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ACCESSION NBR: 7910230517 DOC. DATE: 79/10/18 NOTARIZED: NO DOCKET #
 FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261
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 RECIP. NAME: EISENHUT, D.G. RECIPIENT AFFILIATION: Division of Operating Reactors

SUBJECT: Discusses followup actions resulting from NRC reviews of TMI-2 incident. Implementation of NUREG-0578 can best be handled within Westinghouse owners group on TMI-2. Forwards commitments to meet NUREG-0578 requirements.

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Carolina Power & Light Company

October 18, 1979

FILE: NG-3514(R)

SERIAL NO.: GD-79-2636

Mr. Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
United States Nuclear Regulatory Commission
Washington, D.C. 20555

H. B. ROBINSON, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23

FOLLOWUP TO REVIEWS REGARDING THE THREE MILE ISLAND UNIT 2 ACCIDENT

Dear Mr. Eisenhut:

On September 13, 1979, you sent a letter to all operating nuclear power plant licensees regarding followup actions resulting from the NRC staff reviews concerning the Three Mile Island Unit 2 accident. Carolina Power & Light Company's (CP&L) response to the actions requested in your letter is addressed in the following information and is applicable to the H. B. Robinson Unit No. 2 plant.

CP&L has been reviewing the relevant material related to short-term lessons learned from the Three Mile Island Unit 2 accident, and has concluded that the issue of NUREG-0578 implementation can best be handled within the framework of the currently existing Westinghouse Owners' Group on TMI-2. The Owner's Group was created specifically to address the issues raised by the TMI-2 accident which are of significance to Westinghouse-designed pressurized water reactors.

Well defined acceptance criteria are required for many of the NUREG-0578 and other recommendations in order to ensure timely implementation. CP&L and the Owners' Group have been working to develop these criteria, and the recent regional and topical clarification meetings and other discussions have been of benefit. Other meetings, however, may be necessary to develop adequate acceptance criteria. This could potentially impact implementation schedules due to hardware availability, as well as, affecting the ability to effectively utilize scheduled plant outages. It is our firm belief that some degree of flexibility in the implementation schedules should be granted for good cause shown. However, within the constraints described above and your stated position on implementation, it is our intent to meet the requirements and schedules set forth in your September 13 letter.

In response to your request that CP&L submit our commitment to meet the requirements of the NUREG-0578 report, as modified and/or supplemented by items (a) through (f) of your letter, and the implementation schedule contained in Enclosure 6 to your letter, we have prepared Enclosure 1 to this letter. In Enclosure 1, the requirements are addressed on an item-by-item basis.

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Following this submittal it may be appropriate for us to meet with you to discuss the details and schedules for NUREG implementation for our facility. A member of our organization will be in contact with you to arrange any meetings that may be determined to be necessary.

Your letter of September 13, 1979 also requests that we commit to comply with each of the requirements of your Enclosure 7 in accordance with the implementation schedules shown in your Enclosure 8. Enclosure 2 to this letter addresses these requirements on an item-by-item basis.

We trust this letter is responsive to your requirements at this time, and stand prepared to provide additional clarification if you so desire.

Yours very truly,



E. E. Utley

Executive Vice President
Power Supply & Customer Services

EEU/jcb

Enclosures

ENCLOSURE 1

CAROLINA POWER & LIGHT COMPANY H. B. ROBINSON UNIT NO. 2 COMMITMENTS TO MEET REQUIREMENTS OF NUREG-0578

This enclosure contains commitments by Carolina Power & Light Company (CP&L) addressing the requirements set forth in NUREG-0578 and items (a) through (f) of Mr. D. G. Eisenhower's letter of September 13, 1979, and the schedules set forth in Enclosure 6 of the same letter. The requirements and schedule will be addressed below on an item-by-item basis to allow ready comparison with the referenced documents.

NUREG-0578 Item 2.1.1 - Emergency Power Supply Requirement

(a) Pressurizer Heater Power Supply

Pressurizer heater backup group "A" contains adequate capacity to maintain natural circulation at hot shutdown, based on calculations provided by the reactor vendor. It is normally powered from 480 volt Bus 1. Following a sustained loss of off-site power, these heaters can be manually transferred to Emergency Bus E1. The procedure which identifies the method for accomplishing this transfer will be reviewed and modified as necessary by January 1, 1980, to reflect the number of heaters which must be transferred and the time frame in which the transfer must be accomplished to maintain natural circulation in the hot shutdown condition.

