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

May 6, 1999

Mr. David Allard, Director
Bureau of Radiation Protection
Department of Environmental Protection
Commonwealth of Pennsylvania
P.O. Box 8469
Harrisburg, PA 17105-8469

SUBJECT COORDINATION OF DECOMMISSIONING ACTIVITIES WITH THE COMMONWEALTH OF PENNSYLVANIA

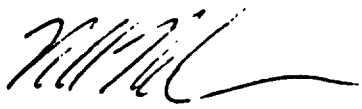
Dear Mr Allard

This letter forwards information discussed in our telephone conversation of April 27, 1999, and responds to your letter of the same date. Consistent with our Memorandum of Understanding with the Department of Environmental Protection, we agreed to update our list of site coordinators for Site Decommissioning Management Plan (SDMP) sites in the Commonwealth The list of U.S. Nuclear Regulatory Commission staff coordinators is enclosed (Enclosure 1). As suggested in your letter, I will work with you to schedule a conference call or a meeting to discuss the current status of SDMP sites.

I appreciate the clarification of your position regarding the Molycorp, Inc., Washington, PA, site Our analysis of the interim storage proposal does address the areas identified in your letter A copy of the staff's draft environmental assessment and draft safety evaluation report are enclosed for your information (Enclosures 2 and 3). Regarding final disposition of the waste, we have informed Molycorp that its Washington site decommissioning plan (SDP) and environmental report (ER) must be revised to reflect the requirements of 10 CFR 20.1402, 1403, or 1404 (Enclosure 4). If on site disposal is proposed, the areas identified in your letter would need to be addressed. On April 20, 1999, Molycorp requested that its license be amended to include an SDP and an ER due date of April 16, 2000 (Enclosure 5). We are currently reviewing this request

I look forward to working with you and your staff. If you need any additional information, please call me at (301) 415-7298 or Mr. Leroy Person at (301) 415-6701.

Sincerely,



Robert A. Nelson, Chief
Special Projects Section
Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

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

cc: Molycorp, Washington dist. list.

Enclosures:
1. List of Site Coordinators
2. Environmental Assessment
3. Safety Evaluation Report
4. NRC ltr. to Molycorp
   dtd. 2/16/99
5. Molycorp ltr. to NRC
   dtd. 4/20/99

53A

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION
SITE COORDINATORS
DECOMMISSIONING SITES IN PENNSYLVANIA

SITE	COORDINATOR	ADDRESS	TELEPHONE NUMBER	FACSIMILE NUMBER
BWXT Operating Facility, Parks Township	Dominick Orlando	U S NRC Mail Stop T-8F37 Washington, DC 20555	(301) 415-6749	(301) 415-5398
BWXT Shallow Land Disposal Area, Parks Township	Dominick Orlando	U.S. NRC Mail Stop T-8F37 Washington, DC 20555	(301) 415-6749	(301) 415-5398
Cabot Corporation, Reading and Revere	Timothy Harris	U.S. NRC Mail Stop T-7F27 Washington, DC 20555	(301) 415-6613	(301) 415-5398
Kiski Valley Water Pollution Control Authority, Leechburg *	Robert Neel	U.S. NRC Mail Stop T-8F37 Washington, DC 20555	(301) 415-6696	(301) 415-5398
Molycorp, Washington and York	Leroy Person	U S NRC Mail Stop T-7F27 Washington, DC 20555	(301) 415-6701	(301) 415-5398
Permagrain Products Quehanna	Steven Shaffer	U S NRC 475 Allendale Road King of Prussia, PA 19406	(610) 337-5256	(610) 337-5269
Pesses Company/METCOA Pulaski	Mark Roberts	U S NRC 475 Allendale Road King of Prussia, PA 19406	(610) 337-5094	(610) 337-5269

Enclosure 1

SITE	COORDINATOR	ADDRESS	TELEPHONE NUMBER	FACSIMILE NUMBER
Safety Light Corporation, Bloomsburg	James Kottan	U S NRC 475 Allendale Road King of Prussia, PA 19406	(610) 337-5214	(610) 337-5269
Westinghouse Electric Corporation, Waltz Mills	Mark Roberts	U.S. NRC 475 Allendale Road King of Prussia, PA 19406	(610) 337-5094	(610) 337-5269
Whittaker Corporation, Greenville	Steven Shaffer	U S NRC 475 Allendale Road King of Prussia, PA 19406	(610) 337-5256	(610) 337-5269

• Not an SDMP site

53B

ENCLOSURE 2

DRAFT ENVIRONMENTAL ASSESSMENT OF PROPOSED CONSTRUCTION AND OPERATION OF INTERIM STORAGE STRUCTURE AT MOLYCORP'S WASHINGTON FACILITY FOR STORAGE OF MOLYCORP YORK DECOMMISSIONING WASTE

LICENSE NUMBER SMB-1393
DOCKET NUMBER 040-8778

MOLYCORP, INCORPORATED

FOREWORD

This Environmental Assessment (EA) reviews the environmental impacts of constructing and operating an interim (5-10 year) storage facility for thorium contaminated soil. This action is proposed by Molycorp, Incorporated (Molycorp) at its facility located on Caldwell Avenue in Washington, Pennsylvania. In connection with the review of the proposed action, staff of the U.S. Nuclear Regulatory Commission (NRC) is also preparing a Safety Evaluation Report (SER) which evaluates conformance of the proposed action with NRC regulations and regulatory guidance. The SER may conclude that Molycorp's proposed action should be modified in one or more respects to more fully comply with NRC regulations and guidance. Such modifications to the proposed plan, should they come about and be implemented, would have no significant bearing on the overall environmental impact of the proposed decommissioning and would not change the conclusions of this EA. Upon issuance, the SER will be available for inspection and copying at the NRC Public Document Room, 2120 L Street, N. W., Washington, D.C. and at two local Public Document Rooms in Harrisburg and Aliquipa, Pennsylvania.

TABLE OF CONTENTS

SUMMARY AND CONCLUSIONS

Based on the NRC staff's assessment of Molycorp's proposed action [illegible] construction and temporary use of an interim storage facility for [illegible],000 cubic yards of thoriated soils), it has been determined that the proposed action can be conducted in a manner that is in compliance with NRC's public and occupational dose limits and effluent release limits and that the proposed action will have no significant effect on the human environment. In addition, approval of the proposed action is in accordance with the commitments in NRC License SMB 1393 and is not in conflict with the proposed Molycorp, Washington and Molycorp, York (SMB 1408) decommissioning plans.

