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August 5, 1981

Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Emergency Procedures and Training for Station
Blackout Events (Generic Letter 81-04)

As requested in the subject letter, an assessment of our existing or planned facility procedures and training programs with respect to the items listed in the subject letter is as follows. Each response is listed in the same order as the inquiry given in the subject letter.

Item A

The actions necessary and equipment available to maintain the reactor coolant inventory and heat removal with only DC power available, including consideration of the unavailability of auxiliary systems such as ventilation and component cooling.

Response

In the event of a station blackout with only DC power available, reactor coolant inventory and reactor heat removal would be accomplished utilizing the core spray system and the isolation condensers, respectively. A connection between the core spray system and the station diesel driven fire pumps allows for the addition of water to the reactor by manually operating valves in the core spray system. Heat removal from the reactor is accomplished through the isolation condensers utilizing the diesel driven fire pumps to add makeup water to the shell side of the condensers. Reactor water circulates via natural circulation through the core region and the tube side of the isolation condensers. None of the equipment mentioned above requires any auxiliary AC powered systems or components. Existing procedures adequately address these evolutions and an operator review, which is documented, of these procedures is required on a yearly basis. Additionally, each licensed operator attends simulator training once per year.

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Response (Continued)

The 1980 program for this training was revised to include a total loss of electrical power with failure of the diesel generators control manipulation. During this simulation, the operator had no AC electrical power available and was required to rely on other cooling mechanisms. In summary, no further action is deemed necessary for this item.

Item b

The estimated time available to restore AC power and its basis.

Response

With regard to maintenance of adequate reactor coolant inventory and heat sink, the estimated time available to restore AC power is based on the reactor being isolated, no break in the reactor coolant pressure boundary, and utilization of the isolation condenser as the heat sink with the fire protection system providing makeup to the shell side. The plant could be maintained in a safe condition without AC power on the order of days or weeks since fuel to the diesel driven fire pumps could be made up manually and the water source to these pumps is essentially limitless.

There are other considerations related to safe shutdown which are not addressed by Generic Letter 81-04. These additional concerns are as follows:

1. With the loss of AC power, the heat sink for the primary containment is lost. Since calculational methods to determine the amount of containment temperature rise and rate have not been utilized to date to determine if a legitimate concern exists related to containment and systems affected by containment temperature, no estimate is available at this time as to the time the plant can be without AC power with regard to containment temperature. Currently, we are evaluating the need for further study in this area.

2. License limits exist for the control of the spent fuel pool water temperature below 125°F. With the loss of AC power, cooling capability for the spent fuel pool is lost. The time to reach the maximum temperature of 212°F was determined to be 9 to 15 hours as submitted in Amendment 78, Addendum No. 2 to Supplement No. 1 Furthermore, other information presented indicated a capability of the fuel pool to withstand the maximum temperature gradient across the floor slab for a period of 15 hours. Therefore, a limitation of 9 hours without AC power would be conservative. An emergency procedure for providing operator instructions in the event of a loss of spent fuel pool cooling does not exist. This procedure will be drafted consistent with our schedule for emergency procedure changes as a result of Item I.C.1, NUREG 0737.

Item c

The actions for restoring offsite AC power in the event of a loss of the grid.

Response

Actions for restoring offsite AC power in the event of a loss of the grid are contained within the "Jersey Central Power & Light Black Start Plan". The actions necessary to restore the grid are carried out by Jersey Central Systems Operations personnel. Training is conducted by periodic drills, monthly, utilizing the plan as a guideline for simulating the restoration of the grid. The plan is in the process of review considering other options that may be available due to modifications taking place on the 230 KV system. At the completion of the revision to the plan, further training of plant operations personnel will take place to acquaint them with the responsibilities of system operations personnel should a station blackout event occur.

Item d

The actions for restoring offsite AC power when its loss is due to postulated onsite equipment failures.

