

APR 23 1973

SNM 65

Nuclear Metals, Incorporated  
Attention: Mr. W. B. Tuffin  
President  
2229 Main Street  
Concord, Massachusetts 01781

Docket Nos. 70-82  
40-672

Gentlemen:

This refers to the inspection conducted by Mr. Jerman of this office on March 14 thru 16, 1973 of activities authorized by AEC License Nos. SNM-65 and SMB-179 and to the discussions of our findings held by Mr. Jerman with Mr. Tuffin and other members of your staff at the conclusion of the inspection. This also refers to the meeting held at your office on March 21, 1973 and attended by Mr. Nelson, Chief, Radiological & Environmental Protection Branch and Mr. Smith, Acting Senior Radiation Specialist of my staff, and by Mr. Tuffin and other members of your staff.

The areas examined during this inspection included: in-plant air monitoring; roof stack air monitoring; environmental monitoring; bioassays; surveys and employee radiation exposure monitoring conducted from December 14, 1971 to March 1, 1973; organization changes; employee training; plant ventilation; material storage, transfer and disposal; and liquid waste handling. Within these areas, the inspection consisted of selective examination of procedures and representative records, interviews with personnel, measurements made by our inspector, and observations by our inspector.

During this inspection, it was found that certain of your activities appeared to be in violation with AEC requirements. The items and references to the pertinent requirements are listed in the enclosures to this letter. This letter constitutes a notice sent to you pursuant to the provisions of Section 2.201 of the AEC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations. Section 2.201 requires you to submit to this office, within twenty (20) days of your receipt of this notice, a written statement or explanation in reply including: (1) corrective steps which have been taken by you, and the results achieved; (2) corrective steps which will be taken to avoid further violations; and (3) the date when full compliance will be achieved.

|           |             |       |         |         |          |  |
|-----------|-------------|-------|---------|---------|----------|--|
| OFFICE ▶  | GRESS: I    |       |         |         |          |  |
| SURNAME ▶ | Jerman, Pac | CONER | Crocker | Nelson  | O'Reilly |  |
| DATE ▶    | 4/18/73     | 4/20  |         | 4/20/73 |          |  |

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In view of the number of the violations found during the inspection, Mr. Nelson and Mr. Smith met with Mr. Tuffin and other members of your staff to assure that you had a clear understanding of our position with regard to these violations. At this meeting, Mr. Tuffin described those actions taken or planned to improve the effectiveness of your management control systems. In your reply to this letter, you should confirm these commitments.

During Mr. Jerman's discussions with Mr. Tuffin, the subject of high releases of airborne concentrations of uranium-238 from Stack No. E-30 were reviewed. By way of this letter, we wish to confirm our understanding obtained during this meeting that you intend to take action to reduce these concentrations so that the yearly average concentrations will be within the limits of AEC requirements.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

James P. O'Reilly  
Director

**Enclosures:**

Description of Violations, Docket Nos. 70-82 & 40-672  
Description of Violations, Docket No. 40-672

bcc: RO Chief, Materials & Fuel Facilities Branch (2)  
RO:HQ (4)  
L:D/D for Fuels & Materials  
DR Central Files  
PDR  
NSIC  
State of Massachusetts

ENCLOSURE NO. 1

Description of Violations

Nuclear Metals, Incorporated  
2229 Main Street  
Concord, Massachusetts 01781  
Docket Nos. 70-82 and 40-672

Certain activities under your licenses appear to be in violation of AEC requirements, as indicated below:

1. Condition 8 of both licenses requires that material be possessed and used in accordance with procedures submitted with your license application dated February 26, 1969. Section II of these procedures is entitled "Health and Safety". It specifies, among others, the requirements shown below:

- a. Quarterly meetings and training sessions will be held to acquaint the fire brigade members with proper emergency procedures, techniques, and equipment.

Contrary to this requirement, you failed to hold these meetings and training sessions during the third and fourth calendar quarters of 1972.

- b. Periodic health and safety meetings will be conducted for all employees.

