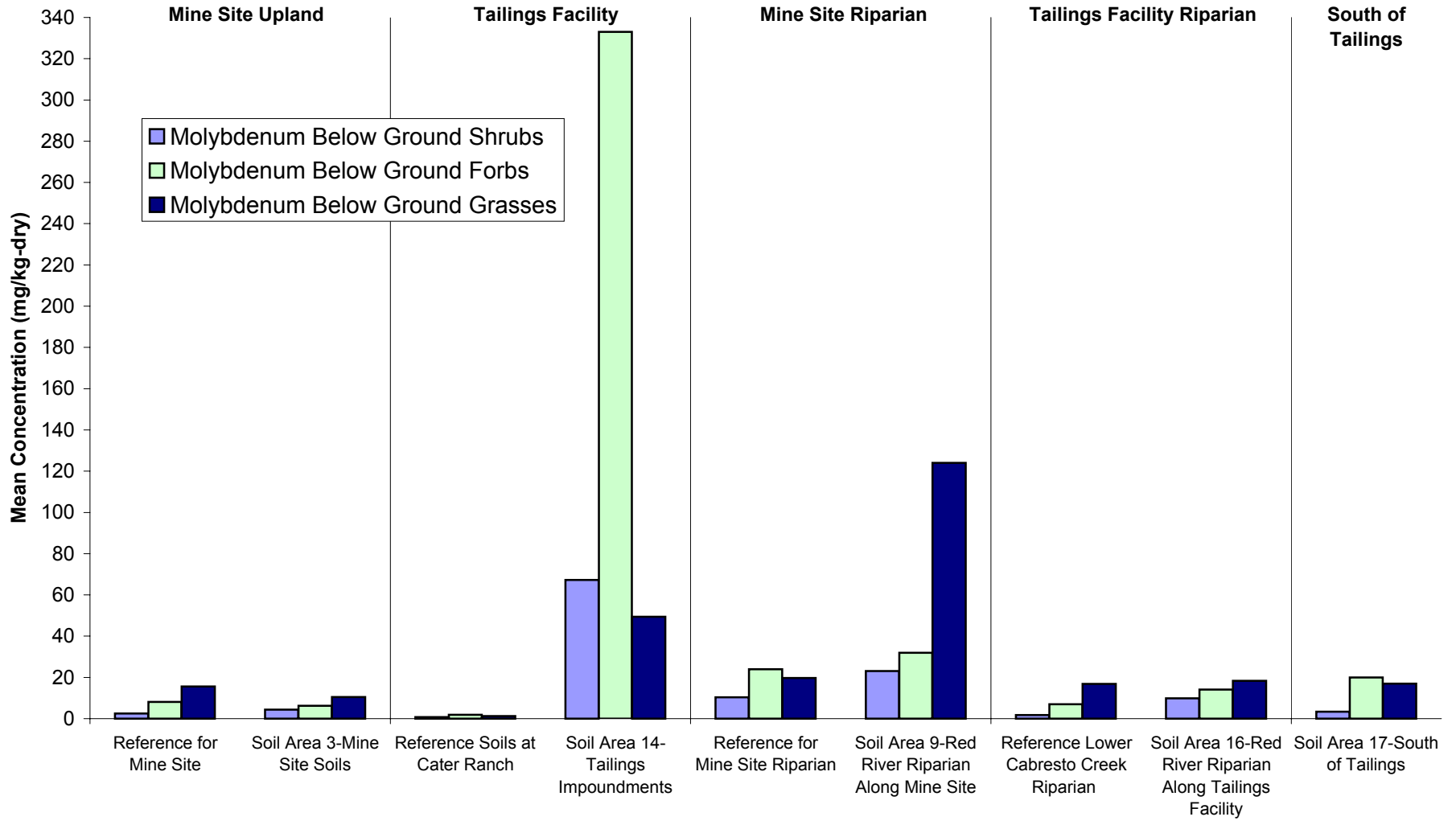
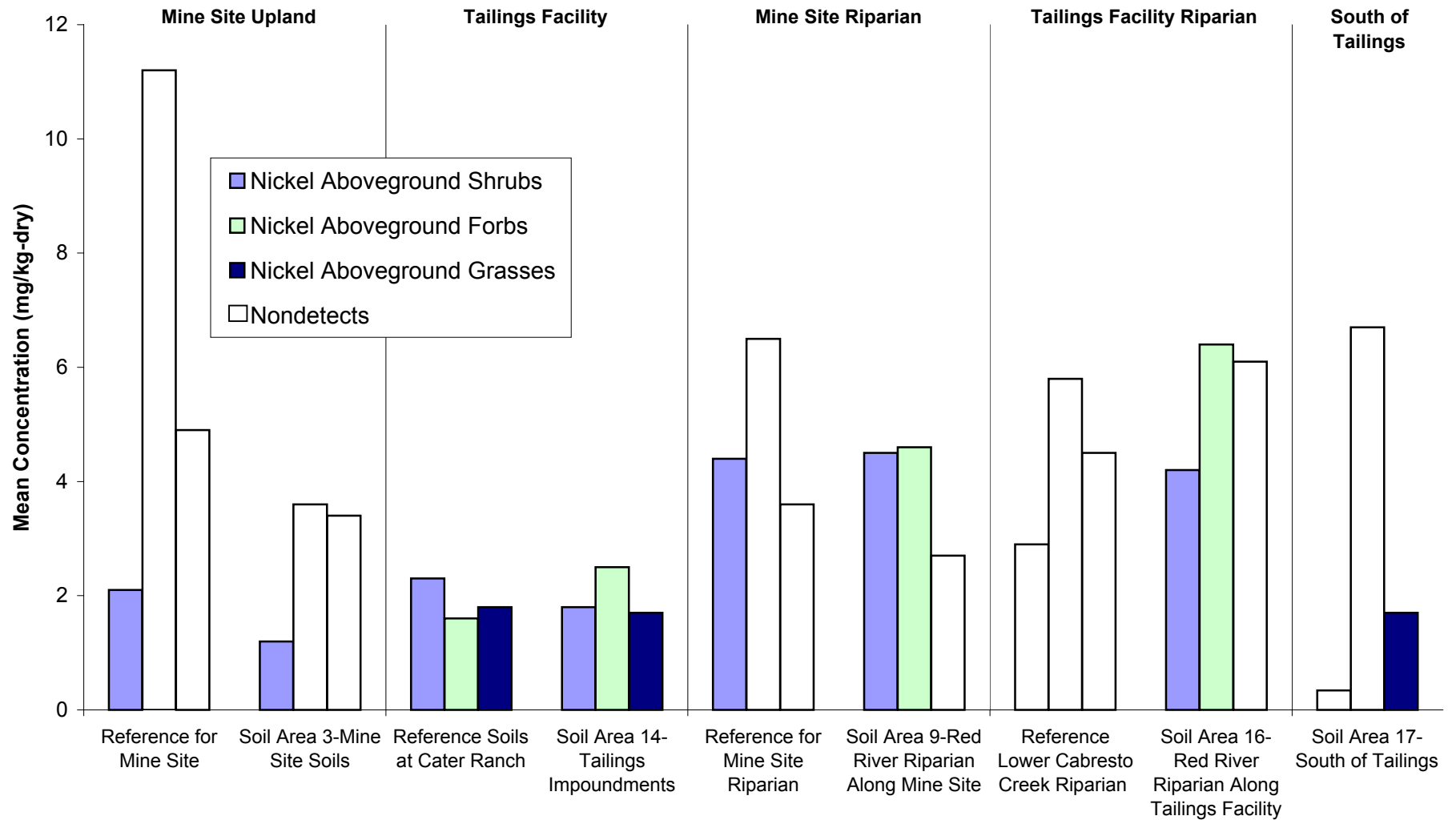


Figure 9-39
Mean Nickel Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-40
Mean Nickel Concentrations in Below Ground Plant Tissue

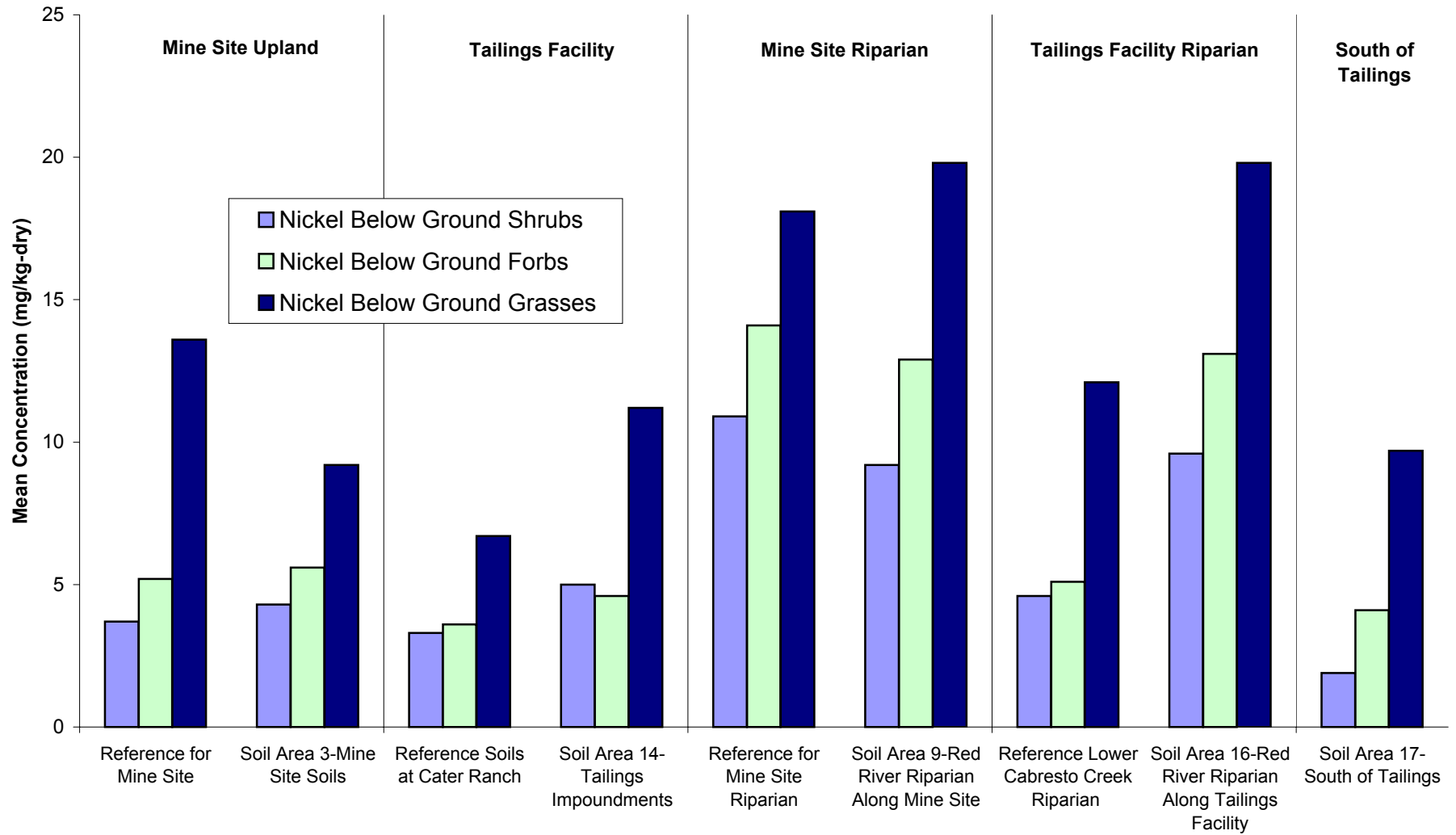
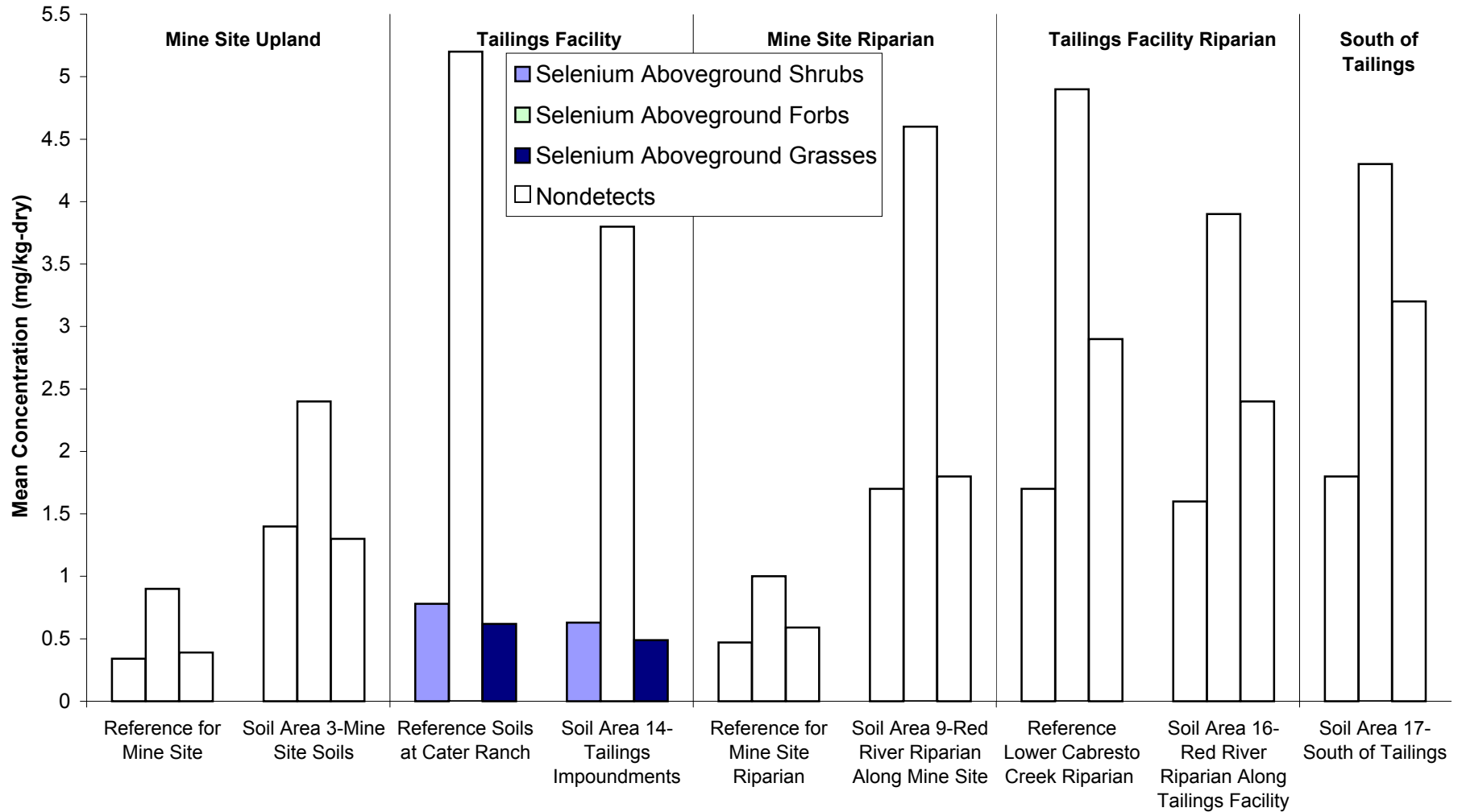
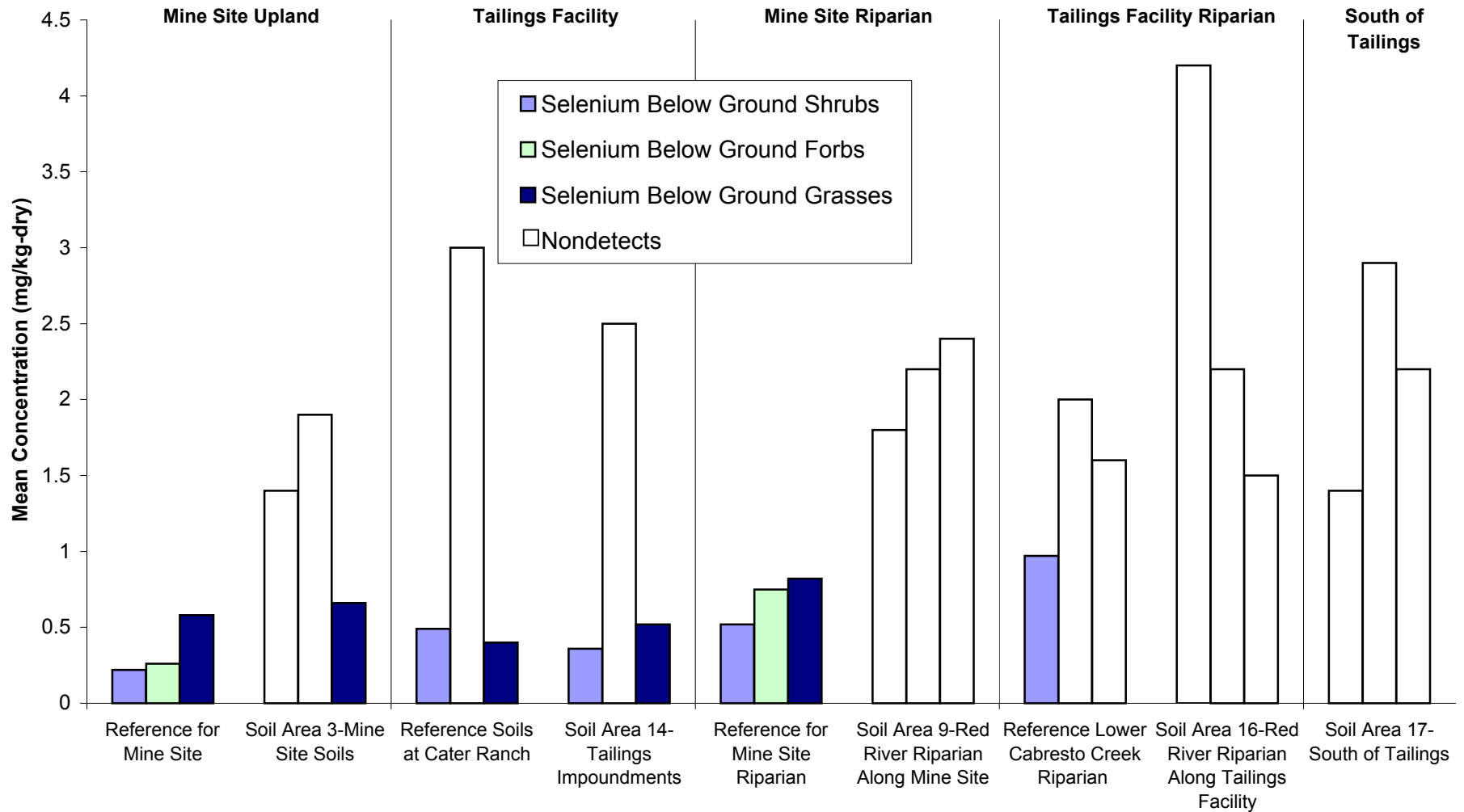


Figure 9-41
Mean Selenium Concentrations in Aboveground Plant Tissue



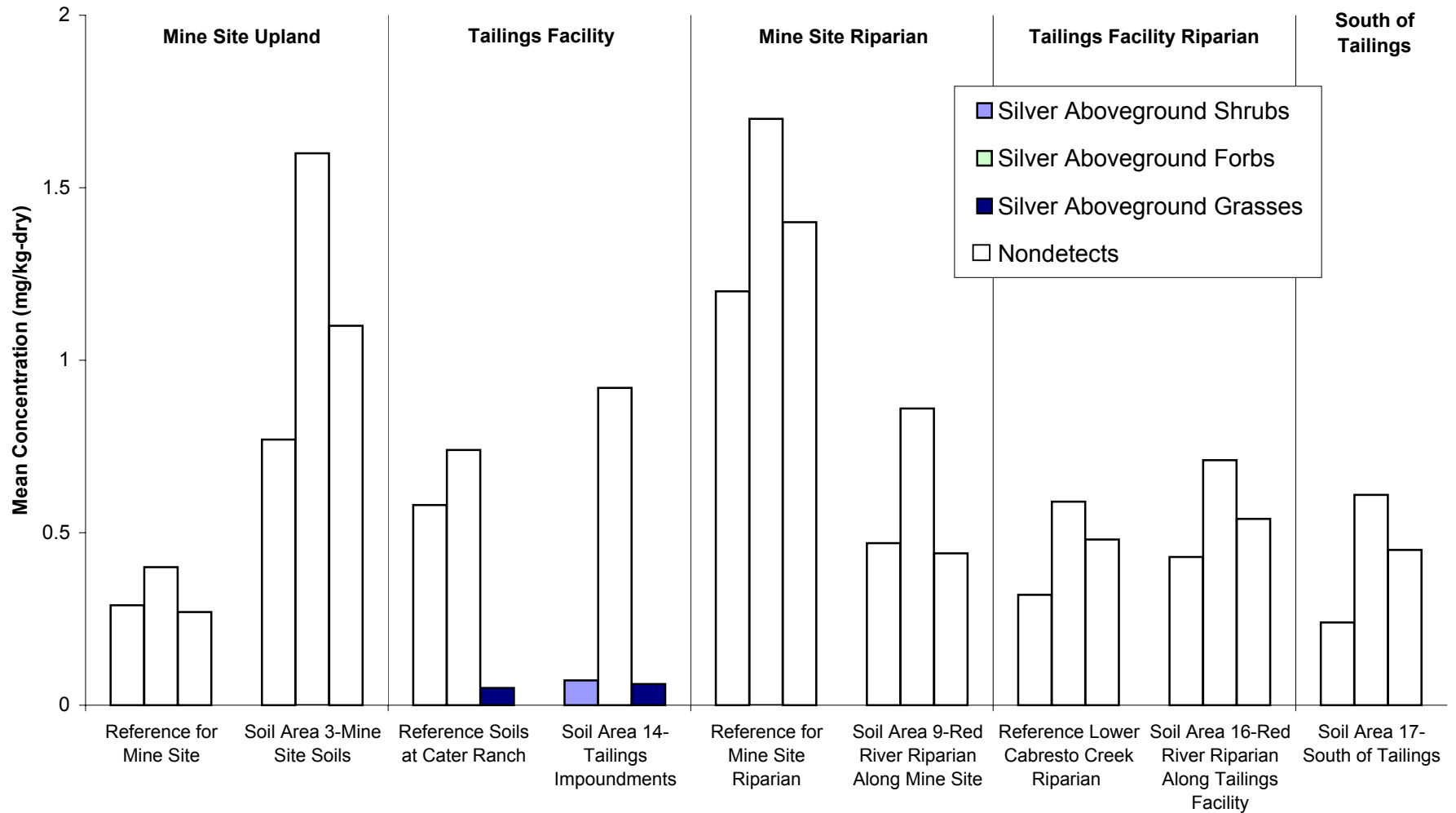
Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-42
Mean Selenium Concentrations in Below Ground Plant Tissue



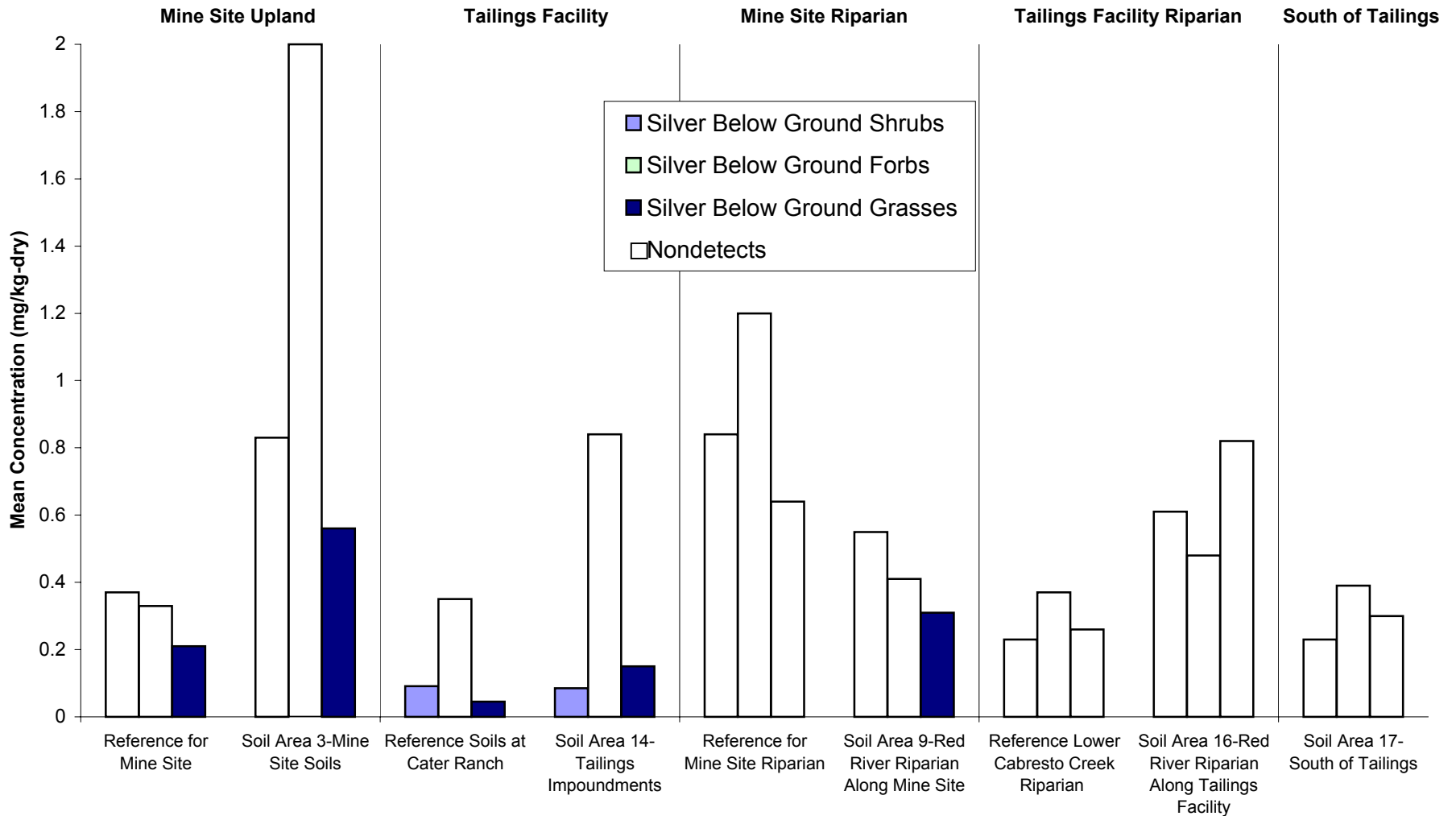
Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-43
Mean Silver Concentrations in Aboveground Plant Tissue



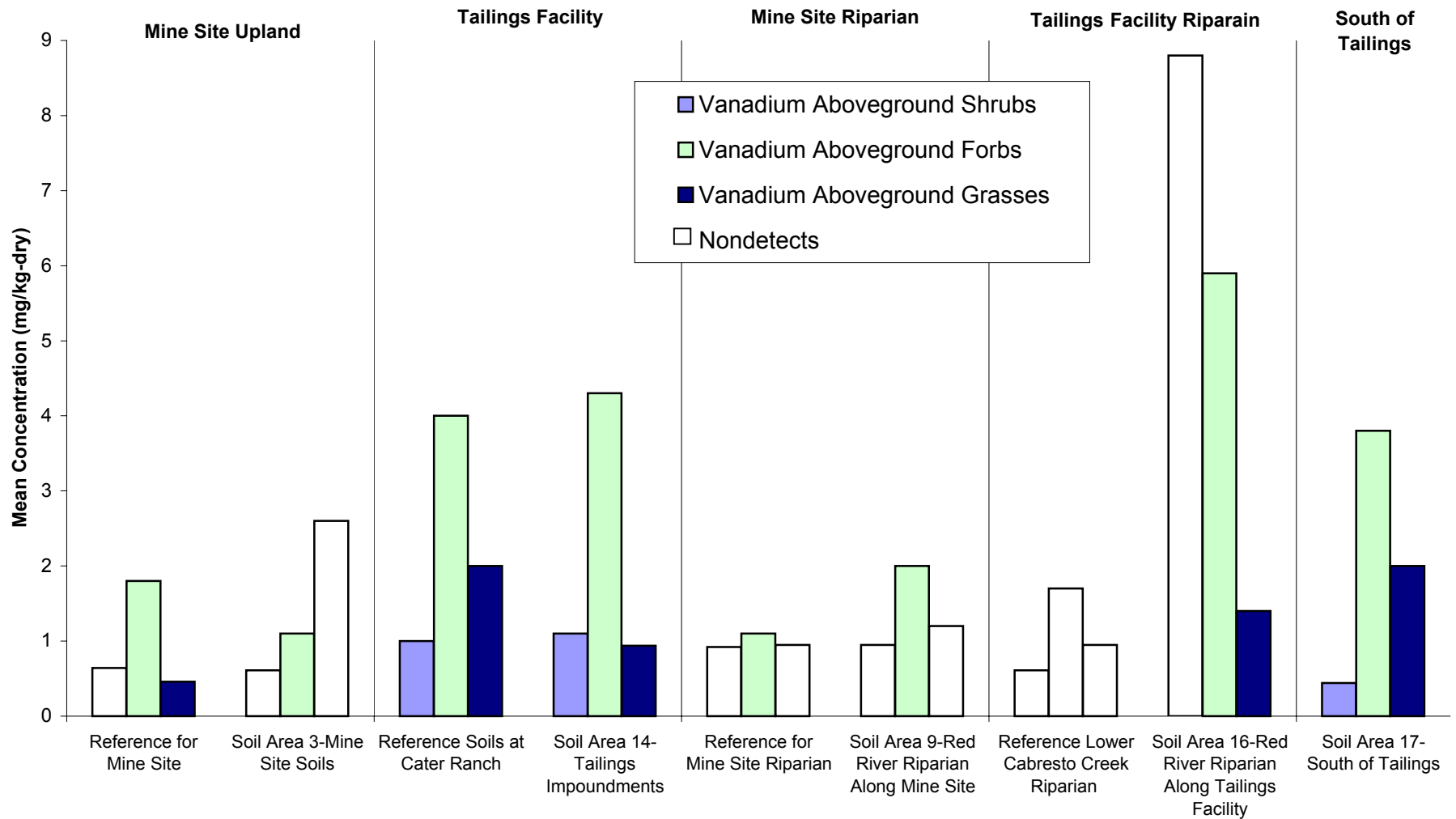
Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-44
Mean Silver Concentrations in Below Ground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-45
Mean Vanadium Concentrations in Aboveground Plant Tissue



Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-46
Mean Vanadium Concentrations in Below Ground Plant Tissue

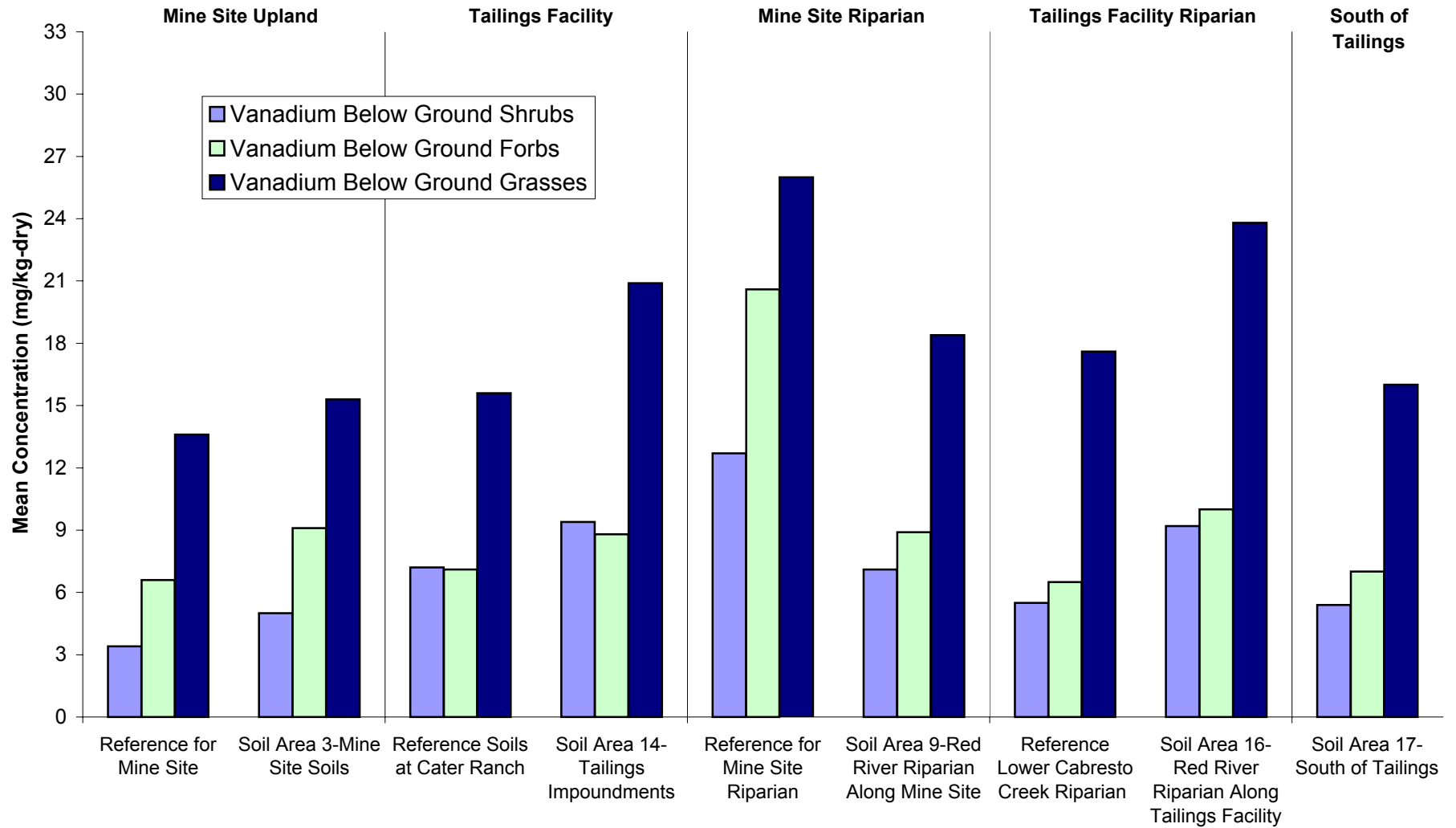


Figure 9-47
Mean Zinc Concentrations in Aboveground Plant Tissue

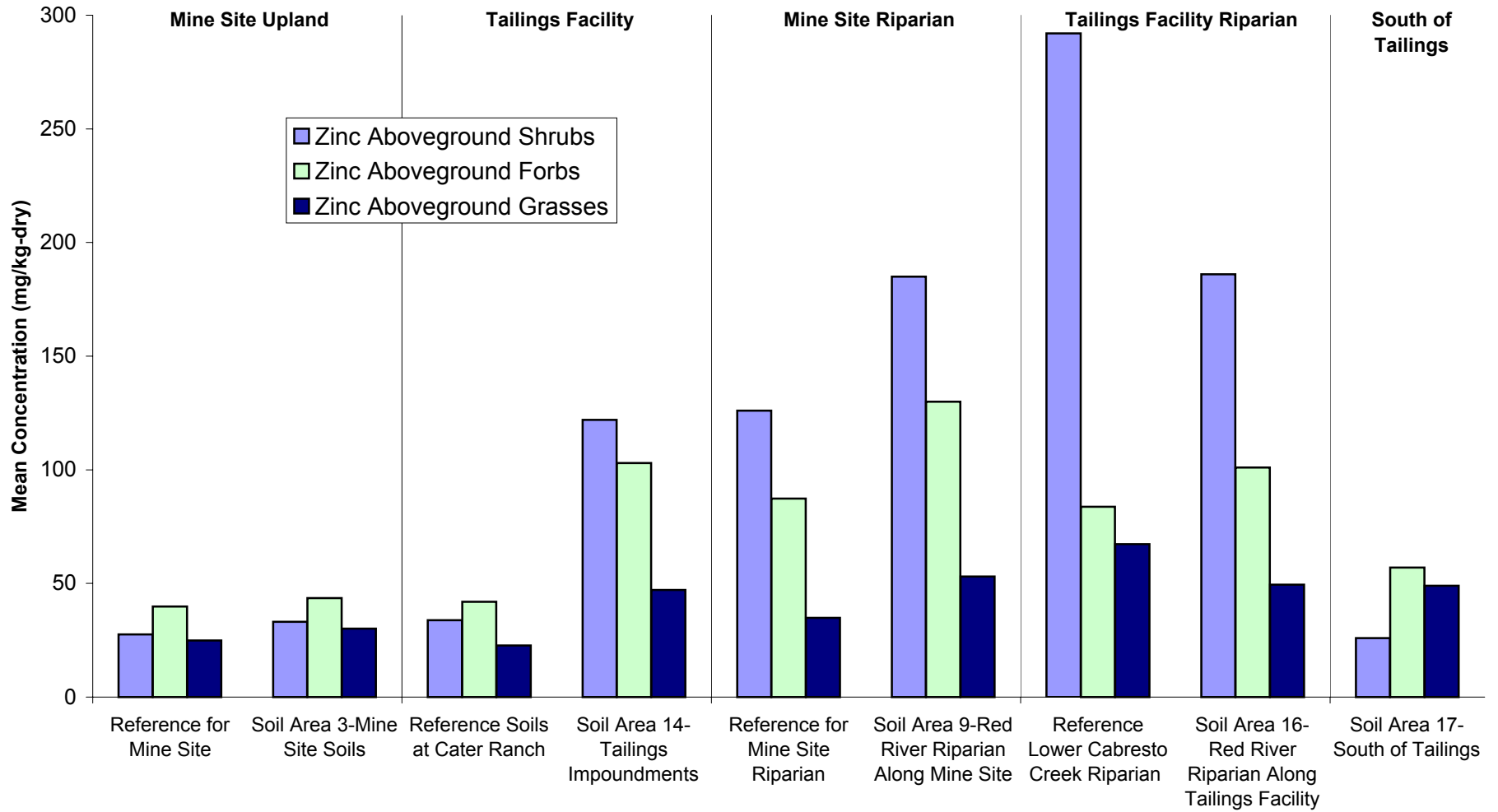


Figure 9-48
Mean Zinc Concentrations in Below Ground Plant Tissue

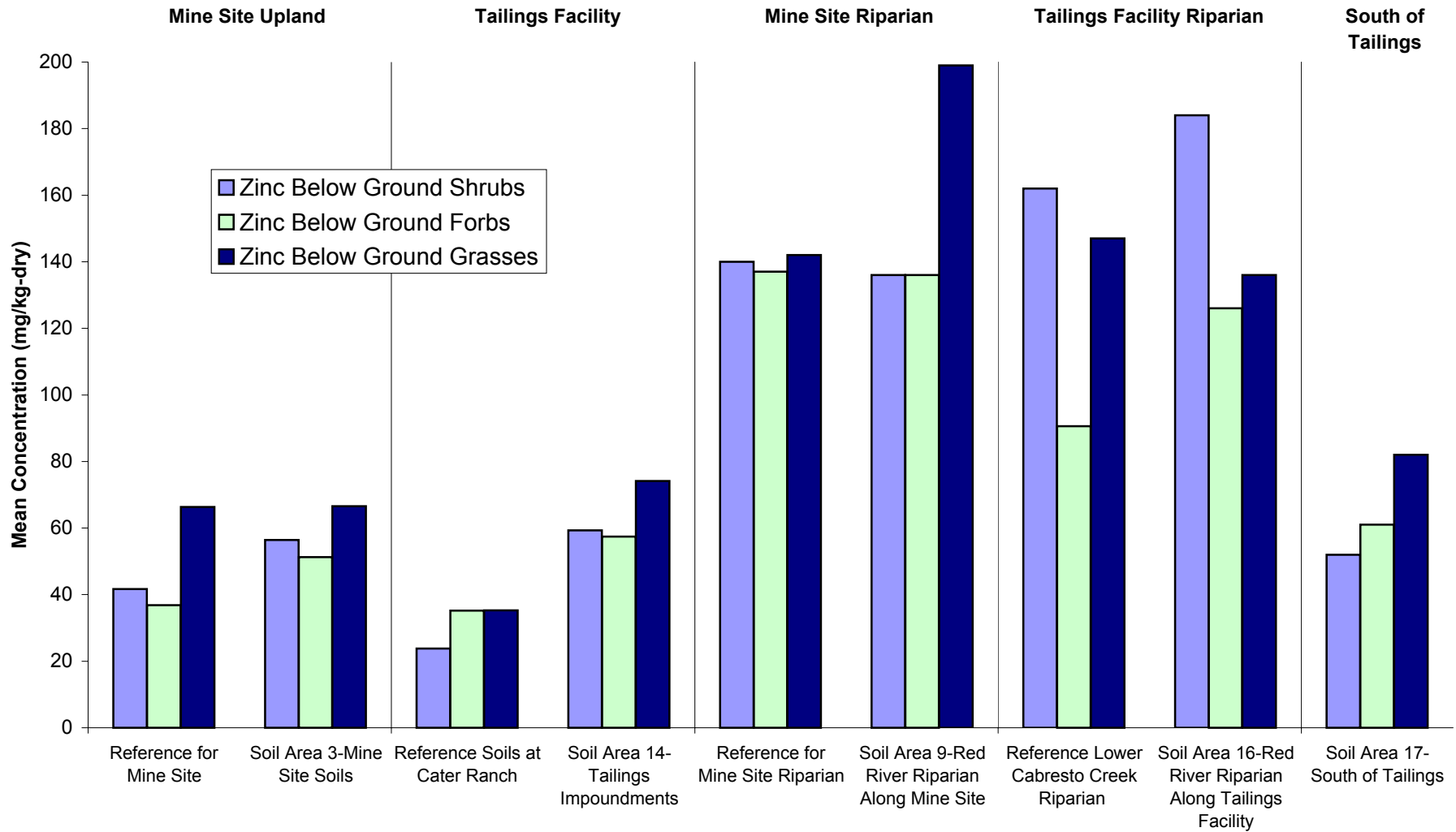
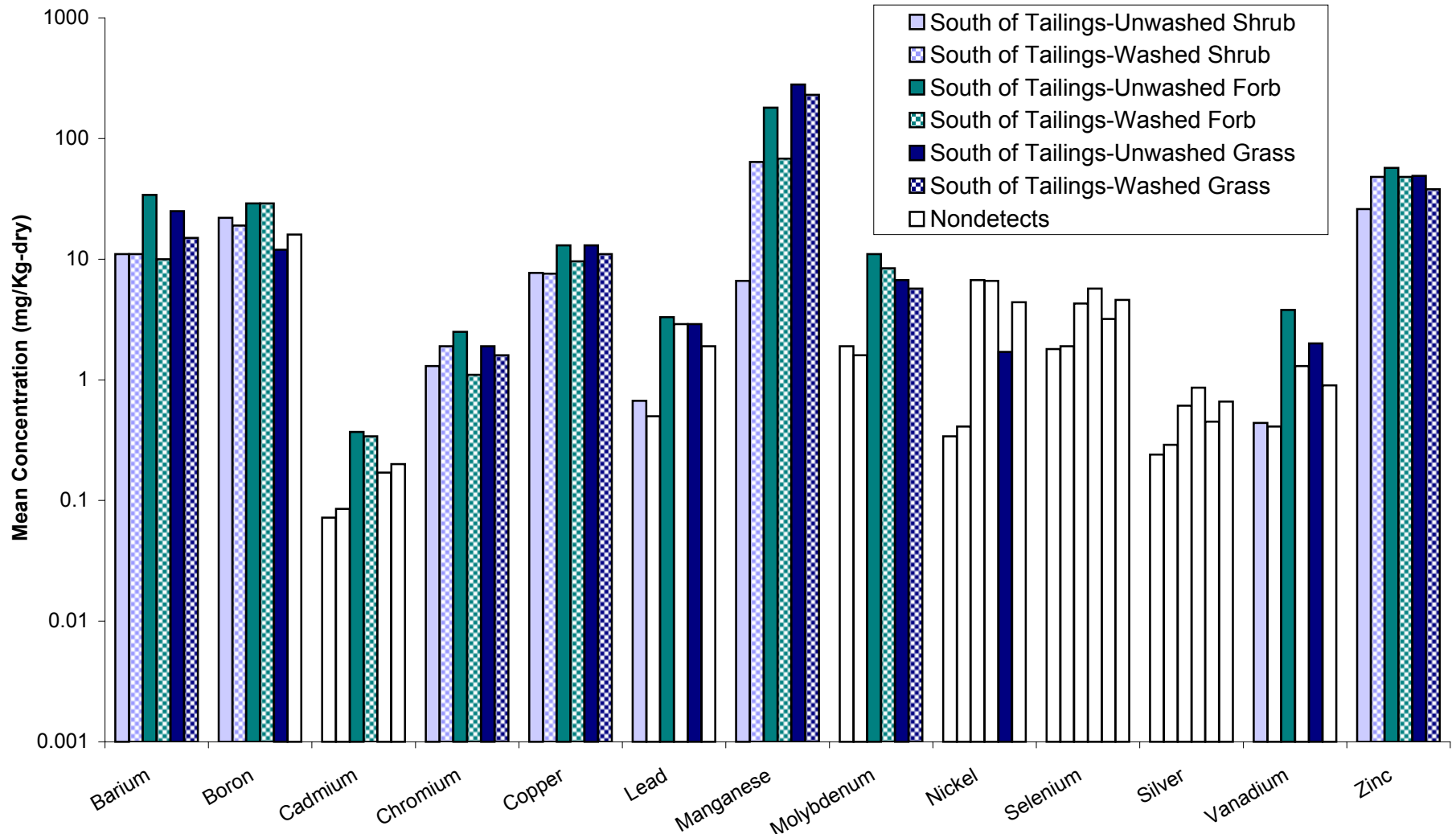
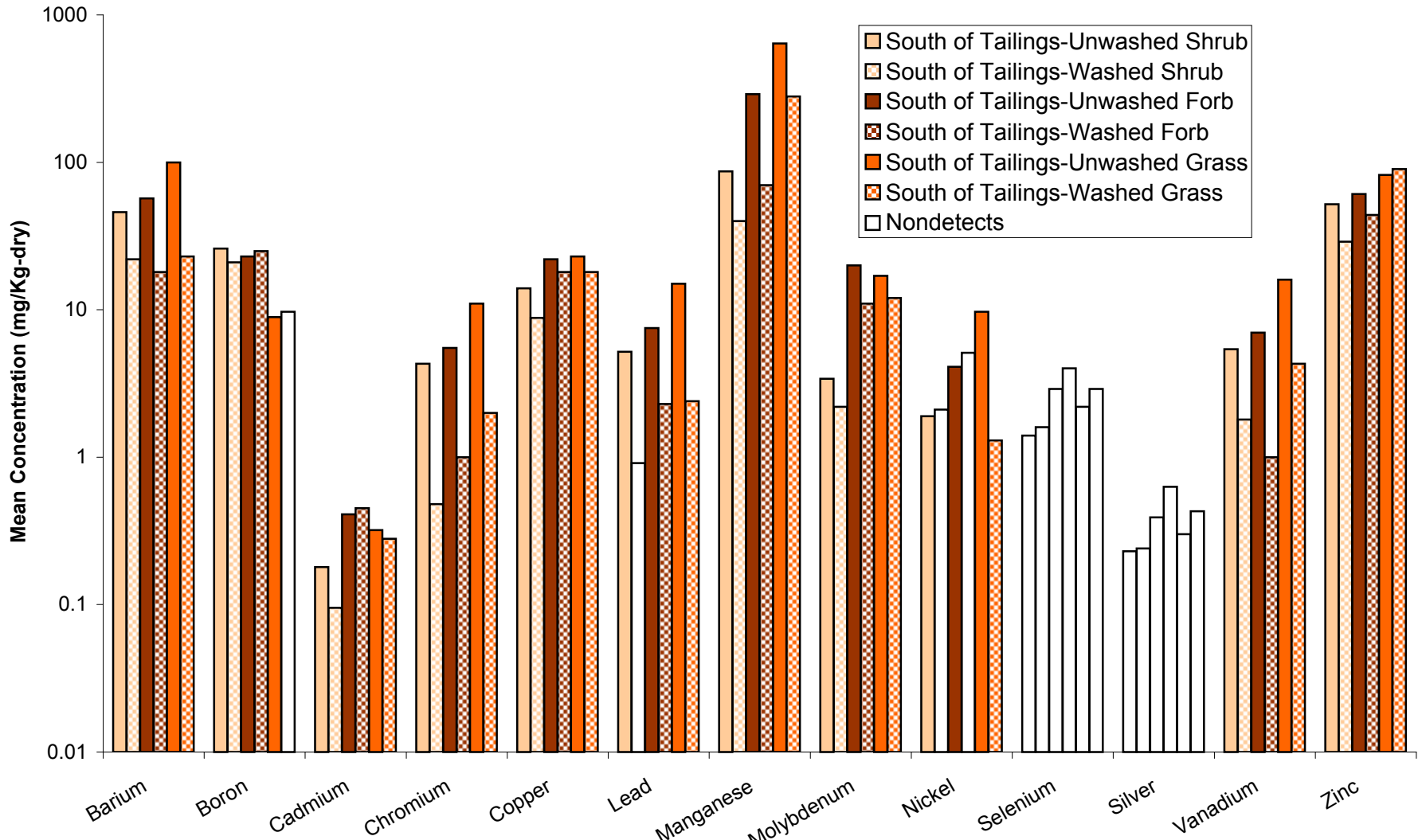