A review of the motive and control power interfaces between the pressurizer heater backup group "A" and the emergency bus E1 will be conducted by January 1, 1980, to ensure that the interfaces meet safety grade requirements, where applicable.

(b) Pressurizer Power Operated Relief and Block Valves

The power operated relief valves are air operated with control power being supplied from the 125 VDC busses. The associated blocking valves receive motive and control power from motor control center six (MCC6). Therefore, these valves are capable of being powered from the off-site grid or the emergency diesel generators. In addition, the motive and control power supplies for the power operated relief valves are independent of the blocking valve power supplies. Therefore, no modifications are intended and the system meets the intent of the NUREG-0578 position.

(c) Pressurizer Level Indicators

A review of the pressurizer level indication instrumentation has verified that the power supply for this instrumentation is provided from the instrument buses and therefore capable of being supplied from off-site or emergency power sources. Therefore, no modifications are intended and the system meets the intent of the NUREG-0578 position.

NUREG-0578 Item 2.1.2 - Relief and Safety Valve Testing

CP&L is part of the Westinghouse Owners' Group on Three Mile Island. The Owners' Group is working in conjunction with the other PWR owners and the Electric Power Research Institute (EPRI) to develop a program for qualification of relief and safety valves under expected operating conditions, including solid-water and two-phase flow conditions. The program descriptions and schedule for completion will be submitted by the required date of January 1, 1980.

NUREG-0578 Item 2.1.3.a - Direct Indication of Valve Position

The pressurizer power operated relief valve position indication system is a direct position indicator system which uses limit switches as a sensor for valve position and provides for indication and alarm in the control room. Thus, this system meets the requirement of the NUREG-0578 position. The safety relief valves are spring operated relief valves which make use of indirect indication of valve position such as pressure and temperature downstream of these valves. Because of the physical design of these valves, a direct position indication is not presently practical. Therefore, a valve position monitor which senses flow through the valves will be installed. This position monitor will be operational prior to January 1, 1980, subject to the availability of equipment.

NUREG-0578 Items 2.1.3.b - Instrumentation for Inadequate Core Cooling

(a) Procedures and Description of Existing Instrumentation

The Westinghouse Owners' Group, of which CP&L is a member, is performing calculations associated with the definitions and recognition of inadequate core cooling conditions in accordance with Item 2.1.9. A description of the program and relation to this item is found in our response to Item 2.1.9.

(b) Subcooling Meter

Subcooling meters currently available within the industry may require a procurement time in excess of 20 weeks, which is not consistent with the January 1, 1980, implementation date required by the Nuclear Regulatory Commission. If a meter cannot be procured and installed prior to January 1, 1980, the Prodac 250 computer will be used to monitor and record the margin to saturation. Implementation of this computer program is scheduled to be completed prior to January 1, 1980. The necessary curves and other information to allow hand computation of margin to saturation conditions will be provided as a backup measure by January 1, 1980, regardless of the status of the subcooling meters.

(c) Additional Instrumentation to Indicate Inadequate Core Cooling

A description of the program and commitment to meet this item can be found in our response to Item 2.1.9.

NUREG-0578 Item 2.1.4 - Diverse Containment Isolation

The containment isolation signal for the H. B. Robinson Plant is initiated by diverse signals: safety injection and containment pressure. Should the events of TMI occur at the Robinson Plant, the safety injection signal would isolate the containment sump water transfer line, thus preventing the transfer of radioactive water from containment.

Prior to January 1, 1980, all systems which penetrate containment will be identified as essential or non-essential. Those designated as non-essential will be reviewed to ensure that isolation is initiated on a containment isolation signal and that those systems will not automatically unisolate following the removal of the isolation signal. If automatic isolation is not provided, justification for not isolating will be presented to the NRC.

NUREG-0578 Items 2.1.5.a - Dedicated H₂ Control Penetrations

H. B. Robinson Unit 2 makes use of a hydrogen purge system for post-accident combustible gas control of the containment atmosphere. A design review of this purge system is scheduled to be completed prior to January 1, 1980. It is anticipated that the results of this review will verify that the hydrogen purge piping is dedicated solely to purge service, and that single failure criteria and redundancy requirements of GDC 54 and 56 are satisfied where required, and that the piping is properly sized to satisfy the flow requirements of the purge system. Should deficiencies be noted during this design review, a description of necessary modifications will be submitted by January 1, 1980. Following the identification of any design discrepancies, the necessary modifications to correct the discrepancies and an implementation schedule will be developed and submitted to the Nuclear Regulatory Commission for review and concurrence.

