ABB
ASEA BROWN BOVERI

October 25, 1990
LD-90-081

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

Mr. Charles J. Haughney, Chief
Fuel Cycle Safety Branch
Division of Industrial
and Medical Nuclear Safety
Office of Nuclear Materials Safety
and Safeguards
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Subject: Windsor Nuclear Fuel Manufacturing Facility
License Amendment Request

Dear Mr. Haughney:

Combustion Engineering requests that the license for its Windsor Nuclear Fuel Manufacturing Facility be amended. The amendment seeks authorization to operate a centrifuge relocated as part of the facility revitalization program.

Enclosure I contains a list of license application pages affected by this request. Enclosure II contains the proposed change pages. Six (6) copies of the enclosures are provided herewith for your use.

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ABB Combustion Engineering Nuclear Power

Combustion Engineering Inc.
1000 Prospect Hill Road
Post Office Box 500
Windsor, Connecticut 06095-0500

Telephone (203) 688-1911
Fax (203) 285-9512
Telex 99297 COMBEN WSOR

NF12

If you have any questions, please contact me or Mr. Chuck Molnar of my staff at (203) 285-5205.

Very truly yours,

COMBUSTION ENGINEERING, INC.

John F. Conant

John F. Conant
Manager
Nuclear Materials Licensing

JFC:CMM:klj

Enclosures: As Stated

cc: J. Roth (NRC - Region I)
S. Soong (NRC)

Enclosure I to
LD-90-081

COMBUSTION ENGINEERING, INC.

WINDSOR NUCLEAR FUEL MANUFACTURING

DOCKET NO. 70-1100, LICENSE NO. SNM-1067

AMENDMENT REQUEST

LIST OF AFFECTED PAGES

OCTOBER, 1990

COMBUSTION ENGINEERING, INC.
WINDSOR NUCLEAR FUEL MANUFACTURING
DOCKET NO. 70-1100, LICENSE NO. SNM-1067
AMENDMENT REQUEST
LIST OF AFFECTED PAGES

Combustion Engineering requests that the license for its Windsor Nuclear Fuel Manufacturing Facility be amended to allow use of a relocated centrifuge within the controlled access area (Pellet Shop). Changes are designated by a bar in the right hand margin of each affected page. The proposed change pages are provided in Enclosure II.

The license application pages affected by this amendment and their respective revision numbers are listed below:

DELETE PAGE			ADD PAGE		
Page No.	Rev.	Date	Page No.	Rev.	Date
I.4-16A	0	8/16/88	I.4-16A	1	10/25/90
II.8-18	5	8/16/88	II.8-18	6	10/25/90
II.8-19	3	8/16/88	II.8-19	4	10/25/90
II.8-20	3	8/16/88	II.8-20	4	10/25/90
-------	-	-------	II.8-44a	0	10/25/90

Enclosure II to
LD-90-081

COMBUSTION ENGINEERING, INC.

WINDSOR NUCLEAR FUEL MANUFACTURING

DOCKET NO. 70-1100, LICENSE NO. SNM-1067

AMENDMENT REQUEST

PROPOSED CHANGE PAGES

OCTOBER, 1990

4.3.20 All storage containers of UO_2 5 gallons or less located outside of hoods or in storage spaces shall be covered. Any storage containers accidentally internally moderated shall be handled as individual mass units and stored in the concrete block storage area.

4.3.21 The UNC-2901 Shipping Containers mounted on the shipping pallet can be opened only one at a time when located in an area free of other fissile material. This area shall be at least 21 ft^2.

4.3.22 The filled press feed hoppers can only be stored or placed in designated areas. Only one filled press feed hopper can be in transit on the pellet shop main floor and one can be in transit on the press feed mezzanine.

4.3.23 The maximum internal volume of the centrifuge shall be 24.0 liters. Other fissile material shall be separated from the centrifuges by at least one foot.

