



SHIELDALLOY METALLURGICAL CORPORATION

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November 19, 1999

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

**Re: Reply to Notice of Violation (NRC Inspection Report No. 040-07102/99-01),  
License No. SMB-743**

Dear Sir:

By letter dated October 28, 1999, the U. S. Nuclear Regulatory Commission Region I transmitted to Shieldalloy Metallurgical Corporation (SMC) a Notice of Violation. The purpose of this letter is to respond to the Notice of Violation in accordance with the provisions of 10 CFR 2.201. As required by the Notice of Violation, the attachment to this letter sets forth (1) the reason for the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved.

If you have any questions concerning our response, or if we can provide further information, please call me at (856) 692-4200 extension 226.

Sincerely,

David R. Smith  
Radiation Safety Officer

cc: Nigel C. Morrison  
James P. Valenti  
Hugo L. Nieves  
Steve A. Danilak  
Fran M. Gilmartin

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**RESPONSE TO NOTICE OF VIOLATION  
SHIELDALLOY METALLURGICAL CORPORATION - LICENSE NO. SMB-743**

**Violation:** "10 CFR 40.42(d) requires, in part, that licensees provide notification to the NRC in writing within 60 days of any of the following occurrences: (1) The license has expired; (2) The licensee has decided to permanently cease principal activities at the entire site or in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements; (3) No principal activities under the license have been conducted for a period of 24 months, or (4) No principal activities have been conducted for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is unsuitable for release in accordance with NRC requirements. Contrary to the above, as of May 17, 1999, the licensee permanently ceased principal activities in a separate building that contained residual radioactivity from activities conducted under Source Material License No. SMB-743. The American Air Filter (AAF) baghouse and adjacent silo used to filter the airborne effluent during pyrochlore processing was unsuitable for release in accordance with NRC requirements of 10 CFR 20, and the licensee failed to notify the NRC in writing within 60 days of this occurrence. Specifically, the AAF system was part of the facility design for radiation protection purposes associated with its principal licensed activity and had residual contamination in excess of residual contamination limits. The licensee informed the NRC on August 18, 1999, during a telephone conversation initiated by the NRC for inspection planning purposes that the AAF Building and adjacent silo had been dismantled during the period of May 17 through June 17, 1999. During the inspection on August 19, 1999, the inspector observed that only the concrete pad remained in-place, and that the filter bags containing residual contamination in excess of residual contamination limits were placed on-site in the licensed Source Material Storage Yard."

**Reason for the Violation:** SMC produces a metal alloy using a source material called pyrochlore. The produced alloy, called ferrocolumbium, is the result of conventional electrical and aluminothermic smelting techniques.

Ferrocolumbium production is performed within a single building, called "D111". As described in SMC's March 25, 1998 license amendment application, and incorporated by reference as Provision 10 of License No. SMB-743, this building is equipped with an operator control room, mechanical booms and heavy equipment handlers, storage containers, scales, a variety of melting pots, two furnaces, other miscellaneous items, and a dust collection system comprised of two interconnected emission control units with high-efficiency baghouses.

One of the emission control units is a Flex-Kleen pulsed jet unit, termed the "D111-Flex-Kleen Baghouse" in the March 25th application. This unit accepts effluent air from the D111 smelting operations. Dust-laden air enters the "dirty air" plenum and hopper, where heavier dust particles drop out. The air that carries residual dust passes up and around the bag surfaces. As the air moves to the inside of the bags, dust particles are captured on the outer surface and within the bag material. The clean air passes through the inside of the bags into a "clean air" plenum, and subsequently vents to the atmosphere.

The second emission control unit is an American Air Filter baghouse, termed the "D111-AAF Baghouse" in our March 25th application. This unit also accepts effluent air from the D111 furnaces at pressure. The air enters the collector through the inlet air valves, and is passed up through the Dacron filter tubes where particulates are filtered out. The air leaving the tubes passes through a clean air plenum and is discharged to the atmosphere through a roof vent that runs the full length of the baghouse.

During D111 production activities, the D111-Flex-Kleen Baghouse and the D111-AAF Baghouse may be operated independently or in conjunction with each other. However, both of these control units service only D111 and the operations performed therein, and they are a necessary part of that Building.

Because of improvements made to the air handling system in the immediate vicinity of the smelting operation, and because maintenance performed on the D111-Flex-Kleen Baghouse in 1998 and 1999 improved its

efficiency, it was determined, in March of 1999, that it was no longer necessary to operate the two emission control systems in tandem in order to achieve effective air handling/cleaning. Therefore, in light of the difficulties and expense in monitoring emissions from the D111-AAF Baghouse, and because its failure notification methods were inferior to those associated with the D111-Flex-Kleen Baghouse, the decision was made to bypass the D111-AAF Baghouse during D111 smelting operations.<sup>1</sup>

The radioactivity contained within the D111-AAF Baghouse is of relatively low concentration (i.e., far less than 0.05% uranium and thorium by weight).<sup>2</sup> However, in spite of the fact that its use was no longer necessary, small but unnecessary personnel radiation exposures would occur during routine structural maintenance and repair. Because SMC is committed to the ALARA concept in all operations performed at the Newfield, New Jersey facility (see Radiation Safety Procedure No. RSP-005, "ALARA Program"), the SMC Radiation Safety Committee, in its March 29, 1999 meeting, made the decision to remove this emission control unit from D111.

