

R. Michael Turnnspeed, Director

ALLEN BIAGGI, Administrator

(775) 687-4670
TDD 687-4678

Administration
Water Pollution Control
Facsimile 687-5856
Mining Regulations & Reclamation
Facsimile 684-5259

State of Nevada
KENNY C. GUINN
Governor



Waste Management
Corrective Actions
Federal Facilities

Air Quality
Water Quality Planning

Facsimile 687-6396

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138
Carson City, Nevada 89706

July 30, 2002

Mr. Dave McCarthy
Atlantic Richfield Company
307 E Park Ave.
Anaconda, Montana 59711

SUBJECT: Draft Conceptual Site Model: Yerington Mine

Dear Mr. McCarthy:

The Nevada Division of Environmental Protection (NDEP) has received and evaluated the **Draft Conceptual Site Model: Yerington Mine**, dated June 13, 2002, regarding the continued environmental investigation of the Yerington Mine, located in Lyon County near Yerington Nevada. This office provides the following comments from NDEP, EPA, BLM, U.S. Fish and Wildlife and other technical representatives of the Yerington Technical Work Group (YTWG).

General Comments

This document should be considered a stand-alone document. As it functions as an introduction to the sources and chemicals of concern (COCs), enough background must be included to establish that all potential sources and COCs are included. The conceptual site model (CSM) presented in the draft report is a good start at describing the source areas, migration pathways, and end-point receptors associated with metals fate and transport at the Site. The CSM is important because it allows us to evaluate and prioritize characterization and remediation activities, to develop data quality objectives and design remedial goals, to determine which source areas can be appropriately grouped into operable units, and to assess the impact potential remedial alternatives will have on the Site as a whole.

We agree that the CSM should be considered draft at this stage of the overall Site investigation. However, while it may not be possible to provide details of sources and pathways based on our current knowledge of the Site (p.1, & 2 of draft CSM report), the CSM should be refined as more environmental data are received. Greater specificity regarding COCs is appropriate at this stage. The CSM document should be maintained and updated as our understanding of the Site and the associated fate and transport processes improves. As mentioned before, historical plant records and supplemental historical interviews must be utilized to demonstrate that any potential sources have been identified.

All potential contaminant source areas need to be identified for future investigations. The pit lake, sewage ponds, landfills, and asbestos pipe need to be shown and addressed. Also, please include a general discussion of proposed land use.

Specific Comments Page 1

Potential Sources, Discharges of Process Water; Historical records and aeriels have demonstrated that unlined ditches and drains may also be potential sources and should be investigated. Data is limited in many areas of the site, however, a general list of COCs analyzed for and detected to date should be included

Evaporation ponds have been identified as potential sources of contaminants of concern (COCs) to underlying soils, soil water, and ground water. Is there any potential for the evaporation products (for example, salts) to be entrained by winds and escape the Site proper as fugitive dust?

Similarly, does the spray evaporation system contribute to elevated metals concentrations in fugitive dust?

Specific Comments Page 2

Potential Pathways; Text and investigations should also include discharges and spills of solutions from site operations.

Potential Pathways; Percolation of process waters into the subsurface was identified as a potential historic release mechanism that likely ceased when mining operations ended. Since the installation of the ground-water pumpback system, water withdrawn from the shallow zone of the aquifer has been discharged into the same unlined and lined evaporation ponds on the site. What was(is) the potential for these waters to percolate downward into the subsurface? What evidence supports the hypothesis that infiltration from the evaporation ponds no longer is a release mechanism?

Erosion; Text and investigations should include depositional areas that may in turn become secondary source areas.

Transport Mechanisms; Text should include that the historic discharges to drainage ditches may have resulted in surface water transport along the drain and possibly into the seasonal

wetland both on and downstream of tribal lands. Also, potential release of COCs from the sediments present inside the Wabuska Drain as well as along the banks and in the seasonal wetlands should be considered.

