March 15, 1982

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Docket No.: 50-537

Mr. John R. Longenecker
Licensing and Environmental Coordination
Clinch River Breeder Reactor Plant
U. S. Department of Energy, NE-561
Washington, D.C. 20545

Dear Mr. Longenecker:

SUBJECT: CLINCH RIVER BREEDER REACTOR PLANT, REQUEST FOR ADDITIONAL INFORMATION

As a result of our review of your application for a construction permit for the Clinch River Breeder Reactor Plant, we find that we need additional information in the area of Auxiliary Systems. Please provide your final responses by May 15, 1982.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

If you desire any discussion or clarification of the information requested, please contact R. M. Stark, Project Manager (301) 492-9732.

Sincerely,

Original Signed by
Paul S. Check

Paul S. Check, Director
CRBR Program Office
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: Service List

OFFICE	CRBRPO:NRR	CRBRPO:NRR	CRBRPO:NRR	CRBRPO:NRR			
SURNAME	RStark/bm	CThomas	WFoster	PSCheck			
DATE	3/12/82	3/12/82	3/12/82	3/12/82			

Enclosure

REQUEST FOR ADDITIONAL INFORMATION
CLINCH RIVER BREEDER REACTOR PLANT (CRBRP)

CS 410.1 (3.4.1) Discuss whether failure of nonseismic Category I or non tornado protected water tanks and vessels due to the SSE or design tornado can result in flooding of essential structures, systems and components. If this possibility exists, provide the results of a failure modes and effects analysis that demonstrates that required safety functions, including safe shutdown, will not be compromised by the postulated failures.

CS 410.2 (9.1.4) It is our position that overhead cranes whose failure could damage spent fuel or essential equipment be designed such that in the event of the SSE they can retain control of and hold their load. The bridge and trolley should be designed to remain in place on their respective runways with their wheels prevented from leaving the tracks during the SSE. The bridge should remain on the runway with brakes applied, and the trolley should remain on the crane girders with brakes applied. The crane should be designed and constructed in accordance with Regulatory Position 2 of Regulatory Guide 1.29, "Seismic Design Classification." The maximum critical load plus operational and seismically induced pendulum and swinging load effects on the crane should be considered in the design of the trolley, and they should be added to the trolley weight for the design of the bridge.

For the polar crane, cask handling crane, and other cranes whose failure could damage spent fuel or essential equipment, demonstrate that you meet this position.

CS 410.3 (9.1.4) Provide the results of an analysis which demonstrates that spent fuel and essential equipment will not be damaged by a heavy load drop due to a handling system malfunction. Include consideration of cask handling crane failure resulting in a cask drop, polar crane failure resulting in dropping the heaviest load handled by this crane over essential equipment including the reactor vessel, and other pertinent potential handling system malfunctions. The analysis should satisfy the guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," Section 5 and Appendix A with due consideration for the differences between CRBR and LWR design.

CS 410.4 (9.1.4) Describe the "emergency cooling" process instituted in case of power failure to the fuel transfer port cooling insert blower during core component pot (CCP) transfer. (Reference: Section 9.1.4.7.3)

CS 410.5 (9.6.1) The control room HVAC system can be operated in normal, outside air filtration and total recirculation modes of operation. Provide a tabulation of valve/damper position and equipment status for the control room HVAC system for each of the possible modes of operation.

CS 410.6 (9.6.1) The kitchen and toilet exhaust fans are nonsafety-related. Verify that the ducts leading to these fans are at least seismic Category III. It appears from Figure 9.6-1 that these fans exhaust air from other spaces in addition to the kitchen and toilets. Discuss the consequences of loss of these fans.

CS 410.7 (9.6.1) On a signal of high levels of toxic chemicals or smoke in the control room HVAC intake ducts, the path for outside air supply to the control room will be routed through filter units. Provide the capability of these filters to remove toxic chemicals and products of combustion.

CS 410.8 (9.6.1) On Figure 9.6.3 indicate the interface between the safety-related switchgear room HVAC air intake ducting and the nonsafety-related MG set HVAC subsystem air intake ducting.

CS 410.9 (9.6.1) One exhaust fan is provided for each of the four battery rooms. Verify that the exhaust duct from each battery room is provided with positive air flow indication with annunciation in the control room for loss of flow and instrument failure. Describe the steps that will be taken to prevent hydrogen buildup to a combustible concentration on loss of a battery room exhaust fan.

CS 410.10 (9.6.2) Provide indications on Figures 9.6-4, 9.6-5, 9.6-6 and 9.6-9 to show the location between safety class and nonsafety-class portions of the reactor containment building, containment annulus, Radioactive Argon Processing Subsystem (RAPS) and Cell Atmosphere Processing Subsystem (CAPS) HVAC systems. The means for isolating the essential portions from the nonessential portions should be shown on the figures.

CS 410.11 (9.6.2) Manual valves are provided in the RAPS cells HVAC exhaust ducts. These valves are the only means of isolating a contaminated RAPS cell from the remainder of the HVAC exhaust system. Justify the lack of remotely-operating valves for this isolation function. Discuss the adverse consequences of high radiation levels preventing operation of a manual RAPS cell isolation valve when required by a release of radioactivity to the RAPS cell.

CS 410.12 (9.6.2) (9.6.3) Describe the protection afforded redundant, safety-related components of the reactor containment building HVAC system, annulus filtration system, and reactor service building HVAC system to prevent common mode failures of the components.

CS 410.13 (9.6.3) As shown on Figures 9.6-7 and 9.6.7a, several lengths of reactor service building HVAC system ducting in the "fuel handling accident mode" flow path are not seismic Category I. Justify the lack of a seismic Category I rating for this ducting.

CS 410.14 (9.6.2) (9.6.3) The RAPS and CAPS cells HVAC exhaust system could potentially vent airborne radioactivity from these cells. Justify the lack of a seismic Category I classification for these exhaust ducts and a safety classification of Quality Group C for the exhaust ducts.

CS 410.15 (9.6.3) Radiation monitors are provided in the exhaust ducts of the reactor service building-radwaste area HVAC system. If abnormal radioactivity is detected, the exhaust air is directed to the system's exhaust filter unit and exhausted by an exhaust filter fan to the exhaust vent. Justify the lack of a seismic Category I, Quality Group C classification for the exhaust isolation dampers and the downstream exhaust filtration piping and filter units.

CS 410.16 (9.6.4) The turbine generator building HVAC system is provided with a radiation monitoring system to sample and analyze tritium in the exhaust air released from the building to meet the requirements of 10 CFR 20. Justify the lack of seismic Category I, Quality Group C isolation dampers to contain an excessive release of radioactivity.

CS 410.17 (9.6.6) The primary sodium tank cell unit cooler is not safety grade. Describe the consequences of the loss of this unit cooler.

CS 410.18 (9.7.3) The normal chilled water system is a nonsafety-related system with some seismic Category I piping. Verify that the normal chilled water system piping and equipment which is located in cells containing sodium or NaK piping is designed to seismic Category I criteria.

CS 410.19 (9.7.3) The normal and emergency chilled water systems provide cooling for plant HVAC systems. HVAC units serving areas containing sodium or NaK are provided with drains to carry away chilled water leakage to prevent moisture carry-over in the HVAC ducting. Leak detectors are provided in the drains to detect chilled water system coil failure. Activation of the detector results in automatic closure of the chilled water coil isolation valves. Justify the use of nonsafety-related normal chilled water system piping and valves in HVAC units serving areas containing sodium and NaK.

cc: Dr. Cadet H. Hand, Jr., Director
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