

**APPENDIX D**

**Descriptions of Mine-Waste Deposits from Chapter 2**

## Descriptions of Mine-Waste Deposits from Chapter 2

### Reach 1 Mine-Waste Deposits

Deposit AA is located on the east side of the Arkansas River and directly north of an irrigation return ditch that discharges at the confluence of California Gulch and the Arkansas River. It contains approximately 8,991 ft<sup>3</sup> of mine-waste over an area of approximately 4,259 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 160 mg/kg; lead, 3,900 mg/kg; and zinc, 1,700 mg/kg. No vegetation was observed on the deposit. Erosion features (rills) and salt deposits were observed on the surface.

Deposit AB is located on the east side of the Arkansas River between an irrigation return ditch and California Gulch. The Eastern portion of the deposit is less than 10 feet from the Arkansas River bank. It contains approximately 32,187 ft<sup>3</sup> of mine-waste over an area of approximately 16,685 ft<sup>2</sup>, and has an average mine-waste depth of 1.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 220 mg/kg; copper, 535 mg/kg; lead, 3,900 mg/kg; and zinc 1,650 mg/kg. Signs of erosion and salts were visible on the surface. Grasses were observed in the low area adjacent to California Gulch.

Deposit AC comprises a portion of the east bank of the Arkansas River and is bordered on the north by California Gulch. This deposit contains approximately 20,286 ft<sup>3</sup> of mine-waste over an area of approximately 31,137 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. The deposit consists of cobble and gravel mixed with mine-waste. Samples from this deposit had average concentrations of the following metals: cadmium 250 mg/kg; copper 453 mg/kg; lead, 4,883 mg/kg; and zinc, 17,750 mg/kg. Some vegetation was present on the west portion of the deposit, along the Arkansas River. Grasses were observed in the low area adjacent to California Gulch.

Deposit AD is ten feet from the west bank of the Arkansas River across the river from the California Gulch inflow. The 34,977 ft<sup>2</sup> area is covered with orange stained and unstained cobbles. Salts were present on the surface in some areas. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 120 mg/kg; lead, 520 mg/kg; and zinc, 1,900 mg/kg. Sparsely scattered clumps of grass were present, however the deposit is primarily non-vegetated.

Deposit AE is located on the west side of Deposit AD, west of the Arkansas River, approximately 100 feet from the riverbank. It contains approximately 146,313 ft<sup>3</sup> of mine-waste over an area of approximately 103,280 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. Samples from this deposit had

average concentrations of the following metals: cadmium, 414 mg/kg; copper, 698 mg/kg; lead, 8,402 mg/kg; and zinc, 26,433 mg/kg. The deposit had sparse grass and signs of dead grass and willows. There was a thick layer of salt over most of the deposit.

Deposit AG is located on the east side of the Arkansas River adjacent to the river, and, at the northern tip, is in contact with the riverbank. Orange stained cobble separates mine-waste material from the river. Deposit AG has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 105 mg/kg; copper, 857 mg/kg; lead, 5,400 mg/kg; and zinc, 16,600 mg/kg. Some grass and willows were observed on the deposit and some willows were dead. Active erosion of the area along the riverbank was noted.

Deposit AH is located on the east side of the Arkansas River and comprises a portion of the bank. It contains approximately 12,893 ft<sup>3</sup> of mine-waste over an area of approximately 14,066 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 290 mg/kg; lead, 3,400 mg/kg; and zinc, 2,000 mg/kg. Healthy vegetation was observed in the east portion of the deposit and dead vegetation was noted on the west portion of the deposit. Some salts were observed on the surface.

Deposit AI is located on the east side of the Arkansas River and comprises a portion of the bank. It contains approximately 29,167 ft<sup>3</sup> of mine-waste over an area of approximately 25,455 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 208 mg/kg; copper, 88 mg/kg; lead, 2,095 mg/kg; and zinc, 3,900 mg/kg. Vegetation was noted over most of the deposit, but there were some dead willows.

Deposit AJ is located east of the Arkansas River under power lines and away from the river. It contains approximately 6,786 ft<sup>3</sup> of mine-waste over an area of approximately 9,580 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 1,200 mg/kg; lead, 6,500 mg/kg; and zinc, 2,500 mg/kg. There are some salts on the surface. The deposit was mostly barren, but several clumps of grass were seen. There were no visible signs of erosion. The deposit appeared to be impacted by livestock.

Deposit BB is located on the west side of the Arkansas River and comprises a portion of the bank. It contains approximately 9,517 ft<sup>3</sup> of mine-waste over an area of approximately 11,714 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 228 mg/kg; lead, 5,350 mg/kg; and zinc, 1,135 mg/kg. Vegetation was noted in low-lying areas of the deposit. Signs of erosion were observed.

Deposit CA is located on the east side of the Arkansas River and comprises a portion of the bank. It contains approximately 28,123 ft<sup>3</sup> of mine-waste over an area of approximately 38,204 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 55 mg/kg; lead, 5,800 mg/kg; and zinc, 3,100 mg/kg. A cut bank, approximately 3.5 to 4 feet, showed erosion of mine-waste material into the river. Erosion channels in the deposit were an indication of erosional activity. Dead willows and limited grass were noted on the deposit.

Deposit CC is located on the west side of the Arkansas River and is approximately 100 feet back from the riverbank. It contains approximately 16,792 ft<sup>3</sup> of mine-waste over an area of approximately 16,792 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 1,100 mg/kg; lead, 4,800 mg/kg; and zinc, 4,400 mg/kg. Dead vegetation was noted on the deposit.

Deposit CD is located on the east side of the Arkansas River and comprises a portion of the bank. It contains approximately 71,571 ft<sup>3</sup> of mine-waste over an area of approximately 71,571 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 517 mg/kg; copper, 867 mg/kg; lead, 9,080 mg/kg; and zinc, 41,000 mg/kg. A two- to three-foot eroding cut bank was observed adjacent to the river. The deposit contained little vegetation, but some grass was present in the low areas, and willows surround the deposit.

Deposit CE is located on the west side of the Arkansas River and comprises a portion of the bank. Mine-waste material continues into a heavily vegetated deposit, which was sampled but not included in the calculation of mine-waste volume. Within the heavily vegetated area is a small, unvegetated area that was included in Deposit CE. It contains approximately 19,756 ft<sup>3</sup> of mine-waste over an area of approximately 24,146 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 232 mg/kg; copper, 282 mg/kg; lead, 3,251 mg/kg; and zinc, 2,621 mg/kg. Grasses were noted in low areas and willows surrounded the deposit, but most of the deposit was not vegetated. A cut bank was observed along tributaries on the north, east, and south boundaries of the deposit.

Deposit CF is located west of the Arkansas River. It contains approximately 2,665 ft<sup>3</sup> of mine-waste over an area of approximately 5,329 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 120 mg/kg; copper, 300 mg/kg; lead, 8,500 mg/kg; and zinc, 980 mg/kg.

Deposit CG is located west of the Arkansas River. It contains approximately 6,480 ft<sup>3</sup> of mine-waste over an area of approximately 12,959 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 55 mg/kg; lead, 2,700 mg/kg; and zinc, 440 mg/kg. The deposit consists of sand and cobbles mixed with mine-waste.

Deposit CJ is located east of the Arkansas River directly south of the drainage ditch on the south end of Deposit CD. It contains approximately 20,947 ft<sup>3</sup> of mine-waste over an area of approximately 20,947 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 338 mg/kg; copper, 178 mg/kg; lead, 8,015 mg/kg; and zinc, 6,615 mg/kg. Mine-waste material is layered over pyrite in this deposit. Dead vegetation was noted.

Deposit CK is located east of the Arkansas River and comprises a portion of the bank. It contains approximately 28,927 ft<sup>3</sup> of mine-waste over an area of approximately 13,351 ft<sup>2</sup>, and has an average mine-waste depth of 2.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 100 mg/kg; copper, 60 mg/kg; lead, 1,075 mg/kg; and zinc, 200 mg/kg. Dead vegetation was noted on the deposit.

