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PDR

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December 18, 1992

Yawar H. Faraz, Project Manager
Mail Stop 6H-3
Advanced Fuel and Special Facilities Section
Fuel Cycle Safety Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Material Safety and Safeguard
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Faraz:

Enclosed are the following documents related to the preparation of the environmental assessment (EA) in response to Shieldalloy Metallurgical Corporation's application to renew its source material license for its Newfield, New Jersey, Facility. They are as follows:

1. Additional Information Needs for Shieldalloy Metallurgical Corporation's Environmental Assessment.

2. Draft Annotated Outline of the Environmental Assessment for License Renewal of Shieldalloy Metallurgical Corporation's Newfield, N.J., facility.

The two enclosures are respectively deliverables 1 and 2 of PNL's Task Order No. 1 (FIN L-2019 Fuel Cycle Licensing Review Assistance).

I provided a copy of the "Applicant's Environmental Report" to all of the PNL team members working on the EA. They identified a number areas where this ER information base needs to be supplemented to support an adequate EA. This is reflected in the length of the request for additional information.

Their is obviously a close relationship between the "Annotated Outline" and the information needed to support it. The "Annotated Outline" should help clarify and further define the information needed by explaining how the information will be used in the EA analysis. Consequently, it is my recommendation that the "Annotated Outline" be submitted to the applicant, along with the "Additional Information Needs."

The original task schedule requires PNL to submit the draft environmental assessment (deliverable 3) on February 1, 1993. As we discussed in our telephone conversation on November 23, the delay in the site visit until mid to late January will result in a delay in the delivery of the EA draft until mid-February.

Just as important as the site visit is the timely turn-around of requested information. If we are to take full advantage of the opportunity of touring the site and meeting with the applicant and their environmental staff, this information is needed at least a week before the site visit.

If you have any question please call me on (509) 372-2394. I am looking forward to your comments on the "Annotated Environmental Assessment Outline."

Sincerely,

David J. Guzzetta, Task Leader
Senior Research Scientist

Enclosures: As stated

INFORMATION NEEDS FOR SHIELDALLOY METALLURGICAL CORPORATION ENVIRONMENTAL ASSESSMENT

Following is a list of information needed to support the preparation of the Environmental Assessment for the relicensing of Shieldalloy Metallurgical Corporation.

SITE LOCATION

Seven and one-half minute (7 1/2') United State Geologic Survey (USGS) maps (or equivalent) for the facility and all areas within 10 km (6.2 miles).

Regional or state maps that show all land areas within 80 km (50 miles) of the site. This will used to show the relationship of the project to major population centers, rivers, transportation routes, etc.

DEMOGRAPHY

Estimated population within 1.6 km (1 mile) of the site. If possible this population should be presented in a table that shows the populations by the 16 compass headings (NW, NNW, WNW, etc.) so that the data corresponds with the meteorological data that supports air quality modeling.

1980 and 1990 population of all counties out to a distance of 80 km (50 mi) of the site. Projected population for these same counties for the year 2000. The preferred source of this data is the U.S. Department of the Census, state published data would be acceptable. The area of these same counties. This information will be used to estimate population densities.

1980, 1990, and project year 2000 population data for all Standard Metropolitan Statistical Areas (SMSA) within 80 km (50 mi) of the site.

1980 and 1990 population of all communities within 10 km (6.2 mi) of the site. If available, projected year 2000 population for these same communities.

LAND USE

Identify dairy operations or dairy animals (including goats) that are within 1.6 km (1 mile) of the facility. Give compass direction and distance.

Identify family garden plots that are within 1.6 km (1 mi) of the facility. Give compass direction and distance.

Provide a map that shows the location of all businesses, residences, vacant land, etc. that border or are across the street from the property. Indicate if any of these neighbors have dairy animals or gardens.

Describe the area within 1.6 km (1 mi) of the site. Is it generally rural, residential, light industry, wetlands, agricultural? A map showing the different uses would be helpful.

Identify on a map and provide a brief text description of the following cultural features within 10 km (6.2 mi) of the site:

- Schools (indicate if they are elementary, middle, high, etc., and number of students),
- State of federally designated historic or archaeologic sites,
- Parks and other recreation areas. Give the area in hectares or acres, ownership, and use (e.g. 40 acres, church camp, day use only; or 10 acres, Newfield City park, picnicking and softball.

