UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 8, 1979

Docket No. 50-302

Mr. W. P. Stewart
Director, Power Production
Florida Power Corporation
P. O. Box 14042, Mail Stop C-4
St. Petersburg, Florida 33733

Dear Mr. Stewart:

We have reviewed the Crystal River Unit 3 (CR-3) pump and valve inservice testing program submitted November 21, 1977 and have determined that the additional information identified in the enclosure is necessary to continue our review. You are requested to provide this information within 45 days from the date of this letter. To expedite completion of our review you are also requested to notify us when you are prepared to address these areas so that we can meet with you prior to your written response to discuss all outstanding issues. This meeting would take place at the CR-3 site.

Please inform us within seven days if you will be unable to meet the above schedule.

Sincerely,

Robert W. Reid

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosure:
Request for Additional
Information

cc w/enclosure:
See next page

Florida Power Corporation

cc: Mr. S. A. Brandimore
Vice President and General
Counsel
P. O. Box 14042
St. Petersburg, Florida 33733

Mr. Robert B. Borsum
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Nuclear Power Generation Division
Suite 420, 7735 Old Georgetown Road
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Crystal River, Florida 32629

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Room 4, Holland Building
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ENCLOSURE 1

MECHANICAL ENGINEERING BRANCH

1. Why not measure vibration amplitude and bearing temperature of boric acid pumps?

2. Verify that all pump drives are synchronous - if not, then measure N.

3. Verify that all systems where Q is not to be measured are fixed resistance systems. If they are not, then must measure Q.

4. Why is relief requested for the following pumps:?

   (a) Building spray

   (b) Decay heat removal

   (c) Nuclear services closed cycle cooling

   (d) Make-up and purification

   (e) Spent fuel cooling.

REACTOR SYSTEMS BRANCH

1. CFV-1, 3
   CFV-2, 4) (Core Flooding and Low Pressure Injection Check Valves)
   DHV-1, 2

   The staff position is that two check valves in series provide adequate isolation of a low pressure system from a high pressure system only if there are design provisions to permit leak testing of the check valves at least once every refueling outage. Therefore, not testing the check valves identified in the decay heat and core flood systems is unacceptable.

2. DHV-4, 5 (Low Pressure Injection Discharge)

   Confirm that these two valves in the decay heat system are normally open and have their power removed.

3. Confirm that the appropriate times for motor-operated valve operations assumed in the Crystal River 3 LOCA analysis are used as the basis for the in-service testing timing requirements (see Section 4 in BAW-10103).

4. DHV-11, 12 (LPI-HPI Cross Connects)

   What is the justification for not exercising these valves quarterly? (See paragraph IWV-3411 of ASME Section XI.)

5. DHV-33, 36 (Low Pressure Injection-BWST Suction)

   Justify not leak testing these check valves, since they may have to perform an isolation function post-LOCA when shifting to the recirculation mode.

6. DHV-7, 8 (Low Pressure Injection Discharge-Cross Connects)

   Justify not performing in-service testing, since these valves may be required to perform a safety-related function for a CFT line break.

7. DHV-39, 40 (Decay Heat Removal Suction Valves-Outside Containment)

   In-service testing plan should also include these valves since they perform a safety function.

8. CFV-27 (Core Flooding Tank Nitrogen Supply)

   Testing method should be the same as that listed for CFV-28, the same valve on the other core flooding tank.

9. HPI Check Valves

Leak testing provisions have not been provided for these high pressure injection check valves. The staff requires that these valves be categorized AC or justification be provided for alternative categorization.

10. Table 3 for the Decay Heat Removal System states that the automatic flow controllers and throttling valves on the DHR system (Low Pressure Injection System) are installed for operational convenience only. The Crystal River FSAR, Section 6.1.2.1.2, states that the automatic flow controllers and throttling valves on the DHR system (Low Pressure Injection System) perform a safety function in that they prevent pump runout flow during the recirculation phase following a LOCA. Therefore, we request that they be included in your test plan.

11. MUV-23, 24, 25, 26

It is assumed for the purpose of a cycling test of these valves that one or more of the upstream check valves has failed unless positive methods are available for determining the pressure (or lack thereof) on the high pressure side of the valve to be cycled. Therefore, if you intend to test these valves at power show that

(1) a positive means of sensing pressure exists, or

(2) the consequences of testing the valve assuming both check valves are failed, are acceptable (potential for low pressure piping overpressurization or water hammer).

12. The IST plan does not address the following two system areas:

(1) system(s) providing overpressure protection (Appendix G) while operating at low temperatures

(2) high pressure injection system alteration for the mitigation of small breaks.

