

June 21, 2005

Mr. John C. Wright, Jr., Project Manager  
Molycorp Washington Remediation Project  
300 Caldwell Avenue  
Washington, PA 15301

SUBJECT: REVIEW OF TECHNICAL BASIS DOCUMENT ON CLASSIFYING AREAS,  
RELEASE CRITERIA AND FINAL STATUS SURVEYS

Dear Mr. Wright:

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the Technical Basis Document on Classifying Areas, Release Criteria and Final Status Surveys submitted by Molycorp on February 28, 2005 (See ADAMS ML050620169), for its Washington, PA facility. In its approved Decommissioning Plan, Molycorp stated that it planned to use NRC guidance contained in the February 13, 1997, letter from John T. Buckley, NRC to Howard A. Pulsifer, AAR Corporation (hereafter, the AAR Method). The AAR Method calculates a series of volume factors by building a ratio of the dose from a specific volume compared to the baseline dose estimate for a large area at the approved limits. However, the volume factors contained within the document were developed solely for thorium. To use the method at the Washington facility, Molycorp needed to develop volume factors for radium and uranium. In 2003, Molycorp performed similar modeling to develop volume factors for Molycorp's York, PA facility. The only difference between the modeling performed and approved for the York facility and the modeling proposed for the Washington facility is that the sampling depth (and therefore, the discrete volume) is 0.6 m (2 feet) at Washington versus 1 m (3 feet) at York.

The modeling used in this process is a set of deterministic calculations using default assumptions from the AAR Method and using RESRAD version 6.22. Molycorp did not provide justification for the parameters utilized, other than they had mirrored the values from the calculations in the AAR Method letter. As is noted in NUREG-1757, Volume 2, if Molycorp were performing a compliance calculation, use of the default deterministic parameters, without adequate justification showing that the overall calculation is reasonably conservative, is not considered appropriate. However, since the baseline dose estimate and the individual volume calculations are divided to calculate the ratio in dose, the effect of using these assumptions is minimal. Variation of individual parameters within likely bounds did not result in substantial changes in the volume factors calculated. Therefore, the staff approves the use of these volume factors for the Molycorp Washington facility.

The classification of areas presented in the Technical Basis Document closely follows the classification of areas in the Supplemental Site Characterization Report submitted by Molycorp on April 30, 2004 (See ADAMS ML041390107). Molycorp used an alternate classification to the Affected and Unaffected classifications in NUREG/CR-5849 that is called the "Areas Affected Below Guidelines." As stated, these areas are impacted by licensed material but extensive characterization data indicate that these areas are within the AAR Method release criteria and no additional radiological surveys are proposed. NRC staff does not agree with Molycorp's conclusion that no additional radiological surveys are necessary in these areas. Therefore, we

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have concluded that additional survey activities, such as scans and subsurface samples, should be performed at 2 to 5 meters within the Areas Affected Below Guidelines and at the borders adjacent to Affected Areas and Areas Affected Below Guidelines to ensure that any discrete veins of contamination are found. Previous characterization survey data may suffice for some locations. Please include this information in your Final Status Survey Report.

The Technical Basis Document notes that a large part of the subsurface contamination is between 4 to 8 feet below the surface. The uncontaminated top layer will be removed and set aside, the contaminated material will be excavated and shipped off site, then the bottom of the excavation will be gamma scanned and samples will be collected to determine if final subsurface release criteria have been met. Prior to backfilling the excavation, Molycorp will need to coordinate closely with NRC staff (or Pennsylvania Department of Environmental Protection staff) so that confirmatory samples and/or gamma scans can be taken.

If you have any questions on these comments, please contact me at (301) 415-5869.

Sincerely,

**/RA/**

Tom McLaughlin, Project Manager  
Materials Decommissioning Section  
Division of Waste Management and  
Environmental Protection  
Office of Nuclear Material Safety and  
Safeguards

License No. SMB-1393  
Docket No.: 040-08778

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have concluded that additional survey activities, such as scans and subsurface samples, should be performed at 2 to 5 meters from within the designated Area Affected Below Guideline and Unaffected Area borders that are adjacent to Affected Areas to ensure that any discrete veins of contamination are found. Previous characterization survey data may suffice for some locations. Please include this information in your Final Status Survey Report.

The Technical Basis Document notes that a large part of the subsurface contamination is between 4 to 8 feet below the surface. The uncontaminated top layer will be removed and set aside, the contaminated material will be excavated and shipped off site, then the bottom of the excavation will be gamma scanned and samples will be collected to determine if final subsurface release criteria have been met. Prior to backfilling the excavation, Molycorp will need to coordinate closely with NRC staff (or Pennsylvania Department of Environmental Protection staff) so that confirmatory samples and/or gamma scans can be taken. If you have any questions on these comments, please contact me at (301) 415-5869.

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\*See previous concurrence

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NAME	T. McLaughlin	K. Gruss	D. Gillen
DATE	6/13/05	6/13/05	6/21/05

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