

Florida Power

CORPORATION

Crystal River Unit 3

Docket No. 50-302

November 3, 1995

3F1195-11

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

Subject: Technical Specification Change Request No. 204, Revision 0

Dear Sir:

Florida Power Corporation (FPC) hereby submits Technical Specification Change Request No. (TSCRN) 204 requesting amendment to Operating License No. DPR-72. As part of this request, the TSCRN and the proposed replacement pages are provided.

The TSCRN proposes delaying for one cycle the volumetric and surface examinations of the Reactor Coolant Pump motor flywheels required by Regulatory Guide 1.14, Regulatory position C.4.b, incorporated by reference in Technical Specification 5.6.2.8.c, to coincide with Crystal River Unit 3 (CR-3) Refueling Outage 11, scheduled for Spring 1998.

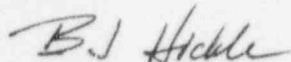
FPC's request is based on the low probability of RCP motor flywheel failure and on the results of previous examinations which show no recordable indications. As explained in the TSCRN, FPC is participating in an industry effort led by the Westinghouse Owners Group to eliminate RCP motor flywheel inspections. Westinghouse will be submitting a topical report proposing that RCP motor flywheel inspections be eliminated due to their marginal safety benefit.

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CR-3's ISI Inspection for the end of the Second Interval is scheduled for Refuel Outage 10 in the Spring of 1996. Since NRC's review of the above mentioned topical report will not be completed prior to that outage, FPC is hereby requesting to defer the volumetric and the complete surface inspections one cycle to allow for the completion of the Staff's review. Once the NRC staff reviews the Westinghouse topical report and issues a safety evaluation, FPC may ask for the elimination of the TS requirement for all RCP motor flywheel examinations.

Sincerely,



B. J. Hickle
Director
Nuclear Plant Operations

BJH/LVC

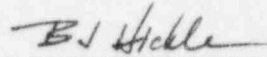
Attachment

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

STATE OF FLORIDA

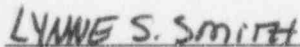
COUNTY OF CITRUS

B. J. Hickle states that he is the Director, Nuclear Plant Operations for Florida Power Corporation; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

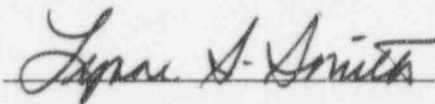


B. J. Hickle
Director
Nuclear Plant Operations

B. J. Hickle, personally known to me. Subscribed and sworn to before me, a Notary Public in and for the State and County above named, this 3rd day of November, 1995.



Notary Public (print)



Notary Public (signature)

Notary Public, State of Florida at Large
Notary Public, State of Florida at Large
My Commission Expires Dec. 18, 1995
My Commission Expires ~~Bonded thru Agent's Notary Brokerage~~

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

IN THE MATTER)
)
FLORIDA POWER CORPORATION) DOCKET NO. 50-302

CERTIFICATE OF SERVICE

B. J. Hickle, deposes and says that the following has been served on the Designated State Representative and Chief Executive of Citrus County, Florida, by deposit in the United States mail, addressed as follows:

Chairman,
Board of County Commissioners
of Citrus County
Citrus County Courthouse
Inverness, FL 34450

Administrator,
Radiological Health Services
Department of Health and
Rehabilitative Services
1323 Winewood Blvd.
Tallahassee, FL 32301

A copy of Technical Specification Change Request No. 204, Revision 0.

FLORIDA POWER CORPORATION

B. J. Hickle

B. J. Hickle
Director
Nuclear Plant Operations

SWORN TO AND SUBSCRIBED BEFORE ME THIS 3RD DAY OF NOVEMBER, 1995

LYNNE S SMITH

Notary Public (print)

Lynne S. Smith

Notary Public (signature)

Notary Public, State of Florida at Large
My Commission Expires:
Notary Public, State of Florida at Large
My Commission Expires Dec. 18, 1995
Bonded thru Agent's Notary Brokerage

FLORIDA POWER CORPORATION
CRYSTAL RIVER UNIT 3
DOCKET NO. 50-302/LICENSE NO. DPR-72
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 204, REVISION 0
RCP MOTOR FLYWHEEL FULL VOLUMETRIC AND SURFACE EXAMINATION

LICENSE DOCUMENT INVOLVED: Technical Specifications (TS)

PORTIONS: Technical Specification 5.6.2.8.c

DESCRIPTION OF REQUEST:

Technical Specification 5.6.2.8.c requires reactor coolant pump (RCP) motor flywheel inspections be performed in accordance with Regulatory Guide (RG) 1.14, Revision 1. Regulatory positions C.4.b.1 and C.4.b.2 of the RG specifically require a volumetric examination of the areas of higher stress concentration at the bore and keyway at approximately 3-year intervals and a surface examination of all "exposed" surfaces of the flywheels and complete ultrasonic volumetric examination at approximately ten-year intervals during the plant shutdown coinciding with the Inservice Inspection (ISI) Schedule as required by Section XI of the ASME Code.

This request proposes a one-time TS change to delay performance of the volumetric and complete surface examinations required by RG 1.14, Revision 1, Regulatory Position C.4.b (incorporated by reference in Technical Specification 5.6.2.8.c) to coincide with Crystal River Unit 3 (CR-3) Refueling Outage 11, scheduled for the Spring of 1998.

Specifically, FPC is proposing that TS 5.6.2.8.c, page 5.0-11 be changed to read as follows:

"Inspection of each reactor coolant pump flywheel per the recommendation of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975, except, the volumetric examinations and complete surface examination of the flywheels for the Second ISI Interval may be delayed one cycle to coincide with the Spring 1998 refueling outage."

