UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

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MAY 16 1969

DML:RLL
70-36
SNM-33, Amendment No. 51

United Nuclear Corporation
Chemical Products Division
Route 21A
Hematite, Missouri 63047

Attention: Mr. L. J. Swallow, Manager
Nuclear and Industrial Safety

Gentlemen:

Pursuant to Title 10, Code of Federal Regulations, Part 70, Special Nuclear Material License No. SNM-33, dated April 21, 1965, is hereby amended to authorize the processing of uranium enriched up to 3.2% in the U-235 isotope in the SWOPP plant in accordance with your application (NIS:LJS-69-294) dated May 2, 1969, subject to the condition that a two (2) foot exclusion area shall be maintained around the fourteen (14) inch diameter blending vessels such that no additional equipment, piping, structural materials, etc. is installed within this area.

All other conditions of this license shall remain the same.

As Messrs. R. L. Layfield and R. L. Stevenson of this office discussed with your Mr. R. E. Kropp during his visit here on May 9, 1969, based on the information contained in your application, the maximum uranium enrichment that we believe is justified is 3.2%. The purpose of the above condition is to assure that there is no installation of neutron reflecting materials near the blending vessels. With this restriction the nuclear safety data supplied in your application indicate that the blending vessels would be subcritical in the event of accidental moderation.

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In order to consider authorizing the processing of uranium enriched up to 3.75% as you requested, we would need an analysis which demonstrates that accidental moderation within the 14 inch diameter blending vessels is not credible. This should include an identification of all potential sources of moderation (such as overhead water pipes or tanks as well as piping connected to the vessels) and the reasons why accidental moderation cannot occur.

Also, as was pointed out to Mr. Kropp, the safe slab thicknesses given in Figure 401.4-VII become increasingly nonconservative from 3.2% to 5% U-235 enrichments. This Figure should be revised to make the values compatible with values derived from sources such as DP-1014 or LA-3612.

If you have any questions regarding this amendment, please contact us.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by
Donald A. Nussbaumer

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

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DOCKET NO. 70-36

UNITED NUCLEAR CORPORATION
COMMERCIAL PRODUCTS DIVISION / ROUTE 21A, HEMATITE, MISSOURI 63047

TELEPHONE 314-937-4691
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Reply Refer to: NIS:LJS-69-294

May 2, 1969

For Div. of Compliance

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U.S. ATOMIC ENERGY COMM.
MAIL & RECORDS SECTION

Mr. Donald A. Nussbaumer, Chief
Source and Special Nuclear Materials Branch
Division of Material Licensing
4915 St. Elmo Place
Bethesda, Maryland 20014

Dear Mr. Nussbaumer:

Subject: Special Nuclear Materials License SNM-33, Docket 70-36
Amendment to Increase Maximum Enrichment Limit to 3.75%
for the Semi Works Oxide-Pellet Plant

Reference: (1) Application for Amendment dated 4/12/69; NIS:LJS-69-234
(2) Amendments 40, 41 and 43.

United Nuclear Corporation respectfully requests amendment of SNM-33 to permit processing of a maximum of 3.75% enriched uranium in the Semi Works Oxide-Pellet Plant located at the Chemical Operations Plant at Hematite, Missouri. The original application (Reference 1) is hereby withdrawn in its entirety and replaced by this application.

This increase in the maximum enrichment limit involves no change in the operation or equipment as presently approved by amendments 40, 41 and 43 of SNM-33. In support of this request, the revised pages listed on Attachment I are submitted. The changes in these pages are only those necessary to reflect the increase in the enrichment and provide the corresponding safety analyses. Please insert these pages in your copy of the license as approved by Reference 2.

There are two equipment items (reference subparts 401.4.2.7, Granulating and 401.4.2.12, Grinding) which require modification to comply with the safe limits for the higher enrichments. This equipment will not be released for use at the higher enrichments until the Nuclear and Industrial Safety Manager has verified that the specified modifications have been completed as described in the above referenced subparts.

5/9/69

REGION III

The following listed pages have been marked proprietary:

Figure 401.4.2.2
NDEO 1963
Sketch 401.4-Xi

It is requested that these pages be withheld from Public Documentation and treated as proprietary to United Nuclear Corporation. The disclosure of this information within the public domain would permit competitors to duplicate equipment designs without the investment of budget funds required for United Nuclear Corporation to arrive at this point of its capability. These pages have been submitted as support information and do not materially affect the safety evaluation. The information which is disclosed to the public does enable an interested person to assure himself of the safety of the operation.

To meet current production commitments, your approval by May 15, 1969 is respectfully requested.

Respectfully yours,

Louis J. Swallow, Manager
Nuclear & Industrial Safety

kf

CC: AEC (7)

Attachment

NIS:LJS-69-294

ATTACHMENT I

Subpart	Page Number	Issue Date	Superseded Date
401.1	1 of 1	5/2/69	1/3/68
401.4	1 of 11	5/2/69	1/3/68
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	8 of 11	5/2/69	6/7/68
	8 c of 11	5/2/69	7/1/68
Nuclear Safety Evaluation Granulator Subpart 401.4.2.7	1 of 7	5/2/69	New
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	7 of 7	5/2/69	New
Nuclear Safety Evaluation UF_6-UO_2 Conversion Subpart 401.4.2.2	1 of 8	5/2/69	New
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Nuclear Safety Evaluation Storage, Milling, Blending Subpart 401.4.2.3-5	1 of 7	5/2/69	New
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Nuclear Safety Evaluation Final Blenders Subpart 401.4.2.8	1 of 8	5/2/69	New
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Figure 401.4 - X	1 of 1	5/2/69	1/3/68
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Nuclear Safety Evaluation Interaction Calculation, In Process Storage	4 of 4	5/2/69	
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Interaction Calculation, Grinder Coolant Subpart 401.4.2.12	1 of 4	5/2/69	New
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	4 of 4	5/2/69	New
Nuclear Safety Evaluation Agglomeration Subpart 401.4.2.6	1 of 6	5/2/69	New
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