UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 4, 1979

Dockets Nos. 50-269/270/287

MEMORANDUM FOR: Domenic B. Vassallo, Acting Director, Division of Project Management

FROM: Darrell G. Eisenhut, Acting Director, Division of Operating Reactors

SUBJECT: DOR RESPONSE TO NRC/TMI SPECIAL INQUIRY GROUP (SIG) REQUEST FOR OCONEE STATION OPERATIONAL HISTORY

This memorandum is the DOR portion of the response to the request for information from DeYoung, SIG, to Denton/Stello dated July 24, 1979, enclosed. DOR, after discussion with IE Region II, is responding to those items transferred to DOR by IE referred to in the second part of Item 3 of the SIG request. DPM took responsibility for Items 1 and 2, IE Region II, is responding to the first part of Item 3.

The second part of Item 3 asked for a description of the staff's handling of "significant" events and how the lessons learned from the events were constructively used to prevent future adverse consequences.

All significant events at an operating plant are normally reported to IE through a Licensee Event Report. IE will transfer those events that require licensing action to resolve, and these generally require additional review by DOR. Only three such significant events at Oconee were transferred to DOR: Possible Use of Atypical Weld Wire in Reactor Vessel Welds, Turbine Building Flooding and Steam Generator Tube Failures.

(2 to Vassallo's Secy. info 9/5

We were informed of the atypical weld wire problem through a Part 21 submittal by Babcock & Wilcox to the NRC dated August 4, 1979. Duke contacted IE the same day to report that weld material in the Oconee 3 reactor vessel may be different from the Mill Certifications. IE transferred the review to DOR. We were informed that as many as 12 reactor vessels could be involved that were manufactured by B&W, four in Westinghouse systems, seven in B&W systems and one GE vessel. B&W conducted an investigation of QA records at their plant to determine which vessels had atypical material. The investigation was inconclusive. On August 14, 1978 a generic letter was prepared asking all potentially affected plants to put more conservative heatup and cooldown curves into use. We had previously phoned these plants. By August 23, 1978 all the licensees had responded that B&W, or the NSSS if a non B&W system, had supplied the more conservative curves and that

they were in use. B&W completed an in-reactor irradiation at Crystal River Unit 3 of the atypical material and submitted a preliminary report to NRC. We have concluded that continued operation of these plants is acceptable with the more conservative heatup and cooldown curves in use.

We were informed of the Turbine Building flooding by Licensee Event Report RO-287/76-18 dated October 25, 1976 addressed to OIE, Region II. The event occurred during a main condenser inspection. The discharge water surface is at a higher level than the Turbine Building floor, the condenser manways were opened and a condenser circulating water discharge valve failed open, which resulted in a flooding path. The FSAR had assumed a flood of about 1000 cfs from the condenser circulating intake pipe, which was greater than the actual discharge side flood. The licensee proposed installing protective walls around vital equipment in the Turbine Building and separating the Turbine Building from the Auxiliary Building by waterproofing and sealing the common wall between the buildings. Duke's proposal was submitted in a letter dated April 21, 1977; the proposals were first discussed with the ONRR staff during two meetings in November 1976. Subsequent to Duke's April 21, 1977 letter the modifications were performed under 10 CFR 50.59(a)(1). Duke, in order to reduce the number of vital areas in their Station Security Plan proposed a Safe Shutdown Facility independent of the present shutdown capability. This Safe Shutdown Facility would also serve to get the plant in a safe configuration after either a flooding event or a fire. This facility is currently under construction and should be operable by the end of 1980. This flooding event at Oconee was unique in that the plant had a heat sink water surface at a higher elevation than the Turbine Building floor level. There is an ongoing review of all plants that started as a result of this flood in addition to the generic flood review caused by the event at Quad Cities.

The Oconee Unit No. 1 steam generators suffered recurring leaks that raised quest over continued safe operation of B&W once-through steam generators. One primary concern was how many simultaneous tube failures could be tolerated, say in the event of a main steam line break, and not exceed Part 100 doses at the site boundary. A series of seven Licensee Event Reports dated between October 31, 1976 and April 27, 1978 were submitted by Duke describing 10 tube leaks, tube inspections and tube removal or plugging operations. The first leak reported in October 31, 1976 occurred in SG 1A, the remaining nine leaks occurred in SG 1B. Since April 27, 1978 another LER was submitted by Duke for a SG 1B leak, the LER was dated August 20, 1979. The DOR staff held many meetings with Duke and B&W, sent many formal requests for information and prepared a Safety Evaluation dated October 4, 1977. This SE effected a reduction in the primary to secondary Technical Specification leak limit through a SG tube from 1.0 gpm to 0.3 gpm and found that we understood the mechanism of degradation and rate of degradation so that the SG could continue to operate throughout the inspection interval. Duke submitted a Safety Analysis dated September 9, 1977, which indicated that up to ten SG tubes could undergo a double ended rupture and complete separation of the ends during a main steam line break and that the cons

quences would not exceed Part 100. The staff has not completed the evaluation of this submittal. Our review indicated two separate degradation mechanisms, one an erosion/corrosion effect at the 14th support plate level and lane tube degradation. The review resulted in Technical Specification changes for B&W operating plants in addition to the reduced tube leak limit at Oconee 1.

D. G. Eisenhut, Acting Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation

Enclosure:
Memo to HRDenton & VStello
fm. PDeYoung dtd. 7/24/79
re: Request for Information

cc: RVollmer
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