Ms. Barbara Dankmyer, Resident Manager
Molycorp, Inc.
300 Caldwell Avenue
Washington, PA 15301

October 16, 1996

Dear Ms. Dankmyer:

The purpose of this letter is to provide clarification of the September 30, 1994, letter from Mr. Chad Glenn of the Nuclear Regulatory Commission staff to Mr. Robert Brown of your staff regarding interpretation of the thorium surface decontamination limits specified in Table 1 of "Guidelines for Decontamination of Facilities and Equipment Prior to release for Unrestricted Use or Termination of Licenses for Byproduct, Source and Special Nuclear Material" (enclosed).

At the present time, Table 1 contains the "acceptable surface contamination limits" for uranium and thorium prior to the release of contaminated equipment from a site. However, the NRC staff is currently evaluating Table 1 as it relates to uranium and thorium and will be preparing a staff technical position to reflect any changes to the surface contamination limits for these isotopes. We will notify you when the technical position is finalized.

Thorium with its daughter products, together, consist of alpha and beta-gamma emitters. Footnote (a) in Table 1 states that where surface contamination by both alpha and beta-gamma-emitting nuclides exits, the limits established for alpha and beta-gamma-emitting nuclides should be applied independently. Thus, for thorium-232 and its daughters (where both alpha and beta-gamma contamination is present), the current limits are 1000 dpm alpha/100 square centimeters and 1000 dpm beta-gamma/100 square centimeters.

If you have any questions regarding this matter, please feel free to call me at (301) 415-6701.

Sincerely,

[ORIGINAL SIGNED BY:]

LeRoy S. Person, Project Manager
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management
Office of Nuclear Safety
and Safeguards

Docket No.: 040-08794
License No.: SMB-1408
Enclosure: As stated
cc: G. Dawes, Molycorp
J. Yusko, PA-DEP

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 16, 1996

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and Safeguards

Docket No.: 040-08794
License No.: SMB-1408

Enclosure: As stated

cc: G. Dawes, Molycorp
J. Yusko, PA-DEP

GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT PRIOR TO RELEASE FOR UNRESTRICTED USE OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL

U.S. Nuclear Regulatory Commission
Division of Industrial and
Medical Nuclear Safety
Washington, DC 20555

August 1987

Enclosure

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.

2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.

3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.

4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:

   a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.

   b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Industrial and Medical Nuclear Safety, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:

   a. Identify the premises.

   b. Show that reasonable effort has been made to eliminate residual contamination.

   c. Describe the scope of the survey and general procedures followed.

   d. State the findings of the survey in units specified in the instruction.

   Following review of the report, the NRC will consider visiting the facilities to confirm the survey.

TABLE 1

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES[a]	AVERAGE[b c f]	MAXIMUM[b d f]	REMOVABLE[b e f]
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm^2	15,000 dpm α/100 cm^2	1,000 dpm α/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm^2	3000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm $\beta\gamma$/100 cm^2	15,000 dpm $\beta\gamma$/100 cm^2	1000 dpm $\beta\gamma$/100 cm^2

[a] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2.

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Ms. Barbara Dankmyer, Resident Manager
Molycorp, Inc.
300 Caldwell Avenue
Washington, PA 15301

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If you have any questions regarding this matter, please feel free to call me at (301) 415-6701.

Sincerely,

[Original signed by]

LeRoy S. Person, Project Manager
Low-Level Waste and Decommissioning
Projects Branch
Divison of Waste Management
Office of Nuclear Safety
and Safeguards

Docket No.: 040-08794
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Enclosure: As stated

cc: G. Dawes, Molycorp
J. Yusko, PA-DEP
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 30, 1994

Molycorp, Inc.
ATTN: Robert B. Brown
Plant Manager
350 North Sherman Street
York, Pennsylvania 17403

SUBJECT: REVIEW OF MOLYCORP'S REVISED SURFACE CONTAMINATION SURVEY AND RELEASE PROCEDURE

Dear Mr. Brown:

This is in response to your recent request that the U.S. Nuclear Regulatory Commission staff review Molycorp, Inc. (Molycorp's) revised *Surface Contamination Survey and Release Procedure* for potentially contaminated equipment at your York, Pennsylvania facility.

Based on our review, Molycorp has addressed NRC's June 17, 1994, comments on an earlier version of this procedure. Therefore, the NRC staff approves the enclosed revised procedure with the following modification. In the section of the procedure entitled "Determination of Minimum Detectable Activity (MDA)", please clarify that the MDA for stationary measurements will be below 1000 dpm/100cm^2 using the MDA formula in NUREG/CR-5849, equation 5-2. The MDA formula in the procedure applies to scan surveys only. Finally, please note that the release limits on page 3 apply to natural thorium (thorium-232 and thorium-228). Therefore, the average activity limit for thorium-232 (assuming secular equilibrium) is 500 dpm/100cm^2.

If you have any questions regarding this matter, please do not hesitate to contact me on (301) 415-6635.

Sincerely,

Chad Glenn, Project Manager
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-8794

Enclosure: As stated

cc: R. Benvin, PA-DER
J. Kinneman, NRC R-I

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