GEOLOGY

Provide a list, distance, and direction of all geologic (mineral or construction material) and hydrocarbon extraction operations within 10 km (6.2 miles) of the site. If known provide the name of the formation from which these material are or could be extracted.

Provide the following information on earthquakes (VI or greater on the mercalli scale) that have occurred in the region (approximately 200 miles); the year the earthquake took place, the intensity, location, and approximate distance to the epicenter. If available, provide the seismic risk factor for the site.

SURFACE WATER

Identify the location of the nearest gauging station downstream of the site. Provide the distance downstream and the name of the waterway. If the gauging station is reasonably close to the site (within 10 km (6.2 mi)), provide summary flow data.

Provide any available information on the water quality of the Hudson's Branch.

Provide the distance to the downstream junction of Hudson's Branch with the Burnt Mill Branch. Describe any surface water use that takes place downstream and within 10 km (6.2 mi) of the facility.

Provide average annual flow estimate for Hudson's Branch and Burnt Mill Branch.

FLOOD RISK

Describe the flood history of the site and its vicinity. If gauge records are available, provide typical peak flows during these flood events.

Provide a copy of a flood zone map for the area. Is the facility within a 100 year flood zone?

GROUNDWATER

If available provide,

- hydraulic conductivity measured as a function of moisture content. If that is not available, then,
- data from water retention curves with saturated hydraulic conductivity. If that is not available, then,
- moisture data with depth in boreholes, bulk density, and particle size of the same samples.

If none of the above information is available then we will make assumptions of the unsaturated hydraulic conductivity based on what we know about the geology.

Provide the distance and direction of all water wells within 1.6 km of the site.

METEOROLOGY AND CLIMATOLOGY

Provide total annual precipitation. Provide month by month averages for temperature (average high and low), wind speed and precipitation.

Data is needed to support dispersion modeling. The information provided in the ER is not useful for this purpose. What is needed is the joint frequency distribution for wind speed, direction and stability classes known as a standard STAR chart or STAR data. This should be obtained from the nearest National

Weather Service station, typically co-located with a major airport. This STAR data should be provided as both hardcopy and a disk.

Extreme meteorological data of note should be provided. Note, that the summary information provided in the ER for tropical storms from 1899 through 1980 uses a 1967 reference.

ECOSYSTEMS

The description of the terrestrial and aquatic ecosystems is based on the Environmental Report for the Hope Creek Generating Station. This description is not relevant to the facility area. A similar but less detailed description is needed for the terrestrial and aquatic ecosystems.

Provide a list of federal and state listed, candidate, and nominated threatened and endangered species whose range include the project site. Have any of these threatened or endangered species been observed using habitat near the site (i.e. within 10 km).

The authors of the ER should provide the reference or source for the statement in the ER that "Seventeen of the [threatened and endangered species] are known to or are likely to breed within the surrounding counties."

FACILITY AND OPERATION

An accurate understanding of the operation of the facility is key to understanding the potential environmental impacts. Accurate quantities and description of materials input and outflow is needed. Information (quantity and quality) of raw material inputs, the products produced, and the waste streams and their final disposition are needed. Therefore Shieldalloy Metallurgical Corporation needs to provide the following on a per run/batch and annual basis:

1. List and quantify of all materials that enter the facility for the production of ferro-columbian and specialty alloys.

    - Specifically needed for the pyrochlore is the typical quantity on hand, how it is stored, and the percent by weight of thorium and uranium. If the typical quantity on hand is not known provide the maximum quantity that can be stored on site.

2. Quantify the waste streams for solid, liquid, and gaseous emissions.

   - Provide the quantity of solids waste generated in the form of slag. Provide a description of the size of the pieces of slag (i.e., cobble size, gravel size).

   - Provide the composition of the dust in the bag house and the true filtering efficiency. Provide the dust production rate during operations (i.e., estimated total quantity of dust that escapes within the facility during the processing of the ore. This includes the quantity that ultimately ends up in the baghouse and the quantity that does not). Provide the estimated quantity of the dust that escapes during each of the following steps:

     - during the metal processing phase,

     - loading in the transport truck and transportation to the "lime" pile, and

     - offloading onto the "lime" pile and until the "crust" forms, and

     - leachability of the baghouse dust.

