

APR 21 1993

Docket 40-7102

MEMORANDUM TO: Elinor Adensam, Acting Chief
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

THRU: Michael Tokar, Section Leader
Licensing Section 2
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

FROM: Gary C. Comfort, Jr.
Licensing Section 2
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: TRIP REPORT FOR VISIT TO SHIELDALLOY METALLURGICAL
CORPORATION, NEWFIELD, NEW JERSEY, FEB. 17-19

Enclosed is a copy of the trip report to the Shieldalloy Metallurgical
Corporation Facility in Newfield, New Jersey. If you have any questions,
please feel free to contact me at 504-2667.

Original Signed By:

Gary C. Comfort, Jr.
Licensing Section 2
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Enclosure: As stated

263 Distribution: w/encl.
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APR 17 1993

TRIP REPORT FOR VISIT TO SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY, FEB. 17-19

During the period of February 17-19, 1993, Nuclear Regulatory Commission (NRC) visited the Shieldalloy Metallurgical Corporation (Shieldalloy) in Newfield, New Jersey. This trip was taken to observe Shieldalloy's processes and discuss information necessary to develop an environmental assessment (EA) in response to Shieldalloy's license renewal request. A list of attendees is enclosed.

The NRC licenses Shieldalloy's ferro-columbium process, and related storage piles, because concentrations of source material (particularly thorium) in the processed ore exceed 5 percent under Source Material License No. SMB-743. The bulk of product from these operations are, in general, used as additives in the steel industry. The remaining non-product material (slag), containing the licensed source material, is stored within a fenced confine called the slag storage yard in two piles, "standard ratio" and "high ratio." Dust collected from the process via baghouse dust collectors is also stored in this area. The two slag piles and dust pile are also licensed by the NRC under Source Material License No. SMB-743.

NRC arrived at the Shieldalloy site at 9 p.m. on February 17. After a pre-meeting which presented NRC's interests and an oversight by Shieldalloy of process operations, NRC moved to the foundry (Department 111) to observe actual process operations. The process begins after midnight to take advantage of cheaper electricity rates. Ferro-columbium alloy is processed from pyrochlore ore through a smelting process in an open furnace. In general, pyrochlore ore is combined with "flux" (consisting of calcium carbonate, dolomite, steel scrap, and aluminum) in a large open vat. A exothermic reaction is started by passing 15,000 amps through the mixture using three large electrodes. After the material melts into a molten metal, it is poured into three cast iron vats such that the heavier, product material remains in the top vat and the lighter slag falls into the lower vats. As the material cools, any remaining slag in the upper vats cools on top of the product and is broken off from the product during the next evening. The slag is then transported by truck to the slag storage yard. Three batches are usually made each night, taking about 2.5 hours per batch. The NRC only observed one batch.

The exothermic nature of this process along with the fine particle composition of the pyrochlore ore allows for the generation of a large amount of dust. To limit the dispersion of this dust, Shieldalloy has placed walls around the smelting vat to funnel the dust up to a large ceiling hood running at 325,000 cubic feet per minute. This material runs through baghouse filters with an efficiency of greater than 99 percent for particles larger than 5 microns. Because the ore size is larger than 5 microns, little dust is expected to pass through these filters. Each filter is changed whenever a break in the filter is detected.

On February 18, the NRC returned to the site and toured the remainder of the site, including a closeup look of the baghouse, the slag yard, and a walk along the fence line. During this tour, Shieldalloy pointed out that they had just recently begun to cover the baghouse dust (lime) pile with a thin cement layer to prevent dispersion. In prior trips, the NRC had noted some runoff from this pile to outside the fence line and there were concerns of blowing dust. This solution should limit those dispersion scenarios.

On the morning of February 19, the NRC observed the baghouse being emptied and the dust transported to the slag yard. Shieldalloy does this operation by inserting a large flexible tube into the top covering of a dump truck and blowing the dust into the truck, and then transporting and dumping the contents onto the existing lime pile in the slag storage yard. No noticeable dust was dispersed during this operation.

The visit ended with a discussion of environmental questions submitted by the NRC through a letter dated January 14, 1993. Shieldalloy felt that many of the questions were unnecessary or too general for their type of facility. NRC stated that they would revise the questions based on the current trip to make them more specific and resend them in the near future. NRC also stated that Shieldalloy should feel free to call the project manager if they find future questions to be ambiguous and request explanation.

ATTENDEES

| | | | |
|------------------|--------|---------------------|----------------|
| Mike Tokar | USNRC | Section Leader | (301) 504-2590 |
| Gary Comfort | USNRC | Project Manager | (301) 504-2667 |
| Yawar Faraz | USNRC | Project Manager | (301) 504-2669 |
| Betsy Ullrich | USNRC | Region I Inspector | (215) 337-5000 |
| Tracy Ikenberry | PNL | Contractor | (509) 375-2338 |
| Rosemary Mazakia | PNL | Contractor | (509) 372-0426 |
| Craig Rieman | SMC | Environmental Mgr. | (609) 692-4200 |
| Knud Klausen | SMC | Process Engineer | (609) 692-4200 |
| David Smith | SMC | Dir. Env. Services | (609) 692-4200 |
| Donna Gaffigan | NJDEPE | Case Manager | (609) 633-1455 |
| Thomas McGinty | NJDEPE | Inspector | (609) 633-1455 |
| Nancy Stanley | NJDEPE | Radiation Physicist | |

Note: Not all attendees were present during all parts of visit