UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 5 1993

Docket 40-7102
License SMB-743

Mr. David R. Smith
Director, Environmental Services
Shieldalloy Metallurgical Corporation
West Boulevard
P.O. Box 768
Newfield, New Jersey 08344

Dear Mr. Smith:

SUBJECT: ENVIRONMENTAL ASSESSMENT QUESTIONS FOR SMB-743 RENEWAL (TAC NO. L21474)

After our meeting with you on February 17, 1993, at your site (trip report enclosed), we have reexamined the extent of our questions regarding the environmental assessment (EA) for your renewal. Enclosed is a copy of an annotated outline for the proposed EA. The information required to complete our EA is identified in the outline. We felt this approach would clarify the information required and provide an understanding as to how the information will be used.

Each section of the outline is written in a similar format. In general, the text for each section explains the purpose of the section and the information that will be covered within the section. This text may be followed by a paragraph titled "SOURCE" that lists those sources which we have used for completing our draft EA. Finally, any section which ends with a paragraph titled "SMC" indicates the information needed to complete the section in our draft EA.

Not all sections require a response. The non-bold text and sources in the section were provided so that you can better understand why the information is necessary and to help scope your answers. In some cases, the text also gives ideas of where the answers may be found. Although the non-bold text may have questions within, these are to be considered rhetorical and an answer is not necessary, unless it relates to the information required by the bold text SMC. We request you provide only the information specified by the bold SMC.

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Mr. David R. Smith 2

Please review the annotated outline carefully. We request that you submit your responses to these questions by May 30, 1993. If more time is needed, please request an extension in writing. If you have any questions, please contact Gary Comfort at (301) 504-2667 or Mike Tokar at (301) 504-2590.

Sincerely,
Original Signed By:
Elinor Adensam, Acting Chief
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Enclosures:
1. Trip Report
2. Environmental Questions

Distribution: w/encls (Control No. 060S)

Docket 40-7102	PDR	NRC File Center	FCSS R/F
FCLB R/F	Region I	NMSS R/F	JGreeves
MAdams	ETenEyck		

OFC	FCLB		FCLB	E	FCLB	E	FCLB	
NAME	GComfort		VJharpe		MTokar		EAdensam	
DATE	5/3/93		5/3/93		5/4/93		5/5/93	

C = COVER E = COVER & ENCLOSURE N = NO COPY

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Annotated Outline for Shieldalloy Metallurgical Corporation (SMC) Environmental Assessment

Table of Contents
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List of Figures

I. Introduction

1.1 Description of the Proposed Action and Alternatives

PNL will develop a description of the activities and licensed material that are covered under the proposed license renewal as well as a description of the no-license alternative.

1.2 Need for the Proposed Action

PNL will develop a purpose and need statement for the proposed action.

1.3 Interaction with Other Agencies

The Environmental Assessment (EA) relies largely on information gained through consultation with local, state, and federal resources agencies. SMC has established a working relationship with several state resource agencies as a result of consultation in conjunction with CERCLA activities. This does not suffice for consultation for the present relicensing (e.g., EA), however data, regulations, or agreements conveyed in conjunction with CERCLA activities may be incorporated into the EA, and SMC should provide additional record of consultation to be included as attachments to the EA.

The EA must demonstrate and SMC should provide information demonstrating that all operating permits; especially those included under the Clean Air Act, Clean Water Act, and CERCLA are in place or that SMC is seeking renewal.

SMC: Provide record of consultation

1.4 Related Information

This section will discuss site and facility specific documents and sources of information used in preparation of the EA.

II. Description of the Site and Environment

This section will describe the site location, demography, land use, geology, hydrology, meteorology, climatology, background radiological characteristics, ecology, and residual contamination of the site and surrounding area.

2.1 Site Location

SMC has provided an adequate description of the site and surrounding land use. SMC should provide a more detailed location map (including scale and directional) that depicts the site and area within the 1 mile vicinity. The map will identify major routes of transportation (e.g., road and railways), residential, agricultural, and industrial areas. The map should also depict bodies of water and name lakes, ponds, and streams within the vicinity of the site.

Source: Radiological survey of the Shieldalloy Corporation Newfield, New Jersey (Berger and Luck 1988).

SMC: Provide aerial map.

2.2 Demography

This section will focus on population centers and locations. SMC has provided a list of major and minor population centers in the vicinity (e.g., 50-mile radius) of the site. SMC should also include the distance and direction of these municipalities. Current census numbers and projections (i.e., 1990, 2000, 2010) should be provided for the major population center within 50 miles of the facility.

