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SUBJECT: Documents 901123 request & verbal approval of temporary waiver of compliance from Tech Spec 3.7.3, "CCWS."

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November 23, 1990

L-90-413
10CFR50.36

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Gentlemen:

RE: St. Lucie Unit 2
Docket No. 50-389
2B CCW Heat Exchanger
Temporary Waiver of Compliance

This letter documents a request and verbal approval of a temporary waiver of compliance of Technical Specification 3.7.3, "Component Cooling Water System," Technical Specification 3.7.4, "Intake Cooling Water," and Technical Specification 3.0.4. The verbal approval of the temporary waiver of compliance was transmitted to St. Lucie Plant by M. V. Sinkule (NRC Region II) on November 23, 1990.

On November 19, 1990, a small leak, about one drop every four minutes, was detected on the 2B Component Cooling Water (CCW) Heat Exchanger. The leak is located on the closed loop cooling water side of the tube sheet/shell weld joint. The 2B CCW Heat Exchanger was taken out of service on November 20, 1990 to commence repair of the tube sheet/shell weld joint.

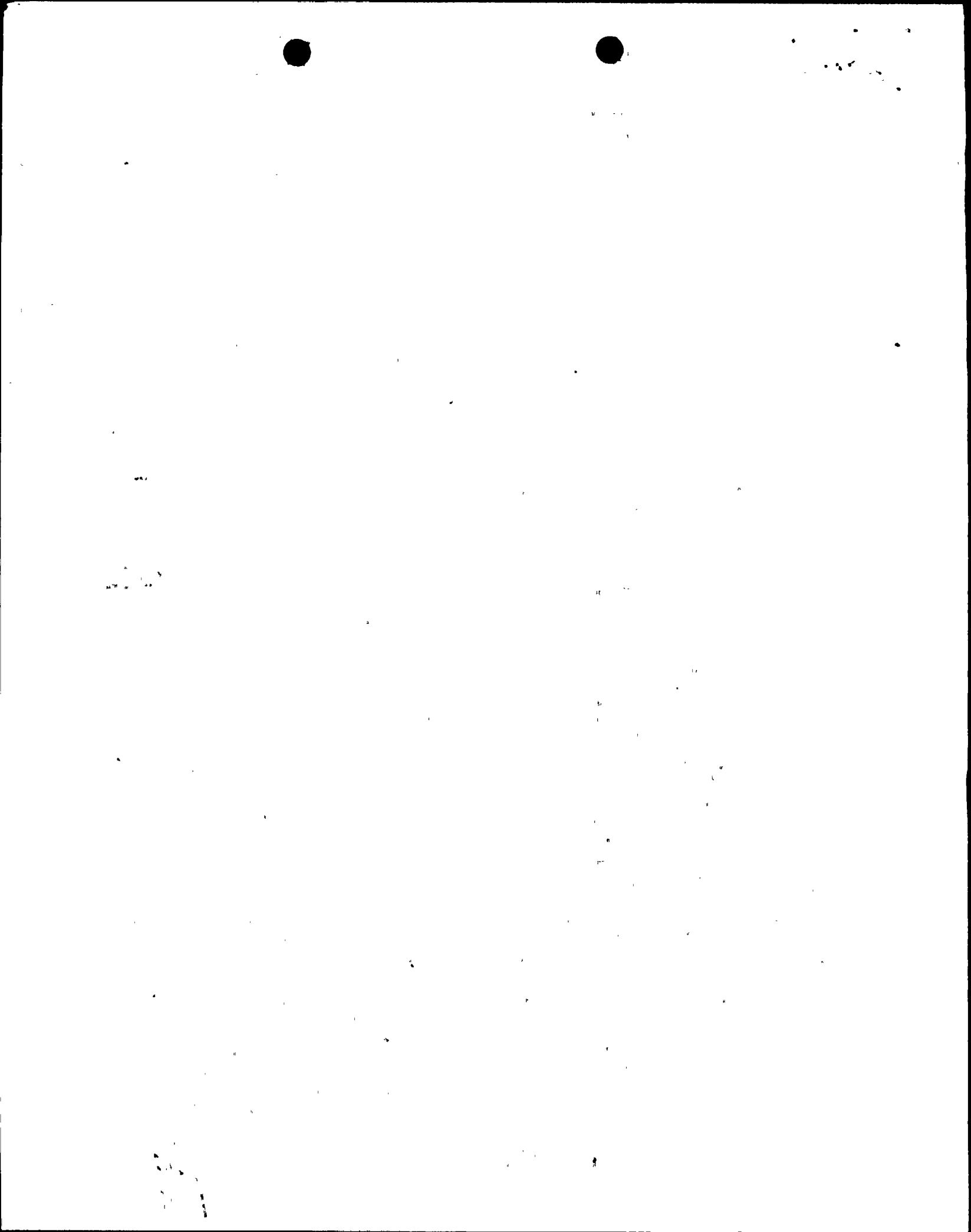
Technical Specification 3.7.3, "Component Cooling Water System," requires two independent component cooling water loops be operable during mode 1, 2, 3, and 4. Technical Specification 3.7.4, "Intake Cooling Water System," requires two independent intake cooling water loops be operable during mode 1, 2, 3, and 4. Technical Specification 3.0.4 prohibits entry into mode 1, 2, 3, and 4 with either one component cooling water loop or one intake cooling loop inoperable. Florida Power and Light specifically requests a waiver of Technical Specification 3.0.4, to allow ascension to mode 3, a waiver of Technical Specification 3.7.3, to allow one CCW heat exchanger to be out of service for 5 days, and a waiver of Technical Specification 3.7.4 to allow one Intake Cooling Water train be out of service for 5 days. If the 2B CCW Heat Exchanger is returned to operable status prior to 5 days, the temporary waiver of compliance will expire. The waiver of Technical Specifications 3.0.4, 3.7.3, and 3.7.4 will enable St. Lucie Unit 2 to bring the Reactor Coolant System to full temperature and pressure while allowing the repair of the 2B CCW heat exchanger to be completed.

