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October 8, 1984

Docket Nos. 50-348
50-364

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

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Units 1 and 2
Reactor Coolant Inventory Tracking System (RCITS)

Gentlemen:

The NRC Staff requested during recent telephone conversations that a status of the RCITS procurement and installation schedules be provided. This letter in conjunction with its attachment provides the requested information.

In a letter dated May 11, 1984, Alabama Power Company stated that the remaining technical concerns associated with the RCITS vendors, Technology for Energy Corporation (TEC) and Combustion Engineering (CE), could be resolved in a timely manner. It was also stated that a vendor would be selected and an RCITS system installed within three refueling outages for each unit. Subsequent to the May 11, 1984 letter, an RCITS specification has been developed and issued for competitive bids. Bids were received and a detailed review of the vendor proposals is in progress. This review includes (1) the integration of the RCITS with core exit temperature and the subcooling monitor modifications persuant to Generic Letter 82-28 and Regulatory Guide 1.97, (2) the identification of specific Farley Nuclear Plant/RCITS vendor responsibilities (3) the NSSS vendor information requirements, and (4) the impact on currently planned refueling outage schedules.

A review of the impact on refueling outage schedules for the installation of each vendor's proposed system has recently been completed. It has been determined that selection of the TEC system could result in an implementation schedule of two outages per unit. Such a schedule is consistent with Alabama Power Company's internal goal to utilize one outage per unit for design walkdowns and one refueling outage per unit for complete system installation. Installation of the CE system could potentially be installed in two outages per unit (one

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outage for walkdowns and one outage for installation); however, the installation outage would be required to be extended approximately eight to nine days. The magnitude of such a refueling outage extension does not appear to be justifiable to Alabama Power Company for the sole purpose of completing this licensing modification. The additional cost of replacement power due to the Farley Nuclear Plant being shutdown an additional nine days is greater than four million dollars for two units. As a result of the unacceptable outage extension necessary to install the CE system in two outages, the CE schedule will require one refueling outage for design walkdowns and one refueling outage with one subsequent outage of sufficient duration (but no later than the next refueling outage) for installation.

The review of the installation schedule is only part of the bid evaluation process. An evaluation of the design, operation, maintenance and commercial portions of the proposed vendor systems is currently in progress. Vendor selection is scheduled to be made by October 19, 1984. Since installation of the CE system has been determined to require a longer outage period, a detailed work sequence for the CE system installation is provided herein.

The optimal CE schedule reflects design walkdowns for the Unit 2 third (January 1985) and Unit 1 sixth (April 1985) refueling outages. A majority of the plant modifications (approximately 80%) are scheduled for the Unit 2 fourth (April 1986) and Unit 1 seventh (September 1986) refueling outages. During the modification outages, the following equipment will be installed: main control room processor cabinets, outside containment cable and cable trays, containment penetration modules, cable trays inside containment, and all reactor vessel internals and head modifications including installation of the heated junction thermocouples. It is noted that completion of all modification work associated with the reactor will precipitate a two to three day extension of the outage critical path which will be included in the 1986 refueling outages. The remainder of the system modifications are scheduled to be completed during the first outage of sufficient duration (approximately ten days) but no later than the Unit 2 fifth (September 1987) and the Unit 1 eight (February 1988) refueling outages. Modifications planned for these outages include installation of all containment mineral insulated (MI) cable, and associated seismic cable trays, and the main control board displays. Attached is a more detailed description of the CE RCITS modifications including their effects on the refueling outage critical path.

The safe operation of Farley Nuclear Plant - Units 1 and 2 will not be jeopardized during the interval necessary for the complete system installation of the RCITS. The purpose for the RCITS is to enhance the present emergency response capabilities and not to provide a sole safety function. The Westinghouse Owners Group has submitted emergency

operating guidelines to the NRC for review that include the techniques to be used in lieu of reactor vessel level indication. The existing means to detect inadequate core cooling in lieu of reactor vessel level indication at Farley Nuclear Plant includes utilization of the subcooling margin monitor, pressurizer level instrumentation and core-exit thermocouples.

If there are any questions, please advise.

