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Form AEC-401  
(1-56)

UNITED STATES  
ATOMIC ENERGY COMMISSION

SPECIAL NUCLEAR MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954 and Title 10, Code of Federal Regulations, Chapter 1, Part 70, "Special Nuclear Material Regulations," a license is hereby issued authorizing the licensee to receive and possess the special nuclear material designated below; to use such special nuclear material for the purpose(s) and at the place(s) designated below; and to transfer such material to persons authorized to receive it in accordance with the regulations in said Part. This license shall be deemed to contain the conditions specified in Section 70.32(a) of said regulations, and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission now or hereafter in effect and to any conditions specified below.

Licensee		3. License No.
1. Name United Nuclear Corporation		SNM-33, as renewed
2. Address Chemicals Division Route 21A Hematite, Missouri		4. Expiration Date April 30, 1968
		5. Docket No. 70-36
6. Special Nuclear Material  Uranium enriched in the U-235 isotope	7. Maximum quantity of special nuclear material which licensee may possess at any one time under this license  Two thousand (2000) kilograms	
8. Authorized use For use in accordance with the procedures described in the licensee's application dated July 15, 1963 insofar as it pertains to the Emergency Plan and applications dated January 22 and 25, 1965.		
9. Quantity of special nuclear material allocated to licensee pursuant to Section 70.31(b) of said part - - - - -		

CONDITIONS

- 10. Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.
- 11. Prior to processing scrap or reject enriched uranium-bearing materials, such as oxide powders or pellets in the Green Room, the licensee shall, in establishing a safe wet mass limit: (a) Produce a relatively homogeneous mixture of the material to be processed; (b) Obtain appropriate samples of the mixture; and (c) Determine the uranium content and U-235 enrichment.

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SPECIAL NUCLEAR  
MATERIAL LICENSE  
Supplementary SheetLicense Number SNM-33, as  
renewed

12. In addition to the provisions of Sections 304 and 401 of the licensee's application which pertain to floor storage of enriched uranium-bearing materials, the licensee shall, within 30 days from the date of this license, provide racks, fixtures or other barriers which will assure that the necessary spacing is maintained between containers.
13. The licensee shall conspicuously post all storage arrays, including outside storage arrays and processing stations with a sign bearing the appropriate nuclear safety limitations and storage conditions applicable to such arrays.
14. In addition to the provisions of Section 502.4 of the licensee's application, the licensee shall, within 30 days from the date of this license, erect physical barriers adequate to prevent access to outside storage areas and shall establish appropriate administrative controls to limit access to authorized personnel who have been properly instructed in the storage limitations and conditions applicable to such areas. Also, no more than one (1) container at a time shall be moved into or out of such storage areas.

*Deleted by Amend 24*

15. For rack storage in Building 251 (Section 502.2 of the licensee's application), the licensee shall arrange the array such that the fifteen (15) gallon drums and shipping containers for pellets are placed only on the bottom or top storage positions.

16. In addition to the provisions of Section 600 of the licensee's application, the licensee shall: (a) Limit each criticality zone to one limited safe mass or safe geometry or safe volume container; (b) Limit the Control Laboratory in Building 240-1 to one limited safe mass; and (c) Provide storage racks as described in Subparagraph 301.4.2 of the licensee's application.
17. The information contained in the following applications is hereby made a part of this license:
  - a. Application dated April 10, 1964, (TWX) concerning the nuclear safety of the tank associated with the circulating pump on the centerless grinder, as described in Subparagraph 401.1.5.
  - b. Item 21 of application dated April 21, 1964, limiting the specific process involving D<sub>2</sub>O to that described in Section 401.3.

SPECIAL NUCLEAR  
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Supplementary Sheet

License Number SNM-33, as  
renewed

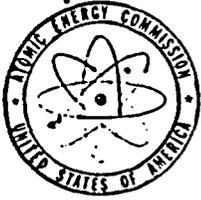
- c. Item 24 of application dated April 21, 1964, concerning the exclusion of unsafe geometry containers in the Red Room and clean-up of spills.
- 18. Pursuant to Section 20.103(c)(3) of 10 CFR 20, the licensee is hereby authorized to make allowance for the use of full-face, air-supplied, positive pressure, respiratory protective equipment, in determining personnel exposure to concentrations of airborne radioactivity, in accordance with the procedures described in the applications referenced in Item 8 of this license.
- 19. Pursuant to 10 CFR 71, the licensee is hereby authorized under this license to ship special nuclear materials in accordance with the procedures described in his application dated January 25, 1965.