Section 40.42(d) of 10 CFR contemplates that a licensee notify the NRC when one of four events occurs:

- The license has expired pursuant to 10 CFR § 40.42(a) or (b);
- The licensee has decided to permanently cease "principal activities" at the entire site or in any separate building or outdoor area;
- The licensee has not conducted "principal activities" under the license in the preceding 24 months; or
- The licensee has not conducted principal activities for a period of 24 months in any separate building or outdoor area that contains residual radioactivity such that the building or outdoor area is not suitable for unrestricted release.

SMC had believed that none of these events had occurred and therefore no notification pursuant to 10 CFR § 40.42 (d) was required prior to permanently ceasing operation of one of the D111 emission control units, the D111-AAF Baghouse or its dismantlement.

- License No. SMB-743 had not expired.
- SMC had not decided to permanently cease "principal activities" either for the entire site or for any separate building (SMC views D111 as one operation, one building including the raw material mixing and blending units, the furnaces, the control room, break areas, and the emission control units) or outdoor area.

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<sup>1</sup> Integrated Environmental Management Report No. 94005/G-6131, "Radiation Dose Estimates from Atmospheric Emissions from the Newfield Facility", March 11, 1997, submitted to Mr. Gary Comfort, NRC per March 11, 1997 letter from Mr. Scott Eves, SMC.

<sup>2</sup> Integrated Environmental Management Report No. 94005/G-7120, "Technical Basis for the Use of Baghouse Dust as an Additive in Cement Production", June 17, 1996, submitted to Mr. Gary Comfort, NRC per June 24, 1996 letter from Scott Eves, SMC.

- "Principal activities" in context of License SMB-743 includes receiving, processing, storage, shipping and distribution of source material. During its March 29, 1999 Radiation Safety Committee meeting, SMC decided to permanently cease operating the D111-AAF Baghouse and to dismantle it, but did not cause any of the "principal activities" to be ceased. The RSC decided to approve this action because it believed the cost of repair and maintenance of the D111-AAF would be excessive and would involve unnecessary radiation exposures, and the emissions from the furnace operation could be better monitored if the D111-Flex Kleen Baghouse only was used to control emissions.
- SMC has conducted "principal activities" (storage and processing of source material) in D.111 during the last 24 month period.

SMC, therefore, initiated the work without making the prior written notification to USNRC since it believed the none of the four (4) conditions which trigger the notification requirement pursuant to 10 CFR § 40.42 (d) had occurred.

**Corrective Steps That Have Been Taken and Results Achieved:** The demolition work in D111 was performed under the provisions of an approved Radiation Work Permit (see RSP-012, "Control of Work"), and resulted in negligible radiological impact on workers. (A copy of the Radiation Work Permit and associated information is available for USNRC review.) We did notify the USNRC, prior to the August 19, 1999 inspection, that this action was ongoing, and it was always our intent to forward a copy of the final survey report containing a description of the remedial actions taken, the approach used, and the current radiological status of D111 (i.e., after the D111-AAF Baghouse was removed) to the USNRC for review. Once the report has been completed, we will indeed forward a copy.

**Corrective Steps to Avoid Further Violations:** SMC has always appreciated the open and effective working relationship we have had with the USNRC, and does not wish to take any action that might jeopardize that relationship. Our goal always has been one of keeping the USNRC informed of any activities of consequence that have radiological significance.

Our failure to formally notify the USNRC of our demolition action in D111 -was perhaps not in keeping with the spirit of our existing goal to maintain an open communication relationship with the USNRC. Therefore, the USNRC will be notified of any future activities that result in or have the potential to result in removal of a permanent restricted area from License No. SMB-743, regardless of whether that area is comprised of a separate building or a portion of a building. That notification will occur in advance of the start of work. To capture this commitment, RSP-012, "Control of Work" will be modified to include the following provision: "The RSO shall notify the USNRC of work activities that are intended to release a permanent restricted area or with the potential for removing a permanent restricted area from the listing in RSP-001".

**Date When Full Compliance Achieved:** The procedure modification will be submitted to the RSC for approval during the Quarter 4, 1999 meeting, scheduled to be held prior to December 31, 1999. Once approved and all signatures affixed, RSP-012 will be implemented and personnel will be trained in its new provisions. Therefore, full compliance with the aforementioned corrective actions will be achieved before January 15, 2000. However, between the date of this response and January 15th, no other remedial actions of the type recently completed at D111 are anticipated.