



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

February 28, 2003

Docket No. 04007102
Control No. 132074

License No. SMB-743

David R. Smith
Environmental Manager
Shieldalloy Metallurgical Corporation
Aluminum Products & Powders Division
12 West Boulevard
P.O. Box 768
Newfield, NJ 08344-0768

**SUBJECT: REJECTION OF DECOMMISSIONING PLAN FOR THE NEWFIELD FACILITY
AND DENIAL OF THE EXEMPTION REQUEST TO POSTPONE INITIATION
OF DECOMMISSIONING PROCESS, CONTROL NO. 132074**

Dear Mr. Smith:

On August 30, 2002, Shieldalloy Metallurgical Corporation (SMC) submitted its Decommissioning Plan (DP) for the Newfield Facility. SMC then submitted a letter dated November 15, 2002, which requested an exemption that NRC staff defer taking action on SMC's DP, while the NRC is reviewing its regulations and related guidance for restricted use license termination. These two documents were discussed during the January 9, 2003 telephone conference with you, Carol Berger (your consultant), Marie Miller (of my staff) and me along with the need to resubmit your application for the timely renewal of your NRC license.

Results of our review of the aforementioned documents and of our telephone conversation are provided below:

Decommissioning Plan Acceptance Review

The NRC staff conducted an acceptance review of your DP using the guidance contained in NUREG-1757, Vol.1, Consolidated NMSS Decommissioning Guidance, and NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs. Based on this initial acceptance review, we determined that the DP does not contain sufficient information for us to continue a more detailed technical review. Additional information is required regarding such aspects of decommissioning as: your site-specific dose modeling, a quantitative site specific cost-benefit analysis to demonstrate that the proposed alternative is As Low As Reasonably Achievable (ALARA), specific institutional controls for restricted release, an agreement by a competent party to assume control of and responsibility for maintenance of the site, financial assurance, and advice from affected parties. This information is also needed to evaluate the adequacy of your Decommissioning Funding Plan as it relates to your DP.

We recommend that you develop a revised DP using the NRC staff's phased approach that would have you first focusing on resolving the deficiencies regarding institutional controls, financial assurance, engineering cell design concepts, and advice from affected parties with

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respect to these issues, before revising the other portions of your DP. To facilitate your revision of the DP, we are enclosing the staff's preliminary comments on specific topics of your DP as identified in Enclosure 1. As a first step in this process, we suggest that you plan on meeting with us in March 2003, to discuss these deficiencies of your DP as submitted, as well as the phased approach. Based on this meeting, you should provide a schedule for submitting a revised DP.

Exemption Request

Regarding your exemption request, we find that you have not provided a sufficient basis for approval of your request. Although the NRC is reviewing its regulations and related guidance for restricted use, the 10 CFR Part 20 Subpart E, Radiological Criteria for License Termination and associated guidance documents remain applicable. While there could be changes, as with any regulation, the review process for a restricted release termination plan is lengthy and also dynamic. We need to balance the impact of possible changes against the need to prevent further delays to the decommissioning of the SMC Newfield site. We therefore are denying your exemption request. However, as discussed above, as you evaluate and develop your revised DP, we would be agreeable to having a technical meeting on issues associated with meeting the restricted release criteria or an alternative criteria and dose modeling.

Timely Renewal

The remaining licensing issue we discussed was our consideration of your submittal of the DP to be a renewal request. We require a license renewal application for the ongoing remediation activities being conducted under your extended license. Your application for renewal should address the current remediation activities, storage of license source material, and include your Final Status Survey Plan for the areas that you intend to request NRC to amend your license. We request that your application for timely renewal be submitted by April 30, 2003.

If you have any question regarding this matter, please contact Marie Miller of my staff at (610) 337-5205 or by e-mail at mtm1@nrc.gov. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR) and will be accessible from the NRC Web site at <http://www.nrc.gov/reading-rm.html>.

Sincerely,

Original signed by Ronald R. Bellamy

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Enclosure:

1. NRC Staff Preliminary Comments on SMC Decommissioning Plan

D. Smith
Shieldalloy Metallurgical Corporation

cc w/enc.:

Jill Lipoti, Ph.D., Assistant Director, Radiation Protection Programs
Mark Winslow, Coordinator, RH&SP, U.S. EPA, Region 2
Loretta Williams, Resident, Newfield, NJ

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ENCLOSURE ONE

NRC STAFF PRELIMINARY COMMENTS ON SHIELDALLOY DECOMMISSIONING PLAN

DOSE MODELING

Section 5.2.2 Assessment Methodology assumes that the “agricultural farm family” scenario is applicable. It also states that RESRAD Version 6.2 was used, and that it takes into account the potential uses of the site and potential migration of radioactive materials through the environment over time through both natural processes and human activities. Section 5.2.3 describes the input parameters, which were listed in Tables 17.6 -17.13. The following information is needed to assess the adequacy of the exposure scenario and the dose modeling:

1. The exposure scenario includes a situation in which the deed restrictions and prohibition of building a residence near the storage pile fail, yet the cover and shape of the capped pile remain intact. Please provide a justification for how the cell has been designed to withstand erosion and other activities or an exposure scenario should also be included that erodes the cap through natural and human activities if the institutional controls and site maintenance were to fail.

