



State of New Jersey
Department of Environmental Protection and Energy

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Scott A. Weiner
Commissioner

November 25, 1991

Mr. Jerry J. Swift, Section Leader
Fuel Cycle Safety Branch
Nuclear Regulatory Commission
Mail Stop 6H3
Washington, D.C. 20555

Dear Mr. Swift,

This letter serves to document our position regarding ferrovanadium slag at the Shieldalloy Metallurgical Company's (SMC) Newfield, New Jersey site. As we discussed by telephone on Friday, November 22, 1991, the State has reason to believe that ferrovanadium slag has been contaminated with material subject to the exclusive jurisdiction of the Nuclear Regulatory Commission (NRC); specifically ferrocolumbium slag and/or baghouse dust from the lime pile.

It is our understanding that the feed materials for the ferrovanadium processing are non-radioactive, therefore, we are led to conclude that the ferrovanadium slag became cross-contaminated with ferrocolumbium during processing, and/or during storage. The ferrovanadium slag is stored next to the lime pile. The lime pile is not sheltered from the weather or contained in any way, so baghouse dust blows off the pile.

In addition to our own survey data, we have reviewed SMC and NRC documents which support the conclusion that the ferrovanadium slag has become cross-contaminated. Examples of these documents follow:

1. In SMC's Application for Source Material License dated December 23, 1977, the purpose for which the source material is used is stated as "production of ferroalloys such as ferrocolumbium, ferrovanadium (emphasis added), ferroboron, ferrozirconium, etc. from metaliferous ores containing not more than 0.4% uranium and 2% percent thorium." SMC also states that "while the feed materials for this [ferrovanadium] process do not contain any source material and are non-radioactive nevertheless the process will be described since it is done in the same department as is the pyrochlore reduction."
2. SMC's 1977 Application further states that "the radiation emitted from the ferrovanadium slag piles and the residue from the dust collector, also stored in this area, is ... 0.5 mR/hr and 0.4 mR/hr."

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3. Archer and Greiner (SMC lawyers) state in their February 3, 1985 letter to the Department that "because it is impossible to prevent cross-mixing of the dusts collected by the baghouse filter, all dusts become mixed with ferrocolumbium dust, rendering the dust sufficiently radioactive to fall under the exclusive jurisdiction of the Federal Nuclear Regulatory Commission."
4. In NRC Routine Inspection Number 040-07102/90-001 date August, 1990, surveys of the restricted area indicate measurements of 120 uR/hr on contact for the ferrovanadium slag and 300 uR/hr for the lime pile.
5. Results from the ENSR Consulting and Engineering report for SMC titled "Newfield Plant Radiological Pre-Survey" indicate exposure levels at the southern fenceline in the vicinity of the ferrovanadium piles ranging from 10.9 uR/hr to 27.3 uR/hr with a highest reading of 75.2 uR/hr noted. The background for the Newfield area was established as 6.9 uR/hr.
6. In a September 13, 1991 letter from the NRC to SMC, the author notes that "slightly contaminated slag" was used to build a pump house. Slag was also used as road fill on the road running between the SMC site to Weymouth Road. SMC has retrieved the slag from this road.

It is our understanding that NRC jurisdiction includes not only material which contains greater than 0.05% source material by weight, but also material which is contaminated by source material, regardless of the level of contamination. As I stated during our telephone conversation, the issue of jurisdiction must be resolved and the appropriate approvals must be obtained before SMC transports the ferrovanadium slag offsite. If the NRC accepts the regulatory jurisdiction, as I believe you indicated would occur in our telephone conversation, the NRC would be the agency to authorize and approve the disposal of the ferrovanadium slag. We look forward to hearing from you during this coming week.

Sincerely,



Robert Stern, Ph.D., Chief
Bureau of Environmental Radiation

c: Jill Lipoti, Assistant Director, RPP
Patricia Gardner, Supervisor, REAS
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Bruce Venner, Chief, BFCM
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