From Figure 1.E.16 of UKAEA Handbook AHSB 1, the critical infinite slab thickness fo 5.0% enrichment fully reflected is about 8 inches for this degree of moderation. Applying the safety factor of 1.2 yields an allowable slab thickness of about 6.7 inches. Accordingly, the rod transfer cart with two 5.5 inches deep boxes is safe as long as the rods are not stacked higher than 6 inches in each box. Carts may be placed alongside each other, or will be spaced a minimum of 1 foot from other fissile material.

8.3.4 Transfer of Material

Material may be transferred on carts which accommodate one mass or slab limited SIU, or may be transferred by hand, one SIU at a time. Carts used for mass limited SIU's shall provide for centering of the unit, and shall measure at least 2.6 feet on a side as specified in Table 4.2.6. Because most spacing areas do not extend beyond the physical boundary of the equipment, spacing between transfer carts and the equipment is of no concern. In cases where the spacing area extends beyond the equipment boundaries, such extends beyond the equipment boundaries, such as the storage facilities, the spacing boundary will be indicated by a colored line. The line may be crossed by carts only when they contain no more than one mass or slab limited SIU, and then only to permit an operator to transfer that SIU to an available storage position.

8.4 Pre-Treatment of Low Level Liquid Wastes

In order to effect a reduction in the quantities of UO2 released to the retention tanks in Building No. 6, low level liquid wastes, consisting of waste water from mop buckets and other liquid cleaning operations in the Pellet Shop are pumped into the liquid waste settling tank, a nearly horizontal slab geometry tank. This tank is part of a closed system consisting of a high efficiency centrifuge and the slab storage tank in the northwest corner of the Annex. Liquid circulates from the storage tank through the centrifuge and back to the tank. This process is continued until the level of contamination is low enough, as determined by sampling, for discharge to the retention tanks in

Building 6. The centrifuge bowl has a capacity of 23 liters. All auxiliary containers (e.g., overflow can and fill tank to closed system) have a capacity of less than or equal to 5 gallons and are spaced at least 12 inches from each other or other containers of fissile material.

The centrifuge is located in an open face hood. The two regions of the hood to the right and left of the centrifuge are mass limited stations employed for cleaning of the centrifuge and processing of waste solids. The critical volume for water reflected optimally moderated 5.0 wt% U-235 is 31.0 liters based on Figure I.D.10 of UKAEA AHSB Handbook 1. Applying a safety factor of 1.3 results in a safe reflected volume of 24 liters. Since the centrifuge has a capacity of 23 liters, the centrifuge is considered a safe unit. The centrifuge is cleaned periodically, as necessary, to permit continued operation.

The slab storage tank is 4 inches thick and supported in a nearly horizontal plane approximately 4 feet off the floor. The square container has a mesh barrier around it so as to prevent any significant moderator material from approaching either slab face. Consequently, the slab storage tank is a safe, partially reflected container. Solids from the centrifuge are placed in safe geometry containers, dried in an oven within the hood, and then stored elsewhere for further disposition. Dirty scrap is handled under the SIU mass limits defined in Chapter 4 of Part I. Figure 8.14 shows the geometry of the centrifuge components.

8.5 Rod Loading and Assembly Fabrication

8.5.1 Pellet Stacking

Pellets from the pellet fabrication facility, or from outside vendors are placed on a table where they are aligned for rod loading. On the table, the pellet configuration is limited to the slab limit as specified in Table 4.2.5. The UO2 pellets are placed on troughs one pellet high before being loaded into rods.

8.5.2 Rod Loading and Fuel Rod Transport Carts

Pellets are transferred from the stacking troughs into rods. The loaded rods are placed into carts each of which can hold up to 250 fuel rods in parallel sleeves which are spaced on four rings in an annular fixture with an I.D. of approximately 10 inches and an O.D. of approximately 22 inches. Guard rails prevent the carts from coming any closer than 3 feet center-to-center. The carts are used in normally dry areas to transfer the rods to operations which include end plug welding, weld deflashing and leak testing. The welding and deflashing operations are performed on one rod at a time. The leak testing operation is performed on two rods at a time. Welded and deflashed rods are immediately returned to the cart after each step is completed. Finished rods are fluoroscoped and are checked for enrichment with a maximum slab limit as specified in Table 4.2.5.