Figure 9-49
Results of Aboveground Washing Vegetation South of Tailings



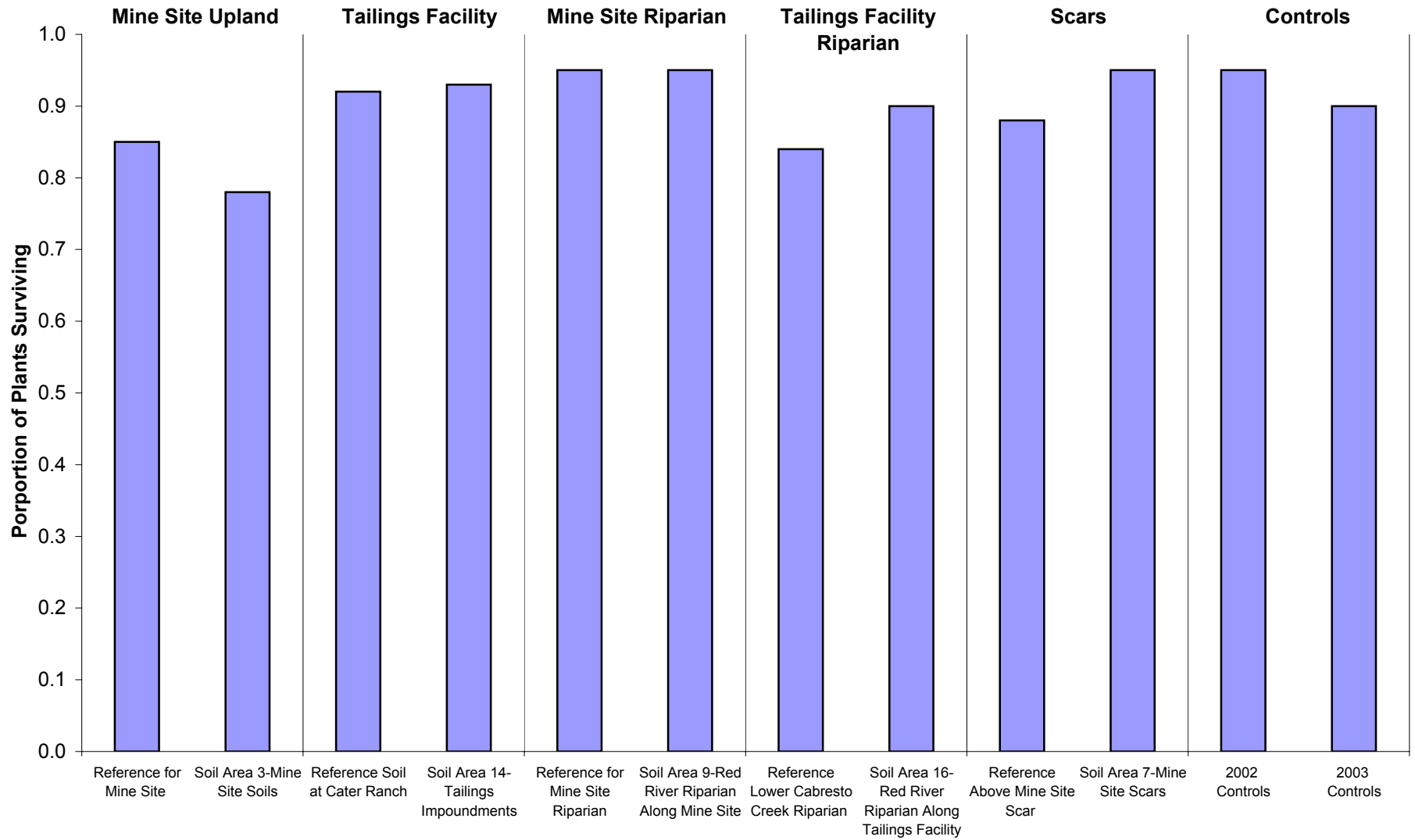
Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 9-50
Results of Below Ground Washing Vegetation South of Tailings

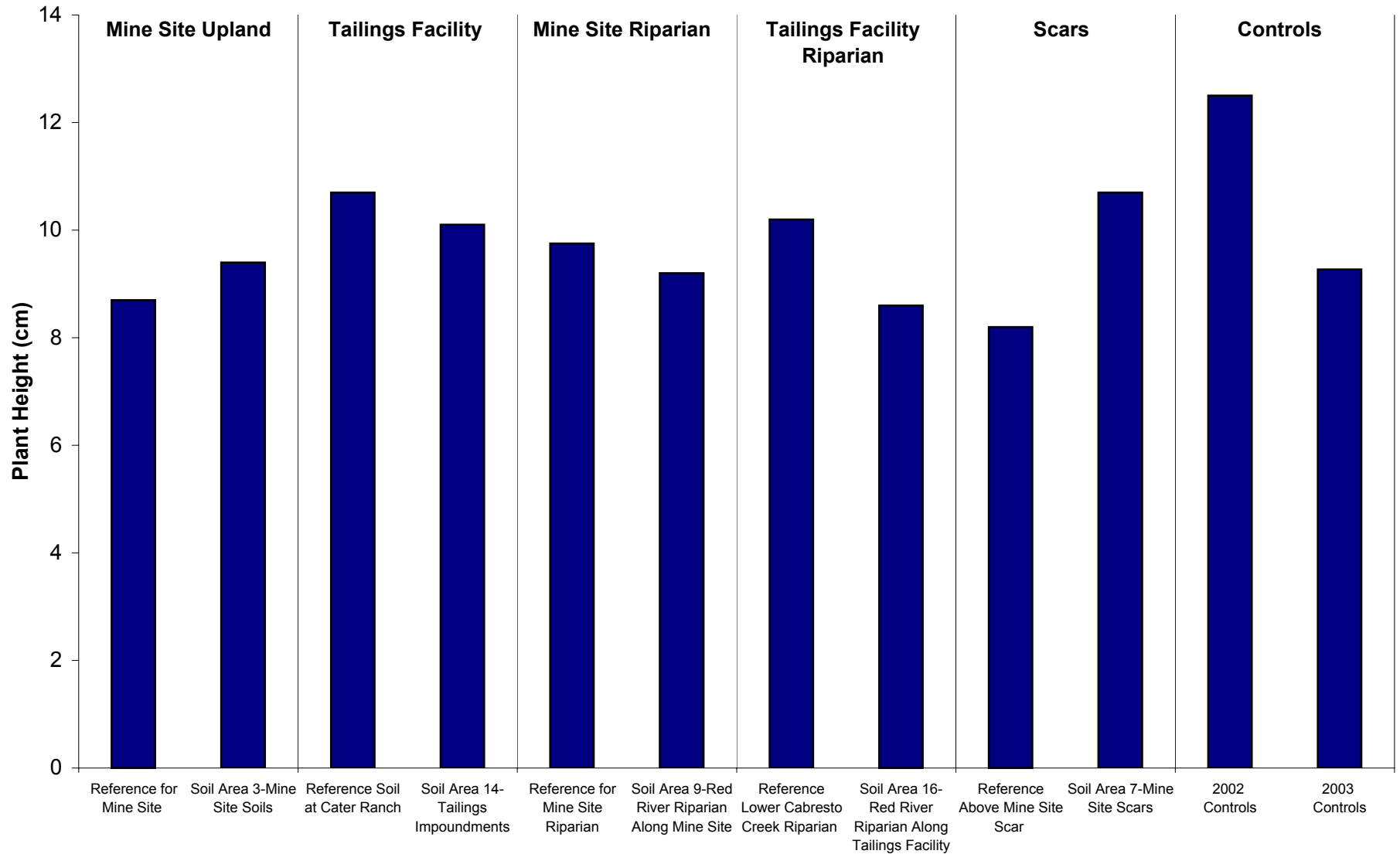


Note: A white bar indicates that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

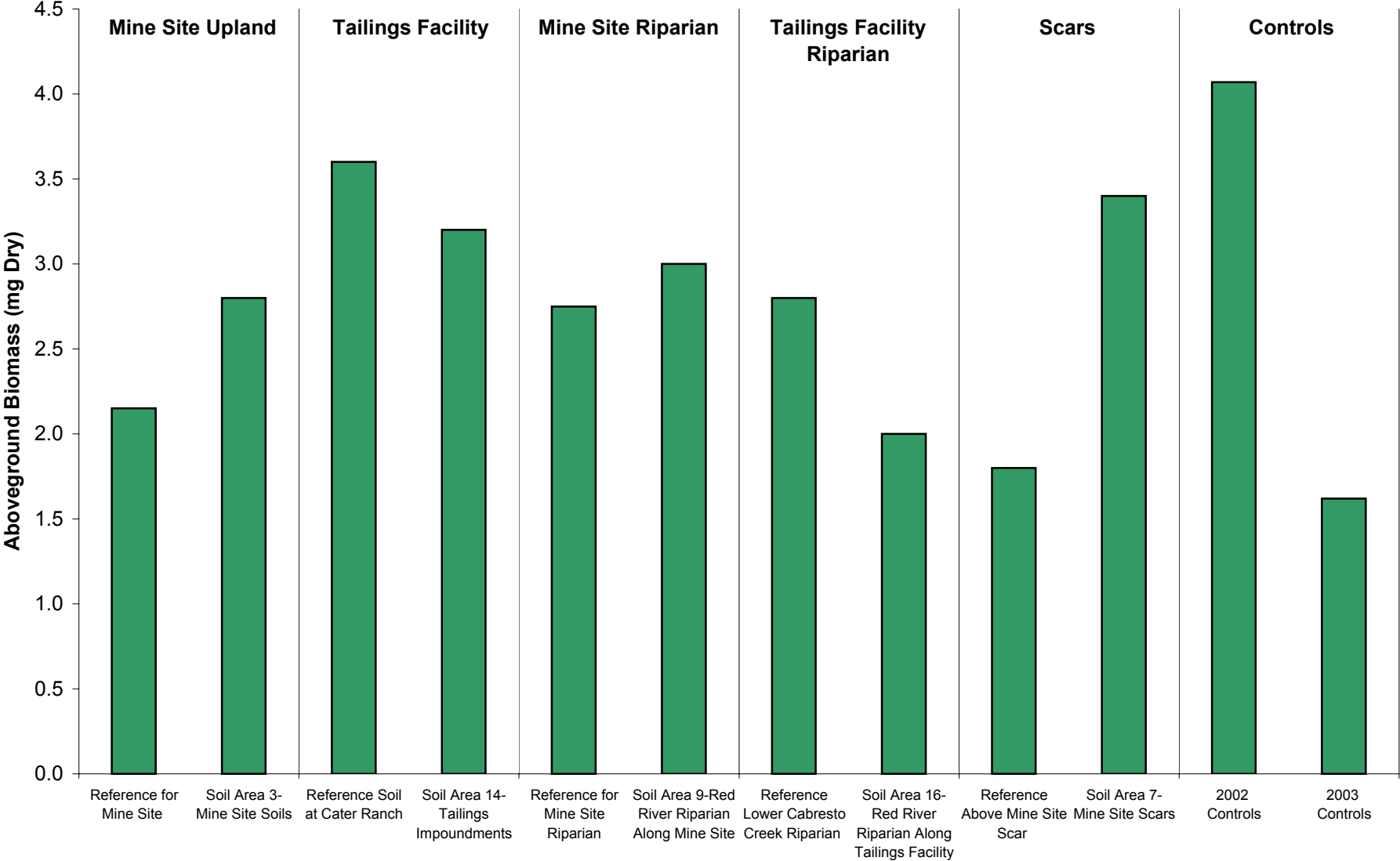
**Figure 9-51
Perennial Ryegrass Survival**



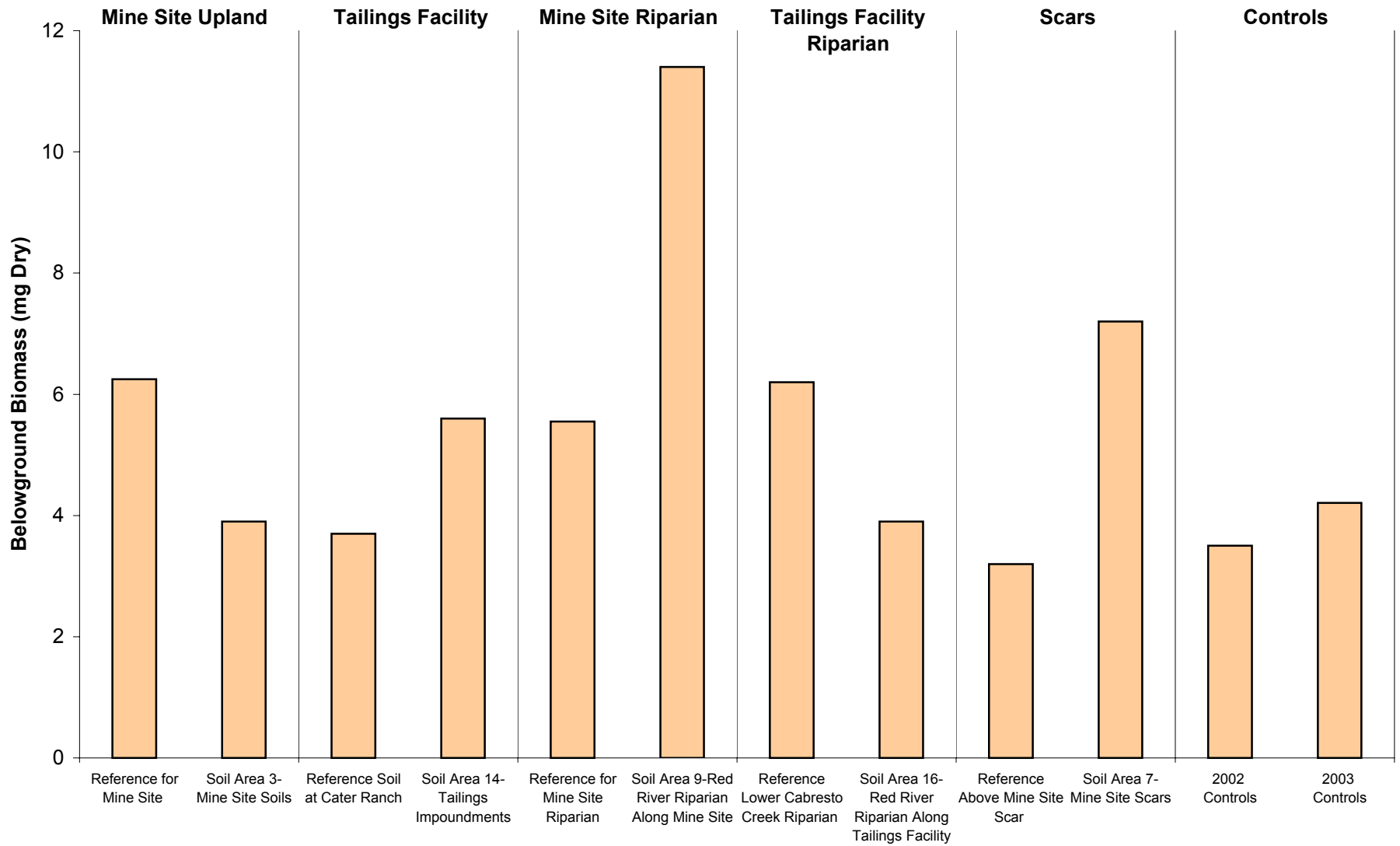
**Figure 9-52
Perennial Ryegrass Total Plant Height**



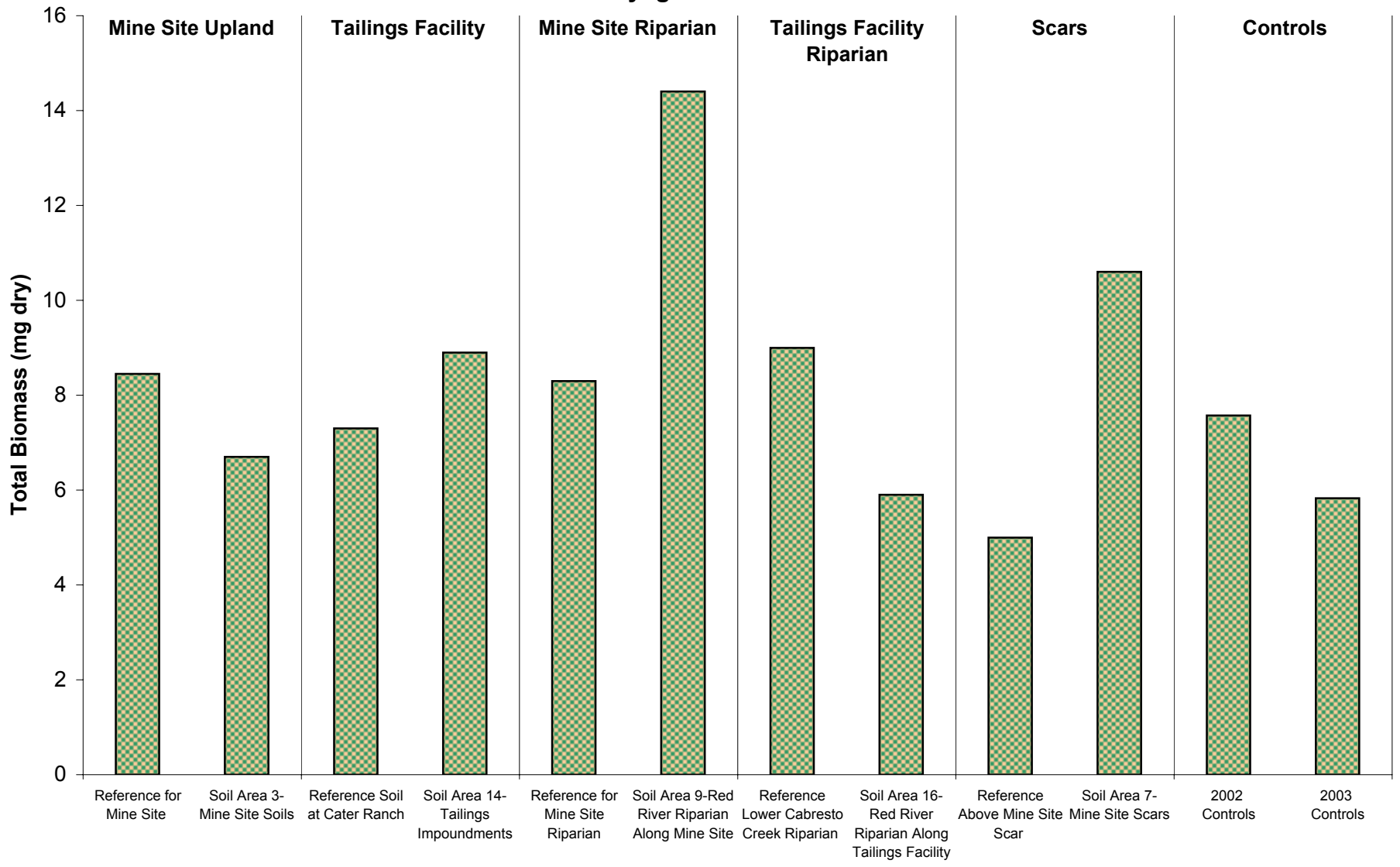
**Figure 9-53
Perennial Ryegrass Aboveground Biomass**



**Figure 9-54
Perennial Ryegrass Below Ground Biomass**



**Figure 9-55
Perennial Ryegrass Total Biomass**



APPENDIX A-9
TERRESTRIAL VEGETATION
VALIDATED ANALYTICAL RESULTS

Appendix A-9a
Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
Validated Analytical Results

Parameter	Site ID		CR-10	CR-11	CR-13	CR-14	CR-7	CR-8
	Sample Date		5/31/2003	6/5/2003	6/2/2003	6/2/2003	5/29/2003	5/29/2003
	Sample ID		CR-10-T01N-PLTF	CR-11-T01N-PLTF	CR-13-T01N-PLTF	CR-14-T01N-PLTF	CR-7-T01N-PLTF	CR-8-T01N-PLTF
	Exposure Area		RCR	RCR	RCR	RCR	RCR	RCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	13. :	27.9 :	28.1 :	17.1 :	26.5 :	34.1 :
Metals								
Aluminum	mg/Kg-Dry	T	3260. J	746. J	1710. J	1470. J	898. J	3460. J
Antimony	mg/Kg-Dry	T	<3.2 :	<1.7 :	<1.4 :	<2.6 :	<1.5 :	<1.3 :
Arsenic	mg/Kg-Dry	T	<1.3 :	<0.68 :	<0.57 :	<1.1 :	<0.6 :	<0.5 :
Barium	mg/Kg-Dry	T	46.2 :	37.3 :	27.8 :	29.8 :	21.1 :	43.7 :
Beryllium	mg/Kg-Dry	T	<0.35 :	<0.065 J	0.085 :	<0.11 :	<0.11 :	<0.24 :
Boron	mg/Kg-Dry	T	26.9 :	49.8 :	33.5 :	24.6 :	19.6 :	31.4 :
Cadmium	mg/Kg-Dry	T	1.4 :	0.13 :	0.19 :	<0.17 :	<0.18 :	<0.13 :
Calcium	mg/Kg-Dry	T	15500. :	7890. :	12000. :	19200. :	6150. :	11600. :
Chromium	mg/Kg-Dry	T	6.8 :	2.7 :	<3.1 :	<3.7 :	<2. :	6.7 :
Cobalt	mg/Kg-Dry	T	<2.8 :	<0.57 :	1. :	<0.99 :	<1.4 :	1.9 :
Copper	mg/Kg-Dry	T	13.8 :	8.6 :	16. J	13.5 J	7.5 :	17.9 :
Iron	mg/Kg-Dry	T	4080. J	925. J	1940. J	1780. J	1080. J	4280. J
Lead	mg/Kg-Dry	T	4.2 :	<1.2 :	1.4 :	1.9 :	1.4 :	2.9 :
Magnesium	mg/Kg-Dry	T	5620. :	2300. :	2580. :	4150. :	3290. :	2990. :
Manganese	mg/Kg-Dry	T	138. :	64.5 :	68. :	64.9 :	67.5 :	110. :
Mercury	mg/Kg-Dry	T	<0.12 :	<0.057 :	<0.057 :	<0.094 :	<0.06 :	<0.05 :
Molybdenum	mg/Kg-Dry	T	4.5 :	0.75 :	1.5 :	<0.94 :	12.1 :	1.4 :
Nickel	mg/Kg-Dry	T	2.6 J	<0.65 J	1.5 :	<1.1 :	1.8 J	2.6 J
Potassium	mg/Kg-Dry	T	34900. J	21100. J	26700. J	22800. J	12900. J	17300. J
Selenium	mg/Kg-Dry	T	<5.2 :	<2.7 :	<2.3 :	<4.2 :	<2.5 :	<2.1 :
Silver	mg/Kg-Dry	T	<0.74 :	<0.29 J	0.33 :	<0.57 J	<0.35 :	<0.27 :
Sodium	mg/Kg-Dry	T	362. :	<150. :	153. :	178. J	<124. :	170. :
Thallium	mg/Kg-Dry	T	<0.64 :	<0.34 :	<0.29 :	<0.51 :	<0.31 :	<0.26 :
Vanadium	mg/Kg-Dry	T	6.8 :	1.2 :	3.5 :	3. :	1.7 :	7.3 :
Zinc	mg/Kg-Dry	T	66.2 :	36.9 :	32. :	39.8 :	38.9 :	37.8 :

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9a

Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed

Validated Analytical Results

Appendix A

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Parameter	Site ID		MRSS-1	MRSS-16	MRSS-17 Biota	MRSS-18	MRSS-19	MRSS-2
	Sample Date		10/6/2002	9/29/2002	9/28/2002	9/28/2002	9/28/2002	10/6/2002
	Sample ID		MRSS-1-T01N-PLTF	MRSS-16-T01N-PLTF	MRSS-17-T01N-PLTF	MRSS-18-T01N-PLTF	MRSS-19-T01N-PLTF	MRSS-2-T01N-PLTF
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	31.7	40.3	30.5	50.4	46.7	29.8
Metals								
Aluminum	mg/Kg-Dry	T	984.	392.	764.	246.	321.	1150.
Antimony	mg/Kg-Dry	T	<0.44 J	<0.37 J	<0.098 J	<0.06 J	<0.064 J	<0.47 J
Arsenic	mg/Kg-Dry	T	0.76	<0.37	0.33	<0.06	<0.064	0.57
Barium	mg/Kg-Dry	T	77.	223.	44.3	118.	151.	47.
Beryllium	mg/Kg-Dry	T	0.054	<0.037	<0.056	<0.032	<0.032	<0.057
Boron	mg/Kg-Dry	T	37.5	29.5	24.6	26.8	23.3	60.7
Cadmium	mg/Kg-Dry	T	<0.73	0.089	0.43	0.14	0.066	<0.29
Calcium	mg/Kg-Dry	T	9240.	8930.	11900.	7620.	10900.	12000.
Chromium	mg/Kg-Dry	T	2.4	<0.87	1.9	0.42	0.41	5.4
Cobalt	mg/Kg-Dry	T	0.76	<0.42	<0.59	<0.36	<0.34	0.7
Copper	mg/Kg-Dry	T	12.6	8.2	9.2	8.5	9.6	16.8
Iron	mg/Kg-Dry	T	1860.	120.	1260.	135.	77.1	2580.
Lead	mg/Kg-Dry	T	<5.7 J	<0.5 J	4.3 J	<0.99 J	<1. J	<8.4 J
Magnesium	mg/Kg-Dry	T	2680.	2120.	1900.	1380.	1840.	3860.
Manganese	mg/Kg-Dry	T	164.	893.	113.	353.	495.	90.9
Mercury	mg/Kg-Dry	T	<0.05 J	<0.042	<0.049	<0.032	<0.034	<0.057 J
Molybdenum	mg/Kg-Dry	T	13.2	<0.19	4.6	<0.18	<0.16	8.1
Nickel	mg/Kg-Dry	T	2.5	<2.5	<3.6	<2.2	2.6	<3.7
Potassium	mg/Kg-Dry	T	29500. J	4220. J	16200. J	3870. J	3640. J	24200. J
Selenium	mg/Kg-Dry	T	0.66 J	<0.37 J	0.2 J	<0.06 J	0.15 J	<0.5 J
Silver	mg/Kg-Dry	T	<0.25	<0.27	<0.39	<0.22	<0.21	<0.4
Sodium	mg/Kg-Dry	T	<312.	<124.	163.	<110.	<112.	<393.
Thallium	mg/Kg-Dry	T	<0.22	<0.17	<0.066	<0.04	<0.043	<0.24
Vanadium	mg/Kg-Dry	T	2.1	<0.52	1.6	<0.44	<0.45	2.9
Zinc	mg/Kg-Dry	T	48.6 J	27.5 J	35.7 J	25.2 J	20.3 J	50. J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9a

Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed

Validated Analytical Results

Appendix A

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Parameter	Site ID		MRSS-20	MRSS-4	MRSS-5	MSS3-1	MSS3-10	MSS3-2
	Sample Date		9/28/2002	10/6/2002	10/6/2002	10/10/2002	9/30/2002	10/11/2002
	Sample ID		MRSS-20-T01N-PLTF	MRSS-4-T01N-PLTF	MRSS-5-T01N-PLTF	MSS3-1-T01N-PLTF	MSS3-10-T01N-PLTF	MSS3-2-T01N-PLTF
	Exposure Area		RefMine	RefMine	RefMine	SS3	SS3	SS3
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	43.2	40.9	41.	35.3	21.5	42.4
Metals								
Aluminum	mg/Kg-Dry	T	456.	1240.	2780.	550.	253.	689.
Antimony	mg/Kg-Dry	T	<0.069 J	<0.34 J	<0.39 J	<0.71 J	<0.6 J	<0.54 J
Arsenic	mg/Kg-Dry	T	<0.069	0.56	1.9	0.62	<0.6	<0.38
Barium	mg/Kg-Dry	T	252.	60.9	551.	46.5	104.	55.9
Beryllium	mg/Kg-Dry	T	<0.037	0.17	0.24	<0.068	<0.056	<0.038
Boron	mg/Kg-Dry	T	32.9	41.1	29.8	87.	29.3	51.4
Cadmium	mg/Kg-Dry	T	0.067	0.54	0.24	0.19	0.3	0.61
Calcium	mg/Kg-Dry	T	10900.	10400.	15000.	12700.	16100.	22800.
Chromium	mg/Kg-Dry	T	0.39	2.	4.6	0.91 J	<1.4	0.99
Cobalt	mg/Kg-Dry	T	<0.42	2.7	4.4	<0.51	<0.51	<0.31
Copper	mg/Kg-Dry	T	10.	9.5	18.3	5.1	9.3	26.4
Iron	mg/Kg-Dry	T	111.	2340.	9780.	827.	462.	913.
Lead	mg/Kg-Dry	T	<0.81 J	43.3 J	13.4 J	<1.6 J	<2.4 J	<2. J
Magnesium	mg/Kg-Dry	T	3010.	5330.	3610.	3200.	3000.	1720.
Manganese	mg/Kg-Dry	T	308.	320.	432.	58.1	62.8	97.4
Mercury	mg/Kg-Dry	T	<0.037	<0.037 J	<0.039 J	<0.045	<0.07	<0.038
Molybdenum	mg/Kg-Dry	T	<0.35	8.6	20.5	2.2	4.2	7.5
Nickel	mg/Kg-Dry	T	<2.5	7.1	11.2	<0.76	<0.79 J	0.31
Potassium	mg/Kg-Dry	T	4330. J	12200.	9240.	12600. J	37600. J	15800. J
Selenium	mg/Kg-Dry	T	<0.069 J	<0.34 J	<0.9 J	<1.9 J	<0.6 J	<1.5 J
Silver	mg/Kg-Dry	T	<0.25	<0.23	<0.27	<0.34	<1.6	<0.31
Sodium	mg/Kg-Dry	T	<133.	<188.	<209.	<206.	313.	<137.
Thallium	mg/Kg-Dry	T	<0.046	<0.17	<0.2	<0.24	<0.28	<0.18
Vanadium	mg/Kg-Dry	T	<0.53	1.8	6.8	0.96	0.6	1.4
Zinc	mg/Kg-Dry	T	19.9 J	79. J	51.7 J	30.9 J	32.1 J	83.3 J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Parameter	Site ID		MSS3-3	MSS3-5	MSS3-6	MSS3-8	MSS3-9	RRS-1
	Sample Date		9/30/2002	10/10/2002	10/1/2002	10/1/2002	10/10/2002	9/26/2002
	Sample ID		MSS3-3-T01N-PLTF	MSS3-5-T01N-PLTF	MSS3-6-T01N-PLTF	MSS3-8-T01N-PLTF	MSS3-9-T01N-PLTF	RRS-1-T01N-PLTF
	Exposure Area		SS3	SS3	SS3	SS3	SS3	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	32.8	34.7	27.6	42.5	26.2	28.1
Metals								
Aluminum	mg/Kg-Dry	T	303.	1410.	177.	706.	183.	943.
Antimony	mg/Kg-Dry	T	<0.49 J	<0.66 J	<0.54 J	<0.38 J	<0.92 J	<0.5 J
Arsenic	mg/Kg-Dry	T	<0.49	1.7	<0.54	<0.38	<0.61	<0.5
Barium	mg/Kg-Dry	T	20.7	41.2	69.9	22.8	56.5	67.6
Beryllium	mg/Kg-Dry	T	<0.046	<0.072	<0.054	0.047	<0.053	<0.05
Boron	mg/Kg-Dry	T	29.	34.6	55.4	32.7	24.4	31.7
Cadmium	mg/Kg-Dry	T	<0.07	<0.19	0.65	<0.054	1.	<0.28
Calcium	mg/Kg-Dry	T	13400.	15100.	17800.	9910.	10600.	21600.
Chromium	mg/Kg-Dry	T	1.2	2.9	3.	2.2	1.	2.
Cobalt	mg/Kg-Dry	T	<0.52	0.63	<0.58	0.96	0.42	0.71
Copper	mg/Kg-Dry	T	6.7	18.4	8.	5.6	6.9	6.8
Iron	mg/Kg-Dry	T	399.	4550.	313.	1120.	258.	1820.
Lead	mg/Kg-Dry	T	<1. J	31.1 J	<1.1 J	2.3 J	0.84 J	<0.96 J
Magnesium	mg/Kg-Dry	T	2150.	4090.	2680.	3340.	3310.	6550.
Manganese	mg/Kg-Dry	T	111.	169.	149.	55.5	106.	139.
Mercury	mg/Kg-Dry	T	<0.052	<0.046	<0.054 J	<0.035 J	<0.061	<0.053
Molybdenum	mg/Kg-Dry	T	2.2	3.7	11.6	3.3	1.6	1.4
Nickel	mg/Kg-Dry	T	<3.	1.5	<3.6	<2.4	1.8	<3.3
Potassium	mg/Kg-Dry	T	18500. J	12600. J	23400. J	10300. J	21600. J	17500. J
Selenium	mg/Kg-Dry	T	<0.49 J	<1.8 J	<0.54 J	<0.38 J	<2.4 J	<0.5 J
Silver	mg/Kg-Dry	T	<0.34	<0.35	<0.36	<0.26	<0.42	<0.35
Sodium	mg/Kg-Dry	T	<127.	<268.	<212.	<104.	<126.	<134.
Thallium	mg/Kg-Dry	T	<0.24	<0.22	<0.25	<0.19	<0.3	<0.25
Vanadium	mg/Kg-Dry	T	<0.67	3.5	<0.76	1.6	<0.46	3.2
Zinc	mg/Kg-Dry	T	43. J	37.5 J	44.9 J	24.9 J	52.7 J	56.9 J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9a
Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
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Parameter	Site ID		RRS-10	RRS-11	RRS-12	RRS-13	RRS-19	RRS-20
	Sample Date		9/29/2002	9/29/2002	10/2/2002	10/2/2002	10/7/2002	10/7/2002
	Sample ID		RRS-10-T01N-PLTF	RRS-11-T01N-PLTF	RRS-12-T01N-PLTF	RRS-13-T01N-PLTF	RRS-19-T01N-PLTF	RRS-20-T01N-PLTF
	Exposure Area		RefMineR	RefMineR	RefMineR	RefMineR	RLCCR	RLCCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	21.9	30.9	18.5	17.3	20.8	26.3
Metals								
Aluminum	mg/Kg-Dry	T	363.	55.3	336.	218.	217.	551.
Antimony	mg/Kg-Dry	T	<0.14	<0.49	<0.81	<0.87	<0.67	<0.61
Arsenic	mg/Kg-Dry	T	0.14	<0.49	<0.81	<0.87	<0.67	<0.61
Barium	mg/Kg-Dry	T	49.8	25.9	56.8	64.7	31.7	26.2
Beryllium	mg/Kg-Dry	T	<0.059	<0.049	<0.076	<0.098	<0.067	<0.061
Boron	mg/Kg-Dry	T	53.9	27.5	29.2	35.3	40.9	30.
Cadmium	mg/Kg-Dry	T	0.21	0.12	0.26	<0.14	<0.1	0.38
Calcium	mg/Kg-Dry	T	29100.	15600.	15500.	15300.	21900.	11000.
Chromium	mg/Kg-Dry	T	<1.3	<1.1	<1.9	<1.4	1.6	2.9
Cobalt	mg/Kg-Dry	T	<0.64	<0.55	<0.86	<1.	<0.77	<0.68
Copper	mg/Kg-Dry	T	7.3	6.8	5.4	4.7	13.5	13.3
Iron	mg/Kg-Dry	T	612.	104.	600.	351.	375.	1040.
Lead	mg/Kg-Dry	T	<1.8	<0.49	1.8	0.92	<0.82	1.9
Magnesium	mg/Kg-Dry	T	4200.	2700.	2560.	2460.	2360.	3230.
Manganese	mg/Kg-Dry	T	83.1	75.7	130.	80.9	69.2	94.3
Mercury	mg/Kg-Dry	T	<0.073	<0.052	<0.086	<0.087	<0.067	<0.061
Molybdenum	mg/Kg-Dry	T	0.68	0.84	1.4	1.7	21.2	<2.5
Nickel	mg/Kg-Dry	T	<3.9	<3.2	<5.2	<6.4	<4.6	<4.2
Potassium	mg/Kg-Dry	T	20300.	19400.	20800.	22800.	36900.	44500.
Selenium	mg/Kg-Dry	T	0.27	<0.49	<0.81	<0.87	<1.8	<0.61
Silver	mg/Kg-Dry	T	<0.41	<0.36	<0.54	<0.69	<0.48	<0.42
Sodium	mg/Kg-Dry	T	208.	<195.	<210.	<257.	273.	<209.
Thallium	mg/Kg-Dry	T	<0.091	<0.26	<0.38	<0.46	<0.33	<0.3
Vanadium	mg/Kg-Dry	T	<0.82	<0.68	<1.1	<1.3	<0.96	1.6
Zinc	mg/Kg-Dry	T	71.7	55.7	37.8	28.3	56.7	51.

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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**Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
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Parameter	Site ID		RRS-25	RRS-26	RRS-29	RRS-3	RRS-5	RRS-7
	Sample Date		10/9/2002	10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002
	Sample ID		RRS-25-T01N-PLTF	RRS-26-T01N-PLTF	RRS-29-T01N-PLTF	RRS-3-T01N-PLTF	RRS-5-T01N-PLTF	RRS-7-T01N-PLTF
	Exposure Area		RLCCR	RLCCR	RLCCR	RefMineR	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	15.9	17.1	24.9	20.3	21.7	22.
Metals								
Aluminum	mg/Kg-Dry	T	350.	578.	147.	547.	340.	68.6
Antimony	mg/Kg-Dry	T	<1.5	<1.3	<0.92	<0.79	<0.74	<0.68
Arsenic	mg/Kg-Dry	T	<1.	1.4	<0.6	<0.79	<0.74	<0.68
Barium	mg/Kg-Dry	T	18.2	24.	69.5	18.2	36.9	49.1
Beryllium	mg/Kg-Dry	T	<0.082	<0.088	<0.2	<0.059	<0.055	<0.095
Boron	mg/Kg-Dry	T	28.3	27.5	14.5	25.6	78.3	39.1
Cadmium	mg/Kg-Dry	T	0.57	0.54	<0.13	0.35	<0.22	0.77
Calcium	mg/Kg-Dry	T	14200.	18300.	18600.	11800.	19400.	25000.
Chromium	mg/Kg-Dry	T	1.3	1.5	1.2	<2.5	<1.5	6.8
Cobalt	mg/Kg-Dry	T	<0.88	<0.94	<0.52	<0.64	<0.51	<1.1
Copper	mg/Kg-Dry	T	20.8	18.7	6.8	17.7	11.5	11.8
Iron	mg/Kg-Dry	T	552.	883.	271.	1090.	521.	260.
Lead	mg/Kg-Dry	T	1.1	1.6	<0.56	1.7	<1.9	<0.86
Magnesium	mg/Kg-Dry	T	3540.	4440.	2900.	3070.	3800.	3940.
Manganese	mg/Kg-Dry	T	71.7	98.2	253.	129.	98.6	230.
Mercury	mg/Kg-Dry	T	<0.11	<0.099	<0.064	<0.074	<0.074	<0.073
Molybdenum	mg/Kg-Dry	T	2.	0.7	5.2	2.4	5.1	2.6
Nickel	mg/Kg-Dry	T	<5.5	<5.8	1.9	<4.	1.7	6.4
Potassium	mg/Kg-Dry	T	60600.	39100.	15200.	29800.	44100.	24500.
Selenium	mg/Kg-Dry	T	<4.	4.9	<2.5	<0.79	1.	<0.68
Silver	mg/Kg-Dry	T	<0.57	<0.58	<0.52	<0.42	<1.6	<0.59
Sodium	mg/Kg-Dry	T	<220.	251.	<202.	<522.	334.	<190.
Thallium	mg/Kg-Dry	T	<0.5	<0.46	<0.31	<0.39	<0.37	<0.34
Vanadium	mg/Kg-Dry	T	<1.1	1.4	<0.56	2.2	0.88	<1.2
Zinc	mg/Kg-Dry	T	95.6	118.	98.8	47.8	49.3	305.