Transport Mechanisms; Characterizing the subsurface geochemical conditions and understanding the geochemical processes are crucial steps to evaluating the mobilization and attenuation of COCs at the Site. At present, the CSM lacks Site specific geochemical data to support any hypotheses on the fate and transport of COCs. The CSM will need to be refined as data are collected and processes are defined. This will allow the technical work group to evaluate the impact that different remedial strategies will have on individual mine units, as well as the Site as a whole.

The Pit Lake at the Yerington Mine site has been described as an evaporative sink. What evidence supports this hypothesis? Has a water balance been determined for this Pit Lake system? At what point in the future will the level of water in the Pit reach the pre-mining water level? At that time, will evaporation from the Pit lake surface be sufficient to sustain radial flow towards the Pit or will the Pit Lake become a flow-through system? What is the current capture zone for the Pit Lake system? If radial flow towards the Pit continues after the water surface reaches the pre-mining level, how will the predicted capture zone differ from the current capture zone?

Specific Comments Page 3

Potential Receptors and Exposure Routes; Uptake of contaminants from soil and water by plants should also be included in the discussion in this section. The text should also recognize that bioaccumulation may occur through the food chain for various biotic receptors. Exposure routes to ecological receptors should also include dermal contact and inhalation of dust.

Exposure routes to human receptors should include ingestion of terrestrial and aquatic biota that have been exposed to contaminants. Examples could include human consumption of waterfowl, that have used the pit lake and consumption of fish from Wabuska Drain or possibly the Walker River downstream of its confluence with Wabuska Drain. Specific exposure scenarios that encompass actual tribal subsistence exposures will be developed in consultation with the tribes in preparation for the risk evaluation.

Specific Comments to Figure 1

Change “Water (Wabuska Drain)” to “Surface Water”. Draw an arrow from Sediment to Surface Water, as surface waters may remobilize contaminants from sediments. Add Terrestrial Biota as a potential receptor from Fugitive Dust. It also seems that there may be dermal contact and incidental ingestion(Exposure Routes) from Fugitive Dust, although minor, as well as dermal contact with sediment.

Some of the specific ecological receptors include livestock (horses) and crops. Dermal exposure route should be added for sediment for human receptors.

An arrow should be drawn from Groundwater to the Yerington Pit Lake.

Please add a key to the chart, showing, at a minimum, the purpose of the black, dotted and blue lines.

For Groundwater: Potential Receptors include livestock and crops. Exposure Route should include dermal contact.

Food chain pathways should be listed on the figure. For example fish or hunting of game (deer/rabbit).

Add a box in the Potential Sources column for secondary sources to account for a) dust re-suspended and b) sediments to the Wabuska Drain (contaminants to surface or groundwater).

Specific Comments to Figure 2

Show the direction of flow of the Walker River and also Wabuska Drain. The linkage between Wabuska Drain and the Walker River should be shown. Humans are illustrated as receptors, therefore it would not be inappropriate to put a duck, as a representative species, on the pit lake. The cross section through the tailings pile should also apply to the leach pad. Landfill units should be added to the figure, as well as monitoring wells.

Please add a key for the figure.

The pump back well diagram shows an ideal cone of depression, which is not realistic or actual. The pump back system may not be an effective barrier to impacted groundwater and the drawing should demonstrate that some contaminated or mine impacted groundwater is passing through the line of wells. Ponds with poor, ineffective liners (asphalt) reside down gradient of the pump back wells. This should also be shown.

Ground water could be a potential secondary source of contamination to the pit lake and the pit lake could be a source of contamination to groundwater and/or the Walker river. Add alluvial fan type deposition on Western side of site. This deposition could range from large boulders to fine grained sediments.

Show surface down gradient trends to be north.

At least three types of landfills exist, (municipal waste, flood debris, mine process and equipment waste/debris) these should be shown on the diagram and investigated as potential contaminant source areas. Add sewer treatment ponds as potential sources of ground water impacts.

