



SHIELDALLOY METALLURGICAL CORPORATION

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May 2, 2000

Mr. Theodore S. Sherr, Chief
Chief, Licensing and International Safeguards Branch
Division of Fuel Cycle Safety and Safeguards, NMSS
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: Request to Postpone Initiation of the Decommissioning Process (License No. SMB-743)

Dear Mr. Sherr:

Pursuant to Title 10, Code of Federal Regulations, Sections 40.42(f) [10 CFR 40.42(f)] and 40.14, as appropriate, Shieldalloy Metallurgical Corporation (SMC) requests that the U. S. Nuclear Regulatory Commission (USNRC) approve a short (one year) postponement of the initiation of the decommissioning process, including the notification and planning required by 10 CFR 40.42(d)(3). SMC requests that this notification and the associated requirements to plan and proceed with decommissioning be postponed for one year from the date of this letter in order to allow SMC a brief opportunity to explore business opportunities involving source material before planning for and proceeding with the decommissioning of areas that might be used for these activities.

10 CFR 40.42(f) requires a request to postpone initiation of the decommissioning process to be submitted at least 30 days before the notification required by 10 CFR 40.42(d)(3). 10 CFR 40.42(d)(3) requires notification if no principal activities have been conducted for a period of 24 months. As described in this letter, such notification for License No. SMB-743 would be required in June. Accordingly, this request for postponement of the notification and other decommissioning activities is timely.

10 CFR 40.42(f) states that the USNRC may grant a request to delay or postpone initiation of the decommissioning process if such an action is not detrimental to the public health and safety, and if it is in the public interest. 10 CFR 40.14 allows the USNRC to issue any specific exemption that will not endanger life or property, or the common defense and security, and that is in the public interest. Included herein is a brief description of the activities authorized under SMB-743 and the restricted areas in which they are performed, the reason for requesting a delay in the decommissioning process, an assessment of the health and safety impacts of granting our request, and an explanation of why the request is in the public interest.

Authorized Licensed Activities and Restricted Areas

Amendment 3 of License No. SMB-743 permits SMC to possess thorium and uranium, in any form, for the purposes of research and development, processing, and storage of raw materials for the production of speciality alloys and slag fluidizers, and for distribution of raw materials. These activities are performed in designated permanent restricted areas, as described in Enclosure 1. The following is a brief description of the most recent occurrences of licensed activities in these areas:

- **Ferrocolumbium Production in D111** - Pyrochlore ore, which contains source material, is used in the production of ferrocolumbium, which has been, over the years, the primary product produced by SMC.¹ Until recently, SMC purchased and received this feed material containing "source material" from a supplier located in Canada. However, the supplier elected to produce its own ferrocolumbium, and thus ceased to supply a sufficient quantity of pyrochlore ore for SMC to maintain its typical production level. The last shipment received was in November of 1997, and the last ferrocolumbium production (using pyrochlore ore) in D111 took place in February/March, 1998.
- **Receiving in G-Warehouse** - In March of 1998, SMC received a shipment of raw materials containing source material. This shipment was stored in G-Warehouse until May 18, 1999, at which time it was shipped to an authorized recipient.
- **CANAL-Lite Production in D111 and D102** - In March/April, 1998, SMC used D111 and D102 to prepare CANAL-Lite, a slag fluidizer containing low levels of source material. For this operation, CANAL and ferrovanadium slag were crushed, blended, sampled and packaged for shipment to a domestic steel manufacturer. However, for reasons that were beyond SMC's control, the shipment was never accepted by the customer, and the packaged material was returned to SMC. It was stored, temporarily, in D111. In early 1999 it was unpackaged and transferred to the Storage Yard, where it currently remains.

Since June of 1998, the activities performed by SMC under the provisions of License No. SMB-743 have included cleanup actions (i.e., Haul Road remediation in September of 1998) and decommissioning of unused facilities (i.e., A-Warehouse in September of 1998, the AAF Baghouse in June of 1999, and a portion of the Storage Yard in December of 1999).

