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ACCESSION NBR:8003250492 DOC DATE: 80/03/18 NOTARIZED: NO DOCKET #
 FACIL:50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261
 AUTH.NAME AUTHOR AFFILIATION
 UTLEY,E.E. Carolina Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION
 SCHWENCER,A. Operating Reactors Branch 1

SUBJECT: Responds to NRC 800221 letter re fire protection program.
 Discusses insulation of pipes, portable extinguishers, lube
 oil shielding sys, electrical cable penetrations & fire door
 supervision.

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 TITLE: Fire Protection Information (After Issuance of OP. Lic.)

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MAR 27 1980

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Carolina Power & Light Company

March 18, 1980

File: NG-3514(R)

Serial No.: NO-80-430

Office of Nuclear Reactor Regulation
Attention: Mr. Albert Schwencer, Chief
Operating Reactors Branch No. 1
United States Nuclear Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
FIRE PROTECTION PROGRAM

Dear Mr. Schwencer:

Attached please find Carolina Power & Light Company's (CP&L) response to your letter of February 21, 1980 concerning fire protection at H. B. Robinson Unit No. 2.

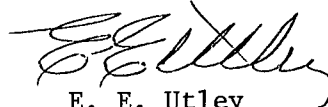
It should be noted that in some cases we have made proposals that we believe are equivalent to your position or adequately address your concern rather than adopt the Staff proposed positions. If you do not find these proposals acceptable, a meeting should be arranged in order to discuss your concerns.

CP&L is committed to providing adequate fire protection measures at H. B. Robinson and is aggressively pursuing the completion of the remaining modifications at the unit. In all cases, it has been our goal to complete these modifications by October 31, 1980. This effort has been hampered by the NRC staff's transmittal of comments, in some cases, two to three years after our proposals were submitted, leaving only eight months prior to our deadline to meet new requirements. These actions have served to place some of our completion schedules in jeopardy. If the October 31, 1980 date is going to be exceeded, we will notify you on a case-by-case basis, and acceptable mitigating action will be proposed for the interim period. The goal of establishing enhanced fire protection capabilities at H. B. Robinson can be best served by your prompt attention to reviewing the attached proposals and our other outstanding submittals, and the establishment of a continuing dialogue between our staffs.

Handwritten: 1006
3/11

If you have any questions on our proposals, please contact our staff. A member of our staff will be in contact with you in the near future concerning the need, if any, for a meeting.

Yours very truly,

A handwritten signature in dark ink, appearing to read "E. E. Utley", with a stylized flourish at the end.

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

JJS/jc (DR-002)
Attachment

cc: Mr. J. D. Neighbors (NRC)

3.1.17 Insulation of Pipes

The NRC staff requested CP&L to provide a copy of heat transfer calculations and quantitative data for the section of "B" diesel generator service water line which is routed through the "A" diesel generator room. This concerns a possible change in thermal properties of the insulating material through the dehydration process.

Response

The heat transfer calculations have been previously provided. The thermal property information is being compiled and will be provided by separate submittal no later than June 1, 1980.

3.1.11 Portable Fire Extinguishers

SER Section 3.1.11 indicated that one 2 1/2 gallon pressurized water portable fire extinguisher would be added in the control room area.

Response

The 2 1/2 gallon pressurized water fire extinguisher was installed in the control room prior to the end of the 1979 Unit No. 2 refueling outage.

3.2.4 Containment General Area

The NRC staff required CP&L to install standpipe and hose stations in containment to provide manual hose coverage for fire hazards therein.

Response

The standpipe and hose stations are currently in the engineering stage. It is CP&L's intent to have the system installed by October 31, 1980. The schedule, however, may be severely impacted by equipment lead times associated with the unique safety-related penetration seal and isolation valve requirements associated with pipes which run into the containment building.

3.1.21 Lube Oil Shielding System

The NRC staff required CP&L to provide, in accordance with their original commitment, the lube oil collection system which meets the following criteria:

- ° The proposed system shall provide a complete enclosure for all potential leakage points, including lift pump and piping, external oil cooler, flanged connection, drain plugs, fill points, upper and lower reservoirs, sight glasses, and overflow lines.
- ° During a safe shutdown earthquake, the effects of the seismic event on the system will not adversely affect plant safety.