Include these areas in your program.

13. Your IST program does not provide justification for requesting relief from the quarterly testing requirement in Section XI for many valves. For each valve in the reactor coolant system, decay heat removal system and emergency core cooling system, provide specific justification for not proposing a quarterly test (i.e., any test method other than EF-1).

14. Your IST program states that tests will be conducted to verify the functioning of various check valves. It is not clear for many of these valves how you intend to stroke them to the position required to allow the flow assumed in the safety analysis (i.e, DHV-33, DHV-36, MUV-42, MUV-43, MUV-160, MUV-161, MUV-10, MUV-11, MUV-1, MUV-7, MUV-2, MUV-6, CFV-2, CFV-4, CFV-3, CFV-1). Explain how you intend to stroke these valves and how you will determine the check valve disc has moved to the correct position.

15. Discuss the reason for including RCV-4, 5, 6, 7 and 103 in your IST since they are identified as E-8. Similarly, address the safety function of DHV-91, 93 and RCV-53 and RCV-12 in the auxiliary pressurizer spray line also and RCV-12 and 14 in the normal pressurizer spray line.

16. Explain why MUV-9 is being tested quarterly and MUV-8 is not. Also address MUV-3 and 4, MUV-69 and 68, MUV-62 and 63; that is, why one is tested, while the other is not. What is the function of MUV-59, 66 and 70?

ENCLOSURE 3

CONTAINMENT SYSTEMS BRANCH

1. Section XI of the ASME code includes testing requirements for all Class 1, 2 and 3 valves except those valves used for operating convenience such as normal vent, drain, instrument and test valves, and valves used for maintenance only. However, the staff has limited the scope of its review of the Inservice Testing (IST) Program to those valves that perform a safety related function. Safety related valves, for the purpose of IST, have been defined as those valves that must remain functional for safe shutdown of the plant and for mitigating consequences of an accident. In addition, it is the staff's position that valves which receive either a containment isolation signal or a safety injection actuation signal are safety related. Therefore, please verify that all safety related valves have been included in the IST program and identify all valves which receive either a containment isolation or a safety injection actuation signal.

2. It is stated in the November 21, 1977 submittal that maximum permissive leakage rates for all Category A valves have not been submitted due to a lack of clarification on the intent of the Appendix J and Section XI leak testing requirements. It is our position that local Type C leak testing performed to meet the requirements of Appendix J may be substituted for Section XI leak testing providing the valves are approved for reduced pressure testing as discussed in Section IWV-3420 of the code. Therefore, identify all valves for which Appendix J leak testing will be substituted for Section XI leak testing. In addition, provide the maximum allowable leak rates for all valves being tested under Section XI.

Safety related valves in closed ESF systems outside containment (e.g., sump recirculation lines to the reactor core and to the containment sprays) do not have individual maximum leakage rates; however, the associated closed systems outside containment should. Maximum leakage limits for closed ESF systems outside containment should be determined based on: 1) radiological dose; 2) system inventory; and 3) system performance (e.g., NPSH). Identify all such closed ESF systems, discuss the testing to be performed, and provide the maximum permissable leak rates.

3. We do not agree that the proper valve classification or exercising requirements are being sought for the valves identified below. Therefore, provide additional information to justify the requested reliefs.

Main and Reheat System

MSV-130 and MSV-148 are containment isolation valves which receive a safety grade signal to isolate. These valves should be periodically exercised.

Feedwater System

FWV-29 and FWV-30 should be exercised quarterly or relief from the requirement should be requested.

Condensate and Demineralized Water Supply

Relief from the exercising requirements should be requested for DWV-162 and DWV-160 if required testing is not to be performed.

Nuclear Services Closed Cycle Cooling

Containment isolation valves SWV-79, 80, 81, 82, 83, 84, 85, 86, 109 and 110 should be exercised quarterly or relief from the requirement should be requested.

The code recommends that containment isolation valves SWV-33, 37, 39, 41, 43, and 45 be part-stroke exercised during plant operating and full-stroked exercised during cold shutdowns.

Decay Heat Removal

DHV-1, 2, 4(F), 5(F) and 6(F) should be quarterly exercised or relief from the requirement should be requested.

Makeup and Purification

MUV-18, 27, 49, 253, 258, 259, 260, and 261 should be quarterly exercised or relief from the requirement should be requested.

