

State of Oregon
Department of Environmental Quality

Memorandum

Date: March 15, 2000

To: Paul Slyman, Environmental Cleanup Division

From: Karl Morgenstern, Western Region Cleanup Program

Through: Keith Andersen, Western Region Cleanup Program Manager
Sally Puent, Headquarters F&O Manager 

Subject: Request for Orphan Site Designation – Silver Butte Mine
ECSI No. 1449

The purpose of this memorandum is to request official designation of the Silver Butte Mine project (Business Office # 844820) as an Orphan Site, as defined in Oregon Revised Statute (ORS) 465.381. The purpose of the designation is to make the Orphan Site Account available for funding the stabilization and cleanup of this site instead of the Hazardous Substance Remedial Action Fund (HSRAF). The Orphan Site Account may be used for “expenses of the department related to facilities or activities . . . where the department determines the responsible party is unknown, unwilling, or unable to undertake all required removal or remedial action . . .” (ORS 465.381). As described in this memorandum, DEQ has determined that the currently identified potentially responsible parties are financially “unable” and/or “unwilling” to undertake required cleanup actions.

The Silver Butte Mine site, an inactive copper and zinc mine, encompasses approximately 76 acres of steep mountainous terrain characterized by narrow ridges and deep canyons. The mine operated in the early 1900s, with the majority of production occurring between 1927-1933. Silver Butte Mine was re-opened by Formosa Explorations, Inc. (Formosa) in 1990. Formosa operated the mine from 1990 to 1994 and produced copper and zinc ore at a rate of 350-400 tons per day. The Oregon Department of Geology and Minerals Industries (DOGAMI) permitted the mining activities and required Formosa to establish a reclamation bond prior to beginning operations.

Upon closure of the mine in 1994, DOGAMI required Formosa to conduct mine reclamation activities using the \$1 million bond. These activities included placement of the most reactive material (mill tailings and high-grade crushed ore) back into the mine workings. Other low-grade crushed ore and limestone was also backfilled in the former mine workings. The adits were capped with concrete and limestone rock for buffering. A pipe was placed at the adit to drain the acid mine drainage (AMD) to a scree slope to prevent impacts to the Cow Creek watershed. Approximately 20,000 cubic yards of low-grade ore was placed in a lined cell and capped. Reclamation activities also included the removal of approximately 20 tons of pyrite from Middle Creek.

After Formosa spent the bond money and satisfied DOGAMI reclamation requirements, the company declared bankruptcy and is no longer a viable company. In the winter of 1995/1996, the drainfield from the adits failed and began releasing AMD to Middle Creek. AMD was also discovered near the encapsulation mound and from acidic waste rock dumped over the side of nearby ridges. All of the mine workings, one of the two closed adits, the encapsulation mound, and the waste rock dump areas are located on private land owned by the former Formosa mine company. The second adit is located on land owned by the U.S Bureau of Land Management (BLM).

AMD from the Silver Butte Mine site drains into Middle Creek and the South Fork of Middle Creek. Middle Creek is a tributary to Cow Creek. Both watercourses are considered habitat for threatened or endangered cutthroat trout, coho salmon, and steelhead candidate species. Baseline studies prior to 1993 (when mining operations started) indicated the presence of coho salmon and steelhead in Middle Creek and the abundance of macroinvertebrate populations. Post-mining monitoring of the South Fork of Middle Creek, Middle Creek and Cow Creek indicate that 24 stream miles have been impacted from metals contamination associated with AMD (primarily cadmium, copper, lead, and zinc) from the Silver Butte Mine site. The majority of impacted stream miles are located on BLM land. Sixteen of these 24 stream miles show significant impacts such that macroinvertebrate populations are minimal and in some areas nonexistent. Salmon and steelhead are no longer present in Middle Creek.

Middle creek is designated as a Tier 1 Key Watershed under the Northwest Forest Plan and has a high priority for watershed restoration. In addition the City of Riddle obtains its drinking water from an intake on Cow Creek. Based these impacts to a significant portion of the Middle Creek watershed and the fact that this watershed feeds the City of Riddle's drinking water source, DEQ has determined that this project is a high priority for further action.

Formosa is not expected to be able to contribute towards the investigation and cleanup costs at the site because it has sought bankruptcy protection from its creditors. DEQ has tried to contact Formosa, officers of the former company, and attorneys who represented the defunct company. DEQ was unable to locate any party associated with Formosa to have an access agreement signed or to conduct an ability to pay analysis. Douglas County has indicated that they would begin the foreclosure process due to unpaid taxes in late 2001. Douglas County has repeatedly tried to contact representatives of Formosa over the last two years without success. DEQ will continue to investigate any leads that are uncovered through discussions with DOGAMI and BLM. In summary, it is unlikely that Formosa will be able to undertake the cleanup effort.

DEQ and BLM are working cooperatively to investigate and cleanup the Silver Butte Mine site. BLM has taken the lead on conducting and completing the Remedial Investigation (RI) to determine the nature and extent of the contamination and identify source areas to be targeted for interim removal actions. DEQ will take the lead on implementing interim removal actions to address the AMD problems and stabilize the site. BLM will then take over post-removal monitoring and conducting long-term operations and maintenance activities. DEQ and BLM are in the early stages of preparing and negotiating a Memorandum of Agreement (MOA) that will

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state each agency's roles and responsibilities and outline cost recovery efforts. BLM is unwilling to fund interim removal measures at the source areas pending further discussions regarding site responsibility and negotiation of a MOA.

DEQ recommends using funds from the Orphan Site Account to conduct the activities necessary to evaluate, design, and implement interim removal actions to address the threats from the former Silver Butte Mine site. DEQ has determined that the contamination poses a significant current and ongoing threat and that there is a need for immediate removal actions to protect public health, safety, welfare, and the environment.

With the approval of Orphan designation for this site, the Business Office will begin using the Orphan Site Account to pay for Account-eligible activities. Orphan Site Account declaration will also enable a transfer of any appropriate prior expenses from HSRAF to DEQ's Orphan Site Account. If additional parties responsible for contamination are identified, DEQ will seek to have those parties reimburse DEQ for a fair share of the Orphan Site costs.

Please sign below to approve this request for designation of the Silver Butte Mine project as an Orphan Site, and to authorize use of the Orphan Site Account.



Paul Slyman, Administrator
Environmental Cleanup Division

3/22/00
Date