2. The exposure scenario as stated eliminated the direct exposure pathway by placing the house 20 feet away from the contaminated area, and estimated an exposure of less than 10 microrem per hour above background. Please provide the basis for selecting a distance of 20 feet. In addition, provide a basis as to why exposure to direct gamma radiation from other plausible scenarios should not be considered. For example, the average member of the critical group could be the family farm member engaging in outdoor activities, such as tending to crops and livestock or recreational activities such as fishing in the on-site pond.

Please consider other exposure scenarios where there could be land activities on top of the engineered cell. For example, an exposure scenario to a worker providing maintenance on and near the cell, or an intruder scenario because of loss of institutional controls, resulting in an occupational re-use of the land over the cell. Comparison of the results for modeling these scenarios to the residential farming scenario should be included to demonstrate the reason for selecting the residential farming scenario as the bounding scenario.

3. An exposure scenario for other areas of the site where licensed materials were used is not addressed in the DP. The DP should address the dose contribution for the other portions of the site to meet the overall dose limits for the site.

4. The input parameters used in Shieldalloy's analysis are primarily the RESRAD default parameters. There was no sensitivity analysis to identify key parameters. Please provide the justification for the values used for key parameters for the Newfield site. Note that information determined based on past groundwater studies may be acceptable. NRC staff are available to discuss appropriate methods for performing sensitivity analyses.

5. The input parameters model an impermeable cover remaining intact and not affected by erosion or water runoff (water runoff coefficient to 100%). Yet, input parameters erode the contaminated slag pile over time. Provide or reference the basis for why the engineering cover

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would remain in place. Also justify how the slag pile erodes with time, although the impermeable cover is not eroded.

6. The partition coefficients were changed based on a referenced source. Compare these K_d values to calculations of estimated travel times based on the uranium and thorium found in ground-water samples from wells near the existing slag piles. Also, explain the basis for inputting the ground water concentration as zero under the initial conditions.

DECOMMISSIONING ALTERNATIVES AND RATIONALE AND ALARA ANALYSIS

Section 6.2 states, in part, that the regulatory decision on the preferred decommissioning alternative for another facility with similar radioactive slag is equally applicable to the SMC's Newfield facility. However, site-specific factors and a thorough examination of other alternatives were not presented. Section 7 states that the estimated cost of off-site disposal was calculated to be approximately \$102-112 million versus about \$3.0 million for the on-site disposal options. Please elaborate on the other alternatives and explain the cost differences.

1. See 10 CFR 51.60 for the general requirements for a licensee's Environmental Report and NUREG-1748 for developing a site specific Environmental Report. SMC's report can reference other reports, as applicable, but must also describe site specific features that are different from the other referenced site where onsite disposal was considered an acceptable alternative. In particular, alternatives considered should address the summary of the impacts to the community, such as land use, property values, and environmental justice within a 4 mile radius of the center of the facility. Also, identify the potential impacts of the alternatives for the contaminated slag, soils and groundwater on the areas that are already impacted by the past hazardous chemical contamination, such as the ongoing groundwater treatment and offsite restricted well area.

2. Examine other conservative alternatives, such as offsite disposal to other facilities (compare cost factors per ton or cubic feet), and offsite disposal of the soils and bag-house dust and its impact of reduction on the source term. For example, leaching of thorium and uranium from the bag-house dust in comparison to the slag, and the cost-benefit of the action.

3. Develop and submit a site specific quantitative cost-benefit analysis to support the in-situ stabilization option as ALARA, since the chosen alternative is not the environmentally preferable alternative. The ALARA demonstration should be performed pursuant to Section 7 of NUREG-1727, NMSS Decommissioning Standard Review Plan.

RADIOACTIVE WASTE MANAGEMENT PROGRAM

Section 12.3 states that no solid or liquid mixed wastes are expected to be generated during the decommissioning process. However, a soil remediation plan is under review by EPA. Please state whether any mixed waste could be generated from remediation of these soils in areas impacted or potentially impacted by NRC regulated source material.

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FINANCIAL ASSURANCE

Section 15.1 states that costs of implementing this plan is \$2,731,161 as shown in Table 17.14.