   - Describe the liquid waste streams that result from the ferro-columbian production process.

Provide a description of how process material, particularly pyrochlore, is delivered to and handled within the site. Provide a map that shows that typical delivery route out to the nearest interstate highway or rail junction. How many deliveries per month are made to the facility.

Describe where the material is stored and how it is handled. Describe any measures taken to reduce worker exposure in the storage area. Describe the type of structure where the pyrochlore is stored and fire protection measures in place.

Describe the facility where the pyrochlore and other raw material are processed. What hazards have been anticipated and what measures have been taken to reduce these hazards to an acceptable level (e.g., fire sprinklers of halone system, respirators for the workers). Do all three furnaces operate simultaneously or in succession?

EFFLUENT CONTROL AND WASTE MANAGEMENT

Describe all gaseous discharges for the facility. Provide their location on a facility layout and height above the ground. Describe the emissions that are released at each of these discharge points.

Describe the operational protocol for the two baghouses. For example, how would failure of one or more of the bags be handled? Are both baghouses needed to operate the facility. For each baghouse stack provide the velocity of the discharge gases, the height and diameter of the release point and the typical emission rate per unit of time.

Indicate on a facility layout the location of each regulated liquid discharge points. Describe the liquid waste discharge points. Which of these liquid waste discharge points are associated with the ferro-columbian process. Provide a description of the type liquid wastes are discharged at each of these discharge points.

Indicate on the facility layout, the location of the different waste piles. Provide an estimate of the quantify of material contained in each waste pile and how much is added on an annual basis.

Provide the leach rate of the baghouse dust ("lime" pile). Describe how materials are moved from the baghouse silos to the "lime" pile and what measures are taken to minimize fugitive dust. Describe how the "lime" pile(s) are managed to minimize fugitive dust and maintain a surface crust. Do the "lime" pile(s) have erosional feature on their surfaces?

Describe the waste discharge area. Is it lined (clay and/or and artificial liner)? What is the drainage pattern of the area? How are liquid waste controlled and where do the liquid wastes discharge?

If available provide radon levels for the waste discharge area, and the pyrochlore storage area.

FACILITY DECOMMISSIONING

Describe the proposed approach to facility decommissioning. Address both the metal processing facility and the waste piles.

RADIOLOGICAL EFFECTS OF OPERATION

How many of the on-site workers are involved in each phase of the ferro-columbian production process? What is the average exposure

of each worker based on actual measurement (provide also the standard deviation)? What is the exposure of the maximally exposed individual (i.e. the highest reading during the period of record)?

NON-RADIOLOGICAL IMPACTS OF FACILITY OPERATIONS

Provide copies of the air quality permits and recent reports.

Provide copies of water quality permit(s) and recent reports.

Provide background information on the CERCLA action.

Will the proposed action affect any previously undisturbed land? If yes, what is the area in acres or hectares and the nature of the area that will be disturbed. How will this area be used?

DESCRIPTION OF ENVIRONMENTAL AND OCCUPATIONS MONITORING PROGRAMS

Provide an overview statement of the corporate approach to minimizing worker and environmental health exposure.

For each of the following provide a description of the existing system. If significant system upgrades are proposed in conjunction with the proposed action, describe these system upgrades as well.

- The personnel dosimetry,
- Airborne monitoring system,
- Stack emissions,
- Liquid effluents,
- Environmental monitoring programs for radiation to air, soil, vegetation, and surface water both on the site and off the site.

Explain how these monitoring efforts are reported. Provide a summary of the results of these monitoring efforts.

ANNOTATED OUTLINE FOR SHIELDALLOY METALLURGICAL CORPORATION (SMC) ENVIRONMENTAL ASSESSMENT (EA)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

This introduction will describes why the EA is being prepared and the nature of the proposed activities at the facility.

1.1 DESCRIPTION OF PROPOSED ACTION

The proposed action is to amend SMC's U.S. Nuclear Regulatory Commission (NRC) license for SMC's Newfield, New Jersey facility. This section provides a brief description of activities that would be covered by the license renewal.

1.2 NEED FOR THE PROPOSED ACTION

This section identifies the underlying purpose and need in proposing the alternatives; including the proposed action.

1.3 INTERACTION WITH OTHER AGENCIES

Relevant interactions between the NRC and Federal, State, and local organizations will be discussed. Significant interactions between SMC and state and local organization will be included.