Response

In reviewing the station procedures pertaining to restoring AC power when its loss is due to postulated onsite equipment failures, it was determined that some deficiencies do exist. These are as follows:

1. Loss of onsite power for reasons other than loss of the 230 KV system is not adequately addressed in the station procedures. Additional steps should be provided to give the operator the option to backfeed the main transformer(s) after removing the links from the 24 KV bus from the generator, if this is found to be a viable option.

2. Procedures do not address a double failure; for example, loss of both 1A and 1B buses or loss of 1C and 1D buses. These would all look like a loss of offsite power.

3. No procedures exist which address the simultaneous loss of companion unit substations; for example, 1A2 and 1B2. This would appear as a loss of offsite power to the unit subs and the motor control centers which they feed.

Improvements can be made to existing procedures to provide the operator with solutions to onsite equipment failures which appear as loss of offsite power at their particular locations. These improvements will be made consistent with our schedule of revisions to emergency procedures as a result of NUREG 0737, Item I.C.1.

Item e

The actions necessary to restore emergency onsite AC power. The actions required to restart diesel generators should include consideration of loading sequence and the unavailability of AC power.

Response

A review of the procedures addressing the restoration of the diesel generators as an emergency onsite AC power source and additionally the training lesson plan for the diesel generator system was conducted. The diesel generator operating procedure adequately addresses the options available to the operator to restore emergency onsite AC power and the actions by which the operator would execute them.

Improvements can be made to the existing procedures by utilizing the information available in the training lesson plan with regard to automatic loading sequences with different combinations of events. This will take place within the six month requirement for procedure revision per the subject letter.

Furthermore, the restoration of emergency onsite power considering the unavailability of AC power is also addressed in the procedure for diesel generator operation. Operations personnel are periodically trained in diesel generator operation including a walkthrough of the manual operation of the diesel generators in our equipment operator training program.

Item f

Consideration of the availability of emergency lighting, and any actions required to provide such lighting, in equipment areas where operator or maintenance actions may be necessary.

Response

The existing procedures address those components which would have to be operated should a station blackout event occur. Emergency lighting will be provided on each elevation of the reactor building where components need to be operated or monitored. This is being accomplished in conjunction with our fire protection plan and will be completed by November 17, 1981. Additionally, portable emergency lighting is available as proposed in our fire protection plan. Location and use of portable emergency lighting is covered in the fire brigade training conducted for operations personnel.

Item g

Precautions to prevent equipment damage during the return to normal operating conditions following restoration of AC power. For example, the limitations and operating sequence requirements which must be followed to restart the reactor coolant pumps following an extended loss of seal injection water should be considered in the recovery procedures.

Response

Present procedures adequately address the prerequisites required to prevent equipment damage during the return to normal operating conditions. This is based on the review of several system operating procedures. The requirements that preclude equipment damage during return to normal operating conditions are contained in the prerequisite precautions and limitations sections of the applicable procedures. Even if not specifically addressed in each procedure, the requirement for filling and venting systems, re-establishing cooling water flow to components requiring it, etc., are items which would normally have to be met to start systems after regaining AC power. The re-start of systems following a station blackout will be factored into the annual review of operating procedures. Training in the use of each of these procedures is conducted during operator license training.

Addressing the deficiencies as noted in the previous reviews of each of the NRC concerns would provide for improved capabilities for the plant to cope with station blackout events.

This submittal represents the results of our review with regard to Generic Letter 81-04 and specifies those actions which are being taken as a result of this review. Should you have any additional questions, please contact Mr. Michael Laggart at (609) 693-6932.

Very truly yours,

Philip R. Clark

Philip R. Clark
Vice President - Nuclear
Jersey Central Power & Light
Executive Vice President -
GPU Nuclear

Signed and sworned to before me this 5th day of August 1981.

Phyllis A. Kabis

Notary Public
PHYLLIS A. KABIS
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Aug. 16, 1984

cc: NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, N. J. 08731