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for Materials, CO  
Attn: Richard Chitwood

October 31, 1962

Charles D. Inko, Chief  
Criticality Evaluation Branch, DLR

COMPLIANCE INSPECTION: UNITED NUCLEAR, CHEMICAL DIVISION,  
DOCKET 70-36

I have reviewed the letter dated September 23, 1962 from United Nuclear Corporation, Chemicals Division, St. Louis, Missouri, relative to the inspection carried out at the Hematite Plant on September 6 and 7. Also, I have noted Mr. Espirie's letter of October 18 to United Nuclear commenting upon the situation at the Hematite Plant. We have received the application for amendment from United Nuclear requesting approval of modified storage plans mentioned in Dr. Harrington's letter of September 23. We will need more information from United Nuclear prior to approval of these plans.

I would like to comment on the last paragraph on page 3 of Mr. Espirie's October 18 letter. It was and is my impression that all of the storage drums in question contained uranium oxide of enrichment less than 5%, and that the quantity in each drum was limited to a safe mass, viz, the critical mass of the oxide at conditions of optimum moderation and reflection divided by the factor 2.5. These drums could be stored outside with the spacings proposed by United Nuclear, and the arrangement would be perfectly safe even though water leaked into each drum, thoroughly wetting the oxide or pellets. However, both Dr. Korth and I were in agreement that it would be good practice to slip a polyethylene covering over each drum when stored outside. Since moderation control is not a factor in the safety analysis of the storage plans, I really believe that the last phrase of the last paragraph on p.3 reading "... particularly where moderation is considered to be one element of nuclear safety control ..." could better be deleted.

United Nuclear in an application dated September 20, described the outside storage area for 250 drums, and inside floor areas as follows: Bldg. 255-1, 75 containers; Bldg. 255-2, 60 containers; Bldg. 243-3, 15 containers; Bldg. 243-4, 20 containers. I plan to ask that United Nuclear submit their plans for preventing vehicles or lift trucks from smashing into either the outdoor array or any of the indoor arrays. In addition, I want to make sure that the indoor arrays will be safe from neutron interaction with other special nuclear material in process in the buildings in which these drums are stored.

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I do not think that floor storage is desirable as a permanent procedure. On the other hand, I am unable to recommend against approval of the September 20 application on the basis of nuclear safety, because I do not think that United Nuclear will get into any trouble if they do what they say they will do. If you see no objection to temporary approval, and I am not sure how long this temporary period will last, I would suggest that both you and Pryor give the storage situation another hard look the next time you are at Hanstite, in order to provide us with your valued opinion on this problem.

CC: Eber Price, DLR  
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L. Rogers, DLR

DLR:MS:CEB

CDTake/vj

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