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T = Total Fraction

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Parameter	Site ID		RRS-8	RRS-9	RS-1	RS-10	RS-11	RS-12
	Sample Date		9/27/2002	9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002
	Sample ID		RRS-8-T01N-PLTF	RRS-9-T01N-PLTF	RS-1-T01N-PLTF	RS-10-T01N-PLTF	RS-11-T01N-PLTF	RS-12-T01N-PLTF
	Exposure Area		RefMineR	RefMineR	SS9	SS9	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	29. :	24.5 :	22.7 :	13.9 :	17.6 :	19.9 :
Metals								
Aluminum	mg/Kg-Dry	T	407. :	559. :	119. :	699. :	452. :	1850. :
Antimony	mg/Kg-Dry	T	<0.52 J	<0.12 J	<0.7 J	<1.7 J	<0.85 J	<0.75 J
Arsenic	mg/Kg-Dry	T	<0.52 :	<0.12 :	<0.7 :	<1.2 :	<0.85 :	<0.75 :
Barium	mg/Kg-Dry	T	31. :	36.7 :	44.1 :	35.3 :	85.2 :	62.3 :
Beryllium	mg/Kg-Dry	T	<0.059 :	<0.061 :	<0.084 :	<0.11 :	<0.085 :	0.23 :
Boron	mg/Kg-Dry	T	37.9 :	29.4 :	21.1 :	36. :	23.9 :	26.1 :
Cadmium	mg/Kg-Dry	T	<0.23 :	1.1 :	<0.19 :	0.42 :	0.74 :	2.9 :
Calcium	mg/Kg-Dry	T	12100. :	11400. :	13400. :	10400. :	18900. :	7340. :
Chromium	mg/Kg-Dry	T	3.1 :	1.6 :	<1.5 :	1.7 :	2.4 :	6. :
Cobalt	mg/Kg-Dry	T	<0.52 :	<0.65 :	<0.62 :	<0.86 :	<0.91 :	2.8 :
Copper	mg/Kg-Dry	T	6.9 :	8.2 :	7. :	16.5 :	9.1 :	21.6 :
Iron	mg/Kg-Dry	T	707. :	804. :	289. :	1370. :	1150. :	4870. :
Lead	mg/Kg-Dry	T	<2.9 J	<1.8 J	<1.7 J	<4.5 :	3.2 J	10.6 J
Magnesium	mg/Kg-Dry	T	2710. :	6530. :	4040. :	2830. J	3950. :	3990. :
Manganese	mg/Kg-Dry	T	92.4 :	342. :	145. :	76.3 :	68.2 :	446. :
Mercury	mg/Kg-Dry	T	<0.055 J	<0.061 :	<0.066 J	<0.11 :	<0.091 :	<0.075 :
Molybdenum	mg/Kg-Dry	T	30.7 :	0.53 :	13.2 :	20.1 :	15.9 :	7. :
Nickel	mg/Kg-Dry	T	1.4 J	<4. :	1.9 :	1.5 :	<5.6 :	11.1 :
Potassium	mg/Kg-Dry	T	22900. J	20700. J	27000. :	52100. J	34400. J	20900. J
Selenium	mg/Kg-Dry	T	<0.52 J	0.16 J	<1. J	<4.7 J	<0.85 J	<0.75 J
Silver	mg/Kg-Dry	T	<1.7 :	<0.41 :	<0.38 :	<0.86 :	<0.57 :	<0.55 :
Sodium	mg/Kg-Dry	T	<318. :	<160. :	<320. :	<410. :	<223. :	548. :
Thallium	mg/Kg-Dry	T	<0.28 :	<0.041 :	<0.36 :	<0.58 :	<0.43 :	<0.37 :
Vanadium	mg/Kg-Dry	T	1.2 :	1.3 :	<1.1 :	1.9 :	1.3 :	5. :
Zinc	mg/Kg-Dry	T	69. J	156. J	64.3 J	50.4 J	137. J	164. J

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T = Total Fraction

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Parameter	Site ID		RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17		
	Sample Date		10/9/2002	9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13-T01N-PLTF	RS-13A-T01N-PLTF	RS-14-T01N-PLTF	RS-15-T01N-PLTF	RS-16-T01N-PLTF	RS-17-T01N-PLTF		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	17.1	22.3	26.5	22.1	29.8	19.1		
Metals										
Aluminum	mg/Kg-Dry	T	1880.	291.	3850.	3600.	913.	155.		
Antimony	mg/Kg-Dry	T	<1.5	<2.2	<0.57	<0.63	<0.81	<1.2		
Arsenic	mg/Kg-Dry	T	1.2	<0.9	<1.4	<2.4	0.67	<0.79		
Barium	mg/Kg-Dry	T	83.6	8.5	141.	153.	47.	21.5		
Beryllium	mg/Kg-Dry	T	<0.2	<0.15	0.22	0.27	0.07	<0.084		
Boron	mg/Kg-Dry	T	36.8	26.	27.5	19.9	16.4	103.		
Cadmium	mg/Kg-Dry	T	1.2	<0.18	0.91	0.68	0.4	<0.12		
Calcium	mg/Kg-Dry	T	10300.	12700.	20700.	10400.	12700.	16800.		
Chromium	mg/Kg-Dry	T	6.4	<2.4	11.3	11.3	2.1	<1.9		
Cobalt	mg/Kg-Dry	T	2.	<1.1	3.8	4.2	2.2	<0.89		
Copper	mg/Kg-Dry	T	28.7	13.	34.7	32.6	10.4	14.7		
Iron	mg/Kg-Dry	T	4230.	525.	9620.	10400.	2500.	260.		
Lead	mg/Kg-Dry	T	9.9	1.6	21.9	22.6	7.	<0.45		
Magnesium	mg/Kg-Dry	T	3440.	2320.	5580.	3460.	1870.	3970.		
Manganese	mg/Kg-Dry	T	256.	62.3	260.	359.	173.	53.9		
Mercury	mg/Kg-Dry	T	<0.094	<0.035	<0.06	<0.072	<0.05	<0.079		
Molybdenum	mg/Kg-Dry	T	8.2	39.9	25.3	10.9	5.4	2.6		
Nickel	mg/Kg-Dry	T	8.8	<0.9	8.7	12.2	4.4	<5.8		
Potassium	mg/Kg-Dry	T	37800.	24000.	28900.	30700.	16400.	40700.		
Selenium	mg/Kg-Dry	T	<3.9	<1.3	<0.64	<1.1	<2.2	<3.2		
Silver	mg/Kg-Dry	T	<0.7	<0.58	<0.42	<0.45	<0.32	<0.58		
Sodium	mg/Kg-Dry	T	1810.	206.	958.	<179.	287.	654.		
Thallium	mg/Kg-Dry	T	<0.49	<0.45	<0.29	<0.31	<0.27	<0.4		
Vanadium	mg/Kg-Dry	T	4.6	1.3	11.7	10.9	1.9	<1.2		
Zinc	mg/Kg-Dry	T	130.	52.9	160.	157.	79.2	37.7		

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T = Total Fraction

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Appendix A-9a
Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
Validated Analytical Results

Parameter	Site ID		RS-18	RS-19	RS-2	RS-20	RS-3	RS-4		
	Sample Date		10/8/2002	10/8/2002	10/4/2002	10/8/2002	9/26/2002	9/26/2002		
	Sample ID		RS-18-T01N-PLTF	RS-19-T01N-PLTF	RS-2-T01N-PLTF	RS-20-T01N-PLTF	RS-3-T01N-PLTF	RS-4-T01N-PLTF		
	Exposure Area		SS16	SS16	SS9	SS16	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	20.2	21.	36.4	19.8	30.	32.1		
Metals										
Aluminum	mg/Kg-Dry	T	1860.	11700.	478.	934.	2740.	58.3		
Antimony	mg/Kg-Dry	T	<1.1	<0.67	<0.44	<0.86	<0.53	<0.093		
Arsenic	mg/Kg-Dry	T	<0.74	<0.67	<0.44	<0.86	1.7	<0.093		
Barium	mg/Kg-Dry	T	64.9	185.	127.	33.3	109.	3.4		
Beryllium	mg/Kg-Dry	T	<0.064	0.52	<0.066	<0.081	0.23	<0.047		
Boron	mg/Kg-Dry	T	35.1	37.6	35.4	35.4	24.	28.		
Cadmium	mg/Kg-Dry	T	0.31	<0.1	4.9	0.61	1.2	0.097		
Calcium	mg/Kg-Dry	T	18500.	25600.	10500.	27000.	15800.	5480.		
Chromium	mg/Kg-Dry	T	4.7	9.5	4.9	1.8	8.7	1.5		
Cobalt	mg/Kg-Dry	T	1.5	7.1	0.74	<0.86	4.	<0.5		
Copper	mg/Kg-Dry	T	18.8	32.4	21.7	8.1	34.	5.3		
Iron	mg/Kg-Dry	T	3080.	14600.	1270.	1330.	7070.	108.		
Lead	mg/Kg-Dry	T	4.4	10.5	2.2	2.8	19.3	<1.		
Magnesium	mg/Kg-Dry	T	4410.	7100.	1750.	4180.	5000.	1750.		
Manganese	mg/Kg-Dry	T	148.	446.	138.	79.8	337.	32.7		
Mercury	mg/Kg-Dry	T	<0.069	<0.081	<0.044	<0.076	<0.053	<0.05		
Molybdenum	mg/Kg-Dry	T	8.9	17.6	12.1	22.2	11.	5.9		
Nickel	mg/Kg-Dry	T	<4.2	14.3	6.3	<5.6	9.7	<3.1		
Potassium	mg/Kg-Dry	T	50000.	32400.	16000.	37800.	30300.	32100.		
Selenium	mg/Kg-Dry	T	<2.9	<0.67	<0.44	<0.86	1.5	<0.093		
Silver	mg/Kg-Dry	T	<0.44	<0.47	<0.41	<0.56	<0.26	<0.31		
Sodium	mg/Kg-Dry	T	450.	<251.	<131.	<1160.	<102.	<123.		
Thallium	mg/Kg-Dry	T	<0.36	<0.34	<0.22	<0.42	<0.27	<0.062		
Vanadium	mg/Kg-Dry	T	4.5	21.	1.6	2.1	7.7	<0.65		
Zinc	mg/Kg-Dry	T	99.5	61.	199.	35.9	140.	46.1		

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

R:\Projects\22236252_Database_Management\Task_01\7.0_Project_Working_files\TechMemo\Appendix\ZZZ-TechMemoII-F_Section 9 Terrestrial Vegetation\appendix a-9a.rpt

Appendix A-9a
Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
Validated Analytical Results

Parameter	Site ID		RS-5	RS-6	RS-7	RS-8	RS-9	TSS14-1	
	Sample Date		9/26/2002	10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003	
	Sample ID		RS-5-T01N-PLTF	RS-6-T01N-PLTF	RS-7-T01N-PLTF	RS-8-T01N-PLTF	RS-9-T01N-PLTF	TSS14-1-T01N-PLTF	
	Exposure Area		SS9	SS9	SS9	SS9	SS9	SS14	
Units	Fraction								
Laboratory Parameters									
Solids, Percent	%	T	30.8	17.	20.5	15.6	20.	23.6	
Metals									
Aluminum	mg/Kg-Dry	T	313.	263.	156.	405.	2380.	187.	J
Antimony	mg/Kg-Dry	T	<0.49	<0.94	<0.78	<1.5	<0.8	<1.7	
Arsenic	mg/Kg-Dry	T	<0.49	<0.94	<0.78	<1.	<0.8	<0.64	
Barium	mg/Kg-Dry	T	93.2	35.9	37.6	11.5	43.	11.	
Beryllium	mg/Kg-Dry	T	<0.049	<0.088	<0.12	<0.096	0.21	<0.085	J
Boron	mg/Kg-Dry	T	27.6	30.6	20.5	49.4	25.	16.9	
Cadmium	mg/Kg-Dry	T	4.2	2.	0.88	1.5	0.9	<0.25	
Calcium	mg/Kg-Dry	T	9770.	11600.	17000.	35700.	11500.	15600.	J
Chromium	mg/Kg-Dry	T	1.	<1.2	<3.3	1.2	4.9	<3.2	
Cobalt	mg/Kg-Dry	T	<0.52	<1.5	<1.4	<1.1	1.4	<0.85	
Copper	mg/Kg-Dry	T	25.6	<5.3	11.2	8.3	18.5	14.8	
Iron	mg/Kg-Dry	T	740.	326.	240.	414.	4510.	420.	J
Lead	mg/Kg-Dry	T	3.	<2.3	<1.1	1.2	15.	0.72	
Magnesium	mg/Kg-Dry	T	2010.	3340.	4190.	9360.	2910.	3570.	
Manganese	mg/Kg-Dry	T	134.	729.	325.	137.	288.	56.4	
Mercury	mg/Kg-Dry	T	<0.052	<0.094	<0.083	<0.11	<0.08	<0.072	
Molybdenum	mg/Kg-Dry	T	4.9	7.6	35.6	4.6	13.5	206.	
Nickel	mg/Kg-Dry	T	5.5	5.2	8.8	<6.4	<5.	2.4	
Potassium	mg/Kg-Dry	T	23300.	36800.	14800.	33700.	26400.	22400.	J
Selenium	mg/Kg-Dry	T	0.58	<0.94	<0.78	<4.	<0.8	<2.6	
Silver	mg/Kg-Dry	T	<0.32	<0.65	<0.73	<0.71	<0.55	<0.93	
Sodium	mg/Kg-Dry	T	<127.	<1060.	<239.	289.	<205.	<453.	
Thallium	mg/Kg-Dry	T	<0.26	<0.47	<0.4	<0.51	<0.39	<0.33	
Vanadium	mg/Kg-Dry	T	0.71	<1.3	<1.5	<1.3	5.	3.6	
Zinc	mg/Kg-Dry	T	78.6	91.2	187.	330.	120.	80.9	

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed

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Parameter	Site ID		TSS14-10	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6		
	Sample Date		5/28/2003	6/3/2003	6/4/2003	6/4/2003	6/4/2003	5/30/2003		
	Sample ID		TSS14-10-T01N-PLTF	TSS14-2-T01N-PLTF	TSS14-3-T01N-PLTF	TSS14-4-T01N-PLTF	TSS14-5-T01N-PLTF	TSS14-6-T01N-PLTF		
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	22.4	35.	20.6	29.2	23.7	17.2		
Metals										
Aluminum	mg/Kg-Dry	T	272. J	2270. J	2160. J	1860. J	764. J	554. J		
Antimony	mg/Kg-Dry	T	<1.3	<1.2	<1.8	<1.4	<1.8	<2.4		
Arsenic	mg/Kg-Dry	T	<0.85	0.57	<0.73	<0.55	<0.72	<0.93		
Barium	mg/Kg-Dry	T	25.9	30.	18.	34.6	14.8	25.6		
Beryllium	mg/Kg-Dry	T	<0.12	<0.13 J	<0.27 J	<0.062 J	<0.08 J	<0.15		
Boron	mg/Kg-Dry	T	34.4	28.9	40.8	60.3	24.1	29.1		
Cadmium	mg/Kg-Dry	T	<0.21	2.5	1.2	1.7	0.28	<0.26		
Calcium	mg/Kg-Dry	T	19400.	23300. J	17400. J	26100. J	17200. J	14100. J		
Chromium	mg/Kg-Dry	T	1.5	7.7	4.7	3.8	<1.9	<1.5		
Cobalt	mg/Kg-Dry	T	<1.5	2.2	1.9	1.2	<0.8	<1.9		
Copper	mg/Kg-Dry	T	17.4	60.3	25.7	20.9	18.6	19.2		
Iron	mg/Kg-Dry	T	585. J	3740. J	1920. J	2090. J	966. J	546. J		
Lead	mg/Kg-Dry	T	2.1	19.1	3.7	2.8	0.59	<1.5		
Magnesium	mg/Kg-Dry	T	4000.	2790.	3240.	3970.	4300.	3520.		
Manganese	mg/Kg-Dry	T	68.3	153.	427.	91.4	150.	59.9 J		
Mercury	mg/Kg-Dry	T	<0.071	<0.043	<0.073	<0.051	<0.063	<0.087		
Molybdenum	mg/Kg-Dry	T	214.	68.3	314.	99.7	903.	150. J		
Nickel	mg/Kg-Dry	T	1.2	5.1	5.3	3.	2.5	<1.5 J		
Potassium	mg/Kg-Dry	T	25100. J	19800. J	33000. J	23900. J	32200. J	26200. J		
Selenium	mg/Kg-Dry	T	<2.1	<1.9	<2.9	<2.2	<2.9	<3.8		
Silver	mg/Kg-Dry	T	<0.39	<0.57	<0.92	<0.65	<0.89	<0.51		
Sodium	mg/Kg-Dry	T	<265.	211.	475.	283.	338.	358.		
Thallium	mg/Kg-Dry	T	<0.42	<0.23	<0.36	<0.28	<0.36	<0.47		
Vanadium	mg/Kg-Dry	T	<1.6	7.4	6.8	4.5	11.4	<2.		
Zinc	mg/Kg-Dry	T	81.3	203.	201.	128.	91.1	77.9 J		

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed

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Parameter	Site ID		TSS14-7	TSS14-8	TSS14-9	TSS17-33	TSS17-35	TSS17-37		
	Sample Date		5/30/2003	5/30/2003	5/28/2003	5/4/2004	5/4/2004	5/3/2004		
	Sample ID		TSS14-7-T01N-PLTF	TSS14-8-T01N-PLTF	TSS14-9-T01N-PLTF	TSS17-33-T01N-FU	TSS17-35-T01N-FU	TSS17-37-T01N-FU		
	Exposure Area		SS14	SS14	SS14	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	19.7	16.8	23.5	18.1	22.6	16.4		
Metals										
Aluminum	mg/Kg-Dry	T	379. J	1230. J	566. J	1260. :	628. :	5150. :		
Antimony	mg/Kg-Dry	T	<1.5 :	<1.5 :	<1.1 :	<2. :	<1.8 :	<2.4 :		
Arsenic	mg/Kg-Dry	T	1.4 :	<0.95 :	<0.72 :	<1. :	<0.88 :	<1.2 :		
Barium	mg/Kg-Dry	T	21.8 :	25.6 :	14. :	26. :	10.6 :	54.9 :		
Beryllium	mg/Kg-Dry	T	<0.13 :	<0.15 :	<0.12 :	<0.1 :	<0.088 :	0.33 :		
Boron	mg/Kg-Dry	T	33.5 :	42.9 :	23.8 :	32. :	29.6 :	26.2 :		
Cadmium	mg/Kg-Dry	T	<0.21 :	<0.24 :	<0.32 :	<0.66 :	0.62 :	0.26 :		
Calcium	mg/Kg-Dry	T	14500. :	27700. :	14100. :	23500. :	17700. :	16900. :		
Chromium	mg/Kg-Dry	T	1.3 :	4.6 :	2.9 :	1.6 J	1.3 J	5.9 :		
Cobalt	mg/Kg-Dry	T	<1.6 :	<1.8 :	<1.6 :	0.88 :	<0.49 :	3. :		
Copper	mg/Kg-Dry	T	14.2 :	33.9 :	29.4 :	9.4 :	7.1 :	21.3 :		
Iron	mg/Kg-Dry	T	504. J	2430. J	962. J	1610. :	1000. :	7130. :		
Lead	mg/Kg-Dry	T	<1.3 :	6.5 :	3.7 J	2.7 :	<1.8 :	8.5 :		
Magnesium	mg/Kg-Dry	T	3560. :	6370. :	3340. :	3190. :	3760. :	4680. :		
Manganese	mg/Kg-Dry	T	82.7 :	152. :	68.9 :	126. :	66.8 :	622. :		
Mercury	mg/Kg-Dry	T	<0.076 :	<0.089 :	<0.064 :	<0.083 J	<0.062 J	<0.098 J		
Molybdenum	mg/Kg-Dry	T	104. :	151. :	387. :	<6.6 :	17.7 :	36.6 :		
Nickel	mg/Kg-Dry	T	<1.3 :	2.6 :	1.6 :	<0.72 J	<0.62 :	6.7 :		
Potassium	mg/Kg-Dry	T	28500. J	30100. J	28000. J	35700. J	26100. J	20600. J		
Selenium	mg/Kg-Dry	T	<2.5 :	<2.4 :	<1.8 :	<3.6 :	<3.1 :	<4.3 :		
Silver	mg/Kg-Dry	T	<0.43 :	<0.49 :	<0.41 :	<0.53 :	<0.43 :	<0.61 :		
Sodium	mg/Kg-Dry	T	<792. :	<177. :	<146. :	<454. :	2380. :	4720. :		
Thallium	mg/Kg-Dry	T	<0.51 :	<0.49 :	<0.35 :	<0.51 :	<0.44 :	<0.61 :		
Vanadium	mg/Kg-Dry	T	<1.7 :	4.1 :	2.4 :	3. :	1.4 :	11.6 :		
Zinc	mg/Kg-Dry	T	42.6 :	53.6 :	73.6 :	86.7 J	39.8 :	64.6 :		

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9a
Terrestrial Vegetation - RI/FS and Dual Aboveground Forb Unwashed
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-39	TSS17-41	TSS17-42	---	---	---
			5/2/2004 TSS17-39-T01N-FU SS17	5/3/2004 TSS17-41-T01N-FU SS17	5/4/2004 TSS17-31-T01N-FU SS17			
Laboratory Parameters								
Solids, Percent	%	T	18.5	16.	19.1	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	1060.	1610.	225.	-	-	-
Antimony	mg/Kg-Dry	T	<2.	<2.3	<1.8	-	-	-
Arsenic	mg/Kg-Dry	T	<0.97	<1.2	<0.94	-	-	-
Barium	mg/Kg-Dry	T	21.6	83.1	8.4	-	-	-
Beryllium	mg/Kg-Dry	T	<0.11	0.11	<0.099	-	-	-
Boron	mg/Kg-Dry	T	26.5	31.3	32.5	-	-	-
Cadmium	mg/Kg-Dry	T	<0.16	0.36	0.58	-	-	-
Calcium	mg/Kg-Dry	T	9190.	8560.	22600.	-	-	-
Chromium	mg/Kg-Dry	T	1.8 J	2.3 J	1.9 J	-	-	-
Cobalt	mg/Kg-Dry	T	<0.59	0.88	<0.52	-	-	-
Copper	mg/Kg-Dry	T	11.9	20.6	6.8	-	-	-
Iron	mg/Kg-Dry	T	1790.	4510.	344.	-	-	-
Lead	mg/Kg-Dry	T	<3.2	5.8	<0.84	-	-	-
Magnesium	mg/Kg-Dry	T	2130.	3040.	3140.	-	-	-
Manganese	mg/Kg-Dry	T	90.3	148.	53.4	-	-	-
Mercury	mg/Kg-Dry	T	<0.086 J	<0.1 J	<0.079 J	-	-	-
Molybdenum	mg/Kg-Dry	T	<2.5	5.8	<5.	-	-	-
Nickel	mg/Kg-Dry	T	2.8	<5.2	<0.68 J	-	-	-
Potassium	mg/Kg-Dry	T	27700. J	36800. J	41300. J	-	-	-
Selenium	mg/Kg-Dry	T	<3.5	<4.1	<3.2	-	-	-
Silver	mg/Kg-Dry	T	<0.54	<0.52	<0.49	-	-	-
Sodium	mg/Kg-Dry	T	<481.	1730.	<681.	-	-	-
Thallium	mg/Kg-Dry	T	<0.5	<0.58	<0.46	-	-	-
Vanadium	mg/Kg-Dry	T	2.6	3.4	<0.68	-	-	-
Zinc	mg/Kg-Dry	T	43.2	61.3	48.2	-	-	-

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

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Appendix A-9b

Appendix A

Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed

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Parameter	Site ID		CR-10	CR-11	CR-13	CR-14	CR-7	CR-8		
	Sample Date		5/31/2003	6/5/2003	6/2/2003	6/2/2003	5/29/2003	5/29/2003		
	Sample ID		CR-10-T02N-PLTF	CR-11-T02N-PLTF	CR-13-T02N-PLTF	CR-14-T02N-PLTF	CR-7-T02N-PLTF	CR-8-T02N-PLTF		
	Exposure Area		RCR	RCR	RCR	RCR	RCR	RCR		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	-	40.9	44.2	48.8	57.2	37.8		
Metals										
Aluminum	mg/Kg-Dry	T	5350. J	2440. J	2090. J	635. J	2360. J	2940. J		
Antimony	mg/Kg-Dry	T	<1.9 :	<1.1 :	<0.88 :	<0.92 :	<0.73 :	<1.1 :		
Arsenic	mg/Kg-Dry	T	1.3 :	<0.44 :	<0.36 :	<0.37 :	<0.3 :	0.58 :		
Barium	mg/Kg-Dry	T	60.8 :	32.5 :	44.3 :	14.8 :	74.3 :	78.3 :		
Beryllium	mg/Kg-Dry	T	<0.42 :	<0.12 J	0.12 :	<0.037 :	<0.16 :	<0.19 :		
Boron	mg/Kg-Dry	T	11.9 :	13.2 :	16.5 :	10.5 :	16.1 :	20.6 :		
Cadmium	mg/Kg-Dry	T	0.42 :	0.39 :	0.25 :	0.2 :	<0.086 :	0.4 :		
Calcium	mg/Kg-Dry	T	6080. :	3500. :	12000. :	7090. :	14100. :	34900. :		
Chromium	mg/Kg-Dry	T	13.5 :	5.9 :	4.1 :	<2. :	4.7 :	6.1 :		
Cobalt	mg/Kg-Dry	T	3.8 :	1.7 :	1.3 :	0.64 :	1.6 :	1.7 :		
Copper	mg/Kg-Dry	T	13.8 :	22.7 :	21.9 :	4.5 J	10. :	22.2 :		
Iron	mg/Kg-Dry	T	6960. J	3030. J	2350. J	912. J	2850. J	3390. J		
Lead	mg/Kg-Dry	T	5. :	2.4 :	1.6 :	0.7 :	1.7 :	2.4 :		
Magnesium	mg/Kg-Dry	T	2700. :	1930. :	1420. :	2150. :	3650. :	5480. :		
Manganese	mg/Kg-Dry	T	200. :	122. :	61.1 :	50.4 :	102. :	90.2 :		
Mercury	mg/Kg-Dry	T	<0.062 :	<0.042 :	<0.038 :	<0.035 :	<0.028 :	<0.042 :		
Molybdenum	mg/Kg-Dry	T	1. :	0.81 :	1.2 :	1.7 :	3.8 :	2.6 :		
Nickel	mg/Kg-Dry	T	8.5 :	4.9 :	1.8 :	0.66 :	3.1 :	2.6 J		
Potassium	mg/Kg-Dry	T	21100. J	12300. J	11000. J	4590. J	3550. J	13900. J		
Selenium	mg/Kg-Dry	T	<3. :	<1.7 :	<1.4 :	<1.5 :	<1.2 :	2.2 :		
Silver	mg/Kg-Dry	T	<0.35 :	<0.21 J	<0.19 :	<0.31 J	<0.17 :	<0.23 :		
Sodium	mg/Kg-Dry	T	392. :	<298. :	171. :	101. J	379. :	291. :		
Thallium	mg/Kg-Dry	T	<0.37 :	<0.22 :	<0.18 :	<0.18 :	<0.15 :	<0.22 :		
Vanadium	mg/Kg-Dry	T	12.7 :	5.4 :	6.3 :	2. :	8.7 :	7.4 :		
Zinc	mg/Kg-Dry	T	74.6 :	29.8 :	21.9 :	21.1 :	17.8 :	46. :		

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed

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Parameter	Site ID		MRSS-1	MRSS-16	MRSS-17 Biota	MRSS-18	MRSS-19	MRSS-2
	Sample Date		10/6/2002	9/29/2002	9/28/2002	9/28/2002	9/28/2002	10/6/2002
	Sample ID		MRSS-1-T02N-PLTF	MRSS-16-T02N-PLTF	MRSS-17-T02N-PLTF	MRSS-18-T02N-PLTF	MRSS-19-T02N-PLTF	MRSS-2-T02N-PLTF
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	48.8	52.3	51.2	54.1	52.5	46.
Metals								
Aluminum	mg/Kg-Dry	T	6020.	1540.	6020.	3750.	2440.	6130.
Antimony	mg/Kg-Dry	T	<0.31 J	<0.33 J	0.12 J	0.11 J	0.095 J	<0.3 J
Arsenic	mg/Kg-Dry	T	3.9	0.96	2.7	0.94	0.93	2.4
Barium	mg/Kg-Dry	T	171.	159.	102.	107.	122.	130.
Beryllium	mg/Kg-Dry	T	0.35	0.084	0.41	0.16	0.11	0.28
Boron	mg/Kg-Dry	T	13.1	<5.4	6.8	5.9	6.3	26.1
Cadmium	mg/Kg-Dry	T	0.66	0.46	0.41	0.24	0.42	<0.37
Calcium	mg/Kg-Dry	T	6370.	2870.	4490.	5420.	4040.	9170.
Chromium	mg/Kg-Dry	T	9.8	2.1	6.4	3.3	2.3	18.5
Cobalt	mg/Kg-Dry	T	5.9	1.1	2.5	1.6	1.4	3.5
Copper	mg/Kg-Dry	T	26.	8.6	13.3	7.	8.2	26.7
Iron	mg/Kg-Dry	T	11800.	2080.	13000.	3940.	1960.	12700.
Lead	mg/Kg-Dry	T	24.8 J	7.1 J	39.8 J	11.1 J	9.1 J	28.3 J
Magnesium	mg/Kg-Dry	T	2910.	730.	1480.	1120.	890.	3960.
Manganese	mg/Kg-Dry	T	584.	721.	443.	227.	410.	307.
Mercury	mg/Kg-Dry	T	<0.035 J	0.036	<0.029	0.031	<0.03	<0.033
Molybdenum	mg/Kg-Dry	T	34.6	1.1	5.5	1.3	<0.55	20.4
Nickel	mg/Kg-Dry	T	10.5	<2.1	3.5	<2.	3.	11.3
Potassium	mg/Kg-Dry	T	9180. J	2870. J	5250. J	2720. J	2190. J	9610. J
Selenium	mg/Kg-Dry	T	0.59 J	<0.33 J	0.47 J	0.074 J	0.11 J	<0.72 J
Silver	mg/Kg-Dry	T	0.33	<0.21	<0.23	<0.2	<0.18	<0.22
Sodium	mg/Kg-Dry	T	<187.	<105.	<86.9	<89.8	<81.3	<250.
Thallium	mg/Kg-Dry	T	<0.15	<0.15	0.059	0.037	0.038	<0.15
Vanadium	mg/Kg-Dry	T	12.5	2.9	10.7	7.	3.8	15.2
Zinc	mg/Kg-Dry	T	54.7 J	21. J	56.6 J	20.3 J	14.5 J	82.8 J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed
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Parameter	Site ID		MRSS-20	MRSS-4	MRSS-5	MSS3-1	MSS3-10	MSS3-2
	Sample Date		9/28/2002	10/6/2002	10/6/2002	10/10/2002	9/30/2002	10/11/2002
	Sample ID		MRSS-20-T02N-PLTF	MRSS-4-T02N-PLTF	MRSS-5-T02N-PLTF	MSS3-1-T02N-PLTF	MSS3-10-T02N-PLTF	MSS3-2-T02N-PLTF
	Exposure Area		RefMine	RefMine	RefMine	SS3	SS3	SS3
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	52.8	50.5	54.8	54.8	25.	52.4
Metals								
Aluminum	mg/Kg-Dry	T	1630.	1230.	1270.	911.	4240.	1440.
Antimony	mg/Kg-Dry	T	0.076 J	<0.3 J	<0.29 J	<0.44 J	<0.6 J	<0.48 J
Arsenic	mg/Kg-Dry	T	0.55	0.48	3.5	0.4	0.64	0.59
Barium	mg/Kg-Dry	T	237.	70.5	153.	107.	608.	64.5
Beryllium	mg/Kg-Dry	T	0.059	0.15	0.1	0.1	0.16	0.059
Boron	mg/Kg-Dry	T	7.4	19.	3.6	16.6	14.	19.5
Cadmium	mg/Kg-Dry	T	0.21	<0.38	<0.071	0.18	0.72	0.67
Calcium	mg/Kg-Dry	T	5060.	6500.	2920.	13100.	9600.	9620.
Chromium	mg/Kg-Dry	T	1.3	1.5	6.	0.82 J	11.6	1.5
Cobalt	mg/Kg-Dry	T	0.93	2.4	1.8	0.4	1.9	0.65
Copper	mg/Kg-Dry	T	8.	10.9	7.5	6.6	26.8	20.4
Iron	mg/Kg-Dry	T	1300.	2140.	4360.	1030.	9600.	2140.
Lead	mg/Kg-Dry	T	5.3 J	38.4 J	5.5 J	3.8 J	13.6 J	5.5 J
Magnesium	mg/Kg-Dry	T	761.	1820.	566.	891.	3380.	712.
Manganese	mg/Kg-Dry	T	239.	195.	125.	48.5	189.	97.3
Mercury	mg/Kg-Dry	T	<0.032	<0.034	<0.031 J	<0.029	<0.064	<0.031
Molybdenum	mg/Kg-Dry	T	0.59	4.2	5.1	1.1	18.8	3.6
Nickel	mg/Kg-Dry	T	<1.9	10.3	5.3	0.82	7.2	1.3
Potassium	mg/Kg-Dry	T	2290. J	3500. J	1050.	2900. J	20100. J	6470. J
Selenium	mg/Kg-Dry	T	0.076 J	<0.44 J	<0.53 J	<1.2 J	<0.6 J	<1.3 J
Silver	mg/Kg-Dry	T	<0.21	<0.18	<0.14	<0.22	<2.	<0.23
Sodium	mg/Kg-Dry	T	<79.2	<188.	<85.8	<155.	<369.	<112.
Thallium	mg/Kg-Dry	T	0.057	<0.15	<0.15	<0.15	<0.32	<0.16
Vanadium	mg/Kg-Dry	T	2.7	1.4	3.1	1.6	11.2	3.2
Zinc	mg/Kg-Dry	T	11.6 J	42.8 J	27. J	13.1 J	87.6 J	30. J

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Appendix A

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Parameter	Site ID		MSS3-3	MSS3-5	MSS3-6	MSS3-8	MSS3-9	RRS-1		
	Sample Date		9/30/2002	10/10/2002	10/1/2002	10/1/2002	10/10/2002	9/27/2002		
	Sample ID		MSS3-3-T02N-PLTF	MSS3-5-T02N-PLTF	MSS3-6-T02N-PLTF	MSS3-8-T02N-PLTF	MSS3-9-T02N-PLTF	RRS-1-T02N-PLTF		
	Exposure Area		SS3	SS3	SS3	SS3	SS3	RefMineR		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	53.3	33.	43.5	51.1	34.6	53.7		
Metals										
Aluminum	mg/Kg-Dry	T	11100.	4120.	3200.	1100.	5950.	8940.		
Antimony	mg/Kg-Dry	T	<0.28	<0.73	<0.39	<0.33	<0.72	<0.28		
Arsenic	mg/Kg-Dry	T	1.9	6.4	1.1	<0.33	0.84	2.8		
Barium	mg/Kg-Dry	T	173.	125.	126.	32.1	105.	111.		
Beryllium	mg/Kg-Dry	T	1.3	0.17	0.16	0.072	<0.35	0.52		
Boron	mg/Kg-Dry	T	<5.1	<10.9	9.4	16.2	13.9	7.3		
Cadmium	mg/Kg-Dry	T	<0.045	<0.2	0.34	0.047	0.72	0.28		
Calcium	mg/Kg-Dry	T	7710.	4640.	6230.	9920.	5350.	5960.		
Chromium	mg/Kg-Dry	T	18.4	5.5	6.4	3.7	5.5	19.2		
Cobalt	mg/Kg-Dry	T	7.9	1.5	1.7	1.7	4.3	7.4		
Copper	mg/Kg-Dry	T	31.7	46.1	12.6	6.7	30.9	20.1		
Iron	mg/Kg-Dry	T	15300.	17700.	5890.	1720.	10700.	19200.		
Lead	mg/Kg-Dry	T	33.	120.	22.1	2.3	37.6	10.1		
Magnesium	mg/Kg-Dry	T	5440.	2530.	1930.	1400.	3550.	5980.		
Manganese	mg/Kg-Dry	T	730.	110.	347.	58.7	324.	471.		
Mercury	mg/Kg-Dry	T	<0.03	<0.045	<0.032	<0.029	<0.043	<0.028		
Molybdenum	mg/Kg-Dry	T	1.6	9.1	4.8	2.	9.	1.4		
Nickel	mg/Kg-Dry	T	18.6	2.5	3.2	4.5	6.4	12.1		
Potassium	mg/Kg-Dry	T	6230.	14900.	8900.	3760.	13300.	3180.		
Selenium	mg/Kg-Dry	T	<0.28	<1.9	<0.39	<0.33	<1.9	0.47		
Silver	mg/Kg-Dry	T	<0.21	1.1	<0.23	<0.22	<0.35	<0.65		
Sodium	mg/Kg-Dry	T	<99.1	<225.	<138.	<108.	<73.4	<121.		
Thallium	mg/Kg-Dry	T	<0.15	0.25	<0.18	<0.16	<0.24	<0.15		
Vanadium	mg/Kg-Dry	T	19.1	11.8	7.8	2.7	15.	36.3		
Zinc	mg/Kg-Dry	T	91.6	43.3	33.8	22.7	89.3	70.8		

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

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Parameter	Site ID		RRS-10	RRS-11	RRS-12	RRS-13	RRS-19	RRS-20
	Sample Date	Sample ID	9/29/2002 RRS-10-T02N-PLTF	9/29/2002 RRS-11-T02N-PLTF	10/2/2002 RRS-12-T02N-PLTF	10/2/2002 RRS-13-T02N-PLTF	10/7/2002 RRS-19-T02N-PLTF	10/7/2002 RRS-20-T02N-PLTF
	Exposure Area		RefMineR	RefMineR	RefMineR	RefMineR	RLCCR	RLCCR
	Units	Fraction						
Laboratory Parameters								
Solids, Percent	%	T	36.7	33.5	40.	40.6	43.5	37.2
Metals								
Aluminum	mg/Kg-Dry	T	6380.	3580.	2900.	3100.	2690.	3840.
Antimony	mg/Kg-Dry	T	0.082 J	<0.48 J	<0.38 J	<0.39 J	<0.32 J	<0.38 J
Arsenic	mg/Kg-Dry	T	1.8	2.7	0.78	0.99	<1.1	0.65
Barium	mg/Kg-Dry	T	124.	89.3	98.8	80.	51.3	60.5
Beryllium	mg/Kg-Dry	T	0.57	0.28	0.3	0.22	0.17	0.32
Boron	mg/Kg-Dry	T	10.1	<13.7	12.5	14.5	10.6	16.1
Cadmium	mg/Kg-Dry	T	0.46	0.48	0.5	0.39	0.25	0.4
Calcium	mg/Kg-Dry	T	5200.	9430.	9400.	13200.	5950.	8520.
Chromium	mg/Kg-Dry	T	14.2	5.1	5.7	4.9	7.8	7.8
Cobalt	mg/Kg-Dry	T	5.2	3.3	2.8	2.1	2.	3.2
Copper	mg/Kg-Dry	T	18.5	20.6	10.5	14.5	22.5	19.1
Iron	mg/Kg-Dry	T	15000.	5550.	4780.	5000.	4550.	8010.
Lead	mg/Kg-Dry	T	86.9 J	16.4 J	13.5 J	11.6 J	6.9 J	11.8 J
Magnesium	mg/Kg-Dry	T	4170.	2120.	2800.	2640.	2030.	3280.
Manganese	mg/Kg-Dry	T	322.	379.	295.	256.	127.	249.
Mercury	mg/Kg-Dry	T	0.049	1.5	<0.04	<0.039	<0.037	<0.043
Molybdenum	mg/Kg-Dry	T	2.1	2.2	5.2	2.	23.2	<2.3
Nickel	mg/Kg-Dry	T	12.5	4.8	5.5	4.7	5.7	7.
Potassium	mg/Kg-Dry	T	12000. J	6690. J	6180. J	5910. J	8370. J	14100. J
Selenium	mg/Kg-Dry	T	0.63 J	<0.48 J	<0.38 J	<0.39 J	<1.2 J	<0.38 J
Silver	mg/Kg-Dry	T	<0.25	<0.36	<0.27	<0.22	<0.23 J	<0.3
Sodium	mg/Kg-Dry	T	99.2	<161.	<104.	<84.	88.5	<116.
Thallium	mg/Kg-Dry	T	0.082	<0.24	<0.2	<0.2	<0.16	<0.19
Vanadium	mg/Kg-Dry	T	15.5	7.5	7.	8.6	7.6	12.4
Zinc	mg/Kg-Dry	T	86.6 J	119. J	189. J	126. J	57.9 J	87.1 J

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Appendix A

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Parameter	Site ID		RRS-25	RRS-26	RRS-29	RRS-3	RRS-5	RRS-7
	Sample Date		10/9/2002	10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002
	Sample ID		RRS-25-T02N-PLTF	RRS-26-T02N-PLTF	RRS-29-T02N-PLTF	RRS-3-T02N-PLTF	RRS-5-T02N-PLTF	RRS-7-T02N-PLTF
	Exposure Area		RLCCR	RLCCR	RLCCR	RefMineR	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	29.7	33.	46.4	45.	39.7	39.9
Metals								
Aluminum	mg/Kg-Dry	T	1700.	2980.	948.	15100.	8360.	6390.
Antimony	mg/Kg-Dry	T	<0.77 J	<0.73 J	<0.5 J	<0.29 J	<0.4 J	<0.35 J
Arsenic	mg/Kg-Dry	T	0.54	1.9	<0.32	7.1	2.	3.
Barium	mg/Kg-Dry	T	56.2	55.5	34.5	162.	200.	278.
Beryllium	mg/Kg-Dry	T	0.16	0.42	<0.14	0.36	0.93	0.45
Boron	mg/Kg-Dry	T	27.9	23.3	17.7	4.2	10.3	9.8
Cadmium	mg/Kg-Dry	T	0.47	0.64	0.14	<0.053 J	2.4	1.2
Calcium	mg/Kg-Dry	T	13400.	11500.	5170.	2620.	10800.	5210.
Chromium	mg/Kg-Dry	T	3.7	6.7	2.4	36.2	17.1	12.3
Cobalt	mg/Kg-Dry	T	1.4	2.1	0.97	5.6	12.6	7.8
Copper	mg/Kg-Dry	T	31.	21.2	9.7	142.	197.	50.6
Iron	mg/Kg-Dry	T	2870.	5330.	1810.	30400.	17200.	17200.
Lead	mg/Kg-Dry	T	5.1 J	9.7 J	3.4 J	30.2 J	37. J	48.1 J
Magnesium	mg/Kg-Dry	T	2100.	2310.	1960.	9330.	6100.	3710.
Manganese	mg/Kg-Dry	T	133.	339.	111.	251.	806.	396.
Mercury	mg/Kg-Dry	T	<0.057	<0.052	<0.03	0.19	<0.038 J	<0.038 J
Molybdenum	mg/Kg-Dry	T	2.8	1.7	6.3	17.6	15.6	30.8
Nickel	mg/Kg-Dry	T	<3.4	5.8	5.4	17.3	39.8	18.5
Potassium	mg/Kg-Dry	T	14600. J	13200. J	4910. J	9780. J	10500. J	6170. J
Selenium	mg/Kg-Dry	T	<2.1 J	<1.9 J	<1.3 J	2.7 J	0.83 J	0.43 J
Silver	mg/Kg-Dry	T	<0.37	<0.3	<0.28	0.87	<1.2	<0.38 J
Sodium	mg/Kg-Dry	T	350. J	979.	<191.	707.	<230.	<119.
Thallium	mg/Kg-Dry	T	<0.26	<0.24	<0.16	0.58	<0.2	<0.18
Vanadium	mg/Kg-Dry	T	4.	6.4	2.4	60.7	23.9	16.3
Zinc	mg/Kg-Dry	T	102. J	159. J	47.8 J	67.6 J	343. J	116. J

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Parameter	Site ID		RRS-8	RRS-9	RS-1	RS-10	RS-11	RS-12
	Sample Date		9/27/2002	9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002
	Sample ID		RRS-8-T02N-PLTF	RRS-9-T02N-PLTF	RS-1-T02N-PLTF	RS-10-T02N-PLTF	RS-11-T02N-PLTF	RS-12-T02N-PLTF
	Exposure Area		RefMineR	RefMineR	SS9	SS9	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	54.1	45.6	39.8	28.6	45.5	40.8
Metals								
Aluminum	mg/Kg-Dry	T	4030.	9960.	1420.	1660.	3980.	3280.
Antimony	mg/Kg-Dry	T	<0.22 J	0.066 J	<0.43 J	<0.84 J	<0.31 J	<0.34 J
Arsenic	mg/Kg-Dry	T	2.2	1.6	0.73	<0.56	1.5	1.2
Barium	mg/Kg-Dry	T	130.	84.6	99.7	45.8	168.	113.
Beryllium	mg/Kg-Dry	T	0.31	0.81	0.13	0.084	0.35	0.37
Boron	mg/Kg-Dry	T	19.	9.2	26.9	15.	10.8	12.7
Cadmium	mg/Kg-Dry	T	0.61	0.79	0.53	0.63	0.53	2.3
Calcium	mg/Kg-Dry	T	9500.	5660.	5880.	4370.	5800.	5560.
Chromium	mg/Kg-Dry	T	11.8	17.5	3.5	2.7	12.3	10.3
Cobalt	mg/Kg-Dry	T	4.4	7.5	2.5	1.2	4.6	4.4
Copper	mg/Kg-Dry	T	37.5	18.9	27.4	25.9	27.9	34.8
Iron	mg/Kg-Dry	T	8280.	11200.	3670.	3090.	10900.	9000.
Lead	mg/Kg-Dry	T	35.1 J	15.8 J	12.8 J	8. J	29.5 J	16.7 J
Magnesium	mg/Kg-Dry	T	3010.	4670.	2710.	1970.	2970.	2790.
Manganese	mg/Kg-Dry	T	335.	360.	149.	121.	310.	314.
Mercury	mg/Kg-Dry	T	<0.028	0.037	<0.038 J	<0.052	<0.037	<0.037
Molybdenum	mg/Kg-Dry	T	161.	1.	132.	12.9	25.7	11.
Nickel	mg/Kg-Dry	T	10.2	16.	9.3	4.5	9.9	14.2
Potassium	mg/Kg-Dry	T	5050. J	4040. J	9450. J	15600. J	6920. J	8090. J
Selenium	mg/Kg-Dry	T	0.39 J	1.4 J	<0.43 J	<2.2 J	<0.31 J	<0.34 J
Silver	mg/Kg-Dry	T	<0.63	<0.24	<0.35 J	<0.42	<0.2	<0.25
Sodium	mg/Kg-Dry	T	142.	<94.5	<113.	<343.	106.	328.
Thallium	mg/Kg-Dry	T	<0.11	0.11	<0.21	<0.28	<0.16	<0.18
Vanadium	mg/Kg-Dry	T	12.2	18.9	4.	3.8	12.7	10.8
Zinc	mg/Kg-Dry	T	140. J	118. J	124. J	67.5 J	134. J	145. J

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed
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Parameter	Site ID		RS-13	RS-13A	RS-14	RS-15	RS-16	RS-17		
	Sample Date		10/9/2002	9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13-T02N-PLTF	RS-13A-T02N-PLTF	RS-14-T02N-PLTF	RS-15-T02N-PLTF	RS-16-T02N-PLTF	RS-17-T02N-PLTF		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	29.2	29.7	35.6	30.9	24.7	30.6		
Metals										
Aluminum	mg/Kg-Dry	T	1950.	4850. J	2170.	2360.	5430.	7750.		
Antimony	mg/Kg-Dry	T	<0.82 J	<1.5	<0.42 J	<0.49 J	<0.81 J	<0.78 J		
Arsenic	mg/Kg-Dry	T	0.89	<0.61	<0.62	<0.91	2.3	2.3		
Barium	mg/Kg-Dry	T	69.9	112.	97.5	117.	206.	175.		
Beryllium	mg/Kg-Dry	T	<0.24	0.77	0.13	0.22	0.69	0.52		
Boron	mg/Kg-Dry	T	17.5	15.5	19.1	11.	14.6	16.7		
Cadmium	mg/Kg-Dry	T	2.2	0.81	0.62	0.84	1.9	0.69		
Calcium	mg/Kg-Dry	T	6920.	12200.	9750.	4080.	5550.	7480.		
Chromium	mg/Kg-Dry	T	5.5	7.1	5.6	7.4	23.9	12.1		
Cobalt	mg/Kg-Dry	T	2.7	7.1	2.2	3.9	8.5	7.5		
Copper	mg/Kg-Dry	T	38.4	52.2	42.1	44.	54.3	50.		
Iron	mg/Kg-Dry	T	4490.	9090. J	5170.	6080.	13000.	11700.		
Lead	mg/Kg-Dry	T	16.1 J	18.2	13.2 J	12. J	32.4 J	17.3 J		
Magnesium	mg/Kg-Dry	T	1760.	3370.	2550.	1760.	3170.	6010.		
Manganese	mg/Kg-Dry	T	250.	710.	148.	333.	660.	461.		
Mercury	mg/Kg-Dry	T	<0.051	<0.026	<0.045	<0.049	<0.065	<0.052		
Molybdenum	mg/Kg-Dry	T	9.2	42.1	17.1	6.8	18.2	10.1		
Nickel	mg/Kg-Dry	T	17.5	15.5	6.5	16.2	24.7	16.		
Potassium	mg/Kg-Dry	T	14200. J	9260. J	12700. J	13200. J	16200. J	13600. J		
Selenium	mg/Kg-Dry	T	<2.2 J	<0.91	<0.42 J	<0.49 J	<2.1 J	<2.1 J		
Silver	mg/Kg-Dry	T	<0.45	<0.47	<0.31 J	<0.36 J	<0.49	<0.36		
Sodium	mg/Kg-Dry	T	884.	825.	1380.	340.	725.	611.		
Thallium	mg/Kg-Dry	T	<0.28	<0.3	<0.21	<0.25	<0.26	<0.26		
Vanadium	mg/Kg-Dry	T	4.1	7.7	6.5	6.5	11.3	19.6		
Zinc	mg/Kg-Dry	T	134. J	178.	93.8 J	110. J	271. J	113. J		

