

UNITED STATES GOVERNMENT

# Memorandum

TO : Files  
DATE: September 21, 1964

FROM : Donald A. Nussbaumer, Chief  
Source & Special Nuclear Materials Branch, ML  
Richard H. Odegaarden  
Criticality Branch, ML *RHOdegaarden*

SUBJECT: VISIT TO UNITED NUCLEAR CORPORATION, WOOD RIVER JUNCTION, RHODE ISLAND,  
SEPTEMBER 2, 1964, DOCKET NO. 70-820

UNC requested by letter dated August 28, 1964, our comments on their internal procedures for inventory of all special nuclear material in the facility. This procedure was rewritten following discussion on August 24, 1964,, between UNC personnel and AEC staff in Bethesda on their original procedures dated August 18, 1964. Upon completion of our initial evaluation of the revised procedures, about 16 areas had been identified where additional information was required. The purpose of the visit was to discuss these questions with UNC officials and to review the procedures in relation to the equipment and containers to be used in order to obtain first-hand knowledge of the actual operations and determine whether there were any health physics or criticality hazards which might be encountered in performing the inventory. Representatives of the AEC included D. A. Nussbaumer, and R. H. Odegaarden, DML, Headquarters, and N. Browne, CO, NYOO. The licensee was represented by R. A. Holthaus, Plant Superintendent; C. Joseph, Superintendent, Materials Control, New Haven; W. L. Allison, Quality Control Manager, New Haven; and, W. Pierson, Shift Supervisor.

The visit began with our discussing each question and the UNC personnel responding. Their responses to some of the questions indicated they had not actually thought through the details of the inventory operation and would probably improvise as they went along. Examples of such areas were:

1. No plan for draining the "heel" from the dissolver had been devised. Since such draining involved breaking of a flange, a 4 liter bottle could not be used as implied in the procedure. A funnel and pipe apparatus was proposed during the visit and we agreed its use would be satisfactory. This apparatus will be described in the revised procedures.
2. They had indicated as an overall rule that only one bottle would be in a sample area at one time. However, in the procedure for sampling the pulse columns it was obvious that more than one 11 liter bottle would be in the sample area. This will be clarified.



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3. They planned to store 55-gallon drums of solution collected during the inventory without regard to interaction considerations. They will limit the content of each 55-gallon drum to 350 grams U-235 and less than 5 grams U-235/liter.
4. In connection with draining the "heel" from the evaporator they had not developed a complete plan for handling the solution to be drained. The plan developed during the visit is to use a one inch deep tray to collect the solution (the drain point is close to the floor). The tray will not hold more than 4 liters. The solution will be transferred to a 4-liter bottle. The contents of the 4 liter bottle would be transferred to the precipitator prior to refilling the pan.

Following the discussion, a plant tour was made. Each operation was explained to us in detail at the location it would be carried out. This enabled us to actually observe the equipment that would be used and see if any additional questions might be raised. Questions concerning draining the unlined dissolver, 1-J-4, and handling of the organic scum residue on the surface of vessel 1-D-12 resulted from the tour.

During the plant tour, the following conditions were observed which appeared not to be in accordance with the license:

1. Two 55-gallon drums were located in the processing area. One drum, located in front of furnace 1-H-7, was filled with rags and other combustible materials. The second drum, about one-third filled with empty 1-gallon bottles, was located beneath safe geometry tanks 1-D-9. There was no lid on the drum. The application states no unsafe geometry containers would be allowed in the process area.
2. The storage rack described in Section 504.2.1 of their application was never built. Instead the applicant fabricated 10 carts similar to the one described on page 37, TID-7019, and marked off in the floor a grid work with colored tape to indicate the proper storage positions. The use of such carts is not covered in the license.
3. Five 11 liter bottles were stored in the storage area described in Section 504.3 of the application. Storage of 11 liter bottles is not authorized at this location.
4. Sample bottles were stored loose within the storage array described in Section 504.3, not within the specified 5.25" diameter x 12" high steel can as described in the application.
5. In about ten cases, a sample bottle was stored on top of or along side the storage containers described in Sections 504.2.1 and 504.3. Such storage of sample bottles is not authorized.

6. Two outside storage arrays (55-gallon drums containing pickle liquor and contaminated crucibles) located on the north side of the facility were separated by about 2' instead of the required distances given in Section 501, applicant's letter dated February 19, 1964.
7. Containers of special nuclear material bore orange and yellow tags instead of red tags as required by the license for fully enriched uranium. Also, in some cases, the uranium content was not specified. In almost every case the tag was held on using a rubber band, which is not considered an adequate way to attach labels.
8. Approximately 40 1-gallon bottles were stored in two arrays, two rows each, beneath overhead tanks 1-D-9 and 1-D-10 on a minimum of 2' centers. Storage of these bottles on the floor is not authorized. Such storage, however, was established because of the criticality incident.

The above items indicate the licensee was not paying proper attention to the license requirements.

cc: M. M. Mann, REG  
L. Johnson, ML  
L. Dubinski, CO  
C. D. Luke, ML  
R. G. Page, SLR