Deposit CL is located east of the Arkansas River, and the northern tip is in contact with the river. It contains approximately 154,281 ft<sup>3</sup> of mine-waste over an area of approximately 106,026 ft<sup>2</sup>, and has an average mine-waste depth of 1.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 175 mg/kg; copper, 917 mg/kg; lead, 3,108 mg/kg; and zinc, 16,105 mg/kg. Most of the deposit was not vegetated and dead willows and grass were noted. Low areas contained grasses and some willows. Erosion channels and a 1.5- to 3-foot cut bank were observed as signs of erosion.

Deposit CN is located on the east side of the Arkansas River and is actually a part of Deposit CO. It was studied separately from deposit CO because it is on property of a different landowner. Deposit CN contains approximately 29,024 ft<sup>3</sup> of mine-waste over an area of approximately 17,415 ft<sup>2</sup>, and has an average mine-waste depth of 1.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 185 mg/kg; lead, 1,776 mg/kg; and zinc, 1,670 mg/kg. There was a two-foot cut bank observed adjacent to standing water on the northern boundary. The deposit was not vegetated and was covered with salts.

Deposit CO is located on the east side of the Arkansas River adjacent to the river. It contains approximately 83,464 ft<sup>3</sup> of mine-waste over an area of approximately 102,011 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 244 mg/kg; copper, 956 mg/kg; lead, 1,936 mg/kg; and zinc, 6,227 mg/kg. The visible signs of erosion included cut banks and erosion channels. The deposit was not vegetated except for small amounts of grass along a tributary north of the site. Dead vegetation was noted throughout the deposit and salts were observed on the surface.

Deposit CP is a small deposit located on the west bank of the Arkansas River. It contains approximately 712 ft<sup>3</sup> of mine-waste over an area of approximately 5,698 ft<sup>2</sup>, and has an average mine-waste depth of 0.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 100 mg/kg; copper, 293 mg/kg; lead, 2,533 mg/kg; and zinc, 1,210 mg/kg. There are finger-like deposits extending into the vegetation. The deposit had some vegetation noted on both sides of the ditch. The mine-wastes are sandy and salts were visible on the surface.

Deposit CR is located on the east side of the Arkansas River. It contains approximately 36,876 ft<sup>3</sup> of mine-waste over an area of approximately 39,091 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 111 mg/kg; copper, 391 mg/kg; lead, 1,622 mg/kg; and zinc, 4,383 mg/kg. The deposit had both live and dead vegetation. Willows were observed growing in shallow mine-waste material and salts were observed on the surface.

Deposit CS is located on the east side of the Arkansas River at the confluence with Lake Fork Creek. Mine-waste material is separated from the river by a retaining wall. Deposit CS contains approximately 60,386 ft<sup>3</sup> of mine-waste over an area of approximately 38,414 ft<sup>2</sup>, and has an average mine-waste depth of 1.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 208 mg/kg; copper, 431 mg/kg; lead, 2,926 mg/kg; and zinc, 9,990 mg/kg. The deposit had abundant vegetation in the southwest corner. Dead willows were noted, but some dead willow clumps contained new growth. Grasses were observed at the edges of the deposit.

#### Reach 2 Mine-Waste Deposits

Deposit FA is located on the east side of the Arkansas River approximately 200 feet back from the river, just south of the confluence with Lake Fork Creek. It contains approximately 13,507 ft<sup>3</sup> of mine-waste over an area of approximately 50,873 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 133 mg/kg;

copper, 676 mg/kg; lead, 3,245 mg/kg; and zinc, 6,413 mg/kg. Heavy surface salts were observed. The deposit was primarily non-vegetated, but there were live willows surrounding the deposit.

Deposit FB is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 33,329 ft<sup>3</sup> of mine-waste over an area of approximately 107,628 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 88 mg/kg; copper, 848 mg/kg; lead, 4,062 mg/kg; and zinc, 6,020 mg/kg. The deposit was primarily non-vegetated and dead willows were observed, but the south end of the deposit contained live grasses and willows. Heavy salts were observed on the surface.

Deposit FC is located on the east side of the Arkansas River adjacent to the river. It contains approximately 3,750 ft<sup>3</sup> of mine-waste over an area of approximately 12,693 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. This deposit was not sampled. There were many isolated mine-wastes in thick willows.

Deposit FD is located on the east side of the Arkansas River adjacent to the river. It contains approximately 659 ft<sup>3</sup> of mine-waste over an area of approximately 1,759 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. This deposit was not sampled. The deposit has cobbles and grass surrounding mine-waste.

Deposit FE is located on the east side of the Arkansas River, comprises a portion of the bank of the river, and curves to the southeast. It contains approximately 239 ft<sup>3</sup> of mine-waste over an area of approximately 957 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 85 mg/kg; and zinc, 460 mg/kg. The mine-waste is under approximately 2.5 feet of soil and was only observable on the cut bank.

Deposit FF is located on the east side of the Arkansas River, comprises a portion of the bank of the river, and is adjacent to an irrigation ditch. The mine-waste appears to have been deposited from the irrigation ditch rather than from the river. It contains approximately 4,285 ft<sup>3</sup> of mine-waste over an area of approximately 18,698 ft<sup>2</sup>, and has an average mine-waste depth of 0.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 305 mg/kg; copper, 165 mg/kg; lead, 2,725 mg/kg; and zinc, 955 mg/kg. The center of deposit FF had dead vegetation, and salts were present. The edges of the deposit were heavily vegetated with willows and grasses.

Deposit FG is on an island with abundant vegetation. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 2,300 mg/kg; and zinc, 1,000 mg/kg. The mine-waste material has an average mine-waste depth of 0.1 feet.

Deposit FH is located on the west side of the Arkansas River, adjacent to the river. It contains approximately 89 ft<sup>3</sup> of mine-waste over an area of approximately 533 ft<sup>2</sup>, and has an average mine-waste depth of 0.2 ft. Samples were not collected from deposit FH because of the small area.

Deposit FI is located on the east side of the Arkansas River on the riverbank. Mine-waste material was observed in the cut bank under four inches of organic material. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 680 mg/kg; and zinc, 955 mg/kg.

Deposit FJ is located on the west side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 7,918 ft<sup>3</sup> of mine-waste over an area of approximately 14,152 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 230 mg/kg; copper, 220 mg/kg; lead, 9,700 mg/kg; and zinc, 3,200 mg/kg. Grasses and willows were observed on the west edge of the deposit. The deposit had a one-foot cut bank. Salts were visible in non-vegetated areas.

Deposit FL is on an island in the Arkansas River. This deposit is well vegetated and the vegetation has good root development. It contains approximately 590 ft<sup>3</sup> of mine-waste over an area of approximately 884 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 190 mg/kg; copper, 190 mg/kg; lead, 2,700 mg/kg; and zinc, 1,500 mg/kg.

Deposit FM is located on the west side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 12,965 ft<sup>3</sup> of mine-waste over an area of approximately 27,726 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 270 mg/kg; copper, 231 mg/kg; lead, 10,000 mg/kg; and zinc, 9,350 mg/kg. The deposit was not vegetated and had signs of heavy cattle trampling. There was a cut bank by the river.

Deposit FN is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 5,516 ft<sup>3</sup> of mine-waste over an area of approximately 5,928 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of



the following metals: cadmium, 95 mg/kg; copper, 140 mg/kg; lead, 1,400 mg/kg; and zinc, 900 mg/kg. There were grasses on the stream bank and a few willows on the edges of the deposit. There was a one-foot cut bank.

Deposit FO is located on the east side of the Arkansas River. It contains unknown depths of mine-waste mixed with cobble over an area of approximately 5,279 ft<sup>2</sup>. Deposit FO was not sampled because of the large amount of cobbles.

Deposit GA is located on the west side of the Arkansas River twenty feet from the river. It contains approximately 7900 ft<sup>3</sup> of mine-waste over an area of approximately 2,032 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 285 mg/kg; lead, 3,133 mg/kg; and zinc, 6,767 mg/kg. Deposit GA is surrounded by an irrigation ditch. This deposit was well vegetated with some bare zones. Cattle have trampled portions of area.

Deposit GB is located on the east side of the Arkansas River adjacent to the river, and consists of a one-foot-thick band of mine-waste along a 2.5-foot cut bank. It contains approximately 554 ft<sup>3</sup> of mine-waste over an area of approximately 391 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. There are no analytical data characterizing the metal concentrations associated with the mine-waste in deposit GB. The deposit had good vegetation cover. The visible signs of erosion included a cut bank susceptible to erosion during high flow events.