SMC: Provide distance and direction (polar grid) of population centers.

Provide current census numbers for major population centers within 50 miles of the facility.

2.3 Land Use

The section will provide a more detailed description of land use than is presently contained within the Environmental Report. Specific information that is required for the EA is presented below.

2.3.1 Current land use

This section will describe land use in the vicinity of the proposed site including residential, agricultural, industrial, recreation, natural area (e.g., wildlife refuge) designations. SMC has provided an adequate description of industrial, education, and residential development in the region within the demographics section of the Environmental Report.

SMC: Provide aerial map

Provide information or cite source, in brief, for discussion of recreation, agricultural, and natural area land uses, if available.

2.3.2 Cultural resources

The EA will verify the status of occurrence of historic and archaeological resources in the vicinity of the site.

SMC: Provide record on consultation with National Register of Historic Places.

2.3.3 Land commitments

SMC has verified that no additional land commitments are included within the proposed action.

2.4 Geology, Seismology, Soils

2.4.1 Geology

SMC has provided adequate information necessary to characterize the regional and site-specific geology of the site and develop a discussion of geologic phenomena influencing groundwater flow on the site.

2.4.2 Soils

SMC has provided information necessary to describe local and regional soils. PNL will develop a discussion of local soils focusing on the character of these soils and the relationship to site-specific geology to provide a point of reference for discussion of groundwater flow.

2.4.3 Seismology

This section will describe the seismic character of the region.

SMC: Provide a historic account of seismic activity and the location of the nearest epicenter to the site.

2.5 Hydrology

2.5.1 Surface Water

This section will include location of bodies of water (e.g., lakes, ponds, and rivers) in the vicinity of the site. SMC has provided information characterizing water quality (e.g., pH, TSS, turbidity, temperature, dissolved solids, BOD, conductivity) the state classification, up- and downstream water uses, point sources and discharge, and incidence of flooding.

Source: Radiological survey of the Shieldalloy Corporation Newfield, New Jersey (Berger and Luck 1988).

SMC: If available, provide a map depicting point source discharges from the plant to the Hudsons Branch.

2.5.2 Groundwater

This section will describe soil/groundwater characteristics of the site. The existing environmental report provides a general overview of groundwater dynamics.

Hydraulic conductivity as a function of moisture content is necessary to calculate movement of water, containing uranium and thorium, toward the water table. If the hydraulic conductivity is not available, this value will be estimated using properties of other sediments. It should be noted that this will limit model precision. How would the Teledyne (1992) and Raviv et al. (1990) lend to this analysis?

SMC: Provide value for hydraulic conductivity or site-specific diffusion coefficient.

Have modelling exercises for conductivity been completed previously?

2.6 Meteorology and Climatology

Annual precipitation will be the driver for determining the downward movement of water, containing uranium and thorium, to the water table. and this data is necessary. These data are also necessary to characterize the climate of the site. SMC has provided local and on-site meteorological data that will be referred to for this analysis. SMC has provided a historical account of extreme weather events; however, the period of record includes 1899 through 1980.

Source: Radiation dose estimates for members of the general public at the Newfield, New Jersey facility (IT Corporation 1992).

SMC: Can the local and on-site meteorological data referenced in the Environmental Report be updated; can extreme event data be updated?

SMC: Normal STability ARray data (STAR) are available for Millville, NJ. However, the National Climatic Control Center does not think that the data are digitized, because there has been no specific request for Millville data. PNL requires the data in STAR format, not that in the format used in CAP88-PC. Ideally the data requirements are:

Normal STAR tabulation for Millville, NJ:

1. Normal 24 hour data
   Combined-multiple year data
   Data on 3.5 inch discs
2. Nighttime STAR tabulation

The advantages of the Millville data are that they are more defensible as being representative of the SMC plant site. The additional cost of using combined years data is negligible and is less likely to be affected by unusual single-year weather patterns. Again, more defensible. Nighttime data are needed because the bulk of releases occur during the night. Nighttime STAR data would enhance estimates of atmospheric dispersion from baghouse. Again, more defensible.

Data are available from: Axel Graumann
National Climatic Data Center E/CC42
ATTN: User Services Branch
Federal Building
Asheville, NC 28801-2696
704-259-0682

2.7 Background Radiological Characteristics

This section will describe the background radiological character of the site that will be compared with regional averages. SMC has provided data on background radiation levels in soil, air, and water on the site and provide regional background radiation levels.

Source: 1992 Workplace air monitoring results for the Newfield New Jersey, facility (IT Corporation 1993).