Yours very truly,

R. P. McDonald

RPM/CJS:ddb-D37
Attachment
cc: Mr. L. B. Long
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

ATTACHMENT

CE RCITS Modification Description

I. During the Unit 2 4th refueling outage and the Unit 1 7th refueling outage, approximately 80 percent of the RCITS equipment and cabling and all of the reactor vessel modifications will be installed. The equipment and cabling to be installed includes the processor cabinet, electronic racks, cable trays outside containment, organic cabling outside containment, cable trays inside containment, electrical penetration modules, Heated Junction Thermocouple (HJTC) probes and extension nozzles.

The CE reactor vessel modifications consist of installing a probe holder support tube into a spare rod cluster control (RCC) guide tube position and modifying a spare control rod drive mechanism to form a penetration in the vessel head for the HJTC probe assemblies.

The probe holder support tubes provide the guidance and support for the HJTC probe assemblies. They are located in two guide path shrouds. The guide path shroud is located in a spare RCC position. The probe holder support tubes are attached to the interior of the guide path shroud structure that is externally identical to an existing RCC guide tube. The probe holder assembly, consisting of the guide path shroud and the probe holder support tube, is installed in the upper core support structure. The probe holder assembly is bolted into place. The probe holder assembly in essence replaces the RCC guide tube and drive shaft. This portion of the RCITS installation would require approximately two to three days on the refueling outage critical path since no fuel could be moved while work was being performed on the upper internals.

Modifications of the reactor vessel head pressure boundary at two spare control rod drive mechanism (CRDM) locations are required to form a pressure boundary for each of the two HJTC probe assemblies. An extension will be placed on the existing nozzle with a quick disconnect "Grayloc" flange on the upper end. The blind flange of the flange set is configured to accept the HJTC probe seal plug and packing rings. At the seal plug external to the pressure boundary, the electrical connection is made between the HJTC probe and the MI cabling external to the pressure boundary. In addition, a guide path sleeve, similar to a bellmouth sleeve, will be placed on the lower end of the CRDM nozzles. This will facilitate the insertion of the HJTC probe into the modified nozzle when placing the head back onto the vessel.

A schematic of the equipment to be installed during the Unit 2 4th and Unit 1 7th refueling outages is shown in Figure 1.

II. During the first outages of sufficient duration after the Unit 2 4th and Unit 1 7th refueling outages, the remaining RCITS equipment and cabling will be installed. The equipment and cabling to be installed include the MI cabling inside containment, removable cable trays above the vessel head, the seismic supports for the cable trays above the vessel head, and the main control board displays.

The cabling from the electrical connector at the top of the HJTC to the electrical penetration is divided into two sections: HJTC cabling and inside containment cabling. The HJTC cabling is MI cable and connects at the electrical connector at the top of the HJTC probe and routes to the pool-side disconnect panel. The inside containment cabling is MI cable and connects at the pool-side disconnect panel and routes to the electrical penetration. The section of cable trays which is above the vessel head will be seismically supported. Field personnel are not familiar with installation of MI cable. This unfamiliarity will require additional time for implementation and any cable rendered unuseable during installation or improperly manufactured must be reordered from the factory. MI cable is a long lead time procurement item and each length must be specifically manufactured (i.e., spare cable lengths cannot be stockpiled). Previous installations of MI cable by inexperienced personnel, even though supervised by Combustion Engineering, has resulted in shorts and electrical interference due to faulty MI cable connections. Approximately 5 to 6 days of outage critical path time would be required for installing the MI cable and seismic supports; therefore, at least a 10 day outage (including shutdown and startup time) would be required to complete the installation of the RCITS system. To avoid operator distraction created by inoperable main control board displays before the RCITS is fully operational, the RCITS displays will be installed during the second installation outage.

Figure 1 shows a schematic routing of the MI cable to be installed during the first outages of sufficient duration after the Unit 2 4th and Unit 1 7th refueling outages.

1. Equipment installed during Unit 2 4th and Unit 1 7th refueling outages (requires 2 to 3 days of critical path time)

2. Equipment installed during outage of sufficient duration following the Unit 2 4th and Unit 1 7th refueling outages (requires 5 to 6 days of critical path time)

Figure 1