Reasons for Requesting the Delay in Decommissioning Activities

Pursuant to 10 CFR 40.42(d)(3), if SMC does not perform any of the principal activities authorized by License No. SMB-743 by June of 2000, SMC (i.e., 24 months from the last day that principal activities were performed), the USNRC must be notified within 60 days of that date, a decommissioning plan must be prepared and submitted to the USNRC for approval, and

¹ Ferrocolumbium may also be produced at Newfield using columbium oxide as the feed material. Columbium oxide, with its background-level concentrations of uranium and thorium, does not meet the definition of source material.

decommissioning must begin upon USNRC approval of the plan. In light of the fact that SMC has ceased ferrocolumbium production using source material, site-wide decommissioning is under consideration. However, SMC has been researching other uses for License No. SMB-743. Four of these, described briefly as follows, appear viable and potentially profitable:

- CANAL Sale - SMC has been pursuing the sale of CANAL to both domestic and foreign steel manufacturers. While the benefits of using CANAL for steel production are easy to comprehend, the regulatory and strategic issues associated with the fact that CANAL contains greater than 0.05% source material have been more difficult and time-consuming to overcome. Nonetheless, SMC remains optimistic that a manufacturer will agree to a trial run with a limited volume of CANAL wherein SMC will be permitted to monitor the radiological aspects of the operation and perform a materials mass balance. Once this manufacturer has been identified, D111 will be used for sizing, packaging and staging CANAL for shipment.
- Tolling Operations - SMC has initiated discussions with companies who are seeking tolling services. On March 22, 2000, SMC met with representatives of a *confidential company* for exploratory discussions in regard to their thoriated tungsten scrap. Currently, this *company* disposes of all of their scrap, which contains over 98% tungsten, in a low-level waste landfill. SMC is investigating the possibility of receiving the scrap, separating the tungsten from the remaining materials through chemical and/or metallurgical means, then re-selling the tungsten back to this *company*. The residual thorium will be processed into physical/chemical forms suitable for purchase by other vendors. Once the scrap processing operation has been fully defined, both from a technical and from a business standpoint, D111 and possibly other buildings at the Newfield facility will be used for materials processing and staging.
- Metals Recycling - SMC has been in discussions with the Office of Environmental Management (EM-93) and Headquarters (EM-50) personnel within the Oak Ridge, Tennessee office of the U. S. Department of Energy (USDOE) in regard to metallurgical recycling of contaminated metals in their stockpile. Exploratory discussions were held on April 3, 2000. The USDOE has regulatory initiatives presently in place to pursue the interests broached by SMC. The USDOE is proposing a partnership which would allow SMC's metallurgical capabilities to benefit from the government's technology transfer program, and SMC to receive, free of charge and with no shipping costs, specialty metals (e.g., thorium-magnesium alloys) for metallurgical processing to remove the residual radioactivity, while at the same time allowing the USDOE to reduce its inventory of contaminated materials at federal facilities. The specialty metals would then be made available for purchase to other vendors. D111 would be used for these and similar processes.
- Technology Transfer - As a follow-up to the discussions, and with the cooperation and encouragement of the USDOE, SMC has contacted UT-Battelle, a prime USDOE contractor in Oak Ridge, Tennessee, to explore technology transfer/materials recycling issues. An exploratory discussion was held on April 17, 2000, with a subsequent meeting scheduled to take place in early May.

If SMC determines that any one of these four options is economically viable, access to certain of the restricted areas will be necessary in order to perform the required work. However, the investigation phase is still underway and a determination has not yet been made. Therefore, SMC is requesting to postpone the requirements of 10 CFR 40.42(d)(3) for one (1) year from the date of this letter, or until such time as SMC determines that the options described above present no economic viability, whichever is sooner.

Health/Safety Impacts if Decommissioning is Delayed

Enclosure 2 gives a summary of the ambient exposure rates and levels of residual surface contamination in all of the permanent restricted areas at SMC. This summary is based upon the results of a recent quarterly surveillance effort.²

In general, the dose rates in G-Warehouse and D112 are indistinguishable from background. In D102 and D111, the maximum measured dose rates were in the immediate vicinity of residual ferrocolumbium slag (i.e., discrete locations). Assuming a hypothetical worker remained in the production area of D111 (the location of highest ambient exposure) for a 2,000-hour work year, his/her maximum possible dose potential is 100 millirem.

In regard to residual surface radioactivity in readily accessible areas, all except one meet the site-specific release criterion (600 dpm α per 100 cm² upon direct frisk). The exception is the Flex-Kleen baghouse where the exposure potential from airborne radioactivity during routine maintenance is less than 100 millirem.³

The Storage Yard is monitored with passive dosimeters mounted on the perimeter fence. These are processed every quarter, and the results, plus an interpretation in light of exposures to the public, are captured in each quarterly surveillance report. The results typically range from background to approximately 0.2 millirem per hour at a single location that is within 30 feet of the slag piles. The maximum possible annual exposure of a member of the general public for the most limiting of scenarios is approximately 1.3 millirem.

If decommissioning activities in D111 are initiated, and if SMC subsequently determines that D111 is necessary for the implementation of one or more of the aforementioned options, a second round of decommissioning at the time of license termination would presumably result in twice the personnel exposure potential. Thus a delay in the start of decommissioning until such time as all decision-making is complete would avoid additional and unnecessary exposures.