ENVIRONMENTAL ASSESSMENT OF THE MOLYCORP, INCORPORATED, INTERIM [illegible] FACILITY IN WASHINGTON, PENNSYLVANIA

1.0 INTRODUCTION

1.1 Background

This environmental assessment has been prepared in response to a request from the applicant, Molycorp, Incorporated (hereafter referred to as Molycorp the licensee) (License No. SMB-1393)(Ref. a) to build and operate an interim storage facility in Washington, Pennsylvania for the purpose of temporarily storing contaminated soils from previous rare earth processing operations at its York, Pennsylvania facility. The Licensee's request is contained in a letter dated February 8, 1996 (Ref. b) and reports submitted to NRC entitled, "30% Conceptual Design Temporary Thorium Storage Structure (Ref. c)," "Design Basis Document Temporary Thorium Storage Structure (Ref. d)," and "Final Design Report: Temporary Thorium Storage Structure (Ref. e)." If approval is granted for the storage, Molycorp will store thorium waste from York at the Washington site for a period of 5 to 10 years.

1.2 The Proposed Action

The proposed action is the storage of contaminated soils from the Molycorp York, Pennsylvania site at an average concentration of 100 pico-curies per gram (pCi/g) at the Molycorp Washington, Pennsylvania site and the associated transportation of this waste. Molycorp's NRC license for its Washington site would need to be amended to allow the proposed action. This would involve approximately 5,000 cubic yards of thorium contaminated soils. A temporary thorium storage structure has been designed to contain the contaminated soils and to prevent commingling of contaminated York soils with those present on the Washington site.

The temporary storage structure would be located near the southwest boundary of the site, adjacent to a rail line which runs parallel to the southern border of the site. This storage structure would be a three walled bunker constructed of concrete-filled fabric forms. The exposed side would be constructed of a soil-buttressed concrete block retaining wall and a soil slope. A geomembrane will be used as a cover to prevent infiltration of precipitation, to protect against surface water runoff entering the structure, and to limit the generation of windblown dust. As an additional protective measure, the same geomembrane material will be used to line the storage structure to prevent ground water and surface water contamination in the [illegible] event that precipitation penetrates the cover.

1.3 Need for the Proposed Action

The purpose of this action is to provide interim storage for decommissioning waste currently contaminating the York site. This action will allow control of contamination and release of the York site for unrestricted use.

2.0 FACILITY DESCRIPTION/OPERATING HISTORY

2.1 Site Locale and Physical Description

The licensee owns two rare earth processing facilities in the Commonwealth of Pennsylvania. The larger of these sites is located in Washington, Pennsylvania, on a 59 acre site. The other processing facility is located in York, Pennsylvania, on a small tract of land approximately 5 to 6 acres. Both facilities have manufactured rare earth elements for use in the production of metal alloys. Molycorp has notified NRC of its intent to cease operations at both facilities and has submitted site decommissioning plans (SDP) (Refs. f and g) in accordance with 10 CFR 40.36 "Timeliness in Decommissioning Material and Fuel Cycle Facilities (Ref. g)."

The Molycorp Washington site is located in Washington, Pennsylvania, in Washington County, 35 miles from the city of Pittsburgh in southwestern Pennsylvania and is the proposed location of the storage facility intended for York's thoriated-soil type waste. The fenced area of the Washington site contains what was once the rare earth processing facility and occupies 20 acres of the 59 acre site. This facility began operation in the 1920s and due to a fall off in demand for its alloy products has experienced decreased throughput.

2.2 Facility Operating History

2.2.1 Washington facility

The licensee has produced rare earth metals for the manufacture of alloys with varying properties since the 1920s. Principal metals in the ores processed to make these alloys have included iron, molybdenum, and tungsten. Current site activities include the purchasing and reselling of alloys. However, the plant has not processed ferro-columbium (iron) ores since 1971. The ferro-columbium ores processed prior to 1971 contained naturally occurring, radioactive thorium that was a constituent in the slag produced in the high temperature roasting furnaces. Prior to receiving a license, the licensee deposited this waste slag on the site as fill and then covered it with three to four feet of

top soil. The site is also the location of a slag pile containing approximately half million cubic feet of thoriated slag. This pile has been stabilized and is now covered with vegetation. The licensee has proposed to move the slag fill and the contaminated pile to a permanent disposal unit to be constructed on site. Evaluation of permanent disposal impacts is not included within the scope of this assessment.

2.2.2 York facility

The Molycorp, York site produced metal alloys in a process that extracted thorium and small concentrations of uranium from bastnasite ores in a liquid recovery process. A cerium concentrate solution was used in this process to dissolve the thorium and uranium containing ores. This process resulted in contamination of soils and structures at the facility. The licensee has proposed in its SDP to excavate approximately 5,000 cubic yards of waste soils for transport to the Washington facility for interim (5 to 10 years) storage

3.0 RADIOLOGICAL STATUS OF THE FACILITY

3.1 Radiological Status of Soils to be Transported from York

The applicant has reported that soils at the York facility average approximately 100 pCi/gram for thorium with its daughters and that exposure rates resulting from this residual activity are less than 57 micro-rem/hour above background (when measured at a distance of 1 meter from the surface of the soil and when averaged over areas not exceeding 100 square meters). NRC interim radiological cleanup criteria for cleaning up contaminated soils for unrestricted release are found in the 1981 Branch Technical Position (BTP)(Ref. 1) dated October 23, 1981, "Disposal or Onsite Storage of Thorium and Uranium Wastes from Past Operations." The above stated average concentration of approximately 100 pCi/gram of unexcavated soils at York will need to be reduced to the BTP Option 1 limit which is 10 pCi/gram before the site could be released for unrestricted use. It is estimated that this will result in the generation of approximately 5,000 cubic yards of waste soils at an average concentration of 100 pCi/gram.

3.2 Radiological Status of Soils Already on the Washington Site

Final characterization of the Washington soils is not complete but preliminary indications are that concentrations of thorium contaminated soils at the Washington site probably exceed those at the York site. The licensee's current estimate of the average concentration of thorium for Washington soils

is approximately 1,200 pCi/gram. In addition, the anticipated volumes of soil excavated for disposal at Washington may ultimately exceed by several orders of magnitude the excavated soil disposal volumes at York. Because of the difference in the source terms for these facilities and in the event that approval is not granted for final disposal of the York soils in a Washington disposal unit, measures are being taken to prevent the commingling of York and Washington soils and NRC has required that the licensee make provisions for containment during any interim storage period. Therefore, this action does not involve Washington soils.

