Docket File

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

February 26, 1971

Richard C. DeYoung, Assistant Director for PWRs, DRL
THRU: Charles G. Long, Chief, PWR Project Branch No. 2, DRL

SITE VISIT TO DUKE POWER COMPANY'S OCONEE NUCLEAR STATION,
DOCKET NO. 50-269

Summary

A site visit to examine the installed Oconee Nuclear Station electrical and instrumentation systems related to safety was made February 11 and 12, 1971. An attendance list is enclosed. It had been rescheduled from last November due to delays at the site. Details of the findings have been prepared by the electrical and instrumentation reviewer, Olan Parr. In general, however, there were only a few areas that were considered to warrant corrective action by the applicant. To correct these, the applicant has agreed to:

1. Provide adequate ventilation to both battery spaces in the hydro station battery room.

2. Keep the switchgear house locked.

3. Perform periodic inspection on the redundant batteries and auctioneering diodes associated with operation of the 230 KV switchyard breakers.

4. Perform an evaluation of all safety-related functional devices in the control room to determine if any more safety-related devices have been overlooked (not been properly identified and treated as safety-related items), to take such corrective action as may be warranted and to let DRL and the Compliance Inspector know the results of the evaluation and subsequent corrective actions taken.

5. Block off a temporary steam line upstream from the Unit 1 4160V ESF switchgear.

In addition to the above, although not required to meet our single failure criterion, the applicant informally agreed to investigate the feasibility of rerouting an instrument air line and a floor drain line which pass through one of the two redundant control battery rooms associated with operation of Unit 1.

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OTHER ITEMS OF INTEREST

Estimated Fuel Loading and Commercial Operation Dates

The applicant now expects to be ready to load fuel in July 1971 and achieve commercial operation by October 15, 1971. Based on observations of work in progress and the fact that no pre-startup tests have yet been performed, August or September seems more likely than July for fuel loading.

230 KV Transmission

Three sets of outgoing 230 KV lines have been erected and renamed. The former "North Greenville" lines are now the "Dacus" lines. The adjacent pair of "Central" lines have been renamed "Oconee" and the other pair of "Central" lines have been renamed the "Calhoun" lines. Although the two lines northwest to Jocassee are not scheduled for completion until 1974 the onsite bases for its towers were being prepared during our visit. We also noted that the right-of-way for this line has already been cleared and graded to beyond the 1 mile exclusion area boundary.

500 KV Transmission

Except for grading of the switchyard area, no site work has been completed on the 500 KV transmission system. This system is intended to be available for use with Unit 3.

Control Rod Drive System

We examined the ability to monitor the withdrawal position of each of the 69 control rods in the control room. Two means of display are available (1) a bank of 69 separate panel meters each capable of monitoring either the relative or absolute withdrawal position of one rod, and (2) a CRT display from the plant computer which can also provide either relative or absolute withdrawal position information for all 69 rods.

We observed that the meters display rod positions by groups (after patching) and not by core position (i.e., if a rod is changed from one group to another by reprogramming the patch panel connections, its positions will be read out on a different meter after reprogramming). One must therefore infer core position of that rod from other information.

It was explained (but could not be demonstrated due to state of installation progress) that the CRT display from the plant computer was on the basis of core position, with each readout being numbered 1 through 69. It was further stated that the wiring from each of the 69 absolute position indicators (reed switches mounted on the control rod drive assembly housing and magnetically activated by actual control rod drive mechanism movement) and from each of the 69 relative position source points (a pulse-stepping motor which is stepped only by the particular dc pulses which drive a particular control rod drive mechanism) are "hardwired" direct to the computer which provides the CRT output display in the control room.

Based on our observations and knowledge of this system, it therefore appears that the control room operator will know control rod withdrawal position based on core position independent of reprogramming activities in the patch panel. One area of concern remains, however. The "hardwire" connections for both relative and absolute indications are disturbed every time the reactor head is removed. To remove the head all power and instrumentation cables to all 69 rod drives are disconnected. This is a potential problem area that we need to examine further to be sure that adequate precautions can and will be taken to prevent or detect, and correct errors in reconnecting these cables.

Cranes and Hoists in the Reactor Building

There are two features of load handling equipment which are not properly covered in the FSAR. The FSAR (Figure 9-11 & pp 9-36, 37) shows a polar crane, a main (two-hoist) fuel handling bridge and an auxiliary (one-hoist) fuel handling bridge.

Actually there are two identical two-hoist fuel handling bridges and a control rod drive housing handling bridge and a polar crane. The applicant stated that the two fuel handling bridges are identical to permit continued refueling operations in the event one bridge should break down. The (new to us) rod drive housing handling bridge, mounted atop the two steam generator compartment inboard walls, is intended to be used to remove an individual control rod drive housing without removing the reactor pressure vessel head. I indicated that the FSAR should be corrected to show the actual equipment being installed and that the Tech Specs on fuel handling will have to place restrictions on the use of this bridge as well as on the use of the polar crane.

Minimum Dilution Flow

Seepage from the base of the Keowee Dam (with Lake Keowee now at spillway level) was essientially nonexistent. From inside the scroll of one of the hydro units, the leakage into the tunnel from Lake Keowee was also very small. Given these conditions, it is doubtful that, with the Hydro Station Tunnel dewatered (as it is at present), anything like 30 CFS of dilution water will be available to the tailrace for mixing with radioactive waste discharge unless the emergency discharge conduit is used.

Containment Auxiliary Ventilation

An interesting observation inside the reactor building was the distribution of the auxiliary ventilation system ducting (which is not well described in the FSAR). Intake ducts extend the full circumference of the building just below the polar crane rail and additional ducting extends upacross the underside of the dome. In addition, substantial ducting provides cross ventilation just above the refueling canal level. This auxiliary ventilation system is separate from the emergency fan cooler units.

A. Schwencer
PWR Project Branch No. 2
Division of Reactor Licensing

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OCONEE NUCLEAR STATION SITE VISIT

February 11 and 12, 1971

Attendance List

AEC

A. Schwencer, DRL
O. D. Parr, DRL
V. A. Moore, DRS
F. Rosa, DRS
S. H. Hanauer, DR (February 12)
C. Murphy, CO Region II

Duke Power Company (Partial listing)

Bill Parker
Paul Barton
Charles Wylie
Warren Owen
Everett Gladden
Ken Canady
Ed Smith
Ollie Bradham
J. C. Rogers
Carl Price
Bill Foley
Peter Hager
Charles Aycock
Kyle Burris
Jim Hampton

B&W (Partial listing)

George Kulynych
Howard Stevens
E. S. Patterson