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 PACIFIC: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335  
 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389  
 AUTH. NAME: AUTHOR AFFILIATION  
 HALL, R. E. Brookhaven National Laboratory  
 RECIPIENT NAME: RECIPIENT AFFILIATION  
 FERGUSON, R. L. Power Systems Branch

SUBJECT: Forwards review comments re SER, Section 9, Fire Pump  
 Controller & Util 791003 response. Util fire pump controllers  
 did not meet requirements of NFPA-20. Concludes fire pump  
 controllers not equal to UL listed units.

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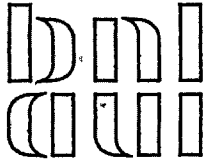
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Department of Nuclear Energy

January 7, 1980

Mr. Robert L. Ferguson  
Plant Systems Branch  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

RE: St. Lucie Fire Protection Review Item 4.3.1.2; 9.0

Dear Bob:

Attached is our comments on the fire pump controller for the St. Lucie plant.

Respectfully yours,

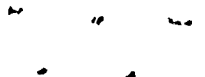
Robert E. Hall, Group Leader  
Reactor Engineering Analysis

REH:EAM:sd  
attachment

cc.:	R. Cerbone	wo/att.
	W. Kato	"
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St. Lucie

Fire Protection Review

Fire Pump Controller (4.3.1.2, 9.0)

The letter to Florida Power and Light Company dated August 17, 1979 accompanying the Safety Evaluation Report of the same date, requested the licensee to provide additional information needed to resolve issues raised by the fire protection consultant. One of these items was the staff's request that the licensee prepare a point-by-point evaluation of the St. Lucie Unit No. 1 fire pump controller in comparison to the requirements of NFPA No. 20, which is the standard for Centrifugal Fire Pumps. The licensee was also asked to state which parts of the controllers were U.L. listed and which parts were not.

Attachment B of Florida Power and Light's letter L-79-280 dated October 3, 1979 provides this comparison. The licensee's letter did not, however, state which parts of the existing fire pump controllers are U.L. listed and which parts are not.

Florida Power and Light's point-by-point comparison indicated several instances where the existing fire pump controllers did not meet the requirements of NFPA-20 nor possess other compensating characteristics in lieu of the code requirements. Specific paragraphs contained in NFPA 20 which the existing control equipment does not meet includes: 1-5.1, 7-1.1.1, 7-1.1.2, 7-2.1, 7-3.5, 7-5.2.3 and 7-5.2.4. The licensee defended some of these differences with the code by stating that the control equipment at St. Lucie 1 was purchased to nuclear grade IE. The licensee did not, however, explain in detail how the Class IE requirements are more stringent than the NFPA-20 requirements.

One of the requirements of NFPA-20 contained in paragraph 7-5.2.3 states that manual control stations located remote from the controller must not be operable to stop the fire pump motor. Paragraph 7-2.1 of NFPA-20 also requires the controller to be located as close as practical to the fire pump motors and within sight of the motors. The existing arrangement at St. Lucie 1, however, has the control equipment located in another area of the plant and a control switch is provided in the control room for stopping the fire pumps. These deficiencies result in a fire protection water supply system which may not be dependable under all conditions. The licensee has also stated that the fire pumps will automatically operate upon drop of pressure in the fire water distribution system; except under engineered safety features actuation signal (ESFAS) conditions.

Based on the review of the submitted evaluation, we conclude that the existing electric motor driven fire pump controllers are not equal in reliability to U.L. listed units conforming to NFPA-20 requirements. Of greater importance than the technical quality level of the components, however, is the basic arrangement of the control system which could allow the fire pumps to be inoperable under some conditions. The resulting loss of fire protection water could negate both automatic and manual firefighting systems in the plant.



In order to correct this deficiency, and to insure a dependable water supply for fire protection, the existing electric motor driven fire pumps should be supplemented with an additional 2,500 gpm diesel engine driven fire pump which will be independent of the plant power systems even under ESFAS conditions. With the addition of this pump a redundant fire water supply is provided and the criticality of the existing electric motor driven fire pumps is reduced. Based on this, the existing electric fire pump controller is considered acceptable with the implementation of the licensees proposed modification of upgrading and relocating the sensing lines and pressure switches to a location near the pump discharge. If the recommendation for the additional diesel engine driven fire pump is not implemented, the existing controller arrangement for the electric motor driven fire pumps is not acceptable. In this case, an alternate solution would be the replacement of both existing controllers with new controllers approved by U.L. and meeting all the requirements of NFPA-20.

The electric driven fire pumps must be available in the case of loss of off-site power. We recommend that the requirements of Section A-4 of Appendix A of BTP 9.5-1 be met.