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Technical Specifications associated with High Pressure Safety Injection, Low Pressure Safety Injection, Containment Spray, and Containment Coolers, have been determined to be no more limiting than the Component Cooling Water and Intake Cooling Water Technical Specifications.

As compensatory measures, Florida Power and Light will:

1. not remove any equipment associated with core heat removal (Emergency Core Cooling, Auxiliary Feedwater, Atmospheric Dump Valves, Emergency Power Systems) for planned maintenance while this temporary waiver of compliance is in effect.
2. establish the Technical Specification required inventory for the Condensate Storage Tank (CST) prior to mode 4 (normally required in mode 3) to ensure inventory for core heat removal is available.

A preliminary evaluation of the safety significance and the potential consequences demonstrates that there are no potential consequences which have not been previously analyzed in the Safety Analysis Report (SAR). The basis for this conclusion is that the only credible failure of the CCW system is a failure of a CCW system active component. The 2A CCW Heat Exchanger will be the only non-redundant component during the time the 2B CCW Heat Exchanger is out-of-service.

St. Lucie Unit 2 has been analyzed for a Station Blackout event. The Station Blackout analysis is presented in FSAR section 15.10, and concludes that the unit can withstand a Blackout for a four (4) hour duration without any adverse consequences. Since a Station Blackout assumes loss of both offsite and onsite emergency power, there would be a corresponding loss of CCW due to the loss of power to the CCW pumps. The analyzed station blackout event will envelope any postulated loss of CCW scenario, since the duration of the analyzed Station Blackout event is 4 hours and the estimated maximum duration of the loss of CCW is only 1/2 hour.

In the event of a CCW system failure the plant would be required to execute a Natural Circulation Cooldown (due to loss of CCW to the RCPs). Based on the FSAR Appendix 5.2B this Cooldown takes 25.7 hours to bring the RCS to Shutdown Cooling entry conditions (cooldown to 325 at 50 F/hr and a 20.4 hour soak at 325 degrees F to ensure that void formation in the head is prevented for a total cooldown time of 25.7 hours). During this time no components requiring CCW are relied upon for RCS cooldown. Within this time frame, it is possible to restore one (1) train of CCW by aligning the "C" pump to the "A" Heat Exchanger using the "B" electrical train to power the "C" pump. This would provide redundancy to the normal alignment of the "A" pump to the "A" heat exchanger powered by the "A" electrical train. One (1) train of the CCW is sufficient to remove the entire decay heat load of the Reactor. An evaluation of the Design Basis Loss of Coolant Accident with Loss of Offsite Power considering the failure of an active

component (Diesel Generator, High Pressure Safety Injection pump, Intake Cooling Water train) while the 2B CCW heat exchanger is inoperable was conducted. With the single failure of any active component, Component Cooling Water is still available to provide its intended function.

Florida Power and Light has performed an evaluation to determine the root cause of the weld defects identified in the 2B CCW heat exchanger tube sheet/shell welds. The root cause was determined to be lack of fusion between weld material and the carbon steel shell resulting in sufficient voiding in the weld to allow an observable leak. Stresses induced due to retubing the 2B CCW heat exchanger, including the removal and reinstallation of the channel heads, as well as the subsequent hydrostatic testing is the reason for the small leaks indicated at each end of the heat exchanger. The 2A CCW heat exchanger was not retubed, and therefore did not undergo these additional stresses. In conclusion, the 2A CCW heat exchanger will perform as designed.

FPL plans to conduct non-destructive examination of the full circumference of the 2B CCW Heat Exchanger shell/tube sheet welds during the next refueling outage to better characterize the condition of these welds.

This request does not involve a significant hazards consideration since:

- 1) The postulated loss of CCW is enveloped by the Station Blackout Analysis.
- 2) Sufficient time exists during the Natural Circulation Cooldown to restore the CCW system prior to achieving Shutdown Cooling Entry conditions.
- 3) An evaluation has been performed which demonstrates that the 2A CCW heat exchanger will function as designed during a Loss of Offsite Power concurrent with a design basis Loss of Coolant Accident.

This Temporary Waiver of Compliance was reviewed by the Facility Review Group on November 23, 1990.

Very truly yours,

DA Sager
D. A. Sager
Vice President
St. Lucie Plant

DAS/JWH

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant