

7-24-63

3 pgs

UNITED STATES GOVERNMENT

# Memorandum

TO : Charles D. Luke, Chief  
Criticality Evaluation Branch, LR

FROM : *Robert L. Rayfield Jr.*  
Donald A. Nussbaumer, Chief  
Source & Special Nuclear Materials Br., LR

DATE: JUL 24 1963

SUBJECT: UNITED NUCLEAR CORPORATION, CHEMICALS DIVISION, HEMATITE, MISSOURI,  
CONSOLIDATED APPLICATION DATED JULY 15, 1963, FOR RENEWAL OF SPECIAL  
NUCLEAR MATERIAL LICENSE NO. SNM-33. REFERENCE DOCKET NO. 70-36

SYMBOL: LR:RLI

Please review this application from the standpoint of accidental criticality.

In order to expedite the review of this application, it is suggested that you perform such review in the following phases:

1. Review of the applicant's procedures to prevent commingling of SNM shipments while in transit. Note: Applicant has presented an exception to the use of certification by the carrier. (See Section 700, page 3 of 11);
2. Review of the applicant's containers for shipment of special nuclear materials. Note: Applicant has taken exception to certain container requirements. (See cover letter dated July 15, 1963); and
3. Review of the applicant's general procedures to prevent accidental criticality during the processing of special nuclear materials.

Upon completion of your review of each phase of this application, please forward the Compliance copy with your comments to this office for immediate licensing action.

Attachment:  
Compliance cy, appl., dtd. 7-15-63

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20-36

**UNITED NUCLEAR**  
CORPORATION  
CHEMICALS DIVISION

For Div of Compliance

JULY 15, 1963

ROUTE 21-A  
HEMATITE, MISSOURI

MR. E. R. PRICE  
ASSISTANT DIRECTOR  
DIVISION OF LICENSING AND REGULATIONS  
UNITED STATES ATOMIC ENERGY COMMISSION  
WASHINGTON 25, D. C.

SUBJECT: RENEWAL OF SPECIAL NUCLEAR MATERIALS LICENSE SNM-33

REFERENCE: YOUR LETTER DATED DECEMBER 26, 1962; LR:JUL 70-36

DEAR MR. PRICE:

AS YOU KNOW, WE HAD REQUESTED, ON DECEMBER 13, 1961, RENEWAL OF OUR SPECIAL NUCLEAR MATERIAL LICENSE SNM-33. YOUR LETTER OF DECEMBER 26, 1962 REQUESTED CERTAIN DETAILED INFORMATION IN ORDER TO GRANT RENEWAL OF THE LICENSE. THIS INFORMATION HAS BEEN COMPILED AND CONSOLIDATED AS "GENERAL INFORMATION AND PROCEDURES APPLICABLE TO THE HANDLING OF SPECIAL NUCLEAR MATERIAL." THREE COPIES OF THESE DATA ARE ENCLOSED.

WE HAVE ENDEAVORED TO COMPLY WITH THE REQUIREMENT FOR SPECIFIC INFORMATION OUTLINED IN YOUR LETTER INsofar AS POSSIBLE. WE ARE IN AGREEMENT AS TO THE NEED OF A RIGOROUS REVIEW AND EVALUATION PROGRAM AND THE ASSURANCE THAT CONTROLS ARE ADEQUATE. WE CONSIDER OUR APPROACH AND METHODS OF CONTROL TO MEET THE INTENT OF THE CRITERIA SPECIFIED FOR RENEWAL. WE DO DIFFER, TO SOME EXTENT, IN METHODS OF CONTROL WHICH MAY BE NECESSARY TO ASSURE AN ADEQUATE DEGREE OF SAFETY AND, YET, PERMIT COMMERCIAL OPERATION. FOR EXAMPLE, SOME PROVISIONS OF PARAGRAPH V OF YOUR LETTER OF DECEMBER 26, 1962 (CRITERIA FOR STRUCTURAL INTEGRITY OF A SHIPPING CONTAINER) ARE NOT INCLUDED. INsofar AS POSSIBLE, SHIPPING CONTAINER DESIGNS INCLUDE THE USE OF STANDARD ICC SPECIFICATION DRUMS. WHERE DRUMS HAVE NOT BEEN USED AS THE OUTER CONTAINER OR "BIRD CAGE" THE BIRD CAGE HAS BEEN BUILT INTO A HEAVY DUTY WELDED STEEL FRAMEWORK. SUPPORT OF CONTAINERS WITHIN THE BIRD CAGE ALSO IS BY MEANS OF WELDED STEEL MEMBERS. EXPERIENCE WITH THESE CONTAINERS HAS PROVEN THE ADEQUACY OF THEIR DESIGN.

ALL OF OUR CONTAINERS DO NOT HAVE THE ANGLE IRON TRIPOD ON TOP AS SPECIFIED BY SECTION 4 OF PARAGRAPH V OF YOUR LETTER. THOSE CONTAINERS THAT DO HAVE THIS FEATURE WERE ORIGINALLY LICENSED AT A TIME WHEN THE ADDITIONAL CONTROLS:



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MR. E. R. PRICE

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JULY 15, 1963

SUCH AS CARRIER CERTIFICATION AGAINST COMMINGLING AND TRANS-SHIPMENT OF SECTION 5 OF PARAGRAPH V WERE NOT AN AEC REQUIREMENT. IN THAT WE WILL BE OBTAINING SUCH CARRIER CERTIFICATION, WE BELIEVE THAT CONTAINER STACKING CAN BE CONTROLLED WITHOUT THE TRIPODS.

THERE ARE CERTAIN POINTS INCLUDED IN THE PROPOSED REVISION TO 10 CFR 70 WHICH HAVE NOT BEEN OBSERVED. THESE ARE:

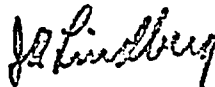
1. THE SOLID ANGLE METHOD FOR DETERMINING INTERACTION WITHIN ARRAYS HAS BEEN APPLIED TO UNITS CONTAINING MORE THAN TWO KILOGRAMS OF METAL.
2. THE MULTIPLICATION FACTOR ON WHICH THE SAFE SOLID ANGLE HAS BEEN ESTABLISHED DOES NOT INCLUDE THE EFFECTS OF REFLECTION BY THE CONTAINER WALLS OR OTHER NEARBY OBJECTS.
3. AN EVALUATION HAS NOT BEEN MADE OF THE ABILITY OF IN-PLANT STORAGE CONTAINERS TO SUSTAIN A FALL FROM THE MAXIMUM STORAGE HEIGHT WITHOUT SPILLING THEIR CONTENTS.

BASED ON OUR EXPERIENCE TO DATE IN THE PROCESSING AND SHIPPING OF SEVERAL HUNDRED THOUSAND POUNDS OF SPECIAL NUCLEAR MATERIAL, WE BELIEVE WE HAVE PROVIDED THE CONTROLS AND FURNISHED INFORMATION COMPARABLE IN SCOPE TO THAT REQUESTED AND YET APPROPRIATE FOR THE SPECIFIC PROBLEMS OF OUR FACILITY.

PENDING COMPLETION OF YOUR REVIEW, THE PROVISIONS OF OUR CURRENT SPECIAL NUCLEAR MATERIAL LICENSE No. SNM-33 WILL BE CONSIDERED TO BE IN EFFECT, UNLESS OTHERWISE NOTIFIED.

WE SHALL BE PLEASED TO DISCUSS ANY ASPECT OF OUR LICENSE RENEWAL APPLICATION AT YOUR CONVENIENCE.

VERY TRULY YOURS,



J. A. LINDBERG  
VICE PRESIDENT

JAL:JRT