



April 6, 1994
ML-94-014

Docket No. 70-1100
License No. SNM-1067

Dr. Sean Soong, Project Manager
Licensing Section 2, Licensing Branch
Division of Fuel Cycle Safety and Safeguards
U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: **Response to Decommissioning Plan Questions (TAC No. L30546)**

Reference: (A) Letter, S. Soong (NRC) to R. E. Sheeran (C-E), dated February 28, 1994

(B) Letter, S. Soong (NRC) to R. E. Sheeran (C-E), dated March 9, 1994

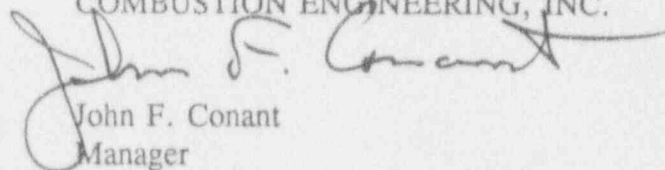
Dear Dr. Soong:

Reference (A), with some clarification provided by Reference (B), requested additional information regarding Combustion Engineering's Decommissioning Plan for its Windsor fuel manufacturing facility. The Enclosure to this letter provides a response for the requested information.

If there are questions or comments regarding this matter, do not hesitate to contact me at (203) 285-5002.

Very truly yours,

COMBUSTION ENGINEERING, INC.


John F. Conant
Manager
Nuclear Materials Licensing

JFC:bf

cc: Mr. J. Noggle (NRC-Region I)

ABB Combustion Engineering Nuclear Power

NFZ

Enclosure I
to ML-94-014

COMBUSTION ENGINEERING, INC.
RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION
WINDSOR DECOMMISSIONING PLAN

APRIL 1994

Responses to NRC Requests for Additional Information About the Windsor
Decommissioning Plan

General Comments

- 1) The only radioactive material routinely processed in the Building 17/21 complex since it began operation is UO_2 . With only minor exceptions, no radioactive material other than UO_2 was present in the complex. On one occasion, a fuel bundle that had been placed in the refueling pool at a customer site was returned for adjustment. Prior to the arrival of that bundle, the bundle room was lined with plastic and secured from normal access. While the work was being performed, access continued to be restricted and personnel exiting the bundle room were monitored appropriately. Upon completion of the work, the bundle room was decontaminated, surveyed, and released. On another occasion, in the mid-1970's, a facility from which CE received fuel at the Building 17/21 complex experienced a problem with Tc-99 contamination in their UF_6 cylinders. The supply facility addressed and rectified the problem promptly. For a brief time period following that incident there was concern that the Tc-99 might have spread to the Building 17/21 complex via the UO_2 fuel receipts that occurred during the time in question. The entire Building 17/21 complex is surveyed on an ongoing, routine basis. Since the time of the aforementioned occurrences, no evidence has been observed to date of the presence of radioactive material other than UO_2 .
- 2) During the preparation of the Final Status Survey section of the Windsor Decommissioning Plan, consideration was given to the area classifications noted. It was decided that rather than formally classifying each area as affected or unaffected, the survey required for each area would be described in detail. This survey, shown in Section 4 of the Windsor Decommissioning Plan, was designed to include appropriate methodology for each area listed commensurate with its use history. These methodologies are consistent with those listed for affected and/or unaffected areas in Section 4.2 of NUREG CR-5849, published in June, 1992.
- 3) The alpha to beta ratio provided in the Decommissioning Plan was derived based on uranium isotopic ratios determined by mass spectroscopy performed on uranium samples taken from the uranium powder and pellet lots processed in the past at the Building 17 fuel manufacturing facility. The ratio used (2.3 to 1) is applicable only to actual uranium samples. It is expected that field measurement ratios will vary greatly with surface texture, cleanliness, and other factors. The ratio was provided in the Plan to indicate that a relationship between the two types of radiations exists for the isotopes of uranium present in the Building 17/21 complex. This ratio may not be applicable under actual field conditions due to the different detection efficiencies of the beta particle emitted from several Uranium progeny. Where such relationships can be qualified and demonstrated, it is intended that Combustion Engineering, Inc. (C-E) will conduct surveys for the radiation that is most appropriate for the conditions that exist at the time of the final status survey.