Summary

This request to postpone initiating the decommissioning process at SMC's Newfield facility and defer all

² Integrated Environmental Management, Inc., Report No. 94005/G-5197, 'Report of Radiation Safety Surveillance for Quarter 4, 1999'.

³ Smith, David, Shieldalloy Metallurgical Corporation, written communication to Theodore M. Sherr, U. S. Nuclear Regulatory Commission, 'Application to Amend Source Material License No. SMB-743 (TAC No. L31035)', June 15, 1999.

requirements of 10 CFR 40.42(d)(3) for a brief, one-year period is clearly not detrimental to public health and safety. In addition, the worker population at SMC and public interest will be better served if SMC is not required to decontaminate and decommission a single building twice. Nor is it in the public interest to make expenditures for the preparation of a decommissioning plan if the areas to be decommissioned, and hence the contents of the plan, might be changed by the conduct of additional licensed activities. Further, the public interest would clearly be served by allowing SMC a short opportunity to explore the USDOE's recycling program, which might contribute to the eventual cleanup of the USDOE facilities.

SMC remains committed to the ALARA principle and to the spirit of the requirements in 10 CFR 40.42. Therefore, those restricted areas that have not been used for principal licensed activities over the past 24 months, that have little probability of being necessary in the event that the aforementioned options are put in place, or that house operations that can be performed equally well in D111 will be decommissioned and removed from License No. SMB-743. These areas are G-Warehouse, D102 and D112. Once these areas have been decontaminated and a final status survey performed and documented, a license amendment application to remove these areas from the listing on SMB-743 will be submitted. Once the amended license is issued, only D111, the D111-Flex Kleen baghouse, and the Storage Yard will remain restricted areas until such time as the economic viability of the four options is determined, or until one (1) year from the date of this letter, whichever comes sooner. In either event, the USNRC will be kept apprised of the status of all activities performed under the provisions of SMB-743.

Please call me at (609) 692-4200, extension 226 if I can answer any questions, or provide you with additional information to facilitate your review. We look forward to timely and favorable consideration of SMC's request.

Sincerely,

A handwritten signature in black ink, appearing to read "David R. Smith". The signature is fluid and cursive, with the first name "David" being the most prominent.

David R. Smith
Radiation Safety Officer

cc: Nigel C. Morrison
Hugo L. Nieves
Steve Danilak
Ellen Harmon, Esq. - Metallurg
Jay E. Silberg, Esq. - Shaw Pittman
David R. Lewis, Esq. - Shaw Pittman
Carol D. Berger - IEM
Julie Olivier - USNRC Licensing Section 2
Marie Miller - USNRC Region 1

ENCLOSURE 1

Locations where Licensed Materials are Used/Stored at the Newfield Facility

Restricted Areas (Bldg. No.)	Type	Description
D111	Production Department	Predominant location where source material is used for production purposes. D111 is a 1,742 m ² by 12 m tall building constructed, primarily, of concrete and metal. It is equipped with an operator control room, mechanical booms and heavy equipment handlers, storage containers, scales, a variety of melting pots, two furnaces, a dust collection system, and other miscellaneous items.
D111-Flex Kleen	Bag House	Baghouse and air cleaning system that services and is structurally-attached to D111.
D102	Production Department	Formerly housed the aluminothermic reduction operation and the CANAL® crushing/sizing/packaging operation. It was equipped with a furnace, crushing equipment, scales, bagging equipment, and other miscellaneous items. At this time, the facility is empty of equipment.
D112	Production Department	Contained within same structure as D102, but does not process source material
D203(G)	Warehouse	Area where source material is received and temporarily stored before being transferred to D111 and/or D102, and where CANAL® is staged prior to shipment.
Storage Yard	Storage	Area where ferrocolumbium standard slag, ferrocolumbium high-ratio slag, and columbium nickel slag generated from the D111 and D102 smelting operations is stored, and where the baghouse dust and other source material are stored.

ENCLOSURE 2
Radiological Conditions in Restricted Areas

Restricted Areas (Bldg. No.)	Dose Rate (microrem/hr)		Total Residual Contamination (dpm (α)/100 cm ²)	
	Range	General Area	Range	General Area
D111	5 to 325	50	<35 to 413	200
D111-Flex Kleen	8 to 13	10	184 to 627	200
D102	10 to 80	14	<48 to 408	<48
D112	<10	Bkg	<48	Bkg
D203(G)	5 to 7	Bkg	<48	Bkg
Storage Yard	Bkg to 2,000	n.a.	n.a.	n.a.