UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 15 1980

Docket No. 50-382

Mr. D. L. Aswell
Vice President, Power Production
Louisiana Power & Light Company
142 Delaronde Street
New Orleans, Louisiana 70174

Dear Mr. Aswell:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION -
WATERFORD STEAM ELECTRIC STATION, UNIT 3

Enclosed are first round requests for additional information which covers those portions of the facility for which the Auxiliary Systems Branch has primary responsibility. These include requests 010.12 thru 010.32.

Your responses to the enclosed requests should be provided not later than September 26, 1980. Please advise us promptly if you are unable to meet this schedule. If you require any clarification of the enclosed requests, please contact the staff's assigned licensing project manager.

Sincerely,

B J Youngblood/for

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

Enclosure:
Request for Additional
Information

cc w/enclosure:
See next page

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Auxiliary Systems Branch
Request for Additional Information
Waterford Steam Electric Station, Unit No. 3
Docket No. 50-382

010.12 (3.6.1) Your response to question 010.3 is not complete. Provide a complete set of legible piping area drawings marked to show the routing of the main steam, main feedwater, emergency feedwater, steam generator blowdown, and chemical and volume control system (charging and letdown) outside containment. These drawings should identify the postulated break locations and should show the relative position of safety related equipment and structures to these high energy lines. In addition, provide a table which identifies the means of protection (i.e. pipe whip restraint, jet impingement barrier, separation, etc.) for safety related equipment at each postulated break location.

010.13 (9.1.1) You state that the new fuel storage racks are designed to maintain a k_{eff} of 0.90 or less assuming a flooded condition. Verify that a k_{eff} of less than 0.98 can be maintained for new fuel of maximum enrichment under optimum moderation conditions (fogging, spray, or small droplets).

010.14 (9.1.4) (RSP) Your response to question 010.6 concerning the containment polar crane is not complete. It is our position that you perform a load drop analysis for the polar crane and provide us with the details of this analysis and the resulting conclusions reached. This analysis should include all loads handled by this crane and an evaluation of the effects of dropping of these loads anywhere along the crane's path of travel where unacceptable damage to reactor coolant system components or fuel could occur. If it cannot be demonstrated that adverse affects to primary system components or fuel will not occur as a result of dropping loads from the containment polar crane, then the crane must be designed in accordance with the guidelines of Branch Technical Position ASB 9-1 or Regulatory Guide 1.104.

010.15 (9.2.2) The seals and bearings of the reactor coolant pumps require continuous cooling by the component cooling water (CCW) system during all modes of operation. Interruption to the cooling may lead to loss of the pump(s) through overheating of the bearings and locking of the rotor(s), or failure of the seals and loss of primary coolant to containment. We note that your CCW system design provides a single supply and return line to and from the four reactor coolant pumps. Therefore, it is our position that the design of that portion of the component cooling water system which supplies cooling water to the reactor coolant pumps be designed to the following criteria:

1. A single failure in the component cooling water system shall not result in fuel damage or damage to the reactor coolant system pressure boundary caused by an extended loss of cooling to the reactor coolant pumps. Single failure includes operator error, spurious actuation of motor-operated valves, and loss of component cooling water pumps.

2. A moderate energy leakage crack or an accident that is initiated from a failure in the component cooling water system shall not result in excessive fuel damage or a breach of the reactor coolant system

pressure boundary when an extended loss of cooling to the reactor coolant pumps occurs. A single active failure shall be considered when evaluating the consequences of the accident. Moderate leakage cracks should be determined in accordance with the guidelines of Branch Technical Position, ASB 3-1 "Protection Against Postulated Failures in Fluid Systems Outside Containment."

To meet the two criteria above, that portion of the component cooling water system which supplies cooling water to the reactor coolant pumps can be designed to non-seismic Categcry I requirements and Quality D if you demonstrate that the reactor coolant pumps are capable to operate with loss of cooling for longer than 30 minutes without loss of function and the need for operator protective action. And, safety grade instrumentation to detect the loss of component cooling water to the reactor coolant pumps and to alarm the operator in the control room is provided. The entire instrumentation system, including audible and visual status indicators for loss of component cooling water should meet the requirements of IEEE Std. 279-1971/1974. Alternately, if it cannot be demonstrated that the reactor coolant pumps will operate longer than 30 minutes without loss of function or operator corrective action, then the design must meet one of the following requirements for the entire component cooling water system:

1. Safety grade instrumentation consistent with the criteria for the protection system shall be provided to initiate automatic protection of the plant. For this case, the component cooling water supply to the

seal and bearing of the pumps may be designed to non-seismic Category I requirements and Quality Group D; or

2. The component cooling water supply to the pumps shall be capable of withstanding a single active failure or a moderate energy crack as defined in our Branch Technical Position ASB 3-1 and be designed to seismic Category I, Quality Group C, and ASME Section III, Class 3 requirements.

010.16 (9.2.2) You indicate that the auxiliary component cooling water (ACCW) pumps and wet cooling towers are required to affect a safe plant shutdown following a transient or accident condition. These pump and cooling tower fans are not always operating. Describe the system design for initiating the ACCW pumps and wet cooling tower fans when they are required following an accident or transient and verify that this signal meets safety grade requirements.

010.17 (9.2.2) Verify that isolation of all non-essential components and portions of the component cooling water system from essential portions of the component cooling water system is accomplished by redundant valves in series inorder to meet single failure criterion or assure that failure to provide isolation of non-seismic lines will not compromise CCW system operation.

010.18 (9.2.5) You indicate that permanent piping is provided from the circulating water system to the wet cooling tower basins to provide makeup water for long term cooling of the plant. This arrangement does not appear on Fig. 9.2-1.

Verify that this piping is seismic Category I or that its failure will not cause loss of the wet cooling tower basin volume.