- ° Strainers or other means of preventing clogging of drain piping shall be provided.

Response

CP&L will install a fixed fire suppression system in each reactor coolant pump bay in lieu of the previously proposed lube oil spill collection system. This is consistent with the NRC's position as stated in the draft of Appendix R to 10CFR50. The system will provide a means of suppressing fires utilizing automatic detection with manual actuation in the event of a fire due to accidental lube oil leakage. The suppression system will be seismically designed in accordance with the original fire water system criteria. The system will withstand the normal load plus the design basis earthquake load described in the H. B. Robinson Unit No. 2 FSAR; however, the system will not have to remain functional after a seismic event. This suppression system is currently in the engineering phase. It is CP&L's intent to have the system installed by October 31, 1980. As indicated in our response to item 3.2.4, lead times for some unique pieces of equipment may severely impact this schedule.

3.1.24 Electrical Cable Penetrations

The NRC staff requested CP&L to provide additional information pertaining to electrical cable penetration as identified below:

- (1) The results of tests or analyses that will establish the effects, on the fire rating of penetration seals, of the maximum pressure differential a fire barrier in the plant is expected to experience.

- (2) The results of tests or analyses that can establish the fire rating of asymmetric penetration seals in the untested direction.
- (3) The density of ceramic fire insulation, the type and percent fill of cables and the size of conduits used in the test as compared with those in the plant to demonstrate that the test arrangement is representative of the worst case configuration existing in the plant.

Response

To provide the information requested, additional testing and/or research will be required. Therefore, a schedule for providing this information will be provided by separate submittal no later than June 1, 1980.

3.2.2 Fire Door Supervision

The NRC staff required CP&L to conform to the following positions pertaining to fire door supervision:

1. Fire doors shall be self-closing or provided with closing mechanisms, and shall be inspected semi-annually to verify that automatic hold-open, release, and closing mechanisms and latches are operable.

2. One of the following measures shall be provided:

- (a) Fire doors shall be kept closed and electrically supervised at a continuously manned location; or
- (b) Fire doors shall be locked closed and inspected weekly to verify that the doors are in the closed position; or
- (c) Fire doors shall be provided with automatic hold-open and release mechanisms and inspected daily to verify that doorways are free of obstructions; or
- (d) Fire doors shall be kept closed and inspected daily to verify that they are in the closed position.

3. The fire brigade commander shall have ready access to keys for any locked fire doors.

4. Areas protected by automatic total flooding, gas suppression systems shall have electrically supervised self-closing fire doors.

Response

1. All fire doors are self-closing or are provided with closing mechanisms. The doors will be inspected semi-annually to verify that all components are operable. This inspection will be in effect by October 31, 1980.

2. All fire doors will be kept closed and inspected daily to verify that they are in the closed position. This inspection program will be established by October 31, 1980.
3. Only three fire doors out of twenty-eight are locked, and these are locked for security reasons. The fire brigade leader has ready access to the keys for these doors through established plant procedures.
4. A design is being developed to provide for electrical supervision of swinging type fire doors for fire zones protected by total flooding Halon or CO₂ suppression systems. No such supervision will be provided for the rolling fire doors for the diesel generator rooms since these doors are normally held open by weight and pulley systems which are attached to closure devices activated by the fire detection and/or CO₂ suppression systems. It is CP&L's intent to install the electrical supervision by October 31, 1980.

3.2.3 Propane Tank and Piping

The NRC staff required CP&L to make one of the following changes in relation to the propane tank and piping:

1. Replace the propane engine with a diesel engine, or
2. Relocate the propane engine-driven fire pump and associated equipment to a local substantially remote from any safety-related equipment.

Response

The Unit No. 2 propane engine-driven fire pump will be replaced with a diesel engine. The propane tank will be relocated a suitable distance north of the Unit No. 1 intake structure and the propane engine for the Unit No. 1 engine-driven fire pump will be retained. Every effort will be made to accomplish this modification by October 31, 1980. However, the late input requiring this modification coupled with the time required to engineer, procure, and install the modification may severely impact this schedule. In addition, the engine replacement may take place only during an outage.

3.2.5 Containment Penetration Areas (Inside Containment)

The NRC staff required CP&L to provide additional protection in the containment penetration area to preserve the safe shutdown capability and to provide the capability for suppressing fire. This area involves some redundant cables.