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T = Total Fraction

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Appendix A-9b

**Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed
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Parameter	Site ID		RS-18	RS-19	RS-2	RS-20	RS-3	RS-4		
	Sample Date		10/8/2002	10/8/2002	10/4/2002	10/8/2002	9/26/2002	9/26/2002		
	Sample ID		RS-18-T02N-PLTF	RS-19-T02N-PLTF	RS-2-T02N-PLTF	RS-20-T02N-PLTF	RS-3-T02N-PLTF	RS-4-T02N-PLTF		
	Exposure Area		SS16	SS16	SS9	SS16	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	36.2	30.6	49.8	38.3	39.	48.2		
Metals										
Aluminum	mg/Kg-Dry	T	3310.	13000.	6080.	2820.	4080.	1200.		
Antimony	mg/Kg-Dry	T	<0.69 J	<0.52 J	<0.3 J	<0.39 J	<0.41 J	<0.33 J		
Arsenic	mg/Kg-Dry	T	0.55	<0.52	2.4	<0.39	2.1	0.54		
Barium	mg/Kg-Dry	T	128.	181.	253.	50.1	171.	58.3		
Beryllium	mg/Kg-Dry	T	0.19	0.59	0.48	0.12	0.41	0.06		
Boron	mg/Kg-Dry	T	23.2	16.	8.2	15.7	11.	24.9		
Cadmium	mg/Kg-Dry	T	0.61	0.16	3.6	0.21	2.2	1.2		
Calcium	mg/Kg-Dry	T	9780.	11800.	4600.	5010.	9280.	17800.		
Chromium	mg/Kg-Dry	T	6.9	5.9	14.1	4.4	8.5	2.9		
Cobalt	mg/Kg-Dry	T	2.6	6.9	7.4	2.	7.2	1.6		
Copper	mg/Kg-Dry	T	34.5	32.	66.3	8.6	71.5	19.1		
Iron	mg/Kg-Dry	T	5640.	11800.	15700.	3730.	10400.	2220.		
Lead	mg/Kg-Dry	T	9.1 J	8.2 J	36.5 J	4.2 J	29.2 J	14.9 J		
Magnesium	mg/Kg-Dry	T	2380.	5880.	3550.	1880.	2740.	2950.		
Manganese	mg/Kg-Dry	T	187.	412.	506.	146.	482.	107.		
Mercury	mg/Kg-Dry	T	<0.044	<0.049	<0.032	<0.042	<0.041	<0.033		
Molybdenum	mg/Kg-Dry	T	9.9	<3.2	26.9	3.9	9.	45.2		
Nickel	mg/Kg-Dry	T	7.7	13.4	22.1	3.1	18.7	4.4		
Potassium	mg/Kg-Dry	T	12800. J	17600. J	9800. J	12800. J	8950. J	7240. J		
Selenium	mg/Kg-Dry	T	<1.9 J	<0.52 J	0.52 J	<0.39 J	1.6 J	<0.33 J		
Silver	mg/Kg-Dry	T	<0.33	<0.39	<0.3 J	<0.29	<0.23	<0.21		
Sodium	mg/Kg-Dry	T	801.	<1010.	<97.4	<311.	392.	143.		
Thallium	mg/Kg-Dry	T	<0.23	<0.26	<0.15	<0.2	<0.21	<0.17		
Vanadium	mg/Kg-Dry	T	7.7	17.6	17.5	6.	10.8	3.3		
Zinc	mg/Kg-Dry	T	112. J	45.4 J	162. J	55.6 J	159. J	224. J		

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Appendix A

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Parameter	Site ID		RS-5	RS-6	RS-7	RS-8	RS-9	TSS14-1		
	Sample Date		9/26/2002	10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003		
	Sample ID		RS-5-T02N-PLTF	RS-6-T02N-PLTF	RS-7-T02N-PLTF	RS-8-T02N-PLTF	RS-9-T02N-PLTF	TSS14-1-T02N-PLTF		
	Exposure Area		SS9	SS9	SS9	SS9	SS9	SS14		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	55. :	31.9 :	41. :	29.8 :	33.5 :	32.4 :		
Metals										
Aluminum	mg/Kg-Dry	T	8220. :	3260. :	1210. :	2070. :	3640. :	2310. :	J	
Antimony	mg/Kg-Dry	T	<0.29 J	<0.5 J	<0.41 J	<0.74 J	<0.45 J	<1.4 :		
Arsenic	mg/Kg-Dry	T	5.1 :	1.3 :	<0.41 :	0.64 :	0.87 :	1. :		
Barium	mg/Kg-Dry	T	307. :	152. :	57.8 :	73.5 :	63. :	43.5 :		
Beryllium	mg/Kg-Dry	T	0.64 :	0.44 :	0.2 :	0.21 :	0.3 :	<0.062 J		
Boron	mg/Kg-Dry	T	4.7 J	5. :	13.7 :	15.8 :	11.3 :	21.6 :		
Cadmium	mg/Kg-Dry	T	1.7 :	1.7 :	0.98 :	1.2 :	0.6 :	0.3 :		
Calcium	mg/Kg-Dry	T	4640. :	3700. :	4440. :	3300. :	4540. :	18400. J		
Chromium	mg/Kg-Dry	T	24.9 :	8.5 :	3.7 :	4.7 :	6.6 :	5.9 :		
Cobalt	mg/Kg-Dry	T	8.4 :	4.4 :	2.4 :	2.6 :	2.6 :	1.7 :		
Copper	mg/Kg-Dry	T	77.3 :	40.8 :	26.3 :	33.6 :	18.5 :	17.9 :		
Iron	mg/Kg-Dry	T	21600. :	7710. :	2930. :	4400. :	6750. :	3210. J		
Lead	mg/Kg-Dry	T	58.4 J	23.5 J	7.8 J	11.1 J	24.2 J	5.2 :		
Magnesium	mg/Kg-Dry	T	4530. :	2220. :	3240. :	2970. :	1930. :	2060. :		
Manganese	mg/Kg-Dry	T	507. :	505. :	221. :	213. :	343. :	96.6 :		
Mercury	mg/Kg-Dry	T	<0.027 :	<0.05 J	<0.039 J	<0.054 :	<0.051 :	<0.046 :		
Molybdenum	mg/Kg-Dry	T	35.1 :	24.8 :	11.5 :	8.4 :	14.6 :	287. :		
Nickel	mg/Kg-Dry	T	20.4 :	13.8 :	19. :	12.1 :	5.1 :	4.9 :		
Potassium	mg/Kg-Dry	T	6330. J	11200. :	4590. J	18200. J	11400. J	8550. J		
Selenium	mg/Kg-Dry	T	1.7 J	<1. J	<0.41 J	<2. J	<0.45 J	<2.2 :		
Silver	mg/Kg-Dry	T	0.38 :	<0.29 :	<0.37 J	<0.34 :	<0.26 :	<0.62 :		
Sodium	mg/Kg-Dry	T	151. :	<652. :	<116. :	209. J	288. :	<327. :		
Thallium	mg/Kg-Dry	T	0.18 :	<0.25 :	<0.2 :	<0.25 :	<0.23 :	<0.27 :		
Vanadium	mg/Kg-Dry	T	23.8 :	9.4 :	3.4 :	5. :	8.7 :	10.5 :		
Zinc	mg/Kg-Dry	T	132. J	176. J	94.9 J	139. J	83. J	57.1 :		

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Appendix A-9b

Appendix A

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Parameter	Site ID		TSS14-10	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6		
	Sample Date		5/28/2003	6/3/2003	6/4/2003	6/4/2003	6/4/2003	5/30/2003		
	Sample ID		TSS14-10-T02N-PLTF	TSS14-2-T02N-PLTF	TSS14-3-T02N-PLTF	TSS14-4-T02N-PLTF	TSS14-5-T02N-PLTF	TSS14-6-T02N-PLTF		
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	32.2	54.	25.1	50.4	34.1	33.5		
Metals										
Aluminum	mg/Kg-Dry	T	1870. J	2650. J	4260. J	1810. J	1480. J	1950. J		
Antimony	mg/Kg-Dry	T	<0.84	<0.8	<1.6	<0.83	<1.3	<1.3		
Arsenic	mg/Kg-Dry	T	1.	0.67	1.1	0.4	<0.53	1.5		
Barium	mg/Kg-Dry	T	60.2	32.8	42.6	29.4	17.	72.8		
Beryllium	mg/Kg-Dry	T	<0.075	<0.11 J	<0.25 J	<0.067 J	<0.053 J	0.096		
Boron	mg/Kg-Dry	T	24.8	16.5	27.1	23.2	15.8	17.9		
Cadmium	mg/Kg-Dry	T	<0.3	2.2	1.1	0.77	0.27	<0.13		
Calcium	mg/Kg-Dry	T	19400.	12900. J	8690. J	10400. J	9650. J	16300. J		
Chromium	mg/Kg-Dry	T	4.	8.3	9.2	4.2	3.8	2.5		
Cobalt	mg/Kg-Dry	T	1.8	1.7	3.2	0.95	0.88	1.		
Copper	mg/Kg-Dry	T	14.9	35.2	22.7	21.2	11.7	10.7		
Iron	mg/Kg-Dry	T	2340. J	3390. J	3980. J	1840. J	1660. J	1720. J		
Lead	mg/Kg-Dry	T	5.	13.7	6.4	2.2	3.5	1.9		
Magnesium	mg/Kg-Dry	T	2590.	1240.	1980.	865.	2250.	2550.		
Manganese	mg/Kg-Dry	T	76.1	104.	252.	59.7	60.1	51.3 J		
Mercury	mg/Kg-Dry	T	<0.05	<0.03	<0.064	<0.032	<0.044	<0.048		
Molybdenum	mg/Kg-Dry	T	512.	70.4	216.	105.	833.	322. J		
Nickel	mg/Kg-Dry	T	4.	3.7	5.2	2.4	1.9	2.4 J		
Potassium	mg/Kg-Dry	T	6710. J	6760. J	24100. J	5770. J	6600. J	3640. J		
Selenium	mg/Kg-Dry	T	<1.4	<1.3	<2.5	<1.3	<2.1	<2. J		
Silver	mg/Kg-Dry	T	<0.25	<0.39	<0.84	<0.42	<0.59	<0.26		
Sodium	mg/Kg-Dry	T	1180.	161.	1080.	595.	1320.	1430.		
Thallium	mg/Kg-Dry	T	<0.27	<0.16	<0.31	<0.17	<0.26	<0.25		
Vanadium	mg/Kg-Dry	T	10.6	6.7	9.2	5.2	11.4	5.7		
Zinc	mg/Kg-Dry	T	37.3	97.8	120.	31.5	40.5	23.6 J		

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed
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Parameter	Site ID		TSS14-7	TSS14-8	TSS14-9	TSS17-33	TSS17-35	TSS17-37		
	Sample Date		5/30/2003	5/30/2003	5/28/2003	5/4/2004	5/4/2004	5/3/2004		
	Sample ID		TSS14-7-T02N-PLTF	TSS14-8-T02N-PLTF	TSS14-9-T02N-PLTF	TSS17-33-T02N-FU	TSS17-35-T02N-FU	TSS17-37-T02N-FU		
	Exposure Area		SS14	SS14	SS14	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	32.4	22.	32.	28.8	33.6	23.4		
Metals										
Aluminum	mg/Kg-Dry	T	4440. J	6550. J	2220. J	1390.	3040.	5940.		
Antimony	mg/Kg-Dry	T	<0.77	<1.2	<0.84	<1.2	<1.2	<1.7		
Arsenic	mg/Kg-Dry	T	<0.49	1.9	0.69	<0.59	<0.6	1.7		
Barium	mg/Kg-Dry	T	39.2	59.5	23.7	25.	59.8	67.9		
Beryllium	mg/Kg-Dry	T	<0.17	<0.5	<0.13	0.12	0.22	0.4		
Boron	mg/Kg-Dry	T	17.3	13.6	16.9	20.8	20.5	19.7		
Cadmium	mg/Kg-Dry	T	<0.13	<0.34	<0.56	<0.38	0.51	0.35		
Calcium	mg/Kg-Dry	T	10900.	16000.	15900.	5660.	12700.	14200.		
Chromium	mg/Kg-Dry	T	16.4	17.3	7.2	3.2	6.5	7.3		
Cobalt	mg/Kg-Dry	T	1.7	4.5	2.	0.83	2.1	4.7		
Copper	mg/Kg-Dry	T	21.9	40.5	43.8	6.9	14.9	32.9		
Iron	mg/Kg-Dry	T	3920. J	8640. J	2650. J	1810.	5120.	7910.		
Lead	mg/Kg-Dry	T	5.2	18.2	9.4	2.7	9.5	11.1		
Magnesium	mg/Kg-Dry	T	3300.	4390.	2500.	1680.	3330.	3090.		
Manganese	mg/Kg-Dry	T	107.	286.	92.5	82.6	218.	825.		
Mercury	mg/Kg-Dry	T	<0.049	<0.068	<0.047	<0.056 J	<0.042 J	<0.06 J		
Molybdenum	mg/Kg-Dry	T	149.	30.5	797.	<2.4	18.5	73.1		
Nickel	mg/Kg-Dry	T	5.2	9.5	6.9	0.76 J	4.8	7.7		
Potassium	mg/Kg-Dry	T	5280. J	18800. J	8280. J	14300. J	10500. J	7650. J		
Selenium	mg/Kg-Dry	T	<1.3	<2.	<1.4	<2.	<2.1	<2.9		
Silver	mg/Kg-Dry	T	<0.27	<0.4	<0.28	<0.3	<0.3	<0.39		
Sodium	mg/Kg-Dry	T	1380.	<664.	<263.	<262.	2130.	3640.		
Thallium	mg/Kg-Dry	T	<0.25	<0.41	0.31	<0.29	<0.3	<0.42		
Vanadium	mg/Kg-Dry	T	6.8	14.5	6.9	3.	6.5	15.		
Zinc	mg/Kg-Dry	T	29.6	83.2	52.2	55.2	68.8	68.8		

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Forb Unwashed
Validated Analytical Results**

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-39	TSS17-41	TSS17-42	---	---	---
			5/2/2004 TSS17-39-T02N-FU SS17	5/3/2004 TSS17-41-T02N-FU SS17	5/4/2004 TSS17-31-T02N-FU SS17			
Laboratory Parameters								
Solids, Percent	%	T	31.6	22.7	29.7	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	3160.	1820.	1820.	-	-	-
Antimony	mg/Kg-Dry	T	<1.2	<1.5	<1.3	-	-	-
Arsenic	mg/Kg-Dry	T	<0.6	<0.75	<0.64	-	-	-
Barium	mg/Kg-Dry	T	65.5	81.9	41.1	-	-	-
Beryllium	mg/Kg-Dry	T	0.23	0.17	0.14	-	-	-
Boron	mg/Kg-Dry	T	19.3	32.2	23.6	-	-	-
Cadmium	mg/Kg-Dry	T	0.31	0.66	0.44	-	-	-
Calcium	mg/Kg-Dry	T	7660.	10400.	7640.	-	-	-
Chromium	mg/Kg-Dry	T	4.7	6.2	5.1	-	-	-
Cobalt	mg/Kg-Dry	T	2.4	1.9	1.6	-	-	-
Copper	mg/Kg-Dry	T	24.4	41.9	9.4	-	-	-
Iron	mg/Kg-Dry	T	4490.	4020.	2600.	-	-	-
Lead	mg/Kg-Dry	T	7.3	11.5	3.7	-	-	-
Magnesium	mg/Kg-Dry	T	1800.	2300.	1940.	-	-	-
Manganese	mg/Kg-Dry	T	316.	188.	125.	-	-	-
Mercury	mg/Kg-Dry	T	<0.051	<0.062	<0.047	-	-	-
Molybdenum	mg/Kg-Dry	T	15.8	13.2	<3.4	-	-	-
Nickel	mg/Kg-Dry	T	5.7	3.8	1.6	-	-	-
Potassium	mg/Kg-Dry	T	8920.	14900.	15100.	-	-	-
Selenium	mg/Kg-Dry	T	<2.1	<2.6	<2.3	-	-	-
Silver	mg/Kg-Dry	T	<0.31	<0.39	<0.33	-	-	-
Sodium	mg/Kg-Dry	T	<715.	2750.	<465.	-	-	-
Thallium	mg/Kg-Dry	T	<0.3	<0.38	<0.32	-	-	-
Vanadium	mg/Kg-Dry	T	7.9	4.8	4.7	-	-	-
Zinc	mg/Kg-Dry	T	44.	66.1	61.6	-	-	-

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T = Total Fraction

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Appendix A-9c

Appendix A

**Terrestrial Vegetation - RI/FS Aboveground Forb Washed
Validated Analytical Results**

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Parameter	Site ID		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-42		
	Sample Date		5/5/2004	5/5/2004	5/3/2004	5/3/2004	5/3/2004	5/5/2004		
	Sample ID		TSS17-33-T01N-FW	TSS17-35-T01N-FW	TSS17-37-T01N-FW	TSS17-39-T01N-FW	TSS17-41-T01N-FW	TSS17-31-T01N-FW		
	Exposure Area		SS17	SS17	SS17	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	13.9	19.6	11.4	13.1	13.	17.1		
Metals										
Aluminum	mg/Kg-Dry	T	70.5	<43.9	417.	137.	410.	<48.5		
Antimony	mg/Kg-Dry	T	<2.7	<2.	<3.2	<2.9	<2.8	<1.9		
Arsenic	mg/Kg-Dry	T	<1.4	<1.	<1.7	<1.5	<1.4	<0.94		
Barium	mg/Kg-Dry	T	6.	1.8	7.	17.6	21.5	5.8		
Beryllium	mg/Kg-Dry	T	<0.14	<0.097	<0.18	<0.14	<0.14	<0.11		
Boron	mg/Kg-Dry	T	32.4	31.1	<26.3	29.	33.1	38.		
Cadmium	mg/Kg-Dry	T	<0.65	0.56	<0.25	<0.2	0.29	0.64		
Calcium	mg/Kg-Dry	T	20200.	17200.	9820.	11300.	9850.	26300.		
Chromium	mg/Kg-Dry	T	2.5	<0.5	<0.82	1.1	2.	0.53		
Cobalt	mg/Kg-Dry	T	<0.79	<0.51	<0.96	<0.74	<0.76	<0.58		
Copper	mg/Kg-Dry	T	<7.9	5.1	14.	12.2	16.9	5.8		
Iron	mg/Kg-Dry	T	165.	103.	617.	230.	915.	116.		
Lead	mg/Kg-Dry	T	<1.2	<0.82	<2.1	<2.9	<2.8	<1.9		
Magnesium	mg/Kg-Dry	T	2980.	3310.	3230.	2360.	2870.	3300.		
Manganese	mg/Kg-Dry	T	84.2	27.	115.	61.1	74.6	52.6		
Mercury	mg/Kg-Dry	T	<0.11	<0.077	<0.15	<0.13	<0.1	<0.099		
Molybdenum	mg/Kg-Dry	T	<6.1	10.7	24.6	1.4	3.5	6.4		
Nickel	mg/Kg-Dry	T	<1.	<0.66	<1.2	<6.6	<6.2	<4.3		
Potassium	mg/Kg-Dry	T	39900.	30100.	24100.	34700.	42300.	45600.		
Selenium	mg/Kg-Dry	T	<4.7	<3.5	<5.7	<5.1	<4.8	<3.3		
Silver	mg/Kg-Dry	T	<0.72	<0.47	<0.86	<0.67	<0.69	<0.53		
Sodium	mg/Kg-Dry	T	<689.	2710.	5230.	<317.	<2080.	<830.		
Thallium	mg/Kg-Dry	T	<0.67	<0.5	<0.82	<0.73	<0.69	<0.47		
Vanadium	mg/Kg-Dry	T	<1.	<0.66	1.3	<0.92	<1.	<0.76		
Zinc	mg/Kg-Dry	T	63.3	37.8	37.7	34.4	50.	67.3		

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T = Total Fraction

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Appendix A-9d

**Terrestrial Vegetation - RI/FS Below Ground Forb Washed
Validated Analytical Results**

Parameter	Site ID		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-42
	Sample Date		5/5/2004	5/5/2004	5/3/2004	5/3/2004	5/3/2004	5/5/2004
	Sample ID		TSS17-33-T02N-FW	TSS17-35-T02N-FW	TSS17-37-T02N-FW	TSS17-39-T02N-FW	TSS17-41-T02N-FW	TSS17-31-T02N-FW
	Exposure Area		SS17	SS17	SS17	SS17	SS17	SS17
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	27.8	28.5	18.2	19.1	14.6	27.7
Metals								
Aluminum	mg/Kg-Dry	T	109.	101.	362.	210.	332.	130.
Antimony	mg/Kg-Dry	T	<1.4	<1.3	<2.1	<2.	<2.3	<1.2
Arsenic	mg/Kg-Dry	T	<0.68	<0.67	<1.	<1.	<1.2	<0.61
Barium	mg/Kg-Dry	T	6.1	2.8	9.3	35.6	49.3	4.3
Beryllium	mg/Kg-Dry	T	<0.068	<0.067	<0.1	<0.089	<0.12	<0.069
Boron	mg/Kg-Dry	T	20.5	19.6	24.2	27.7	38.4	20.6
Cadmium	mg/Kg-Dry	T	0.4	0.46	0.34	0.28	0.75	0.47
Calcium	mg/Kg-Dry	T	4460.	4740.	7360.	7020.	10100.	4660.
Chromium	mg/Kg-Dry	T	1.6 J	0.63 J	2.3	0.63 J	0.66 J	0.36 J
Cobalt	mg/Kg-Dry	T	<0.36	<0.35	<0.55	<0.49	<0.68	<0.36
Copper	mg/Kg-Dry	T	5.	3.9	35.2	23.6	36.3	4.7
Iron	mg/Kg-Dry	T	138.	155.	753.	264.	692.	147.
Lead	mg/Kg-Dry	T	<0.58	<0.95	<1.4	<2.	<2.3	<1.2
Magnesium	mg/Kg-Dry	T	1350.	1510.	1410.	1150.	1890.	1480.
Manganese	mg/Kg-Dry	T	20.5	14.7	192.	68.6	106.	15.2
Mercury	mg/Kg-Dry	T	<0.054 J	<0.056 J	<0.088 J	<0.089 J	<0.11 J	<0.058 J
Molybdenum	mg/Kg-Dry	T	<1.3	12.6	31.9	6.8	9.6	6.1
Nickel	mg/Kg-Dry	T	<0.47 J	<0.46	0.82	<4.6	<5.1	<2.7
Potassium	mg/Kg-Dry	T	15900. J	13500. J	10400. J	14400. J	17900. J	16000. J
Selenium	mg/Kg-Dry	T	<2.4	<2.3	<3.7	<3.6	<4.	<2.1
Silver	mg/Kg-Dry	T	<0.34	<0.33	<0.51	<0.45	<0.63	<0.34
Sodium	mg/Kg-Dry	T	<351.	2920.	5930.	<1120.	4010.	1300.
Thallium	mg/Kg-Dry	T	<0.34	<0.33	<0.53	<0.51	<0.57	<0.31
Vanadium	mg/Kg-Dry	T	<0.47	0.56	3.8	0.84	<0.89	<0.47
Zinc	mg/Kg-Dry	T	46.8	50.9	32.4	29.3	51.4	53.8 J

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T = Total Fraction

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Appendix A-9e

Appendix A

**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
Validated Analytical Results**

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Parameter	Units	Exposure Area Fraction	CR-10	CR-11	CR-13	CR-14	CR-2	CR-4	
			Sample Date	5/31/2003	6/5/2003	6/2/2003	6/2/2003	6/3/2003	5/31/2003
			Sample ID	WRSD-3-T01N-PLTU	WRCW-2-T01N-PLT U	WRWW-2-T01N-PLT U	CR-14-T01N-PLTG R	WRWW-1-T01N-PLT U	WRWW-3-T01N-PLT U
			RCR	R	R	R	R	R	
Laboratory Parameters									
Solids, Percent	%	T	43.2	41.8	42.3	39.2	39.1	62.5	
Metals									
Aluminum	mg/Kg-Dry	T	2570.	361.	688.	1240. J	650.	440. J	
Antimony	mg/Kg-Dry	T	<0.025	<0.023	<0.023	<1.	<0.025	<0.043	
Arsenic	mg/Kg-Dry	T	0.22	0.084	0.087	<0.41	0.14	0.11	
Barium	mg/Kg-Dry	T	37.5	15.6	25.5	29.8	29.7	14.9	
Beryllium	mg/Kg-Dry	T	<0.17	<0.031	<0.023 J	0.066	<0.025 J	<0.027	
Boron	mg/Kg-Dry	T	10.6	5.7	8.3	12.5	3.3	8.2	
Cadmium	mg/Kg-Dry	T	0.079	0.043	0.012	<0.071	0.017	<0.0064	
Calcium	mg/Kg-Dry	T	5090.	3540.	3760.	8320.	7540.	4110.	
Chromium	mg/Kg-Dry	T	11.3	2.4	2.8	<2.8	1.3	1.1	
Cobalt	mg/Kg-Dry	T	1.3 J	0.19 J	0.24 J	0.77	0.19 J	0.16 J	
Copper	mg/Kg-Dry	T	10.4	5.7	7.3	17.3	10.	4.3	
Iron	mg/Kg-Dry	T	3260.	464.	775.	1530. J	752.	498.	
Lead	mg/Kg-Dry	T	2.1	0.31	0.45	1.5	0.36	0.32 J	
Magnesium	mg/Kg-Dry	T	2020.	914.	1340.	2060.	1910.	1420.	
Manganese	mg/Kg-Dry	T	103.	38.	40.4	75.8	58.6	49.1	
Mercury	mg/Kg-Dry	T	<0.037	<0.038	<0.04	<0.043	<0.041	<0.024	
Molybdenum	mg/Kg-Dry	T	<2.8	2.4	1.3	4.3	1.7	1.8	
Nickel	mg/Kg-Dry	T	4.2	<0.67 J	0.9	0.94	0.9	0.5	
Potassium	mg/Kg-Dry	T	14100. J	18100. J	7320. J	16400. J	21500. J	16000. J	
Selenium	mg/Kg-Dry	T	0.32 J	0.26 J	0.33 J	<1.7	2.3	0.26 J	
Silver	mg/Kg-Dry	T	0.022 J	<0.0045 J	<0.0047 J	0.36	<0.0049 J	<0.0032 J	
Sodium	mg/Kg-Dry	T	<195.	<77.5	<70.2	111.	<92.1	<38.1	
Thallium	mg/Kg-Dry	T	0.028	0.0062	0.0073	<0.21	0.011	0.0046	
Vanadium	mg/Kg-Dry	T	4.6	0.69	0.92	2.6	0.92	0.85	
Zinc	mg/Kg-Dry	T	35.2	23.7	16.3	24.	23.	<11.2	

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Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed

Revision No. 0

Validated Analytical Results

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Parameter	Site ID		CR-5	CR-6	CR-7	CR-8	MRSS-1	MRSS-16
	Sample Date		9/7/2003	6/2/2003	5/29/2003	5/29/2003	10/6/2002	9/29/2002
	Sample ID		WRSD-1R-T01N-PLT U	CR-6-T01N-PLTG	WRSG-3-T01N-PLTU	WRBG-2-T01N-PLTU	MRSS-1-T01N-PLTG	MRSS-16-T01N-PLTG
	Exposure Area		RCR	RCR	RCR	RCR	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	38.9	47.2	41.4	43.2	54.1	40.9
Metals								
Aluminum	mg/Kg-Dry	T	1680.	1530. J	585.	1020.	134.	71.6
Antimony	mg/Kg-Dry	T	<0.025	<0.91	<0.024	<0.023	<0.26 J	<0.39 J
Arsenic	mg/Kg-Dry	T	0.15	<0.36	0.27	0.21	<0.26	<0.39
Barium	mg/Kg-Dry	T	40.9	33.7	20.3	23.8	10.9	68.5
Beryllium	mg/Kg-Dry	T	0.08	0.11	<0.027 J	<0.063	<0.022	<0.039
Boron	mg/Kg-Dry	T	6.7	<5.1	28.7	24.1	<4.8	<8.1
Cadmium	mg/Kg-Dry	T	0.054	<0.059	0.01	0.013	<0.052	<0.059
Calcium	mg/Kg-Dry	T	7170.	6210.	4440.	6740.	3290.	3670.
Chromium	mg/Kg-Dry	T	6.4	<2.5	1.3	3.5	1.4	<0.9
Cobalt	mg/Kg-Dry	T	0.64 J	0.76	0.29 J	0.67 J	<0.24	<0.44
Copper	mg/Kg-Dry	T	13.1	14.2	11.8	7.9	3.7	2.3
Iron	mg/Kg-Dry	T	2050.	1760. J	734.	1220.	264.	100.
Lead	mg/Kg-Dry	T	0.98	1.2	<0.56	0.9	<1.3 J	<0.61 J
Magnesium	mg/Kg-Dry	T	2780.	1680.	2220.	1430.	915.	704.
Manganese	mg/Kg-Dry	T	73.3	137.	87.9	49.5	27.	177.
Mercury	mg/Kg-Dry	T	<0.041	<0.032	<0.039	<0.039	<0.031 J	<0.039
Molybdenum	mg/Kg-Dry	T	3.1	0.78	14.3	2.3	16.1	1.7
Nickel	mg/Kg-Dry	T	2.5	1.7	3.9	2.1	<1.5	<2.7
Potassium	mg/Kg-Dry	T	11700. J	12500. J	16500. J	9510. J	5510. J	6970. J
Selenium	mg/Kg-Dry	T	0.46 J	<1.5	0.24 J	0.46 J	<0.26 J	<0.39 J
Silver	mg/Kg-Dry	T	0.0069 J	<0.18	0.0048 J	0.0056 J	<0.15	<0.27
Sodium	mg/Kg-Dry	T	<128.	92.6	<23.4 J	<95.1	<110.	118.
Thallium	mg/Kg-Dry	T	0.021	<0.18	0.0068	0.01	<0.13	<0.2
Vanadium	mg/Kg-Dry	T	2.6	2.5	1.2	2.5	0.35	<0.56
Zinc	mg/Kg-Dry	T	31.6	28.4	16.4	22.	20.3 J	29.3 J

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Appendix A-9e

Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed

Revision No. 0

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Parameter	Site ID		MRSS-17 Biota	MRSS-18	MRSS-2	MRSS-3	MRSS-4	MRSS-5
	Sample Date		9/28/2002	9/28/2002	10/6/2002	10/6/2002	10/6/2002	10/6/2002
	Sample ID		MRSS-17-T01N-PLTG	MRSS-18-T01N-PLT G	MRSS-2-T01N-PLTG	MRSS-3-T01N-PLTG	MRSS-4-T01N-PLTG	MRSS-5-T01N-PLTG
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	73.7	46.8	53.4	43.5	49.7	47.2
Metals								
Aluminum	mg/Kg-Dry	T	130.	806.	176.	352.	67.6	197.
Antimony	mg/Kg-Dry	T	<0.041 J	<0.064 J	<0.3 J	<0.32 J	<0.32 J	<0.32 J
Arsenic	mg/Kg-Dry	T	0.068	0.28	<0.3	<0.32	<0.32	<0.32
Barium	mg/Kg-Dry	T	10.7	42.1	42.7	30.6	11.5	22.2
Beryllium	mg/Kg-Dry	T	<0.019	<0.034	<0.024	<0.034	<0.048	<0.049
Boron	mg/Kg-Dry	T	4.7	6.	30.9	<7.4	5.	5.7
Cadmium	mg/Kg-Dry	T	0.031	<0.051	<0.092	<0.23	<0.11	<0.11
Calcium	mg/Kg-Dry	T	3430.	6650.	6350.	6390.	4190.	4190.
Chromium	mg/Kg-Dry	T	0.46	1.2	1.6	1.5	<0.8	1.2
Cobalt	mg/Kg-Dry	T	<0.22	<0.38	<0.26	<0.39	<0.34	<0.36
Copper	mg/Kg-Dry	T	3.	3.4	4.9	4.8	5.	3.8
Iron	mg/Kg-Dry	T	167.	853.	328.	568.	115.	587.
Lead	mg/Kg-Dry	T	<0.66 J	<2.6 J	<1.6 J	<3.2 J	<0.72 J	<1. J
Magnesium	mg/Kg-Dry	T	613.	932.	1630.	786.	1160.	1330.
Manganese	mg/Kg-Dry	T	27.1	78.4	49.4	343.	36.2	294.
Mercury	mg/Kg-Dry	T	<0.02	<0.036	<0.028 J	<0.034 J	<0.03 J	<0.036 J
Molybdenum	mg/Kg-Dry	T	1.4	2.6	12.2	9.2	8.9	2.8
Nickel	mg/Kg-Dry	T	<1.3	<2.4	<1.7	<2.3	0.95	4.9
Potassium	mg/Kg-Dry	T	6160. J	7740. J	8110. J	11900. J	6320.	8640.
Selenium	mg/Kg-Dry	T	<0.041 J	0.11 J	<0.3 J	<0.32 J	<0.32 J	<0.38 J
Silver	mg/Kg-Dry	T	<0.13	<0.24	<0.17	<0.25	<0.22	<0.23
Sodium	mg/Kg-Dry	T	<57.3	<92.9	<210.	<226.	<161.	<180.
Thallium	mg/Kg-Dry	T	<0.027	<0.043	<0.15	<0.17	<0.16	<0.16
Vanadium	mg/Kg-Dry	T	<0.27	1.3	0.45	0.6	<0.6	<0.61
Zinc	mg/Kg-Dry	T	15.7 J	19. J	22.5 J	33.3 J	35.8 J	23.9 J

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Appendix A-9e

Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed

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Validated Analytical Results

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Parameter	Site ID		MSS3-1	MSS3-10	MSS3-2	MSS3-3	MSS3-4	MSS3-5		
	Sample Date		10/10/2002	9/25/2002	10/11/2002	9/30/2002	9/30/2002	10/10/2002		
	Sample ID		MSS3-1-T01N-PLTG	MSS3-10-T01N-PLTG	MSS3-2-T01N-PLTG	MSS3-3-T01N-PLTG	MSS3-4-T01N-PLTG	MSS3-5-T01N-PLTG		
	Exposure Area		SS3	SS3	SS3	SS3	SS3	SS3		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	57.6	57.7	51.2	41.6	46.2	59.1		
Metals										
Aluminum	mg/Kg-Dry	T	81.4	87.9	141.	584.	281.	47.2		
Antimony	mg/Kg-Dry	T	<0.42	<0.052	<0.47	<0.41	<0.32	<0.39		
Arsenic	mg/Kg-Dry	T	<0.28	0.052	<0.31	<0.41	<0.32	<0.25		
Barium	mg/Kg-Dry	T	14.1	24.6	12.7	15.4	9.3	3.7		
Beryllium	mg/Kg-Dry	T	<0.04	<0.026	<0.031	<0.038	<0.035	<0.027		
Boron	mg/Kg-Dry	T	<6.4	5.2	7.6	8.2	24.5	7.4		
Cadmium	mg/Kg-Dry	T	<0.11	<0.038	<0.061	<0.15	<0.14	<0.056		
Calcium	mg/Kg-Dry	T	3540.	3900.	4450.	4620.	5320.	2910.		
Chromium	mg/Kg-Dry	T	0.26	0.38	0.76	<1.6	<1.	0.69		
Cobalt	mg/Kg-Dry	T	<0.31	<0.28	<0.23	<0.34	<0.3	<0.22		
Copper	mg/Kg-Dry	T	3.5	3.8	5.1	6.7	5.	2.9		
Iron	mg/Kg-Dry	T	118.	133.	199.	971.	444.	81.9		
Lead	mg/Kg-Dry	T	<0.52	<0.35	<0.68	5.3	<1.8	0.37		
Magnesium	mg/Kg-Dry	T	689.	854.	799.	1270.	1170.	657.		
Manganese	mg/Kg-Dry	T	37.8	41.1	43.4	143.	82.9	98.6		
Mercury	mg/Kg-Dry	T	<0.028	<0.028	<0.033	<0.038	<0.035	<0.025		
Molybdenum	mg/Kg-Dry	T	4.3	12.5	5.5	1.5	8.9	2.5		
Nickel	mg/Kg-Dry	T	<0.45	<1.7	<0.23	<0.55	<0.5	0.25		
Potassium	mg/Kg-Dry	T	5280.	4890.	6620.	14500.	8570.	6090.		
Selenium	mg/Kg-Dry	T	<1.1	0.087	<1.2	<0.41	<0.32	<1.		
Silver	mg/Kg-Dry	T	<0.21	<0.17	<0.23	<1.1	<1.	<0.22		
Sodium	mg/Kg-Dry	T	<91.7	<82.5	<92.4	<210.	<190.	<108.		
Thallium	mg/Kg-Dry	T	<0.14	<0.035	<0.16	<0.19	<0.15	<0.13		
Vanadium	mg/Kg-Dry	T	<0.24	<0.36	0.33	1.2	0.39	<0.25		
Zinc	mg/Kg-Dry	T	22.9	17.	32.	39.4	57.6	19.		

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T = Total Fraction

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Appendix A

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Parameter	Site ID		MSS3-6	MSS3-7	MSS3-8	MSS3-9	RRS-1	RRS-10
	Sample Date		10/1/2002	10/1/2002	10/1/2002	10/10/2002	9/27/2002	9/29/2002
	Sample ID		MSS3-6-T01N-PLTG	MSS3-7-T01N-PLTG	MSS3-8-T01N-PLTG	MSS3-9-T01N-PLTG	RRS-1-T01N-PLTG	RRS-10-T01N-PLTG
	Exposure Area		SS3	SS3	SS3	SS3	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	48.1	50.9	50.	52.9	36.4	50.4
Metals								
Aluminum	mg/Kg-Dry	T	133.	109.	1030.	109.	87.6	48.4
Antimony	mg/Kg-Dry	T	<0.33 J	<0.31 J	<0.3 J	<0.47 J	<0.41 J	<0.34 J
Arsenic	mg/Kg-Dry	T	<0.33	<0.31	<0.3	<0.3	<0.41	<0.34
Barium	mg/Kg-Dry	T	19.5	5.5	24.	13.2	40.7	19.4
Beryllium	mg/Kg-Dry	T	<0.033	<0.029	0.068	<0.03	<0.044	<0.032
Boron	mg/Kg-Dry	T	4.2	6.9	22.8	7.4	3.6	<4.2
Cadmium	mg/Kg-Dry	T	<0.052	<0.045	<0.046	<0.057	<0.066	<0.05
Calcium	mg/Kg-Dry	T	3800.	4910.	5600.	3550.	6020.	3510.
Chromium	mg/Kg-Dry	T	<0.79	2.2	7.2	0.87	4.7	1.2
Cobalt	mg/Kg-Dry	T	<0.37	<0.33	1.2	<0.23	<0.49	<0.36
Copper	mg/Kg-Dry	T	5.6	5.7	6.2	3.4	4.9	1.8
Iron	mg/Kg-Dry	T	277.	220.	1840.	146.	186.	80.
Lead	mg/Kg-Dry	T	1.3 J	<1. J	2. J	0.42 J	<0.44 J	<0.3 J
Magnesium	mg/Kg-Dry	T	985.	953.	2100.	720.	1990.	758.
Manganese	mg/Kg-Dry	T	36.2	36.1	98.4	48.6	141.	39.9
Mercury	mg/Kg-Dry	T	<0.033 J	<0.029 J	<0.032 J	<0.03	<0.044 J	<0.032
Molybdenum	mg/Kg-Dry	T	6.	4.1	4.6	10.2	1.5	0.52
Nickel	mg/Kg-Dry	T	<2.3	<2.	3.4	<0.21	<3.	<2.2
Potassium	mg/Kg-Dry	T	8420. J	6390. J	8860. J	7330. J	11800. J	7120. J
Selenium	mg/Kg-Dry	T	<0.33 J	<0.31 J	<0.3 J	<1.2 J	<0.41 J	<0.34 J
Silver	mg/Kg-Dry	T	<0.23	<0.22	<0.22	<0.23	<0.3	<0.22
Sodium	mg/Kg-Dry	T	<103.	<140.	<108.	<70.3	<137.	<87.7
Thallium	mg/Kg-Dry	T	<0.17	<0.16	<0.16	<0.16	<0.22	<0.16
Vanadium	mg/Kg-Dry	T	<0.48	<0.43	2.6	<0.26	<0.6	<0.46
Zinc	mg/Kg-Dry	T	23.3 J	28.1 J	31.2 J	30.8 J	22.5 J	32.7 J

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Appendix A

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Parameter	Site ID		RRS-11	RRS-12	RRS-13	RRS-19	RRS-20	RRS-25
	Sample Date		9/29/2002	9/29/2002	10/2/2002	10/7/2002	10/7/2002	10/9/2002
	Sample ID		RRS-11-T01N-PLTG	RRS-12-T01N-PLTG	RRS-13-T01N-PLTG	RRS-19-T01N-PLTG	RRS-20-T01N-PLTG	RRS-25-T01N-PLTG
	Exposure Area		RefMineR	RefMineR	RefMineR	RLCCR	RLCCR	RLCCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	46.7	40.7	26.6	25.4	32.3	21.6
Metals								
Aluminum	mg/Kg-Dry	T	134.	77.4	182.	173.	116.	67.6
Antimony	mg/Kg-Dry	T	<0.34 J	<0.074 J	<0.6 J	<0.63 J	<0.71 J	<1.1 J
Arsenic	mg/Kg-Dry	T	<0.34	0.074	<0.6	<0.67	<0.46	<0.74
Barium	mg/Kg-Dry	T	62.3	31.	6.4	21.7	24.5	17.6
Beryllium	mg/Kg-Dry	T	<0.034	<0.037	<0.053	<0.063	<0.05	<0.069
Boron	mg/Kg-Dry	T	<4.3	3.4	7.5	11.	15.2	4.1
Cadmium	mg/Kg-Dry	T	0.13	0.1	<0.079	<0.098	<0.077	0.21
Calcium	mg/Kg-Dry	T	3920.	3140.	6620.	7950.	7180.	3760.
Chromium	mg/Kg-Dry	T	1.1	<0.84	<1.7	2.3	1.2 J	1.5
Cobalt	mg/Kg-Dry	T	<0.39	<0.39	<0.6	<0.71	<0.56	<0.74
Copper	mg/Kg-Dry	T	4.3	2.2	4.9	11.8	8. J	13.
Iron	mg/Kg-Dry	T	204.	120.	292.	281.	195.	131.
Lead	mg/Kg-Dry	T	<0.77 J	<0.37 J	0.68 J	<0.91 J	0.53 J	0.51 J
Magnesium	mg/Kg-Dry	T	1110.	671.	1620.	2290.	1920.	2660.
Manganese	mg/Kg-Dry	T	42.	612.	96.6	92.1	141.	99.1
Mercury	mg/Kg-Dry	T	<0.036	0.047	<0.06	<0.059	<0.05	<0.074
Molybdenum	mg/Kg-Dry	T	1.8	0.47	2.1	17.7	<3.4	3.1
Nickel	mg/Kg-Dry	T	<2.4	<2.5	<3.6	<4.3	<3.4	<4.6
Potassium	mg/Kg-Dry	T	9680. J	9780. J	18500. J	40600. J	33400. J	54600. J
Selenium	mg/Kg-Dry	T	<0.34 J	0.22 J	<0.6 J	<2.6 J	<1.9 J	<2.9 J
Silver	mg/Kg-Dry	T	<0.24	<0.25	<0.38	<0.43 J	<0.34	<0.46
Sodium	mg/Kg-Dry	T	<136.	138.	<184.	<174.	<163.	316. J
Thallium	mg/Kg-Dry	T	<0.17	<0.025	<0.3	<0.31	<0.24	<0.37
Vanadium	mg/Kg-Dry	T	<0.49	<0.52	<0.75	<0.91	<0.71	<0.97
Zinc	mg/Kg-Dry	T	38.1 J	30.5 J	41.7 J	72. J	43.3 J	70.8 J

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
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Parameter	Site ID		RRS-26	RRS-29	RRS-3	RRS-5	RRS-7	RRS-8
	Sample Date		10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002	9/27/2002
	Sample ID		RRS-26-T01N-PLTG	RRS-29-T01N-PLTG	RRS-3-T01N-PLTG	RRS-5-T01N-PLTG	RRS-7-T01N-PLTG	RRS-8-T01N-PLTG
	Exposure Area		RLCCR	RLCCR	RefMineR	RefMineR	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	35.6	26.6	43.9	43.2	37.7	33.7
Metals								
Aluminum	mg/Kg-Dry	T	107.	132.	49.9	<66.	326.	185.
Antimony	mg/Kg-Dry	T	<0.62 J	<0.94 J	<0.36 J	<0.35 J	<0.37 J	<0.47 J
Arsenic	mg/Kg-Dry	T	<0.39	<0.6	<0.36	<0.35	<0.37	<0.47
Barium	mg/Kg-Dry	T	23.3	11.7	20.5	46.5	21.8	26.7
Beryllium	mg/Kg-Dry	T	<0.045	<0.06	<0.034	<0.032	<0.066	<0.05
Boron	mg/Kg-Dry	T	11.8	10.9	5.	5.8	8.	7.7
Cadmium	mg/Kg-Dry	T	0.14	<0.12	<0.05	<0.13	0.27	<0.2
Calcium	mg/Kg-Dry	T	7700.	5560.	7770.	4880.	7720.	7420.
Chromium	mg/Kg-Dry	T	0.7	1.5	<0.75	2.8	<1.9	3.6
Cobalt	mg/Kg-Dry	T	<0.48	<0.49	<0.36	<0.3	<0.74	<0.45
Copper	mg/Kg-Dry	T	8.4	7.9	3.2	3.7	7.7	5.6
Iron	mg/Kg-Dry	T	146.	225.	88.8	121.	1250.	318.
Lead	mg/Kg-Dry	T	0.37 J	0.68 J	0.25 J	<0.6 J	3.7 J	<2.1 J
Magnesium	mg/Kg-Dry	T	1860.	2230.	1700.	2360.	1850.	1310.
Manganese	mg/Kg-Dry	T	96.3	60.2	87.	156.	144.	128.
Mercury	mg/Kg-Dry	T	<0.048	<0.056	<0.036	<0.035 J	<0.042 J	<0.05 J
Molybdenum	mg/Kg-Dry	T	1.4	6.8	0.8	3.	4.2	30.6
Nickel	mg/Kg-Dry	T	<3.1	<0.45	<2.2	<0.46 J	<0.69	<0.71 J
Potassium	mg/Kg-Dry	T	21500. J	28200. J	11600. J	11400. J	19700. J	21200. J
Selenium	mg/Kg-Dry	T	<1.6 J	<2.5 J	<0.36 J	<0.35 J	<0.37 J	<0.47 J
Silver	mg/Kg-Dry	T	<0.31	<0.49	<0.23	<0.97	<0.42 J	<1.5
Sodium	mg/Kg-Dry	T	<120. J	<102.	<101.	<181.	<133.	<272.
Thallium	mg/Kg-Dry	T	<0.2	<0.31	<0.18	<0.19	<0.19	<0.24
Vanadium	mg/Kg-Dry	T	<0.62	<0.53	<0.46	<0.32	0.95	0.5
Zinc	mg/Kg-Dry	T	91.6 J	60.5 J	15. J	44. J	57. J	23.1 J