Radiological survey of the Shieldalloy Corporation Newfield New Jersey (Berger and Luck 1988).

Assessment of environmental radiological conditions at the Newfield facility (IT Corporation 1992).

2.8 Ecology

2.8.1 Terrestrial ecology

The discussion in the existing ~~Environmental Report (ER)~~ presents an account of the Delaware Bay region and neglects a site-specific account of terrestrial and wetland habitats and associated species. The site borders a substantial wetland, a unique feature of the local area, and impacts of the proposed action need to be discussed in terms of site-specific resources. PNL will develop this discussion from the ER.

2.8.2 Aquatic ecology

The discussion of aquatic ecology in the existing ER presents an account of the Delaware Bay region and largely neglects a site-specific account of aquatic habitats and associated species. The site borders a wetland and drains into the Hudson Branch, and impacts of the proposed action need to be discussed in terms of these site-specific resources. SMC should provide species composition of fauna inhabiting the site and use of these resources in the Hudson Branch.

2.8.3 Endangered species

SMC has provided a record of consultation from the State of New Jersey Department of Environmental Protection and Energy, regarding threatened, sensitive, and endangered species in the vicinity of the site.

SMC: Provide a record of consultation with the U.S. Fish and Wildlife Service which directs federal activities planned in concert with Section 7 of the Endangered Species Act.

2.9 References

3.0 Facility Operations

3.1 The Facility

PNL will describe the orientation and layout of the facility including operations within various locations on the site that involve any materials associated with the ferro columbian process. In addition, the EA will address and information is needed on all other radioactive material at the facility, principally slag storage piles. The emphasis will be placed on facilities that are regulated under the NRC license.

Source: Radiological survey of the Shieldalloy Corporation Newfield New Jersey (Berger and Luck 1988).

SMC: Provide site map and floor plans for each area/building involved in the production process including storage buildings and yards, bag houses, and waste storage areas.

Prepare details of facility operation beginning from the receipt and handling of pyrochlore through the handling and disposal of baghouse dust and slag.

3.2 Summary of Operations/Processes

PNL will describe in brief the process of producing ferro-columbium. SMC should define within the following sections quantities of pyrochlore contained in each shipment; pyrochlore (and other constituent/ reductant/flux materials) required for production of one batch; the amount of effluent (e.g., slag and dust) produced during production of one batch; length of time pyrochlore is maintained in storage; amount of slag and period of time that slag is retained on site; the amount of dust contained within the storage silo, baghouse, and lime pile; and period of time the lime is retained on site. Descriptions of the materials containing radionuclides are needed (pyrochlore, slag, dust) that includes the mass percent or activity per gross of Th232, U238, and Ra226 as a minimum and other radionuclides if available.

3.2.1 Material receipt

This section will detail the transportation, handling, and sampling of pyrochlore from receipt at the mine to the Newfield, N.J. facility. SMC has provided sampling procedures for radiological monitoring of each lot, load, or batch handled.

Source: Attachments to application for radioactive material license amendment and license renewal. (USNRC 1992).

SMC: Provide quantities and arrangement of materials (e.g., supersacs) within each shipment, frequency of shipments, and an annual total (average) of pyrochlore handled by the plant each year.

3.2.2 Material staging and storage

This section will describe movement and storage of pyrochlore on the site. SMC should provide information regarding the location and description of storage facilities and arrangement of pyrochlore in these storage areas, movement of materials between G warehouse and D-111, and amount of pyrochlore typically held in storage.

3.2.3 Material processing

This section will describe the processes that occur in D-111 during the production process. SMC has provided an adequate description of the smelting process, including composition and mixing of raw materials, smelting and casting, separation of product, and disposal of slag. SMC should provide a plan view of the D-111 building and describe all facility features and movement of equipment within D-111 during production.

Source: Attachments to application for radioactive material license amendment and license renewal (USNRC 1992).

SMC: Provide floor plan of D-111.

3.2.4 Waste management and disposal

This section will describe the amount and type of effluent produced during the smelting process. SMC should provide estimates of dust and slag generated throughout the production process. SMC will provide a description of the handling and disposal process, including details of operation of the baghouse and storage silo, handling of slag and baghouse dust, and storage of slag and baghouse dust. SMC has provided estimates of the amount of waste material within the storage area. The average period of time the material is maintained on site should also be provided. SMC should detail the handling and removal of the material from the SMC facility and methods used to stabilize waste materials in storage.

3.2.5 Transportation

This section will describe the route of transportation for moving pyrochlore to the facility. SMC will provide distance travelled and a general description of routes including reference to major roadways, railways, and bodies of water encountered enroute.