Response

A dry standpipe sprinkler system with automatic detection and manual actuation for this area is currently in the engineering phase. It is CP&L's intent to have the system installed by October 31, 1980. However, this schedule may be severely impacted by equipment lead times associated with the unique safety-related penetration seal and isolation valve requirements associated with pipes run into the containment building.

3.2.6 Administrative Control - Evaluation of Incomplete Item

1. The NRC staff required CP&L to remove the Shift Supervisor from the Fire Brigade and the Fire Brigade Leader's duties be assigned to trained and qualified individuals who have a reactor operator's license.

Response

The structure of the Fire Brigade will be amended to remove the Shift Foreman from any brigade duties and to establish a central operator as the Fire Brigade Leader. All appropriate plant documents will be revised to reflect this change. The change will take place at the earliest possible date, but not later than October 31, 1980.

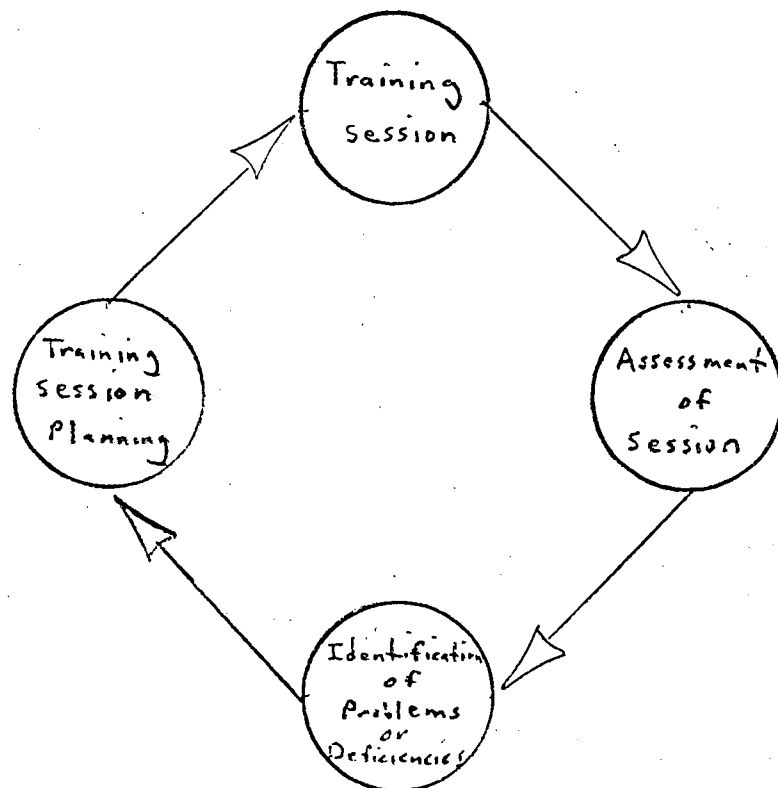
2. The NRC staff required CP&L to commit to perform fire drills at regular intervals, but not to exceed 3 months for "each" fire brigade. At least one drill per year should be performed on a "back shift" for each fire brigade.

Response

Over the last three years CP&L has accrued considerable experience in the area of fire brigade training. The experiences at CP&L have also been discussed with a number of other utilities to determine common problems and to identify satisfactory means of resolving those problems. Based on this experience, the following comments and proposals are forwarded.

- (a) The key to an effective fire brigade is effective training. Such training must consist of two elements - classroom training and field training (practice in a controlled situation). The proper balance between these two types of training as well as the

adequacy of each type training must be assessed periodically. The results of this assessment is then fed back into the training program so that the program may be modified as needed to establish the desired proficiency. This technique will produce a training program which is tailored to meet the needs of the brigade. Additionally, this technique will provide a program which is flexible enough to accommodate the changing needs of the brigade that occur due to change in personnel, changes in equipment, and improvements in fire fighting tactics and strategy. This approach to training is illustrated below:



(b) Training session formats as conducted by the Company, will fall into one of three general types. These types and these purposes are discussed below:

Type 1: This type of training consists solely of a classroom session. The specific means of imparting knowledge to the trainees will vary, however, depending on the subject. These sessions may consist of lecture seminars, group discussions, demonstrations, or hands-on evolutions. The use of audiovisual aids is encouraged. This training format is generally utilized to impart knowledge.