The transite Pipe may be source of asbestos that needs to be shown on the diagram.

As mentioned above, there is indication that other unlined ditches and drains may also be potential sources and should be demonstrated on the figure. Historical riverbed channels may be

beneath the site and may act as conduits for contaminated groundwater transport. This should also be shown.

Fugitive dust should be depicted as a potential secondary source.

The Pit Lake also should be shown as a potential source to groundwater.

There are other potential areas of surface soil contamination that should be depicted on the figure. For example, areas near the process areas where there are stains. Other features like the electrowinning facility and the transformer recycling operations should be shown on the figure. Currently we assume that they would be included within the Process Areas. Maybe add text to this title to include these other potential sources. Same comment applies to the small “jumpout” map entitled Cross Section Through Arimetco Leach Pad. Possibly make the title more generic to include other potential sources.

Please show connection between Wabuska Drain and the Walker River (possibly an arrow). Also, there is a potential for terrestrial and aquatic biological receptors impacted by groundwater discharges to irrigation ditches and the Walker River (depending on groundwater surface water interactions in the vicinity of the Site).

Include livestock in the agricultural areas.

Specific Comments to Figure 3

Although the focus here is on mine units, it would be helpful to label the following: Weed Heights, as it shows the proximity of humans to the site as well as showing its location; the location of Wabuska Drain, and the location of the Walker River.

Please add the Former Plant Site where Arimetco later constructed the Megapond.

It appears that the Waste Rock Area (North) was actually a low grade stockpile. It was also a former Anaconda Leach Pad and was operational for an undetermined length of time.

Accordingly, please provide the **Final Conceptual Site Model: Yerington Mine**, which incorporates the above comments. This information must be received not later than August 30, 2002 as per the previously agreed onsubmittal schedule.

Should you have any questions or if I can be of any assistance, please do not hesitate to contact me at (775) 687-9376 or FAX (775) 687-6396. All future correspondence regarding this subject should be addressed to the undersigned.

Sincerely,



Arthur G. Gravenstein, P.E.
Staff Engineer
Remediation Branch
Bureau of Corrective Action

ec: Ms. Jennifer Carr, NDEP
Mr. Doug Zimmerman, NDEP
Yerington Technical Work Group
Yerington Stakeholders Group

cc: Mr. Brad Shipley, Project Manager, Bureau of Land Management, Carson City Field Office, 5665 Morgan Mill Road, Carson City, NV 89701
Ms. Molly Mayo, Senior Mediator, Meridian Institute, P.O. Box 1829 Dillon, CO 80435
Mr. Elwood Emm, Chairman, Yerington Paiute Tribe, 607 W. Bridge St., Yerington, NV 89447
Mr. Robert Quintero, Chairman, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427
Mr. Tad Williams, Environmental Director, Walker River Paiute Tribe, P.O. Box 220, Schurz, NV 89427
Mr. Stanley Wiemeyer, U.S. Department of Interior, Fish and Wildlife Service, 1340 Financial Blvd, Suite 234, Reno, NV 89502-7147
Mr. John Krause, Environmental Coordinator, Bureau of Indian Affairs, Phoenix Area Office, P.O. Box 10, Phoenix, AZ 85001
Ms. Bonnie Arthur, Project Manager, U.S. Environmental Protection Agency, Region IX, 75 Hawthorne Street, San Francisco, CA 94105
Ms. Phyllis Hunewill, Commissioner, Lyon County, 31 South Main Street, Yerington, NV 89447
Mr. Steve Snyder, County Manager, Lyon County, 31 South Main Street, Yerington, NV 89447
Mr. Dan Newell, Manager, City of Yerington, 102 South Main Street, Yerington, NV
Mr. Bob McQuivey, Habitat Bureau Chief, Nevada Division of Wildlife, 1100 Valley Road, Reno, NV 89520
Ms. Libby Levy, 75 Hawthorne Street, San Francisco, CA 94105