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Appendix A

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Parameter	Site ID		RRS-9	RS-1	RS-10	RS-11	RS-12	RS-13
	Sample Date		9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002	10/9/2002
	Sample ID		RRS-9-T01N-PLTG	RS-1-T01N-PLTG	RS-10-T01N-PLTG	RS-11-T01N-PLTG	RS-12-T01N-PLTG	RS-13-T01N-PLTG
	Exposure Area		RefMineR	SS9	SS9	SS16	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	37.8	30.1	39.3	38.1	35.8	32.6
Metals								
Aluminum	mg/Kg-Dry	T	78.6	110.	82.2	63.3	62.3	583.
Antimony	mg/Kg-Dry	T	<0.079	<0.53	<0.61	<0.39	<0.39	<0.74
Arsenic	mg/Kg-Dry	T	0.11	<0.53	<0.41	<0.39	<0.39	<0.49
Barium	mg/Kg-Dry	T	28.8	28.2	30.3	11.8	13.4	29.1
Beryllium	mg/Kg-Dry	T	<0.04	<0.066	<0.036	<0.034	<0.042	<0.074
Boron	mg/Kg-Dry	T	4.	4.3	5.9	6.6	7.5	7.4
Cadmium	mg/Kg-Dry	T	0.12	<0.15	<0.071	<0.1	<0.28	0.37
Calcium	mg/Kg-Dry	T	3200.	6540.	4810.	5410.	4050.	4020.
Chromium	mg/Kg-Dry	T	<0.93	<1.5	0.71	1.	1.1	2.3
Cobalt	mg/Kg-Dry	T	<0.45	<0.47	<0.28	<0.39	<0.45	0.46
Copper	mg/Kg-Dry	T	3.4	7.3	5.1	7.3	4.5	13.8
Iron	mg/Kg-Dry	T	128.	229.	<150.	105.	120.	1160.
Lead	mg/Kg-Dry	T	<0.4	<1.4	<0.51	<0.42	<0.24	2.9
Magnesium	mg/Kg-Dry	T	1090.	1520.	1900.	1430.	1720.	2150.
Manganese	mg/Kg-Dry	T	577.	132.	48.6	149.	86.3	170.
Mercury	mg/Kg-Dry	T	<0.04	<0.05	0.043	<0.039	<0.042	<0.049
Molybdenum	mg/Kg-Dry	T	0.53	39.9	2.2	2.6	2.3	4.6
Nickel	mg/Kg-Dry	T	<2.6	<0.66	<0.28	<2.4	3.4	6.1
Potassium	mg/Kg-Dry	T	12300.	20700.	16700.	25800.	14900.	22100.
Selenium	mg/Kg-Dry	T	0.4	<0.53	<1.6	<0.39	<0.39	<2.
Silver	mg/Kg-Dry	T	<0.29	<0.3	<0.28	<0.25	<0.28	<0.4
Sodium	mg/Kg-Dry	T	130.	<216.	<122.	<95.	<111.	<457.
Thallium	mg/Kg-Dry	T	<0.026	<0.26	<0.2	<0.2	<0.2	<0.25
Vanadium	mg/Kg-Dry	T	<0.56	<0.83	<0.33	<0.5	<0.59	1.4
Zinc	mg/Kg-Dry	T	45.8	35.2	24.4	58.	54.5	77.6

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**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
Validated Analytical Results**

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Parameter	Site ID		RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18		
	Sample Date		9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13A-T01N-PLTG	RS-14-T01N-PLTG	RS-15-T01N-PLTG	RS-16-T01N-PLTG	RS-17-T01N-PLTG	RS-18-T01N-PLTG		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	27.9	35.5	25.	25.7	45.	58.6		
Metals										
Aluminum	mg/Kg-Dry	T	191. J	282. :	1060. :	778. J	404. :	616. :		
Antimony	mg/Kg-Dry	T	<1.8 :	<0.48 J	<0.68 J	<0.89 J	<0.53 J	<0.41 J		
Arsenic	mg/Kg-Dry	T	<0.72 :	<0.48 :	<0.68 :	0.62 :	<0.36 :	<0.27 :		
Barium	mg/Kg-Dry	T	23.7 :	15.2 :	44.4 :	56.8 :	17.8 :	19.3 :		
Beryllium	mg/Kg-Dry	T	<0.13 :	<0.045 :	<0.056 :	<0.062 :	<0.036 :	<0.026 :		
Boron	mg/Kg-Dry	T	8.6 :	4.8 :	6.8 :	5.4 :	6.4 :	5.6 :		
Cadmium	mg/Kg-Dry	T	<0.16 :	0.39 :	0.29 :	0.43 :	<0.056 :	<0.039 :		
Calcium	mg/Kg-Dry	T	4910. :	4450. :	6560. :	6730. :	3780. :	3570. :		
Chromium	mg/Kg-Dry	T	<1.2 :	1.2 :	4.8 :	4.7 :	1.4 :	1.7 :		
Cobalt	mg/Kg-Dry	T	<0.93 :	<0.51 :	0.92 :	0.82 :	<0.4 :	0.36 :		
Copper	mg/Kg-Dry	T	<3.4 :	7. :	17.2 :	19.1 :	7.3 :	7.3 :		
Iron	mg/Kg-Dry	T	1050. J	625. :	2370. :	1800. :	436. :	688. :		
Lead	mg/Kg-Dry	T	0.54 :	1.8 J	5.6 J	3. J	<0.2 J	0.75 J		
Magnesium	mg/Kg-Dry	T	1960. :	2590. :	1840. :	2320. :	1380. :	1130. :		
Manganese	mg/Kg-Dry	T	116. :	238. :	208. :	145. :	102. :	60.9 :		
Mercury	mg/Kg-Dry	T	<0.028 :	<0.045 :	<0.064 :	<0.062 :	<0.033 :	<0.027 :		
Molybdenum	mg/Kg-Dry	T	6.1 :	7. :	7.2 :	3.8 :	2. :	10.6 :		
Nickel	mg/Kg-Dry	T	<0.79 :	<3.1 :	<3.7 :	<4.3 :	<2.4 :	<1.7 :		
Potassium	mg/Kg-Dry	T	15400. J	24400. J	40400. J	41600. J	17600. J	18100. J		
Selenium	mg/Kg-Dry	T	<1.1 :	<0.48 J	<0.8 J	<2.4 J	<1.4 J	<1.1 J		
Silver	mg/Kg-Dry	T	<0.54 :	<0.31 J	<0.38 J	<0.43 :	<0.24 :	<0.19 :		
Sodium	mg/Kg-Dry	T	910. :	235. :	188. :	256. :	110. :	82.1 :		
Thallium	mg/Kg-Dry	T	<0.35 :	<0.23 :	<0.33 :	<0.3 :	<0.18 :	<0.14 :		
Vanadium	mg/Kg-Dry	T	<0.93 :	<0.65 :	2.9 :	2.3 :	0.69 :	1.2 :		
Zinc	mg/Kg-Dry	T	21.9 :	96.1 J	72. J	70. J	20. J	18.3 J		

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Appendix A

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Parameter	Site ID		RS-19	RS-2	RS-20	RS-3	RS-4	RS-5		
	Sample Date		10/8/2002	10/4/2002	10/8/2002	9/26/2002	10/11/2002	9/26/2002		
	Sample ID		RS-19-T01N-PLTG	RS-2-T01N-PLTG	RS-20-T01N-PLTG	RS-3-T01N-PLTG	RS-4-T01N-PLTG	RS-5-T01N-PLTG		
	Exposure Area		SS16	SS9	SS16	SS9	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	45. :	37.8 :	23.7 :	44.8 :	37.3 :	36.7 :		
Metals										
Aluminum	mg/Kg-Dry	T	1590. :	124. :	1400. :	49.1 :	106. :	108. :		
Antimony	mg/Kg-Dry	T	<0.33 J	<0.45 J	<0.63 J	<0.36 J	<0.64 J	<0.38 J		
Arsenic	mg/Kg-Dry	T	<0.33 :	<0.45 :	<0.63 :	<0.36 :	<0.43 J	<0.38 :		
Barium	mg/Kg-Dry	T	56.4 :	25.9 :	40.9 :	10.3 :	19. :	43.6 :		
Beryllium	mg/Kg-Dry	T	0.053 :	<0.063 :	<0.063 :	<0.031 :	<0.043 :	<0.041 :		
Boron	mg/Kg-Dry	T	13.3 :	6.3 :	8.4 :	9.8 :	9.9 :	8.7 :		
Cadmium	mg/Kg-Dry	T	0.064 :	<0.15 :	<0.097 :	<0.13 :	<0.088 :	<0.3 :		
Calcium	mg/Kg-Dry	T	6110. :	7120. :	6160. :	7410. :	7450. :	6700. :		
Chromium	mg/Kg-Dry	T	4. :	<1.3 :	3.2 :	0.38 :	0.88 J	0.65 :		
Cobalt	mg/Kg-Dry	T	0.84 :	<0.74 :	<0.72 :	<0.36 :	<0.35 :	<0.44 :		
Copper	mg/Kg-Dry	T	7.8 :	7.4 :	14.3 :	4.2 :	8. :	10.1 :		
Iron	mg/Kg-Dry	T	1700. :	325. :	1790. :	97.1 :	219. :	254. :		
Lead	mg/Kg-Dry	T	1. J	1.1 J	1.6 J	<1.2 J	<0.97 J	<2. J		
Magnesium	mg/Kg-Dry	T	2980. :	1990. :	2300. :	1840. :	1770. :	1920. :		
Manganese	mg/Kg-Dry	T	67.1 :	115. :	135. :	155. :	96.5 :	237. :		
Mercury	mg/Kg-Dry	T	<0.033 :	<0.04 J	<0.072 :	<0.038 :	<0.043 :	<0.044 :		
Molybdenum	mg/Kg-Dry	T	4.7 :	6.9 :	11.8 :	6.3 :	48.5 :	5.7 :		
Nickel	mg/Kg-Dry	T	<2.2 :	<0.66 :	<4.2 :	<2.1 :	<0.32 :	<2.7 :		
Potassium	mg/Kg-Dry	T	14000. J	18400. J	38300. J	14800. J	18700. J	28100. J		
Selenium	mg/Kg-Dry	T	<0.33 J	<0.45 J	<0.63 J	<0.36 J	<1.7 J	<0.38 J		
Silver	mg/Kg-Dry	T	<0.24 :	<0.4 J	<0.46 :	<0.22 :	<0.35 :	<0.27 :		
Sodium	mg/Kg-Dry	T	<163. :	<129. :	<228. :	<85.9 :	<148. :	<108. :		
Thallium	mg/Kg-Dry	T	<0.17 :	<0.22 :	<0.32 :	<0.18 :	<0.22 :	<0.19 :		
Vanadium	mg/Kg-Dry	T	2.9 :	<0.82 :	3.1 :	<0.45 :	0.51 :	<0.57 :		
Zinc	mg/Kg-Dry	T	19.3 J	39.4 J	37.6 J	54.9 J	55.8 J	70. J		

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
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Parameter	Site ID		RS-6	RS-7	RS-8	RS-9	TSS14-1	TSS14-10
	Sample Date		10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003	5/28/2003
	Sample ID		RS-6-T01N-PLTG	RS-7-T01N-PLTG	RS-8-T01N-PLTG	RS-9-T01N-PLTG	WTSD-3-T01N-PLTU	WTWW-2-T01N-PLT U
	Exposure Area		SS9	SS9	SS9	SS9	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	32.7	33.5	44.1	48.9	46.1	34.9
Metals								
Aluminum	mg/Kg-Dry	T	85.6	72.5	145.	509.	900.	195.
Antimony	mg/Kg-Dry	T	<0.46	<0.51	<0.5	<0.29	<0.021	<0.028
Arsenic	mg/Kg-Dry	T	<0.46	<0.51	<0.32	<0.29	0.41	0.12
Barium	mg/Kg-Dry	T	9.5	29.6	20.6	10.	13.9	12.9
Beryllium	mg/Kg-Dry	T	<0.061	<0.072	<0.036	0.043	<0.021	<0.028
Boron	mg/Kg-Dry	T	5.2	10.7	7.3	5.7	6.5	6.3
Cadmium	mg/Kg-Dry	T	<0.14	0.25	0.82	<0.15	0.2	0.1
Calcium	mg/Kg-Dry	T	5630.	7520.	4850.	4290.	5510.	4010.
Chromium	mg/Kg-Dry	T	<1.	4.5	0.91	5.1	2.8	1.7
Cobalt	mg/Kg-Dry	T	<0.46	<0.81	<0.39	<0.37	0.76	0.092
Copper	mg/Kg-Dry	T	8.3	8.1	10.	5.5	19.7	10.
Iron	mg/Kg-Dry	T	146.	167.	172.	912.	1470.	327.
Lead	mg/Kg-Dry	T	<0.92	<0.66	0.48	2.9	3.7	1.2
Magnesium	mg/Kg-Dry	T	2110.	2190.	1930.	965.	1110.	1070.
Manganese	mg/Kg-Dry	T	110.	173.	605.	98.	77.4	50.4
Mercury	mg/Kg-Dry	T	<0.049	<0.045	<0.039	<0.033	<0.035	<0.043
Molybdenum	mg/Kg-Dry	T	5.2	6.6	3.4	6.7	38.4	96.3
Nickel	mg/Kg-Dry	T	<0.64	1.	<2.5	<2.2	2.4	0.43
Potassium	mg/Kg-Dry	T	27900.	19200.	12900.	10600.	10400.	24900.
Selenium	mg/Kg-Dry	T	<0.8	<0.51	<1.3	<0.29	<1.	0.049
Silver	mg/Kg-Dry	T	<0.28	<0.45	<0.25	<0.22	0.067	0.011
Sodium	mg/Kg-Dry	T	<180.	<145.	134.	88.8	<28.9	<30.7
Thallium	mg/Kg-Dry	T	<0.23	<0.25	<0.16	<0.15	0.026	0.006
Vanadium	mg/Kg-Dry	T	<0.76	<0.93	<0.5	1.2	2.4	0.43
Zinc	mg/Kg-Dry	T	41.9	45.7	124.	40.3	67.5	69.6

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Parameter	Site ID		TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7		
	Sample Date		6/3/2003	6/4/2003	6/4/2003	6/4/2003	5/30/2003	5/30/2003		
	Sample ID		WTSD-1-T01N-PLTU	WTCW-2-T01N-PLTU	TSS14-4-T01N-PLTG	WTSD-2-T01N-PLTU	WTSG-1-T01N-PLTU	TSS14-7-T01N-PLTG		
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	37.7	43.8	44.9	39.3	43.3	43.9		
Metals										
Aluminum	mg/Kg-Dry	T	265.	642.	294. J	450.	189. J	303. J		
Antimony	mg/Kg-Dry	T	<0.026	<0.023	<0.87	<0.025 J	<0.023	<0.64		
Arsenic	mg/Kg-Dry	T	0.066	0.43 J	<0.36	0.16	0.3	<0.43		
Barium	mg/Kg-Dry	T	10.6	8.2	10.	10.2	10.2	16.2		
Beryllium	mg/Kg-Dry	T	<0.027 J	0.034	<0.045 J	0.043	<0.023	<0.055		
Boron	mg/Kg-Dry	T	8.	5.5	5.3	8.4	11.5	9.1		
Cadmium	mg/Kg-Dry	T	0.19	0.032	<0.13	0.056	0.037	<0.091		
Calcium	mg/Kg-Dry	T	4270.	3360.	2150. J	4380.	3420.	3300.		
Chromium	mg/Kg-Dry	T	1.1	1.7	1.6	1.9	1.5	4.6		
Cobalt	mg/Kg-Dry	T	0.17 J	0.23 J	<0.45	0.21 J	0.21 J	<0.68		
Copper	mg/Kg-Dry	T	12.2	7.1	4.7	13.	7.9	6.2		
Iron	mg/Kg-Dry	T	422.	628.	323. J	524.	217.	353. J		
Lead	mg/Kg-Dry	T	2.7	0.82	0.47	0.74	0.25	1.		
Magnesium	mg/Kg-Dry	T	1240.	1050.	875.	1410.	1410.	1090.		
Manganese	mg/Kg-Dry	T	46.4	71.7	33. J	32.1	106.	31.4		
Mercury	mg/Kg-Dry	T	<0.042	<0.037	<0.036	<0.038	<0.035	<0.039		
Molybdenum	mg/Kg-Dry	T	59.7	24.4	33.2 J	104.	138.	20.		
Nickel	mg/Kg-Dry	T	0.66	0.96	<0.47	0.99	7.2	<0.55		
Potassium	mg/Kg-Dry	T	20700. J	17500. J	12100. J	12400. J	17300. J	14000. J		
Selenium	mg/Kg-Dry	T	1.6	<0.037 J	<1.4	0.24 J	0.44 J	<1.		
Silver	mg/Kg-Dry	T	0.04 J	0.013 J	<0.49	0.024 J	<0.0046 J	<0.18		
Sodium	mg/Kg-Dry	T	<45.6	<53.4 J	127.	<147.	<27.7	<64.2		
Thallium	mg/Kg-Dry	T	0.027	0.0066	<0.18	0.053	0.0046	<0.21		
Vanadium	mg/Kg-Dry	T	0.53	0.91	1.2	0.94	0.44	0.73		
Zinc	mg/Kg-Dry	T	40.8	25.8	28.1 J	119.	<24.7	27.3		

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T = Total Fraction

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**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
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Parameter	Site ID		TSS14-8	TSS14-9	TSS17-33	TSS17-35	TSS17-37	TSS17-39		
	Sample Date		5/30/2003	5/28/2003	5/4/2004	5/4/2004	5/3/2004	5/2/2004		
	Sample ID		TSS14-8-T01N-PLTG	WTSG-2-T01N-PLTU	TSS17-33-T01N-GU	TSS17-35-T01N-GU	TSS17-37-T01N-GU	TSS17-39-T01N-GU		
	Exposure Area		SS14	SS14	SS17	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	39. :	41. :	25.8 :	28.5 :	25.9 :	32.7 :		
Metals										
Aluminum	mg/Kg-Dry	T	364. J	273. :	1930. :	800. :	548. :	477. :		
Antimony	mg/Kg-Dry	T	<0.72 :	<0.024 :	<1.3 :	<1.4 :	<1.5 :	<1.1 :		
Arsenic	mg/Kg-Dry	T	<0.49 :	0.16 :	<0.66 :	<0.67 :	<0.77 :	<0.55 :		
Barium	mg/Kg-Dry	T	6.7 :	9.3 :	32.6 :	18.2 :	10.8 :	32.1 :		
Beryllium	mg/Kg-Dry	T	<0.062 :	<0.024 J	<0.15 :	0.074 :	<0.073 :	<0.055 :		
Boron	mg/Kg-Dry	T	3.8 :	14.6 :	10.1 :	14.7 :	16.6 :	8.9 :		
Cadmium	mg/Kg-Dry	T	<0.17 :	0.034 :	0.12 :	<0.1 :	<0.11 :	<0.086 :		
Calcium	mg/Kg-Dry	T	2380. :	3930. :	5080. :	5860. :	11300. :	5810. :		
Chromium	mg/Kg-Dry	T	3.6 :	2.9 :	2.3 J	1.8 :	1. J	1.6 J		
Cobalt	mg/Kg-Dry	T	<0.77 :	0.16 J	0.93 :	<0.39 :	<0.42 :	<0.31 :		
Copper	mg/Kg-Dry	T	11. :	19.3 :	13.6 :	9.8 :	10. :	8.6 :		
Iron	mg/Kg-Dry	T	615. J	354. :	2460. :	1370. :	429. :	664. :		
Lead	mg/Kg-Dry	T	3.1 :	<1.2 :	2.8 :	<2.2 :	<0.69 :	<1.1 :		
Magnesium	mg/Kg-Dry	T	1120. :	1090. :	2090. :	1820. :	1930. :	1430. :		
Manganese	mg/Kg-Dry	T	65.1 :	78.3 :	134. :	248. :	629. :	66.1 :		
Mercury	mg/Kg-Dry	T	<0.041 :	<0.039 :	0.16 J	<0.056 J	<0.062 J	<0.043 J		
Molybdenum	mg/Kg-Dry	T	84.6 :	116. :	<3.3 :	6.3 :	21.6 :	2.9 :		
Nickel	mg/Kg-Dry	T	<0.62 :	3.9 :	3.3 J	1.3 :	1.5 :	<2.4 :		
Potassium	mg/Kg-Dry	T	15100. J	20500. J	36900. J	16300. J	14200. J	24000. J		
Selenium	mg/Kg-Dry	T	<1.2 :	0.23 J	<2.3 :	<2.4 :	<2.7 :	<1.9 :		
Silver	mg/Kg-Dry	T	<0.21 :	0.011 J	<0.37 :	<0.34 :	<0.37 :	<0.28 :		
Sodium	mg/Kg-Dry	T	<72.3 :	<26.6 J	<403. :	<1100. :	1950. :	<157. J		
Thallium	mg/Kg-Dry	T	<0.24 :	0.0083 :	<0.33 :	<0.34 :	<0.38 :	<0.27 :		
Vanadium	mg/Kg-Dry	T	1.2 :	0.56 :	3.8 :	1.5 :	0.85 :	0.8 :		
Zinc	mg/Kg-Dry	T	37.7 :	42. :	41.5 :	31.6 :	49.4 :	27.8 :		

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**Terrestrial Vegetation - RI/FS and Dual Aboveground Grass Unwashed
Validated Analytical Results**

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-41	TSS17-42	---	---	---	---
			5/3/2004 TSS17-41-T01N-GU SS17	5/4/2004 TSS17-31-T01N-GU SS17				
Laboratory Parameters								
Solids, Percent	%	T	20.4	26.1	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	814.	1000.	-	-	-	-
Antimony	mg/Kg-Dry	T	<1.8	<1.3	-	-	-	-
Arsenic	mg/Kg-Dry	T	<0.93	<0.65	-	-	-	-
Barium	mg/Kg-Dry	T	36.3	22.2	-	-	-	-
Beryllium	mg/Kg-Dry	T	<0.088	<0.073	-	-	-	-
Boron	mg/Kg-Dry	T	<10.3	13.8	-	-	-	-
Cadmium	mg/Kg-Dry	T	<0.14	0.17	-	-	-	-
Calcium	mg/Kg-Dry	T	4840.	4940.	-	-	-	-
Chromium	mg/Kg-Dry	T	0.83 J	3.8	-	-	-	-
Cobalt	mg/Kg-Dry	T	<0.49	0.61	-	-	-	-
Copper	mg/Kg-Dry	T	16.7	17.2	-	-	-	-
Iron	mg/Kg-Dry	T	2200.	2020.	-	-	-	-
Lead	mg/Kg-Dry	T	8.3	4.6	-	-	-	-
Magnesium	mg/Kg-Dry	T	1890.	2070.	-	-	-	-
Manganese	mg/Kg-Dry	T	486.	134.	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.074 J	<0.05 J	-	-	-	-
Molybdenum	mg/Kg-Dry	T	4.8	<4.6	-	-	-	-
Nickel	mg/Kg-Dry	T	<4.1	0.8 J	-	-	-	-
Potassium	mg/Kg-Dry	T	19300. J	34100. J	-	-	-	-
Selenium	mg/Kg-Dry	T	<3.2	<2.3	-	-	-	-
Silver	mg/Kg-Dry	T	<0.45	<0.36	-	-	-	-
Sodium	mg/Kg-Dry	T	<907.	<525.	-	-	-	-
Thallium	mg/Kg-Dry	T	<0.46	<0.33	-	-	-	-
Vanadium	mg/Kg-Dry	T	1.3	3.5	-	-	-	-
Zinc	mg/Kg-Dry	T	50.5	95.4	-	-	-	-

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**Terrestrial Vegetation - RI/FS and Dual Belowground Grass Unwashed
Validated Analytical Results**

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Parameter	Site ID		CR-10	CR-11	CR-13	CR-14	CR-2	CR-4
	Sample Date		5/31/2003	6/5/2003	6/2/2003	6/2/2003	6/3/2003	5/31/2003
	Sample ID		WRSD-3-T02N-PLTU	WRCW-2-T02N-PLT U	WRWW-2-T02N-PLT U	CR-14-T02N-PLTG R	WRWW-1-T02N-PLT U	WRWW-3-T02N-PLT U
	Exposure Area		R	R	R	R	R	R
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	98.8	87.8	70.3	80.2	80.3	80.7
Metals								
Aluminum	mg/Kg-Dry	T	6480.	7860.	7570.	5560. J	2470.	3040.
Antimony	mg/Kg-Dry	T	<0.033	0.044 J	0.031 J	<0.49	0.05	<0.057
Arsenic	mg/Kg-Dry	T	0.34	1.1	0.61	0.74	0.39	0.32
Barium	mg/Kg-Dry	T	56.3	78.	53.6	57.6	48.4	57.
Beryllium	mg/Kg-Dry	T	0.46	0.54	0.46	0.4	0.08 J	0.16
Boron	mg/Kg-Dry	T	3.1	3.6	4.	7.1	6.4	12.8
Cadmium	mg/Kg-Dry	T	0.064	0.21 J	0.064 J	0.075	0.12	0.053
Calcium	mg/Kg-Dry	T	3170.	3220.	4200.	6150.	17400.	22300.
Chromium	mg/Kg-Dry	T	10.9	11.8	14.4	9.9	3.2	8.1
Cobalt	mg/Kg-Dry	T	2. J	2.4 J	1.7 J	4.4	1.2 J	1.7 J
Copper	mg/Kg-Dry	T	12.7	13.7	13.4	15.6	12.2	12.
Iron	mg/Kg-Dry	T	7940.	9500.	8530.	7040. J	2690.	3270.
Lead	mg/Kg-Dry	T	5.	6.8	4.3	4.4	1.2	1.9
Magnesium	mg/Kg-Dry	T	2130.	2360.	2380.	2890.	4050.	6150.
Manganese	mg/Kg-Dry	T	214.	281.	162.	207.	107.	144.
Mercury	mg/Kg-Dry	T	0.032	<0.034	<0.024	0.03	<0.02	0.03
Molybdenum	mg/Kg-Dry	T	<0.84	1.6	0.68	2.	1.1	<1.7
Nickel	mg/Kg-Dry	T	5.8	7.9	5.4	6.5	4.4	4.5
Potassium	mg/Kg-Dry	T	2340. J	3500. J	4210. J	3600. J	4170. J	4540. J
Selenium	mg/Kg-Dry	T	0.2 J	<0.018 J	0.21 J	0.87	1.4	0.37 J
Silver	mg/Kg-Dry	T	0.021 J	0.027 J	0.018 J	<0.21 J	0.011 J	0.019 J
Sodium	mg/Kg-Dry	T	295.	327.	354.	259.	263.	<202.
Thallium	mg/Kg-Dry	T	0.06	0.093	0.055	<0.099	0.034	0.037
Vanadium	mg/Kg-Dry	T	15.2	16.6	15.5	13.6	11.5	10.9
Zinc	mg/Kg-Dry	T	41.4	44.8	32.1	32.4	23.5	19.5

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**Terrestrial Vegetation - RI/FS and Dual Belowground Grass Unwashed
Validated Analytical Results**

Parameter	Site ID		CR-5	CR-6	CR-7	CR-8	MRSS-1	MRSS-16
	Sample Date		9/7/2003	6/2/2003	5/29/2003	5/29/2003	10/6/2002	9/29/2002
	Sample ID		WRSD-1R-T02N-PLT U	CR-6-T02N-PLTG	WRSG-3-T02N-PLTU	WRBG-2-T02N-PLTU	MRSS-1-T02N-PLTG	MRSS-16-T02N-PLTG
	Exposure Area		RCR	RCR	RCR	RCR	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	74.3	72.5	85.6	-	55.4	57.8
Metals								
Aluminum	mg/Kg-Dry	T	13500.	3610. J	5210.	10200.	6230.	6660.
Antimony	mg/Kg-Dry	T	<0.02 J	<0.59	<0.041	<0.035	<0.27 J	<0.28 J
Arsenic	mg/Kg-Dry	T	0.69 J	0.54	0.5	1.	4.	2.6
Barium	mg/Kg-Dry	T	110.	41.7	75.9	73.6	202.	215.
Beryllium	mg/Kg-Dry	T	0.66	0.23	0.3	0.64	0.29	0.35
Boron	mg/Kg-Dry	T	2. J	5.2	6.	4.8	<4.	<0.69
Cadmium	mg/Kg-Dry	T	0.035	<0.037	0.035	0.096	<0.17	0.29
Calcium	mg/Kg-Dry	T	23100.	10800.	21500.	4650.	4240.	3880.
Chromium	mg/Kg-Dry	T	20.2	6.1	6.8	14.9	11.2	7.6
Cobalt	mg/Kg-Dry	T	2.7 J	3.6	1.8 J	4.5 J	4.	4.3
Copper	mg/Kg-Dry	T	22.7	16.8	15.9	16.9	16.6	10.4
Iron	mg/Kg-Dry	T	16200.	4460. J	6470.	11800.	12500.	9100.
Lead	mg/Kg-Dry	T	8.3	3.2	3.4	6.9	30.1 J	15.7 J
Magnesium	mg/Kg-Dry	T	7640.	2410.	3540.	3520.	2200.	1660.
Manganese	mg/Kg-Dry	T	296.	143.	146.	253.	361.	436.
Mercury	mg/Kg-Dry	T	0.038	<0.022	<0.019	<0.021	<0.029	0.035
Molybdenum	mg/Kg-Dry	T	0.35 J	1.5	3.	1.3	25.5	1.
Nickel	mg/Kg-Dry	T	12.1	5.5	3.3	12.	7.9	4.3
Potassium	mg/Kg-Dry	T	4360. J	5210.	2430. J	3120. J	3610. J	2460. J
Selenium	mg/Kg-Dry	T	0.074 J	<0.97	0.064 J	0.31 J	0.38 J	<0.28 J
Silver	mg/Kg-Dry	T	0.043 J	0.14	0.016 J	0.048 J	0.29	<0.21
Sodium	mg/Kg-Dry	T	<30.6	196.	259.	311.	<217.	<88.2
Thallium	mg/Kg-Dry	T	0.13	<0.12	0.033	0.11	<0.14	<0.14
Vanadium	mg/Kg-Dry	T	28.9	8.4	16.1	18.5	12.6	13.7
Zinc	mg/Kg-Dry	T	57.7	26.3	23.8	51.3	40.4 J	41.7 J

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T = Total Fraction

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Parameter	Site ID		MRSS-17 Biota	MRSS-18	MRSS-2	MRSS-3	MRSS-4	MRSS-5
	Sample Date		9/28/2002	9/28/2002	10/6/2002	10/6/2002	10/6/2002	10/6/2002
	Sample ID		MRSS-17-T02N-PLTG	MRSS-18-T02N-PLT G	MRSS-2-T02N-PLTG	MRSS-3-T02N-PLTG	MRSS-4-T02N-PLTG	MRSS-5-T02N-PLTG
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	66.6 :	57.2 :	74.6 :	66. :	62.3 :	75.4 :
Metals								
Aluminum	mg/Kg-Dry	T	6980. J	8440. :	11400. :	6830. :	11100. :	4550. :
Antimony	mg/Kg-Dry	T	0.09 J	0.12 J	<0.19 J	<0.24 J	<0.26 J	<0.21 :
Arsenic	mg/Kg-Dry	T	3.3 :	2.4 :	4.6 :	5. :	3.5 :	4.6 J
Barium	mg/Kg-Dry	T	115. :	148. :	208. :	264. :	177. :	488. :
Beryllium	mg/Kg-Dry	T	0.57 :	0.38 :	0.62 :	0.52 :	1.1 :	0.49 J
Boron	mg/Kg-Dry	T	1. :	3.7 :	4.8 :	<1.5 J	3.5 :	0.64 J
Cadmium	mg/Kg-Dry	T	0.14 :	0.17 :	<0.17 J	0.44 :	1. :	0.17 J
Calcium	mg/Kg-Dry	T	3750. J	6240. :	3900. :	3300. :	5090. :	2860. :
Chromium	mg/Kg-Dry	T	7.4 :	8. :	24.7 :	11.5 :	7.4 :	6.5 :
Cobalt	mg/Kg-Dry	T	2.7 :	3.5 :	8.4 :	7.4 :	13.2 :	7.6 :
Copper	mg/Kg-Dry	T	8.4 :	10.8 :	32.3 :	22.1 :	35.6 :	22.9 :
Iron	mg/Kg-Dry	T	13000. J	9180. :	22300. :	18500. :	17800. :	22100. :
Lead	mg/Kg-Dry	T	41. J	26. J	43.4 J	49.8 J	95.2 J	22.4 J
Magnesium	mg/Kg-Dry	T	1380. J	1920. :	4160. :	2610. :	4330. :	1100. :
Manganese	mg/Kg-Dry	T	477. J	407. :	576. :	705. :	1280. :	414. :
Mercury	mg/Kg-Dry	T	<0.024 :	0.044 :	<0.021 J	0.029 J	0.026 J	0.031 J
Molybdenum	mg/Kg-Dry	T	3.5 :	2.8 :	20.8 :	37.3 :	22. :	11.7 J
Nickel	mg/Kg-Dry	T	3.8 :	4.5 :	20.1 :	15. :	32.4 :	20.4 :
Potassium	mg/Kg-Dry	T	1970. J	2590. J	3700. J	3740. J	3430. :	2350. J
Selenium	mg/Kg-Dry	T	0.38 J	0.31 J	0.75 J	1.8 J	<0.8 J	<1. J
Silver	mg/Kg-Dry	T	<0.12 :	<0.21 :	0.23 :	0.27 :	0.47 :	0.13 :
Sodium	mg/Kg-Dry	T	<62.2 :	<81.3 :	<166. :	<209. :	<154. :	<202. :
Thallium	mg/Kg-Dry	T	0.09 :	0.1 :	0.15 :	<0.12 :	<0.13 :	<0.11 :
Vanadium	mg/Kg-Dry	T	11.3 :	14.5 :	25.2 :	11.4 :	11.4 :	8.5 :
Zinc	mg/Kg-Dry	T	51.8 J	40.2 J	69.3 J	69.1 J	164. J	52.8 J

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T = Total Fraction

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Appendix A

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Parameter	Site ID		MSS3-1	MSS3-10	MSS3-2	MSS3-3	MSS3-4	MSS3-5		
	Sample Date		10/10/2002	9/25/2002	10/11/2002	9/30/2002	9/30/2002	10/10/2002		
	Sample ID		MSS3-1-T02N-PLTG	MSS3-10-T02N-PLTG	MSS3-2-T02N-PLTG	MSS3-3-T02N-PLTG	MSS3-4-T02N-PLTG	MSS3-5-T02N-PLTG		
	Exposure Area		SS3	SS3	SS3	SS3	SS3	SS3		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	71.4	62.6	65.	53.5	74.7	72.9		
Metals										
Aluminum	mg/Kg-Dry	T	5140.	7440.	4490.	10300.	5460.	4980.		
Antimony	mg/Kg-Dry	T	<0.34 J	0.08 J	<0.35 J	<0.26 J	<0.2 J	<0.33 J		
Arsenic	mg/Kg-Dry	T	7.7	1.9	1.3	6.9	8.4	10.2		
Barium	mg/Kg-Dry	T	101.	367.	86.3	124.	59.3	117.		
Beryllium	mg/Kg-Dry	T	0.31	0.32	0.23	0.73	0.79	<0.21		
Boron	mg/Kg-Dry	T	<4.3	<0.51	3.2	<0.6 J	<0.41	3.8		
Cadmium	mg/Kg-Dry	T	0.17	<0.032	0.2	0.45 J	0.29	<0.041		
Calcium	mg/Kg-Dry	T	4470.	3530.	4750.	7100.	2410.	1890.		
Chromium	mg/Kg-Dry	T	6.2	11.2	3.5	13.8	7.4	5.6		
Cobalt	mg/Kg-Dry	T	2.4	3.7	2.6	4.3	4.3	1.9		
Copper	mg/Kg-Dry	T	8.7	18.4	10.8	31.8	11.8	36.6		
Iron	mg/Kg-Dry	T	8150.	13800.	6910.	21500.	13300.	17100.		
Lead	mg/Kg-Dry	T	17.6 J	25.1 J	14.5 J	111. J	33.9 J	125. J		
Magnesium	mg/Kg-Dry	T	1070.	2620.	1070.	2340.	1090.	1000.		
Manganese	mg/Kg-Dry	T	615.	212.	386.	946.	1300.	113.		
Mercury	mg/Kg-Dry	T	<0.041	<0.026	0.045	0.052	0.039 J	0.04		
Molybdenum	mg/Kg-Dry	T	4.2	13.9	5.1	8.2	15.9	8.4		
Nickel	mg/Kg-Dry	T	3.2	8.3	3.5	8.4	7.1	3.3		
Potassium	mg/Kg-Dry	T	2390. J	3180. J	2550. J	3610. J	1540. J	4120. J		
Selenium	mg/Kg-Dry	T	1.1 J	0.4 J	<0.94 J	0.65 J	1.6 J	1.1 J		
Silver	mg/Kg-Dry	T	<0.15	0.22	<0.2	1.1	0.13	2.3		
Sodium	mg/Kg-Dry	T	<55.7	<94.7	<81.4	<121.	<46.6	<97.8		
Thallium	mg/Kg-Dry	T	0.14	0.13	<0.12	0.24	0.17	0.37		
Vanadium	mg/Kg-Dry	T	10.9	17.3	10.5	21.7	8.7	9.3		
Zinc	mg/Kg-Dry	T	53.4 J	33.7 J	44.3 J	102. J	154. J	25.4 J		

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Parameter	Site ID		MSS3-6	MSS3-7	MSS3-8	MSS3-9	RRS-1	RRS-10
	Sample Date		10/1/2002	10/1/2002	10/1/2002	10/10/2002	9/27/2002	9/29/2002
	Sample ID		MSS3-6-T02N-PLTG	MSS3-7-T02N-PLTG	MSS3-8-T02N-PLTG	MSS3-9-T02N-PLTG	RRS-1-T02N-PLTG	RRS-10-T02N-PLTG
	Exposure Area		SS3	SS3	SS3	SS3	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	61.7 :	63.8 :	64.5 :	70.7 :	61.4 :	79. :
Metals								
Aluminum	mg/Kg-Dry	T	6660. :	6690. :	15500. :	6730. :	9150. :	7910. :
Antimony	mg/Kg-Dry	T	<0.26 J	<0.25 J	<0.23 J	<0.35 J	<0.23 J	0.063 J
Arsenic	mg/Kg-Dry	T	2.6 :	3.9 :	2.3 :	1.3 :	1.6 :	2.2 :
Barium	mg/Kg-Dry	T	188. :	117. :	144. :	171. :	95. :	105. :
Beryllium	mg/Kg-Dry	T	0.31 :	0.31 :	0.88 :	0.28 :	0.47 :	0.73 :
Boron	mg/Kg-Dry	T	<0.58 :	<0.6 :	<0.59 J	5.5 :	1.6 J	4.1 :
Cadmium	mg/Kg-Dry	T	<0.037 :	<0.038 :	<0.037 J	0.28 :	<0.041 :	0.41 :
Calcium	mg/Kg-Dry	T	4200. :	6140. :	5830. :	4670. :	4450. :	5870. :
Chromium	mg/Kg-Dry	T	9.7 :	10.2 :	42.5 :	10.7 :	13.7 :	15.7 :
Cobalt	mg/Kg-Dry	T	3.2 :	3.1 :	19.2 :	3. :	8.1 :	5.8 :
Copper	mg/Kg-Dry	T	14.9 :	37. :	39.5 :	16.1 :	18.6 :	15.4 :
Iron	mg/Kg-Dry	T	11500. :	15800. :	23600. :	9290. :	20700. :	11700. :
Lead	mg/Kg-Dry	T	45.5 J	87.3 J	29.9 J	27.9 J	8.5 J	14.9 J
Magnesium	mg/Kg-Dry	T	1690. :	1550. :	5750. :	2390. :	5550. :	3230. :
Manganese	mg/Kg-Dry	T	671. :	492. :	825. :	588. :	459. :	390. :
Mercury	mg/Kg-Dry	T	<0.024 J	0.025 J	0.029 J	0.027 :	<0.024 :	0.032 :
Molybdenum	mg/Kg-Dry	T	10. :	9.2 :	18.4 :	11.6 :	0.8 J	1.4 :
Nickel	mg/Kg-Dry	T	5. :	5.6 :	42. :	5.8 :	12.1 :	13.3 :
Potassium	mg/Kg-Dry	T	3570. J	3400. J	4280. J	3340. J	3090. J	2010. J
Selenium	mg/Kg-Dry	T	0.34 J	<0.25 J	0.37 J	<0.93 J	0.65 J	0.71 J
Silver	mg/Kg-Dry	T	<0.18 :	1.1 :	<0.17 :	0.35 :	<0.2 :	<0.13 :
Sodium	mg/Kg-Dry	T	<88.2 :	<144. :	<65.7 :	<100. :	<72.5 :	54.9 :
Thallium	mg/Kg-Dry	T	0.19 :	0.3 :	0.17 :	0.16 :	<0.11 :	0.089 :
Vanadium	mg/Kg-Dry	T	15.2 :	11.9 :	35.5 :	12.4 :	36.5 :	17.1 :
Zinc	mg/Kg-Dry	T	34.8 J	55. J	101. J	65.8 J	65. J	99.9 J

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**Terrestrial Vegetation - RI/FS and Dual Belowground Grass Unwashed
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Parameter	Site ID		RRS-11	RRS-12	RRS-13	RRS-19	RRS-20	RRS-25
	Sample Date		9/29/2002	9/29/2002	10/2/2002	10/7/2002	10/7/2002	10/9/2002
	Sample ID		RRS-11-T02N-PLTG	RRS-12-T02N-PLTG	RRS-13-T02N-PLTG	RRS-19-T02N-PLTG	RRS-20-T02N-PLTG	RRS-25-T02N-PLTG
	Exposure Area		RefMineR	RefMineR	RefMineR	RLCCR	RLCCR	RLCCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	60.8	55.4	39.9	58.4	55.6	59.4
Metals								
Aluminum	mg/Kg-Dry	T	9060.	9870.	4610.	11900.	6910.	6950.
Antimony	mg/Kg-Dry	T	<0.26	0.072	<0.4	<0.29	<0.31	<0.4
Arsenic	mg/Kg-Dry	T	2.1	2.3	2.5	3.3	1.5	2.4
Barium	mg/Kg-Dry	T	111.	107.	77.9	171.	77.2	64.6
Beryllium	mg/Kg-Dry	T	0.94	0.97	0.28	0.82	0.63	0.91
Boron	mg/Kg-Dry	T	<0.66	2.7	12.	8.2	4.1	1.6
Cadmium	mg/Kg-Dry	T	0.66	1.4	0.63	0.48	0.38	0.49
Calcium	mg/Kg-Dry	T	6580.	4930.	15200.	12400.	7500.	7190.
Chromium	mg/Kg-Dry	T	16.4	19.7	7.5	28.4	11.7	12.
Cobalt	mg/Kg-Dry	T	8.4	7.9	3.	8.4	5.8	5.1
Copper	mg/Kg-Dry	T	21.1	18.4	17.5	59.1	18.5	18.5
Iron	mg/Kg-Dry	T	15400.	15500.	7440.	18700.	13000.	11800.
Lead	mg/Kg-Dry	T	31.4	22.9	16.3	33.4	18.9	20.2
Magnesium	mg/Kg-Dry	T	3800.	4170.	2910.	5430.	3940.	3230.
Manganese	mg/Kg-Dry	T	530.	520.	506.	522.	403.	357.
Mercury	mg/Kg-Dry	T	0.043	0.032	0.07	<0.026	<0.027	<0.027
Molybdenum	mg/Kg-Dry	T	2.3	1.6	2.2	55.1	2.7	3.2
Nickel	mg/Kg-Dry	T	14.	17.3	6.	19.5	11.7	11.1
Potassium	mg/Kg-Dry	T	3080.	2420.	3610.	8270.	4910.	3300.
Selenium	mg/Kg-Dry	T	0.49	0.83	<0.4	<1.2	<0.31	<1.1
Silver	mg/Kg-Dry	T	<0.2	<0.2	<0.22	<0.21	<0.2	<0.19
Sodium	mg/Kg-Dry	T	<73.8	<76.5	<83.	<76.2	<97.7	254.
Thallium	mg/Kg-Dry	T	<0.13	0.13	<0.2	0.26	<0.15	<0.13
Vanadium	mg/Kg-Dry	T	21.4	22.9	12.	30.1	18.2	15.5
Zinc	mg/Kg-Dry	T	142.	129.	153.	143.	137.	127.

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Parameter	Site ID		RRS-26	RRS-29	RRS-3	RRS-5	RRS-7	RRS-8
	Sample Date		10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002	9/27/2002
	Sample ID		RRS-26-T02N-PLTG	RRS-29-T02N-PLTG	RRS-3-T02N-PLTG	RRS-5-T02N-PLTG	RRS-7-T02N-PLTG	RRS-8-T02N-PLTG
	Exposure Area		RLCCR	RLCCR	RefMineR	RefMineR	RefMineR	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	55.1	45.7	35.7	65.8	56.3	67.4
Metals								
Aluminum	mg/Kg-Dry	T	7400.	2870.	13000.	10400.	9290.	12700.
Antimony	mg/Kg-Dry	T	<0.4	<0.55	<0.45	<0.2	<0.3	<0.22
Arsenic	mg/Kg-Dry	T	2.2	2.4	3.4	3.3	4.8	4.6
Barium	mg/Kg-Dry	T	69.7	54.	303.	211.	414.	285.
Beryllium	mg/Kg-Dry	T	0.83	<0.28	0.87	0.85	0.76	0.93
Boron	mg/Kg-Dry	T	3.1	18.2	6.2	3.2	<0.73	<0.47
Cadmium	mg/Kg-Dry	T	0.49	0.79	0.73	0.99	1.7	0.85
Calcium	mg/Kg-Dry	T	6280.	15500.	12100.	7610.	6750.	8220.
Chromium	mg/Kg-Dry	T	14.3	9.2	26.1	20.8	19.9	35.5
Cobalt	mg/Kg-Dry	T	6.7	2.4	12.3	11.9	12.1	12.6
Copper	mg/Kg-Dry	T	19.6	16.4	45.1	143.	83.8	95.3
Iron	mg/Kg-Dry	T	13300.	4530.	25700.	26100.	23400.	26700.
Lead	mg/Kg-Dry	T	22.9	15.1	49.9	51.2	63.8	76.6
Magnesium	mg/Kg-Dry	T	3960.	3000.	6410.	5170.	4330.	6750.
Manganese	mg/Kg-Dry	T	510.	208.	961.	684.	750.	826.
Mercury	mg/Kg-Dry	T	<0.029	<0.037	0.045	<0.024	<0.03	0.024
Molybdenum	mg/Kg-Dry	T	2.2	20.6	7.3	22.6	13.5	143.
Nickel	mg/Kg-Dry	T	13.4	4.6	18.2	28.4	27.2	27.7
Potassium	mg/Kg-Dry	T	4390.	5840.	6500.	3660.	3770.	3680.
Selenium	mg/Kg-Dry	T	<1.1	1.6	<1.6	1.1	<2.7	1.3
Silver	mg/Kg-Dry	T	<0.2	<0.26	<0.31	0.32	0.43	0.64
Sodium	mg/Kg-Dry	T	<75.3	<143.	<118.	86.6	<87.6	<102.
Thallium	mg/Kg-Dry	T	<0.13	<0.18	<0.22	0.15	<0.15	0.19
Vanadium	mg/Kg-Dry	T	17.4	6.6	34.7	33.4	22.4	39.
Zinc	mg/Kg-Dry	T	159.	172.	132.	248.	197.	160.