A list of significant environmental permits will be provided. Particularly significant are state permits under their Clear Air Act and Clean Water Act and the status of the on-site CERCLA action.

1.4 RELATED INFORMATION

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

1.5 ORGANIZATION OF THIS REPORT

Each of the following sections of the EA is described in one or two sentences.

1.6 REFERENCES

A list of references cited in this section will be provided.

2.0 DESCRIPTION OF THE SITE AND ENVIRONMENT

This section describes 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

This section will use maps and a description to clearly identify the location of the site.

2.2 DEMOGRAPHY

This section describes the population of towns and counties near the facility. It also provides the distance, direction, and population of the nearest cities of significant size (e.g., Philadelphia).

The population of adjoining and nearby counties will be summarized in a table that shows actual and projected populations for for 1980, 1990, and 2000.

2.3 LAND USE

2.3.1 Current Land Use

This section describes land use in vicinity of the facility. It identifies the location of the nearby gardens and dairy farms or any land use which is relevant to determing exposure pathways. The uses of land, residences, and businesses adjoining the site will be described.

2.3.2 Cultural Resources

This section describes all nearby historic and archaeological resources, parks, schools, recreational and other special use facilities that could be potentially affected by the proposed action.

2.3.2 Land Commitments

This section describes any land commitments that are inherent to the proposed action.

2.4 GEOLOGY, SEISMOLOGY, AND TOPOGRAPHY

2.4.1 Topography

This section describes the terrain of the project area.

2.4.2 Geology

This section describes both the regional and site specific geology. The site specific geologic description will be more detailed than the regional geologic description and will support an understanding of the groundwater regime.

Also noted here are geologic resource of economic value within 10 kilometers of the site.

2.4.3 Seismology

This section describes the seismic characteristics of the region through a listing of historic earthquakes.

2.5 HYDROLOGY

2.5.1 Surface Water

This section describes the nearest water bodies, the drainage system, distance to confluence, average flow, and nearby and downstream surface water uses.

2.5.2 Surface Flooding Potential

This section discusses the flood potential of the site. Information on flood analysis and flood control measures will be discussed. Any unusual risks such as upstream dams will be presented.

2.5.3 Groundwater

This section describes the groundwater, aquifer, and groundwater use.

2.6 METEOROLOGY AND CLIMATOLOGY

This section will provide an overview the area's climate. It defines the climate using the Koeppen climatological classification. Predominant airflow patterns, precipitation, and temperature are described. Monthly meteorologic statistics will be provided in a table. "Extreme" meteorological events (e.g., precipitation, tornadoes, fog, blizzards) will be described as they may reflect on the operation of the site.

The meteorologic monitoring station that provided annual joint-frequency distribution for wind speed and direction will be identified. Nearby climatological stations that provided information will also be identified.

2.7 BACKGROUND RADIOLOGICAL CHARACTERISTICS

This section describes the typical background radiological character of the area. It will be based on surveys performed in support of the relicensing effort. These will be compared to regional averages.

2.8 ECOLOGY

Because this an ongoing activity, this will be only a brief overview of the ecosystem.

2.8.1 Terrestrial Ecology

This section describes characteristics of the local terrestrial and wetland ecosystems.

2.8.2 Aquatic Ecology

This section describes the biological characteristics of the nearby creek, rivers, lakes, ponds, etc. and identifies any important (i.e., recreational or commercial) species.

2.8.3 Endangered Species

This will include federal and state listed and candidate species whose range includes the project site. This section will note any species that use habitats near the facility.

2.9 REFERENCES

A list of references cited in this section will be provided.

3.0 THE FACILITY AND OPERATIONS

This section describes the SMC facility and operation.

3.1 THE FACILITY

This section describes the appearance of the facility. It also describes facility layout and identifies the operation of the different parts of the facility (administrative, storage, waste management, material handling, receiving, operation, etc.). Emphasis will be placed on those portions of the facility that are regulated by the NRC license.

3.2 SUMMARY OF OPERATIONS/PROCESSES

Continuation of the ongoing operation of the facility is the primary focus of this EA. Therefore, this section needs to provide the detail needed to support the analysis found in

sections 4, 5, and 6. This part (i.e., 3.2) provides a brief overview of the ferro-columbian production process; elaboration on the process will be covered in the following sub-sections.

