



Carolina Power & Light Company

June 28, 1979

CENTRAL FILES

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SERIAL: GD-79-1641

Mr. James P. O'Reilly, Director  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Suite 3100  
Atlanta, GA 30303

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
LICENSE NO. DPR-23  
DOCKET NO. 50-261  
SUPPLEMENTAL RESPONSE TO IE BULLETIN 79-06A

Dear Mr. O'Reilly:

As a result of further review of the items contained in IE Bulletin 79-06A and our response of April 24, 1979, we find it appropriate to submit the attached supplemental information. The information, in some cases, provides updates of the information contained in the original response, clarification of our intentions with regard to the items in the bulletin, or provides additional commitments for reviews or procedure changes.

I trust this information is suitable for your use.

Yours very truly,

E. E. Utley  
Executive Vice President  
Power Supply and Customer Services

DBW/jnh\*

Attachment

cc: Mr. V. Stello

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CAROLINA POWER & LIGHT COMPANY  
H. B. ROBINSON UNIT NO. 2  
DOCKET NO. 50-264  
SUPPLEMENTAL RESPONSE TO IE BULLETIN 79-06A

June 22, 1979

## Response to Item 2

Carolina Power & Light Company has completed a thorough review of all transient and accident conditions based on insight gained from TMI-2 to (a) assure that action steps specifically warn of potential for voiding with a description of all instrumentation which might provide indication of potential or actual voiding, (b) specifically address operator actions, based on operational modes and instrument indications discussed above, for terminating conditions tending to lead to void formation and (c) provide operators with guidance for enhancing core cooling given the unexpected condition of actual voiding in the primary system.

In accordance with our review and our original response to Item 2 of the NRC IE Bulletin 79-06A, plant procedure EI-1, Incident Involving Reactor Coolant System Depressurization, was revised to specifically address operator actions, based on operational modes, for terminating conditions tending to lead to void formation. Included in this revision were steps for the operator to assure that all automatic ESF equipment operated as required upon either automatic or manual SI initiation, whichever method was used to initiate ESF. Precautions and steps were added to EI-1 to inform the operator to continue to run the reactor coolant pumps and the high pressure coolant injection pumps until stable conditions are reached or the potential for an unsafe plant condition is imminent. These conditions are defined in the procedure and in Item 7 of our responses. A method for reducing RCS temperature and pressure consistent with conditions which prevent exceeding the 50° subcooled temperature curves were added. A reference saturation temperature and 50° subcooled temperature curve along with a list of the minimum indications which the operator should use as a basis for his determinations and operational decisions was added to the plant procedures. In addition to changes to caution the operator of the potential for void formation and actions to eliminate conditions tending to form voids, the procedure was revised to specifically include a section which provides guidance for enhancing core cooling with actual voiding in the primary system. In implementing these changes, the recommendations presented in our response to Item 12 of the NRC IE Bulletin 79-06A were incorporated into the procedure.

In an effort to provide the operator with additional guidance regarding the determination of void formation, EI-1 will be revised to specifically identify the instrumentation and operational aids which the operator may reference to determine if void formation is imminent or if voids are present.

This revision will include, but will not necessarily be limited to, the following example indications:

- Wide-range loop temperature  $\Delta T$ . ( $\Delta T$  excessively high).
- Steam generator pressure (decreasing pressure with increasing void formation in steam generator)

- Nuclear instrumentation (intermediate and source range).  
(abnormal increase in measured neutron levels)
- Incore thermocouples (saturation temperature or greater)

Specific revision to incorporate the above indications into EI-1 will be completed by August 31, 1979.

### Response to Item 3

As indicated in our response of April 24, a modification has been performed and Technical Specification changes approved by the NRC to remove the pressurizer level signal as a safety injection actuation requirement and convert the low pressurizer pressure input to the safety injection initiation to a two-out-of-three logic. In addition to this automatic initiation of safety injection, Emergency Instruction-1 as now written requires, as an immediate operator action, manual initiation of the safety injection signal if automatic initiation of safety injection has not occurred when required.

Response to Item 6

Emergency Instruction-1, Incident Involving Reactor Coolant System Depressurization, does include the relevant indications of an open PORV as well as instruction in accordance with Item 6.b. of IE Bulletin 79-06A. In addition, Abnormal Procedure-19, Malfunction of RCS Pressure Control System, includes relevant indications of an open PORV as well as instructions in accordance with Item 6.b. of Bulletin 79-06A. Thus, adequate instruction is available to the operator to ensure that an open PORV will not go unnoticed and that appropriate actions are taken in the event of an open or stuck-open PORV.

### Response to Item 7

The applicable emergency procedures have been reviewed and they prohibit overriding engineered safety features unless their continued operation would result in an unsafe condition. Specifically, the emergency procedures specify that if the high pressure injection system has actuated because of a low pressure condition, the high pressure injection system must remain in operation until either:

- a. The low head injection system is in operation and flowing for 20 minutes or longer at a rate which would assure stable plant behavior.
- b. The high head injection system has been in operation for 20 minutes and all hot and cold leg temperatures are at least 50°F below the saturation temperature for the existing reactor coolant system pressure.