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T = Total Fraction

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Parameter	Site ID		RRS-9	RS-1	RS-10	RS-11	RS-12	RS-13
	Sample Date		9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002	10/9/2002
	Sample ID		RRS-9-T02N-PLTG	RS-1-T02N-PLTG	RS-10-T02N-PLTG	RS-11-T02N-PLTG	RS-12-T02N-PLTG	RS-13-T02N-PLTG
	Exposure Area		RefMineR	SS9	SS9	SS16	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	53.5	44.2	51.6	53.5	60.3	53.8
Metals								
Aluminum	mg/Kg-Dry	T	9200.	7240.	3290.	5510.	7350.	7270.
Antimony	mg/Kg-Dry	T	0.093 J	<0.34 J	<0.48 J	<0.28 J	<0.27 J	<0.43 J
Arsenic	mg/Kg-Dry	T	1.7	2.9	0.91	3.	2.8	2.8
Barium	mg/Kg-Dry	T	70.5	195.	111.	275.	340.	195.
Beryllium	mg/Kg-Dry	T	0.69	0.63	0.27	0.5	0.81	0.93
Boron	mg/Kg-Dry	T	2.4	5.4	4.1	6.4	7.6	2.8
Cadmium	mg/Kg-Dry	T	0.65	1.7	1.2	0.95	1.3	1.9
Calcium	mg/Kg-Dry	T	3480.	10300.	6280.	6410.	5440.	5910.
Chromium	mg/Kg-Dry	T	20.2	21.5	4.7	15.1	17.1	14.3
Cobalt	mg/Kg-Dry	T	8.4	7.	3.1	6.2	9.6	9.7
Copper	mg/Kg-Dry	T	18.7	63.3	30.2	45.	60.2	72.9
Iron	mg/Kg-Dry	T	12600.	14500.	7170.	14700.	18400.	15500.
Lead	mg/Kg-Dry	T	15.5 J	87.8 J	15.3 J	35.5 J	42.8 J	44.1 J
Magnesium	mg/Kg-Dry	T	3940.	4590.	2190.	3440.	3730. J	3510.
Manganese	mg/Kg-Dry	T	492.	661.	229.	480.	638. J	816.
Mercury	mg/Kg-Dry	T	0.037	<0.032 J	0.048	<0.028	<0.028	<0.03
Molybdenum	mg/Kg-Dry	T	1.3	914.	17.2	41.7	19.2	25.8
Nickel	mg/Kg-Dry	T	16.6	17.4	7.8	16.1	24.	23.4
Potassium	mg/Kg-Dry	T	2490. J	4460.	7090. J	3460. J	2820. J	3880. J
Selenium	mg/Kg-Dry	T	0.71 J	<1. J	<1.3 J	0.97 J	0.36 J	<1.1 J
Silver	mg/Kg-Dry	T	<0.18	0.52	<0.23	0.21	0.3	<0.78
Sodium	mg/Kg-Dry	T	<69.	<172.	<173.	86.2	113.	842.
Thallium	mg/Kg-Dry	T	0.11	<0.17	<0.16	<0.14	<0.14	0.14
Vanadium	mg/Kg-Dry	T	20.4	18.6	8.9	17.4	20.7	17.7
Zinc	mg/Kg-Dry	T	91. J	258. J	124. J	183. J	211. J	174. J

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Parameter	Site ID		RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18		
	Sample Date		9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13A-T02N-PLTG	RS-14-T02N-PLTG	RS-15-T02N-PLTG	RS-16-T02N-PLTG	RS-17-T02N-PLTG	RS-18-T02N-PLTG		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	16.9	55.	70.4	63.8	66.1	47.1		
Metals										
Aluminum	mg/Kg-Dry	T	1670.	8760.	8370.	9470.	16200.	20400.		
Antimony	mg/Kg-Dry	T	<2.5	<0.29	<0.23	<0.39	<0.24	<0.53		
Arsenic	mg/Kg-Dry	T	1.2	3.3	3.7	3.3	1.3	3.2		
Barium	mg/Kg-Dry	T	47.3	335.	382.	480.	180.	265.		
Beryllium	mg/Kg-Dry	T	0.28	0.69	0.7	0.8	0.79	1.		
Boron	mg/Kg-Dry	T	10.1	2.2	<0.51	2.4	7.	14.2		
Cadmium	mg/Kg-Dry	T	0.46	0.95	0.53	0.88	0.053	0.25		
Calcium	mg/Kg-Dry	T	5580.	15800.	3170.	4230.	7530.	16600.		
Chromium	mg/Kg-Dry	T	5.3	18.2	21.9	20.7	11.6	25.9		
Cobalt	mg/Kg-Dry	T	1.7	10.4	8.7	9.9	9.2	11.3		
Copper	mg/Kg-Dry	T	20.7	63.5	58.5	60.	26.5	46.7		
Iron	mg/Kg-Dry	T	7280.	19600.	20700.	20800.	18500.	23400.		
Lead	mg/Kg-Dry	T	6.5	38.4	43.5	42.2	13.2	27.		
Magnesium	mg/Kg-Dry	T	1680.	5240.	3850.	3930.	5600.	7470.		
Manganese	mg/Kg-Dry	T	127.	691.	540.	666.	523.	688.		
Mercury	mg/Kg-Dry	T	<0.044	<0.027	<0.023	0.03	<0.024	<0.032		
Molybdenum	mg/Kg-Dry	T	25.4	26.	19.7	26.3	1.8	8.5		
Nickel	mg/Kg-Dry	T	3.8	24.5	20.6	25.7	16.8	22.3		
Potassium	mg/Kg-Dry	T	17700.	3750.	3610.	4860.	7490.	9300.		
Selenium	mg/Kg-Dry	T	<1.5	<0.78	<0.82	<1.1	<0.24	<1.4		
Silver	mg/Kg-Dry	T	<0.83	<0.22	0.28	0.36	<0.17	0.38		
Sodium	mg/Kg-Dry	T	<1020.	1000.	63.4	124.	<98.8	115.		
Thallium	mg/Kg-Dry	T	<0.49	0.17	0.14	<0.13	<0.12	0.23		
Vanadium	mg/Kg-Dry	T	3.5	24.2	24.6	25.7	28.7	35.9		
Zinc	mg/Kg-Dry	T	88.8	165.	155.	185.	86.2	126.		

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Parameter	Site ID		RS-19	RS-2	RS-20	RS-3	RS-4	RS-5		
	Sample Date		10/8/2002	10/4/2002	10/8/2002	9/26/2002	10/11/2002	9/26/2002		
	Sample ID		RS-19-T02N-PLTG	RS-2-T02N-PLTG	RS-20-T02N-PLTG	RS-3-T02N-PLTG	RS-4-T02N-PLTG	RS-5-T02N-PLTG		
	Exposure Area		SS16	SS9	SS16	SS9	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	78.4	65.6	64.9	65.7	59.4	65.5		
Metals										
Aluminum	mg/Kg-Dry	T	18600.	9650.	13900.	7630.	5860.	8200.		
Antimony	mg/Kg-Dry	T	<0.32 J	<0.23 J	<0.22 J	<0.24 J	<0.4 J	<0.18 J		
Arsenic	mg/Kg-Dry	T	1.3	5.	1.4	5.	2.	3.8		
Barium	mg/Kg-Dry	T	249.	477.	159.	312.	130.	293.		
Beryllium	mg/Kg-Dry	T	0.73	0.72	0.72	0.58	0.44	0.67		
Boron	mg/Kg-Dry	T	7.7	<0.63	2.2	2.4 J	5.1	1.2 J		
Cadmium	mg/Kg-Dry	T	<0.032	0.78	<0.034	0.82	1.4	0.9		
Calcium	mg/Kg-Dry	T	6150.	4100.	6830.	5620.	8690.	3910.		
Chromium	mg/Kg-Dry	T	16.8	23.	12.9	22.1	18.4	18.3		
Cobalt	mg/Kg-Dry	T	12.8	10.7	7.9	9.	6.9	8.9		
Copper	mg/Kg-Dry	T	31.	79.6	27.6	80.5	51.3	77.7		
Iron	mg/Kg-Dry	T	20000.	26500.	18600.	21800.	11500.	21500.		
Lead	mg/Kg-Dry	T	9.8 J	64.8 J	16.3 J	52.8 J	28.8 J	58.3 J		
Magnesium	mg/Kg-Dry	T	6580.	4820.	4960.	4320.	4060.	4320.		
Manganese	mg/Kg-Dry	T	450.	547.	533.	569.	386.	544.		
Mercury	mg/Kg-Dry	T	0.02	0.024	<0.025	<0.024	0.034	<0.026		
Molybdenum	mg/Kg-Dry	T	2.7	28.5	4.8	32.7	99.	39.4		
Nickel	mg/Kg-Dry	T	26.1	21.	14.5	19.8	17.	20.6		
Potassium	mg/Kg-Dry	T	4480. J	3370. J	5870. J	2910. J	5510. J	3600. J		
Selenium	mg/Kg-Dry	T	<0.84 J	<2.4 J	<0.22 J	1.2 J	<1.1 J	1.2 J		
Silver	mg/Kg-Dry	T	<0.15	0.53 J	<0.15	0.4	0.2	0.58		
Sodium	mg/Kg-Dry	T	<57.3	91.9	<188.	99.1	<127.	115.		
Thallium	mg/Kg-Dry	T	0.13	0.17	<0.11	0.17	<0.13	0.15		
Vanadium	mg/Kg-Dry	T	33.7	27.9	29.4	24.2	17.	23.2		
Zinc	mg/Kg-Dry	T	61. J	171. J	63.6 J	167. J	161. J	147. J		

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Parameter	Site ID		RS-6	RS-7	RS-8	RS-9	TSS14-1	TSS14-10
	Sample Date		10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003	5/28/2003
	Sample ID		RS-6-T02N-PLTG	RS-7-T02N-PLTG	RS-8-T02N-PLTG	RS-9-T02N-PLTG	WTSD-3-T02N-PLTU	WTWW-2-T02N-PLT U
	Exposure Area		SS9	SS9	SS9	SS9	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	53.8	62.2	42.2	62.2	87.1	70.9
Metals								
Aluminum	mg/Kg-Dry	T	7320.	7860.	5170.	8840.	8360.	10400.
Antimony	mg/Kg-Dry	T	<0.3 J	<0.24 J	<0.55 J	<0.24 J	0.11	<0.092
Arsenic	mg/Kg-Dry	T	3.7	2.6	1.4	2.4	3.	3.8
Barium	mg/Kg-Dry	T	197.	157.	98.8	109.	117.	130.
Beryllium	mg/Kg-Dry	T	0.8	0.84	0.73	0.76	0.52	0.63
Boron	mg/Kg-Dry	T	1.9	0.82	2.2	3.9	5.5	5.8
Cadmium	mg/Kg-Dry	T	1.6	1.6	19.2	0.34	0.44	0.32
Calcium	mg/Kg-Dry	T	4610.	3650.	4000.	4200.	17000.	23600.
Chromium	mg/Kg-Dry	T	22.3	13.7	7.3	12.5	15.5	12.4
Cobalt	mg/Kg-Dry	T	8.7	15.3	6.6	5.1	2.5 J	3.4 J
Copper	mg/Kg-Dry	T	56.1	68.2	71.3	24.6	78.5	36.7
Iron	mg/Kg-Dry	T	17200.	17000.	6400.	14600.	9350.	12200.
Lead	mg/Kg-Dry	T	61.7 J	41.3 J	16.4 J	52.4 J	16.	26.4
Magnesium	mg/Kg-Dry	T	4110.	3540.	1920.	2860.	3690.	4200.
Manganese	mg/Kg-Dry	T	680.	971.	664.	743.	248.	336.
Mercury	mg/Kg-Dry	T	<0.028 J	<0.024 J	<0.038	<0.024	<0.018	<0.023
Molybdenum	mg/Kg-Dry	T	42.9	31.2	11.6	19.	94.5	41.
Nickel	mg/Kg-Dry	T	21.6	34.2	30.3	8.5	10.2	9.7
Potassium	mg/Kg-Dry	T	4140.	3500. J	4220. J	2850. J	2870. J	3460. J
Selenium	mg/Kg-Dry	T	<0.78 J	<1.8 J	<1.5 J	0.63 J	1.1	<0.021 J
Silver	mg/Kg-Dry	T	0.28	<0.26 J	<0.28	0.24	0.18 J	0.1 J
Sodium	mg/Kg-Dry	T	<338.	<79.9	<396.	128.	193.	158.
Thallium	mg/Kg-Dry	T	<0.15	0.16	<0.18	<0.12	0.078 J	0.14
Vanadium	mg/Kg-Dry	T	21.2	17.5	7.3	18.5	22.8	24.1
Zinc	mg/Kg-Dry	T	180. J	235. J	419. J	122. J	118.	80.8

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Parameter	Site ID		TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7		
	Sample Date		6/3/2003	6/4/2003	6/4/2003	6/4/2003	5/30/2003	5/30/2003		
	Sample ID		WTSD-1-T02N-PLTU	WTCW-2-T02N-PLTU	TSS14-4-T02N-PLTG	WTSD-2-T02N-PLTU	WTSG-1-T02N-PLTU	TSS14-7-T02N-PLTG		
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	82.2	84.1	82.3	86.3	83.8	88.6		
Metals										
Aluminum	mg/Kg-Dry	T	2960.	13300.	13400. J	9150.	8580.	11600. J		
Antimony	mg/Kg-Dry	T	0.054	<0.059 J	<0.52	<0.072 J	0.11 J	<0.33		
Arsenic	mg/Kg-Dry	T	0.78	3.1	2.7	2.	3.6	1.2		
Barium	mg/Kg-Dry	T	28.3	78.1	82.6	86.9	243.	74.8		
Beryllium	mg/Kg-Dry	T	0.19	0.83	0.69	0.51	0.44	0.85		
Boron	mg/Kg-Dry	T	2.8	1.7	7.9	4.5	7.2	5.6		
Cadmium	mg/Kg-Dry	T	1.7	0.099 J	0.23	0.17 J	<0.0047	<0.061		
Calcium	mg/Kg-Dry	T	5540.	4000.	7620. J	11200.	31500.	5790.		
Chromium	mg/Kg-Dry	T	7.1	18.1	17.4	11.	8.4	16.5		
Cobalt	mg/Kg-Dry	T	1.3 J	2.9 J	7.3	2.3 J	3.2 J	6.8		
Copper	mg/Kg-Dry	T	56.3	35.7	28.1	19.2	14.3	21.1		
Iron	mg/Kg-Dry	T	3350.	13200.	13100. J	8770.	7260.	13700. J		
Lead	mg/Kg-Dry	T	31.	16.2	14.9	9.5	5.	16.1		
Magnesium	mg/Kg-Dry	T	1310.	3530.	3680.	2760.	4250.	3760.		
Manganese	mg/Kg-Dry	T	146.	397.	320.	195.	147.	335.		
Mercury	mg/Kg-Dry	T	<0.019	0.029	0.03	0.042	0.025	<0.018		
Molybdenum	mg/Kg-Dry	T	73.6	28.3	12.4	70.9	30.5	6.4		
Nickel	mg/Kg-Dry	T	4.9	14.6	15.1	8.6	9.2	13.7		
Potassium	mg/Kg-Dry	T	2660. J	2730. J	2890. J	2640. J	2520. J	2920. J		
Selenium	mg/Kg-Dry	T	1.2	0.18 J	<0.85	0.22 J	0.86 J	<0.54		
Silver	mg/Kg-Dry	T	0.15 J	0.1 J	<0.27	0.086 J	0.051 J	0.23		
Sodium	mg/Kg-Dry	T	<33.2	<26.5 J	<56.9	<35.6	243.	228.		
Thallium	mg/Kg-Dry	T	0.036	0.082	<0.11	0.073	0.11	<0.11		
Vanadium	mg/Kg-Dry	T	6.8	20.	23.5	18.	22.4	22.1		
Zinc	mg/Kg-Dry	T	117.	57.4	61.6	73.9	<26.	60.6		

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS14-8	TSS14-9	TSS17-33	TSS17-35	TSS17-37	TSS17-39
			5/30/2003 TSS14-8-T02N-PLTG SS14	5/28/2003 WTSG-2-T02N-PLTU SS14	5/4/2004 TSS17-33-T02N-GU SS17	5/4/2004 TSS17-35-T02N-GU SS17	5/3/2004 TSS17-37-T02N-GU SS17	5/2/2004 TSS17-39-T02N-GU SS17
Laboratory Parameters								
Solids, Percent	%	T	80.4	75.7	46.5	46.2	37.6	50.
Metals								
Aluminum	mg/Kg-Dry	T	15400. J	7910.	6990.	5500.	11700.	2160.
Antimony	mg/Kg-Dry	T	<0.37 J	<0.081	<0.82	<0.8	<0.98	<0.72
Arsenic	mg/Kg-Dry	T	3.4	1.1	0.82	2.1	2.2	<0.36
Barium	mg/Kg-Dry	T	99.	151.	87.7	106.	123.	29.
Beryllium	mg/Kg-Dry	T	1.2	0.5	0.45	0.43	0.77	0.12
Boron	mg/Kg-Dry	T	4.7 J	5.9	11.	8.2	<8.2	<2.
Cadmium	mg/Kg-Dry	T	0.42 J	0.22	<0.47	0.3	0.4	0.15
Calcium	mg/Kg-Dry	T	6330. J	24800.	7850.	17600.	14900.	1940.
Chromium	mg/Kg-Dry	T	22.	13.2	7.5	10.2	13.8	3.4
Cobalt	mg/Kg-Dry	T	9.3 J	2. J	4.5	4.5	6.6	1.4
Copper	mg/Kg-Dry	T	51.2	111.	19.8	23.8	25.3	10.
Iron	mg/Kg-Dry	T	17700. J	8180.	8670.	9570.	15700.	2700.
Lead	mg/Kg-Dry	T	33.3 J	22.1	9.5	17.7	20.5	4.
Magnesium	mg/Kg-Dry	T	4550. J	3920.	2670.	3330.	3940.	864.
Manganese	mg/Kg-Dry	T	621. J	180.	335.	494.	1590.	131.
Mercury	mg/Kg-Dry	T	<0.02	<0.021	<0.037 J	<0.028 J	<0.035 J	<0.034 J
Molybdenum	mg/Kg-Dry	T	60.2 J	75.4	5.2	22.7	47.9	2.6
Nickel	mg/Kg-Dry	T	19.3 J	6.5	8.8	8.9	12.8	2.
Potassium	mg/Kg-Dry	T	4040. J	3210. J	12100. J	4720. J	4920. J	7900. J
Selenium	mg/Kg-Dry	T	0.93	0.034 J	<1.4	<1.4	<1.7	<1.3
Silver	mg/Kg-Dry	T	0.3 J	0.13 J	<0.21	<0.21	<0.26	<0.18
Sodium	mg/Kg-Dry	T	341.	165.	<237.	996.	<864.	<132. J
Thallium	mg/Kg-Dry	T	0.16	0.062	<0.21	<0.2	<0.25	<0.18
Vanadium	mg/Kg-Dry	T	28.7	20.5	15.3	12.1	20.5	4.
Zinc	mg/Kg-Dry	T	101. J	57.2	64.7	70.3	85.1	23.

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

R:\Projects\22236252_Database_Management\Task_01\7.0_Project_Working_files\TechMemo\Appendix\ZZZ-TechMemoII-F_Section 9 Terrestrial Vegetation\appendix a-9f.rpt

Appendix A-9f

**Terrestrial Vegetation - RI/FS and Dual Belowground Grass Unwashed
Validated Analytical Results**

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-41	TSS17-42	---	---	---	---
			5/3/2004 TSS17-41-T02N-GU SS17	5/4/2004 TSS17-31-T02N-GU SS17				
Laboratory Parameters								
Solids, Percent	%	T	28.2	53.3	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	6130.	11600.	-	-	-	-
Antimony	mg/Kg-Dry	T	<1.2	0.73	-	-	-	-
Arsenic	mg/Kg-Dry	T	2.6	2.6	-	-	-	-
Barium	mg/Kg-Dry	T	96.8	179.	-	-	-	-
Beryllium	mg/Kg-Dry	T	0.35	0.69	-	-	-	-
Boron	mg/Kg-Dry	T	13.5	15.8	-	-	-	-
Cadmium	mg/Kg-Dry	T	0.32	0.51	-	-	-	-
Calcium	mg/Kg-Dry	T	22700.	18300.	-	-	-	-
Chromium	mg/Kg-Dry	T	9.2	19.5	-	-	-	-
Cobalt	mg/Kg-Dry	T	4.3	9.2	-	-	-	-
Copper	mg/Kg-Dry	T	25.9	33.8	-	-	-	-
Iron	mg/Kg-Dry	T	12200.	16900.	-	-	-	-
Lead	mg/Kg-Dry	T	19.5	20.6	-	-	-	-
Magnesium	mg/Kg-Dry	T	3390.	6890.	-	-	-	-
Manganese	mg/Kg-Dry	T	706.	585.	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.057 J	<0.028 J	-	-	-	-
Molybdenum	mg/Kg-Dry	T	17.	7.3	-	-	-	-
Nickel	mg/Kg-Dry	T	7.4	17.6	-	-	-	-
Potassium	mg/Kg-Dry	T	5820. J	8220. J	-	-	-	-
Selenium	mg/Kg-Dry	T	<2.2	1.3	-	-	-	-
Silver	mg/Kg-Dry	T	<0.3	<0.17	-	-	-	-
Sodium	mg/Kg-Dry	T	1610.	<602.	-	-	-	-
Thallium	mg/Kg-Dry	T	<0.31	<0.17	-	-	-	-
Vanadium	mg/Kg-Dry	T	12.4	33.	-	-	-	-
Zinc	mg/Kg-Dry	T	61.	189.	-	-	-	-

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

R:\Projects\22236252_Database_Management\Task_01\7.0_Project_Working_files\TechMemoAppendix\ZZZ-TechMemoII-F_Section 9 Terrestrial Vegetation\appendix a-9f.rpt

Appendix A-9g

**Terrestrial Vegetation - RI/FS Aboveground Grass Washed
Validated Analytical Results**

Parameter	Site ID		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-42		
	Sample Date		5/5/2004	5/5/2004	5/3/2004	5/3/2004	5/3/2004	5/5/2004		
	Sample ID		TSS17-33-T01N-GW	TSS17-35-T01N-GW	TSS17-37-T01N-GW	TSS17-39-T01N-GW	TSS17-41-T01N-GW	TSS17-31-T01N-GW		
	Exposure Area		SS17	SS17	SS17	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	13.4	27.4	21.5	23.6	20.	21.		
Metals										
Aluminum	mg/Kg-Dry	T	190.	<51.5	<44.7	36.9	352.	81.4		
Antimony	mg/Kg-Dry	T	<2.7	<1.4	<1.9	<1.7	<1.9	<1.9		
Arsenic	mg/Kg-Dry	T	<1.3	<0.69	<0.93	<0.81	<0.95	<0.95		
Barium	mg/Kg-Dry	T	22.4	8.	8.4	25.8	21.	4.8		
Beryllium	mg/Kg-Dry	T	<0.13	<0.073	<0.093	<0.076	<0.09	<0.086		
Boron	mg/Kg-Dry	T	<9.7	16.4	<16.3	<7.6	<8.5	10.5		
Cadmium	mg/Kg-Dry	T	<0.2	<0.11	<0.14	<0.12	<0.13	<0.13		
Calcium	mg/Kg-Dry	T	5850.	4340.	5670.	5380.	5550.	2950.		
Chromium	mg/Kg-Dry	T	3.4 J	0.62 J	2.1	<0.41 J	1.3 J	2. J		
Cobalt	mg/Kg-Dry	T	<0.73	<0.4	<0.51	<0.42	<0.49	<0.48		
Copper	mg/Kg-Dry	T	10.4	12.	10.7	7.2	15.	11.9		
Iron	mg/Kg-Dry	T	287.	142.	172.	132.	1040.	150.		
Lead	mg/Kg-Dry	T	<1.1	<0.62	<0.98	<1.7	<1.9	1.1		
Magnesium	mg/Kg-Dry	T	2040.	1490.	1530.	1340.	1960.	1520.		
Manganese	mg/Kg-Dry	T	86.6	335.	401.	49.6	479.	62.4		
Mercury	mg/Kg-Dry	T	<0.11 J	<0.058 J	<0.074 J	<0.072 J	<0.08 J	<0.071 J		
Molybdenum	mg/Kg-Dry	T	<4.7	6.6	16.7	2.7	4.1	<3.		
Nickel	mg/Kg-Dry	T	<0.9 J	<0.51	1.9	<3.7	<4.4	<0.62 J		
Potassium	mg/Kg-Dry	T	41100. J	19600. J	17500. J	24500. J	21200. J	33400. J		
Selenium	mg/Kg-Dry	T	<4.6	<2.4	<3.2	<2.9	<3.4	<3.3		
Silver	mg/Kg-Dry	T	<0.66	<0.36	<0.47	<0.39	<0.44	<0.44		
Sodium	mg/Kg-Dry	T	<466.	<1080.	<1180.	<227. J	<905.	<376.		
Thallium	mg/Kg-Dry	T	<0.66	<0.35	<0.46	<0.41	<0.48	<0.47		
Vanadium	mg/Kg-Dry	T	<0.9	<0.51	0.65	<0.55	<0.6	<0.62		
Zinc	mg/Kg-Dry	T	39.6	38.7	34.9	26.3	44.5	41.		

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

R:\Projects\22236252_Database_Management\Task_01\7.0_Project_Working_files\TechMemo\Appendix\ZZZ-TechMemoII-F_Section 9 Terrestrial Vegetation\appendix a-9g.rpt

Appendix A-9h

**Terrestrial Vegetation - RI/FS Below Ground Grass Washed
Validated Analytical Results**

Parameter	Site ID		TSS17-33	TSS17-35	TSS17-37	TSS17-39	TSS17-41	TSS17-42		
	Sample Date		5/5/2004	5/5/2004	5/3/2004	5/3/2004	5/3/2004	5/5/2004		
	Sample ID		TSS17-33-T02N-GW	TSS17-35-T02N-GW	TSS17-37-T02N-GW	TSS17-39-T02N-GW	TSS17-41-T02N-GW	TSS17-31-T02N-GW		
	Exposure Area		SS17	SS17	SS17	SS17	SS17	SS17		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	31.4	29.8	31.2	36.9	26.8	23.4		
Metals										
Aluminum	mg/Kg-Dry	T	1100.	307.	263.	767.	757.	684.		
Antimony	mg/Kg-Dry	T	<1.2	<1.3	<1.2	<1.	<1.3	1.8		
Arsenic	mg/Kg-Dry	T	<0.61	1.5	0.67	<0.51	1.6	<0.85		
Barium	mg/Kg-Dry	T	28.3	10.7	12.5	14.6	41.4	29.1		
Beryllium	mg/Kg-Dry	T	0.092	<0.067	<0.061	0.051	0.12	<0.094		
Boron	mg/Kg-Dry	T	<6.4	<5.7	<5.1	<1.9	<9.7	<9.		
Cadmium	mg/Kg-Dry	T	0.48	0.26	0.096	0.17	0.27	0.43		
Calcium	mg/Kg-Dry	T	4940.	3220.	3330.	1750.	5860.	5940.		
Chromium	mg/Kg-Dry	T	3.2	0.97 J	0.67 J	1.4 J	1.6 J	4.		
Cobalt	mg/Kg-Dry	T	1.1	0.57	0.9	0.7	2.1	2.		
Copper	mg/Kg-Dry	T	19.4	13.8	15.1	10.6	22.	23.5		
Iron	mg/Kg-Dry	T	1340.	4130.	2730. J	930.	8470.	1060.		
Lead	mg/Kg-Dry	T	2.	4.4	<1.2	1.1	4.5	1.9		
Magnesium	mg/Kg-Dry	T	1080.	1260.	897.	515.	1520.	1230.		
Manganese	mg/Kg-Dry	T	128.	119.	657. J	84.6	560.	119.		
Mercury	mg/Kg-Dry	T	<0.051 J	<0.05 J	<0.051 J	<0.046 J	<0.063 J	<0.073 J		
Molybdenum	mg/Kg-Dry	T	5.1	32.9	22.1	1.4	9.7	<5.1		
Nickel	mg/Kg-Dry	T	2.3 J	0.94	<0.42	<2.3	<3.	1.5 J		
Potassium	mg/Kg-Dry	T	12100. J	8790. J	5640. J	7640. J	6120. J	7520. J		
Selenium	mg/Kg-Dry	T	<2.1	<2.3	<2.2	<1.8	<2.3	<2.9		
Silver	mg/Kg-Dry	T	<0.3	<0.33	<0.31	<0.25	<0.34	<0.43		
Sodium	mg/Kg-Dry	T	<414.	2000.	1500.	<250. J	1860.	<739.		
Thallium	mg/Kg-Dry	T	<0.3	<0.33	<0.31	<0.26	<0.33	<0.42		
Vanadium	mg/Kg-Dry	T	4.5	3.1	2.	1.5	2.8	12.4		
Zinc	mg/Kg-Dry	T	95.2	36.9	16.7	25.2	35.8	332.		

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9i

Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed

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Parameter	Site ID		CR-10	CR-11	CR-13	CR-14	CR-2	CR-4
	Sample Date		5/31/2003	6/5/2003	6/2/2003	6/2/2003	6/3/2003	5/31/2003
	Sample ID		WRBS-3-T01N-PLTU	WRBS-1-T01N-PLTU	WRRR-3-T01N-PLTU	CR-14-T01N-PLTS	CR-2-T01N-PLTS	WRRR-1-T01N-PLTU
	Exposure Area		RCR	RCR	RCR	RCR	RCR	RCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	30.8	40.7	40.1	34.2	38.3	37.6
Metals								
Aluminum	mg/Kg-Dry	T	737. J	263. :	1350. :	442. J	274. J	200. :
Antimony	mg/Kg-Dry	T	<0.031 :	<0.023 J	<0.025 :	<1.2 :	<0.97 :	<0.026 :
Arsenic	mg/Kg-Dry	T	0.1 :	0.076 :	0.14 :	<0.5 :	<0.39 :	0.064 :
Barium	mg/Kg-Dry	T	16.2 :	6.9 :	21.2 :	7.9 :	10.2 :	11.4 :
Beryllium	mg/Kg-Dry	T	<0.032 :	<0.032 :	<0.025 J	<0.053 :	<0.052 J	<0.026 :
Boron	mg/Kg-Dry	T	31.2 :	21.6 :	40.9 :	48.2 :	33.9 :	80.3 :
Cadmium	mg/Kg-Dry	T	0.21 J	0.17 :	0.17 :	<0.082 :	0.5 :	0.88 :
Calcium	mg/Kg-Dry	T	7560. :	5090. :	9200. :	7190. :	7150. J	6600. :
Chromium	mg/Kg-Dry	T	4.2 :	0.42 :	2.2 :	<0.94 :	<1.1 :	5.1 :
Cobalt	mg/Kg-Dry	T	0.36 J	0.13 J	0.52 J	<0.5 :	<0.52 :	0.11 J
Copper	mg/Kg-Dry	T	12.7 :	10.3 :	12. :	12.6 J	18.5 :	11.2 :
Iron	mg/Kg-Dry	T	906. :	270. :	1440. :	547. J	319. J	254. :
Lead	mg/Kg-Dry	T	0.65 :	0.22 :	0.9 :	0.47 :	<0.19 :	0.19 :
Magnesium	mg/Kg-Dry	T	1620. :	1430. :	1580. :	1730. :	1840. :	1900. :
Manganese	mg/Kg-Dry	T	64.6 :	45. :	79.1 :	51.5 :	46.5 :	81.1 :
Mercury	mg/Kg-Dry	T	<0.049 :	0.042 :	<0.037 :	<0.05 :	<0.042 :	<0.043 :
Molybdenum	mg/Kg-Dry	T	0.81 :	<0.74 :	1. :	0.53 :	0.5 :	0.53 :
Nickel	mg/Kg-Dry	T	1.7 :	1.4 :	1.7 :	<0.53 :	8.1 :	2.9 :
Potassium	mg/Kg-Dry	T	23500. J	17500. J	11300. J	17200. J	15800. J	18900. J
Selenium	mg/Kg-Dry	T	0.28 J	0.29 J	0.62 J	<2. :	1.6 :	0.22 J
Silver	mg/Kg-Dry	T	0.0065 J	<0.0047 J	0.0082 J	<0.24 :	<0.57 :	<0.0053 J
Sodium	mg/Kg-Dry	T	<115. :	<120. :	<119. :	88. :	<121. :	<112. :
Thallium	mg/Kg-Dry	T	0.0068 :	<0.0047 :	0.017 :	<0.25 :	<0.19 :	<0.0053 :
Vanadium	mg/Kg-Dry	T	1.2 J	0.49 :	1.9 :	0.61 :	0.73 :	0.43 :
Zinc	mg/Kg-Dry	T	29.5 :	<37.6 :	32.4 :	33.6 :	41.8 :	32.2 :

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed

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Parameter	Site ID		CR-5	CR-6	CR-7	CR-8	MRSS-1	MRSS-16
	Sample Date		5/29/2003	6/2/2003	5/29/2003	5/29/2003	10/6/2002	9/29/2002
	Sample ID		CR-5-T01N-PLTS	CR-6-T01N-PLTS	CR-7-T01N-PLTS	WRBS-2-T01N-PLTU	MRSS-1-T01N-PLTS	MRSS-16-T01N-PLTS
	Exposure Area		RCR	RCR	RCR	RCR	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	41. :	33.4 :	38.6 :	32. :	47.4 :	48.2 :
Metals								
Aluminum	mg/Kg-Dry	T	451. J	515. J	1240. J	991. J	76.2 :	33.2 :
Antimony	mg/Kg-Dry	T	<0.95 :	<1.3 :	<1.1 :	<0.031 :	<0.32 J	<0.33 J
Arsenic	mg/Kg-Dry	T	<0.37 :	<0.54 :	<0.44 :	0.18 :	<0.32 :	<0.33 :
Barium	mg/Kg-Dry	T	12. :	15. :	43.8 :	15.3 :	19.4 :	105. :
Beryllium	mg/Kg-Dry	T	<0.061 :	<0.057 :	<0.07 :	<0.11 :	<0.023 :	<0.033 :
Boron	mg/Kg-Dry	T	34.6 :	35.6 :	36.3 :	30.9 :	24.3 :	13.7 :
Cadmium	mg/Kg-Dry	T	0.71 :	<0.084 :	0.19 :	0.18 :	<0.061 :	0.071 :
Calcium	mg/Kg-Dry	T	6630. :	7540. :	13300. :	8310. :	8480. :	11600. :
Chromium	mg/Kg-Dry	T	<1.5 :	<1.5 :	2.2 :	1.7 :	<0.53 :	<0.75 :
Cobalt	mg/Kg-Dry	T	<0.78 :	<0.51 :	<0.88 :	0.37 J	<0.25 :	<0.35 :
Copper	mg/Kg-Dry	T	14.4 :	24.3 :	14.8 :	16.2 :	5.3 :	2.5 :
Iron	mg/Kg-Dry	T	532. J	590. J	1420. J	1140. :	115. :	50.2 :
Lead	mg/Kg-Dry	T	0.83 :	0.66 :	1.3 :	0.63 :	<0.95 J	<0.18 J
Magnesium	mg/Kg-Dry	T	1710. :	2260. :	2950. :	2160. :	1770. :	1500. :
Manganese	mg/Kg-Dry	T	38.8 :	59.6 :	68.9 :	70.6 :	47. :	111. :
Mercury	mg/Kg-Dry	T	0.051 :	<0.048 :	<0.044 :	<0.047 :	<0.032 :	<0.035 :
Molybdenum	mg/Kg-Dry	T	0.66 :	1.8 :	2.8 :	1.4 :	2.1 :	0.83 :
Nickel	mg/Kg-Dry	T	4.4 :	<0.57 :	<0.7 J	1.7 :	2.5 :	<2.3 :
Potassium	mg/Kg-Dry	T	12500. J	21900. J	18300. J	21000. J	6810. J	4320. :
Selenium	mg/Kg-Dry	T	<1.5 :	<2.2 J	<1.7 :	1.1 J	<0.32 J	<0.33 J
Silver	mg/Kg-Dry	T	<0.2 :	<0.25 :	<0.23 :	<0.0063 J	<0.16 :	<0.23 :
Sodium	mg/Kg-Dry	T	<71.5 :	122. :	105. :	<106. :	<118. :	<88. :
Thallium	mg/Kg-Dry	T	<0.19 :	<0.27 :	<0.22 :	0.0075 :	<0.16 :	<0.17 :
Vanadium	mg/Kg-Dry	T	<0.8 :	0.63 :	2.6 :	1.4 :	<0.32 :	<0.46 :
Zinc	mg/Kg-Dry	T	51. :	35. :	33.2 :	30.6 :	21.1 J	16.6 J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9i

Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed

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Parameter	Site ID		MRSS-17 Biota	MRSS-18	MRSS-19	MRSS-2	MRSS-20	MRSS-3
	Sample Date		9/28/2002	9/28/2002	9/28/2002	10/6/2002	9/28/2002	10/6/2002
	Sample ID		MRSS-17-T01N-PLTS	MRSS-18-T01N-PLTS	MRSS-19-T01N-PLTS	MRSS-2-T01N-PLTS	MRSS-20-T01N-PLTS	MRSS-3-T01N-PLTS
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	40.5 :	41.3 :	46.2 :	49.4 :	48.8 :	50. :
Metals								
Aluminum	mg/Kg-Dry	T	272. :	102. :	67.3 :	80.8 :	77.3 :	88.8 :
Antimony	mg/Kg-Dry	T	<0.074 J	<0.073 J	<0.065 J	<0.32 J	<0.061 J	<0.3 J
Arsenic	mg/Kg-Dry	T	0.099 :	<0.073 :	<0.065 :	<0.32 :	<0.061 :	<0.3 :
Barium	mg/Kg-Dry	T	156. :	35.1 :	87.2 :	43.1 :	164. J	14.8 :
Beryllium	mg/Kg-Dry	T	<0.04 :	0.056 :	<0.037 :	<0.028 :	<0.025 :	<0.024 :
Boron	mg/Kg-Dry	T	57. :	25.7 :	12.8 :	52. :	11.1 :	24.6 :
Cadmium	mg/Kg-Dry	T	<0.057 :	1.8 :	0.074 :	<0.12 :	0.049 :	<0.09 :
Calcium	mg/Kg-Dry	T	35300. :	13100. :	17900. :	7530. :	11500. :	8720. :
Chromium	mg/Kg-Dry	T	0.59 :	0.44 :	0.84 :	0.69 :	<0.55 :	2.2 :
Cobalt	mg/Kg-Dry	T	<0.42 :	1.2 :	<0.41 :	<0.3 :	<0.27 :	<0.28 :
Copper	mg/Kg-Dry	T	4. :	3.6 :	2. :	5.5 :	2. :	5. :
Iron	mg/Kg-Dry	T	269. :	150. :	82.3 :	154. :	87.1 :	134. :
Lead	mg/Kg-Dry	T	<1.2 J	<1.2 J	<0.5 J	<1.5 J	<0.2 J	<1.4 J
Magnesium	mg/Kg-Dry	T	2570. :	2950. :	1710. :	2490. :	971. :	1360. :
Manganese	mg/Kg-Dry	T	76.3 :	103. :	204. :	141. :	63.3 :	90.2 :
Mercury	mg/Kg-Dry	T	<0.04 :	<0.039 :	<0.032 :	<0.032 J	0.055 :	<0.03 J
Molybdenum	mg/Kg-Dry	T	<0.77 :	<0.27 :	<0.69 :	3.4 :	1.2 :	2.2 :
Nickel	mg/Kg-Dry	T	<2.7 :	<2.7 :	<2.6 :	2.8 :	<1.6 :	5. :
Potassium	mg/Kg-Dry	T	8350. J	6390. J	5280. J	12600. J	4020. J	7160. J
Selenium	mg/Kg-Dry	T	<0.074 J	0.097 J	<0.065 J	<0.32 J	<0.061 J	<0.3 J
Silver	mg/Kg-Dry	T	<0.27 :	<0.29 :	<0.26 :	<0.2 :	<0.17 :	<0.17 :
Sodium	mg/Kg-Dry	T	<104. :	<115. :	<114. :	<164. :	<65. :	<134. :
Thallium	mg/Kg-Dry	T	<0.049 :	<0.048 :	<0.043 :	<0.16 :	<0.02 :	<0.15 :
Vanadium	mg/Kg-Dry	T	<0.54 :	<0.56 :	<0.52 :	<0.4 :	<0.33 :	<0.34 :
Zinc	mg/Kg-Dry	T	32.3 J	73.8 J	18.6 J	15.6 J	12.1 J	22. J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

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Parameter	Site ID		MRSS-4	MRSS-5	MSS3-1	MSS3-10	MSS3-2	MSS3-3
	Sample Date		10/6/2002	10/6/2002	10/10/2002	9/25/2002	10/11/2002	9/30/2002
	Sample ID		MRSS-4-T01N-PLTS	MRSS-5-T01N-PLTS	MSS3-1-T01N-PLTS	MSS3-10-T01N-PLTS	MSS3-2-T01N-PLTS	MSS3-3-T01N-PLTS
	Exposure Area		RefMine	RefMine	SS3	SS3	SS3	SS3
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	53.4	44.3	44.9	46.8	46.2	55.5
Metals								
Aluminum	mg/Kg-Dry	T	140.	46.5	274. J	88.	366.	84.
Antimony	mg/Kg-Dry	T	<0.28 J	<0.34 J	<0.51 J	<0.064 J	<0.52 J	<0.29 J
Arsenic	mg/Kg-Dry	T	<0.28	<0.34	<0.36	<0.064	<0.35	<0.29
Barium	mg/Kg-Dry	T	15.4	56.7	55.2	64.5	61.	12.3
Beryllium	mg/Kg-Dry	T	<0.028	<0.05	<0.053	<0.036	<0.032	<0.027
Boron	mg/Kg-Dry	T	22.1	31.8	64.8	28.8	58.2	18.2
Cadmium	mg/Kg-Dry	T	<0.14	<0.12	<0.14	0.36	0.16	<0.041
Calcium	mg/Kg-Dry	T	7870.	7610.	26300.	8160.	24700.	9060.
Chromium	mg/Kg-Dry	T	<0.64	0.97	0.4 J	0.41	0.91	<0.63
Cobalt	mg/Kg-Dry	T	<0.3	<0.36	<0.42	<0.38	<0.26	<0.31
Copper	mg/Kg-Dry	T	6.9	5.4	4.9	9.	4.1	7.2
Iron	mg/Kg-Dry	T	123.	116.	290.	113.	342.	106.
Lead	mg/Kg-Dry	T	<1.5 J	<0.47 J	<0.67 J	<0.83 J	<0.61 J	<0.43 J
Magnesium	mg/Kg-Dry	T	1690.	1390.	2900.	1270.	3250.	1060.
Manganese	mg/Kg-Dry	T	44.8 J	75.4	245.	50.9	160.	38.4
Mercury	mg/Kg-Dry	T	<0.028	<0.036 J	<0.036	<0.036	0.037	<0.031
Molybdenum	mg/Kg-Dry	T	2.1	<1.2	2.4	<0.96	6.3	0.5
Nickel	mg/Kg-Dry	T	2.4	1.7	<0.6	<2.4	0.28	<1.8
Potassium	mg/Kg-Dry	T	6400. J	12200.	10900. J	12900. J	7810. J	5750. J
Selenium	mg/Kg-Dry	T	<0.3 J	<0.34 J	<1.4 J	0.19 J	<1.4 J	<0.29 J
Silver	mg/Kg-Dry	T	<0.19	<0.23	<0.27	<0.26	<0.26	<0.2
Sodium	mg/Kg-Dry	T	<161.	<137.	<165.	<96.8	<143.	<77.7
Thallium	mg/Kg-Dry	T	<0.14	<0.17	<0.17	<0.043	<0.17	<0.14
Vanadium	mg/Kg-Dry	T	<0.39	<0.63	0.6	<0.51	0.61	<0.38
Zinc	mg/Kg-Dry	T	47.9 J	14.9 J	47.7 J	28.8 J	26.6 J	34.4 J

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Appendix A

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Parameter	Site ID		MSS3-4	MSS3-5	MSS3-6	MSS3-8	MSS3-9	RRS-1
	Sample Date		9/30/2002	10/10/2002	10/1/2002	10/1/2002	10/10/2002	9/27/2002
	Sample ID		MSS3-4-T01N-PLTS	MSS3-5-T01N-PLTS	MSS3-6-T01N-PLTS	MSS3-8-T01N-PLTS	MSS3-9-T01N-PLTS	RRS-1-T01N-PLTS
	Exposure Area		SS3	SS3	SS3	SS3	SS3	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	52.7	50.7	44.4	51.	52.2	38.5
Metals								
Aluminum	mg/Kg-Dry	T	97.5	290.	86.7	123.	57.1	<118.
Antimony	mg/Kg-Dry	T	<0.3	<0.47	<0.36	<0.31	<0.46	<0.42
Arsenic	mg/Kg-Dry	T	<0.3	0.34	<0.36	<0.31	<0.31	<0.42
Barium	mg/Kg-Dry	T	5.7	10.7	6.8	5.1	50.8	27.3
Beryllium	mg/Kg-Dry	T	<0.027	<0.041	<0.034	<0.027	<0.033	<0.042
Boron	mg/Kg-Dry	T	28.8	44.2	41.4	23.5	14.4	40.8
Cadmium	mg/Kg-Dry	T	<0.1	0.61	1.	<0.041	<0.063	1.4
Calcium	mg/Kg-Dry	T	8200.	8620.	7820.	9080.	11300.	15900.
Chromium	mg/Kg-Dry	T	<0.61	1.	<0.79	0.67	0.63	<0.7
Cobalt	mg/Kg-Dry	T	<0.23	<0.24	<0.38	<0.29	<0.25	<0.39
Copper	mg/Kg-Dry	T	6.5	13.	12.4	7.1	2.3	6.8
Iron	mg/Kg-Dry	T	118.	582.	133.	170.	60.	131.
Lead	mg/Kg-Dry	T	<1.1	3.7	0.29	0.31	<0.27	<1.3
Magnesium	mg/Kg-Dry	T	1430.	1560.	1660.	2220.	1520.	2490.
Manganese	mg/Kg-Dry	T	39.5	225.	143.	40.6	84.3	79.7
Mercury	mg/Kg-Dry	T	<0.028	<0.032	<0.036	<0.033	<0.029	<0.042
Molybdenum	mg/Kg-Dry	T	4.	0.65	2.9	2.5	1.6	1.1
Nickel	mg/Kg-Dry	T	0.82	2.8	<2.3	2.9	0.44	1.5
Potassium	mg/Kg-Dry	T	5900.	12000.	14500.	6120.	4790.	10300.
Selenium	mg/Kg-Dry	T	<0.3	<1.2	<0.36	<0.31	<1.2	<0.42
Silver	mg/Kg-Dry	T	<0.78	<0.24	<0.25	<0.19	<0.25	<1.2
Sodium	mg/Kg-Dry	T	<145.	<97.2	<95.	<85.1	<70.1	<232.
Thallium	mg/Kg-Dry	T	<0.15	<0.16	<0.18	<0.16	<0.15	<0.21
Vanadium	mg/Kg-Dry	T	<0.27	0.43	<0.5	<0.39	<0.29	<0.42
Zinc	mg/Kg-Dry	T	31.7	44.8	39.6	27.1	17.6	119.