Deposit GC is located on the west side of the Arkansas River 25 feet from the riverbank. It covers approximately 1,754 ft<sup>2</sup>. The deposit contains piles of dredged cobble mixed with mine-waste. Mine-waste was also evident eight inches below ground surface in the river cut. There were no analytical data characterizing the metal concentrations associated with the mine-waste deposit.

Deposit GE is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 4,111 ft<sup>3</sup> of mine-waste over an area of approximately 3,523 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 210 mg/kg; lead, 2,700 mg/kg; and zinc, 1,000 mg/kg. The deposit has minimal grassy vegetation. There was visible erosion of a two-foot cut bank.

Deposit GH is located on the west side of the Arkansas River 10 feet from the riverbank. It contains approximately 2,110 ft<sup>3</sup> of mine-waste over an area of approximately 3,014 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the

following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 350 mg/kg; and zinc, 310 mg/kg. The deposit had visible signs of erosion, including a drainage that runs along the east bank of the deposit. There were signs of cattle trampling through the deposit.

Deposit GI is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 5,491 ft<sup>3</sup> of mine-waste over an area of approximately 9,414 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 1,600 mg/kg; and zinc, 840 mg/kg. The deposit was surrounded by good vegetation cover, but there were signs of cattle trampling that may have reduced plant cover.

Deposit GJ is located on the west side of the Arkansas River. This deposit consists of an intermittent series of mine-waste deposits along a cut bank on the western side of the Arkansas River. It contains approximately 74 ft<sup>3</sup> of mine-waste over an area of approximately 588 ft<sup>2</sup>, and has an average mine-waste depth of 0.1 ft. There are no analytical data that characterize the metals concentrations contained within this mine-waste deposit. The deposit had good vegetation cover.

Deposit GK is the downstream end of an island located near the west side of the Arkansas River. It contains approximately 994 ft<sup>3</sup> of mine-waste over an area of approximately 1,884 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. There are no analytical results for this deposit. The deposit had dead vegetation and there were salts visible on the surface. Erosion was observed in the deposit.

Deposit GL is located on the west side of the Arkansas River 60 feet from the riverbank. It contains approximately 2,590 ft<sup>3</sup> of mine-waste over an area of approximately 3,532 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 203 mg/kg; copper, 153 mg/kg; lead, 6,300 mg/kg; and zinc, 9,600 mg/kg. The deposit had some salt deposits present on the surface.

Deposit GM is located on the east side of the Arkansas River, comprises a portion of the bank of the river, and consists of a band of mine-waste occupying the cut bank adjacent to the river. It contains approximately 652 ft<sup>3</sup> of mine-waste over an area of approximately 2,609 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 260 mg/kg; copper, 370 mg/kg; lead, 9,200 mg/kg; and zinc, 9,800 mg/kg. The deposit had abundant vegetation on the surface. The visible signs of erosion included a cut bank.

Deposit GN is located in the center of an island in the Arkansas River. It contains approximately 497 ft<sup>3</sup> of mine-waste over an area of approximately 1,988 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. There are no analytical data characterizing the metals concentrations of the mine-waste materials in this deposit. The deposit had some vegetation, and the mine-waste were well mixed with river sands. Some salts were observed on the surface vegetation.

Deposit HA is located on the west side of the Arkansas River approximately 40 feet from the riverbank. Deposit HA contains approximately 9,297 ft<sup>3</sup> of mine-waste over an area of approximately 12,873 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 55 mg/kg; lead, 3,400 mg/kg; and zinc, 2,900 mg/kg. The deposit had sparse vegetation cover with no visible sign of current erosion in this deposit.

Deposit HB is located on an island occupying the middle of the Arkansas River. It contains approximately 244 ft<sup>3</sup> of mine-waste over an area of approximately 1,099 ft<sup>2</sup>, and has an average mine-waste depth of 0.2 ft. The mine-waste is a four-inch deposit under approximately five inches of topsoil. Samples from this deposit had average concentrations of the following metals: cadmium, 78 mg/kg; copper, 120 mg/kg; lead, 1,350 mg/kg; and zinc, 800 mg/kg. The deposit had some grass and willows present.

Deposit HD is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 1,182 ft<sup>3</sup> of mine-waste over an area of approximately 2,703 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. There was an eight-inch layer of mine-waste over river gravel at the cut bank. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 120 mg/kg; lead, 2,500 mg/kg; and zinc, 1,300 mg/kg. The deposit had poor vegetation cover. The visible signs of erosion include a cut bank and material eroding into a field adjacent to the deposit.

Deposit HE is located on the west side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 1,818 ft<sup>3</sup> of mine-waste over an area of approximately 6,981 ft<sup>2</sup>. The mine-wastes are well mixed with river gravels to a depth of approximately 0.3 feet. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 130 mg/kg; lead, 1,100 mg/kg; and zinc, 510 mg/kg. The deposit was vegetated with grass and willows and showed signs of cattle trampling. There was little evidence of erosion.

Deposit HI is located on the west side of the Arkansas River adjacent to the river. It contains approximately 21,931 ft<sup>3</sup> of mine-waste over an area of approximately 21,338 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 240 mg/kg; copper, 130 mg/kg; and zinc, 13,000 mg/kg. The deposit is sparsely vegetated. Deposit HI is located on the inside of a river bend and did not show evidence of active erosion. The deposit had sparse grasses and contained many cobbles on the surface.

Deposit HK is located on the west side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 11,647 ft<sup>3</sup> of mine-waste over an area of approximately 13,439 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 300 mg/kg; lead, 1,600 mg/kg; and zinc, 2,200 mg/kg. The deposit is poorly vegetated. The visible signs of erosion included an actively eroding one-foot cut bank.

Deposit IA is located on the east side of the Arkansas River and comprises a portion of the bank of the river. It contains approximately 5,713 ft<sup>3</sup> of mine-waste over an area of approximately 6,634 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 210 mg/kg; copper, 55 mg/kg; lead, 3,800 mg/kg; and zinc, 750 mg/kg. The deposit had little vegetation. The visible signs of erosion included a one-foot cut bank.

Deposit IC is located on the west side of the Arkansas River and comprises a portion of the bank of the river, but is separated from the river by cobble and vegetation. It contains approximately 14,493 ft<sup>3</sup> of mine-waste over an area of approximately 13,378 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 130 mg/kg; lead, 1,000 mg/kg; and zinc, 680 mg/kg. The deposit had no vegetation cover.

Deposit KK is located on the west side of the Arkansas River 10 feet from the river channel, and comprises a portion of the bank of the river. It contains approximately 1,886 ft<sup>3</sup> of mine-waste over an area of approximately 9,052 ft<sup>2</sup>, and has an average mine-waste depth of 0.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 148mg/kg; copper, 185 mg/kg; lead, 2,350 mg/kg; and zinc, 1,250 mg/kg. The deposit had sparse vegetation cover.

Deposit KL is located on the banks of a drainage ditch located on the west side of the Arkansas River. It contains approximately 56,909 ft<sup>3</sup> of mine-waste over an area of approximately 37,250 ft<sup>2</sup>, and has an average mine-waste depth of 1.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 228 mg/kg; copper, 218 mg/kg; lead, 4,783 mg/kg; and zinc, 4,360 mg/kg.

The deposit had sparse vegetation cover. The visible signs of erosion included a two-foot cut bank along the drainage ditch. Evidence of cattle trampling was observed.

### Reach 3 Mine-Waste Deposits

Deposit LA is located approximately 100 feet east of the Arkansas River at the base of the Highway 24 overpass. It contains approximately 3,626 ft<sup>3</sup> of mine-waste over an area of approximately 6,217 ft<sup>2</sup> and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 260; copper, 260; lead, 5,600 mg/kg and zinc, 12,000 mg/kg. Little vegetation was observed on the deposit. Mine-wastes were visible at the south end of the deposit, while stained sand and cobble dominated the north end of the deposit.

Deposit LB is located on the east side of the Arkansas River and comprises a portion of the riverbank at the base of the Highway 24 overpass. It contains approximately 11,019 ft<sup>3</sup> of mine-waste over an area of approximately 12,796 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 275; copper, 210; lead, 3,300 mg/kg and zinc, 10,450 mg/kg. No vegetation was observed on the deposit, but grasses surrounded the area. Salts were observed on the surface. The deposit has a cut bank up to five feet high. Portions of the cut bank contained mine-waste.