A curve of temperature versus saturation pressure, including 50°F subcooling, is provided in the Operator's Curve Book. The degree of subcooling beyond 50°F and the time high pressure injection continues and is limited in the procedure by pressure and temperature considerations relative to reactor vessel integrity. Allowance is made in the procedure for stopping the high and low head SI pumps to effect switchover from the injection phase to the recirculation phase. For a small break, the time before this would occur is on the order of hours; switchover would be complete within 10 minutes, which has previously been analyzed and found to be acceptable.

Reactivation of HPI if 50° subcooling cannot be maintained after HPI cutoff has not been specifically provided for in Emergency Instruction-1. This change will be incorporated prior to startup from the current outage to assure compliance with the bulletin.

At least one charging pump is normally in operation to maintain pressurizer level. Operation of the charging pumps is addressed in the plant normal and abnormal operating procedures. It is, therefore, not appropriate to incorporate charging pump operating criteria in the emergency procedures. If a very small break occurs which causes pressure to hang up above the deadhead pressure of the safety injection system, EI-1 provides for the operator to reduce primary system temperatures and pressure by dumping steam from the secondary system; thus, enabling flow to be established by the safety injection system.

Our procedures specify that in the event of a high pressure injection initiation with reactor coolant pumps operating, at least two RCP's shall remain operating for as long as the pumps continue to provide forced flow. RCP operation will only be terminated if forced flow is not maintained or if pump seal or motor destruction is imminent. For example, failure to secure pump operation under such conditions as excessive vibration, cavitation, or loss of component cooling could result in a second area where loss of primary coolant could occur. This would be undesirable.

The above criteria and conditions, with the exception of HPI reactivation, exist in the H. B. Robinson operating and emergency procedures. Continued review of criteria for HPI and RCP operation is being performed as part of the Westinghouse Utility Owners' Group on Three Mile Island. If results of small break analyses or review of procedure guidelines indicate that criteria in these areas should be revised, H. B. Robinson Plant will assess the impact of these revisions on our current emergency procedures and make the appropriate changes.



Response to Items 8 and 10

The Operating Work Permits (OWP's) were described in the response to Item 8 of IE Bulletin 79-06A. These procedures are being completely reviewed to assure that the operability of redundant pieces of equipment in safety-related systems are verified operable prior to the removal of any safety-related component from service consistent with the minimum equipment lists as developed from the Limiting Conditions for Operation presented in the Technical Specification.

The OWP's have been reviewed to assure that all safety-related components are verified operable prior to returning the system/component to its safety-related function/position.

Minimum equipment lists, clearance procedures, and periodic test procedures will be re-reviewed to assure that all equipment is removed from service, returned to service, and maintained out of service consistent with the minimum equipment requirements specified in the LCO's.

The plant valve line-ups, periodic test procedures, overall operating procedures, operating work permits, and minimum equipment lists are currently being reviewed with respect to Item 8 of 79-06A and Item 10 of 79-06A. Complete review, assessment, and modifications of all these procedures will be completed by November 1, 1979.

Locked valves on safety-related systems are maintained, monitored, and operated consistent with the operating procedures (valve line-ups), OWP's and periodic tests. All these procedures are in the process of being reviewed as stated above.

Response to Item 9

The operating modes and procedures for all systems designed to transfer potentially radioactive gases and liquids out of containment have been reviewed to assure that undesired pumping, venting, or other releases of radioactive liquids and gases will not occur inadvertently. To meet the requirements, we reviewed Emergency Instructions, Periodic Tests, and discharge procedures in conjunction with design requirements, logic diagrams, and piping and instrumentation diagrams. Our review confirmed the actuation of the safety injection logic results in a containment isolation signal. Resetting the safety injection signal will not result in the automatic reset of the containment signal. This must be operator actuated. Plant procedures caution the operator to prevent automatic operation of undesired functions when the containment isolation is reset.

In conjunction with the above review, modification to the pressure and vacuum relief valves, as described in our original response to Item 9 of the IE Bulletin 79-06A, was completed during the 1979 refueling outage, and the description of the system isolation and reset is as described above.

System	High Radiation Interlock	Containment Isolation Signal	Operability Assured by Periodic Tests
Containment Purge	Yes	Yes	Yes
Hydrogen Vent	No	No*	Yes
Waste Gas	No	Yes	Yes
(Sump) Dirty Radwaste	No	Yes	Yes
(RCDT) Clean Radwaste	No	Yes	Yes
Steam Generator Blowdown	Yes	Yes	Yes

\*No - Valves are normally shut, fail closed, and instrument air to the valves is isolated.

Response to Item 12

Emergency Instruction-1, Incident Involving Reactor Coolant System Depressurization, now includes procedures and instructions for the removal of hydrogen from the primary coolant system. The information contained in EI-1 was taken from the recommendations provided in our response to Item 12 of IE Bulletin 79-06A submitted on April 24, 1979.