3.3 References

4.0 Effluent Control and Waste Management

4.1 Gaseous Discharges

This section will describe the amount of gaseous effluent generated and management of waste material, specifically dust, contained within that effluent.

SMC: Provide description of (i.e., flow chart) handling of the dust, including operation and maintenance (e.g., inspection, cleaning, and maintenance) of the baghouse and filters; incidence of failure of baghouse filters; quantities of material stored within the baghouse and storage silo; process for moving dust from the baghouse to the storage silo (e.g., vacuum). In addition provide estimated quantities of fugitive effluent.

4.2 Liquid Discharges

This section will describe the amount of liquid effluent generated during the metallurgical process. SMC should provide a description or cite a reference of their program for managing domestic waste (e.g., septic system) and storm water runoff from the area, particularly the spoils area. SMC should provide data (e.g., dissolved solids, TSS, pH, temperature, BOD) from all control systems (e.g., groundwater discharge system) on the site.

Source: Radiological survey of the Shieldalloy Corporation Newfield New Jersey (Berger and Luck 1988).

4.3 Solid Waste

This section will quantify each of the solid residuals generated during production processes at the SMC facility. This section should describe storage of licenses and non-licensed material (e.g., ferrovanadium reduction process).

SMC: Provide a list quantifying ferrocolumbium standard, ferrocolumbium high-ratio, columbium-nickel tech, columbium-nickel refractory, and columbite generated during production processes. This assessment should discuss handling of all solid waste and actions taken to stabilize waste in on-site storage areas.

Provide estimates of dust and slag produced per batch and per 8 and/or 24 hour period. SMC should provide the most up to date estimate of the mass, volumes, and radionuclide concentrations of all radioactive material within the storage area. The average period of time the material is maintained on site should also be provided. SMC should detail efforts to stabilize waste materials (e.g., lime).

Source: Radiological survey of the Shieldalloy Corporation Newfield New Jersey (Berger and Luck 1988).

4.4 Facility Decommissioning

This section will briefly describe facility decommissioning and will be based on reports generated by IT for SMC.

4.5 References

5.0 Environmental Effects of Normal Facility Operations and Transportation

5.1 Radiological Effects of Operation

This section will describe radiological effects of operation; details will be provided within the following subsections.

5.1.1 Airborne effluents

This section will describe pathways for radiological airborne emissions. SMC should provide estimates per batch of air borne effluents generated from current operations. The basis for estimation and all assumptions should be described. Estimates of worker exposure, population dose, and maximally exposed individual will be generated from these data.

SMC: Provide non-point sources of pollution.
Provide distance to nearest residence.

5.1.2 Liquid effluents

This section will describe pathways for radiological liquid effluents. SMC should provide data from measurements or estimates of liquid effluents and pathways. The basis for estimation and all assumptions must be described. Estimates of worker exposure, population dose (if applicable), and maximally exposed individual will be generated from these data.

SMC: Provide Hazard Assessment for the Hudsons Branch

5.1.3 Radiation exposure to workers

This section will provide a general summary of SMC's approach to worker protection. SMC should provide company health and safety plans, procedures for monitoring individual dose, and estimates of maximum, average, and total worker dose.

Source: Radiation dose estimates for members of the general public (IT Corporation 1992).

1992 Workplace air monitoring results for the Newfield, New Jersey facility (IT Corporation 1993).

Assessment of environmental radiological conditions at the Newfield facility (IT Corporation 1992).

Radiological survey of the Shieldalloy Corporation Newfield New Jersey facility (Berger and Luck 1988).

5.2 Non-Radiological Impacts of Facility Operations

5.2.1 Operational Releases to the Atmosphere

SMC should provide statement of compliance with their current Air Quality Permit or copies of reports submitted to the Air Quality Maintenance District (AQMD). Reports should detail chemical constituents contained within stack emissions. SMC should provide estimated quantities of fugitive effluent. Only those emissions that pose significant risk to environment, health, and safety will be discussed.

SMC: Provide statement of compliance with Air Quality Permits

5.2.2 Operational Releases of Liquid Effluent

SMC should provide statement of compliance with their current National Pollution Discharge Elimination System (NPDES) permit and copies of reports identifying point source discharges. These will be summarized in this section. Non-point sources of pollution, including leaching of the slag and lime piles, will be addressed in this section. Only those emissions that pose significant risk to environment, health, and safety will be discussed.

SMC: Provide statement of compliance with Water Quality Permits

5.2.3 Operational Effects on the Terrestrial Environment

This section will describe in brief impacts of facility operation on terrestrial and wetland resources.