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Parameter	Site ID		RRS-10	RRS-11	RRS-12	RRS-13	RRS-19	RRS-20
	Sample Date		9/29/2002	9/29/2002	9/29/2002	10/2/2002	10/7/2002	10/7/2002
	Sample ID		RRS-10-T01N-PLTS	RRS-11-T01N-PLTS	RRS-12-T01N-PLTS	RRS-13-T01N-PLTS	RRS-19-T01N-PLTS	RRS-20-T01N-PLTS
	Exposure Area		RefMineR	RefMineR	RefMineR	RefMineR	RLCCR	RLCCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	33.9	34.4	32.9	38.7	37.9	44.8
Metals								
Aluminum	mg/Kg-Dry	T	101.	158.	129.	395.	78.6	86.8
Antimony	mg/Kg-Dry	T	<0.088	<0.47	<0.091	<0.41	<0.45	<0.56
Arsenic	mg/Kg-Dry	T	<0.088	<0.47	<0.091	<0.41	<0.45	<0.36
Barium	mg/Kg-Dry	T	18.9	19.2	18.2	25.3	21.9	21.4
Beryllium	mg/Kg-Dry	T	<0.047	<0.044	<0.043	0.059	<0.042	<0.033
Boron	mg/Kg-Dry	T	9.7	33.4	25.5	9.6	40.1	27.
Cadmium	mg/Kg-Dry	T	<0.071	1.5	0.79	<0.054	1.3	0.33
Calcium	mg/Kg-Dry	T	10800.	15100.	16000.	16400.	24800.	23400.
Chromium	mg/Kg-Dry	T	1.1	2.8	<1.	<1.2	<1.	0.83
Cobalt	mg/Kg-Dry	T	<0.5	<0.49	0.79	0.41	<0.47	0.78
Copper	mg/Kg-Dry	T	11.8	7.8	7.3	7.2	3.4	4.2
Iron	mg/Kg-Dry	T	190.	291.	216.	571.	96.6	135.
Lead	mg/Kg-Dry	T	<0.68	<0.96	<0.61	0.85	<0.32	0.4
Magnesium	mg/Kg-Dry	T	2820.	3200.	3770.	2560.	5150.	3570.
Manganese	mg/Kg-Dry	T	434.	66.	81.2	393.	118.	123.
Mercury	mg/Kg-Dry	T	0.077	<0.047	<0.052	<0.041	<0.037	<0.038
Molybdenum	mg/Kg-Dry	T	0.32	0.52	0.33	0.52	<0.4	<0.65
Nickel	mg/Kg-Dry	T	7.1	7.	3.6	4.4	<2.9	<2.2
Potassium	mg/Kg-Dry	T	9620.	16100.	17300.	3770.	9390.	6940.
Selenium	mg/Kg-Dry	T	0.15	<0.47	<0.091	<0.41	<0.9	<1.5
Silver	mg/Kg-Dry	T	<0.32	<0.32	<0.3	<0.26	<0.29	<0.25
Sodium	mg/Kg-Dry	T	152.	<128.	133.	<113.	<117.	<160.
Thallium	mg/Kg-Dry	T	<0.059	<0.23	<0.061	<0.21	<0.22	<0.18
Vanadium	mg/Kg-Dry	T	<0.65	<0.64	<0.61	0.93	<0.61	<0.47
Zinc	mg/Kg-Dry	T	44.2	260.	123.	64.6	338.	104.

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T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed
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Parameter	Site ID		RRS-25	RRS-26	RRS-3	RRS-5	RRS-7	RRS-8		
	Sample Date		10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002	9/27/2002		
	Sample ID		RRS-25-T01N-PLTS	RRS-26-T01N-PLTS	RRS-3-T01N-PLTS	RRS-5-T01N-PLTS	RRS-7-T01N-PLTS	RRS-8-T01N-PLTS		
	Exposure Area		RLCCR	RLCCR	RefMineR	RefMineR	RefMineR	RefMineR		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	38.3	44.1	40.	40.5	36.1	41.8		
Metals										
Aluminum	mg/Kg-Dry	T	152.	99.1	60.7	<119.	73.4	<102.		
Antimony	mg/Kg-Dry	T	<0.63 J	<0.52 J	<0.4 J	<0.4 J	<0.44 J	<0.38 J		
Arsenic	mg/Kg-Dry	T	<0.42	<0.34	<0.4	<0.4	<0.44	<0.38		
Barium	mg/Kg-Dry	T	30.3	19.7	35.5	44.4	6.6	19.1		
Beryllium	mg/Kg-Dry	T	<0.044	<0.034	<0.04	<0.035	<0.069	<0.029		
Boron	mg/Kg-Dry	T	104.	32.9	5.5	29.4	34.1	63.2		
Cadmium	mg/Kg-Dry	T	1.6	2.1	<0.06	3.5	<0.16	1.3		
Calcium	mg/Kg-Dry	T	30000.	21400.	13100.	29900.	9610.	21300.		
Chromium	mg/Kg-Dry	T	0.65	0.73	<0.7	<0.62	<0.75	<0.96		
Cobalt	mg/Kg-Dry	T	<0.47	1.5	<0.45	0.37	<0.78	0.6		
Copper	mg/Kg-Dry	T	7.	6.3	8.2	4.2	13.3	4.1		
Iron	mg/Kg-Dry	T	161.	128.	120.	140.	146.	128.		
Lead	mg/Kg-Dry	T	0.42 J	<0.19 J	0.52 J	<1.3 J	0.66 J	<1.1 J		
Magnesium	mg/Kg-Dry	T	5090.	3740.	1870.	5010.	2190.	5500.		
Manganese	mg/Kg-Dry	T	30.	187.	590.	90.4	371.	58.4		
Mercury	mg/Kg-Dry	T	<0.042	<0.039	<0.037	<0.037	<0.042 J	<0.036		
Molybdenum	mg/Kg-Dry	T	1.1	0.68	1.	3.	5.8	3.6		
Nickel	mg/Kg-Dry	T	<2.9	<2.3	<2.8	1.7 J	10.2	2.9		
Potassium	mg/Kg-Dry	T	10400. J	9980. J	8850. J	9630. J	12500. J	6410. J		
Selenium	mg/Kg-Dry	T	<1.7 J	<1.4 J	<0.4 J	<0.4 J	<0.44 J	<0.38 J		
Silver	mg/Kg-Dry	T	<0.31	<0.25	<0.27	<1.	<0.44 J	<0.86		
Sodium	mg/Kg-Dry	T	<117. J	<94.1 J	<108.	196.	<137.	179.		
Thallium	mg/Kg-Dry	T	<0.21	<0.17	<0.2	<0.2	<0.22	<0.19		
Vanadium	mg/Kg-Dry	T	<0.6	<0.5	<0.55	<0.35	<0.86	<0.29		
Zinc	mg/Kg-Dry	T	512. J	210. J	34.5 J	279. J	100. J	149. J		

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Parameter	Site ID		RRS-9	RS-1	RS-10	RS-11	RS-12	RS-13
	Sample Date		9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002	10/9/2002
	Sample ID		RRS-9-T01N-PLTS	RS-1-T01N-PLTS	RS-10-T01N-PLTS	RS-11-T01N-PLTS	RS-12-T01N-PLTS	RS-13-T01N-PLTS
	Exposure Area		RefMineR	SS9	SS9	SS16	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	39.8	43.2	40.9	42.2	40.	38.7
Metals								
Aluminum	mg/Kg-Dry	T	184.	303.	125.	88.6	47.8	98.2
Antimony	mg/Kg-Dry	T	<0.075	<0.37	<0.56	<0.4	<0.35	<0.59
Arsenic	mg/Kg-Dry	T	<0.075	<0.37	<0.37	<0.4	<0.35	<0.39
Barium	mg/Kg-Dry	T	27.4	26.9	19.8	5.2	8.	18.6
Beryllium	mg/Kg-Dry	T	<0.04	<0.049	<0.039	<0.031	<0.033	<0.041
Boron	mg/Kg-Dry	T	10.1	49.1	83.9	10.7	46.5	121.
Cadmium	mg/Kg-Dry	T	<0.06	0.12	2.7	<0.047	4.	7.2
Calcium	mg/Kg-Dry	T	16100.	24100.	28900.	9480.	13200.	20800.
Chromium	mg/Kg-Dry	T	<0.9	<1.1	0.61	<0.69	0.9	0.93
Cobalt	mg/Kg-Dry	T	<0.43	<0.35	0.34	0.43	<0.35	<0.47
Copper	mg/Kg-Dry	T	8.3	6.7	8.6	11.4	5.5	9.6
Iron	mg/Kg-Dry	T	254.	507.	<133.	123.	57.8	118.
Lead	mg/Kg-Dry	T	<0.63	<2.	<0.32	<0.26	<0.18	0.52
Magnesium	mg/Kg-Dry	T	3570.	5350.	5130.	2300.	3150.	3100.
Manganese	mg/Kg-Dry	T	399.	182.	42.8	538.	33.5	110.
Mercury	mg/Kg-Dry	T	<0.043	<0.037	<0.037	<0.038	<0.04	<0.041
Molybdenum	mg/Kg-Dry	T	0.35	46.1	2.4	1.8	<0.58	2.
Nickel	mg/Kg-Dry	T	4.	1.5	0.9	10.2	2.8	<2.8
Potassium	mg/Kg-Dry	T	6430.	7430.	6550.	6560.	8550.	11300.
Selenium	mg/Kg-Dry	T	0.18	<0.44	<1.5	<0.4	<0.35	<1.6
Silver	mg/Kg-Dry	T	<0.28	<0.22	<0.32	<0.21	<0.22	<0.28
Sodium	mg/Kg-Dry	T	150.	<218.	<174.	84.8	155.	370.
Thallium	mg/Kg-Dry	T	<0.05	<0.19	<0.19	<0.2	<0.18	<0.2
Vanadium	mg/Kg-Dry	T	<0.55	0.95	<0.34	<0.43	<0.45	<0.59
Zinc	mg/Kg-Dry	T	89.9	26.9	374.	84.4	388.	594.

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**Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed
Validated Analytical Results**

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Parameter	Site ID		RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18		
	Sample Date		9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13A-T01N-PLTS	RS-14-T01N-PLTS	RS-15-T01N-PLTS	RS-16-T01N-PLTS	RS-17-T01N-PLTS	RS-18-T01N-PLTS		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	37.4	50.7	46.8	43.4	41.7	45.8		
Metals										
Aluminum	mg/Kg-Dry	T	58.3	3200.	94.2	112.	173.	66.4		
Antimony	mg/Kg-Dry	T	<1.1	<0.3	<0.34	<0.55	<0.38	<0.52		
Arsenic	mg/Kg-Dry	T	<0.45	<1.6	<0.34	<0.37	<0.38	<0.35		
Barium	mg/Kg-Dry	T	5.6	157.	9.	12.	18.9	17.5		
Beryllium	mg/Kg-Dry	T	<0.1	0.3	<0.034	<0.037	<0.036	<0.035		
Boron	mg/Kg-Dry	T	84.2	5.1	21.6	23.5	81.3	87.8		
Cadmium	mg/Kg-Dry	T	0.86	1.7	<0.051	<0.053	<0.053	1.6		
Calcium	mg/Kg-Dry	T	25300.	5250.	9590.	12500.	24000.	15800.		
Chromium	mg/Kg-Dry	T	6.1	9.7	0.83	0.9	0.82	0.85		
Cobalt	mg/Kg-Dry	T	<0.75	6.1	<0.38	<0.39	<0.38	<0.39		
Copper	mg/Kg-Dry	T	5.6	30.2	10.9	8.3	5.8	5.7		
Iron	mg/Kg-Dry	T	154.	8740.	134.	163.	249.	101.		
Lead	mg/Kg-Dry	T	<0.37	18.1	<0.36	0.3	0.38	<0.19		
Magnesium	mg/Kg-Dry	T	3770.	2210.	1760.	2470.	5560.	3190.		
Manganese	mg/Kg-Dry	T	57.2	761.	196.	201.	108.	20.1		
Mercury	mg/Kg-Dry	T	0.088	<0.03	<0.034	<0.037	<0.036	<0.033		
Molybdenum	mg/Kg-Dry	T	5.1	11.2	2.6	2.3	<1.8	0.96		
Nickel	mg/Kg-Dry	T	1.3	13.8	5.8	3.5	<2.4	<2.4		
Potassium	mg/Kg-Dry	T	12900.	5330.	7390.	6290.	12700.	8540.		
Selenium	mg/Kg-Dry	T	<0.67	<0.55	<0.34	<1.5	<0.38	<1.4		
Silver	mg/Kg-Dry	T	<0.43	<0.24	<0.24	<0.25	<0.24	<0.24		
Sodium	mg/Kg-Dry	T	372.	219.	105.	97.7	<156.	299.		
Thallium	mg/Kg-Dry	T	<0.22	<0.15	<0.17	<0.19	<0.19	<0.18		
Vanadium	mg/Kg-Dry	T	<0.75	8.9	<0.49	<0.51	0.58	<0.5		
Zinc	mg/Kg-Dry	T	67.6	241.	79.7	37.3	13.9	162.		

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed
Validated Analytical Results**

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Parameter	Site ID		RS-19	RS-2	RS-20	RS-3	RS-4	RS-5		
	Sample Date		10/8/2002	10/4/2002	10/8/2002	9/26/2002	9/26/2002	9/26/2002		
	Sample ID		RS-19-T01N-PLTS	RS-2-T01N-PLTS	RS-20-T01N-PLTS	RS-3-T01N-PLTS	RS-4-T01N-PLTS	RS-5-T01N-PLTS		
	Exposure Area		SS16	SS9	SS16	SS9	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	42.3	44.8	34.6	44.	46.7	44.6		
Metals										
Aluminum	mg/Kg-Dry	T	133.	94.	140.	33.9	62.5	63.		
Antimony	mg/Kg-Dry	T	<0.54	<0.36	<0.43	<0.36	<0.34	<0.36		
Arsenic	mg/Kg-Dry	T	<0.35	<0.36	<0.43	<0.36	<0.34	<0.36		
Barium	mg/Kg-Dry	T	26.	13.6	30.1	4.5	6.2	9.4		
Beryllium	mg/Kg-Dry	T	<0.038	<0.054	<0.043	<0.036	<0.03	<0.036		
Boron	mg/Kg-Dry	T	63.4	22.3	211.	12.5	25.5	20.9		
Cadmium	mg/Kg-Dry	T	<0.057	<0.13	3.5	4.1	<0.1	3.1		
Calcium	mg/Kg-Dry	T	13900.	13800.	34700.	8730.	12600.	13300.		
Chromium	mg/Kg-Dry	T	<0.87	<0.76	0.75	0.39	5.1	0.29		
Cobalt	mg/Kg-Dry	T	0.54	<0.6	0.52	0.52	<0.32	0.9		
Copper	mg/Kg-Dry	T	8.	12.1	7.2	3.4	3.	5.4		
Iron	mg/Kg-Dry	T	147.	137.	207.	49.1	89.7	74.9		
Lead	mg/Kg-Dry	T	<0.21	<0.49	0.38	<0.68	<0.94	<1.2		
Magnesium	mg/Kg-Dry	T	2770.	2300.	7370.	1500.	2270.	2490.		
Manganese	mg/Kg-Dry	T	296.	386.	80.1	68.6	57.	226.		
Mercury	mg/Kg-Dry	T	<0.035	<0.033	<0.04	<0.039	<0.034	<0.036		
Molybdenum	mg/Kg-Dry	T	5.2	14.3	<1.9	1.7	2.1	1.5		
Nickel	mg/Kg-Dry	T	3.8	9.8	<2.9	5.7	<2.	7.4		
Potassium	mg/Kg-Dry	T	6000.	6700.	7630.	5250.	9080.	7910.		
Selenium	mg/Kg-Dry	T	<1.4	<0.36	<0.43	0.68	<0.34	<0.36		
Silver	mg/Kg-Dry	T	<0.26	<0.33	<0.32	<0.25	<0.21	<0.25		
Sodium	mg/Kg-Dry	T	114.	<108.	<708.	<99.5	<80.7	<96.6		
Thallium	mg/Kg-Dry	T	<0.18	<0.18	<0.22	<0.18	<0.17	<0.18		
Vanadium	mg/Kg-Dry	T	<0.54	<0.69	<0.64	<0.52	<0.43	<0.49		
Zinc	mg/Kg-Dry	T	43.3	87.7	341.	273.	<13.1	219.		

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Appendix A

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Parameter	Site ID		RS-6	RS-7	RS-8	RS-9	TSS14-1	TSS14-10
	Sample Date		10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003	5/28/2003
	Sample ID		RS-6-T01N-PLTS	RS-7-T01N-PLTS	RS-8-T01N-PLTS	RS-9-T01N-PLTS	TSS14-1-T01N-PLTS	WTBS-3-T01N-PLTU
	Exposure Area		SS9	SS9	SS9	SS9	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	39.8	30.1	36.3	38.4	33.5	35.5
Metals								
Aluminum	mg/Kg-Dry	T	497.	60.8	256.	544.	328. J	420.
Antimony	mg/Kg-Dry	T	<0.35 J	<0.43 J	<0.66 J	<0.42 J	<1.3	<0.028
Arsenic	mg/Kg-Dry	T	<0.35	<0.43	<0.44	<0.42	<0.51	0.17
Barium	mg/Kg-Dry	T	19.1	4.7	5.	59.6	6.3	14.1
Beryllium	mg/Kg-Dry	T	0.13	<0.073	<0.05	0.039	<0.054 J	<0.028 J
Boron	mg/Kg-Dry	T	27.1	21.6	29.5	82.8	39.4	30.4
Cadmium	mg/Kg-Dry	T	1.7	<0.17	0.55	3.4	0.57	0.65
Calcium	mg/Kg-Dry	T	10500.	9370.	13600.	25100.	7340. J	8230.
Chromium	mg/Kg-Dry	T	1.1	<0.63	0.94	1.3	2.1	0.96
Cobalt	mg/Kg-Dry	T	1.2	<0.83	<0.36	0.42	<0.54	0.23 J
Copper	mg/Kg-Dry	T	7.3	15.6	5.8	9.4	47.5	35.5
Iron	mg/Kg-Dry	T	538.	102.	278.	661.	510. J	532.
Lead	mg/Kg-Dry	T	<2. J	<0.66 J	0.5 J	2.1 J	0.75	2.1
Magnesium	mg/Kg-Dry	T	3190.	2270.	4990.	3460.	2390.	2250.
Manganese	mg/Kg-Dry	T	1120.	270.	468.	111.	126.	108.
Mercury	mg/Kg-Dry	T	<0.04 J	<0.053 J	<0.041	<0.039	<0.048	<0.048
Molybdenum	mg/Kg-Dry	T	20.6	5.3	2.8	4.2	148.	83.1
Nickel	mg/Kg-Dry	T	6.3	7.6	2.3	2.9	2.2	1.4
Potassium	mg/Kg-Dry	T	9070.	8840. J	12600. J	8150. J	21500. J	27200. J
Selenium	mg/Kg-Dry	T	<0.35 J	<0.43 J	<1.7 J	<0.42 J	<2.	0.12 J
Silver	mg/Kg-Dry	T	<0.23	<0.47 J	<0.36	<0.21	<0.6	0.012 J
Sodium	mg/Kg-Dry	T	<170.	<146.	<104.	129.	<257.	<30.4 J
Thallium	mg/Kg-Dry	T	<0.17	<0.22	<0.22	<0.21	<0.25	0.0056
Vanadium	mg/Kg-Dry	T	0.95	<0.93	0.41	0.86	2.8	0.93
Zinc	mg/Kg-Dry	T	294. J	66.4 J	137. J	362. J	245.	121.

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

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Appendix A

Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed

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Parameter	Site ID		TSS14-2	TSS14-4	TSS14-5	TSS14-6	TSS14-7	TSS14-8
	Sample Date		6/3/2003	6/4/2003	6/4/2003	5/30/2003	5/30/2003	5/30/2003
	Sample ID		WTRR-1-T01N-PLTU	WTBS-1-T01N-PLTU	WTRR-2-T01N-PLTU	WTRR-3-T01N-PLTU	TSS14-7-T01N-PLTS	TSS14-8-T01N-PLTS
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	31.1 :	37.9 :	39. :	32.7 :	30.4 :	31.8 :
Metals								
Aluminum	mg/Kg-Dry	T	212. J	361. :	651. :	195. :	215. :	748. J
Antimony	mg/Kg-Dry	T	<0.031 :	<0.025 J	<0.026 :	<0.03 :	<0.95 :	<0.72 :
Arsenic	mg/Kg-Dry	T	0.11 :	0.17 :	0.41 J	0.18 :	<0.63 :	<0.47 :
Barium	mg/Kg-Dry	T	4.2 :	11.9 :	8.7 :	14.4 :	6.3 :	7.5 :
Beryllium	mg/Kg-Dry	T	<0.031 J	0.029 :	0.041 :	<0.028 :	<0.082 :	<0.091 :
Boron	mg/Kg-Dry	T	35. :	24.3 :	27.9 :	76.5 :	66.8 :	58.5 :
Cadmium	mg/Kg-Dry	T	1.2 J	0.42 :	0.9 :	0.43 :	<0.53 :	<0.91 :
Calcium	mg/Kg-Dry	T	7810. :	9420. :	7870. :	7520. :	6910. :	7640. :
Chromium	mg/Kg-Dry	T	1.1 :	0.98 :	6.4 :	0.58 :	0.72 :	1.9 :
Cobalt	mg/Kg-Dry	T	0.16 J	0.26 J	0.33 J	0.11 J	<1.1 :	<1.1 :
Copper	mg/Kg-Dry	T	30.2 :	19.5 :	29.2 :	22.6 :	19.1 :	25.8 :
Iron	mg/Kg-Dry	T	245. :	406. :	767. :	228. :	247. :	1080. J
Lead	mg/Kg-Dry	T	0.77 :	0.84 :	1. :	0.34 :	1.1 :	2.5 :
Magnesium	mg/Kg-Dry	T	2020. :	2090. :	1980. :	2180. :	1990. :	2270. :
Manganese	mg/Kg-Dry	T	167. :	58. :	71. :	77.1 :	111. :	220. :
Mercury	mg/Kg-Dry	T	<0.051 :	<0.042 :	<0.041 :	<0.046 :	<0.056 :	<0.05 :
Molybdenum	mg/Kg-Dry	T	97.1 :	25.3 :	230. :	107. :	13.5 :	32.1 :
Nickel	mg/Kg-Dry	T	2.1 :	2.2 :	3.6 :	2. :	<0.82 :	<0.91 :
Potassium	mg/Kg-Dry	T	32800. J	16000. J	20900. J	19300. J	25200. J	21500. J
Selenium	mg/Kg-Dry	T	1.5 J	0.37 J	0.15 J	0.4 J	<1.6 :	<1.2 :
Silver	mg/Kg-Dry	T	<0.0061 J	0.013 J	0.013 J	0.0067 J	<0.27 :	<0.3 :
Sodium	mg/Kg-Dry	T	<33.4 :	<406. :	<60.5 J	<46.5 :	<96.4 :	<131. :
Thallium	mg/Kg-Dry	T	0.016 :	0.0092 :	0.011 :	0.0076 :	<0.32 :	<0.24 :
Vanadium	mg/Kg-Dry	T	0.48 :	0.87 :	1.2 :	0.46 :	<1.1 :	1.9 :
Zinc	mg/Kg-Dry	T	205. :	64.9 :	165. :	<107. :	72.7 :	101. :

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Terrestrial Vegetation - RI/FS and Dual Aboveground Shrub Unwashed
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS14-9	TSS17-42	---	---	---	---
			5/28/2003 WTBS-2-T01N-PLTU SS14	5/4/2004 TSS17-31-T01N-SU SS17				
Laboratory Parameters								
Solids, Percent	%	T	33.5	38.8	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	301.	141.	-	-	-	-
Antimony	mg/Kg-Dry	T	<0.029	<1.	-	-	-	-
Arsenic	mg/Kg-Dry	T	0.27	<0.52	-	-	-	-
Barium	mg/Kg-Dry	T	12.5	10.6	-	-	-	-
Beryllium	mg/Kg-Dry	T	<0.03	<0.049	-	-	-	-
Boron	mg/Kg-Dry	T	23.9	21.6	-	-	-	-
Cadmium	mg/Kg-Dry	T	0.39	<0.072	-	-	-	-
Calcium	mg/Kg-Dry	T	7940.	12100.	-	-	-	-
Chromium	mg/Kg-Dry	T	0.99	1.3	-	-	-	-
Cobalt	mg/Kg-Dry	T	0.15	<0.26	-	-	-	-
Copper	mg/Kg-Dry	T	42.4	7.7	-	-	-	-
Iron	mg/Kg-Dry	T	337.	191.	-	-	-	-
Lead	mg/Kg-Dry	T	<0.78	0.67	-	-	-	-
Magnesium	mg/Kg-Dry	T	1960.	1890.	-	-	-	-
Manganese	mg/Kg-Dry	T	63.	66.	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.048	<0.036	-	-	-	-
Molybdenum	mg/Kg-Dry	T	86.9	<1.9	-	-	-	-
Nickel	mg/Kg-Dry	T	1.6	<0.34	-	-	-	-
Potassium	mg/Kg-Dry	T	27800.	14300.	-	-	-	-
Selenium	mg/Kg-Dry	T	0.72	<1.8	-	-	-	-
Silver	mg/Kg-Dry	T	0.013	<0.24	-	-	-	-
Sodium	mg/Kg-Dry	T	<32.2	<163.	-	-	-	-
Thallium	mg/Kg-Dry	T	0.0087	<0.25	-	-	-	-
Vanadium	mg/Kg-Dry	T	0.66	0.44	-	-	-	-
Zinc	mg/Kg-Dry	T	73.4	25.8	-	-	-	-

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
Validated Analytical Results**

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Parameter	Site ID		CR-10	CR-11	CR-13	CR-14	CR-2	CR-4
	Sample Date		5/31/2003	6/5/2003	6/2/2003	6/2/2003	6/3/2003	5/31/2003
	Sample ID		WRBS-3-T02N-PLTU	WRBS-1-T02N-PLTU	WRRR-3-T02N-PLTU	CR-14-T02N-PLTS	CR-2-T02N-PLTS	WRRR-1-T02N-PLTU
	Exposure Area		RCR	RCR	RCR	RCR	RCR	RCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	65.6	67.2	56.1	38.	40.	41.3
Metals								
Aluminum	mg/Kg-Dry	T	2040.	1400.	4050.	2790. J	1860. J	1300. J
Antimony	mg/Kg-Dry	T	<0.043	<0.014 J	0.027	<1.	<1.	<0.031
Arsenic	mg/Kg-Dry	T	0.3	0.24	0.34	0.66	<0.43	0.23
Barium	mg/Kg-Dry	T	33.4	28.6	33.3	33.4	34.	33.7
Beryllium	mg/Kg-Dry	T	0.14	0.089	<0.18	0.17	<0.05 J	<0.061
Boron	mg/Kg-Dry	T	10.2	9.1	12.3	16.3	17.	26.9
Cadmium	mg/Kg-Dry	T	0.41	0.98	0.15	0.097	0.72	0.31
Calcium	mg/Kg-Dry	T	5500.	6950.	7270.	7500.	13900. J	12900.
Chromium	mg/Kg-Dry	T	5.8	2.7	7.1	6.1	14.	3.1 J
Cobalt	mg/Kg-Dry	T	0.99 J	0.6 J	1.3 J	2.	1.2	0.68 J
Copper	mg/Kg-Dry	T	11.9	8.8	20.5	15.8	22.	14.
Iron	mg/Kg-Dry	T	2550.	1730.	4150.	3500. J	2600. J	1410. J
Lead	mg/Kg-Dry	T	1.5	0.89	2.	2.6	1.5	0.8
Magnesium	mg/Kg-Dry	T	1300.	1390.	1940.	3370.	5230.	4790.
Manganese	mg/Kg-Dry	T	80.6	101.	74.9	101.	69.5	65.4 J
Mercury	mg/Kg-Dry	T	<0.024	<0.022	<0.027	<0.045	<0.04	<0.039
Molybdenum	mg/Kg-Dry	T	0.64	<0.74	0.66	0.45	1.	0.41 J
Nickel	mg/Kg-Dry	T	2.9	1.4	3.7	3.2	8.	2.4
Potassium	mg/Kg-Dry	T	4700. J	5740. J	4310. J	13300. J	10400. J	15600. J
Selenium	mg/Kg-Dry	T	0.17 J	0.16 J	0.39 J	<1.6	<1.7	0.23 J
Silver	mg/Kg-Dry	T	0.012 J	0.0076 J	0.023 J	<0.23	<0.55	0.009 J
Sodium	mg/Kg-Dry	T	<191.	<132.	287.	282.	1340.	402. J
Thallium	mg/Kg-Dry	T	0.024	0.015	0.037	<0.21	<0.21	0.015
Vanadium	mg/Kg-Dry	T	6.4	2.5	8.	7.1	7.7	6.1
Zinc	mg/Kg-Dry	T	20.6	<22.5	29.2	23.4	31.5	28.6

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
Validated Analytical Results**

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Parameter	Site ID		CR-5	CR-6	CR-7	CR-8	MRSS-1	MRSS-16
	Sample Date		5/29/2003	6/2/2003	5/29/2003	5/29/2003	10/6/2002	9/29/2002
	Sample ID		CR-5-T02N-PLTS	CR-6-T02N-PLTS	CR-7-T02N-PLTS	WRBS-2-T02N-PLTU	MRSS-1-T02N-PLTS	MRSS-16-T02N-PLTS
	Exposure Area		RCR	RCR	RCR	RCR	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	51.3	50.6	63.4	66.2	59.	39.3
Metals								
Aluminum	mg/Kg-Dry	T	3430. J	994. J	1700. J	3460. :	2320. :	911. :
Antimony	mg/Kg-Dry	T	<0.8 :	<0.77 :	<0.66 :	<0.027 :	<0.27 J	<0.38 J
Arsenic	mg/Kg-Dry	T	0.49 :	0.42 :	0.44 :	0.65 :	0.76 :	<0.38 :
Barium	mg/Kg-Dry	T	40. :	32.8 :	73. :	36.4 :	79.8 :	112. :
Beryllium	mg/Kg-Dry	T	<0.21 :	0.059 :	<0.096 :	0.21 :	0.14 :	0.041 :
Boron	mg/Kg-Dry	T	13.8 :	15.2 :	19.7 :	10.3 :	13.6 :	<7.9 :
Cadmium	mg/Kg-Dry	T	0.99 :	0.14 :	0.19 :	0.32 :	<0.093 :	0.25 :
Calcium	mg/Kg-Dry	T	10200. :	9860. :	19700. :	7570. :	6980. :	9410. :
Chromium	mg/Kg-Dry	T	8.4 :	<2.6 :	4.1 :	6.3 :	5.8 :	1.5 :
Cobalt	mg/Kg-Dry	T	2.1 :	0.71 :	1. :	1.5 J	1.5 :	0.51 :
Copper	mg/Kg-Dry	T	15.2 :	15.2 :	12.5 :	10.9 :	10.5 :	6.1 :
Iron	mg/Kg-Dry	T	4170. J	1260. :	2070. J	4270. :	4470. :	1060. :
Lead	mg/Kg-Dry	T	2.5 :	1.1 :	1.5 :	2.3 :	9.2 J	3.3 J
Magnesium	mg/Kg-Dry	T	3240. :	1840. J	1740. :	1860. :	1310. :	621. :
Manganese	mg/Kg-Dry	T	81.7 :	54.2 J	61.5 :	98.8 :	135. :	212. :
Mercury	mg/Kg-Dry	T	<0.031 :	<0.034 :	<0.027 :	<0.024 :	<0.027 :	<0.041 :
Molybdenum	mg/Kg-Dry	T	0.55 :	0.34 :	2.8 :	<0.5 :	4.6 :	0.56 :
Nickel	mg/Kg-Dry	T	4.5 :	1.1 :	1.5 J	4.2 :	6.1 :	<2.5 :
Potassium	mg/Kg-Dry	T	7600. J	8660. J	4760. J	3460. J	2420. J	3410. J
Selenium	mg/Kg-Dry	T	<1.3 :	<1.2 :	<1.1 :	0.48 J	<0.27 J	<0.38 J
Silver	mg/Kg-Dry	T	<0.19 :	0.3 :	<0.16 :	0.0066 J	0.37 :	<0.28 :
Sodium	mg/Kg-Dry	T	343. :	107. :	141. :	<190. :	<138. :	<126. :
Thallium	mg/Kg-Dry	T	<0.16 :	<0.15 :	<0.13 :	0.029 :	<0.13 :	<0.2 :
Vanadium	mg/Kg-Dry	T	9.7 :	4.9 :	10.7 :	8.3 :	4.7 :	1.7 :
Zinc	mg/Kg-Dry	T	34.1 :	14.4 :	24.1 :	20.5 :	27.3 J	16.3 J

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

Terrestrial Vegetation - RIFS and Dual Below Ground Shrub Unwashed

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Parameter	Site ID		MRSS-17 Biota	MRSS-18	MRSS-19	MRSS-2	MRSS-20	MRSS-3
	Sample Date		9/28/2002	9/28/2002	9/28/2002	10/6/2002	9/28/2002	10/6/2002
	Sample ID		MRSS-17-T02N-PLTS	MRSS-18-T02N-PLTS	MRSS-19-T02N-PLTS	MRSS-2-T02N-PLTS	MRSS-20-T02N-PLTS	MRSS-3-T02N-PLTS
	Exposure Area		RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	55.5 :	47.3 :	45.7 :	57.3 :	47. :	55. :
Metals								
Aluminum	mg/Kg-Dry	T	2720. :	2350. :	1680. :	1580. :	3000. :	1100. :
Antimony	mg/Kg-Dry	T	0.09 J	<0.063 J	<0.066 J	<0.26 J	0.064 J	<0.29 J
Arsenic	mg/Kg-Dry	T	1.3 :	0.27 :	1.3 :	0.72 :	0.96 :	1.5 :
Barium	mg/Kg-Dry	T	114. :	108. :	100. :	122. :	294. :	58.5 :
Beryllium	mg/Kg-Dry	T	0.17 :	0.11 :	0.066 :	0.098 :	0.13 :	0.087 :
Boron	mg/Kg-Dry	T	11.4 :	13.7 :	7.2 :	9.8 :	10.2 :	14.2 :
Cadmium	mg/Kg-Dry	T	0.88 :	0.89 :	0.28 :	<0.44 :	0.57 :	<0.17 :
Calcium	mg/Kg-Dry	T	12800. :	12400. :	9450. :	9090. :	13000. :	5600. :
Chromium	mg/Kg-Dry	T	3.1 :	1.9 :	2.2 :	6.5 :	2.6 :	2. :
Cobalt	mg/Kg-Dry	T	1.1 :	0.87 :	0.74 :	1.7 :	1.4 :	1.1 :
Copper	mg/Kg-Dry	T	5.2 :	5.9 :	3.7 :	10.8 :	8.5 :	7.3 :
Iron	mg/Kg-Dry	T	3950. :	2450. :	1690. :	2880. :	2740. :	3250. :
Lead	mg/Kg-Dry	T	14.1 J	<4.4 J	<4.2 J	7.7 J	10.4 J	8.9 J
Magnesium	mg/Kg-Dry	T	1060. :	1510. :	757. :	2300. :	1260. :	756. :
Manganese	mg/Kg-Dry	T	152. :	110. :	123. :	246. :	98.5 :	90. :
Mercury	mg/Kg-Dry	T	<0.029 :	<0.032 :	0.046 :	<0.026 J	0.14 :	<0.027 J
Molybdenum	mg/Kg-Dry	T	1.2 :	<0.87 :	<0.39 :	8.4 :	0.74 :	2.2 :
Nickel	mg/Kg-Dry	T	<2. :	<1.9 :	<2.4 :	5.2 :	<2. :	7.1 :
Potassium	mg/Kg-Dry	T	3500. :	4360. J	2800. J	4140. J	2700. J	2960. J
Selenium	mg/Kg-Dry	T	0.25 J	0.085 J	0.088 J	0.35 J	0.23 J	<0.95 J
Silver	mg/Kg-Dry	T	0.23 :	0.21 :	<0.24 :	<0.17 :	0.21 :	<0.18 :
Sodium	mg/Kg-Dry	T	<93.3 :	<77. :	<95.2 :	<192. :	<81.3 :	<307. :
Thallium	mg/Kg-Dry	T	0.054 :	<0.042 :	0.044 :	<0.13 :	0.043 :	<0.15 :
Vanadium	mg/Kg-Dry	T	4.3 :	4.7 :	3.1 :	4. :	5.1 :	1.7 :
Zinc	mg/Kg-Dry	T	55. J	38.3 J	21. J	68.9 J	31.7 J	27.5 J

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T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		MRSS-4	MRSS-5	MSS3-1	MSS3-10	MSS3-2	MSS3-3		
	Sample Date		10/6/2002	10/6/2002	10/10/2002	9/25/2002	10/11/2002	9/30/2002		
	Sample ID		MRSS-4-T02N-PLTS	MRSS-5-T02N-PLTS	MSS3-1-T02N-PLTS	MSS3-10-T02N-PLTS	MSS3-2-T02N-PLTS	MSS3-3-T02N-PLTS		
	Exposure Area		RefMine	RefMine	SS3	SS3	SS3	SS3		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	51.9	55.6	47.5	60.4	48.7	53.4		
Metals										
Aluminum	mg/Kg-Dry	T	1320.	1610.	2380.	1900.	1030.	2120.		
Antimony	mg/Kg-Dry	T	<0.27 J	<0.25 J	<0.48 J	<0.05 J	<0.47 J	<0.28 J		
Arsenic	mg/Kg-Dry	T	0.6	0.83	2.9	1.	0.37	0.97		
Barium	mg/Kg-Dry	T	35.5	273.	69.1	305.	56.7	46.4		
Beryllium	mg/Kg-Dry	T	0.17	0.15	0.17	0.068	<0.035	0.36		
Boron	mg/Kg-Dry	T	11.9	7.2	<12.8	7.6	15.	7.9		
Cadmium	mg/Kg-Dry	T	<0.23	0.15	0.25	0.38	0.18	0.45		
Calcium	mg/Kg-Dry	T	4320.	11300.	9810.	7240.	11500.	13700.		
Chromium	mg/Kg-Dry	T	1.1	2.3	4.4	3.1	1.1	4.3		
Cobalt	mg/Kg-Dry	T	1.9	2.	1.1	0.94	0.43	2.6		
Copper	mg/Kg-Dry	T	8.5	12.2	10.3	10.3	5.7	13.1		
Iron	mg/Kg-Dry	T	2350.	5040.	3580.	6110.	1240.	3480.		
Lead	mg/Kg-Dry	T	16. J	4.7 J	8.6 J	8.3 J	3.3 J	27.5 J		
Magnesium	mg/Kg-Dry	T	1120.	2500.	1200.	1310.	1060.	1780.		
Manganese	mg/Kg-Dry	T	129.	173.	171.	73.8	133.	449.		
Mercury	mg/Kg-Dry	T	<0.029	<0.029 J	<0.032	<0.026	<0.033	<0.03 J		
Molybdenum	mg/Kg-Dry	T	6.2	<1.3	5.7	8.1	3.1	0.56		
Nickel	mg/Kg-Dry	T	5.4	7.4	1.5	2.3	1.1	7.3		
Potassium	mg/Kg-Dry	T	3220. J	3940.	4380. J	5450. J	5110. J	4530. J		
Selenium	mg/Kg-Dry	T	<0.27 J	<0.5 J	<1.3 J	0.56 J	<1.2 J	0.56 J		
Silver	mg/Kg-Dry	T	<0.19	<0.18	0.32	<0.18	<0.27	<0.82		
Sodium	mg/Kg-Dry	T	<136.	<189.	<101.	<177.	<166.	157.		
Thallium	mg/Kg-Dry	T	<0.14	<0.12	<0.16	0.083	<0.15	<0.15		
Vanadium	mg/Kg-Dry	T	1.2	3.4	4.8	4.6	2.3	3.6		
Zinc	mg/Kg-Dry	T	62. J	69.1 J	65.1 J	40.1 J	56.5 J	60.7 J		

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Appendix A

**Terrestrial Vegetation - RIFS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		MSS3-4	MSS3-5	MSS3-6	MSS3-8	MSS3-9	RRS-1
	Sample Date		9/30/2002	10/10/2002	10/1/2002	10/1/2002	10/10/2002	9/27/2002
	Sample ID		MSS3-4-T02N-PLTS	MSS3-5-T02N-PLTS	MSS3-6-T02N-PLTS	MSS3-8-T02N-PLTS	MSS3-9-T02N-PLTS	RRS-1-T02N-PLTS
	Exposure Area		SS3	SS3	SS3	SS3	SS3	RefMineR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	54.2	47.8	43.7	56.6	44.	54.6
Metals								
Aluminum	mg/Kg-Dry	T	2600.	1950.	1640.	6710.	1810.	7110.
Antimony	mg/Kg-Dry	T	<0.3 J	<0.44 J	<0.39 J	<0.27 J	<0.55 J	<0.29 J
Arsenic	mg/Kg-Dry	T	1.8	2.	1.1	0.97	<0.36	2.4
Barium	mg/Kg-Dry	T	23.1	45.2	40.3	54.8	88.	95.4
Beryllium	mg/Kg-Dry	T	0.3	<0.1	0.076	0.35	<0.11	0.4
Boron	mg/Kg-Dry	T	11.4	13.2	11.9	4.9	12.	5.3
Cadmium	mg/Kg-Dry	T	0.24	0.56	0.87	0.048	0.23	<0.29
Calcium	mg/Kg-Dry	T	14700.	3450.	3360.	9190.	14500.	7220.
Chromium	mg/Kg-Dry	T	6.1	2.	3.7	21.	1.6	17.
Cobalt	mg/Kg-Dry	T	1.7	0.86	0.85	7.6	0.91	6.
Copper	mg/Kg-Dry	T	7.9	24.7	23.3	21.7	5.7	18.7
Iron	mg/Kg-Dry	T	4480.	5590.	3780.	9960.	2020.	14800.
Lead	mg/Kg-Dry	T	12.9 J	42.1 J	8.5 J	10.6 J	9.1 J	7.3 J
Magnesium	mg/Kg-Dry	T	1040.	985.	1470.	2840.	866.	4160.
Manganese	mg/Kg-Dry	T	408.	91.6	74.8	293.	196.	363.
Mercury	mg/Kg-Dry	T	<0.03 J	<0.031	<0.037 J	<0.028 J	<0.036	<0.046
Molybdenum	mg/Kg-Dry	T	10.	3.1	1.6	5.5	2.3	1.5
Nickel	mg/Kg-Dry	T	4.1	1.3	<2.5	19.1	1.2	9.3
Potassium	mg/Kg-Dry	T	2210. J	7760. J	10700. J	3070. J	2840. J	3440. J
Selenium	mg/Kg-Dry	T	0.39 J	<1.2 J	0.59 J	<0.27 J	<1.4 J	0.86 J
Silver	mg/Kg-Dry	T	<0.22	0.77	<0.25	<0.17	<0.3	<0.22
Sodium	mg/Kg-Dry	T	<109.	<131.	<132.	<66.1	<129.	<82.2
Thallium	mg/Kg-Dry	T	<0.15	<0.14	<0.18	<0.14	<0.18	<0.15
Vanadium	mg/Kg-Dry	T	3.1	3.8	4.1	15.5	3.4	26.2
Zinc	mg/Kg-Dry	T	122. J	34.7 J	29.3 J	62.2 J	35.5 J	94.1 J

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

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Parameter	Site ID		RRS-10	RRS-11	RRS-12	RRS-13	RRS-19	RRS-20
	Sample Date		9/29/2002	9/29/2002	9/29/2002	10/2/2002	10/7/2002	10/7/2002
	Sample ID		RRS-10-T02N-PLTS	RRS-11-T02N-PLTS	RRS-12-T02N-PLTS	RRS-13-T02N-PLTS	RRS-19-T02N-PLTS	RRS-20-T02N-PLTS
	Exposure Area		RefMineR	RefMineR	RefMineR	RefMineR	RLCCR	RLCCR
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	49. :	49.3 :	49.1 :	44.2 :	47.7 :	56.4 :
Metals								
Aluminum	mg/Kg-Dry	T	4220. :	2760. J	9080. :	2580. :	996. :	762. :
Antimony	mg/Kg-Dry	T	<0.061 J	<0.32 J	0.081 J	<0.32 J	<0.31 J	<0.28 J
Arsenic	mg/Kg-Dry	T	0.76 :	1.1 :	2.2 :	0.41 :	2.3 :	<0.28 :
Barium	mg/Kg-Dry	T	65.5 :	101. :	120. :	33.5 :	10.3 :	43.8 :
Beryllium	mg/Kg-Dry	T	0.37 :	0.37 :	1.1 :	0.18 :	0.42 :	0.059 :
Boron	mg/Kg-Dry	T	6.3 :	<6.7 :	6.7 :	9. :	14.5 :	13.1 :
Cadmium	mg/Kg-Dry	T	0.37 :	2.2 :	0.69 :	0.2 :	0.73 :	0.64 :
Calcium	mg/Kg-Dry	T	4940. :	11700. :	8470. :	6290. :	17900. :	16900. :
Chromium	mg/Kg-Dry	T	10.6 :	6.5 :	16.3 :	3.4 :	3.6 :	1.3 :
Cobalt	mg/Kg-Dry	T	3.9 :	2.2 :	6.9 :	1.9 :	<0.36 :	0.64 :
Copper	mg/Kg-Dry	T	13.3 :	10.3 :	16.9 :	15.2 :	9.6 :	7.1 :
Iron	mg/Kg-Dry	T	7220. :	4460. J	13400. :	4250. :	3580. :	1740. :
Lead	mg/Kg-Dry	T	8.2 J	7.3 J	22.4 J	7.9 J	8.2 J	2.3 J
Magnesium	mg/Kg-Dry	T	2450. :	1840. :	3970. :	1780. :	1580. :	1480. :
Manganese	mg/Kg-Dry	T	253. :	245. :	460. :	172. :	174. :	56.6 :
Mercury	mg/Kg-Dry	T	0.049 :	<0.034 :	0.047 :	<0.036 :	<0.034 :	<0.028 :
Molybdenum	mg/Kg-Dry	T	0.92 :	0.75 :	1.5 :	2.1 :	3.4 :	<0.98 :
Nickel	mg/Kg-Dry	T	8.8 :	5.7 :	15.1 :	5.9 :	<2.3 :	<2. :
Potassium	mg/Kg-Dry	T	2880. J	5010. J	3580. J	3730. J	6770. J	5440. J
Selenium	mg/Kg-Dry	T	0.31 J	<0.32 J	0.67 J	<0.32 J	<1.3 J	<0.28 J
Silver	mg/Kg-Dry	T	<0.22 :	<0.22 :	<0.22 :	<0.27 :	<0.23 J	<0.21 :
Sodium	mg/Kg-Dry	T	<83.3 :	<88.2 :	<84.5 :	<107. :	<89.7 :	<139. :
Thallium	mg/Kg-Dry	T	0.041 :	<0.16 :	0.061 :	<0.16 :	<0.16 :	<0.14 :
Vanadium	mg/Kg-Dry	T	11. :	7.1 :	19.8 :	7. :	0.96 :	2.3 :
Zinc	mg/Kg-Dry	T	84.7 J	278. J	175. J	75.6 J	163. J	97. J

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		RRS-25	RRS-26	RRS-3	RRS-5	RRS-7	RRS-8		
	Sample Date		10/9/2002	10/9/2002	10/2/2002	9/27/2002	10/4/2002	9/27/2002		
	Sample ID		RRS-25-T02N-PLTS	RRS-26-T02N-PLTS	RRS-3-T02N-PLTS	RRS-5-T02N-PLTS	RRS-7-T02N-PLTS	RRS-8-T02N-PLTS		
	Exposure Area		RLCCR	RLCCR	RefMineR	RefMineR	RefMineR	RefMineR		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	48.5	49.5	44.3	56.1	50.3	57.4		
Metals										
Aluminum	mg/Kg-Dry	T	3610.	4000.	2780.	5720.	4890.	3480.		
Antimony	mg/Kg-Dry	T	<0.52	0.53	<0.36	<0.21	<0.34	<0.28		
Arsenic	mg/Kg-Dry	T	4.7	1.3	0.41	2.	4.6	1.7		
Barium	mg/Kg-Dry	T	49.7	77.6	69.8	157.	334.	167.		
Beryllium	mg/Kg-Dry	T	0.72	0.48	0.17	0.61	0.32	0.37		
Boron	mg/Kg-Dry	T	7.8	13.9	5.6	6.6	4.2	16.6		
Cadmium	mg/Kg-Dry	T	0.64	1.1	0.36	1.6	1.2	1.7		
Calcium	mg/Kg-Dry	T	8230.	16500.	5510.	11200.	9660.	23500.		
Chromium	mg/Kg-Dry	T	7.	8.5	5.	14.3	13.1	9.9		
Cobalt	mg/Kg-Dry	T	3.5	3.4	2.7	9.4	5.4	5.2		
Copper	mg/Kg-Dry	T	12.	15.4	51.5	113.	37.6	41.1		
Iron	mg/Kg-Dry	T	9280.	6730.	5940.	15000.	16200.	6460.		
Lead	mg/Kg-Dry	T	14.6	12.7	18.7	27.1	38.2	17.4		
Magnesium	mg/Kg-Dry	T	2060.	2630.	2190.	3050.	3260.	2890.		
Manganese	mg/Kg-Dry	T	548.	315.	223.	611.	274.	430.		
Mercury	mg/Kg-Dry	T	<0.033	<0.032	<0.036	<0.027	<0.03	<0.026		
Molybdenum	mg/Kg-Dry	T	1.8	1.6	4.3	11.4	10.1	70.4		
Nickel	mg/Kg-Dry	T	7.4	8.9	4.1	28.5	13.1	13.9		
Potassium	mg/Kg-Dry	T	5710.	4420.	3160.	3420.	4470.	3500.		
Selenium	mg/Kg-Dry	T	1.7	1.5	<0.36	0.8	<2.2	0.64		
Silver	mg/Kg-Dry	T	<0.21	<0.22	0.34	<0.84	<0.32	<0.8		
Sodium	mg/Kg-Dry	T	<82.9	102.	<136.	<157.	<99.6	206.		
Thallium	mg/Kg-Dry	T	<0.17	<0.15	<0.18	<0.11	<0.17	<0.14		
Vanadium	mg/Kg-Dry	T	8.9	9.9	10.6	19.4	11.9	9.1		
Zinc	mg/Kg-Dry	T	198.	191.	68.6	248.	113.	181.		

