CP&L

Carolina Power & Light Company

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SHEARON HARRIS NUCLEAR PROJECT
P.O. Box 165
New Hill, NC 27562

December 19, 1986

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Dr. J. Nelson Grace
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW (Suite 2900)
Atlanta, Georgia 30323

Dear Dr. Grace:

Carolina Power & Light Company (CP&L) submits information regarding the status of the preoperational test program. Attachment 1 provides a status and safety evaluation of the system preoperational testing or equivalent compensatory measures. Attachment 2 provides proposed license conditions.

If you have any questions, please contact me at your convenience.

Sincerely,

R A Watson

R. A. Watson
Vice President
Harris Nuclear Project

RAW/GAS/cge

Attachment

cc: Messrs. B. C. Buckley (NRC)
G. Maxwell (SHNPP)

IE01

ATTACHMENT 1

SUBJECT: Post-Licensing Preoperational Test Status

The Harris Project has constantly monitored the status of the preoperational test program as it relates to the deferred test status attached to CP&L's letter of September 29, 1986. As you know, these tests were tied to either specific dates or modes when the project believed they would be fully operable. The dates or modes were best estimates at the time and due to equipment malfunction, repairs, etc., that are very typical in the startup of a plant of this magnitude and complexity some of these tests cannot be achieved in the time frame in which they were originally scheduled. None of the tests are safety related and CP&L has taken proactive measures to ensure equivalent means are in place to perform the functions of these systems until they are completely preoperationally tested. The particular systems being addressed in detail are:

1) Secondary Waste Treatment (1-7062-P-01)
2) Solid Waste Processing System (1-7045-P-01,02,03,05)
3) Radiation Monitoring Computer (1-7005-P-03)

These systems have been constructed and are in various stages of preoperational testing. As identified below, sound and proper decisions have been made to provide equivalent system functions. As mentioned previously, none of these systems are safety related and many utilities do not have these systems or features of these systems. The measures taken by CP&L meet the intent of having particular functions available and in no case do they compromise plant safety or endanger the health and safety of the public.

A. Secondary Waste Treatment System

The liquid waste processing system (LWPS) at Harris consists of process equipment and instrumentation necessary to collect, process, monitor, and recycle and/or discharge radioactive liquid wastes.

The LWPS is designed to collect and process wastes based on the origin of the waste in the plant. Liquid waste is processed on a batch basis to permit optimum control of releases. The design parameters of the principal components in the LWPS is composed of the following four subsystems: 1) equipment drain treatment, 2) floor drain treatment, 3) laundry and hot shower treatment, and 4) secondary waste treatment.

The secondary waste treatment system (SWTS) has not yet been completely preoperationally tested. This system consists of the following major system components:

Low conductivity holding tank	3	15,000 gal	NNS
Low conductivity holding tank pump	2	100 gpm	NNS
Secondary waste filter	2	100 gpm	NNS
Secondary waste demineralizer	2	70 ft^3	NNS
Secondary waste sample tank	1	25,000 gal	NNS
Secondary waste sample tank pump	2	100 gpm	NNS
High conductivity holding tank	1	15,000 gal	NNS
High conductivity holding tank pump	1	100 gpm	NNS
Secondary waste evaporator package	2	15 gpm	NNS
Secondary waste concentrate tank	2	4,000 gal	NNS
Secondary waste evaporator concentrate tank pump	2	35 gpm	NNS

These components have been functionally tested. The difficulty in completing the preoperational test is that the secondary waste evaporator package is exhibiting greater-than-normal motion and vibration during testing. The cause of this is not yet determined; however, preliminary engineering investigations suggest the possibility of cavitation in the secondary waste evaporator recirculation pump and jetting of the recirculation stream as it enters the vapor body. It is not known if or to what extent physical modifications may be made to correct these problems. However, it should be noted that the low and high conductivity process streams to the waste process building are in place and function properly.

Low-conductivity wastes such as the backflush from the electromagnetic filters of the steam generator blowdown system, the backwash water from the condensate polishing system, and the industrial waste sumps are collected in the low-conductivity holding tanks. These wastes are filtered and passed through a demineralizer and then collected in the secondary waste sample tanks. From the secondary waste sample tanks, the water is either recycled to the condensate storage tank, discharged to the cooling tower blowdown or recycled back to the low conductivity holding tanks.

The main source of high-conductivity wastes is the regenerant solutions from the condensate polishing system and turbine building acid and caustic sumps. This waste is collected in the high-conductivity holding tank and processed by an evaporator if activity is detected. The evaporator distillate is then discharged to the low-conductivity system upstream of the demineralizer. From the demineralizer, treatment is the same as for the low-conductivity subsystem.