NUREG-0578 Item 2.1.5.c - Recombiners

The H. B. Robinson plant does not currently employ hydrogen recombiners for control of hydrogen gas in the containment resulting from zirc-water reactions. As a result, no procedures exist nor are any required for recombiner usage at this time. Should future requirements result in the installation of recombiners, procedures for their use will be provided at that time.

NUREG-0578 Item 2.1.6.a - Systems Integrity for High Radiation

CP&L will define those systems which could contain highly radioactive fluids following a hypothetical accident resulting in severe core damage, and investigate the leaktightness of these systems. Maintenance will be performed to minimize any leakage observed during this investigation, and a program will be developed which will be designed to maintain the designated systems as leakage-free as practicable. The above work will be accomplished prior to January 1, 1980. The results of the leakage determination will be reported to the NRC by January 1, 1980.

NUREG-0578 Item 2.1.6.b - Plant Shielding Review

A review of the shielding requirements in the vicinity of systems outside containment which could contain primary coolant or radioactive gases will be conducted at the H. B. Robinson Plant. This survey has the potential of exceeding the January 1, 1980, completion date presently required by the Nuclear Regulatory Commission. Therefore, our intention is to focus first on those areas which require continuous occupancy or frequent access to bring the plant to a safe shutdown. The survey will then be expanded to include those areas for which access is required during accident recovery. It is presently estimated that this program would be approximately 70% complete by January 1, 1980, and be 100% complete by the end of March.

All modifications which will result from this shielding will be reviewed with the Commission and designed such that a January 1, 1981, implementation date can be met.

NUREG-0578 Item 2.1.7.a - Auto Initiation of Auxiliary Feed

The H. B. Robinson Unit 2 Auxiliary Feed Water System is automatically initiated as a result of the following condition:

- a. Safety injection initiation.
- b. Loss of offsite power.
- c. Loss of two main feedwater pumps.
- d. 2/3 level channels sensing low-low level (15%) on 1/3 steam generator will automatically start both motor driven AFW pumps and open discharge valves.

In addition, 2/3 level channels sensing low-low level (15%) on 2/3 steam generators will automatically start the steam driven AFW pump and open discharge valves.

A review of this system will be conducted to verify the testability of initiating signals, that these signals meet single failure criteria, and that failure of the automatic circuitry will not result in a loss of manual initiation from the control room. Should any discrepancies be identified, the system will be modified such that control grade requirements are achieved by January 1, 1980, and safety grade requirements are achieved by January 1, 1981. Any proposed modifications will be reviewed with the NRC prior to implementation.

NUREG-0578 Item 2.1.7.b - Auxiliary Feed Flow Indication

The H. B. Robinson Unit 2 Auxiliary Feed Water System does not have the capability for accurate measurement of auxiliary feedwater flow. An indication system which meets the requirements of at least control grade will be installed prior to January 1, 1980. This system will be upgraded, if necessary, to safety grade prior to January 1, 1981.

NUREG-0578 Item 2.1.8.a - Post Accident Sampling

In conjunction with the shielding survey of Item 2.1.6.b, Carolina Power & Light Company will evaluate the current sampling procedures and sampling stations to determine what design changes may be necessary to ensure a primary coolant and containment vessel air sample can be quickly obtained without over exposing personnel. A summary of design changes and preliminary implementation schedule will be submitted by January 1, 1980.

In addition, the onsite analysis facilities will be evaluated to determine our capability to perform spectral and chemical analysis of highly radioactive samples. Should our current facilities be insufficient, a change will be proposed to improve our analysis capability by January 1, 1981.

NUREG-0578 Item 2.1.8.b - High Range Radiation Monitors

Prior to January 1, 1980, Carolina Power & Light Company will implement a procedure for estimating noble gas and radioiodine release rates for those cases where existing effluent instrumentation goes off scale.

The installation of in-containment radiation monitors with an upper range of 10^8 rad/hr, and noble gas effluent monitors with upper rate of 10^5 uc/cc (Xe 133) will be procured, if available, and installed prior to January 1, 1981.

NUREG-0578 Item 2.1.8.c - Improved Iodine Instrumentation

Equipment to measure implant airborne Iodine concentrations is currently being sought. Should suitable equipment be available, it will be installed by January 1, 1980.

