

November 3, 1971

Mr. Lawrence D. Low, Director
Division of Compliance
U. S. Atomic Energy Commission
Washington, D. C. 20545

Re: Docket No. 50-250 - Turkey Point Plant, Unit No. 3

Dear Mr. Low:

This is in reply to your letter of August 27, 1971, and confirms the information given to the regulatory staff by our representatives and fuel vendor at a meeting in Bethesda on October 12, 1971, concerning Turkey Point 3 Region 2 fuel.

The following are responses to Enclosure 1 of your letter:

1. Fuel delivered for Unit No. 3 met the applicable specification requirements at the time of manufacture and conformed to the design and performance requirements specified in the Final Safety Analysis Report. The forty-five Region 2 fuel assemblies involved would have been loaded into the reactor if plant construction and licensing had been completed.

Subsequent to the fabrication of Region 2, the vendor changed to a more restrictive fuel pellet specification. The requirements for the tubing, the internal environment within the sealed fuel rod and the completed fuel assembly were not affected. The specification change was made to provide additional limitations which would provide an additional margin of conservatism against the possibility of hydriding of the Zircaloy clad.

2. Under the revised specification the same basic manufacturing process is employed. There was no intent to make the fuel differently. The vendor has found that slight modifications in process parameters facilitate meeting the new specification and has, therefore, incorporated these revised parameters in the process. In addition, process quality control has been modified to allow on-line monitoring to permit more rapid checks and adjustments to the process.

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3. The specification changes were based upon the vendor's interpretation of the relationship between internal fuel pellet hydrogen content and the probability of internal hydriding of the cladding. To date, only two regions of fuel manufactured by the vendor have exhibited any significant degree of fuel leakage, and in both cases the leakage was caused by clad hydriding which the vendor attributes to high internal rod moisture content.

The first case was reported in "A Review of Fuel Rod Integrity at the Ginna Reactor", WCAP-7703. The report provides vendor evaluation of fuel at Ginna. The possible mechanisms which could have caused the leaking rods in Ginna Region 3 fuel have been investigated and the conclusion was reached that cladding breaches were the result of fuel-contained moisture.

The second case involved Region 3 of Beznau 1 and had the same characteristics as the first case. The results of the leak testing and visual examinations conducted at Beznau have been analyzed, and it was concluded that the same mechanism caused the observed cladding breaches.

4. The additional quality checks performed on the upgraded Region 2 fuel confirmed that the pellet hydrogenous content was within the acceptability limits of the revised specification.
5. Fuel for the Mihama Unit No. 1, Point Beach Unit No. 1, and Robinson 2 was fabricated to the same specification as the Turkey Point Region 2 fuel prior to upgrading. Each of these reactors has operated beyond the point where Ginna and Beznau fuel leaks developed without sign of similar behavior. This experience indicates that the more restrictive specification used to upgrade Region 2 will result in satisfactory performance.
6. Slightly different manufacturing process parameters existed during the production of Region 1 and 3 pellets. These parameters produced pellets with the desired properties. The fuel used in the reworked Region 2 fuel assemblies was fabricated using the same process parameters identified with these results.
7. The Florida Power & Light Company believes the upgrading program has improved the fuel reliability and reduced the potential of clad hydriding. The vendor's fuel quality control system has been reviewed and found satisfactory.

Very truly yours,

George Kinsman

George Kinsman
Senior Vice President

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