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United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Custom House, Room 244
200 Chestnut Street
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IN REPLY REFER TO:

October 8, 1996

ER-96/588

Mr. Mark Thaggard
Low-Level Waste and Decommissioning Projects Branch
Mail Stop T7D-13
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Thaggard:

The Department of the Interior (Department) has reviewed the July 1996 Draft Environmental Impact Statement (draft EIS) for the Decommissioning of the Shieldalloy Metallurgical Corporation, Cambridge, Guernsey County, Ohio. The Department offers the following comments for your consideration in preparing the final EIS.

Water and Geologic Resources

The two wells completed in the bedrock aquifer indicate a downward gradient of 0.018 between the shallow and bedrock aquifer. Horizontal gradients in the shallow aquifer are about 0.008. Although there is obviously a downward component of ground-water flow (this potential is acknowledged on page 3-21), the section on modeling (page 4-18) assumes horizontal flow, and in subsequent sections the flow system does not include the bedrock aquifer. According to the draft EIS, surrounding domestic wells are completed in the bedrock aquifer, as are the City of Byesville's water supply wells (approximately 1 mile away). The City of Byesville pumps about 1 million gallons per day from this aquifer, according to the report. The final EIS should be modified to reflect the downward component of ground-water flow.

There is coal-bearing stratigraphy underlying the east slag pile (well MW-5). There are also strip mines less than 0.5 mile away. The draft EIS (page 3-15) indicates that it does not appear that coal was mined beneath the site. However, there are not enough data supporting that conclusion. Only one or two wells actually penetrated bedrock deep enough to determine if the coal was present. The City of Byesville's wells may have been completed

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in mine voids. If so, any transport times would be hours, not years, and the flow directions from wells completed in overlying or underlying units would potentially be in error. The final EIS should acknowledge that there may not be sufficient data to support the conclusion that coal mining may not have occurred beneath the site.

The up-gradient (background) wells, as indicated in Table 3.3-2 and shown on Figure 3.3-3, are still within or very near the confines of the site and the final EIS should acknowledge that activities associated with transport of slag material may affect background concentrations. Wells MW-17 and MW-19 are within approximately 100 feet of rail lines that were used to haul either the slag or the material used to generate the slag. The relatively high levels of arsenic and radionuclides in these wells may not represent background. Also, there is no water-quality information associated with bedrock wells, even though domestic supplies are nearby.

The approximate 100-year floodplain (fig. 3.3-11) completely encircles the slag piles and proposed clay caps. The bottom of the slag piles are not lined and may be exposed directly to the water table during high water periods. The final EIS should discuss the potential for a rise of ground water beneath the slag piles to result in direct contact with the slag piles and the environmental consequences of such an event.

The final EIS should discuss how the shallow aquifer responds to water-level rises and falls in Chapman Run and Wills Creek and describe the distance between the water table and the bottom of the slag piles.

Apparently, nominal dispersion is considered for transport in Appendix G, Section G.3.2.3, but it is not clear how contaminants will mix with the entire saturated thickness of the aquifer when the primary source of mixing is dispersion. The assumptions used are not conservative, particularly when information is not given for the bedrock. While it is possible that a well completed directly down-gradient of the slag piles may not capture contaminants from the slag piles, if the well was deeper or pumped at a higher rate, it likely would capture them.

The estimated streamflow for Chapman Run seems too high. The reported average flow for Chapman Run is 90 cubic feet per second (cfs). This translates to a streamflow yield of about 4.6 cfs per square mile of drainage basin. Based on a review of historical streamflow data, most streams in the area have average streamflow yields closer to 1 cfs per square mile. Given the presence of wetlands, the average streamflow in Chapman Run might be expected to be somewhat larger than some other streams in the area. However, it is unlikely that the yield would be as large as reported.

Table 3.3-4 paradoxically shows concentrations of several metals in surface waters to be considerably higher in samples taken near the mouth of Chapman Run than in samples taken at a site located just downstream of the west slag pile (CHRN-03). The final EIS should provide information on how these samples were taken.

Table 3.3-5 lists the downstream site as W-22 but the text on page 3-30 refers to the downstream site as CHRN-04.

Table 3.3-6 should list the specific sites used to compute on-site and off-site concentrations of metals in the sediments.

The conceptual model described on page 4-19, used to evaluate surface-water impacts, assumes that most contaminant transport in surface water occurs in the dissolved phase. This assumption should be reconciled with the fact that in natural systems many trace elements move by sediment transport processes.

Section 3.3.4.1, Wetland Soils: There is no information on the number or locations of samples collected from wetland soils.

Section 3.3.4.2, Ground Water: The concentrations of some radionuclides were elevated above background in April 1995, but not in May 1995. If sampling or analysis errors did not occur, then the ground-water system is dynamic, and a characterization would require more than one or two sampling rounds a year.

In Table 3.3-2, there is no way to distinguish April from May sample results.

We appreciate the opportunity to provide these comments.

Sincerely,

Don Henne

Don Henne
Regional Environmental Officer

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