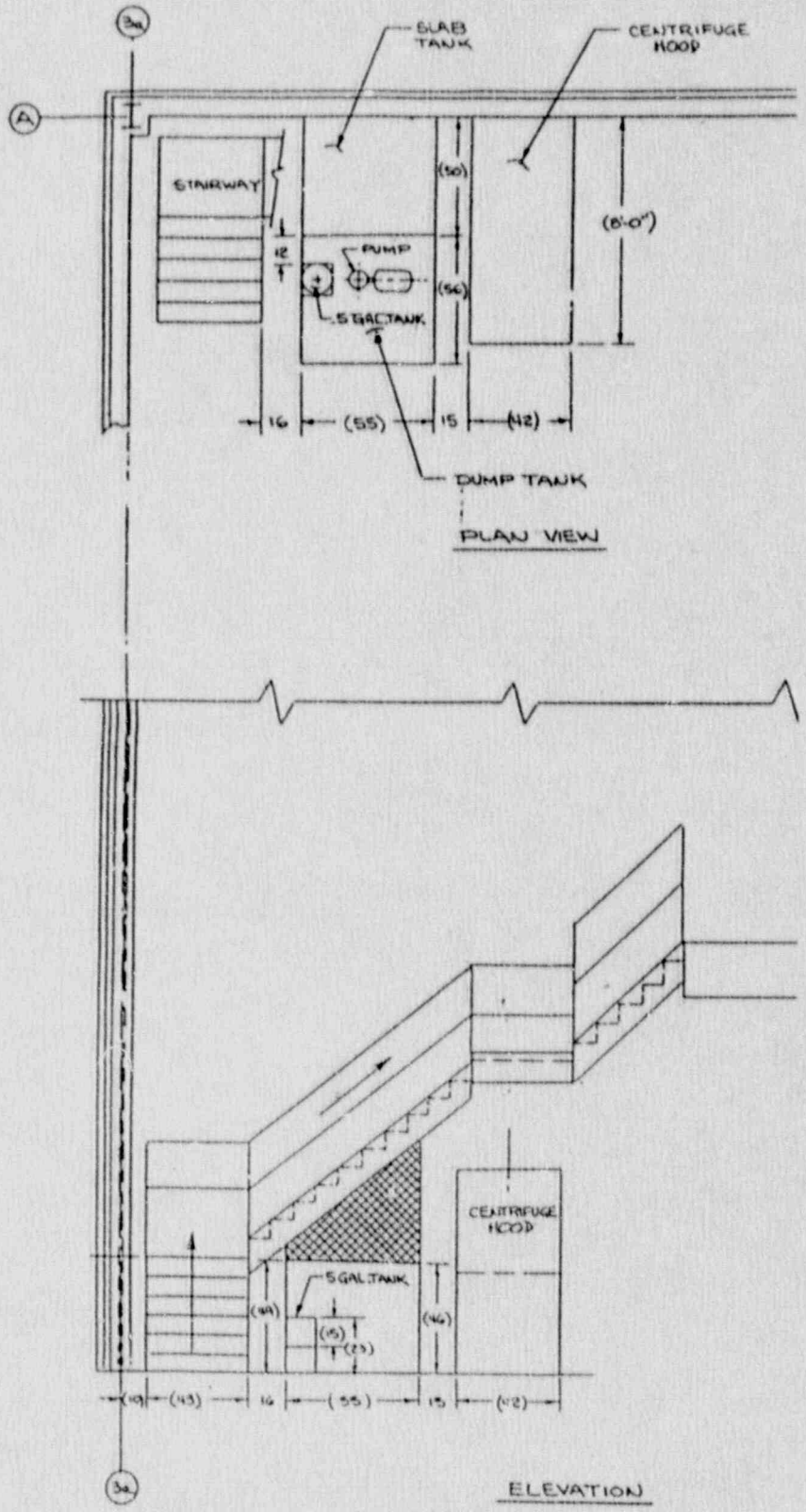
SLAB TANK
CENTRIFUGE HOOD
STAIRWAY
PUMP
5 GAL TANK
DUMP TANK
PLAN VIEW
ELEVATION

Figure 8.14