4.0 DECOMMISSIONING ALTERNATIVES

4.1 Alternative 1, No Action

The no-action alternative, has been considered to provide a basis for comparing other alternatives to the proposed action. This alternative for the proposed action would be to leave the York facility in its current state. Before the licensee would be allowed to leave the York facility in its current state (with uncovered contaminated soils), the NRC must make a decision to grant an extension to the schedule for decommissioning. Acceptable bases for approving an alternate schedule can be found in 10 CFR 40.42 and includes consideration of the following: (1) whether it is technically feasible to complete decommissioning within the 24-month period specified in the regulation; (2) whether delaying decommissioning will allow time to achieve significant waste reduction through decay of short-lived radionuclides; (3) whether a reduction in worker exposure will be achieved through radioactive decay; (4) whether sufficient waste disposal capacity is available to allow completion of decommissioning within the 24 month period required by the rule; (5) whether a significant reduction in worker exposure can be achieved through allowing decay of shorter-lived radionuclides or; (6) whether other site specific considerations or regulatory requirements could result in more environmental harm than that which would follow deferred cleanup.

The NRC staff has considered these factors and determined that there is no basis for approving an alternate schedule or for delaying cleanup of the York site.

4.2 Alternative 2. The Licensee's Proposed Action (Construction of a Temporary Storage Structure and Temporary Storage of Contaminated Soil from York on the Washington Site for 5 to 10 years)

The licensee's proposed action is to decommission the York site by excavating thorium contaminated soils at York; then loading the soils for transport to the Washington site for temporary storage in a temporary structure designed to assure their separability and retrievability. During loading, off loading, and temporary storage of the York soils, the licensee proposes to monitor for airborne dust and radioactive particulate. The bottom, sides, and top of the temporary storage structure would be lined with a geomembrane to help provide containment and the licensee would monitor ground water and surface water to provide assurance that the stored material would not leach into the surrounding environment. Contaminated soils from Washington and York sites would be kept separately and retrievably at Washington until a decision is made concerning the viability of a permanent disposal site at Washington for the disposal of these soils.

4.3 Alternative 3. Shipment of Contaminated York Material to a Licensed Disposal Site

One alternative considered by the applicant was to excavate the contaminated York soils for transport to a commercial disposal site. Envirocare of Utah is the only commercial U.S. site that accepts this type of high volume low activity waste.

4.4 Alternative 4. Commingling of Soils from the Washington and York Sites

This alternative would involve excavation of the soils at York and placement of these soils in the current slag pile located on the southwestern portion of the Washington site. This alternative does not provide for separability of the contaminated soils and commingles contaminated soils from both sites.

4.5 Decision Rationale for Alternatives

Alternative 1 (The No-Action Alternative) is considered unacceptable because it does not move the action in the direction of the NRC's policy to cleanup sites listed on the Site Decommissioning Management Plan list. Alternative 2 is the licensee's proposed alternative. The principal differences between Alternatives 2 and 3 are the cost for transporting the waste (i.e., the distance for Alternative 3 is significantly greater than Alternative 2) and the cost of disposal. Both factors are larger for Alternative 3. If it is assumed that the waste will ultimately be disposed at the Washington site, a

decision which has not been reached. However, should on-site disposal at the Washington facility not be approved for the York waste, the total cost associated with the ultimate disposition of the York waste could eventually make alternative Alternative 2 more expensive than Alternative 3. The licensee has chosen to assume this financial risk.

Alternative 4 is not considered to be an acceptable alternative, because of the irretrievable and irrevocable nature that would be associated with the commingling of soils from Washington and York. This alternative has not been analyzed further in this EA.

5.0 IMPACT ON SITE DECOMMISSIONING PLANS

5.1 Site Decommissioning Plan for the York Facility

A small portion of the operation, if approved, would take place at the York facility and is a normal activity (that is the packaging and shipment of decommissioning waste to an authorized recipient) allowed under the current license.

5.2 Site Decommissioning Plan for the Washington Facility

The temporary storage of the York decommissioning waste at the Washington facility would add an additional one-twentieth (1/20) to the current volume of decommissioning waste stored on the Washington site. The change in stored activity would be much less than one-twentieth, considering that the average thorium concentration at York is approximately one-twelfth that at Washington. However, in the event approval is granted for storage of York decommissioning waste at the Washington site, the NRC staff would require the licensee to update the decommissioning funding plan for the Washington site to encompass any increase needed due to the additional source term at the site.

6.0 RADIATION PROTECTION PROGRAM

The licensee has proposed to carry out excavation, transport, and dumping operations in a manner which will assure an adequate level of radiation protection to the public and workers on site. During excavation, loading and dumping operations, sampling for airborne particulate will be conducted to assure that worker exposure does not exceed 10 percent of the concentration limits for insoluble Thorium-232, as specified in 10 CFR Part 20. The licensee has also proposed to track external exposures through the use of personnel monitors. In the event administrative controls or other engineering

measures do not reduce exposures, protective equipment such as respirators will be used to mitigate exposure of workers to dust

Dumping of the slag/soil waste will occur from the open end of the storage facility. This area will be monitored for radiation exposure, to minimize the spread of contamination, posted in accordance with Part 20 and roped off, if circumstances warrant. It is anticipated that exposure to individual offsite will be a small fraction of that due to worker exposure.

7.0 ENVIRONMENTAL IMPACTS

7.1 No-Action Alternative

Impacts from the no-action alternative amount to the impacts attributed to leaving contaminated soil at York, until a decision is made regarding whether to allow construction of a permanent Washington impoundment. Acceptance of this alternative would mean a decision to leave the contaminated York soils on the York site with the current level of security or restricted access and with monitoring required under the current license. This no-action scenario would also continue the impacts that are currently associated with uncovered contaminated soil at York including: (1) long-term care of the York site in a restricted condition; (2) accepting the possibility of migration of contamination off the York site; (3) the cost associated with a necessary requirement to monitor any migration of contaminants from the York site and; (4) the possibility of exposure of the public to migrating contaminated soils and water

7.2 Licensee's Proposed Action

7.2.1 Radiological impacts to the workers and the public

7.2.1.1 Radiological impacts to workers

Occupational doses (in terms of a Total Effective Dose Equivalent (TEDE)) were calculated by the licensee and verified by NRC staff for an excavator at the York facility, a truck driver transporting the waste soils to Washington, Pennsylvania, and a grader at the Washington facility, all occupations associated with the construction and operation of the proposed temporary storage structure. The estimated doses were 11, 6, and 8 millirem (mrem), respectively, for the excavator, truck driver, and grader. This is a small fraction of the 10 CFR Part 20 limit of 5,000 mrem per year for occupational exposure and is considered insignificant.

7.2.1.2 Radiological impacts to members of the public

Doses were estimated for persons living in the vicinity of the York and Washington facilities, at the site boundary and nearest resident for the Washington facility and at the site boundary for the York facility (the dose at the resident nearest the York facility, because of the low contaminant concentrations, is considered to be negligible). The TEDE calculated for the Washington facility (during construction and operation) was 0.8 mrem at the site boundary and 0.07 mrem at the nearest resident. The TEDE calculated at the site boundary for the York facility was 0 1 millirem. These doses are a very small fraction of the acceptable limit of 100 mrem per year.

