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United Nuclear Corporation
1400 North Second Street
St. Louis 7, Missouri

Attention: Dr. Charles E. Harrington
Vice President

Gentlemen:

This refers to the inspection conducted on September 6 and 7, 1962 of your activities authorized under AEC Special Nuclear Material license No. S20-33.

It appears that certain of your activities were not conducted in full compliance with the conditions of your license and the requirements of the AEC's "Standards for Protection Against Radiation," Part 20, Title 10, Code of Federal Regulations, in that:

1. Uranium enriched in the isotope uranium 235 ($\leq 5\%$ by weight of U-235) was stored on the floor in the Low Enrichment Warehouse between the approved vertical storage arrays, contrary to the letter dated April 18, 1960, from Mr. E. H. Dasher, which was incorporated into the license on July 27, 1960.
2. Uranium enriched in the isotope uranium 235 was stored on the floors in the operating area of the blending facility, building 250-3, contrary to the letter dated February 6, 1958, from Mr. W. H. Lashare, which was incorporated into the license on March 3, 1958.
3. Uranium enriched in the isotope uranium 235 was stored on the floors in the pelletizing area, building 250-2, contrary to the letter dated December 10, 1958, from Mr. W. H. Lashare, which was incorporated into the license on March 11, 1959.

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4. The 10 bird cages containing cylinders of uranium hexafluoride (UF_6) having an enrichment of < 1.75 percent by weight in the isotope uranium 235 were doubly stacked in Building 230-1, contrary to the letter dated October 21, 1957, from Mr. Frederick H. Balmore, which was incorporated into the license on March 3, 1958. Storage of the bird cages doubly stacked is also contrary to the basic criteria set forth in the Nuclear Safety Codes TID-7016 and TID-7018.
5. Between January 8 through 14, 1962, two individuals were exposed to airborne concentrations of uranium in excess of the limits specified in Appendix B, Table 1, 10 CFR 20, contrary to 10 CFR 20.101(a), "Exposure of individuals to concentrations of radioactive material in restricted areas."
6. Surveys were inadequate to determine whether the concentrations of radioactive material released in effluents to unrestricted areas were within the limits specified in 10 CFR 20.166(b), contrary to 10 CFR 20.201(b), "surveys."
7. Airborne survey results were not recorded in the same units used in the appendices of 10 CFR 20, contrary to 10 CFR 20.401(b), "records of surveys, radiation monitoring and disposal."

This notice is sent to you pursuant to the provisions of Section 2.201, "Notice of violation," of the AEC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of which is enclosed. This regulation requires that you be notified that you must notify this office in writing within thirty days of your receipt of this notice, admitting or denying the alleged violations, the reasons for the violations if admitted, the corrective steps taken or to be instituted in achieving correction and preventing further violations, and the date when full compliance has been or will be achieved.

In addition, 10 CFR 2.201(b) requires that you be notified that, if an adequate reply is not received within thirty days of your receipt of this letter, an order may be issued to show cause why the license should not be modified, suspended, or revoked or such other action may be taken as may be proper.

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With respect to items 1 and 4, we note that these deficiencies were corrected prior to the completion of the inspection.

In addition to the alleged items of noncompliance described above, we wish to call your attention to certain other matters which warrant consideration:

- A. Employees, although aware of certain criticality rules with respect to minimum spacing requirements, apparently obtained this information on a verbal basis. All operating plant employees should be provided with written instructions concerning criticality control and radiological safety procedures.
- B. We understand that for the purposes of contamination control, the plant is divided into four general areas: (1) Unlined; (2) Restricted; (3) Restricted and (4) Gray. While protective clothing is required in the restricted area, it may be worn in the gray area. Therefore, the gray area can become contaminated. Measures should be implemented to assure that cross contamination will not occur between the gray area and the unrestricted area.
- C. During the inspection it was observed that protective gloves were worn by operators. It had been noted during a visit to your plant by an AEC representative during April, 1962 that gloves were not worn by all operators while working with licensed material. Continued efforts should be expended to assure that operating personnel adhere to the practice of wearing gloves while handling uranium powder, in order to assure against personnel contamination. In addition, procedures should be instituted to establish personnel contamination limits, methods to be followed in determining levels of contamination on personnel, and measures to be taken in decontaminating personnel.

- D. Emergency Evacuation procedures should be re-evaluated since it appears that employees evacuating from the plant could exit via the source of radiation since all alarms in the plant reportedly ring when any single radiation monitor set point is reached.
- E. With respect to the vacuum cleaners utilized for general clean-up, no evaluation was reportedly made with regard to criticality. Steps should be taken to assure that a critical occurrence is unlikely in these cleaners. Also, a determination should be made to assure that no containers which could hold a critical mass are placed within processing areas.
- F. Storage drums containing uranium scrap material were reportedly segregated upon receipt based solely on the skipper's statement of contents. This material should be placed in isolated areas until the uranium contents of the scrap material is verified.
- G. The Emergency Alarm system installed in the plant was not provided with an emergency power source that could be used in the event the conventional power supply should fail. The installation of an emergency power source for the radiation monitors would be prudent.
- H. During the visit of the AEC representative to your plant in April, 1962, it was noted that equipment contaminated with licensed material was stored between two dairy barns located near Highway 21-A, an unrestricted area, and the equipment was not secured against unauthorized removal from the place of storage, as required by 10 CFR 29.207, "Storage of licensed materials." During the inspection conducted September 5 and 7, 1962, we note that the material in question had been disposed of by burial in the soil. All licensed material stored in an unrestricted area is to be secured against unauthorized removal from the place of storage.

United Nuclear Corporation

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In your reply to this notice you are requested to inform us of the steps you have taken or plan to take with respect to Items A through H.

Very truly yours,

Director
Division of Licensing
and Regulation

Enclosures:

1. 10 CFR 23
2. 10 CFR 2

cc: Compliance Div., HQ
Compliance Div., III
Public Document Room

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