NUREG-0578 Item 2.1.9 - Transient and Accident Analysis

Analyses of small break loss-of-coolant accidents, symptoms of inadequate core cooling and required actions to restore core cooling, and analysis of transient and accident scenarios including operator actions not previously analyzed are being performed on a generic basis by the Westinghouse Owners' Group, of which CP&L is a member. The small break analyses have been completed and were reported in WCAP-9600, which was submitted to the Bulletins and Orders Task Force by the Owners' Group on June 29, 1979. Incorporated in that report were guidelines that were developed as a result of the small break analyses. These guidelines have been reviewed with the B&O Task Force and will be presented to the Owners' Group utility representatives at a seminar to be held on October 16-19, 1979. Following this seminar, each utility will develop plant specific procedures and train their personnel on the new procedures. It is intended that CP&L's revised procedures and training will be in place by December 31, 1979, in accordance with the requirement in Enclosure 6 to Mr. Eisenhower's letter of September 13.

The work required to address the other two areas -- inadequate core cooling and other transient and accident scenarios -- is being performed in conjunction with the Bulletins and Orders Task Force, including establishment of information requirements to meet the duties specified in Enclosure 6. Analyses related to the definition of inadequate core cooling and guidelines for recognizing the symptoms of inadequate core cooling based on existing plant instrumentation and recovery from such a condition will be provided by October 31. Further work to better define the approaches to inadequate core cooling and recovery operations may be required and will be performed later. It is intended that the guidelines provided by October 31, 1979, will be incorporated into plant procedures and training accomplished by the required date of January 1, 1980.

In the course of performing these analyses and developing companion guidelines, it is possible that a need for additional instrumentation will be identified. Should this occur, we will notify you of our schedule for the procurement and installation of any instrumentation for which a need is identified.

The work related to other transients and accidents contained in Chapter 14 of the H. B. Robinson Unit 2 FSAR will be provided by the required date of January 1, 1980.

The Owners' Group is also providing pretest prediction analysis of the LOFT L3-1 nuclear small break experiment. This analysis will be submitted by the required date of November 15, 1979, in accordance with the schedule established by the B&O Task Force.

ACRS Items - Containment Pressure, Water Level and Hydrogen Monitors

Modifications will be developed and implemented prior to January 1, 1981 to monitor containment conditions during the course of an accident. The conditions which will be monitored will include: containment pressure, minus 5 psig to 3 times design pressure of containment; hydrogen concentration, 0 to 10%; and containment water level, from the bottom of containment to a level equivalent to 500,000 gallons.

H. R. Denton Item - RCS Venting

Means of venting the Reactor Coolant System of noncondensable gases which could interrupt natural or forced circulation flow will be investigated. A system which will meet the requirements established with the NRC will be described by January 1, 1980, such that the system may be implemented by January 1, 1981.

NUREG-0578 Item 2.2.1.a - Shift Supervisor Responsibilities

Prior to January 1, 1980, a management directive will be issued which emphasizes the management responsibility of the Shift Supervisor. This directive will also identify the results of a review of the shift supervisor's administrative duties, and direct that those duties which could detract the shift supervisor from his management responsibility be reassigned to other operations personnel.

In addition, plant procedures will be reviewed and modified as necessary to ensure that the duties, responsibilities and authorities of the shift supervisor and control room operators are properly defined. This review will ensure that the following items are properly addressed:

- a. Delineate the line of command for both administration and operations functions.
- b. Shift supervisor shall maintain the broadest perspective of operating conditions and not become totally involved in any single operation in times of emergency.
- c. The shift supervisor, until properly relieved, shall remain in the control room at all times whenever a site or general emergency has been declared* to direct the activities of control room operators.
- d. Persons authorized to relieve the shift supervisor are identified.
- e. During normal operations, when the shift supervisor is absent from the control room, a control room operator is designated to assume the control room command function. The duties for which this control room operator is responsible shall be clearly specified.

*Clarification of NUREG-0578 item.

NUREG-0578 Item 2.2.1.b - Shift Technical Advisor

CP&L intends to implement the requirement for a shift technical advisor on the schedule outlined in Enclosure 6 to Mr. Eisenhower's letter of September 13. The shift technical advisor will be on duty by January 1, 1980, and full training will be achieved by January 1, 1981. There have been numerous discussions between the NRC staff and licensees on the details of implementing this position. Carolina Power & Light Company is in the process of assessing these discussions and will submit our position on implementation by November 16, 1979.