Contrary to this requirement, no such meetings were held between August 1, 1972 and March 14, 1973.

- c. Hoods and sucker hoses will be given periodic operational checks.

Contrary to this requirement, no checks of hoods or sucker hoses were made between December 14, 1971 and March 14, 1973.

- d. Direct measurement surveys will be made periodically at specified stations in well traveled area with gas proportional counters and the results of these surveys will be recorded.

Contrary to this requirement, no such surveys were performed from December 14, 1971 to March 14, 1973.

- e. Filters from the stack air monitoring samplers will be collected monthly and analyzed to assure compliance with the requirements of 10 CFR 20.106 "Concentrations in effluents to unrestricted areas."

Contrary to this requirement, your air sample filters were collected and analyzed only once between March 29 and August 16, 1972.

- f. Environmental water and soil samples will be collected and analyzed annually.

Contrary to this requirement, the only samples collected since November 10, 1970 were collected December 28, 1971 and these samples were not analyzed.

- 2. 10 CFR 20.201(b), "Surveys", requires you to make such surveys as may be necessary for you to comply with all sections of Part 20.

Contrary to this requirement, you failed to survey individuals to determine that they were free of contamination before eating, smoking or leaving the plant.

ENCLOSURE NO. 2

Description of Violations

Nuclear Metals, Incorporated  
2229 Main Street  
Concord, Massachusetts 01781  
Docket No. 40-672

Certain activities under your license appear to be in violation with AEC regulations as indicated below:

1. 10 CFR 20.201(b), "Surveys", requires that surveys be conducted as may be necessary to comply with the regulations contained in each section of Part 20. A "survey", as defined in Paragraph 20.201(a), means "an evaluation of the radiation hazards incident to production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive materials present".
  - a. Contrary to this requirement, you failed to make such surveys as were necessary to assure that employees at risk of exposure to airborne uranium-238 were not exposed to concentrations exceeding those specified in 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive material in restricted areas." You did make surveys that were intended to achieve this objective but these surveys did not measure the airborne concentrations in the workers' breathing zones.
  - b. Contrary to this requirement, you failed to make such surveys as were necessary to assure compliance with 10 CFR 20.106, "Concentrations in effluents to unrestricted areas", a regulation that limits the yearly average concentration of uranium-238 contained in the liquids discharged from your plant to the unrestricted areas. Specifically, no surveys were made of liquid wastes, resulting from the dissolution of copper from uranium-238, prior to its disposal to a bog on your property.

c. Contrary to this requirement, you failed to make such surveys as were necessary to assure that the exposure incurred by an individual, whose film badge had been contaminated for each month of the first calendar quarter of 1972, was correctly recorded as required by 10 CFR 20.401(a) "Records of surveys, radiation monitoring, and disposal."

2. 10 CFR 20.203(b), "Caution signs, labels, signals and controls", requires that each radiation area be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words, "Caution - Radiation Area." A "Radiation Area" is defined in Part 20 as any area accessible to personnel in which radiation exists, originating in whole or in part within licensed material, at such levels that a major portion of the body could receive in any one hour a dose in excess of 5 millirems, or in any five consecutive days a dose in excess of 100 millirems.

Contrary to this requirement, you failed to post the area in which you had collected approximately 20 radiographic shields made of depleted uranium. Our inspector measured an exposure rate of 8 millirems per hour at a distance of 2 feet from the collection of shields.

3. 10 CFR 40.51, "Transfer of source material" requires that you transfer source material only to: the Commission; to a specific or general licensee whose license authorizes him to receive such material; to any person exempt from the regulations of 10 CFR 40 to the extent permitted under such exemption; or as authorized by the Commission in writing.

Contrary to this requirement, you transferred non-exempt quantities of depleted uranium, without written authorization by the Commission, to customers without having determined that these customers were licensed to receive this material.

4. 10 CFR 40.61(a), "Records", requires that records be kept showing the receipt, transfer, export and disposal of source material.

Contrary to this requirement, your records of transfers and disposals were, in some instances, incomplete in that the quantities of material were not specified.