Although calculations have demonstrated that the Annual Limit on Intake (ALI), as specified by 10 CFR 20.1502, will not exceed ten percent of the value in Table 2, Appendix B, of Part 20 (the threshold when air monitoring would normally be required), monitoring has been proposed by the licensee and if the decision is made to allow storage of York soils on the Washington site, the licensee will conduct air monitoring to provide protection against movement of radioactivity via wind blown dust into the Washington environs

7.2.1.3 Doses to members of the public from transporting the waste

The NRC has calculated the dose to a truck driver from transport of the waste from York to Washington. PA and estimated that the truck driver will receive approximately 6 mrem. Members of the public who will maintain a farther distance from the waste and spend much less time in the vicinity of the waste will receive a fraction of the 6 mrem exposure. This will result in a dose that is a fraction of the 100 mrem allowed to members of the general public

7.2.2 Impacts to surface and ground waters

Sampling and analysis has detected no thorium in surface or ground water at either the Washington or York site.

7.2.2.1 Surface water

Chartiers Creek runs along the western boundary of the site and then drains to the northeast becoming a tributary of the Ohio River at Carnegie. The licensee has quantified the site's contribution to surface runoff for the 18 square miles of surface features draining into Chartiers Creek. This information is presented in detail in the 1995 site characterization report for the Washington site. Average stream flow to the site is estimated at over 8.0 gpm (gallons per minute) with approximately 28 gpm contributed by the site

of which 7 or 8 gpm are baseflow (from ground water).

The licensee has committed to provide a facility to contain thorium contaminated soils and will provide liners to prevent infiltration of water into the structure. The structure will store up to 5,000 cubic yards of material and will be located outside the 100-year floodplain of Chartiers Creek on the southeast side of the site near the existing Highway 70 embankment. The storm water drainage system will consist of open ditches and culverts surrounding the facility. The site drainage system will collect water and route it through sediment control facilities before discharging to Chartiers Creek.

The licensee has provided information regarding specific details of the hydraulic design features and the potential for flooding of the site and facility. The NRC staff's review of design parameters including runoff coefficients, times of concentration, rainfall intensity, rainfall frequency ditch design velocities, and ditch erosion concludes that the licensee has provided an adequate hydraulic design to reasonably assure stability of the site for the proposed interim 10 year storage period. Based on the information provided, the staff also concludes that the structure and its associated linings are adequate to resist flooding and erosion caused by relatively severe rainfall and flood events. This conclusion is based on the location of the facility above the 100-year floodplain of Chartiers Creek and the erosional resistance of the structure and liners. The NRC staff concludes that the design proposed to be implemented by the licensee is acceptable to reasonably assure erosional stability for the proposed interim storage period of ten years.

7.2.2.2 Ground water

Surface investigations indicate that the geology in the vicinity of the temporary storage structure consists of three unconsolidated units overlying bedrock of shale. A fill unit begins at the ground surface and varies from six to twenty five feet in thickness from west to east across the area to be occupied by the storage structure. The fill is comprised of non-process slag, gravel, spent refractory cinders, and sand. A clay layer underlies the fill, is brown and gray in color, and ranges from eight to ten feet in thickness. Below the clay, and resting on bedrock, is a discontinuous layer of sand up to three feet thick. The thickness of the shale bedrock varies from twenty to thirty two feet from west to east across the site of the proposed facility.

Ground water in the vicinity of the proposed storage structure occurs in each of the three unconsolidated units. The water table is generally found within

the fill unit near its base, but near the eastern edge of the proposed facility, the water table occurs within the underlying clay layer. The water table elevation is approximately six feet beneath ground surface on the south and west side of the proposed structure and eighteen feet beneath ground surface on its north and east side. The horizontal hydraulic gradient of the water table aquifer is 0.01 to the southwest, and ground water velocities in the more permeable fill and discontinuous sand units range from 0.13 to 0.57 ft/day. Ground water in these units discharges into Chartiers Creek, which is approximately 360 feet in the down gradient direction of the proposed storage facility. There are no users of ground and surface water in the area of the proposed facility.

The temporary waste storage structure or bunker will be made of concrete-filled fabric forms. The underlying soil will be separated from the contaminated soil by a geomembrane liner that will extend over the ground surface and up the inside walls of the bunker. A second geomembrane will be emplaced over the contaminated soil to the top of the bunker walls and joined to the liner. The top geomembrane will then be covered with a minimum 12 inches of soil. With the geomembrane on the top and bottom, water is prevented from infiltrating to the waste or from leaving the waste to contaminate ground water. In addition, ground water at the proposed bunker location is reported to be from 6 to 9 feet below finished grade and even without the presence of a bottom liner, it is unlikely that ground water will rise to contact the waste. To monitor shallow ground water in the vicinity of the facility, an upgradient monitor well 40 feet from the facility, and three downgradient monitor wells 45, 100, and 170 feet from the facility have been proposed. However, given the facility's robust design, it is unlikely that the facility will leak over the proposed storage period. However, if the facility does leak, the leach rate is likely to be low, and the transport of radionuclides is likely to be highly retarded. Therefore, over the relatively short period that the facility will be in existence, the radionuclides in the stored contaminated material should have little to no impact on the surrounding environment.

7.2.2.3 Monitoring of ground water and surface water

The licensee has proposed to monitor the ground water in the vicinity of the proposed facility. Monitoring well locations are proposed for all sides of the containment of which one monitoring well would be upgradient and three monitoring wells would be downgradient. Locations of monitoring wells are described in the report, "Hydrogeology in the Vicinity of the Proposed Interim Storage Area at the Washington, PA Facility (Ref.j)."

The licensee has also proposed to collect surface water samples from Crabtree Creek. The samples would be collected at the points currently collected for the existing slag pile but on a semiannual basis to identify any impact or release to the creek.

7.2.3 Non radiological impacts

There is no planned use of chemicals in the proposed action and there will be only slightly noticeable impacts associated with dust, noise, and appearance in the early stages of the project during construction, loading, unloading and grading. Dust suppression techniques (such as wetting) will be necessary in the early stages of the project, but will probably not be required during low activity, non-construction periods and the licensee will be required to monitor for particulate emissions. Any noise impacts will be temporary and visual impacts will last no longer than the period for storage

The licensee will be required to meet chemical effluent limits and water quality limits set by the Commonwealth of Pennsylvania's Department of Environmental Protection In addition, the licensee must meet all local zoning and permit requirements.

