

DUKE POWER COMPANY

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February 18, 1983

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

Attention: Ms. E. G. Adensam, Chief  
Licensing Branch No. 4

Re: McGuire Nuclear Station  
Docket No. 50-370

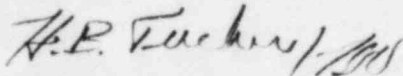
Dear Mr. Denton:

Attached are responses and clarifications to several items that the NRC has requested informally. Items addressed in this letter are:

- 1) B4C Control Rod Surveillance
- 2) Reactor Vessel Nozzle Under Clad Cracking
- 3) Natural Circulation Training
- 4) Steam Generator Modification
- 5) Control Room Design Review

Please advise if there are further questions regarding any of these matters.

Very truly yours,



Hal B. Tucker

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Attachment

cc: Mr. W. T. Orders  
Senior Resident Inspector  
McGuire Nuclear Station

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U. S. Nuclear Regulatory Commission  
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McGuire Nuclear Station - Unit 2  
Licensing Items

1. B<sub>4</sub>C Control Rod Surveillance

The NRC Staff expressed a concern over potential boron leaching from the B<sub>4</sub>C pellets encapsulated in the Unit 2 control rods. A specific request was made for some rod worth measurements on all control rod banks including the shutdown banks. Although the specific technique is still undecided, Duke Power Company will verify reactivity worth on all control rod banks including the shutdown banks during initial physics testing and during startup physics testing following the first refueling shutdown.

2. Reactor Vessel Nozzle Under Clad Cracking

The NRC Staff noted in Supplement 4 to its McGuire Nuclear Station Safety Evaluation Reports that augmented ultrasonic examination for underclad cracking should be performed on the Unit 2 reactor vessel nozzles prior to issuance of an operating license.

Examination of these nozzles was performed on October 1980 by qualified ultrasonic test operators under the supervision of Westinghouse using the same techniques used at Sequoyah and North Anna. Indications noted during the examination were evaluated and it was determined that preservice acceptance criteria of IWB-3500, ASME Section XI, 1977 Edition were met.

3. Natural Circulation Training

In a letter to Duke Power Company dated May 19, 1981, the NRC Staff outlined the Staff position on natural circulation training for licensed operators on the second unit of a two unit station--namely, that a simulator could be used to provide operators with the required training in natural circulation evolutions.

At McGuire, all operators have been trained in natural circulation evolutions as part of license training. This training was given on the McGuire simulator located at the Duke Power Training Center located adjacent to the site. When this training was provided, the McGuire simulator had limited capabilities for simulation of natural circulation events. Specifically, natural circulation could be established, terminated and reestablished but the simulator response was not the same as that observed during the in-plant testing performed on Unit 1.

In December 1982 a new Reactor Coolant System model was incorporated into the simulator. This model significantly improved the capability of the simulator in simulating events involving natural circulation. Critical parameters more closely approximated data obtained from Unit 1 natural circulation testing.

All of the McGuire operators are scheduled to receive requalification training by May 30, 1983. This training will include training on the

simulator to include natural circulation evolutions. It should also be noted that all the McGuire operators are expected to be licensed on both Unit 1 and Unit 2. Most of the operators were involved in the startup of Unit 1 and participated in or observed the natural circulation testing/training evolutions performed on Unit 1. In view of the above, it is concluded that the McGuire operators are well trained in plant evolutions involving natural circulation.

#### 4. Steam Generator Modification

The steam generator preheater modification will be installed in the Unit 2 steam generators as stated in Mr. H. B. Tucker's letter of December 22, 1982, i.e., prior to exceeding 50 percent power. The extent of testing and monitoring to be performed on the modified steam generators will depend in part on the results of the Unit 1 programs. Described below are the preliminary assessments of what actions will be taken on the Unit 2 steam generators relative to the actions specified for the Unit 1 steam generators in Mr. H. B. Tucker's letter of February 3, 1983.

##### --Inlet Pressure Monitoring

Performance of this monitoring on the Unit 2 feedwater system will depend on results from Unit 1 monitoring. If results from Unit 1 show the measured effect of pressure oscillations to be well within the bounds of the analyzed effect, inlet pressure monitoring would not be performed since the piping configuration and feedwater pumps are very similar. Conversely, if the measured effect of these pressure oscillations is only marginally acceptable or unacceptable on Unit 1, then monitoring of the Unit 2 feedwater system would be proposed.

##### --Feedwater System Changes

The same feedwater system changes described for Unit 1 in Mr. H. B. Tucker's letter of February 3, 1983 will be incorporated into McGuire, Unit 2 when the modification is installed.

##### --Visual Inspection

The same visual inspection proposed for Unit 1 will be performed on Unit 2.

##### --Tube Vibration Monitoring

No tube vibration monitoring is planned for the Unit 2 steam generators. Information from the Unit 1 tube vibration monitoring in conjunction with data from other plants with vibration monitoring should provide a sufficient data base for correlation of analytical models and an acceptable level of confidence in manifold performance prior to eddy current testing of tubes.

--Eddy Current Testing (ECT)

During the outage in which the modification is installed, a baseline ECT inspection of the first five rows (45-49) in the preheater of each steam generator will be performed. Subsequent ECT will be the same as described in Mr. H. B. Tucker's letter of February 3, 1983 for Unit 1 steam generators.

--Loose Parts Monitoring

The same loose parts monitoring will be implemented on Unit 2 as described on Unit 1 in the aforementioned February 3, 1983 letter. The only difference is that the monthly operational tests mentioned in the February 3, 1983 letter will be changed to every 18 months. This is consistent with the requirements in the "Proof and Review" copy of the McGuire, Unit 1/Unit 2 Technical Specifications.

5. Control Room Design Review

The Unit 2 control board is essentially the same as the Unit 1 control board. Significant differences from a human factors standpoint that currently exist are as follow:

- 1) Layout of controls on Auxiliary, Feedwater System Control Panel
- 2) Arrangement of two devices on the Chemical and Volume Control System Panel
- 3) Demarcation of four switches on Reactor Control Panel (2MC1)
- 4) Arrangement of two controllers and three switches on the Component Cooling System Panel.
- 5) Arrangement of valve controls on Safety Injection System Panel due to deletion of Boron Injection Tank on Unit 2.
- 6) Sequence of switch positions on some rotary selector switches is different. (Correction of Unit 2 rotary selector switches that vary from stereotypical convention is complete. Unit 1 will be completed by first refueling.)

All of the above differences, except for item 3, are temporary in that action has been initiated to correct them. These differences will not be eliminated by fuel loading; however, the control room operators will have received training in these differences by fuel loading. These differences are the result of layout differences, not in device characteristics.

No new HEDs were discovered on Unit 2 that were not found on Unit 1. The corrective action for the HEDs found on Unit 1 (re: William O. Parker's letter of August 15, 1980 to the NRC) was applied to Unit 2. These corrective actions are either complete for Unit 2 or will be complete by fuel loading. However, the emergency procedure review items identified in the NRC control room review findings on Unit 1 are being handled as part of the emergency procedure upgrade program.

Any corrective action for item 3 above will be taken as a result of the ongoing Control Room Design Review since changes to both Unit 1 and Unit 2 may be required.