Activity will only be present in the high conductivity process stream if there should be a primary to secondary leak in conjunction with primary fuel clad leakage. Until the engineering evaluation and possible subsequent modifications are made to the evaporator package (which

will allow completion of the preoperational test) the fluid stream could be diverted to the floor drain system (FDS) and processed. The FDS utilizes the four 25,000-gallon storage tanks originally planned to support operation of four Harris units and the evaporators planned to support Units 1 and 2 radwaste floor drain processing. This ensures that we have adequate collection and processing equipment for floor drains from one unit plus any contaminated secondary water that might be collected during this period. The FDS provides the equivalent means of processing and therefore the interim liquid radwaste system will still be capable of reducing liquid radioactive effluents to as-low-as-reasonably-achievable levels in accordance with 10CFR50.34a, Appendix I to 10CFR50 and the Annex to Appendix I. These interim measures will in no way endanger the health and safety of the public and are acceptable based upon the overall capability of the Liquid Waste Management Systems at the SHNPP.

B. Solid Waste Processing System

The solid waste processing system at Harris can appropriately be divided into two separate systems for discussion. One system is designed to process wet solid wastes which consist mainly of demineralizer resins, filter sludges, chemical drain solutions, and evaporator bottoms that contain radioactive materials removed from liquid streams during processing. This system is described in the Harris FSAR, Section 11.4.

This system or an equivalent is required to solidify waste prior to shipment off site for burial. The system consists mainly of two cement drumming stations and two decant stations. The level of effort required to complete and perform the preoperational test of this sytem (in conjunction with plant startup) has considerably exceeded the Harris Plant projection of both manpower and time. The appropriate expertise has been called in to support the plant's efforts and we have dedicated additional resources to support system preoperational testing. System checkout for the cement/decant train covered under 1-7045-P-01 is $\sim$75% complete. Checkout in preparation for P-03 is $\sim$25% complete. We project both of these tests could be completed as early as March 2, 1987, with the lead train (P-01) completed as early as the first part of February 1987.

CP&L has taken responsible compensatory measures to ensure an equivalent means of processing and solidifying waste is available. The plant solidification needs can be handled by outside vendor services until the lead system is complete. Such portable solidification equipment is widely used through the nuclear industry and meets the guidelines of BTP ETSB 11-3 and SRP 11.4.

The other solid waste system is an economy system that reduces the wastes (concentrates them) to a smaller volume, thereby allowing more radioactive waste to be solidified into each drum. This system consists mainly of a Volume Reduction System (VR) and a Polymer Binding System. The industry has had difficulty in getting these systems balanced and fine tuned in relatively short time frames. Since the material handled by these systems is radioactive, CP&L does not wish to prematurely place this system into operation.

As mentioned above, the VR and Polymer Solidification Systems concentrate and solidify waste to allow more waste per drum and therefore reduce shipment and burial site expenses. The waste can be handled (and is handled by most of the industry) utilizing the cement solidification process. The unavailability of the system poses no impact on the health and safety of the public. In summary, the equivalent measures CP&L has instituted for the Solid Waste Management Systems are acceptable. The plant solidification needs can be handled by vendor provided services until these system tests are complete. Vendor hook-up connections at the input to the installed Solid Waste Processing System have been identified and are currently being installed. Additionally, the Harris Plant Process Control Program (PCP) recognized the possible need to use vendor services if equipment was out of service for any reason. This PCP was submitted to and approved by the NRC staff in SSER #3. CP&L currently has contracts in place with vendors to provide these services if they are required before the installed systems are placed into service.

The equivalent measures CP&L has instituted for the Solid Waste Management System is acceptable and meets the requirements of 10CFR20.106, 10CFR50.34(a), and 10CFR71 as well as GDC 60, 63, and 64.

C. Radiation Monitoring Computer

The Radiation Monitoring Computer at Harris has been through an extensive test program. The RM system is computer based and a number of hardware and software problems have been identified and resolved. Currently there is a software problem that occasionally prevents the alarm message to reach each data processor (RM-11). The alarm is properly annunciated at its primary RM-11 but occasionally that information is not always being transferred to the other three RM-11's. CP&L is working with the vendor to overcome this software problem but the cause is not yet known. However, we are taking proactive measures to provide this function by other means. The monitors requiring surveillance per the Technical Specifications are being routed to either RM-11 (1) located in the control room or RM-11 (3) located in the waste process control room as

their primary data processor. A readout from RM-11 (3) is being routed to the control room thus assuring surveillance of the Technical Specification monitors at all times. This interim measure will be in place until the software problem can be corrected. The interim fixes are scheduled to be in place by December 24, 1986. The preoperational test will be conducted with the interim measure in place and the software modification will be tested after it is implemented. The steps being taken by the Harris Project assure the status of detectors required to be operable can be monitored from the control room. This interim fix meets the necessary requirements and will not impact the health and safety of the public.

In summary, CP&L is actively involved in completing checkout and preoperational testing of the above systems. Issuance of a full-power license and continued power ascension testing prior to completion of these tests does not pose any safety concerns.

ATTACHMENT 2
PROPOSED LICENSE CONDITIONS

The Licensees shall complete the preoperational systems testing or have equivalent alternate means to perform the following functions:

1. Processing of potentially radioactive wastes from the secondary plant.

2. Solidification and packaging of radioactive waste in solid form.

3. Completion of the surveillance computer system that monitors the individual radiation monitoring systems.