7.2.3.1 Non radiological impacts from heavy construction

Assuming a fatal accident risk rate of 4.2E-8 (Ref. k) fatal accidents/person hour for heavy construction, and assuming that the number of hours Molycorp will expend in heavy construction to be 294 hours, the number of fatalities will be 4.28E-8 accidents/person-hours X 294 hours = 1.2E-6 accidents for the total operation (insignificant).

7.2.3.2 Non-radiological impacts from shipment of the soil waste

Given that the approximate distance from York, Pennsylvania to the Washington Molycorp facility is 400 kilometers (kms) and assuming the fatal accident transportation risk rate (Ref. l) to be 3.8E-8 fatal accidents/km for an 800km round trip the calculated number of fatalities during transport of the waste would be 3.8E-8 fatalities/km X 800Kms X 360 trips = 0.015 fatalities for the entire project (insignificant).

7.3 Shipment of Contaminated York Material to a Licensed Disposal Site

7.3.1 Radiological impacts to workers

The TEDE for workers excavating, grading and transporting the waste soil from

the York site to disposal at the Envirocare of Utah facility located in the southwestern United States (the only commercial disposal site currently accepting this type of waste) was calculated for this alternative. The resulting doses were conservatively estimated to be 11 mrem for a person excavating the soil, 8 mrem for a person grading the soil at the disposal site, and 15 mrem for a truck driver transporting the waste to the disposal site.

7.3.2 Non-radiological impacts from the operation of heavy equipment

The NRC staff has concluded that the potential number of fatalities from operating heavy equipment will be the same for this alternative as for the proposed alternative due to the similarity and nature of the operations required at the two final disposal locations (preparation of a disposal cell in Washington or Utah). And as calculated in section 7.2.3.1 for the proposed alternative, the potential number of fatalities is small and would be considerably less than one.

7.3.3 Non-radiological impacts from shipment of soil waste

Assuming a fatal accident risk rate of 3.8E-8 fatal accidents/km (Ref. K) and a distance from York to Envirocare of Utah (the most likely recipient of the Molycorp waste) of 3600 kms or 7200 kms round trip the calculated number of fatalities would be 3.8E-8 fatalities/Km X 7200 Kms X 360 trips = 0.097 fatalities for the entire project (insignificant)

7.3.4 Radiological impact to members of the public

The licensee has proposed to use five truck drivers for transporting the waste to its final destination (this trip would take about 50 hours). The NRC staff has calculated the dose to a truck driver transporting waste soil by truck from the Molycorp York plant to the Envirocare of Utah disposal facility (using the licensee's assumption of five truck drivers) and has determined that the total dose for each driver will be approximately 30 mrem. Thus, considering that members of the public will maintain farther separation distances from the transported waste than the truck driver and spend much less time in the vicinity of the waste (both of these factors will reduce the estimated individual exposures), the NRC staff concludes that doses to members of the public during transport of the soil waste will be a small fraction of that received by the truck driver in transporting the waste and will be a fraction of the annual dose limit of 100 mrem allowed to an individual member of the public.

7.3.5 Cost

The cost of transporting 5,000 cubic yards of thorium contaminated soil to a licensed commercial disposal site would be about $2 million. This includes the disposal cost at Envirocare of Utah. This cost is largely dependent on tipping fees at the disposal site and transportation charges associated with distance required to haul the waste. This cost compares with a cost of approximately $ 265 thousand for the proposed facility.

8.0 AGENCIES AND INDIVIDUALS CONSULTED

The Pennsylvania Department of Environmental Protection was consulted during this review.

9.0 REFERENCES

a. U.S. Nuclear Regulatory Commission. Source Materials License No SMB-1393. Issued to Molycorp, Incorporated. September 1992 (under timely renewal).

b. Molycorp, Incorporated. "Materials to Support a License Amendment Request for Interim Storage of Molycorp York, PA Facility Material." Letter from B. Dankmyer, Molycorp to L. Person, NRC, dated February 8, 1996.

c. ICF Kaiser Engineers, Inc., "30% Temporary Thorium Storage Structure Design Report," May 13, 1996.

d. ICF Kaiser Engineers, Inc., "Design Basis Document Temporary Thorium Storage Structure," July 10, 1996.

e. ICF Kaiser Engineers, Inc., "Final Design Report Temporary Thorium Storage Structure," October 29, 1996.

f. Molycorp, Incorporated. "Site Decommissioning Plan for Molycorp, Washinton, PA Facility," July 19, 1995.

g. Molycorp, Incorporated. "Decommissioning Plan for the York, PA Facility," August, 1995.

h. U.S. Nuclear Regulatory Commission, Code of Federal Regulations, Title 10 Parts 20 and 40.

i. U.S. Nuclear Regulatory Commission, Branch Technical Position, "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations," Federal Register, Vol 46 No. 205, October 23, 1981

j. Foster Wheeler Environmental Corporation, "Hydrogeology in the Vicinity of the Proposed Interim Storage Area at the Washington, PA Facility, April 1996

k. U.S. Nulear Regulatory Commission, "Technology, Safety, and Costs of Decommissioning a Reference Uranium Fuel Fabrication Plant," NUREG/CR-1266, Volume 1, 1980.

1. U.S. Nuclear Regulatory Commission. "Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment." NUREG-1500. August 1994.

S3C

ENCLOSURE 3

DOCKET NO. 40-8778

LICENSE NO. SMB-1393

LICENSEE: MOLYCORP, INCORPORATED, WASHINGTON, PA.

SUBJECT: SAFETY EVALUATION REPORT, LICENSE AMENDMENT REQUEST DATED FEBRUARY 8, 1996, CONCERNING THE CONSTRUCTION AND OPERATION OF AN INTERIM STORAGE STRUCTURE

1.0 Introduction

Molycorp, Incorporated (hereafter referred to as the licensee), by letter to the U.S. Nuclear Regulatory Commission (NRC) dated February 8, 1996 (ref. a), requested approval to construct a temporary storage facility on its Washington, Pennsylvania site, for the purpose of temporarily storing soil from its York, Pennsylvania, facility. Both the Washington and York facilities have been in the business of manufacturing specific metals for use in the production of metal alloys. The Molycorp Washington Source Materials License, No. SMB-1393, was last renewed on October 27, 1992, and is currently under timely renewal during NRC review of the license application (ref. b), dated June 30, 1997. The York Source Materials License, No. SMB-1408, was issued on August 24, 1994. In a parallel action, NRC is also reviewing the site decommissioning plans (SDPs) for both the Washington (ref. c) and York (ref. d) facilities.