Deposit LC is located on the west bank of the Arkansas River at the base of the Highway 24 overpass. It is separated from the river by a narrow strip of grass, willows, and cobble. It contains approximately 24,275 ft<sup>3</sup> of mine-waste over an area of approximately 44,388 ft<sup>2</sup> and has an average mine-waste depth of 0.5 ft. Samples from this deposit had concentrations of the following metals: cadmium, 374 mg/kg; copper, 434 mg/kg; lead, 4,680 mg/kg; and zinc, 48,320 mg/kg. Thick salts were present on the surface. Some grasses were observed in sections of the deposit without surface salts. Grasses and willows were present adjacent to the deposit and between the deposit and the Arkansas River. Samples collected from deposit LC showed soil pH from 1.8 to 5.0.

Deposit LD is located on the west side of the Arkansas River and comprises a portion of the riverbank. It contains approximately 8,419 ft<sup>3</sup> of mine-waste over an area of approximately 21,649 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 74 mg/kg; copper, 226 mg/kg; lead, 1,856 mg/kg; and zinc, 2,792 mg/kg. The deposit consists primarily of stained cobble and gravel mixed with mine-waste, but has mine-waste in thicker amounts around the edges. The deposit is surrounded by a dense grassy area. There were dead

willows and salts on the surface of the deposit. Samples collected from deposit LD showed soil pH from 3.5 to 5.6.

Deposit LG is located south of an orange stained cobble and sand deposit east of the Arkansas River. It contains approximately 235 ft<sup>3</sup> of mine-waste over an area of approximately 352 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 190 mg/kg; copper, 200 mg/kg; lead, 5,300 mg/kg; and zinc, 7,700 mg/kg. The deposit was barren, and some salts were present on the adjacent cobble and sand. One sample from deposit LG showed a soil pH of 1.5.

Deposit LH is located east of the Arkansas River. The deposit is separated from the small stream by a low grassy area. It contains approximately 3,619 ft<sup>3</sup> of mine-waste over an area of approximately 16,287 ft<sup>2</sup>, and has an average mine-waste depth of 0.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 480 mg/kg; lead, 3,500 mg/kg; and zinc, 7,700 mg/kg. Salts were present on drier sections of the deposit. There were signs of cattle trampling present. One sample from deposit LH showed a soil pH of 5.3.

Deposit LI is located along the east bank of the Arkansas River and comprises a portion of the riverbank. It contains approximately 11,401 ft<sup>3</sup> of mine-waste over an area of approximately 11,214 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 269 mg/kg; copper, 345 mg/kg; lead, 2,500 mg/kg; and zinc, 11,400 mg/kg. There were indications of heavy cattle use, including a well-worn cattle path. Salts were present on the surface, and dead willow clumps were present. A one- to two-foot cut bank on the Arkansas River is located over part of the west edge of the deposit. Samples collected from deposit LI showed soil pH from 4.0 to 5.2.

Deposit LK is located on the west side of the Arkansas River and is partly in contact with the river by an area of grass and willows. It contains approximately 7,649 ft<sup>3</sup> of mine-waste over an area of approximately 17,765 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 84 mg/kg; copper, 643 mg/kg; lead, 2,433 mg/kg; and zinc, 3,133 mg/kg. The deposit contained stained cobble and gravel in the center of the deposit, but mine-waste are on the surface around the cobble and gravel. The deposit is surrounded by grasses and willows. Dead willows and light salts were observed on the surface. Samples collected from deposit LK showed soil pH from 2.5 to 4.1.

Deposit LL is located to the west of the Arkansas River. The center of the deposit is primarily stained cobble, willows, and grasses. Mine-wastes are located on the north and south ends of the cobbled area. It contains approximately 3,483 ft<sup>3</sup> of mine-waste over an area of approximately 5,224 ft<sup>2</sup> and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 74 mg/kg; copper, 287 mg/kg; lead, 3,767 mg/kg; and zinc, 830 mg/kg. Some salts were present on the cobbled area near willows and grass. The stream bank was stabilized with grasses. The area is surrounded by dense grass and willows. Samples collected from deposit LL showed soil pH from 2.7 to 3.3.

Deposit LM is located along the east bank of the Arkansas River. It contains approximately 20,744 ft<sup>3</sup> of mine-waste over an area of approximately 16,377 ft<sup>2</sup>, and has an average mine-waste depth of 1.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 152 mg/kg; copper 425 mg/kg; lead, 7,300 mg/kg; and zinc, 5,273 mg/kg. Clumps of grasses were growing on the southern most section of the deposit, but the rest of the deposit was non-vegetated. Salts were observed on the surface. The deposit has a cut bank on the Arkansas River. Samples collected from deposit LM showed soil pH from 3.2 to 5.3.

Deposit LN is located to the east of the Arkansas River. It contains approximately 41,880 ft<sup>3</sup> of mine-waste over an area of approximately 45,985 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 575 mg/kg; copper, 455 mg/kg; lead, 11,525 mg/kg; and zinc, 34,973 mg/kg. The center of the deposit is primarily stained cobble and sand with mine-waste along the edges. Grasses have encroached on the mine-waste along the eastern edge of the deposit. Sporadic grass clumps were observed in a small section near the western boundary of the deposit, and a grass area defined the western edge of the deposit. There were signs of cattle trampling on the deposit. Samples collected from deposit LB showed soil pH from 2.2 to 4.9.

Deposit LO is located to the east of the Arkansas River. It contains approximately 23,498 ft<sup>3</sup> of mine-waste over an area of approximately 20,349 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 128 mg/kg; copper, 487 mg/kg; lead, 3,133 mg/kg; and zinc, 6,200 mg/kg. The deposit has stained cobble and sand in the center, with mine-waste at the north and east ends. Some grasses were observed on the deposit. The creek bank was stabilized with grasses except for a cattle-crossing area at the north end. There were signs of surface erosion. Samples collected from deposit LO showed soil pH from 3.4 to 4.8.

Deposit LP is located east of the Arkansas River. It contains approximately 8,390 ft<sup>3</sup> of mine-waste over an area of approximately 15,794 ft<sup>2</sup> and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 119 mg/kg; copper, 280 mg/kg; lead, 1,950 mg/kg and zinc, 14,800 mg/kg. The stream bank was vegetated with grasses. The eastern section of the deposit had mine-waste at the surface. The area had signs of extensive cattle activity. Salts were observed on the surface. Samples collected from deposit LP showed soil pH from 2.9 to 4.7.

Deposit LQ is located east of the Arkansas River. It contains approximately 6,152 ft<sup>3</sup> of mine-waste over an area of approximately 5,906 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 99 mg/kg; copper, 377 mg/kg; lead, 4,125 mg/kg; and zinc, 6,525 mg/kg. There is a 1.5-foot cut bank along the stream bank; some of the stream bank is stabilized with grasses. Cattle tracks and salts were observed on the surface. Samples collected from deposit LQ showed soil pH from 2.7 to 5.0.

Deposit LR is a small deposit located east of the Arkansas River. It contains approximately 1,444 ft<sup>3</sup> of mine-waste over an area of approximately 1,155 ft<sup>2</sup>, and has an average mine-waste depth of 1.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 470 mg/kg; lead, 9,900 mg/kg and zinc, 1,800 mg/kg. The creek bank is stabilized with grasses. Several dead willows were observed on the deposit. Grasses surround the deposit. One sample from deposit LR showed a soil pH of 3.8.

Deposit LS is located to the east of the Arkansas River. It contains approximately 57,181 ft<sup>3</sup> of mine-waste over an area of approximately 43,272 ft<sup>2</sup>, and has an average mine-waste depth of 1.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 185 mg/kg; copper, 345 mg/kg; lead, 4,121 mg/kg; and zinc, 3,664 mg/kg. The deposit was primarily non-vegetated. Cattle tracks and salts were observed on the surface. Samples collected from deposit LS showed soil pH from 2.4 to 5.1.

Deposit LT is located east of the Arkansas River. It contains approximately 1,931 ft<sup>3</sup> of mine-waste over an area of approximately 2,970 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 70 mg/kg; lead, 370 mg/kg; and zinc, 1,200 mg/kg. There is some grass cover throughout the site. Abundant grass was observed on the stream bank. One sample from deposit LT showed a soil pH of 4.0.



