

**U.S. NUCLEAR REGULATORY COMMISSION
FINDING OF NO SIGNIFICANT IMPACT FOR THE
RENEWAL OF SOURCE MATERIAL
LICENSE SMB-743
SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY
DOCKET 40-7102**

The U.S. Nuclear Regulatory Commission is considering the renewal of Source Material License SMB-743 for the continued operation of Shieldalloy Metallurgical Corporation (SMC), located in Newfield, New Jersey.

SUMMARY OF THE ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action: The proposed action is the renewal of SMC's Source Material License SMB-743 for 5 years. With this renewal, the SMC facility will continue to produce specialty alloys, slag fluidizers, and other products. The proposed action would permit SMC to possess up to 1,200,000 kilograms (kg) of thorium-232 and 180,000 kg of uranium-238, as requested in SMC's September 15, 1995, renewal application. As part of the proposed action, SMC would also continue to add radioactive materials to the temporary stockpiles of slag and baghouse dust currently stored at the site until a final disposition is approved by the Commission. Although the continued storage of this material is evaluated as part of the environmental assessment (EA), the evaluation of environmental impacts from a final disposition method is outside the scope of this EA and will be addressed in a separate environmental action.

The Need for the Proposed Action: SMC performs a service for the commercial steel industry by producing specialty alloys, slag fluidizers, and other products. SMC is one of two domestic producers of ferrocolumbium (ferroniobium alloy), its main product from the licensed activities; ferrocolumbium is readily available from foreign producers, such as Brazil and, recently, the Confederation of Independent States (formerly the Soviet Union) and Canada. The element niobium can increase the strength of steel by more than 5,000 pounds per square inch (psi)

with only a small addition of niobium (approximately 0.01 percent), thus allowing lighter weight alloys. Denial of the license renewal for the SMC facility is an alternative available to NRC, but would either require the construction of a new facility at another site or a possible dependence upon foreign imports of ferrocolumbium.

Environmental Impacts of the Proposed Action: The radiological impacts of the continued operation of the SMC facility were assessed by calculating the radiation dose to the maximally exposed individual located at the facility fence line and the collective radiation dose to the local population living within 80 kilometers (50 miles) of the plant site. The primary exposure pathway is release and transport of radioactive effluents to the air.

Doses from Routine Airborne Releases: SMC operates their process using two baghouses to filter airborne material: the Flex Kleen (FK) Baghouse and the American Air Filter (AAF) Baghouse. Atmospheric releases were determined from the two D-111 Baghouse stacks. Other potential release points including stored dust and slag piles were also considered, but off-site doses from these release points were found to be negligible.

SMC submitted March 1996 measurement data from stack emissions showing doses less than 1 millirem (mrem) per year at the fence line under nominal conditions. Conservative estimates of the expected effluent release rates were calculated by the NRC staff using assumptions, including the following: (1) the use of conservative values for the efficiencies of baghouse filters based upon the possibility of undetected filter bag breakages and (2) a ground-level release point for both baghouses. The radiation doses resulting from atmospheric releases were estimated using the CAP88-PC (Clean Air Assessment Package 1988) Version 1.0 computer code. The maximally exposed individual was located at the fence line, which was 250 meters (820 feet) south of the SMC facility. The Total Effective Dose Equivalent (TEDE) to the nearest resident is estimated to be less than 9 mrem per year from all pathways. Inhalation intakes accounted for greater than 85 percent of the total radiation dose. Thorium-232 was the dominant dose contributor, accounting for about 30 percent of the total dose. This estimated radiation dose is less than the 100 mrem per year limit established by NRC in 10 CFR 20.1301 and the 10 millirem per year dose constraint for air emissions in 10 CFR 20.1101.

The population within 80 km (50 miles) of SMC's facility is about 6,766,961 people, based on 1994 census data. The collective dose to the surrounding population is expected to be less than 7 person-rem per year. Based on an average background radiation dose of about 0.3 rem per year for individuals in the U.S. from natural sources, the same population would receive about 2,000,000 person-rem per year from background radiation. Thus, the collective radiation dose associated with atmospheric releases from the SMC's facility is a small percentage of the collective radiation dose from natural background radiation for these same people.

Accident Evaluation: In the EA, NRC staff evaluated one accident as the bounding accident: the release of dust from a baghouse or silo. This accident assumed that 10,000 kg of dust were released from structural failure of a baghouse. Calculated release fractions were 4 to 5×10^{-3} . Other accidents were determined to be within the bounds of this accident because both quantities and form of the material made larger dispersions unlikely. This bounding accident was calculated to result in an exposure of less than 6 mrem TEDE to the nearest resident. The expected population dose from this accident would be no greater than 0.9 person-rem.

Agencies and Persons Consulted: Discussions were held with representatives from the State of New Jersey Department of Environmental Protection and the U.S. Environmental Protection Agency at various times throughout the preparation of the EA. NRC consulted SMC representatives in preparing this document.

Conclusion: On the basis of this Environmental Assessment, NRC has concluded that the environmental impacts from the proposed action would not be significant.

FINDING OF NO SIGNIFICANT IMPACT

The NRC has prepared an EA related to the renewal of Source Material License SMB-743. On the basis of the assessment, the NRC has concluded that environmental impacts that would be created by the proposed action would not be significant and do not warrant the preparation of an Environmental Impact Statement. Accordingly, NRC has determined that a Finding of No Significant Impact is appropriate.

The EA, the license renewal application dated September 15, 1995, and the documents related to this proposed action are available for public inspection and copying at the Commission's Public Document Room at the Gelman Building, 2120 L Street NW, Washington, DC. Anyone with questions or comments about this proposed action should contact Ms. Heather Astwood, NRC's Project Manager for the facility, at Mail Stop T-8D-14, U.S. NRC, Washington, D.C. 20555 or on (301) 415-5819.

Dated at Rockville, Maryland, this 16th day of September.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:

Michael F. Weber, Chief
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