

JAN 17 1991

Docket No. 70-371  
License No. SNM-368

UNC, Inc.  
UNC Naval Products Division  
ATTN: Mr. Robert Gragg, Director  
Technical Services  
67 Sandy Desert Road  
Uncasville, Connecticut 06382-0981

Gentlemen:

This refers to your application dated June 1, 1990, and supplement dated July 20, 1990, for a license amendment authorizing the Decommissioning Plan for the UNC Naval Products Division.

Our review of your submittals has identified additional information that is needed to complete our review. The enclosures contain comments on specific pages of the Decommissioning Plan and comments on the adequacy of UNC's program for conducting ground water and soil sampling in the leach field. The additional information, specified in the enclosures, should be provided within 30 days of the date of this letter.

If you have any questions regarding this matter, please contact Sean Soong of my staff at (301) 492-0604.

Sincerely,

*Original Signed By: W. Scott Pennington for*

George H. Bidinger, Section Leader  
Uranium Fuel Section  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety, NMSS

Enclosures: As stated

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Docket No. 70-371	PDR	NRC file Center	NMSS R/F
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Request for Additional Information  
Application Dated June 1, 1990, and Supplement Dated July 20, 1990  
UNC, Inc.  
Docket No. 70-371

<u>Page</u>	<u>Comments</u>
1	In Section 2.1.1, "EPA Guideline of 10 mRem/yr" should be changed to "NRC's Below Regulatory Concern dose guideline of 10 mRem/yr and other applicable guidelines."
4	In Section 2.1.2, the special work permit (SWP) for decommissioning activities should contain not only radiation protection requirements but also criticality, chemical, and fire safety requirements, as appropriate. The SWP shall be approved by the Nuclear and Industrial Safety Department. Please revise accordingly.
4 and 5	In Section 2.1.2, reference to Task Instructions 2-1, 4-9, 5-2, 5-14, and 5-15; Manufacturing Procedure MOP-X-048; and Shop Procedure SP-105 should be deleted.
6	<p>In Section 2.1.3, the decontamination activities and task should be performed in accordance with written procedures which incorporate the requirements for nuclear, chemical, and fire safety. Please revise accordingly.</p> <p>Section 2.2 should identify by title, function, and minimum qualifications the positions responsible for decommissioning.</p> <p>In Section 2.3, all workers, including contractors, who perform decontamination activities should complete training prior to initiating decontamination operations. The training should include nuclear, chemical, and fire safety. Please revise accordingly.</p> <p>Section 3.1 should include information related to past operations which resulted in contamination that could have an effect on decontamination safety (e.g., fire in ventilation system). Please revise accordingly.</p> <p>This section should confirm whether the licensed operations ever involved thorium. If it did, the radiological survey plan should be expanded to include the detection of thorium. If thorium contamination is found in the buildings or land, decontamination limits should be established in consultation with the NRC staff.</p>

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Comments

7

Why is waste generation projected into 1992 when the target completion date is given as November 1991? Please explain.

8

In Section 4.0, the final survey should contain the following elements:

All affected areas, i.e., where unclad radioactive materials have been used or the potential for contamination exists, should be surveyed for radioactivity according to the following survey unit.

- (1) 1 m x 1 m grid size should be used for lower surfaces, i.e., floor, walls up to a height of 2 m, and surfaces easily accessible to a surveyor standing on the floor.
- (2) 2 m x 2 m should be used for overhead surfaces, i.e., ceiling, walls more than 2m above the floor, and surfaces not described in (1).
- (3) In solution handling areas, subsurface soil samples should be obtained if the indoor survey result shows floor contamination.
- (4) All underground buried pipes which have potential radioactive contamination should be surveyed, and if contaminated, should be cleaned or removed.

For all unaffected areas, random (statistical) surveys with a larger grid size may be used. Based on plant operations, provide justification as to what areas are unaffected.

Section 4 should address surveys of potentially contaminated drainage pathways, storm drains, and settling ponds.

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Move Figure 2.1.4 to Part II.

A2

UNC reported two background samples by letter dated July 25, 1986, not October 29, 1985, as stated in the Background Sampling Section. Please revise accordingly.

All background samples should be measured for total alpha activity and uranium isotopes U-234, U-235, and U-238. Please revise accordingly.

Page

Comments

Justify background samples taken from locations near the septic field. It appears that samples were taken at locations which might contain surface and/or subsurface contamination.

Surface beta-gamma measurements (last paragraph) are of questionable value because the contaminant was high enriched uranium, which has minimal beta radiation. This commitment may be deleted.