Deposit LU is a small deposit located to the west of the Arkansas River. It contains approximately 336 ft<sup>3</sup> of mine-waste over an area of approximately 504 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 210 mg/kg; lead, 1,500 mg/kg and zinc, 590 mg/kg. Cattle tracks were observed on the deposit. One sample from deposit LU showed a soil pH of 2.4.

Deposit LV is located to the east of the Arkansas River. It contains approximately 16,299 ft<sup>3</sup> of mine-waste over an area of approximately 11,041 ft<sup>2</sup>, and has an average mine-waste depth of 1.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 301 mg/kg; copper, 533 mg/kg; lead, 2,673 mg/kg; and zinc, 16,728 mg/kg. Grass cover was observed on the stream bank, except for the western most portion, which has a 1.5- to 2-foot cut bank. Mine-wastes were observed on the cut bank. The eastern section is primarily cobble in the center, surrounded by mine-waste. Cattle tracks were observed in the area. Surface salts were observed on the northern most portion of the deposit. Samples collected from deposit LV showed soil pH from 2.1 to 5.5.

Deposit MA is located on the east bank of the Arkansas River. It contains approximately 1,312 ft<sup>3</sup> of mine-waste over an area of approximately 1,049 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 140 mg/kg; lead, 1,000 mg/kg and zinc, 3,000 mg/kg. The visible signs of erosion included an eight-inch cut bank. The deposit had no vegetation, but was surrounded by grasses.

Deposit MB is located to the east of the Arkansas River, comprises a portion of the riverbank, and extends 250 feet back from the riverbank. It contains approximately 85,765 ft<sup>3</sup> of mine-waste over an area of approximately 31,728 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 123 mg/kg; copper, 242 mg/kg; lead, 2,075 mg/kg; and zinc, 6,518 mg/kg. The deposit had no vegetation present. The visible signs of erosion included a three-foot cut bank. There were some salts observed on the surface.

Deposit ME is located to the east of the Arkansas River. It contains approximately 22,399 ft<sup>3</sup> of mine-waste over an area of approximately 38,398 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 120 mg/kg; lead, 3,200 mg/kg and zinc, 880 mg/kg. The deposit had no vegetation present. The visible signs of erosion included a 1.5-foot cut bank, but in most of the area the tributary bank is stabilized with grasses.

Deposit MF is located on the east side of the Arkansas River adjacent to the river. It contains approximately 1,632 ft<sup>3</sup> of mine-waste over an area of approximately 1,130 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 228 mg/kg; copper, 140 mg/kg; lead, 1,203 mg/kg; and zinc, 11,800. Vegetation in the area included both live and dead willows, and very little grass. The visible signs of erosion included a 3.5-foot cut bank. Cattle activity was observed in the area.

Deposit MG is located to the east of the Arkansas River approximately 120 feet from the riverbank. It contains approximately 9,172 ft<sup>3</sup> of mine-waste over an area of approximately 22,661 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 300 mg/kg; copper, 170 mg/kg; lead, 3,300 mg/kg and zinc, 930 mg/kg. The deposit had sparse vegetation.

Deposit MH is located to the east of the Arkansas River. It contains approximately 4,329 ft<sup>3</sup> of mine-waste over an area of approximately 6,835 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 92 mg/kg; copper, 188 mg/kg; lead, 4,233 mg/kg and zinc, 2,557 mg/kg. The deposit was surrounded by vegetation and had a well-vegetated cut bank. Signs of extensive cattle activity were observed.

Deposit MI is located to the east of the Arkansas River. It contains approximately 14,529 ft<sup>3</sup> of mine-waste over an area of approximately 10,170 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 1,600 mg/kg and zinc, 380 mg/kg. The deposit contained dead willows and sparse clumps of grass. There were signs of extensive cattle activity. Salts were observed on the surface.

Deposit MJ is located to the east of the Arkansas River. It contains approximately 2,262 ft<sup>3</sup> of mine-waste over an area of approximately 9,048 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 80 mg/kg; copper, 79 mg/kg; lead, 4,150 mg/kg and zinc, 2,350. The deposit contained many cobbles on the surface. Salts were observed in places and cattle activity was evident.

Deposit MK is located to the east of the Arkansas River. It contains approximately 5,137 ft<sup>3</sup> of mine-waste over an area of approximately 9,943 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 170 mg/kg; lead, 6,900 mg/kg and zinc, 2,900 mg/kg. The deposit had grass cover and showed signs of cattle use.

Deposit ML is located to the east of the Arkansas River adjacent to the river. It contains approximately 2,149 ft<sup>3</sup> of mine-waste over an area of approximately 3,223 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. No samples were collected from this deposit. The deposit had dead grass, and salts were present. A three-foot cut bank showed signs of active erosion.

Deposit MM is located to the east of the Arkansas River. It contains approximately 11,533 ft<sup>3</sup> of mine-waste over an area of approximately 11,533 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. The deposit had some grass cover, but was primarily stained cobble surrounded by sand mixed with mine-waste over cobble. The deposit was not sampled because of the cobble.

Deposit MN is located to the east of the Arkansas River. It contains approximately 1,296 ft<sup>3</sup> of mine-waste over an area of approximately 5,183 ft<sup>2</sup> of organic soil, and has an average depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 46 mg/kg; lead, 1,600 mg/kg and zinc, 15,000 mg/kg. The deposit was well vegetated, except where trampled by cattle. The mine-waste material is a one-inch lens under about 18 inches of soil.

Deposit MP is located on the west bank of the Arkansas River. It contains approximately 8,000 ft<sup>3</sup> of mine-waste over an area of approximately 4,800 ft<sup>2</sup>, and has an average mine-waste depth of 1.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 89 mg/kg; copper, 170 mg/kg; lead, 1,160 mg/kg and zinc, 1,677 mg/kg. The deposit has a three-foot cut bank on the river. Samples collected from deposit MP showed soil pH from 3.2 to 4.5.

Deposit MQ is located on the west bank of the Arkansas River. It contains approximately 85,765 ft<sup>3</sup> of mine-waste over an area of approximately 40,307 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 101 mg/kg; copper, 313 mg/kg; lead, 1,458 mg/kg; and zinc, 5,798 mg/kg. The deposit is surrounded by standing water, except for the easternmost boundary, which is the Arkansas River. The northern section of the oxbow has mine-waste at the surface. Salts and cattle tracks were observed on the surface. The deposit was primarily non-vegetated, but some grass and willows were observed; the willows showed some new growth. Cut banks are located on the river and the oxbow channel. Samples collected from deposit MQ showed soil pH from 3.6 to 5.5.

Deposit NA is located on an inside bend of the west bank of the Arkansas River. It contains approximately 8,919 ft<sup>3</sup> of mine-waste over an area of approximately 4,039 ft<sup>2</sup>, and has an average mine-waste depth of 2.2 ft. Samples from this deposit had average concentrations of the following metals:

cadmium, 169 mg/kg; copper, 225 mg/kg; lead, 950 mg/kg and zinc, 3,765 mg/kg. Salts, cattle tracks, and dead willows were observed on the surface. A two- to three-foot cut bank was present along the Arkansas River. Samples collected from deposit LB showed soil pH from 2.6 to 4.0.

Deposit NB is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 25,143 ft<sup>3</sup> of mine-waste over an area of approximately 35,496 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 280 mg/kg; lead, 2,500 mg/kg; and zinc, 1,900. The deposit had live and dead vegetation, including grass and willows. The visible signs of erosion included a three-foot cut bank.

Deposit NC is located to the west of the Arkansas River. It contains approximately 17,288 ft<sup>3</sup> of mine-waste over an area of approximately 4,039 ft<sup>2</sup>, and has an average mine-waste depth of 2.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 57 mg/kg; copper, 290 mg/kg; lead, 1,600 mg/kg and zinc, 1,870 mg/kg. Dead willows and salts were observed on the surface. Samples collected from deposit NC showed soil pH from 3.1 to 3.8.