1.1 Purpose and Need for the Proposed Action

The purpose of this action is to review for approval the proposed construction and operation of an interim storage facility at the licensee's Washington, Pennsylvania, site. This action could facilitate cleanup of contaminated soils from the licensee's York, Pennsylvania, site and release of the York site for unrestricted use. The licensee, in a parallel action, has also proposed to build a permanent disposal cell on the Washington site to dispose of approximately 100,000 cubic yards of contaminated soils from the Washington site. If this parallel action is approved (the licensee would construct and operate the interim storage facility at its own financial risk), decommissioning waste from both facilities would be disposed in the permanent disposal cell at the Washington site. This would ultimately allow termination of both the York (SMB-1408) and Washington (SMB-1393) licenses.

1.2 Description of Proposed Action

The objective of the proposed action is to construct and operate an interim storage facility at the Washington, Pennsylvania, Molycorp site. This action would involve transport of contaminated soils to the Washington, Pennsylvania, facility , and then temporarily storing these soils in the temporary structure until NRC makes a decision regarding the acceptability of a permanent disposal cell on the Washington site. The temporary storage structure would be located near the

southwest boundary of the Washington site and has been designed to: (1) provide structural stability for the waste soils under anticipated loads; (2) protect the contaminated soils from wind and water erosion; and (3) prevent commingling of contaminated York soils with those present on the Washington site.

2.0 Description/Operating History of Washington and York Facilities

2.1 Description of Washington Site

The licensee owns two rare earth processing facilities in the Commonwealth of Pennsylvania. The larger of these sites is located in Washington, Pennsylvania, on a 59 acre site. The other processing facility is located in York, Pennsylvania, on a small tract of land of approximately 5 to 6 acres. Both facilities have manufactured rare earth elements for use in the production of metal alloys. Molycorp has notified NRC of its intent to cease operations at both facilities, as indicated in its SDPs submitted in accordance with 10 CFR 40.36, "Timeliness in Decommissioning Material and Fuel Cycle Facilities (Ref. e).

The Molycorp, Washington, site is located in Washington, Pennsylvania, in Washington County, 35 miles from the city of Pittsburgh in southwestern Pennsylvania and is the proposed location of the storage facility intended for York's thoriated-soil type waste. The fenced area of the Washington site contains what was once the rare earth processing facility and occupies 20 acres of the 59 acre site. This facility began operation in the 1920s and, due to a fall off in demand for its alloy products, has experienced decreased throughput.

2.2 Facility Operating History

2.2.1 Washington Facility

The licensee has produced rare earth metals for the manufacture of alloys with varying properties since the 1920s. Principal metals in the ores processed to make these alloys have included iron, molybdenum, and tungsten. Current site activities include the purchasing and reselling of alloys. However, the plant has not processed ferro-columbium (iron-niobium) ores since 1971. The ferro-columbium ores processed prior to 1971 contained naturally occurring, radioactive thorium that was a constituent in the slag produced in the high temperature roasting furnaces. Prior to receiving a license, the licensee deposited this waste slag on the site as fill and then covered it with three to four feet of top soil. The site is also the location of a slag pile containing approximately a half million cubic feet of thoriated slag. This pile has been stabilized and is now covered with vegetation. The licensee proposes to move the slag fill and the contaminated pile to a permanent disposal unit to be constructed on site. Evaluation of the safety of this permanent disposal facility is not included in this SER.

2.2.2 York facility

The Molycorp, York, facility produced metal alloys in a process that extracted thorium and small concentrations of uranium from bastnasite ores in liquid recovery process. A cerium concentrate solution was used in this process to dissolve the thorium and uranium containing ores. This process resulted in contamination of soils and structures at the facility. The licensee has proposed in its SDP to excavate approximately 5,000 cubic yards of waste soils for transport to the Washington facility for interim (5 to 10 years) storage.

3.0 Radiological Status of Thorium Contaminated Soils

3.1 Radiological Status of Soils to be Transported from York

The applicant has reported that soils at the York facility average approximately 100 pCi/gram for thorium with its daughters down to approximately 3.5 feet below grade and that exposure rates resulting from this residual activity are less than 57 micro-rem/hour above background (when measured at a distance of 1 meter from the surface of the soil and when averaged over areas not exceeding 100 square meters). NRC interim radiological cleanup criteria for cleaning up contaminated soils for unrestricted release are found in the 1981 Branch Technical Position (BTP) (Ref. f) dated October 23, 1981, "Disposal or Onsite Storage of Thorium and Uranium Wastes from Past Operations." The above stated average concentration of approximately 100 pCi/gram of unexcavated soils at York will need to be reduced to the BTP Option 1 limit which is 10 pCi/gram before the site could be released for unrestricted use. It is estimated that this will result in the generation of approximately 5,000 cubic yards of waste soils at an average concentration of 100 pCi/gram.

3.2 Radiological Status of Soils Already on the Washington Site

Final characterization of the Washington soils is not complete but preliminary indications are that concentrations of thorium contaminated soils at the Washington site probably exceed those at the York site. The licensee's current estimate of the average concentration of thorium for Washington soils is approximately 80 pCi/gram for mixed slag/surface soils (with a 10,000 cubic yard volume to be excavated at this concentration). Concentrations in the southwest slag pile at the Washington site are reported up to 1700 pCi/gram for Th-232. The anticipated volumes of soil excavated for disposal in Washington may ultimately exceed by several orders of magnitude the excavated soil disposal volumes at York. Because of the difference in the source terms for these facilities and in the event that approval is not granted for final disposal of the York soils in a Washington disposal unit, measures are being taken to prevent the commingling of York and Washington soils and NRC has required that the licensee make provisions for containment during any interim storage period. Therefore, this action does not involve Washington soils.

Sampling and analysis in the past two years has detected no thorium in surface or ground water at either the Washington or York site.

4.0 Evaluations

4.1 Task Management, Project Organization and Training

The process of excavating, loading, and transporting contaminated soils from the York facility to the Washington facility is included as part of the decommissioning activities described in the "Decommissioning Plan for the York, PA Facility" (Ref. c) and in the "Site Decommissioning Plan for Molycorp's Washington, PA Facility" (Ref. d). These documents also contain a description of the decommissioning organization (see attached Washington Site Decommissioning Project Safety Organization Chart) and its responsibilities during the project with a schedule for accomplishing the activities. Tasks associated with constructing and operating the interim storage facility are described in documents supporting the amendment request (Refs. g thru i).

The Molycorp project manager will function as the Molycorp representative for the decommissioning project and will provide oversight for all project activities. The Molycorp project manager will also coordinate cost and schedule reporting with the contractor. The Site Health and Safety/Radiation Safety Officer (RSO), who, during daily activities reports to the Site Manager (responsible for the day to day activities on the project) , will receive directions from the Corporate Health Physicist. The NRC staff has examined the RSO position with regard to the organizational structure presented for the proposed project and has concluded that the RSO will have the authority necessary to perform his functions (i.e., to prevent the performance of work activities that might jeopardize the safety of personnel, violate approved plans, procedures, or practices, that could result in the unwarranted release of contamination).