Type 2: This type of training consists of field training as opposed to classroom training. The purpose of this type training is to develop Fire Fighting skills through actual practice. Generally, such sessions consist of a briefing, followed by an exercise, possibly fire fighting, designed to develop the desired skills. Following the completion of the exercise, a summary of the concepts involved and a critique of the trainees' performance is conducted.

Type 3: This type of training is a combination of types 1 and 2 and is designed to present new concepts as well as to practice the techniques required to effectively put these concepts into practice. This type of training would consist of a detailed classroom presentation of a

topic followed by a field exercise in which the theory learned in the classroom can be put into practice. The field exercise would be followed by or include a summary of the theory and a critique of the exercise.

(c) Assessment of the fire brigade knowledge and skills is accomplished in one or more ways depending on what aspect of their abilities is concerned. One means of assessment is by the observation of fire brigade conduct during drills. A drill, as defined by CP&L, consists of an evolution in which the plant fire alarm is sounded, initiating actions by virtually all plant personnel, including contractors. An example of the actions which occur follows:

- (1) Control room operator starts motor-driven fire pump.
- (2) All personnel not assigned fire duties evacuate the affected area.
- (3) Security personnel access doors required for fire brigade use and establish "crowd control".
- (4) Radiation control personnel establish controlled areas for the containment of airborne radioactivity and contamination, as required, and monitor fire fighters.

Such drills can impact the work of hundreds of people and can have a major impact on outage work in progress. As a result, such drills are held relatively infrequently, once per quarter on the average. These drills are utilized not only to assess the fire brigade's effectiveness, but also to identify any deficiencies in total fire response. (e.g. - Did all construction and maintenance personnel evacuate the area? Did security establish crowd control and access appropriate doors? Did radiation control personnel take appropriate action?) Of course, to most accurately determine the type of response to be expected in the event of a fire, the drills are unannounced - only senior plant management personnel are notified in advance. To conduct these drills with the frequency suggested by NRC would result in excessive disruption of plant work and could actually result in reducing the response efforts of both the fire brigade and other personnel. The suggested frequency would result in the fire alarm being sounded at least once every two weeks just for a drill. At this frequency personnel will begin to identify the fire alarm with drills, not with real emergencies and their response to real fires will suffer accordingly (a case of crying 'wolf' too often).

If fire brigade performance alone is to be assessed, we have found that a Type 2 training session as described above is the most effective means. In such sessions, the brigade personnel to be evaluated are assembled, apprised of the "problem" and are then released to respond. Their response is closely evaluated as to both time and technique and a detailed critique is conducted following the evolution. The ability of training personnel to control and observe such an evolution is much enhanced over that in a drill since the response is limited to fire brigade personnel only. It has also been found that due to the similar backgrounds and training of personnel in each brigade, a sampling technique is sufficient to establish the effectiveness of the training program and consequently, the effectiveness of the brigade.

(d) Considering the foregoing, the following program is proposed in lieu of that identified in your letter:

1. Conduct an annual average of one fire drill per quarter. At least one of these drills will be conducted on a "backshift", and the participation of the off-site fire department will be requested for one of the drills.
2. A training session for each fire brigade will be conducted at least once per quarter. An attendance level of at least 80% will be maintained with each individual attending at least 2 sessions per year.

Administrative Controls Continued:

3. The NRC staff required all work requests involving plant systems in safety-related areas should be reviewed by the Plant Fire Chief or an equally qualified individual.

Response

As has previously been indicated to the Commission, all work requests involving plant equipment or systems are reviewed by the Duty Shift Foreman, who authorizes the work to be done. The Shift Foreman is knowledgeable of plant fire protection requirements and general hazards and is cognizant of the need to ensure that adequate fire protection precautions are taken in the performance of the work. In addition, support and guidance to the Shift Foreman in the area of fire protection for a specific job is available from the responsible Fire Protection Specialist.

CP&L feels that the system, as established, is totally adequate to ensure that proper precautions are taken, particularly when this system is viewed in light of our total fire protection program.

