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ATLANTA, GEORGIA

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**Florida  
Power**  
CORPORATION

October 8, 1984  
3F1084-01

Mr. J. P. O'Reilly  
Regional Administrator, Region II  
Office of Inspection & Enforcement  
U.S. Nuclear Regulatory Commission  
101 Marietta Street N.W., Suite 2900  
Atlanta, GA 30323

Subject: Crystal River Unit 3  
Docket No. 50-302  
Operating License No. DPR-72  
IE Bulletin 79-02, Supplemental Information

Dear Sir:

This letter is written to formally document a telephone conversation with your staff during the week of September 17, 1984 concerning discrepancies discovered involving Wej-it concrete anchors.

Recent reductions in the published catalog load capacities for Wej-it concrete anchors aroused concern at Florida Power Corporation (FPC) since Wej-it anchors are used extensively at Crystal River 3 (CR-3) in both safety and non-safety related applications. The revised catalog load capacities are significantly lower than the previously published load capacities that were used as a basis for design criteria at CR-3. To better define the ultimate load capacities of Wej-it anchors in CR-3 concrete, a test program was undertaken to test to failure (in both tension and shear loadings) a limited number of anchors similar to those in service at CR-3. As a result of this testing, it was determined that the ultimate load capacities of Wej-it anchors in CR-3 concrete is significantly lower than was previously assumed for design criteria. Capacities of Wej-it anchors tested in concrete at CR-3 attained 40% to 60% of the projected tension test capacity. Corresponding shear capacities were 70% to 110% of the projected test capacity. Projected test capacities were based upon Wej-it's 1982 catalog data. These values were reduced substantially from the capacity data published in Wej-it's 1977 catalog.

In order to determine the extent of the problem, a sample of 30 large bore pipe supports was selected. All supports selected had safety factors between 4 and 8, as determined by analyses done since receipt of IEB 79-02. These supports were reanalyzed utilizing load capacities projected from the CR-3 testing program. This reanalysis determined that 4 of the 30 supports have safety factors between 1 and 2. Twenty-one of the supports have safety factors greater than or equal to 2 but

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less than 4; and 5 of the supports safety factors equal to or greater than 4. None of the supports has a safety factor less than 1. The calculations considered all postulated load combinations, including dead load, thermal expansion, operating basis and safe shutdown earthquakes, and operating transients.

In addition, by comparing the test results to the original design basis used for Wej-it anchors, it was determined that no supports in any CR-3 system has a safety factor less than 1. It was, therefore, concluded that no operability problem exists.

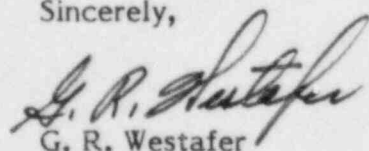
In light of the documented evidence of lower capacities resulting from the testing program, FPC has stopped using Wej-it anchors. Work is proceeding to identify and upgrade all safety related large bore pipe supports with safety factors less than 2 (based upon the reduced Wej-it load capacities determined from our test program) to safety factors of 4 or greater. Based on the pilot program, it is anticipated that approximately 30 supports will require corrective action. This will be confirmed when the investigation work is completed in mid-February 1985. In the interim, supports will be upgraded as deficiencies are identified. If the estimate of 30 deficient supports is correct, all deficiencies will be corrected by the end of the next refueling outage which is scheduled to begin in March 1985. If the work scope expands beyond the original estimate, the schedule will be modified and you will be promptly notified. FPC will also review other supports which affect personnel safety to assure adequacy. All of these supports will be upgraded as necessary.

FPC maintains that it is acceptable to leave supports with safety factors between 2 and 4 as they are for the life of the plant for the following reasons:

1. Expansion anchor capacity values are based upon actual capacity parameters established in Crystal River Unit 3 concrete.
2. Anchor installation parameters, i.e. embedment, diameter, length, and setting torque have been verified for all installations.
3. Successful operation of Crystal River Unit 3 for 7 years has subjected piping systems to all normally postulated transient loads except seismic loading. During this period, no piping system degradation has been attributable to expansion anchor problems.

If you have any questions, please contact this office.

Sincerely,



G. R. Westafer  
Manager, Nuclear Operations  
Licensing and Fuel Management

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