This project will employ a radiological engineer (RE) who will participate in project planning and reporting activities to ensure that regulatory compliance is achieved. The RE will also be responsible for the adequacy of plans and procedures and develop project specific plans and work instructions (radiation work permits) to assure that radiological safety is maintained in the execution of decommissioning activities. An important function of the RE will be to ensure that radiation exposures to personnel and the environment are maintained As Low As Reasonably Achievable (ALARA) and to ensure that radiation levels are always within regulatory limits.

The licensee has agreed to conduct a training program that meets the requirements of 10 CFR 19.12, "Instructions to Workers." All contractor and subcontractor personnel working on site will be trained in this regard before participating in decommissioning activities. The RSO will maintain training records for all personnel working on site. Qualifications for both the RSO and

the RAP are discussed in References c and d. The staff has concluded that the proposed risk management, project organization, and training for the proposed action are acceptable

5.0 Radiation Protection Program

The licensee's radiation protection program for the Washington, Pennsylvania, Molycorp facility will be implemented to provide radiological protection for both the York and Washington sites during the period of construction and operation of the interim storage facility. The purpose of the plan is to establish and maintain policies and procedures conducive to the safe handling of radioactive materials and to delineate responsibilities for radiological safety in working with radioactive materials. This plan has also been developed to provide for the health and safety of members of the public while on the Molycorp site. The plan addresses personnel radiological safety responsibilities, posting and labeling of areas containing radioactivity, personnel protection, permissible exposure limits, contamination control, specific procedures for handling material, radiological surveys, and emergency procedures. NRC considers this program, developed for emergency and normal operating conditions, to be acceptable during construction and operation of the interim storage facility.

6.0 Record of Regulatory Compliance

The last inspection at Molycorp's Washington facility, on October 15 and 16 , 1997, did not find any items of noncompliance. In addition, the licensee has had no items of noncompliance identified during three inspections performed in the last five years. The NRC staff's examination of the licensee's compliance history reveals successful performance in working with radioactive materials and proper management of the storage operation can be anticipated.

7.0 Physical Security

Subpart I of 10 CFR Part 20 (section 20.1801), "Storage and Control of Licensed Material," requires that the licensee secure from unauthorized removal or access, licensed materials that are stored in controlled or unrestricted areas. The proposed storage area will be located in the controlled area inside the main fence that borders the site. This fence is locked to secure licensed material from access and during times, when the fence is opened, a guard is present to provide surveillance of the licensed material. The NRC staff considers this level of security adequate for the type of licensed material proposed for storage on site.

8.0 Stability of the Storage Structure

The temporary storage structure proposed by the applicant would be constructed on a slope and predominately below-grade. A concrete block wall would be constructed on the slope face to act as a gravity retaining structure. The remaining three sides of the temporary storage structure would be graded to a one horizontal to one vertical gradient (the remaining base of the excavation would be at elevation 1025 feet above sea level). Concrete fabric forms will be

placed on the three excavated side slopes. Prior to placement of the York waste soils, a high density polyethylene geomembrane liner would be placed on the bottom and all four sides of the structure. In addition, a geomembrane layer, of the same material, would be placed over the waste soils (clean will be placed and graded above the geomembrane layer would promote drainage away from the temporary storage structure). The following discussion is a review of the licensee's characterization of the temporary storage structure and an evaluation of its engineering design and construction details.

8.1 Geotechnical Characterization

The NRC staff reviewed the licensee's investigation of the temporary site in its effort to characterize the subsurface conditions. The characterization consisted of test boring exploration, laboratory testing, and analysis of the stratigraphy. The results of the site investigation and laboratory testing program were used to develop the stratigraphic conditions of the subsurface materials. The test borings indicated existing fill to depths of six to 25 feet. The licensee describes the fill as non-process slag, gravel, spent refractory, cinders and sand. The standard penetration resistance values (N-values) for the fill ranged from 3 to 32 blows per foot. Beneath the fill, a layer of clay, which included discontinuous sand layers, was encountered above the shale bedrock. The depth to bedrock ranged from 21 feet below existing grades on the west side to 32 feet on the east side. N-values for the clay layer ranged from 2 to 39 blows per foot. Higher N-values were generally reported for the weathered rock zone and unconfined groundwater was encountered in the test borings near an elevation of 1020 feet above sea level. The NRC staff has concluded that the geotechnical investigations conducted at the site have adequately established the stratigraphy and that the applicant's subsurface explorations are adequate to support the assessment of the geotechnical stability of the temporary storage facility.

8.2 Engineering Design

The site characterization of the temporary storage site (presented in section 8.1 above) served as the basis for the licensee's proposed engineering design. The NRC staff reviewed important aspects of the geotechnical design including: slope stability; settlement analysis; retaining wall design; and geomembrane design.

8.2.1 slope stability

Factors that affect slope stability include: slope geometry; soil stratigraphy; soil parameters (including shear strength, unit weight, moisture content, and pore pressure distribution); and phreatic surface.

To evaluate the factor of safety against slope failure, the licensee used the computer code PCSTABL5 (Modified Bishop method). Utilizing a phreatic surface consistent with the observed groundwater level, the licensee modeled two sections. The cut slope section with a 45 degree slope gradient was modeled including the placement of the concrete-filled fabric form

The final section with a 18 degree slope gradient was modeled including the retaining wall. The licensee's calculated factors of safety for the static conditions were 1.157 and 1.839, respectively. The pseudo-static (seismic) factors of safety for both sections were above unity. Due to the licensee's inclusion of a concrete-filled fabric form layer in the cut slope model and the existence of perched water within the existing embankment, NRC staff will require the licensee to report any slope instabilities which occur prior to or during construction placement of the concrete layer. The licensee will also be required to submit to NRC for approval the method it will employ to repair the cut slope.

NRC staff's independent analysis of the final section of the storage structure resulted in a factor of safety of 1.48. This factor of safety is considered acceptable.

8.2.2 settlement analysis

The licensee has calculated the settlement of the soft clay layer using Terzaghi's one-dimensional consolidation theory. The current and future stress states were estimated from the existing and proposed grades. The compression index of the clay was estimated using empirical correlations with the liquid limit. A total settlement of 11.2 inches was estimated. The licensee further estimates that differential settlement could be as high as 9.2 inches over 11 feet of the soft clay layer. This estimated differential settlement translates to a geomembrane strain of 3.2 percent and NRC staff considers this acceptable when evaluated against the manufacturer's specifications.

8.2.3 retaining wall design

The licensee provided design calculations for the retaining wall using a wall height of 6 feet and soil properties consistent with the slope stability analyses. NRC staff's review of this design indicates that the retaining wall appears to be appropriately designed to resist the anticipated loads.