As part of our overall program, all responsible supervisors are charged with ensuring that their work areas are maintained and/or conducted in a manner that is conducive to minimizing fire hazards. In addition, our administrative procedures provide for periodic plant tours and inspections by the Fire Protection Staff for the specific purpose of observing work areas and work activities to

ensure that adequate fire protection criteria are being met. Any potential fire hazards identified from these reviews are channeled to appropriate plant supervision for correction. CP&L feels that this procedure is effective and that it provides a higher degree of protection than the mechanism that NRC has recommended. Our basis for this is that our mechanism provides for monitoring work areas for adequate fire protection in a manner that would give consideration to all jobs in a given work area and not concentrate on specific jobs on a case-by-case basis. CP&L feels that there may be many occasions where one specific job alone would not introduce a fire hazard but where several separate and independent jobs proceeding concurrently in an area could present a fire hazard.

4. The NRC staff required CP&L to commit to:

- (a) provide at least annually, practice sessions in actual fire extinguishment using equipment similar to that which would be used in the plant, with a portion of the practice to include the use of breathing apparatus under strenuous conditions;
- (b) hold regular planned meetings every three months, which will repeat the fire brigade members classroom instruction within a two-year period;
- (c) offer training to their off-site fire department personnel in basic radiation hazards and precautions to be taken in a fire involving radioactive materials in the plant; and

- (d) Establish administrative controls to require that all wood used in safety related areas is treated with a flame retardant commercially accepted material, suitable for such applications.

Also the Fire Brigade members' qualifications shall include an annual physical examination for performing strenuous fire fighting activity.

Response

- (a) CP&L will commit to annual practice session in actual fire extinguishment using equipment similar to that used in the plant and a portion of the practice will include the use of breathing apparatus under strenuous conditions.
- (b) We do not feel that requiring that each fire brigade member undergo a quarterly retraining which repeats his initial classroom training within a two-year period will result in a well trained fire brigade. Many of the items covered in the initial classroom training are items which the fire brigade member experiences or comes in contact with during the course of a normal working day (such as types and locations of fire detection and suppression equipment) and do not require repeated refamiliarization. Since the time allocated for fire brigade retraining is limited due to the large demands placed upon plant personnel due to their normal workday requirements, this type of retraining requirements would

result in a stagnant training program.

We do feel that, while some portions of the initial training do need reiteration, what is really necessary is a retraining program which is dynamic and which adds to the skills and knowledge imparted to the fire brigade member during his initial training. This would result in taking a fire brigade which is familiar with only the rudiments of fire fighting and transforming them into a coordinated team knowledgeable in the more advanced methods of fire suppression. We therefore propose a quarterly retraining program which builds on each fire brigade members' initial classroom training and which stresses the refinement of each member's skills. This would fulfill the standards presented in NFPA-27-1976.

- (c) CP&L will offer a health physics introduction course to any member of the local off-site fire departments.
- (d) Applicable portions of the plant procedures will be revised to provide administrative controls require that all wood used in safety related areas of the auxiliary building and containment building will be treated with a flame retardant commercially acceptable material suitable for such applications. Any deviations from this will require approval by the Fire Protection Specialist or approved alternate.

The four commitments above will be implemented by October 31, 1980.

All fire brigade members are now required to take an annual physical to document their ability to wear respirators and check other physical conditions such as the heart. This physical is performed in accordance with NUREG 0041. CP&L feels that this physical fulfills the NRC requirement.

3.2.7 Fire Water Pipe Rupture

The NRC staff required CP&L to provide the result of analyses to demonstrate that fire protection system due to a rupture or inadvertent operation does not impair the capability of safety-related structures, systems or components.

Response

CP&L commits to providing the information requested and will submit it by separate submittal no later than June 1, 1980. This information is now being compiled.

3.2.8 Fire Hose Replacement

The NRC staff required CP&L to replace the existing linen hoses, when they are due for replacement, with mildew-proof, heat resistant 100% polyester single jacket, synthetic rubber lined hoses rated no less than 300 psi by FM/UL label.

Response

CP&L will comply with this position and replace the fire hoses as they come due for replacement. This process is already in progress.

3.2.9 Fire Hydrant Cold Weather Protection

The NRC staff required CP&L to perform semiannual inspections of outside hydrants.

Response

CP&L now complies with this position through performance of periodic test PT-9.0B.