

Appendix J

Shortened Review of OU7 & OU17

**I. SOUTH JORDAN EVAPORATION PONDS (OPERABLE UNIT No. 7, OU7),
BASTIAN SINK (OPERABLE UNIT No. 17, OU17) & ANCILLARY FACILITIES**

A. Background

In the mid 1990's the Agencies began an investigation of the areas representing the South Jordan Evaporation Ponds (OU7) and the Bastian Sink (OU17). The South Jordan Evaporation Ponds were implicated as a source of a ground water plume containing elevated sulfates (Zone B of Operable Unit No. 2, previously addressed under the 2000 Kennecott South Zone Record of Decision).

1. South Jordan Evaporation Ponds (OU7) includes an area in the western part of the City of South Jordan which was used to store and dispose of excess water from Kennecott's Bingham Canyon mining operations. The waters, which were moderately to severely contaminated, deposited sludges of varying composition before they infiltrated into the ground, evaporated or were discharged to the Jordan River. The area affected by the ponds was about 1200 acres. The amount of water diverted from Bingham Creek to the ponds varied greatly from year to year. Because of the porous nature of the ponds, it was estimated that 80% of the water conveyed to the ponds from 1936 to 1965 seeped into the ground. A 1985 engineering study indicated that there were 182 acres of clay lined ponds, 87 acres of old sludge lined ponds, and 271 acres of unlined ponds. In 1991 Kennecott estimated that there were 3.1 million cubic yards of sludges from lime treatment covering 375 acres and another 830 acres were contaminated with untreated sludges. Pre-removal maximum concentrations of lead and arsenic were approximately 10,400 mg/kg and 1330 mg/kg respectively. Mean concentrations of lead and arsenic were approximately 207 mg/kg and 74 mg/kg respectively. Subsequent to the site characterization an Administrative Order on Consent (Docket No. CERCLA-VIII-94-18) was issued to require removal action at the South Jordan Evaporation Ponds. Though not established specifically under the AOC, cleanup goals selected by Kennecott consisted of attaining a post removal surface lead concentration of 1000 mg/kg. Materials (soil, waste rock, sludges) above the cleanup goal were removed to the Eastside Waste Rock Dump of the Bingham Canyon Mine. Sludges elevated for sulfate were consolidated and capped on-site.
2. Bastian Sink OU17 is located approximately ½ mile south of the Trans Jordan Landfill. In 1990 Kennecott speculated that this topographically low area was used to hold waters diverted from Bingham Creek via the Bastian Ditch. A description of the area in 1990 notes the north half is farmed and the south half had salt grass (April 2005 Oquirrh Mountain Mining & The Environment). Characterization (pursuant to Unilateral Administrative Order Docket No. CERCLA-VIII-93-06) of the site delineated a maximum lead and arsenic concentration of 27,000 mg/kg and 660 mg/kg respectively (April 2005 Oquirrh Mountain Mining & The Environment). In 1991 Kennecott reported that there was approximately 800,000 cubic yards of lead contaminated material in the Bastian Sink (at the time Kennecott owned the south half of the Sink and the north half was privately owned). In 1994 EPA performed a phyto-toxicity assessment on wheat grown in the Sink and found some evidence of phyto-toxicity but little uptake of lead into the wheat grains. As part of the OU2 response work being implemented by Kennecott, Kennecott purchased the section of the Bastian Sink owned by the private party but did not perform a removal action.

In the September 2001 ROD EPA selected no further action for OU7 because the previous removal actions adequately satisfied remedial objectives and only low levels of lead and arsenic remained at the site. In early 2000 it became known that Kennecott Land (sister company of Kennecott Utah Copper) was interested with developing the lands associated with OU7 and OU17 into the master planned community called Daybreak. Because plans included developing a lake in the area of the consolidated sulfate sludge ponds located at OU7 and residential development near OU17, EPA issued an Operation & Maintenance Plan (December 2006) for OU7 (including OU17) to ensure that materials above the selected unrestricted land use/unrestricted exposure (UU/UE) standards for lead (500 mg/kg) and arsenic (50 mg/kg) were removed at the time of development. Material removed from OU7 and OU17 were deposited in the Copper Notch repository located in Copper Gulch, which is behind the Eastside leachate Collection System.

Pursuant to removal work performed under the approved work plans (December 26, 2006), post removal sampling at OU7 delineated a maximum lead and arsenic concentration of 427 mg/kg and 50 mg/kg respectively. Said sampling delineated a mean concentration for lead and arsenic of 85 mg/kg and 21 mg/kg respectively. Post removal sampling at OU17 delineated a maximum lead and arsenic concentration of 499 mg/kg and 45 mg/kg respectively. Said sampling delineated a mean lead and arsenic concentration of 181 mg/kg and 15 mg/kg respectively. Based upon the information reported by Kennecott Land, the Agencies noted in a letter dated December 20, 2007 that based upon the then current information no further removal action was anticipated at the South Jordan Evaporation Ponds (OU7) and Bastian Sink (OU17). Thus, on February 14, 2008 the Agencies documented a decision that no five-year reviews were necessary for OU7 and OU17.

Subsequent to Kennecott Land's efforts to design and construct the master planned community, Daybreak, ancillary sites to OU7 and OU17 have come to the attention of the Agencies and Kennecott Land. Working in cooperation with Kennecott Utah Copper, Kennecott Land has addressed these smaller historic mine sites as they arise, with the Agencies' oversight. Currently the Agencies are reviewing the post response documentation for Kennecott Land's characterization of and (in some cases) removal action at a section of the Bastian Ditch (located in the south half of Section 22, Township 3 South, Range 2 West of the Salt Lake Base and Meridian, SLBM), Ponds A0 & F (located in the north half of Section 1B in Township 3 South, Range 1 West of the SLBM), and the Evaporation Pond Canal and Tailwater Ditches (located in the north half of Section 13, Township 3 South, Range 2 West of the SLBM). The review of the post response documentation for the Bastian Ditch was deemed outside the scope of this five-year review.

The Agencies' are also working with Kennecott Land as they plan and implement a removal action along the Dalton & Lark Spur rail lines in the area of the Daybreak Commerce Park (located in Salt Lake County approximately in the northeast quarter of Section 14 and the north half of Section 15, T3, R2W, SLBM). Eventually the rail removal projects will include the historic Denver, Rio Grande & Western freight line extending west to Copperton, paralleling 9000 South. These rail corridors were part of OU1, Bingham Creek, but were not address during the response work in the 1990's by Kennecott and ARCO because access was not granted at the time.

B. Recommendations & Conclusions

The removal action in 2006-2007 addressing OU7 and OU17 attained the cleanup goals as required under the 2006 Operation & Maintenance plan (soils with a concentration of lead no greater than 500 mg/kg and arsenic no greater than 50 mg/kg). As such no further response actions neither is necessary at these two operable units, nor are further five-year reviews.

Beyond the original scope of the 2006 Operation & Maintenance plan, Kennecott Land has continue to address historical mine impacted sites as the land use in the Daybreak community is changed. This ongoing work continues under the 2006 O&M Plan. Under separate letter (September 22, 2006) the Agencies accepted site specific residential (lead - 700 mg/kg and arsenic - 100 mg/kg) and commercial (lead – 2000 mg/kg and arsenic – 450 mg/kg) land use standards for lead and arsenic in the area of the Daybreak community. These are the standards that these continued cleanup projects (as they arise in the Daybreak community) shall continue to achieve. The Agencies' have agreed to continue to coordinate with Kennecott Land at overseeing these cleanups when they arise