8.2.4 geomembrane design

The licensee's geomembrane design includes an anchor trench along the top of the slope and a cushioning geotextile over the geomembrane layer on the bottom. The maximum estimated strain (discussed in section 8.2.2, above) is well within the design limit of 13 percent elongation at yield. The staff concludes that the design is acceptable.

8.3 Geotechnical Construction Details

8.3.1 construction methods and features

The NRC staff has reviewed and evaluated the geotechnical construction criteria. The excavation, placement, and compaction methods presented are generally planned in accordance

with standard practice and the liner systems will be installed in accordance the manufacturer's recommendations. The NRC staff concludes that the plans and drawings adequately convey the proposed design features.

8.3.2 testing and inspection

The NRC staff has reviewed and evaluated the manufacturer's testing and quality control inspection specifications. The licensee has committed to testing and inspection operations performed by a qualified geotechnical laboratory. NRC staff considers the testing and inspection program to be acceptable.

8.3.3 geomembrane

The specifications for the geomembrane layer were reviewed and found to be consistent with the analysis. Quality control and inspection procedures are deemed to be adequate.

9.0 Summary of Environmental Assessment

The environmental assessment prepared for this proposed action has: (1) evaluated the radiological status of the Molycorp Washington Pennsylvania site, as it relates to the temporary storage of York soil/slag waste; (2) assessed four reasonable alternatives to construction of the temporary storage facility on the Molycorp Washington site; and (3) evaluated the environmental impacts associated with the assessed alternatives. The conclusion of the environmental assessment (EA) is that the proposed action will have no significant impact on the surrounding environment.

10.0 Summary and Conclusion of Safety Evaluation

The safety evaluation for this proposed action has evaluated: (1) the task management organization for the interim storage project; (2) the licensee's radiation protection program; (3) the licensee's record of compliance with NRC regulations; (4) the structural stability of the interim storage facility; and (5) the physical security of the storage facility. Based on this evaluation, the staff has determined that the licensee has provided an adequate program and basis for the safe construction and operation of the interim storage facility and that the proposed action can be carried out in accordance with NRC's regulations. In addition, as documented in the EA, the proposed action will not result in a significant impact on the environment.

11.0 Recommendations

Based on the foregoing evaluation, the NRC staff recommends:

1. That the license for the Molycorp Washington, Pennsylvania facility (License No. SMB-1393) be amended to allow the construction and operation of an interim storage facility

for the purpose of storing soil waste generated in the decommissioning of the Molycorp facility (License No. SMB-1408) in York, Pennsylvania; and

2. That the Molycorp Washington license be amended to incorporate the conditions contained in Section 12.0 of this document, as it applies to the license.

12.0 License Conditions for the Molycorp Washington License

EA and SER, General License Condition No. 13

Except as specifically provided otherwise by this license, the licensee shall possess and use licensed material described in items 6, 7, and 8, of this license in accordance with statements, representations, and procedures contained in Molycorp letters dated November 27, 1973 and January 30, 1974, the Molycorp application dated December 26, 1974, Molycorp letters dated July 13, 1992, and September 25, 1992. The Nuclear Regulatory Commission's regulations shall govern the licensee's statements in applications or letters unless the statements are more restrictive than the regulations.

EA Section 1.2, License Condition No. 8A

A. 12 x 10 exp 4 Kgs

Page 6, EA Section 5.2, License Condition No. 14E

14. Schedule for Decommissioning Site:

E. Six months after the date of issuance of this amendment, Molycorp will update their decommissioning funding plan to more accurately list the cost associated with disposal of York soil/waste in the proposed Washington Molycorp permanent impoundment.

Page 6, EA Section 6.0 License Condition No. 15

15. Sampling of Airborne Particulate

The licensee will conduct the airborne particulate sampling discussed in section 6.0 of the EA dated 11/26/97 and described in the "Draft Response to U.S. NRC Request for Additional Information Temporary Thorium Storage Structure Final Design Report," dated December 20, 1996, during dumping, grading, and storage operations. This monitoring will employ equipment such as a PDM-3 Miniram Dust, Aerosol, Fume and Mist Monitor (or equivalent). In the event that worker exposure exceeds 10 percent of the concentration limits for soluble thorium 232, administrative controls or other engineering methods will be employed to reduce exposures or protective equipment such as respirators will be used to mitigate exposure of workers to dust.

Page 10, EA Section 7.2.2.2, License Condition No. 16

The Licensee will conduct annual monitoring of ground water in the vicinity (one up gradient well MW-31 and three down gradient wells MW-27, MW-28, and MW-30) of the interim storage structure in accordance with representations made in its amendment request dated February 8, 1998. The wells will be sampled for Th-232, Ra-226, total uranium, and for sulphate and chloride anions.

Page 11, EA Section 7.2.2.3, License Condition No. 17

The licensee will perform semi-annual sampling of surface water points currently sampled on an annual basis for the slag pile located in the southwestern area of the site.

Page 8, SER Section 7.3.2, License Condition No. 18

With regard to preparation and construction of the storage embankment and liner:
(1) The licensee shall report any slope instabilities of the engineered embankment that occur prior to or during placement of the concrete fabri-form layer; (2) In the event that slope failure occurs, the licensee will submit to NRC for approval the method it will employ to repair the instability; and (3) Following installation of the liner, the licensee shall submit to NRC for approval the manufacturers liner installation certification prior to placement of the waste.

13.0 References

a. Molycorp, Incorporated, "Materials to Support a License Amendment Request for Interim Storage of Molycorp, York, PA Facility Material," letter from B. Dankmyer, Molycorp to L. Person, NRC, dated February 8, 1996.

b. Molycorp, Incorporated, "Molycorp Inc. Washington Pennsylvania NRC License SMB 1393 Renewal Application," dated June 30, 1997.

c. Molycorp, Incorporated, "Site Decommissioning Plan for Molycorp's Washington, PA Facility," dated July 19, 1995.

d. Molycorp, Incorporated, " Decommissioning Plan for the York, PA Facility," dated August, 1995.

e. U.S. Nuclear Regulatory Commission, Code of Federal Regulations, Title 10, Parts 20 and 40.

f. U.S. Nuclear Regulatory Commission, Branch Technical Position, "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations," Federal Register, Vol 46 No. 205, October 23, 1981.

g. ICF Kaiser Engineering, Inc., "30% Temporary Thorium Storage Structure Design Report," dated May 13, 1996.

h. ICF Kaiser Engineers, Inc., "Design Basis Document Temporary Thorium Storage Structure," dated July 10, 1996.

i. ICF Kaiser Engineers, Inc., "Final Design Report Temporary Thorium Storage Structure," dated August, 1995.