010.19 (9.2.5) (9.2.2) Your response to Question 010.8 is not complete. You have not fully demonstrated the adequacy of the ultimate heat sink (UHS) to assure a safe plant shutdown in accordance with Regulatory Guide 1.27. Provide the following additional information.

FSAR Section 9.2.2 indicates that the wet cooling towers and auxiliary component cooling water system are required to achieve a safe plant shutdown following an accident or transient. However, in FSAR Section 9.2.5 you indicate that in the event of tornado missile damage to the unprotected wet cooling towers and unprotected portions of the dry cooling towers, the protected 60% of the dry towers will provide sufficient heat removal for a safe shutdown.

a) How is plant safety assured in the event of tornado missile damage to the UHS when 60% of the dry towers are available and a single failure occurs in the emergency power supply to the tower fans?

b) How is a 30-day UHS supply assured without makeup in the event of tornado missile damage to the UHS when the wet cooling tower basin volume has been depleted by use in the emergency feedwater system? Also, under these same circumstances, verify that the component cooling water temperature can be maintained at the maximum allowable design level without makeup over the 30-day period once the wet cooling tower basin volume has been depleted.

If it cannot be demonstrated that a safe plant shutdown can be accomplished assuming tornado missile damage to the UHS, then consideration should be given to providing missile protection for additional portions of the UHS such as grating for the wet cooling tower fans and enclosures for the fan motors.

010.20 (9.3.3) (3.6) Your response to question 010.9 is not complete.

1. Verify that you have provided adequate protection for safety related equipment assuming a total pipe rupture for all non-seismic piping systems and components (such as tanks) located in safety related areas. Such piping systems include the fire protection system and main feedwater system.

2. You have not included the emergency feedwater pumps and spent fuel pool cooling pumps in your moderate energy system flooding analysis (FSAR Section 3.6.A.6). Describe the means provided to assure protection of this equipment in the event of compartment flooding due to pipe breaks or cracks.

010.21 (9.4.1) You indicate that the exhaust duct from the toilet, kitchen and conference room portion of the control room HVAC system is isolated in an emergency situation as ventilation in these areas is not required. Verify that this ductwork up to the second isolation butterfly valve is seismic Category I inorder to assure proper isolation of these rooms and prevent loss of air from the essential control room areas.

010.22 (9.4.1) You indicate that there is no credible way for wind blown airborne radioactive contaminants to enter both control room emergency air intakes simultaneously and further that the control room operator can selectively determine which emergency outside air intake to utilize in the event of exterior contamination. Figure 9.4-1 shows two sets of two butterfly valves in series for isolation purposes on each outside air intake, and each series pair of valves is powered from the same Class 1E emergency supply. Describe how this design will assure isolation of a contaminated emergency air intake and assure a safe control room environment in the event of a single failure in one of the power supplies.

010.23 (9.4.1) Describe the provisions in your design for isolation of the control room upon detection of smoke at one of the normal outside air intakes.

010.24 (9.4.2) You indicate that fuel handling building HVAC system dampers D-35, 36, 37 and 38 are required to provide isolation of portions of the fuel handling building in the event of a fuel handling accident. Verify that these dampers and their associated ductwork is seismic Category I.

010.25 (9.4.2) Describe the provisions in the fuel handling building HVAC design for assuring a proper environment for operation of the spent fuel pool cooling pump when the normal ventilation to this room is isolation in the event of a fuel handling accident.

010.26 (9.4.3) (9.5.1) You indicate that reactor auxiliary building HVAC system valves 3HV-226A, 224A, 217B and 216A and their redundant counterparts are required to provide isolation for the proper functioning of the controlled ventilation area system in an emergency situation. Verify that these valves and their associated ductwork to exhaust fans E-23 is seismic Category I.

0.0.27 (9.4.3) Describe the provisions in the reactor auxiliary building HVAC design for assuring a proper environment for operation of the turbine and motor driven auxiliary feedwater pumps when the normal ventilation to these rooms is isolated during an emergency.

010.28 (9.4.3) Verify that trip of a battery room exhaust fan will alarm in the control room.

010.29 (10.3.2) You have not indicated that the main steam isolation valves (MSIV) are designed to prevent steam flow in either direction. Verify that this feature exists or indicate how the plant design will prevent the uncontrolled blowdown of both steam generators in the event of a main steam line break upstream of one MSIV with a failure of the other MSIV to close.

010.30 (10.3.2) (10.4.9) (RSP) Section 10.3.2 of the FSAR indicates that the main steam supply valves to the emergency feedwater pump turbine are controlled by ac-powered solenoids. Section 10.4.9.2 of the FSAR indicates that these valves are dc-powered. Clarify this discrepancy. In order to meet the diversity of power requirements of Branch Technical Position ASB 10-1, it is our position that these valves be dc-powered.

010.31 (10.3.2) (10.4.7) We note that the main steam and main feedwater isolation valves are located outdoors. Describe the provisions in your plant design which assure proper operation of these valves under adverse weather conditions.

010.32 (10.4.9) Provide a response to our March 10, 1980 letter concerning your emergency feedwater system (EFS) design. This response should include the following:

1. A detailed point-by-point review of your EFS design against Standard Review Plan Section 10.4.9 and Branch Technical Position ASB 10-1.

2. A reliability evaluation similar to that performed for operating plants (refer to Enclosure 1 of the March 10, 1980 letter) and discussed in NUREG-0635.

3. A point-by-point review of your EFS design, technical specifications and operating procedures against the generic short term and long term requirements discussed in the March 10, 1980 letter.

4. An evaluation of the design basis for the EFS flow requirements and verification that your EFS will meet these requirements (refer to Enclosure 2 of the March 10, 1980 letter).