J = Qualified as estimated during data validation

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T = Total Fraction

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		RRS-9	RS-1	RS-10	RS-11	RS-12	RS-13
	Sample Date		9/29/2002	10/4/2002	10/11/2002	10/3/2002	10/3/2002	10/9/2002
	Sample ID		RRS-9-T02N-PLTS	RS-1-T02N-PLTS	RS-10-T02N-PLTS	RS-11-T02N-PLTS	RS-12-T02N-PLTS	RS-13-T02N-PLTS
	Exposure Area		RefMineR	SS9	SS9	SS16	SS16	SS16
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	45.6	55.	36.2	46.6	45.7	44.3
Metals								
Aluminum	mg/Kg-Dry	T	2010.	1930.	1710.	1870.	1570.	2910.
Antimony	mg/Kg-Dry	T	0.088 J	<0.27 J	<0.66 J	<0.34 J	<0.35 J	<0.56 J
Arsenic	mg/Kg-Dry	T	0.92	0.44	0.44	0.73	0.42	1.2
Barium	mg/Kg-Dry	T	44.7	129.	44.2	80.	74.8	138.
Beryllium	mg/Kg-Dry	T	0.22	0.22	0.12	0.26	0.22	0.27
Boron	mg/Kg-Dry	T	9.	19.8	14.4	5.2	9.2	10.2
Cadmium	mg/Kg-Dry	T	0.29	0.64	0.41	0.54	0.94	2.7
Calcium	mg/Kg-Dry	T	5390.	10100.	8480.	5430.	5050.	7360.
Chromium	mg/Kg-Dry	T	4.4	4.9	3.	4.7	5.3	6.3
Cobalt	mg/Kg-Dry	T	2.	3.8	1.2	2.4	2.2	5.6
Copper	mg/Kg-Dry	T	11.6	33.8	20.7	26.8	22.1	30.2
Iron	mg/Kg-Dry	T	2650.	4270.	3040.	4180.	4380.	7400.
Lead	mg/Kg-Dry	T	4.2 J	16.5 J	8.8 J	9.4 J	13.1 J	16.9 J
Magnesium	mg/Kg-Dry	T	1610.	2620.	1590.	1540.	1330.	2050.
Manganese	mg/Kg-Dry	T	217.	242.	107.	262.	164.	474.
Mercury	mg/Kg-Dry	T	<0.035	<0.025 J	<0.041	<0.034	<0.033	<0.036
Molybdenum	mg/Kg-Dry	T	0.7	117.	10.8	7.5	5.3	14.4
Nickel	mg/Kg-Dry	T	4.4	10.5	2.8	8.2	10.3	12.
Potassium	mg/Kg-Dry	T	4280. J	3730. J	9780. J	3030. J	6810. J	6820. J
Selenium	mg/Kg-Dry	T	0.33 J	0.29 J	<1.8 J	<0.34 J	<0.35 J	<1.5 J
Silver	mg/Kg-Dry	T	<0.24	0.42 J	<0.3	0.26	0.26	<0.43
Sodium	mg/Kg-Dry	T	<96.1	<91.1	<279.	181.	74.2	409. J
Thallium	mg/Kg-Dry	T	0.066	<0.14	<0.22	<0.17	<0.18	<0.19
Vanadium	mg/Kg-Dry	T	4.4	5.5	4.1	4.7	4.8	7.9
Zinc	mg/Kg-Dry	T	75.4 J	105. J	94.8 J	114. J	169. J	218. J

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Parameter	Site ID		RS-13A	RS-14	RS-15	RS-16	RS-17	RS-18		
	Sample Date		9/9/2003	10/7/2002	10/7/2002	10/8/2002	10/8/2002	10/8/2002		
	Sample ID		RS-13A-T02N-PLTS	RS-14-T02N-PLTS	RS-15-T02N-PLTS	RS-16-T02N-PLTS	RS-17-T02N-PLTS	RS-18-T02N-PLTS		
	Exposure Area		SS16	SS16	SS16	SS16	SS16	SS16		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	36.2	40.6	43.7	44.7	49.3	16.4		
Metals										
Aluminum	mg/Kg-Dry	T	1340.	125.	1110.	3400.	2740.	18000.		
Antimony	mg/Kg-Dry	T	<1.2	<0.39	<0.39	<0.56	<0.32	<1.5		
Arsenic	mg/Kg-Dry	T	<0.5	<0.39	<0.41	0.96	<0.32	3.		
Barium	mg/Kg-Dry	T	50.	10.6	50.8	113.	64.9	312.		
Beryllium	mg/Kg-Dry	T	0.15	<0.039	0.094	0.38	0.12	0.85		
Boron	mg/Kg-Dry	T	12.4	81.8	5.7	6.5	27.6	35.4		
Cadmium	mg/Kg-Dry	T	0.88	6.9	0.41	1.1	<0.051	2.9		
Calcium	mg/Kg-Dry	T	8150.	20700.	6290.	9040.	9250.	26000.		
Chromium	mg/Kg-Dry	T	5.5	<0.89	3.9	7.2	2.6	20.7		
Cobalt	mg/Kg-Dry	T	1.7	<0.42	1.2	4.5	1.5	9.8		
Copper	mg/Kg-Dry	T	19.1	7.6	19.7	37.6	11.	43.9		
Iron	mg/Kg-Dry	T	3150.	172.	2280.	6000.	2960.	18900.		
Lead	mg/Kg-Dry	T	8.3	<0.54	5.5	15.2	2.4	20.7		
Magnesium	mg/Kg-Dry	T	1560.	4830.	1480.	2130.	2470.	7500.		
Manganese	mg/Kg-Dry	T	89.8	79.6	129.	322.	78.3	689.		
Mercury	mg/Kg-Dry	T	<0.021	<0.039	<0.037	<0.034	<0.03	<0.091		
Molybdenum	mg/Kg-Dry	T	18.5	<1.1	6.9	13.9	2.8	15.2		
Nickel	mg/Kg-Dry	T	5.	<2.7	6.6	13.4	2.8	21.3		
Potassium	mg/Kg-Dry	T	6380.	6950.	3180.	3110.	4240.	17800.		
Selenium	mg/Kg-Dry	T	<0.75	<0.39	<0.39	<1.5	<0.32	<4.1		
Silver	mg/Kg-Dry	T	<0.41	<0.27	<0.27	0.29	<0.22	<0.59		
Sodium	mg/Kg-Dry	T	<450.	264.	144.	743.	<136.	780.		
Thallium	mg/Kg-Dry	T	<0.25	<0.19	<0.19	<0.19	<0.16	<0.51		
Vanadium	mg/Kg-Dry	T	3.6	<0.54	2.5	7.8	7.3	29.3		
Zinc	mg/Kg-Dry	T	103.	530.	124.	130.	29.4	343.		

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		RS-19	RS-2	RS-20	RS-3	RS-4	RS-5		
	Sample Date		10/8/2002	10/4/2002	10/8/2002	9/26/2002	9/26/2002	9/26/2002		
	Sample ID		RS-19-T02N-PLTS	RS-2-T02N-PLTS	RS-20-T02N-PLTS	RS-3-T02N-PLTS	RS-4-T02N-PLTS	RS-5-T02N-PLTS		
	Exposure Area		SS16	SS9	SS16	SS9	SS9	SS9		
Units	Fraction									
Laboratory Parameters										
Solids, Percent	%	T	38.7	50.3	52.	56.2	54.4	49.4		
Metals										
Aluminum	mg/Kg-Dry	T	4470.	3040.	7370.	4360.	1350.	3280.		
Antimony	mg/Kg-Dry	T	<0.65 J	<0.34 J	<0.31 J	<0.27 J	<0.24 J	<0.32 J		
Arsenic	mg/Kg-Dry	T	4.1	0.95	0.65	3.6	0.39	3.2		
Barium	mg/Kg-Dry	T	125.	162.	117.	165.	55.	255.		
Beryllium	mg/Kg-Dry	T	0.44	0.28	0.38	0.3	0.086	0.32		
Boron	mg/Kg-Dry	T	8.8	6.2	15.6	7.3	14.7	9.7		
Cadmium	mg/Kg-Dry	T	1.6	0.66	0.58	1.5	<0.28	2.		
Calcium	mg/Kg-Dry	T	4780.	6180.	12800.	7920.	9410.	10700.		
Chromium	mg/Kg-Dry	T	7.5	5.2	6.9	17.1	3.3	10.5		
Cobalt	mg/Kg-Dry	T	9.6	5.	4.	4.6	0.86	4.5		
Copper	mg/Kg-Dry	T	34.4	38.2	18.1	46.8	21.9	45.7		
Iron	mg/Kg-Dry	T	10200.	7240.	8850.	11000.	3420.	9370.		
Lead	mg/Kg-Dry	T	19.9 J	18.3 J	7.9 J	25.1 J	11.6 J	30.4 J		
Magnesium	mg/Kg-Dry	T	2080.	1900.	3380.	2670.	2000.	2530.		
Manganese	mg/Kg-Dry	T	739.	350.	290.	324.	64.2	338.		
Mercury	mg/Kg-Dry	T	<0.039	<0.03	<0.031	<0.03	<0.029	<0.03		
Molybdenum	mg/Kg-Dry	T	19.4	12.7	3.5	13.3	12.1	20.9		
Nickel	mg/Kg-Dry	T	17.1	12.5	7.1	11.9	2.8	14.4		
Potassium	mg/Kg-Dry	T	2240. J	2940. J	6790. J	3450. J	5060. J	4550. J		
Selenium	mg/Kg-Dry	T	<1.7 J	<0.34 J	<0.31 J	1.2 J	<0.24 J	0.99 J		
Silver	mg/Kg-Dry	T	<0.26	<0.28 J	<0.21	0.21	<0.15	0.55		
Sodium	mg/Kg-Dry	T	452.	<87.3	<221.	84.9	85.7	153.		
Thallium	mg/Kg-Dry	T	<0.21	<0.17	<0.15	0.14	<0.11	<0.16		
Vanadium	mg/Kg-Dry	T	16.5	7.6	15.6	13.2	3.5	9.1		
Zinc	mg/Kg-Dry	T	140. J	98.4 J	127. J	154. J	49.4 J	160. J		

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Appendix A

**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
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Parameter	Site ID		RS-6	RS-7	RS-8	RS-9	TSS14-1	TSS14-10
	Sample Date		10/4/2002	10/4/2002	10/9/2002	10/3/2002	6/3/2003	5/28/2003
	Sample ID		RS-6-T02N-PLTS	RS-7-T02N-PLTS	RS-8-T02N-PLTS	RS-9-T02N-PLTS	TSS14-1-T02N-PLTS	WTBS-3-T02N-PLTU
	Exposure Area		SS9	SS9	SS9	SS9	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	53.2 :	39.2 :	45.7 :	51.3 :	55.6 :	53.6 :
Metals								
Aluminum	mg/Kg-Dry	T	1420. :	2810. :	1760. :	7350. :	4030. J	4530. :
Antimony	mg/Kg-Dry	T	<0.3 J	<0.43 J	<0.55 J	<0.33 J	<0.76 :	<0.11 :
Arsenic	mg/Kg-Dry	T	0.41 :	0.79 :	0.81 :	1.9 :	1.3 :	1.4 :
Barium	mg/Kg-Dry	T	38.5 :	106. :	44.2 :	106. :	57.9 :	143. :
Beryllium	mg/Kg-Dry	T	0.23 :	0.36 :	<0.22 :	0.64 :	0.25 J	<0.24 :
Boron	mg/Kg-Dry	T	7.3 :	6.4 :	8.5 :	7.4 :	12.4 :	13.1 :
Cadmium	mg/Kg-Dry	T	1.1 :	1.4 :	1.7 :	0.51 :	1.1 :	0.56 :
Calcium	mg/Kg-Dry	T	4250. :	7240. :	3810. :	8010. :	13700. J	23100. :
Chromium	mg/Kg-Dry	T	3.2 :	4.6 :	5.5 :	9.9 :	12.4 :	5.8 :
Cobalt	mg/Kg-Dry	T	1.9 :	5.1 :	2. :	4.3 :	3.6 :	1.3 J
Copper	mg/Kg-Dry	T	19.7 :	39.3 :	26.9 :	22. :	61.7 :	26.5 :
Iron	mg/Kg-Dry	T	2260. :	5610. :	2560. :	12400. :	6510. J	4630. :
Lead	mg/Kg-Dry	T	8.3 J	12.8 J	6.3 J	42.7 J	24.6 :	6.5 :
Magnesium	mg/Kg-Dry	T	1220. :	2160. :	1610. :	2710. :	3310. :	3710. :
Manganese	mg/Kg-Dry	T	252. :	403. :	208. :	678. :	192. :	143. :
Mercury	mg/Kg-Dry	T	<0.028 J	<0.038 J	<0.033 :	<0.029 :	<0.027 :	<0.03 :
Molybdenum	mg/Kg-Dry	T	14.3 :	12.8 :	4.2 :	12.3 :	96.4 :	82.3 :
Nickel	mg/Kg-Dry	T	7.5 :	12.5 :	9.4 :	7. :	8.1 :	3.5 :
Potassium	mg/Kg-Dry	T	2500. :	3800. J	3190. J	4890. J	6940. J	8770. J
Selenium	mg/Kg-Dry	T	<0.64 :	<0.43 J	<1.4 J	<0.33 J	<1.2 :	0.056 J
Silver	mg/Kg-Dry	T	<0.16 :	<0.41 J	<0.28 :	0.25 :	<0.38 :	0.041 J
Sodium	mg/Kg-Dry	T	<142. :	<128. :	<249. :	118. :	<218. :	552. :
Thallium	mg/Kg-Dry	T	<0.15 :	<0.21 :	<0.18 :	<0.16 :	<0.15 :	0.06 :
Vanadium	mg/Kg-Dry	T	2.8 :	6.1 :	2.8 :	15.8 :	13.8 :	25.2 :
Zinc	mg/Kg-Dry	T	174. J	148. J	223. J	147. J	177. :	47. :

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
Validated Analytical Results**

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Parameter	Site ID		TSS14-2	TSS14-4	TSS14-5	TSS14-6	TSS14-7	TSS14-8
	Sample Date		6/3/2003	6/4/2003	6/4/2003	5/30/2003	5/30/2003	5/30/2003
	Sample ID		WTRR-1-T02N-PLTU	WTBS-1-T02N-PLTU	WTRR-2-T02N-PLTU	WTRR-3-T02N-PLTU	TSS14-7-T02N-PLTS	TSS14-8-T02N-PLTS
	Exposure Area		SS14	SS14	SS14	SS14	SS14	SS14
Units	Fraction							
Laboratory Parameters								
Solids, Percent	%	T	47.4	56.4	49.8	47.9	58.3	43.9
Metals								
Aluminum	mg/Kg-Dry	T	1130.	2200.	1580.	3510.	3670. J	6970. J
Antimony	mg/Kg-Dry	T	0.023	<0.017 J	<0.022	0.081	<0.48	<0.68
Arsenic	mg/Kg-Dry	T	0.51	0.59	0.44 J	1.5	0.75	1.6
Barium	mg/Kg-Dry	T	12.	28.5	22.3	94.8	38.6	39.9
Beryllium	mg/Kg-Dry	T	<0.021 J	0.12	0.13	0.18	<0.21	<0.5
Boron	mg/Kg-Dry	T	11.8	8.5	13.1	13.6	18.7	12.5
Cadmium	mg/Kg-Dry	T	2.5	0.28	0.96	0.27	0.81	0.73
Calcium	mg/Kg-Dry	T	6690.	6350.	7330.	17100.	6230.	3800.
Chromium	mg/Kg-Dry	T	4.	3.5	4.4	5.2	9.3	13.7
Cobalt	mg/Kg-Dry	T	1.5 J	0.9 J	0.96 J	1.8 J	1.9	3.9
Copper	mg/Kg-Dry	T	39.9	16.	37.1	41.1	30.4	39.4
Iron	mg/Kg-Dry	T	1980.	2090.	2210.	3260.	3700. J	8290. J
Lead	mg/Kg-Dry	T	19.8	1.7	4.6	4.6	4.6	13.9
Magnesium	mg/Kg-Dry	T	1400.	1400.	2030.	3150.	2850.	3530.
Manganese	mg/Kg-Dry	T	115.	58.3	79.9	78.3	120.	246.
Mercury	mg/Kg-Dry	T	<0.034	<0.027	<0.034	<0.031	<0.027	<0.034
Molybdenum	mg/Kg-Dry	T	92.8	19.5	203.	51.4	6.9	25.5
Nickel	mg/Kg-Dry	T	4.6	2.8	3.4	7.7	3.8	7.7
Potassium	mg/Kg-Dry	T	8440. J	6210. J	7210. J	6700. J	10400. J	10700. J
Selenium	mg/Kg-Dry	T	1.2	0.13 J	0.12 J	0.065 J	<0.81	<1.1
Silver	mg/Kg-Dry	T	0.13 J	0.039 J	0.072 J	0.048 J	<0.15	<0.22
Sodium	mg/Kg-Dry	T	<143.	706.	215. J	701.	487.	706.
Thallium	mg/Kg-Dry	T	0.038	0.032	0.048	0.067	<0.16	<0.23
Vanadium	mg/Kg-Dry	T	3.4	4.8	3.	9.8	7.4	12.5
Zinc	mg/Kg-Dry	T	108.	<23.6	63.7	<40.5	29.8	60.6

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**Terrestrial Vegetation - RI/FS and Dual Below Ground Shrub Unwashed
Validated Analytical Results**

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS14-9	TSS17-42	---	---	---	---
			5/28/2003 WTBS-2-T02N-PLTU SS14	5/4/2004 TSS17-31-T02N-SU SS17				
Laboratory Parameters								
Solids, Percent	%	T	56.5	44.3	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	945.	1480.	-	-	-	-
Antimony	mg/Kg-Dry	T	<0.057	<0.79	-	-	-	-
Arsenic	mg/Kg-Dry	T	0.76	<0.41	-	-	-	-
Barium	mg/Kg-Dry	T	33.5	46.	-	-	-	-
Beryllium	mg/Kg-Dry	T	<0.067 J	0.1	-	-	-	-
Boron	mg/Kg-Dry	T	5.7	26.	-	-	-	-
Cadmium	mg/Kg-Dry	T	0.53	0.18	-	-	-	-
Calcium	mg/Kg-Dry	T	6020.	15700.	-	-	-	-
Chromium	mg/Kg-Dry	T	2.5	4.3	-	-	-	-
Cobalt	mg/Kg-Dry	T	1.1 J	1.2	-	-	-	-
Copper	mg/Kg-Dry	T	20.2	14.2	-	-	-	-
Iron	mg/Kg-Dry	T	1080.	2010.	-	-	-	-
Lead	mg/Kg-Dry	T	2.5	5.2	-	-	-	-
Magnesium	mg/Kg-Dry	T	1010.	2330.	-	-	-	-
Manganese	mg/Kg-Dry	T	33.6	86.7	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.03	0.056 J	-	-	-	-
Molybdenum	mg/Kg-Dry	T	29.	3.4	-	-	-	-
Nickel	mg/Kg-Dry	T	3.2	1.9 J	-	-	-	-
Potassium	mg/Kg-Dry	T	4800. J	8600. J	-	-	-	-
Selenium	mg/Kg-Dry	T	0.11 J	<1.4	-	-	-	-
Silver	mg/Kg-Dry	T	0.067 J	<0.23	-	-	-	-
Sodium	mg/Kg-Dry	T	151. J	<300.	-	-	-	-
Thallium	mg/Kg-Dry	T	0.042	<0.2	-	-	-	-
Vanadium	mg/Kg-Dry	T	4.8	5.4	-	-	-	-
Zinc	mg/Kg-Dry	T	16.1	52.1	-	-	-	-

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Appendix A-9k
Terrestrial Vegetation - RI/FS Aboveground Shrub Washed
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-42 5/5/2004 TSS17-31-T01N-SW SS17	----	----	----	----	----
Laboratory Parameters								
Solids, Percent	%	T	34.	-	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	67.9	-	-	-	-	-
Antimony	mg/Kg-Dry	T	<1.1	-	-	-	-	-
Arsenic	mg/Kg-Dry	T	<0.53	-	-	-	-	-
Barium	mg/Kg-Dry	T	10.9	-	-	-	-	-
Beryllium	mg/Kg-Dry	T	<0.056	-	-	-	-	-
Boron	mg/Kg-Dry	T	18.8	-	-	-	-	-
Cadmium	mg/Kg-Dry	T	<0.085	-	-	-	-	-
Calcium	mg/Kg-Dry	T	10900.	-	-	-	-	-
Chromium	mg/Kg-Dry	T	1.9	J	-	-	-	-
Cobalt	mg/Kg-Dry	T	<0.32	-	-	-	-	-
Copper	mg/Kg-Dry	T	7.6	-	-	-	-	-
Iron	mg/Kg-Dry	T	118.	-	-	-	-	-
Lead	mg/Kg-Dry	T	<0.5	-	-	-	-	-
Magnesium	mg/Kg-Dry	T	1700.	-	-	-	-	-
Manganese	mg/Kg-Dry	T	63.8	-	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.044	J	-	-	-	-
Molybdenum	mg/Kg-Dry	T	<1.6	-	-	-	-	-
Nickel	mg/Kg-Dry	T	<0.41	J	-	-	-	-
Potassium	mg/Kg-Dry	T	14700.	J	-	-	-	-
Selenium	mg/Kg-Dry	T	<1.9	-	-	-	-	-
Silver	mg/Kg-Dry	T	<0.29	-	-	-	-	-
Sodium	mg/Kg-Dry	T	<217.	-	-	-	-	-
Thallium	mg/Kg-Dry	T	<0.26	-	-	-	-	-
Vanadium	mg/Kg-Dry	T	<0.41	-	-	-	-	-
Zinc	mg/Kg-Dry	T	48.2	-	-	-	-	-

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Appendix A-9I

**Terrestrial Vegetation - RI/FS Below Ground Shrub Washed
Validated Analytical Results**

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS17-42 5/5/2004 TSS17-31-T02N-SW SS17	----	----	----	----	----
Laboratory Parameters								
Solids, Percent	%	T	41.9	-	-	-	-	-
Metals								
Aluminum	mg/Kg-Dry	T	157.	-	-	-	-	-
Antimony	mg/Kg-Dry	T	<0.91	-	-	-	-	-
Arsenic	mg/Kg-Dry	T	<0.45	-	-	-	-	-
Barium	mg/Kg-Dry	T	22.	-	-	-	-	-
Beryllium	mg/Kg-Dry	T	<0.048	-	-	-	-	-
Boron	mg/Kg-Dry	T	20.8	-	-	-	-	-
Cadmium	mg/Kg-Dry	T	0.095	-	-	-	-	-
Calcium	mg/Kg-Dry	T	12600.	-	-	-	-	-
Chromium	mg/Kg-Dry	T	0.48	J	-	-	-	-
Cobalt	mg/Kg-Dry	T	<0.26	-	-	-	-	-
Copper	mg/Kg-Dry	T	8.8	-	-	-	-	-
Iron	mg/Kg-Dry	T	162.	-	-	-	-	-
Lead	mg/Kg-Dry	T	<0.91	-	-	-	-	-
Magnesium	mg/Kg-Dry	T	1410.	-	-	-	-	-
Manganese	mg/Kg-Dry	T	39.9	-	-	-	-	-
Mercury	mg/Kg-Dry	T	<0.041	J	-	-	-	-
Molybdenum	mg/Kg-Dry	T	2.2	-	-	-	-	-
Nickel	mg/Kg-Dry	T	<2.1	-	-	-	-	-
Potassium	mg/Kg-Dry	T	6110.	J	-	-	-	-
Selenium	mg/Kg-Dry	T	<1.6	-	-	-	-	-
Silver	mg/Kg-Dry	T	<0.24	-	-	-	-	-
Sodium	mg/Kg-Dry	T	<232.	-	-	-	-	-
Thallium	mg/Kg-Dry	T	<0.23	-	-	-	-	-
Vanadium	mg/Kg-Dry	T	1.8	-	-	-	-	-
Zinc	mg/Kg-Dry	T	28.6	-	-	-	-	-

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	CR-10	CR-11	CR-13	CR-14	CR-2	CR-4
			6/9/2003 CR-10-T02N-SOL RCR	6/9/2003 CR-11-T02N-SOL RCR	6/10/2003 CR-13-T02N-SOL RCR	6/11/2003 CR-14-T02N-SOL RCR	6/10/2003 CR-2-T02N-SOL RCR	6/10/2003 CR-4-T02N-SOL RCR
Bioassay								
Mean Plant Height	cm	T	11.745	11.505	15.405	10.1175	10.875	8.98
Plant Survival	proportion	T	0.95	0.8	1.	0.95	0.8	1.
Root Biomass	mg Dry	T	1.89538	2.306	4.86	2.32238	4.67392	1.9175
Shoot Biomass	mg Dry	T	4.3125	3.52175	6.507	3.1895	3.30717	2.926
Total Biomass	mg Dry	T	6.20788	5.82775	11.367	5.51188	7.98108	4.8435

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	CR-5	CR-6	CR-7	CR-8	MRSS-1	MRSS-10
			6/11/2003 CR-5-T02N-SOL RCR	6/10/2003 CR-6-T02N-SOL RCR	6/9/2003 CR-7-T02N-SOL RCR	6/9/2003 CR-8-T02N-SOL RCR	10/6/2002 MRSS-1-T02N-SOL RefMine	10/6/2002 MRSS-10-T02N-SOL RSCAR
Bioassay								
Mean Plant Height	cm	T	10.72	9.43833	8.32958	10.345	9.0925	9.7725
Plant Survival	proportion	T	1.	0.9	0.85	0.95	0.65	0.95
Root Biomass	mg Dry	T	1.7645	8.05533	1.71317	7.32263	3.60142	2.51675
Shoot Biomass	mg Dry	T	3.346	3.41967	2.26229	3.39175	2.12258	2.35788
Total Biomass	mg Dry	T	5.1105	11.475	3.97546	10.71437	5.724	4.87463

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	MRSS-11	MRSS-12	MRSS-13	MRSS-14	MRSS-15	MRSS-16
			10/6/2002 MRSS-11-T02N-SOL RSCAR	10/8/2002 MRSS-12-T02N-SOL RSCAR	10/8/2002 MRSS-13-T02N-SOL RSCAR	10/8/2002 MRSS-14-T02N-SOL RSCAR	10/7/2002 MRSS-15-T02N-SOL RSCAR	10/8/2002 MRSS-16-T02N-SOL RefMine
Bioassay								
Mean Plant Height	cm	T	8.64458	7.025	4.48125	6.22542	10.745	6.15167
Plant Survival	proportion	T	0.8	0.85	0.65	0.85	1.	0.7
Root Biomass	mg Dry	T	3.89454	4.30846	3.10938	2.60379	3.0885	18.05433
Shoot Biomass	mg Dry	T	1.57988	1.31304	0.95375	1.22267	2.4445	1.4365
Total Biomass	mg Dry	T	5.47442	5.6215	4.06313	3.82646	5.533	19.49083

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Exposure Area Fraction	Site ID	MRSS-17	MRSS-18	MRSS-19	MRSS-2	MRSS-20	MRSS-3
			Sample Date	10/8/2002	10/8/2002	10/8/2002	10/7/2002	10/9/2002	10/6/2002
			Sample ID	MRSS-17-T02N-SOL	MRSS-18-T02N-SOL	MRSS-19-T02N-SOL	MRSS-2-T02N-SOL	MRSS-20-T02N-SOL	MRSS-3-T02N-SOL
			RefMine	RefMine	RefMine	RefMine	RefMine	RefMine	RefMine
Bioassay									
Mean Plant Height	cm	T		8.5525	7.965	9.91	11.0325	9.08333	7.42958
Plant Survival	proportion	T		0.9	0.95	0.9	0.9	0.75	0.85
Root Biomass	mg Dry	T		8.25688	4.22075	6.64163	9.141	5.04896	1.64958
Shoot Biomass	mg Dry	T		2.02925	1.336	2.47013	3.776	1.85188	2.12321
Total Biomass	mg Dry	T		10.28613	5.55675	9.11175	12.917	6.90083	3.77279

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Exposure Area Fraction	Site ID	MRSS-4	MRSS-5	MRSS-6	MRSS-7	MRSS-8	MRSS-9
			Sample Date	10/6/2002	10/7/2002	10/7/2002	10/7/2002	10/7/2002	10/6/2002
			Sample ID	MRSS-4-T02N-SOL	MRSS-5-T02N-SOL	MRSS-6-T02N-SOL	MRSS-7-T02N-SOL	MRSS-8-T02N-SOL	MRSS-9-T02N-SOL
			Exposure Area	RefMine	RefMine	RSCAR	RSCAR	RSCAR	RSCAR
Bioassay									
Mean Plant Height	cm	T		8.21833	9.825	8.12125	9.985	10.705	6.47375
Plant Survival	proportion	T		0.9	1.	0.95	0.9	0.9	0.9
Root Biomass	mg Dry	T		2.55933	3.357	2.54588	2.00183	5.17	3.136
Shoot Biomass	mg Dry	T		2.59583	2.1255	1.896	1.90088	2.541	1.60138
Total Biomass	mg Dry	T		5.15517	5.4825	4.44188	3.90271	7.711	4.73738

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Site ID		MSS3-1	MSS3-10	MSS3-2	MSS3-3	MSS3-4	MSS3-5		
	Sample Date		9/27/2002	10/1/2002	9/27/2002	9/30/2002	9/30/2002	10/22/2002		
	Sample ID		MSS3-1-T02N-SOL	MSS3-10-T02N-SOL	MSS3-2-T02N-SOL	MSS3-3-T02N-SOL	MSS3-4-T02N-SOL	MSS3-5-T02N-SOL		
	Exposure Area		SS3	SS3	SS3	SS3	SS3	SS3		
Units	Fraction									
Bioassay										
Mean Plant Height	cm	T	7.1775	7.54375	10.60583	13.49083	12.56625	10.96167	:	:
Plant Survival	proportion	T	0.55	0.85	0.75	0.85	0.85	0.9	:	:
Root Biomass	mg Dry	T	2.1495	2.19142	5.20946	2.65558	5.3135	5.20133	:	:
Shoot Biomass	mg Dry	T	1.632	1.58658	3.883	5.031	4.2255	2.74	:	:
Total Biomass	mg Dry	T	3.7815	3.778	9.09246	7.68658	9.539	7.94133	:	:

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Terrestrial Vegetation - Bioassay
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Parameter	Units	Exposure Area Fraction	Site ID	MSS3-6	MSS3-7	MSS3-8	MSS3-9	MSS7-1	MSS7-10	
			Sample Date	10/3/2002	10/1/2002	10/9/2002	10/9/2002	10/15/2002	10/15/2002	
			Sample ID	MSS3-6-T02N-SOL	MSS3-7-T02N-SOL	MSS3-8-T02N-SOL	MSS3-9-T02N-SOL	MSS7-1-T02N-SOL	MSS7-10-T02N-SOL	
			Exposure Area	SS3	SS3	SS3	SS3	SS7	SS7	
Bioassay										
Mean Plant Height	cm	T		4.67333	8.58375	10.66	7.6225	14.22833	11.42	
Plant Survival	proportion	T		0.4	0.75	0.9	0.95	1.	1.	
Root Biomass	mg Dry	T		3.49067	3.74713	5.4555	3.61638	25.32217	4.8695	
Shoot Biomass	mg Dry	T		1.47	3.21758	2.949	1.41363	6.15692	4.3925	
Total Biomass	mg Dry	T		4.96067	6.96471	8.4045	5.03	31.47908	9.262	

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	MSS7-2	MSS7-3	MSS7-4	MSS7-5	MSS7-6	MSS7-7
			10/15/2002 MSS7-2-T02N-SOL SS7	10/3/2002 MSS7-3-T02N-SOL SS7	10/2/2002 MSS7-4-T02N-SOL SS7	10/1/2002 MSS7-5-T02N-SOL SS7	10/2/2002 MSS7-6-T02N-SOL SS7	10/4/2002 MSS7-7-T02N-SOL SS7
Bioassay								
Mean Plant Height	cm	T	14.04125	10.10875	8.99822	11.11	6.47833	6.76
Plant Survival	proportion	T	0.9	0.95	0.85	0.95	0.9	0.95
Root Biomass	mg Dry	T	2.24413	7.92675	4.60371	11.24588	3.71542	3.10625
Shoot Biomass	mg Dry	T	4.86413	3.28713	3.32839	3.15675	1.53208	1.36838
Total Biomass	mg Dry	T	7.10825	11.21387	7.93211	14.40263	5.2475	4.47463

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	MSS7-8	MSS7-9	QC-1	QC-10	QC-11	QC-12
			10/2/2002 MSS7-8-T02N-SOL SS7	10/9/2002 MSS7-9-T02N-SOL SS7	10/20/2002 Artificial Soil 1 LC	6/20/2003 Artificial Soil 03 LC	6/20/2003 Artificial Soil 2 03 LC	6/20/2003 Artificial Soil 3 03 LC
Bioassay								
Mean Plant Height	cm	T	11.925	12.07	11.86625	9.26	8.935	9.65
Plant Survival	proportion	T	1.	0.95	0.95	0.9	0.9	0.9
Root Biomass	mg Dry	T	5.5115	3.60838	5.366	3.68075	3.76613	5.19317
Shoot Biomass	mg Dry	T	3.191	3.03475	5.06688	1.71913	1.45875	1.6865
Total Biomass	mg Dry	T	8.7025	6.64313	10.43287	5.39988	5.22488	6.87967

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Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	QC-2	QC-3	QC-4	QC-5	QC-6	RRS-1
			10/20/2002 Artificial Soil 2 LC	10/20/2002 Artificial Soil 3 LC	10/20/2002 Artificial Soil 4 LC	10/20/2002 Artificial Soil 5 LC	10/20/2002 Artificial Soil 6 LC	9/29/2002 RRS-1-T02N-SOL RefMineR
Bioassay								
Mean Plant Height	cm	T	11.07	14.75	12.425	11.46333	13.47667	6.52167
Plant Survival	proportion	T	1.	0.95	1.	0.8	1.	0.93333
Root Biomass	mg Dry	T	1.791	3.43388	1.8655	2.8865	5.662	15.46617
Shoot Biomass	mg Dry	T	2.6535	5.63238	3.714	3.82233	3.5555	2.28883
Total Biomass	mg Dry	T	4.4445	9.06625	5.5795	6.70883	9.2175	17.755

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Fraction	Site ID	RRS-10	RRS-11	RRS-12	RRS-13	RRS-17	RRS-18
			Sample Date	10/15/2002	10/14/2002	10/14/2002	10/14/2002	10/18/2002	10/18/2002
			Sample ID	RRS-10-T02N-SOL	RRS-11-T02N-SOL	RRS-12-T02N-SOL	RRS-13-T02N-SOL	RRS-17-T02N-SOL	RRS-18-T02N-SOL
			Exposure Area	RefMineR	RefMineR	RefMineR	RefMineR	RLCCR	RLCCR
Bioassay									
Mean Plant Height	cm	T		9.77625	12.555	10.6675	9.98	9.74625	8.70375
Plant Survival	proportion	T		0.9	1.	0.9	0.95	0.9	0.85
Root Biomass	mg Dry	T		5.42275	5.178	2.69663	5.48925	6.39175	5.67938
Shoot Biomass	mg Dry	T		2.54025	4.211	3.67275	2.448	2.49663	1.39188
Total Biomass	mg Dry	T		7.963	9.389	6.36938	7.93725	8.88838	7.07125

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	RRS-19	RRS-2	RRS-20	RRS-21	RRS-3	RRS-4
			10/19/2002 RRS-19-T02N-SOL RLCCR	9/29/2002 RRS-2-T02N-SOL RefMineR	10/18/2002 RRS-20-T02N-SOL RLCCR	10/18/2002 RRS-21-T02N-SOL RLCCR	10/9/2002 RRS-3-T02N-SOL RefMineR	10/9/2002 RRS-4-T02N-SOL RefMineR
Bioassay								
Mean Plant Height	cm	T	13.59375	9.96	8.395	10.7475	9.05208	10.335
Plant Survival	proportion	T	0.7	0.95	1.	0.75	0.85	1.
Root Biomass	mg Dry	T	4.91833	4.24013	5.3635	8.60875	10.10375	2.1915
Shoot Biomass	mg Dry	T	4.95667	3.7835	2.093	3.12788	2.04292	2.572
Total Biomass	mg Dry	T	9.875	8.02363	7.4565	11.73662	12.14667	4.7635

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Fraction	Site ID	RRS-5	RRS-9	RS-1	RS-10	RS-11	RS-12
			Sample Date	10/9/2002	10/22/2002	10/17/2002	10/10/2002	10/17/2002	10/16/2002
			Sample ID	RRS-5-T02N-SOL	RRS-9-T02N-SOL	RS-1-T02N-SOL	RRS-10-T02N-SOL	RS-11-T02N-SOL	RS-12-T02N-SOL
			Exposure Area	RefMineR	RefMineR	SS9	SS9	SS16	SS16
Bioassay									
Mean Plant Height	cm	T		7.68	11.195	6.07458	7.79	8.2175	10.785
Plant Survival	proportion	T		1.	1.	0.85	1.	0.95	1.
Root Biomass	mg Dry	T		1.8465	2.6085	2.98567	2.6105	3.08675	4.5015
Shoot Biomass	mg Dry	T		1.36	2.742	1.21392	1.643	1.48963	2.6795
Total Biomass	mg Dry	T		3.2065	5.3505	4.19958	4.2535	4.57638	7.181

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	RS-13	RS-14	RS-15	RS-16	RS-17	RS-18
			10/16/2002 RS-13-T02N-SOL SS16	10/16/2002 RS-14-T02N-SOL SS16	10/16/2002 RS-15-T02N-SOL SS16	10/18/2002 RRS-16-T02N-SOL SS16	10/17/2002 RS-17-T02N-SOL SS16	10/17/2002 RS-18-T02N-SOL SS16
Bioassay								
Mean Plant Height	cm	T	8.5075	8.04833	7.76125	8.49625	8.67917	8.6725
Plant Survival	proportion	T	0.95	0.9	0.8	0.9	0.65	0.95
Root Biomass	mg Dry	T	2.70425	2.7115	2.6955	9.16575	4.36563	2.47975
Shoot Biomass	mg Dry	T	1.90838	1.66433	1.158	2.36563	2.61875	1.7675
Total Biomass	mg Dry	T	4.61263	4.37583	3.8535	11.53137	6.98438	4.24725

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	RS-19	RS-2	RS-20	RS-3	RS-4	RS-5
			10/16/2002 RS-19-T02N-SOL SS16	10/17/2002 RS-2-T02N-SOL SS9	10/16/2002 RS-20-T02N-SOL SS16	10/14/2002 RS-3-T02N-SOL SS9	10/14/2002 RS-4-T02N-SOL SS9	10/14/2002 RS-5-T02N-SOL SS9
Bioassay								
Mean Plant Height	cm	T	8.78625	10.82	8.34167	9.24833	12.1	7.88125
Plant Survival	proportion	T	0.95	1.	0.9	1.	0.95	0.85
Root Biomass	mg Dry	T	3.37775	3.96667	4.14367	36.41833	2.45175	7.43988
Shoot Biomass	mg Dry	T	2.15925	4.00133	1.77933	2.97592	3.3435	2.596
Total Biomass	mg Dry	T	5.537	7.968	5.923	39.39425	5.79525	10.03588

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	RS-6	RS-7	RS-8	RS-9	TSS14-1	TSS14-10
			10/14/2002 RS-6-T02N-SOL SS9	10/16/2002 RS-7-T02N-SOL SS9	10/17/2002 RS-8-T02N-SOL SS9	10/17/2002 RS-9-T02N-SOL SS9	6/11/2003 TSS14-1-T02N-SOL SS14	6/11/2003 TSS14-10-T02N-SOL SS14
Bioassay								
Mean Plant Height	cm	T	11.58125	8.53875	8.1875	9.785	9.7	12.41625
Plant Survival	proportion	T	0.95	0.95	0.9	1.	0.9	0.9
Root Biomass	mg Dry	T	43.31662	6.51575	5.0045	3.519	10.72125	5.94475
Shoot Biomass	mg Dry	T	6.85638	2.60713	1.97213	2.511	3.21625	5.04788
Total Biomass	mg Dry	T	50.173	9.12288	6.97663	6.03	13.9375	10.99263

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	TSS14-2	TSS14-3	TSS14-4	TSS14-5	TSS14-6	TSS14-7
			6/11/2003 TSS14-2-T02N-SOL SS14	6/11/2003 TSS14-3-T02N-SOL SS14	6/11/2003 TSS14-4-T02N-SOL SS14	6/11/2003 TSS14-5-T02N-SOL SS14	6/11/2003 TSS14-6-T02N-SOL SS14	6/11/2003 TSS14-7-T02N-SOL SS14
Bioassay								
Mean Plant Height	cm	T	9.90875	10.10875	11.015	9.48042	9.20875	13.01
Plant Survival	proportion	T	0.95	0.95	1.	0.9	0.85	1.
Root Biomass	mg Dry	T	6.77275	3.14625	4.397	4.09442	2.71925	6.579
Shoot Biomass	mg Dry	T	3.58075	2.85288	4.353	2.39242	1.95363	4.55067
Total Biomass	mg Dry	T	10.3535	5.99913	8.75	6.48683	4.67288	11.12967

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Appendix A-9m
Terrestrial Vegetation - Bioassay
Validated Analytical Results

Parameter	Units	Exposure Area Fraction	Site ID	TSS14-8	TSS14-9				
			Sample Date	6/11/2003	6/11/2003	----	----	----	----
			Sample ID	TSS14-8-T02N-SOL	TSS14-9-T02N-SOL				
			Exposure Area	SS14	SS14				
Bioassay									
Mean Plant Height	cm	T		8.13	8.19	-	-	-	-
Plant Survival	proportion	T		0.9	0.9	-	-	-	-
Root Biomass	mg Dry	T		7.19788	4.91683	-	-	-	-
Shoot Biomass	mg Dry	T		2.15263	2.27383	-	-	-	-
Total Biomass	mg Dry	T		9.3505	7.19067	-	-	-	-

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