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 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389  
 ADTH. NAME AUTHOR AFFILIATION  
 URIG, R.E. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: Supplement to 791004 interim deficiency re derrick collapse during hurricane. Mfg design review recommends actions to secure replacement derrick. Includes raising boom, allowing boom & mast to weathervane & removing spreader beam.

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 TITLE: Construction Deficiency Report (10CFR50.55E)

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December 7, 1979  
L-79-341

Mr. James P. O'Reilly, Director, Region II  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, N.W. Suite 3100  
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

RE: RII:JP0  
Docket No. 50-389  
Damage Resulting From Derrick  
Failure During Hurricane David

Pursuant to 10CFR50.55 (e) requirements, an interim report (Letter L-79-283) was submitted to the Office of Inspection and Enforcement on October 4, 1979, regarding the Chicago Bridge & Iron guyed derrick collapse during the passage of Hurricane David, which resulted in damage to the Reactor Auxiliary Building at elevations +43 feet and +62 feet, and the concrete Shield Building at elevation +191 feet. This letter provides supplemental information to that interim report regarding the failure of the CBI guyed derrick.

St. Lucie Unit #2 PSAR Section 1.2 states that under normal design wind to those of hurricane proportions, the derrick would be stable. This conclusion was based on previously successful experience with identical derricks in the past. As a further precaution, a commitment was also made to secure the boom during periods of adverse weather. Despite these precautions the derrick collapsed. As demonstrated by the following discussions we believe the collapse was due primarily to the securing of the boom rather than allowing it to "weathervane".

In an effort to ascertain the reasons for crane failure and obtain recommendations concerning the erection of a replacement derrick. Florida Power & Light Company retained Cadcom, a division of ManTech of New Jersey Corporation.

The Cadcom report concludes that the guyed derrick could have withstood the hurricane force winds had different securing precautions been taken. In addition, the report recommends minor modifications that could be made to further enhance the hurricane withstand capability of the crane.

The Cadcom report was subsequently reviewed by Chicago Bridge and Iron (CBI), who designs, manufactures, and supplies the crane. CBI concurs that the Cadcom report provides a reasonable account of the derrick collapse, and that the recommendations for securing the derrick when hurricane winds are expected are technically sound.

Following their own design review, and consideration of the Cadcom report, CBI has concluded that the following actions should be taken to secure the replacement

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derrick when hurricane winds are expected:

- 1.) Raise the boom as high as possible and allow the boom and mast to "weathervane".
- 2.) Remove the spreader beam from the boom.
- 3.) Fix the mast-tower swivel joint to the tower with bolts or welded lugs.

Therefore, it is Florida Power & Light's opinion that the crane can be re-erected and safely operated within the commitments of the PSAR with the above CBI recommendations being implemented.

A duplicate replacement derrick will be erected at the site, with installation commencing December 3, 1979, and functional operability by February 16, 1980. With the corrected securing precautions and the design enhancement the new derrick will be able to withstand hurricane winds.

Very truly yours,



Robert E. Uhrig  
Vice President  
Advanced Systems & Technology

REU/MV/ah

cc: Harold F. Reis, Esquire