A3 and A4

Each soil and ground water sample should be analyzed for total alpha activity. These samples should be analyzed for U-238, U-235, and U-234 isotopes if the total alpha activity (including background) in the soil and water samples exceed 30 pCi/gm and 15 pCi/l, respectively.

A4

All pipes in fields 1 and 2 should be surveyed. Please revise accordingly.

The septic tank should be confirmed as clean at the same time the leach field status is determined. If the tank is contaminated, the leach field could receive further contaminants after the survey is completed. The plan should address positive actions (e.g., disconnection) to prevent future use of the septic field until decommissioning is completed.

A5

The instrumentation and procedures to be used for obtaining contamination measurements inside the piping and wells should be described. How will the equipment, including  $\mu$ R meters, be calibrated? Please describe.

ADEQUACY OF UNC'S PROGRAM FOR CONDUCTING GROUND  
WATER AND SOIL SAMPLING IN THE LEACH FIELD

The following are comments on UNC's proposed groundwater and soil sampling plan for the septic leach field, at the Naval Products site. Primary emphasis is given to the proposed plan for sampling groundwater, since ORAU has already provided comments on the plan in terms of soil sampling. Some additional comments (besides ORAU's comments) on the plan in terms of the soil sampling are provided; these comments were discussed with ORAU.

UNC's sampling plan was reviewed from the context that they will be only attempting to determine whether or not contamination exists on the site. A more comprehensive monitoring program will be required to characterize the extent of contamination.

Background Sampling

1. Groundwater analysis should be made on samples collected up-gradient hydrologically from the suspected contamination area. Gross alpha concentrations of groundwater samples already collected from "background" boreholes 3 and 4 would appear to indicate that these boreholes are being affected by the source area, because their gross alpha concentrations are higher than what would be expected for ambient conditions. Relying solely upon "background" boreholes 3 and 4 to determine background groundwater concentrations may be inadequate, resulting in false negative (Type II error) conclusions. We suggest that UNC establish and analyze additional background groundwater sampling locations that are clearly hydrologically up-gradient from the source of contamination.
2. The sampling plan states that soil samples will be collected every three feet from the background boreholes; however, the data collected from "background" boreholes 1-4 are in two-foot increments. Two-foot increments also agree with what is stated for samples collected in the field. Accordingly, the plan should be changed to reflect that samples from background boreholes will be collected at two-foot increments.
3. UNC should clarify the location of the two "background" soil samples that were collected in 1985, to clearly show that these samples were taken up-gradient from the source of contamination. No information is provided on the location of these samples. UNC also needs to provide information on whether or not groundwater samples were collected from these locations, and if these soil sampling locations can be used as background groundwater sampling locations.

### Field Sampling

1. The sampling plan indicates that soil samples will be collected at all locations in which the surface reading is above background. "Above background" is defined as those measurements that exceed the mean background level at the 95% confidence level. It appears that what this should say is background will be considered exceeded when the maximum statistical background reading is exceeded; with the maximum statistical background reading being the upper limits of the 95% confidence interval.
2. The sampling plan also states that any locations which are above background due to proximity to fuel handling buildings will not require soil sampling. The term "proximity" is somewhat vague, and should be clearly defined beforehand.

### Both Background and Field Sampling

1. The plan indicates that selected soil samples will be analyzed (in addition to gross alpha) for total uranium, specific isotopes, and radium 226. The criteria for determining how samples will be selected for these additional analyses should be clearly defined beforehand. These additional analyses should not be limited to the soil, but should be extended to include some groundwater samples. It is important that adequate analyses be made on both background and field samples so that some comparisons can be made.
2. No mention is made, within the plan, for analyzing more than one groundwater sample from each well; however, more than one sample should be collected and analyzed to ensure the reliability of the results. Preferably a minimum of four samples should be collected at different time intervals. The time interval should be sufficient, based upon the groundwater velocity, to allow independent samples to be collected. If samples are not collected at different times, replicate samples should be analyzed.
3. Some type of procedure needs to be developed for determining whether or not the groundwater is contaminated; no procedure is stated. A simple comparison of field groundwater concentrations with the statistical maximum background concentration may not be appropriate, if an adequate number of background samples has not be collected. The EPA has proposed a number of procedures which may be appropriate (EPA, 1989). Again, this procedure should be developed beforehand.
4. No information is provided on how groundwater samples will

be collected. Specific sampling procedures should be developed and described, bearing in mind such factors as: the presence of stagnant water in the well, the hydrogeology, and the chemicals being monitored.

Reference:

EPA, 1989. "Statistical Analysis of Ground-Water Monitoring Data at RCRA (Resource Conservation and Recovery Act) Facilities, Interim Final Guidance", EPA/530/SW-89/026, 148p.