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September 5, 2001

40-8794

Mr. Larry Camper, Chief
Decommissioning Branch
Us Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 28052

RE: Request for License Amendment to
Apply Volumetric Unrestricted Use
Criteria for Concrete Debris

Dear Mr. Camper:

Molycorp is proceeding with the decommissioning of its facility in York PA. During the removal of building foundations, the underside of some concrete debris was found to contain surface contamination levels in excess of the currently approved criteria. The top of the concrete had previously been demonstrated to meet the surface criteria after extensive remediation and final survey efforts. The attached license amendment request proposes to apply the volumetric criteria currently approved in the York decommissioning plan to the concrete debris. In a previous case involving a licensee (Cimarron Corporation) that was decommissioning under the SDMP Action Plan criteria, the application of a volumetric unrestricted use criteria for concrete debris was approved by NRC.

After the debris has been demonstrated to meet the volumetric criteria, Molycorp proposes to dispose of the debris in a solid waste landfill. Note that the concentration of source material in the concrete debris is well below the 0.05w/% unimportant quantity.

The application of surface contamination criteria to the concrete debris is not cost effective, risk informed, or ALARA. The cost for disposal at the Waste Control Specialist (WCS) site would be approximately \$500,000. Disposal at an industrial waste landfill would cost about \$50,000. The cost per person-rem for

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the disposal of the concrete at WCS is projected to exceed **\$600,000/person-rem**, which vastly exceeds the NRC ALARA guidance of \$2,000/person-rem.

We would appreciate your expeditious review of the attached license amendment request and are available to answer any questions that you may have.

Sincerely,


George W. Dawes
Facility Superintendent

XC: Dave Allard, PA DEP

License No. SMB-1408

Docket No. 40-08794

LICENSE AMENDMENT REQUEST
Molycorp York Facility
License No. SMB-1408, Docket No. 40-08794

APPLICATION OF VOLUMETRIC UNRESTRICTED USE CRITERIA TO
CONCRETE DEBRIS AT THE YORK PA FACILITY

Molycorp is currently decommissioning its York, PA facility in accordance with the decommissioning plan approved by NRC on June 6, 2000 (License No. SMB-1408, Amendment No. 9). The decommissioning includes demolition of building floors and foundations that were extensively remediated and surveyed to demonstrate compliance with the SDMP Action Plan surface contamination criteria. The final survey report was reviewed and approved by NRC. During the demolition of the floors and foundations, the underside of the floors were also surveyed to ensure compliance with the criteria. When the floors were broken and turned over for survey, it was found that the fill material on which the foundations were poured contained thorium and radium at levels that in some cases slightly exceeded the volumetric unrestricted use criteria. In some cases, this adhered soil resulted in the underside of several floors exhibiting elevated surface contamination levels.

About half of the floor undersides met the surface contamination criteria after the adhered soil fill material was removed. However, the undersides of about 1,000 cubic yards of floor and foundation material did not pass the surface contamination criteria of 1,000 dpm/100 cm² average and 3,000 dpm/100 cm² maximum because the adhered material was not easily removed. In some cases, the source of the underside contamination was not obviously visible adhered soil. The measured values were generally slightly above the criteria with isolated samples approaching 20,000 dpm/100 cm². The source of the contamination is unknown but the buildings were constructed prior to Molycorp initiating licensed activities at the site leading to a conclusion that the elevated contamination levels may not be attributable to licensed material. Notwithstanding the source, Molycorp proposes to consider all contamination under the requirements of the approved decommissioning plan.

The concrete debris that did not meet the surface contamination criteria is stockpiled onsite awaiting final disposition. The concrete is currently in a form that much more closely resembles volumetric soil than a standing building. Any dose pathways from future contact with the concrete would be more similar to those encountered from soil as opposed to building surfaces. Therefore, Molycorp believes that the 1,000+ cubic yards of concrete should be considered as volumetric material and that the volumetric soil unrestricted use criteria approved for the York site should apply to the concrete.

Molycorp reviewed the regulations, guidance and case history for examples of past NRC decisions regarding the application of volumetric criteria to concrete debris. NUREG-5849, "Manual for Conducting Radiological Surveys in Support of License Termination," specifically states that "Volume concentration guideline values, which apply to soil, induced activity, **and debris**, are expressed in terms of activity per unit mass." In addition, a case precedent exists where NRC decided that concrete debris could be evaluated volumetrically even though the debris surfaces had contamination levels exceeding the surface contamination unrestricted use criteria. This case involved the Cimarron Corporation and the decision was documented in an Environmental Assessment issued by NRC July 29, 1999 (Docket No. 70-925, License No. SNM-928)

Molycorp believes that the Cimarron decision is directly applicable as a precedent for the concrete debris at the York site because in both cases the debris resulted from demolition of onsite concrete structures and in both cases the debris contains some surfaces with residual radioactivity above the surface contamination criteria. Molycorp proposes to follow the same methodology approved by NRC for the Cimarron site to demonstrate that the concrete is suitable for unrestricted use on a volumetric basis. This method includes a dose assessment based on average volumetric concentrations, a demonstration that the exposure rate from the concrete is less than the 10 uR/hr and an evaluation of inhalation dose from concrete resuspension. The inhalation dose from concrete resuspension will be calculated using the same methods and assumptions approved for the Cimarron site, modified as necessary for site-specific conditions such as wind speed.

The application of surface contamination criteria to the concrete debris is not cost effective, risk informed, or ALARA. The cost for disposal at the Waste Control Specialist (WCS) site would be approximately \$500,000. Disposal at an industrial waste landfill would cost about \$50,000. The cost per person-rem for the disposal of the concrete at WCS is projected to exceed **\$600,000.00/person-rem**, which vastly exceeds the NRC ALARA guidance of \$2,000/person-rem.

A final survey will be conducted on the concrete debris at a frequency equal to or exceeding the soil volumetric requirement of 1 sample per 25 cubic meters. Samples will be collected at both random and biased locations and will consist of either 1) the entire concrete thickness, including the potentially contaminated underside surface or 2) a given thickness of the underside surface with subsequent weighted averaging over the entire concrete volume. Concrete samples will be collected in a manner and geometry that maximizes the surface area of the potentially contaminated surface relative to the sample volume. In addition to the random samples, at least 5 biased samples will be collected at locations exhibiting elevated surface contamination levels. Consistent with the final survey methods described in the decommissioning plan, no individual concrete sample will exceed 3 times the soil unrestricted use criteria and the

average will be demonstrated to meet the volumetric criteria at a 95% confidence level.

Exposure rate measurements will be conducted at the same frequency as described for volumetric concrete sampling. The maximum individual exposure rate measurement will not exceed 20 uR/hr, above background, at 1 meter from the concrete surface. The average exposure rate over all measurement locations will be demonstrated to be less than 10 uR/hr (above background at 1 meter from the concrete surface) at the 95% confidence level.