NUREG-0578 Item 2.2.1.c - Shift Turnover Procedures

The shift turnover procedures are currently being reviewed to ensure that the oncoming shift reviews all critical parameters, allowable limits and technical specification limits for alarming parameters, and a proper alignment check of operating equipment. All revisions which are necessary as a result of this review as well as an administrative program for evaluating the effectiveness of the shift turnover procedures will be implemented by January 1, 1980.

NUREG-0578 Item 2.2.2.a - Control Room Access

Prior to January 1, 1980, an administrative program will be implemented to limit access to the control room to those individuals responsible for the direct operation of the nuclear power plant. This procedure will describe the authority and responsibility of the person charged with limiting access to the control room and the conditions under which access is to be limited.

In addition, procedures which identify the line of command in the control room will be reviewed and revised as necessary to ensure a clear line of command exists for operation of the plant in emergency conditions.

NUREG-0578 Item 2.2.2.b - On Site Technical Support Center

A temporary on-site Technical Support Center will be established prior to January 1, 1980. Drawings which pertain to the as-built conditions and layout of structures, systems, and components will be readily available for use in this center. A voice communications link between this center and the control room as well as between the NRC and the Technical Support Center will be installed.

The requirements for a permanent Technical Support Center are being reviewed in preparation for establishing that center. The requirements for upgrading the Technical Support Center by January 1, 1981 are acknowledged; an implementation schedule will be developed consistent with the January 1, 1981 date.

NUREG-0578 Item 2.2.2.c - On Site Operations Support Center

The location of the Operational Support Center will be identified prior to January 1, 1980. This center will be separate from, but have the capability of establishing voice communications with, the control room. The site emergency plan will be revised to reflect the existence of this center.

ENCLOSURE 2

CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON UNIT NO. 2
COMMITMENT TO MEET NEAR TERM EMERGENCY PREPAREDNESS IMPROVEMENTS

This enclosure contains commitments by Carolina Power & Light Company (CP&L) addressing the requirements and schedules set forth in Enclosures 7 and 8 of Mr. D. G. Eisenhower's letter of September 13, 1979. The items will be addressed below on an item-by-item basis to allow ready comparison with the referenced documents.

Item 1 - Upgrade Emergency Plans

A review of plant emergency plans is underway to determine if changes are needed to bring the plans into compliance with Regulatory Guide 1.101. Any changes identified will be included in the emergency plans by June 30, 1980.

Item 2 - Implement Short Term Actions From NUREG-0578

CP&L's commitments in this area are addressed under NUREG-0578 Items 2.1.8(a), 2.1.8(b) and 2.1.8(c) in Enclosure 1.

Item 3 - Establish Emergency Operations Center

- (a) An Emergency Operations Center and an alternate center for Federal, State and local officials will be designated by June 30, 1980, and communications provided between the plant and the centers.
- (b) Plans are being developed for the Technical Support Center. It is our intent to submit the plans to the NRC by January of 1980 and to have the Technical Support Center operational by January 1, 1981. A temporary Technical Support Center will be established by January 1, 1980. See response to NUREG-0578 item 2.2.2.b in Enclosure 1 for specific commitments.

Item 4 - Improve Offsite Monitoring Capabilities

A review is underway to determine any additional offsite monitoring capability necessary including the placement of additional TLD materials in the environment. Offsite monitoring capability will be improved prior to June 30, 1980.

Item 5 - Adequacy of State/Local Plans

The NRC has reviewed and concurred with the Emergency Plan prepared by the State of South Carolina. We consider the South Carolina plan to be adequate when compared to current criteria. The State has been responsive to necessary changes in the past, and we believe they will be responsive to the upgraded criteria. We will work with the State toward that goal.

Item 6 - Conduct Test Exercises

The Company emergency plan for the Robinson plant is tested on an annual basis. The State of South Carolina has participated in tests at the Robinson Plant and at the Westinghouse Fuel Fabrication Facility in Columbia, South Carolina. The State response was tested including dispatch of their mobile laboratory and personnel to the site to participate with local agencies in offsite actions. The next test of the South Carolina plan is scheduled during October of 1979, in conjunction with a test of the Robinson plan. Joint tests of the Federal, State and local plans along with the Company plan will be scheduled for the Robinson facility within the next five years.