- 4) It is intended that the results of all the final status survey measurements specified in Section 4 of the Decommissioning Plan will be recorded. As stated in Section 4.3 of the Plan, the measurements will be recorded at the value observed, even if that value is below minimum detectable activity (MDA), to avoid bias. It is further intended that decisions as to which areas require additional remediation will be based on analysis of a complete survey data set for the area in question. Based on these analyses, the area in question will be quantified and remediated as appropriate and the results of the process, both pre- and post-remediation, will be documented for inclusion in the final status survey report.

Specific Comments

- Page 2-16 Section 2.6.2: The Final Status Survey of Building 17 will commence following completion of physical decontamination and remediation activities during the second quarter of 1995. These surveys, along with the Final Status Survey Report that will accompany it, are expected to take approximately six months to complete and are expected to be delivered to the NRC during the fourth quarter of 1995. It should be noted that C-E intends to maintain an ongoing dialogue with the NRC during the project. As such, unanticipated variation from this schedule will be made known to the NRC on a timely basis.
- Page 3-7 Section 3.3.5: The air sampling program will be as stated in the Decommissioning Plan, Section 3.3.5. Air samples used to assign intake will be analyzed promptly when it is likely that the assessed individual's intake will exceed 10 DAC_{hr} in a one week period.
- Page 4-2 Section 4.1: Instrumentation calibration methodologies are contained in the Radiation Protection Procedures (RPP), as is the method of calculating MDA's and determining backgrounds. Those procedures are available for inspection in the Building 17/21 complex RP department. Readings observed in cpm/100 cm² will be converted to dpm by dividing the cpm value by the instrument efficiency. Readings observed in cpm (other unit area) will be corrected to 100 cm² then divided by the instrument efficiency to obtain dpm/100 cm².
- Page 4-3 Table 4-1: The unrestricted release criteria for exposure rates from open land areas will be 10 μ R/hr above background at one meter above the surface.
- Table 4-1 Table 4-1: The limits listed for fixed alpha are for direct measurement and are applicable to the total of both fixed and removable contamination at the point being surveyed.
- Page 4-4 Section 4.2: It is intended that where practical, audible response will be used to enhance the ability of the survey technicians to detect levels greater than background. The techniques used for performing surveys are described more

fully in the RPP documents and are included in training provided to technician performing final status surveys.

- Page 4-7 Figure 4-2: It is intended that surveys taken at the points shown in this figure be placed so as to overlap the molding, ceiling surface, and the joint between the two. In this manner, all potentially contaminated surface types are surveyed, while using the existing molding system as a natural grid demarcation.
- Page 4-8 Section 4.2.4: Given the use history of the Building 17 pellet shop, where the vast majority of high intensity work with uranium was performed at floor level, the likelihood of detecting measurable gamma levels at greater than 2 meters above floor level is low. Should gamma surveys slightly below the 2 meter level indicate that levels in excess of $5 \mu\text{R/hr}$ are present at one meter from surfaces, surveys will be extended upward to an elevation where no levels in excess of that value are discovered.
- Page 4-9 Building 17 roof: This history of the Building 17 roof indicates that there was a small amount of UO_2 contamination deposited in a localized area around the site of a former HEPA filtration unit. The roof surface was replaced in this area following the removal of the contamination source. The replacement involved removing and replacing the felt underlayment, the tar and tar paper layers, and the gravel in the subject area. The roof was, in effect, replaced locally down to the structural gypsum layer. Given the nature of the potential contaminant (UO_2 is not readily soluble in water) and the fact that the roofing surface is impervious to water penetration in any case, the likelihood of that surface being contaminated volumetrically is very low. Additionally, efforts are currently ongoing to complete an analysis of the radiological status of the roof. The results of this analysis will determine future actions that may be required to assure that the Building 17 roof is available for free release for unrestricted use.
- Page 4-12 Sections 4.2.24 - 4.2.26: Remediation activities will be completed within each individual building before the final status survey of that building commences. Based on scoping surveys of the swale areas, these areas do not warrant classification as "affected areas". If the samples described in the Decommissioning Plan indicate the presence of contamination in excess of the values specified in Table 4-1 of the Plan, additional samples will be taken as necessary.
- Page 4-13 Section 4.3: As stated in the Decommissioning Plan, all final status survey results will be reported as observed, even if below MDA. As requested, results greater than the critical value will be clearly marked on the survey reporting forms. The critical value will be defined as results in excess of the values specified in Table 4-1 of the Decommissioning Plan.