For the U. S. Atomic Energy Commission

Date APR 21 1965

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by Division of Materials Licensing  
Washington 25, D. C.



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UNITED STATES

ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

IN REPLY REFER TO:

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APR 21 1965

United Nuclear Corporation  
Chemicals Division  
Route 21A  
Hematite, Missouri

Attention: Mr. L. J. Swallow  
Operations Control Manager

Gentlemen:

Enclosed are Special Nuclear Material License No. SNM-33, as renewed and Source Material License SMB-293, as renewed. As requested in your renewal application dated November 22, 1963 for License No. SMB-293, we have incorporated the manuals submitted in your applications dated January 22 and January 25, 1965. Thus, your source material activities are to be conducted in accordance with the statements and representations made with respect to special nuclear material, except where such statements and representations relate only to prevention of accidental criticality.

It was necessary to include certain license conditions in License No. SNM-33 to clarify and supplement the nuclear safety controls which are to be provided for certain phases of your operations. We will consider modification or deletion of these conditions upon receipt of an application containing further nuclear safety justification or alternate controls.

Conditions 11 through 14, specify objectives to be met. You should establish the necessary procedures or methods to meet these objectives. Condition 15 was included because in Section 502.2, which covers storage of low enriched (not over 6% U-235) uranium compounds in Building 251, you have based nuclear safety on safe mass without regard to the volume limitation specified in Table IV, TID-7016, Rev. 1. We have no basis for making an exception to this volume limitation. However, your storage arrays are acceptable by the solid angle criterion, provided the 15-gallon units and the shipping containers for pellets are stored in either the top or bottom positions of the vertical planar arrays. Condition 16 was included because Paragraph 600.1

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of Section 600 provides for several units in one criticality zone and states that the safe number of such units will be determined by solid angle calculations, but does not provide sufficient information for us to evaluate these arrangements.

Condition 19 authorizes shipment of special nuclear material pursuant to 10 CFR 71 as requested in your application dated January 25, 1965. We wish to point out that whenever revisions to Part 71 are made, it may be necessary to evaluate your shipping containers and shipping procedures in accordance with the provisions of the revised regulation.

In Section VIII of your Health Physics Manual, the specified limits for concentrations of radioactivity are not, in all cases, consistent with Appendix B of 10 CFR 20. You should assure that you are abiding by the appropriate Part 20 limits.

The Emergency Plan submitted in your application dated July 15, 1963, has been amended several times since that date. Therefore, we would like to have a consolidated emergency plan, complete in itself, within sixty (60) days from the date of this letter. The plan should state the primary objectives of your emergency procedures, and the means and capabilities for achieving these objectives. Also the plan should indicate consideration given to the following.

- a. Training of employees in the emergency procedures.
- b. Training and orientation of local fire departments and plant fire brigade in order to familiarize them with special precautions to be taken in fighting fires involving special nuclear material.
- c. Arrangements that have been made with hospitals, ambulance services, police, and other groups who might be called upon in the event of emergencies involving special nuclear materials including the handling of contaminated personnel and those personnel who might have received massive doses of radiation.
- d. Performance criteria of emergency equipment to be located at the emergency assembly point(s) including the bases for such criteria and provisions for checking instrumentation and equipment periodically for proper functioning.

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United Nuclear Corporation

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- e. The criteria for making a decision to re-enter the plant after an emergency evacuation and/or a criticality incident.

If there are any questions regarding this license, please communicate with us. We will correspond with you later regarding your request to have certain information withheld from public disclosure pursuant to Section 2.790 (b), 10 CFR 2.

Very truly yours,

Donald A. Nussbaumer, Chief  
Source and Special Nuclear Materials Branch  
Division of Materials Licensing

Enclosures:  
As stated

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