

APR 14 1976

Docket No. 50-302

POOR ORIGINAL

APPLICANT: Florida Power Corporation

FACILITY: Crystal River, Unit 3

SUMMARY OF MEETING WITH FLORIDA POWER CORPORATION CONCERNING THE BORATED WATER STORAGE TANK DRAWDOWN TEST FOR CRYSTAL RIVER, UNIT 3

Representatives of the Florida Power Corporation (FPC), the Babcock & Wilcox Company (B&W) and Gilbert Associates, Incorporated (GAI) met with the NRC staff in Bethesda, Maryland on April 8, 1976 and discussed the items summarized below. An attendance list is attached.

BACKGROUND:

On May 8, 1975, B&W reported to OISE the possibly generic deficiency for proper drawdown times for the Borated Water Storage Tank (BWST) for certain Oconee Class NSSS facilities including Crystal River, Unit 3 (CR-3).

On August 19, 1975, the FPC met with the NRC staff and presented their procedures for testing and verifying correct drawdown times for the CR-3 BWST. The FPC stated they would submit the test results to NRR for review and approval.

The pre-operational test for the BWST at CR-3 was conducted in September 1975, and on March 16, 1976, the FPC submitted the GAI report, "Borated Water Storage Tank Drawdown Transient Analysis, Revision 1, January 1976."

The objective of the GAI report was to verify the adequacy of the original design for the building spray and decay heat systems during emergency conditions by tracking the fluid level in the borated water, NaOH and Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> tanks. The report would also provide the bases for any proposed design changes to the system.

The analysis showed that either the flow resistance in the borated water lines must be increased or the flow resistance in the chemical lines decreased. A decrease in flow resistance for the chemical lines was proposed involving the use of swing check valves in lieu of the originally designed stop check valves. With the proposed change the system was found to meet the original design criteria, which specifies the aliquot amount of chemicals required except in the case of a postulated single active failure. The report stated that for the valve failure case, the

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pH of the sump and spray solutions would still fall within an acceptable range and, therefore, the results for the single failure case were acceptable.

#### DISCUSSION:

B&W presented their bases for the criteria for the mass of chemicals drawn from the tanks to justify the single active failure case. A discussion on uncertainties in available experimental data followed. The NRC staff indicated a pH  $\leq$  11.0 was required in order to avoid any caustic degradation of systems.

#### DESIGN OPTIONS FOR CR-3:

Options available to the FPC for the CR-3 design were discussed. Four options open to FPC are:

- (1) Lower  $\text{Na}_2\text{S}_2\text{O}_3$  concentrations in thiosulfate tank such that the sump mixture would contain 0.5 to 0.75%  $\text{Na}_2\text{S}_2\text{O}_3$  instead of present design goal of 1.0%;
- (2) Increase concentration in NaOH tank to increase sump pH;
- (3) Revise system to permit continued addition of NaOH during the recirculation phase of ECCS operation; and
- (4) Revise method of additive injection from gravity feed method to pumped flow system.

The FPC stated their preference for Option 3 above and indicated they would revise the CR-3 FSAR accordingly. The NRC staff indicated that any revision of the system must meet original design criteria as stated in the FSAR. The staff indicated that a reasonable error band (e.g.  $\pm$  10%) from point values of design criteria is acceptable. The revised design must meet the single active failure criterion.

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#### RETESTING OF BWST DRAWDOWN TEST:

GAI questioned whether an additional pre-operational test for the CR-3 BWST would be required. The staff stated the modified system would require a pre-operational test. The FPC indicated that their revised pre-operational test schedule for CR-3 includes time for retesting and that the revised BWST drawdown test would be run.

Original signed by  
Leon S. Engle

Leon Engle, Project Manager  
Light Water Reactors Branch 4  
Division of Project Management

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ENCLOSURE

MEETING HELD APRIL 8, 1976  
WITH FLORIDA POWER CORPORATION  
CRYSTAL RIVER, UNIT 3

LIST OF ATTENDEES

FLORIDA POWER CORPORATION

A. Gomez  
J. Rodgers

BABCOCK & WILCOX COMPANY

C. Barksdale  
R. Borsom  
R. Coad  
W. Keyworth  
D. Mars  
D. Nitti

GILBERT ASSOCIATES, INCORPORATED

F. Ely, Jr.  
F. Vaughn

NRC-STAFF

W. Butler, DPM  
L. Engle, DPM  
W. Pasedag, AAB