5.2.4 Operational Effects on the Aquatic Environment

This section will describe in brief impacts of facility operation on aquatic resources.

5.2.5 Social and Economic Effects

SMC should provide an analysis of potential socio-economic effects resulting from implementation of the proposed action. If no socio-economic effects are anticipated, SMC should provide information describing current socio-economic conditions.

5.3 Impacts on Land Use

This section will discuss short- and longterm land use commitments through the period of the next license. SMC should provide a discussion for the conclusions regarding short- and longterm impacts.

5.4 Irreversible and Irretrievable Commitments of Resources

This section will discuss irreversible and irretrievable and cumulative impacts of facility operations through the period of the license, including CERCLA activities, storage limits of licensed material, and facility decommissioning.

5.5 References

6.0 Description of Environmental and Occupational Monitoring Programs

This section will describe the environmental and occupational monitoring programs in place at the SMC facility. SMC should provide a detailed discussion of occupational and environmental monitoring protocol or modifications to existing programs.

6.1 Occupational Monitoring Program

SMC should provide protocol regarding personal dosimetry as well as plant monitoring activities. This section must also describe how these measures are reported. If these systems are not in place SMC must provide justification, that will be reviewed independently for the EA and license renewal.

Source: 1992 Workplace air monitoring results for the Newfield New Jersey facility (IT Corporation 1993).

Attachments to application for radioactive material license amendment and license renewal (USNRC 1992).

6.2 Monitoring Radiological Effluents

6.2.1 Atmospheric monitoring

This section will describe both on and off-site monitoring systems for air emissions.

SMC: Provide results obtained with using these systems or provide justification as to why these are not in place, that will be reviewed independently for the EA and license renewal (10 CFR Part 20).

Source: Assessment of environmental radiological conditions at the Newfield facility (IT Corporation 1992).

Radiation dose estimates for members of the general public at the Newfield New Jersey facility (IT Corporation 1992).

6.2.2 Water sampling

This section will describe both on and off-site monitoring systems for surface and groundwater. These details may be available in CERCLA-related activity reports. If these systems are not in place SMC must provide justification, that will be reviewed independently for the EA and license renewal (10 CFR Part 20).

Source: Assessment of environmental radiological conditions at the Newfield facility (IT Corporation 1992).

Work plan for the radiological characterization of the Shieldalloy Metallurgical Corporation Newfield facility (ENSR 1991).

6.2.3 Soil and vegetation sampling

This section will describe both on and off-site sampling programs for soil and vegetation. These details may be available in CERCLA-related activity reports. If these systems are not in place SMC must provide justification, that will be reviewed independently for the EA and license renewal (10 CFR Part 20).

Source: Assessment of environmental radiological conditions at the Newfield facility (IT Corporation 1992).

Work plan for the radiological characterization of the Shieldalloy Metallurgical Corporation Newfield facility (ENSR 1991).

Radiological survey of the Shieldalloy Corporation Newfield New Jersey (Berger and Luck 1988).

6.3 Monitoring Non-radiological Effluents

This section will summarize monitoring protocol for stack and other emissions. These details may be available in CERCLA-related activity reports. If these systems are not in place SMC may be required to provide justification for monitoring programs.

Source: Attachments to application for radioactive material license amendment and license renewal (USNRC 1992).

6.4 References

7.0 Impact of Potential Accidents in Facility Operations and Transportation

7.1 Introduction

This section will describe potential accidents associated with facility operation, ferro-aluminum production, transportation, or natural events. SMC has provided adequate information for detailing risks associated with facility operation. SMC should provide additional information to address risks associated with transportation.

7.2 Evaluation of the Potential Environmental and Occupational Impact of Accidents

This section will describe occupational impacts, focusing on radiological health risks, associated with facility operation. SMC should provide details of risk associated with facility operation.

Source: Attachments to application for radioactive material license renewal (USNRC 1992).

7.3 References

8.0 Impacts of Alternatives to the Proposed Action

The alternative to not relicensing the facility will be discussed. SMC should provide an economic analysis of reduced production as a result of not relicensing the facility. A brief discussion of facility decommissioning will be included within this section.

9.0 Summary and Conclusion of Environmental Impacts of Relicensing

9.1 Summary of the Environmental Effects of Relicensing

This section will detail recommendation for the proposed alternatives; and will be prepared and submitted to the NRC for their review.

9.2 NRC Staff Finding

This section will be prepared by the NRC and will be based on PNL findings.

Enclosure 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

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

Michael Tokar

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.

G.C.C.J.

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

Enclosure: As stated

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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