A flow-chart will show the quantities of material input, production, and residuals (solid, liquid, and air emissions) for a single batch. Based on the number of batches processed in a typical year a table will be provided that estimates the total quantity of waste generated in a year.

Each of the following sections will also briefly describe the efforts made to control and reduce pollution and protect worker health. Details on worker and environmental controls will be discussed in Section 4.0 and 5.0.

3.2.1 Material Receipt

This section describes how process materials, particularly pyrochlore, is delivered to and handled within the facility. Materials associated with the production of ferro-columbian that represent a potential environmental, health, or safety hazard will also be discussed.

3.2.2 Material Staging and Storage

This describes where and how materials are stored and the typical quantity of material on hand.

3.2.3 Material Processing

This describe the facility used to process the ore. It also explains how the material is turned into commercial products.

3.2.3 Waste Management and Disposal

This section describes how and where solid waste materials are disposed of. The nature of the waste materials, and total quantities on hand will be described. It will describe how these waste materials are maintained (e.g., in a lined basin) and actions taken to stabilize the material to reduce air or liquid effluents.

3.9 REFERENCES

A list of references cited in this section will be provided.

4.0 EFFLUENT CONTROL AND WASTE MANAGEMENT

4.1 GASEOUS DISCHARGES

This section describes the gaseous effluent discharge control system. It discusses the management of the baghouse, for example; how the failure of one or more of the filter bags are handled, how and when the bags are cleaned, and frequency of inspection/maintenance. Quantities of the material going up the stack and material converted into other waste forms (solid or liquid) will be provided. It will explain where and how solid and liquid waste derived from the air quality control system are disposed of.

4.2. LIQUID DISCHARGES

This will be a description of the quantity and variety of waste streams generated by the metalurgical process. Management of the human waste stream and storm runoff from the area of the waste pile will be described. Effluents controls will be discussed. Releases to the environment will be quantified.

4.3 SOLID WASTE

This section will quantify and qualify the solid residuals generated from the production and associated processes. Included will be the air and liquid waste streams that are converted to solid waste as a result of treatment or control. Actions taken to stabilize and control the solid waste will be described.

4.4 FACILITY DECOMMISSIONING

This is a brief discussion of decommissioning of the facility; particularly the waste pile.

4.5 REFERENCES

A listing of references cited in this section will be provided.

5.0 ENVIRONMENTAL EFFECTS OF NORMAL FACILITY OPERATIONS AND TRANSPORTATION

The radiological and non-radiological impacts that would be expected to result from normal facility operations and associated transportation of materials are discussed in this section.

6.4.2 Water Sampling

This section describe the system use on and off site to monitor surface and groundwater.

6.4.3 Soil and Vegetation Sampling

This section describes the soil and vegetation sampling programs both on and off the site

6.5 REFERENCES

A listing of references cited in this section will be provided.

7.0 IMPACT OF POTENTIAL ACCIDENTS IN FACILITY OPERATIONS AND TRANSPORTATION

7.1 INTRODUCTION

This section will propose potential accidents associated with facility operation, transportation, and/or natural events. The potential for these accidents and their potential impacts will provide bounding limits for the operation of the facility.

7.2 EVALUATION OF THE POTENTIAL ENVIRONMENTAL AND OCCUPATIONAL IMPACT OF ACCIDENTS.

Each accident scenario will be described including the assumptions that were made in postulating the accident. Accidents will be quantified to the extent possible based on available data with a focus on the radiological health risks.

7.3 REFERENCES

A listing of references cited in this section will be provided

8.0 ALTERNATIVES TO THE PROPOSED ACTION

The impacts of not relicensing the facility will be the only alternative considered and evaluated.

9.0 SUMMARY AND CONCLUSION OF ENVIRONMENTAL IMPACTS OF RELICENSING

This is a summary of the major effects of the relicensing option. It will consist of the following two sections.

9.1 SUMMARY OF THE ENVIRONMENTAL EFFECTS OF RELICENSING

This will be prepared and submitted to the NRC for their review.

9.2 NRC STAFF FINDING

This will be prepared by the NRC with input from PNL.

LIST OF PERSONS PREPARING THIS ENVIRONMENTAL ASSESSMENT AND THEIR QUALIFICATIONS