1. Please separate the cost of long term surveillance from the cost of site stabilization and cell construction.
2. The cost for site-stabilization and long term surveillance and maintenance of the cap, wildlife area and nature trails for 1000 years was estimated at \$781,300. Please show the cost for long-term care on a yearly basis and the method used to determine the total estimate (refer to NRC guidance to calculate this amount) assuming a duration of 1000 years. Also explain the assumptions used regarding the potential for requiring major repair of the cell (see comments regarding maintenance of the site).
3. Describe the financial assurance mechanism provided by the licensee or responsible party for an independent third party to carry out the necessary control and maintenance activities.
4. Address whether costs for additional remediation/recovery actions related to being an EPA National Priorities List site are assumed to be secured with the existing irrevocable stand-by letter of credit.

INSTITUTIONAL CONTROLS (IC)

Section 16.2 provides a summary of the variety of institutional controls that will be implemented.

1. Explain how the proposal for the institutional controls are legally enforceable, such as the authority to enforce and manner in which controls will be enforced. In its DP, SMC proposed the use of a deed notice after license termination while it remains the owner of the site. NRC staff is concerned because a deed notice is not a legally enforceable type of institutional control. Furthermore, SMC did not address enforceability of the institutional controls after transfer of ownership to some other government entity. Such institutional control plans must be agreed to and documented in the revised DP.
2. Identify whether there is an agreement by an independent third party to assume control of and responsibility for the maintenance of the site. Residual contamination at the SMC site will consist of uranium and thorium, both long-lived radionuclides requiring "more stringent" IC according to the LTR SOC. Although SMC proposed eventually transferring their site ownership to some local or state government entity, the DP did not discuss the capability or willingness by any government entity to accept this responsibility in perpetuity. SMC must also address the willingness of entities to accept the funds to be provided and that they are sufficient for control and maintenance as well as resolving concerns over long-term liability due to potential engineered cell/cap repair after transfer of ownership. Therefore, SMC has not demonstrated that its proposal is feasible.

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ENGINEERED BARRIERS

Section 8.3 of the DP describes a design concept for the engineered cell and cap, with steep slopes and small top to preclude the potential for building a residence on top of the cell in the future and therefore, precluding the resident farmer scenario. The cell design concept also includes the use of a geotextile layer to limit infiltration.

1. The DP states that the cell has been designed to meet New Jersey (see executive summary) and NRC (see Section 8.3.3) requirements, that it is designed to last 1000 years, and will prevent future erosion. However, specific guidance documents are not referenced. Please do so.
2. No basis is provided for the cell lasting 1000 years or preventing future erosion, especially with steep 3/1 slopes. Furthermore, no basis is provided that the geotextile layer will last 1000 years or the affect on performance if it fails.
3. There is no discussion that the cell and cap have been designed not to rely on maintenance or to preclude major cell failure and major repair or partial replacement over the 1000 year time period. Reference to NRC's Part 40 Appendix A engineered cell cap design guidance for designing disposal cells within the objectives to last 1000 years with no reliance on maintenance may be useful to consider.

The above deficiencies are key concepts for the dose modeling scenario assumptions as well as key assumptions underlying the financial assurance/funding estimate and potential long-term financial liability concerns related to potential engineered cell failure and repair costs.

MAINTENANCE OF SITE

Section 16.3 describes maintenance of the perimeter of the property and the entire Storage Yard. It also states that when all plant operations cease, SMC intends the area would convert to a wildlife sanctuary.

1. Describe any detriments associated with the maintenance of the institutional controls. For example, discuss the potential for vegetation growth or presence of hazardous wildlife that could prevent the completion of quarterly maintenance inspections or impact the engineered cell, i.e., burrowing by animals.
2. Describe maintenance expected for the engineered cap and nature trails after SMC transfers title of the property. Include a discussion of the potential for and the cost of major repair or partial replacement of the engineered cell cap should the cap fail. Note the relationship to the degree of design robustness. For example, more robust design would result in lower reliance on maintenance and greater certainty that the cell cap will not fail and need periodic major and costly repair. A less robust design may need greater funds set aside for periodic major repairs.

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OBTAINING PUBLIC ADVICE

Section 16.4 states what public advice will be solicited and that it will establish a Restoration Advisory Board (RAB). It also stated that meetings of the RAB will be held each quarter during the planning and implementation phase.

1. Because SMC with its RAB most likely will develop the mechanisms for soliciting public advice from the local parties, please outline in more detail what actions are planned or will be taken to establish an RAB. As stated in Section 4, the RAB should be meeting during the planning phase to provide valuable input. NRC recommends that a site specific advisory board (SSAB) or other effective methods be selected as soon as practical after the licensee notifies NRC of its intention to decommission and terminate the license. See NUREG-1757, Vol 1, Section 17.8 for additional guidance.
2. Describe the administrative support and access to licensee studies and analysis pertinent to the proposed decommissioning for the SSAB. Describe how the summary of the results of all collective discussions and reports by the SSAB will be made publicly available.
3. Although SMC indicated general plans for future interactions to seek advice from affected parties, the DP did not include the results of interactions as required. The advice from affected parties should have been part of the input that SMC used to prepare its DP.