

State of Oregon  
Department of Environmental Quality

Memorandum

Date: August 12, 2002

**To:** Dick Pedersen, Land Quality Division Administrator

**From:** Amanda Spencer, Western Region Cleanup Program

**Through:** Marilyn Daniel, Western Region Cleanup Program Manager  
A.K. Al Kiphut, Environmental Cleanup & Tanks Manager

**Subject:** Request for Orphan Site Designation – Black Butte Mine  
ECSI No. 1657

The purpose of this memorandum is to request official designation of the Black Butte Mine project (Business Office # 156100) 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. 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” or “unwilling” to undertake required cleanup actions.

**Background**

Black Butte Mine is a former mercury mine. The mine was developed in the late 1890s and was operated under various owners, until its final closure in the late 1960s. The Black Butte Mine was the fourth largest producing mercury mine in Oregon.

The DEQ completed a Preliminary Assessment of the site in 1996. Approximately 300,000 cubic yards of mine tailings were noted on the site. The tailings are located within approximately 30 feet of Dennis Creek, a tributary to the Coast Fork of the Willamette River. The Coast Fork flows into Cottage Grove Reservoir. Studies conducted by Oregon State University in 1990 found elevated concentrations (up to 1.8 parts per million or ppm) of mercury in fish tissue in the reservoir and up to 1.1 ppm of mercury in reservoir sediments. A study conducted by the U.S. Geological Survey (USGS) in 1992 reported up to 2.5 ppm mercury in sediments in Dennis Creek downgradient from Black Butte mine.

The U.S. Environmental Protection Agency (EPA) conducted a site investigation of the former mine site in 1998. Potential source areas investigated as part of the assessment included mine tailings, waste rock, the former mill and smelter area, and mine drainage from an abandoned adit (opening into the mine) noted to have filled with water. Eight (8) sediment samples were collected from Dennis and Garroute (an additional nearby creek) Creeks, and the mine adit; eleven (11) groundwater samples were collected from existing domestic wells and 2 springs in

the site vicinity; and fourteen (14) surface soil samples were collected from the mine tailings, the former mill/rotary kiln area, and background locations.

Mercury and arsenic were detected at each of the potential sources areas identified at the site at concentrations above the background concentrations. Mercury concentrations in sediment samples were consistently higher in samples collected from Dennis Creek downgradient of the tailings piles than in the sediment sample collected upgradient of the mine. Mercury was detected at 48 ppm in sediment from Dennis Creek directly below the tailings pile.

Although mercury was not detected in the domestic wells sampled, arsenic was detected at approximately 94 micrograms per liter ( $\mu\text{g/l}$ ) in two domestic wells. The drinking water Maximum Contaminant Level (MCL) for arsenic is currently 50  $\mu\text{g/l}$ . Elevated concentrations of arsenic (30.5  $\mu\text{g/l}$ ) were also detected in the background well sampled and it is not clear whether the arsenic in the groundwater is related to the mining activities previously conducted at the site.

A residence is located directly adjacent to the mine site on the west. The residents reportedly obtain their domestic use water from a spring located on the mine site. The spring was tested for the presence of metals. Metals, including arsenic, were not detected in the spring water above current MCLs (mercury was not included in the analysis).

Based on the EPA investigation, arsenic and mercury are present in the site soil and tailings, at levels that exceed health based standards for residential exposure and may pose a health risk to the nearby residents. In addition, elevated concentrations of mercury were detected in Dennis Creek adjacent to the mine tailings and may be a continuing source of mercury to sediments and/or fish in Cottage Grove reservoir. Mercury concentrations in sediment in Dennis Creek are almost 100 times greater than the NOAA Upper Effects Threshold for freshwater sediments. Upper Effects Thresholds are sediment chemical concentrations above which statistically significant biological effects always occur.

### **Potentially Responsible Parties**

The site has been owned by the Land and Timber Company since 1994. Land and Timber Company purchased the property for Mr. Larry Olson, who purchased the property from John Hancock Mutual Live Insurance Company in April 1991. John Hancock Mutual Life Insurance Company owned the property from 1982 to 1991. Information request letters were sent to Land and Timber Company and Larry Olson. Based on their responses, none of the parties operated the mine while they owned the site. The entities that owned the mine during its operation or operated the mine do not appear to be viable. DEQ will verify this information. Environmental studies had been published prior to 1994 that reported elevated concentrations of mercury in Cottage Grove reservoir and suggested Black Butte as a source of this mercury. These reports would be readily available during a typical environmental due diligence search prior to a property transaction, such as the transaction from Larry Olson to Land and Timber Company. Therefore, it appears that Land and Timber Company is a responsible party under ORS 465.255. DEQ sent a letter to Land and Timber Company, to notify them that further site investigation and cleanup is needed at the mine site and requesting they respond to us whether they are willing to conduct this

work. Land and Timber Company stated that they are not responsible for the mine cleanup because they did not operate the mine and are unwilling to complete the investigation/cleanup.

**High Priority Site**

EPA has contacted DEQ to notify them that they currently do not have the staff or funding to address the contamination at this site and requested that the DEQ pursue this additional work. In order to expedite the investigation and cleanup of the former mine site, DEQ recommends using funds from the Orphan Site Account to conduct the activities necessary to evaluate, design, and implement removal and/or remedial actions to address the threats from the former Black Butte Mine site. DEQ has determined that the contamination poses a significant current and ongoing threat and that there is a need for expeditious investigation and cleanup or removal action 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. DEQ will continue to research for possible additional responsible parties for the site cleanup. If 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 Black Butte Mine project as an Orphan Site, and to authorize use of the Orphan Site Account.



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Dick Pedersen, Administrator  
Land Quality Division



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Date