AUXILIARY SYSTEMS BRANCH

1. Main and Reheat Steam System. Drawing No. IS-318-011

1.1 Table 3A states that valves MSV-115 and MSV-135 are utilized to blanket steam generators 3A and 3B with nitrogen. It would appear from the above referenced drawing that valves MSV-116 and MSV-133 perform this function. Clarify which valves are utilized to blanket the steam generators with nitrogen. If valves MSV-116 and MSV-133 are used to blanket the steam generators with nitrogen they should be tested in accordance with Section XI Code Requirements.

2. Auxiliary Steam System. Drawing No. IS-318-051

2.1 A test of the trip and throttle valve ASV-50 should be performed during cold shutdown.

3. Emergency Feedwater System. Drawing No. IS-318-082.

3.1 We do not agree that check valves EFV-2, EFV-7, EFV-8, EFV-15, thru EFV-18 and gate valves EFV-11, EFV-14, EFV-32 and EFV-33 are tested in accordance with Section XI code requirements. Table 1 identifies the testing method as EF-2 whereas code requirements would indicate EF-1. Justify your selection of the testing frequency for these valves.

3.2 Clarify the normal position for valve EFV-2 which is shown as "open" in Table 1 and "closed" in the flow diagram. This valve should be tested in accordance with Section XI Code Requirements.

4. Feedwater System. Drawing No. IS-318-081.

4.1 Clarify the normal poaition for valves FWV-161 and FWV-162 which are shown as "closed' in Table 1 and "open" in the flow diagram. The valves should be tested in accordance with Section XI Code Requirements.

4.2 Justify the testing frequency for valves FWV-34, FWV-35, FWV-43, FWV-44, FWV-157 and FWV-158.

4.3 Identify the testing frequency for valves FWV-45 and FWV-46.

5. Emergency Diesel Generatcr Fuel Oil Transfer System Drawing No. IS-318-281.

5.1 Valves DFV-47 and DFV-48 in the crosstie line from Storage Tanks 3A and 3B perform a safety function and should be tested in accordance with Section XI code requirements.

6. Emergency Diesel Generator Compressed Starting Air and Engine Exhaust System Drawing No. IS-318-282.

6.1 Valves EGV-25 and EGV-26 in the crosstie line from Air Receivers 3A, 3B, 3C and 3D perform a safety function and should be tested in accordance with Section XI Code requirements.

7. Nuclear Services Closed Cycle Cooling System Drawing No. IS-318-601.

7.1 Valves SWV-59, SWV-60, SWV-63 and SWV-64 should be tested in accordance with Section XI code requirements. Justify the relief request.

7.2 Clarify the normal position for valves SWV-103 and SWV-104 which are shown as "closed" in Table 1 and "open" in the flow diagram. If these valves are normally open, they should be tested in accordance with Section XI code requirements.

7.3 Justify the testing frequency for valves SWV-579 and SWV-607.

7.4 Valve SWV-584 should be tested in accorance with Section XI code requirements.

8. Spent Fuel Cooling System. Drawing No. IS-318-621.

Valves SFV-7, SFV-34, SFV-50, SFV-50, SFV-54, SFV-85, SFV-87 and SFV-89 should be tested in accordance with Section XI code requirements. Justify the relief request.

9. Decay Heat Closed Cycle Cooling System. Drawing No. IS-318-631

Valves DCV-186 and DVC-188 should be tested in accordance with Section XI code requirements.

10. Makeup and Purification System. Drawing No. IS-318-661.

10.1 Valves MUV-16(F) and MUV-31(F) should be tested during cold shutdown.

10.2 The following valves should be tested in accordance with Section XI code requirements: MUV-27(F), MUV-36, MUV-37, MUV-163, MUV-164, MUV-53(F), MUV-257(F), MUV-4, MUV-8, MUV-63, MUV-68, MUV-30, MUV-17, and MUV-107.

11. Chemical Additional System. Drawing No. IS-318-671.

11.1 Justify the testing frequency for valves CAV-58 and CAV-61.

12. Liquid Waste Disposal System. Drawing No. IS-318-681.

12.1 Justify the testing frequency for valve WDV-321.

13. Domestic Water System. Drawing No. IS-318-211.

13.1 Justify the testing frequency for valve DOV-209.

14. Nuclear Services and Decay Heat Sea Water System. Draft No. IS-318-611.

14.1 Valves RWV-32 and RWV-33 should be tested in accordance with Section XI code requirements.

14.2 Valves RWV-40 and RWV-41 should be tested in accordance with Section XI code requirements.

14.3 Why are valves RWV-17, RWV-18, RWV-21, RWV-22 and RWV-24 not tested in accordance with Section XI code requirements.