Deposit ND is located to the west of the Arkansas River and comprises a portion of the riverbank. It contains approximately 45,187 ft<sup>3</sup> of mine-waste over an area of approximately 21,324 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 120 mg/kg; copper, 170 mg/kg; lead, 1,270 mg/kg and zinc, 640 mg/kg. There is a 3- to 4-foot cut bank on the river. Dead willows, salts, and cattle tracks were observed on the surface. The deposit is primarily non-vegetated, but some grass was observed near the edges of the mine-waste deposit. Samples collected from deposit ND showed soil pH from 3.3 to 3.4.

Deposit NG is located to the east of the Arkansas River. It contains approximately 62,398 ft<sup>3</sup> of mine-waste over an area of approximately 44,046 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 90 mg/kg; copper, 58 mg/kg; lead, 245 mg/kg; and zinc, 1,710 mg/kg. The deposit had grass cover and dead willows present. Good grass cover was observed along low deposits adjacent to the tributary. The visible signs of erosion included a two- to three-foot cut bank.

Deposit NH is located to the east of the Arkansas River. The deposit is a part of the groundwater study area of the USGS. It contains approximately 27,356 ft<sup>3</sup> of mine-waste over an area of approximately 35,811 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 172 mg/kg; copper, 180 mg/kg; lead, 2,400

mg/kg; and zinc, 7,740 mg/kg. The deposit had dead willows, but abundant grass along low areas adjacent to the tributary. The visible signs of erosion included a four-foot cut bank.

Deposit NI is located to the east of the Arkansas River. It is part of the USGS groundwater study area. Deposit NI contains approximately 70,057 ft<sup>3</sup> of mine-waste over an area of approximately 69,734 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 128 mg/kg; copper, 405 mg/kg; lead, 4,293 mg/kg and zinc, 2,308 mg/kg. The deposit was primarily non-vegetated, and there was evidence of dead willows. Good grass cover was observed by the tributary. The visible signs of erosion included a one- to three-foot cut bank.

Deposit NJ is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 1,618 ft<sup>3</sup> of mine-waste over an area of approximately 4,088 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 55 mg/kg; lead, 760 mg/kg; and zinc, 410 mg/kg. The deposit had sparse grass cover, and was surrounded by grass and some willows. Light salts were observed on the surface. The visible signs of erosion included a one-foot cut bank.

Deposit NL is located to the east of the Arkansas River. It contains approximately 21,722 ft<sup>3</sup> of mine-waste over an area of approximately 14,145 ft<sup>2</sup>, and has an average mine-waste depth of 1.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 55 mg/kg; lead, 1,250 mg/kg and zinc, 415 mg/kg. The deposit was mostly non-vegetated, but grass cover was observed in the low-lying area adjacent to the deposit.

Deposit NN is located to the east of the Arkansas River and the southern tip of the deposit comprises a portion of the riverbank. It contained approximately 9,291 ft<sup>3</sup> of mine-waste over an area of approximately 28,835 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 80 mg/kg; copper, 108 mg/kg; lead, 4,300 mg/kg and zinc, 2,200 mg/kg. The surface contained a few clumps of grass. The visible signs of erosion included a small cut bank. Light salts were observed on the surface.

Deposit NO is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 14,147 ft<sup>3</sup> of mine-waste over an area of approximately 6,757 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 330 mg/kg; lead, 3,000 mg/kg and zinc, 1,500 mg/kg. The deposit had some vegetation, but was primarily bare. The visible signs of erosion included a 1.5-foot cut bank.

Deposit NP is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 5,060 ft<sup>3</sup> of mine-waste over an area of approximately 10,469 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 128 mg/kg; copper, 180 mg/kg; lead, 1,950 mg/kg and zinc, 1,250 mg/kg. No vegetation was present, possibly due to heavy cattle use. The visible signs of erosion included a 17-inch cut bank with signs of current erosion.

Deposit NR is located to the west of the Arkansas River. It contains approximately 46,265 ft<sup>3</sup> of mine-waste over an area of approximately 28,071 ft<sup>2</sup>, and has an average mine-waste depth of 1.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 480 mg/kg; lead, 2,275 mg/kg; and zinc, 1,825 mg/kg. Cattle tracks, salts, and dead willows were observed on the surface. Grass was growing in low areas next to the deposit. Samples collected from deposit NR showed soil pH from 3.6 to 4.0.

Deposit NT is located along the west bank of the Arkansas River. It contains approximately 5,900 ft<sup>3</sup> of mine-waste over an area of approximately 14,900 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 94 mg/kg; copper, 235 mg/kg; lead, 1,950 mg/kg and zinc, 2,900 mg/kg. There was a cut bank along the river, but the bank was primarily cobbles. Salts were observed on the surface. Samples collected from deposit NT showed soil pH from 3.8 to 5.5.

Deposit NU is located to the west of the Arkansas River near a small creek, and a small portion comprises a portion of the riverbank. It contains approximately 15,495 ft<sup>3</sup> of mine-waste over an area of approximately 16,169 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 79 mg/kg; copper, 195 mg/kg; lead, 2,250 mg/kg; and zinc, 820 mg/kg. An erosional ditch runs through the deposit. The deposit is surrounded by grasses and shrubs, with willows observed southwest of the deposit. The deposit is separated from the river by a grassy area. Salts, dead willows, and livestock tracks were observed on the surface. Samples collected from deposit NU showed soil pH from 2.1 to 3.0.

Deposit OA is located to the west of the Arkansas River and comprises a portion of the riverbank. It contains approximately 55,257 ft<sup>3</sup> of mine-waste over an area of approximately 46,416 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 57 mg/kg; copper, 455 mg/kg; lead, 3,150 mg/kg; and zinc, 2,700 mg/kg.

There is a cut bank and cobbles along the river. Dead willows, salts, and livestock tracks were observed on the surface. Samples collected from deposit OA showed soil pH from 2.1 to 3.8.

Deposit OB is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 47,141 ft<sup>3</sup> of mine-waste over an area of approximately 34,155 ft<sup>2</sup>, and has an average mine-waste depth of 1.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 813 mg/kg and zinc, 868 mg/kg. The deposit had uneven plant cover. The visible signs of erosion included a three-foot cut bank.

Deposit OC is located to the west of the Arkansas River. It consists of three ellipsoid deposits in the midst of a large cobble deposit. It contains approximately 6,989 ft<sup>3</sup> of mine-waste over an area of approximately 19,865 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 230 mg/kg; lead, 4,000 mg/kg; and zinc, 3,900 mg/kg. Cattle tracks were observed on the surface. Samples collected from deposit OC showed soil pH from 3.9 to 4.6.

Deposit OD is located to the west of the Arkansas River. It contains approximately 7,048 ft<sup>3</sup> of mine-waste over an area of approximately 8,601 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 124 mg/kg; copper, 300 mg/kg; lead, 3,100 mg/kg; and zinc, 1,145 mg/kg. Light salts and livestock tracks were observed on the surface. The deposit is primarily non-vegetated with grasses growing in the low area between the two sections. Samples collected from deposit OD showed soil pH from 2.3 to 4.1.

Deposit OE is located to the west of the Arkansas River and comprises a portion of the riverbank. It contains approximately 37,689 ft<sup>3</sup> of mine-waste over an area of approximately 31,890 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 221 mg/kg; copper, 268 mg/kg; lead, 3,513 mg/kg; and zinc, 6,912 mg/kg. Salts, livestock tracks, and dead willows were observed on the surface. Erosion channels were present. Samples collected from deposit OE showed soil pH from 3.9 to 5.3.

Deposit OF is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 9,754 ft<sup>3</sup> of mine-waste over an area of approximately 15,103 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 340 mg/kg and zinc, 660 mg/kg. Dead willows were observed and most of the area was non-vegetated. Salt was observed on the surface. A two-foot cut bank adjacent to the river showed signs of erosion.

Deposit OG is a finger of mine-wastes on the west side of the Arkansas River, which continues into a densely vegetated area. It contains approximately 19,164 ft<sup>3</sup> of mine-waste over an area of approximately 11,498 ft<sup>2</sup>, and has an average mine-waste depth of 1.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 97 mg/kg; copper, 70 mg/kg; lead, 100 mg/kg; and zinc, 970 mg/kg. The deposit is non-vegetated. Dead willows and livestock tracks were observed on the surface. One sample from deposit OG showed a soil pH of 5.5.

Deposit OH is located on the west bank of the Arkansas River. It consists of two mine-waste deposits over cobble. It contains approximately 4,017 ft<sup>3</sup> of mine-waste over an area of approximately 3,708 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 160 mg/kg; lead, 2,150 mg/kg; and zinc, 1,675 mg/kg. Samples collected from deposit OH showed soil pH from 2.5 to 5.0.

Deposit OI consists of mine-waste along the west side of the Arkansas River. One section of the deposit is surrounded by grasses. The deposit contains approximately 3,301 ft<sup>3</sup> of mine-waste over an area of approximately 3,301 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. One section consists of mine-waste placed in a manmade cobble wall. Samples from this deposit had average concentrations of the following metals: cadmium, 250 mg/kg; copper, 690 mg/kg; lead, 1,950 mg/kg; and zinc, 17,100 mg/kg. Salts were observed on the surface. Samples collected from deposit OI showed soil pH from 3.8 to 4.9.

Deposit OJ consists of three small deposits along the west side of the Arkansas River. The irrigation inlet is located just north of these deposits. It contains approximately 2,281 ft<sup>3</sup> of mine-waste over an area of approximately 3,802 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 272 mg/kg; copper, 414 mg/kg; lead, 6,360 mg/kg; and zinc, 9,567 mg/kg. Salts were observed on the south western most deposit. Samples collected from deposit OJ showed soil pH from 1.3 to 5.3.

Deposit OK is located to the west of the Arkansas River. It is primarily fine sand, but has shallow lenses of gray and orange mine-waste. Some salts were observed on the surface. It contains approximately 1,500 ft<sup>3</sup> of mine-waste over an area of approximately 4,154 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 330 mg/kg; lead, 3,200 mg/kg; and zinc, 1,100 mg/kg. One sample from deposit OK showed a soil pH of 3.2.



Deposit PA is located to the east of the Arkansas River and comprises a portion of the riverbank. The north edge of the deposit is adjacent to the river. It contains approximately 32,113 ft<sup>3</sup> of mine-waste over an area of approximately 20,972 ft<sup>2</sup>, and has an average mine-waste depth of 1.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 95 mg/kg; copper, 330 mg/kg; lead, 4,050 mg/kg; and zinc, 1,900 mg/kg. The deposit had little vegetation but was surrounded by grasses and cobble. The northern edge of deposit PA showed current signs of erosion into the river.

Deposit PC is located approximately 250 feet east of the Arkansas River. It contains approximately 17,980 ft<sup>3</sup> of mine-waste over an area of approximately 17,831 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 2,100 mg/kg and zinc, 625 mg/kg. The deposit was sparsely vegetated with grasses. Dead willows were observed on the deposit.

Deposit PD is located on the east side of the Arkansas River and comprises a portion of the riverbank. It contains approximately 9,434 ft<sup>3</sup> of mine-waste over an area of approximately 6,011 ft<sup>2</sup>, and has an average mine-waste depth of 1.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 103 mg/kg; lead, 5,500 mg/kg and zinc, 455 mg/kg. The deposit was bare in some spots and well vegetated in others. The visible signs of erosion included a small cut bank.

Deposit PE is located to the west of the Arkansas River. It contains approximately 6,868 ft<sup>3</sup> of mine-waste over an area of approximately 5,720 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 760 mg/kg; lead, 10,000 mg/kg; and zinc, 3,700 mg/kg. The deposit was surrounded by grasses. Dead willows and salts were observed on the surface. Some new growth was evident in the willows. One sample from deposit PE showed a soil pH of 4.7.

Deposit PF is located along the west bank of the Arkansas River. There is a one-foot cut bank along the river. It contains approximately 795 ft<sup>3</sup> of mine-waste over an area of approximately 1,908 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 70 mg/kg; lead, 100 mg/kg; and zinc, 1,000 mg/kg. One sample from deposit PF showed a soil pH of 4.7.

Deposit PG is located to the west of the Arkansas River. It consists primarily of cobbles, gravel, and sand, but has mine-wastes mixed throughout. The deposit is located on the inside bend of a channel with standing water. It contains approximately 51,527 ft<sup>3</sup> of mine-waste over an area of approximately

61,832 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 94 mg/kg; copper 170 mg/kg; lead, 2,395 mg/kg and zinc, 4,800 mg/kg. Samples collected from deposit PG showed soil pH from 2.5 to 4.6.

Deposit PJ is located approximately 300 feet east of the Arkansas River. It contains approximately 17,937 ft<sup>3</sup> of mine-waste over an area of approximately 16,063 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 87 mg/kg; copper, 337 mg/kg; lead, 2,900 mg/kg; and zinc, 8,467 mg/kg. The deposit was surrounded by grasses and willows.

Deposit PM is located to the east of the Arkansas River approximately 100 feet from the riverbank. It contains approximately 446 ft<sup>3</sup> of mine-waste over an area of approximately 1,114 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 46 mg/kg; lead, 830 mg/kg and zinc, 780 mg/kg. The deposit was non-vegetated, but vegetation along the small drainage on the western pile perimeter was preventing erosion.

Deposit PN is located to the east of the Arkansas River. It contains approximately 7,087 ft<sup>3</sup> of mine-waste over an area of approximately 5,390 ft<sup>2</sup>, and has an average mine-waste depth of 1.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 93 mg/kg; and zinc, 2,400 mg/kg. Dead willows were present within the mine-waste deposit and in the surrounding areas. The deposit is primarily bare, but has some grasses present.

Deposit PP is located to the east of the Arkansas River. It contains approximately 15,704 ft<sup>3</sup> of mine-waste over an area of approximately 16,506 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 93 mg/kg; copper, 65 mg/kg; lead, 4,050 mg/kg and zinc, 1,785 mg/kg. The deposit had dead willows and was surrounded by grasses. A two- to three-foot cut bank was noted adjacent to a tributary.

Deposit PX is located approximately 300 feet east of the Arkansas River just south of deposit PJ. It contains approximately 24,816 ft<sup>3</sup> of mine-waste over an area of approximately 24,276 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 145 mg/kg; copper, 505 mg/kg; lead, 6,150 mg/kg; and zinc, 5,100 mg/kg. Mine-waste is concentrated in small deposits over cobbles and organic soil.

Deposit QA is located to the east of the Arkansas River. It contains approximately 7,549 ft<sup>3</sup> of mine-waste over an area of approximately 10,065 ft<sup>2</sup>, and has an average mine-waste depth of 0.8 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 105 mg/kg; copper, 123 mg/kg; lead, 1,570 mg/kg and zinc, 655 mg/kg. The deposit had vegetation in low-lying areas adjacent to the tributary. Visible signs of erosion included a 1.5-foot cut bank.

Deposit QD is located to the east of the Arkansas River. It contains approximately 46,183 ft<sup>3</sup> of mine-waste over an area of approximately 51,794 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 147 mg/kg; copper, 93 mg/kg; lead, 2,117 mg/kg and zinc, 2,197 mg/kg. The visible signs of erosion included surface rills.

Deposit QF is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 71,910 ft<sup>3</sup> of mine-waste over an area of approximately 99,367 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 160 mg/kg; copper, 114 mg/kg; lead, 2,431 mg/kg; and zinc, 698 mg/kg. The deposit was partially vegetated with grasses. A low area contained dense grass cover. Dead willows were present on the site, but new growth was observed. The visible signs of erosion included surface rills and cattle paths.

Deposit QG is located to the east of the Arkansas River. It contains approximately 18,165 ft<sup>3</sup> of mine-waste over an area of approximately 18,165 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 105 mg/kg; copper, 290 mg/kg; lead, 2,450 mg/kg; and zinc, 1,585 mg/kg. Dead willows were present on the mine-waste deposit. The deposit was surrounded by grasses and some willows. The visible signs of erosion included a small cut bank adjacent to the tributary.

Deposit QH is located to the east of the Arkansas River. It contains approximately 14,830 ft<sup>3</sup> of mine-waste over an area of approximately 14,237 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 138 mg/kg; copper, 215 mg/kg; lead, 3,600 mg/kg and zinc, 1,850 mg/kg. Dead willows were present on the mine-waste deposit.

Deposit QI is located to the east of the Arkansas River and is in contact with the riverbank. It contains approximately 12,686 ft<sup>3</sup> of mine-waste over an area of approximately 20,075 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the

following metals: cadmium, 115 mg/kg; copper, 370 mg/kg; lead, 3,100 mg/kg; and zinc, 2,400 mg/kg. The deposit had some grasses present and evidence of dead willows. The visible signs of erosion included a one-foot cut bank.

Deposit QJ is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 1,235 ft<sup>3</sup> of mine-waste over an area of approximately 1,289 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 190 mg/kg; lead, 1,600 mg/kg and zinc, 2,700 mg/kg. Dead grass was observed on the area. Live vegetation was observed in spots and included grasses and willows. Cattle paths were also observed. The visible signs of erosion included a one-foot cut bank.

Deposit QK is located to the east of the Arkansas River. It contains approximately 7,752 ft<sup>3</sup> of mine-waste over an area of approximately 7,344 ft<sup>2</sup>, and has an average mine-waste depth of 1.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 280 mg/kg; lead, 2,400 mg/kg and zinc, 780 mg/kg. The deposit had no vegetation except in a low-lying area adjacent to the tributary.

Deposit QM is located to the east of the Arkansas River. It contains approximately 7,960 ft<sup>3</sup> of mine-waste over an area of approximately 4,094 ft<sup>2</sup>, and has an average mine-waste depth of 1.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 210 mg/kg; lead, 1,200 mg/kg and zinc, 960 mg/kg. The deposit had dead willows and was surrounded by grasses and willows.

Deposit QN is located to the east of the Arkansas River. It contains approximately 55,041 ft<sup>3</sup> of mine-waste over an area of approximately 45,672 ft<sup>2</sup>, and has an average mine-waste depth of 1.2 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 201 mg/kg; copper, 330 mg/kg; lead, 1,638 mg/kg; and zinc, 3,763 mg/kg. The deposit had dead willows with some new growth observed. A heavy layer of salt was present on the surface. The visible signs of erosion included a two-to three-foot cut bank and surface channels.

Deposit QO is located on the east side of the Arkansas River. It contains approximately 13,096 ft<sup>3</sup> of mine-waste over an area of approximately 31,962 ft<sup>2</sup>, and has an average mine-waste depth of 0.4 ft. Samples from this deposit had concentrations of the following metals: cadmium, 85 mg/kg; copper, 65 mg/kg; lead, 3,000 mg/kg and zinc, 1,400 mg/kg. Visible signs of erosion included a cut bank used by cattle. However, most of the cut bank was stabilized with grasses.

Deposit QP is located to the east of the Arkansas River and comprises a portion of the riverbank. It contains approximately 9,122 ft<sup>3</sup> of mine-waste over an area of approximately 17,283 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 80 mg/kg; copper, 535 mg/kg; lead, 1,900 mg/kg; and zinc, 3,450 mg/kg. The deposit had isolated spots of grasses and willows. Salts were observed on the surface. The visible signs of erosion included a 2.5-foot cut bank.

Deposit QQ is located to the east of the Arkansas River. It contains approximately 4,019 ft<sup>3</sup> of mine-waste over an area of approximately 4,385 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 46 mg/kg; lead, 2,000 mg/kg; and zinc, 940 mg/kg. The deposit was well vegetated. The visible signs of erosion included a small cut bank.

Deposit QR is located to the east of the Arkansas River. It contains approximately 8,606 ft<sup>3</sup> of mine-waste over an area of approximately 9,954 ft<sup>2</sup>, and has an average mine-waste depth of 0.9 ft. Samples from the deposit had average concentrations of the following metals: cadmium, 115 mg/kg; copper, 55 mg/kg; lead, 4,700 mg/kg and zinc, 950 mg/kg. There were areas with grass cover within the deposit.

Deposit QT is located to the east of the Arkansas River adjacent to the river. It contains approximately 7,243 ft<sup>3</sup> of mine-waste over an area of approximately 7,009 ft<sup>2</sup>, and has an average mine-waste depth of 1.0 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 75 mg/kg; copper, 300 mg/kg; lead, 1,300 mg/kg; and zinc, 1,200 mg/kg. The deposit had dead willows and no vegetation except some grasses along the river. The visible signs of erosion included a one-foot cut bank.

Deposit QV is located to the west of the Arkansas River. It contains approximately 10,415 ft<sup>3</sup> of mine-waste over an area of approximately 4,933 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 174 mg/kg; copper, 227 mg/kg; lead, 4,733 mg/kg; and zinc, 12,667 mg/kg. Salts were observed on the surface. Samples collected from deposit QV showed soil pH from 3.9 to 5.1.

Deposit QW is located to the west of the Arkansas River. It contains approximately 3,916 ft<sup>3</sup> of mine-waste over an area of approximately 1,698 ft<sup>2</sup> and has an average mine-waste depth of 2.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 128 mg/kg; copper, 293 mg/kg; lead, 1,240 mg/kg; and zinc, 6,000 mg/kg. Salts and livestock tracks were observed

on the surface. Grass is invading along the edges of the deposit. Some grass clumps were observed in the center of the deposit. Samples collected from deposit QW showed soil pH from 4.0 to 4.9.

Deposit QX is located on the west bank of the Arkansas River. It has an actively eroding three-foot cut bank on the river. Dead willows, salts, and cattle tracks were observed on the surface. It contains approximately 8,098 ft<sup>3</sup> of mine-waste over an area of approximately 3,786 ft<sup>2</sup>, and has an average mine-waste depth of 2.1 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 670 mg/kg; lead, 6,400 mg/kg; and zinc, 2,300 mg/kg. One sample from deposit QX showed a soil pH of 3.4.

Deposit QY is adjacent to a cobble deposit by a small stream to the west of the Arkansas River. It contains approximately 1,658 ft<sup>3</sup> of mine-waste over an area of approximately 3,510 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 48 mg/kg; copper, 430 mg/kg; lead, 7,600 mg/kg and zinc, 5,900 mg/kg. Salts and cattle tracks were observed on the surface. One sample from deposit QY showed a soil pH of 4.7.

Deposit QZ is located to the west of the Arkansas River. It contains approximately 492 ft<sup>3</sup> of mine-waste over an area of approximately 1,687 ft<sup>2</sup>, and has an average mine-waste depth of 0.3 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 190 mg/kg; copper, 270 mg/kg; lead, 7,200 mg/kg and zinc, 3,400 mg/kg. Animal tracks and a small amount of salts were observed on the surface. One sample from deposit QZ showed a soil pH of 1.5.

Deposit RA is located to the west of the Arkansas River just south of County Road 55. It contains approximately 33,319 ft<sup>3</sup> of mine-waste over an area of approximately 45,263 ft<sup>2</sup>, and has an average mine-waste depth of 0.7 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 412 mg/kg; copper, 513 mg/kg; lead, 2,200 mg/kg; and zinc, 29,667 mg/kg. Erosional ditches, salts, and cattle tracks were observed on the surface. Samples collected from deposit RA showed soil pH from 3.0 to 4.1.

Deposit RB is located on the west bank of the Arkansas River just south of County Road 55. It contains approximately 15,856 ft<sup>3</sup> of mine-waste over an area of approximately 27,182 ft<sup>2</sup>, and has an average mine-waste depth of 0.6 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 240 mg/kg; lead, 3,000 mg/kg and zinc, 1,000 mg/kg. Some salts were observed on the surface. One sample from deposit RB showed a soil pH of 2.8.

Deposit RC is located on the west bank of the Arkansas River. It contains approximately 1,984 ft<sup>3</sup> of mine-waste over an area of approximately 3,662 ft<sup>2</sup>, and has an average mine-waste depth of 0.5 ft. Samples from this deposit had average concentrations of the following metals: cadmium, 65 mg/kg; copper, 300 mg/kg; lead, 1,700 mg/kg and zinc, 1,100 mg/kg. There was a cut bank that was primarily cobbles. Some salts and dead willows were present on the surface. One sample from deposit RC showed a soil pH of 3.7.

Deposit RF is a small deposit located five feet west of the Arkansas River. It contains approximately 7,287 ft<sup>3</sup> of mine-waste over an area of approximately 2,429 ft<sup>2</sup>, and has an average mine-waste depth of 3.0 ft. Samples from this deposit had concentrations of the following metals: cadmium, 320 mg/kg; copper, 520 mg/kg; lead, 3,100 mg/kg; and zinc, 12,000 mg/kg. The deposit was non-vegetated. One sample from deposit RF showed a soil pH of 5.5.