REASON FOR REQUEST:

Surface Exam

The RCP motor design prohibits the performance of a complete surface examination of the RCP motor flywheel without substantial disassembly of the upper motor area (See attached description of the steps required for RCP motor disassembly which illustrates the complexity of the RCP motor disassembly needed to expose all surfaces of the RCP motor flywheel and Figure 1 which depicts the motor design.) The flywheel ultrasonic inspection port does expose a segment of the peripheral area of the flywheel and RCP motor rotation would allow the examination of the total circumferential surface area. However, the upper and lower flywheel surface areas can not be reached through the inspection port. This prohibits a complete surface examination. Additionally, CR-3 and industry experience documenting no flywheel failures indicates that the benefit of performing the surface examination is not commensurate to the personnel exposure and cost incurred in its performance. The estimated exposure for this inspection is 10 Man Rem.

Volumetric examinations

Investigation of industry experience with surface examinations prompted FPC to participate in an industry effort led by the Westinghouse Owners Group to eliminate the RCP motor flywheel inspections. The Westinghouse Owners Group will submit a topical report during 1995 which will show that flywheel integrity and plant safety are actually increased by eliminating all flywheel inspections. The Westinghouse effort covers flywheels installed at approximately 50 nuclear stations. The materials and manufacturing of the flywheels are generally the same. Differences in physical dimensions such as outer diameter, bore size, keyway depth, pump motor inertia etc. will be addressed. Detailed stress and fracture analyses as well as risk analysis have been completed with the results indicating that there would be no change in the probability of failure for RCP motor flywheels if all inspections were eliminated. Although the volumetric inspection of the high stress areas could be performed without disassembly, CR-3 has previously performed six full volumetric inspections (except in Refuel Outage 3, the inspection of the "C" motor flywheel covered 75%), including bore and keyway areas, with no recordable indications. Therefore, the personnel exposure and cost of the inspection if performed would be incurred with no commensurate safety benefit. The estimated exposure for this inspection is 4 Man Rem.

CR-3's ISI Inspection for the end of the Second Interval is scheduled for Refuel Outage 10 in the Spring of 1996. Since NRC's review of the above mentioned topical report will not be completed prior to that outage, FPC is hereby requesting to defer the volumetric and the complete surface inspections one cycle to allow for the completion of the Staff's review. Once the NRC staff reviews the Westinghouse topical report and issues a safety evaluation, FPC may ask for the elimination of the TS requirement for all RCP motor flywheel examinations.

EVALUATION OF REQUEST

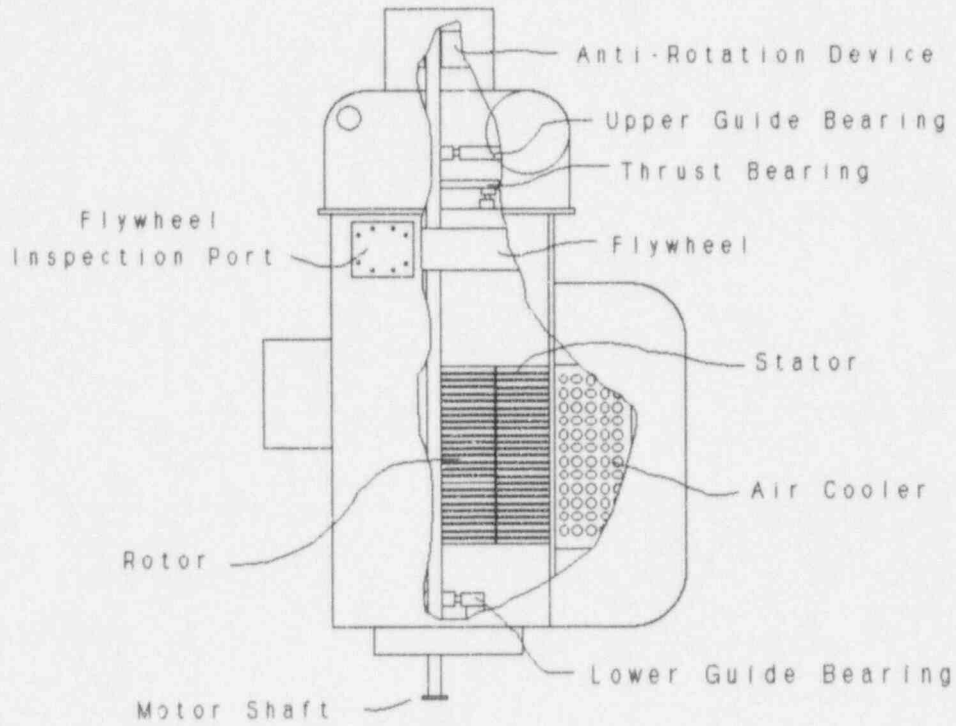
FPC believes that the proposed one-time TS change is justified based on the following:

- o The results of the six full volumetric examinations (including bore and keyway areas) performed by FPC during the first and second ISI intervals (see attached Table 1) exceeded the recommendations of the RG. In addition to the RG recommended ultrasonic inspections of the bore and keyway areas, FPC performed full volumetric examinations of the RCP motor flywheels at approximately three-year intervals with no recordable indications detected.
- o The results of limited surface exams show no indications detected. During the RCP motor refurbishments performed in 1989 and 1990 (April 1989 for RCPs 1A, 1B and 1C, and May 1990 for RCPs 1B, 1C and 1D), dye penetrant (PT) examinations were performed for information purposes while the pump motors were disassembled. Those examinations included areas of high stress concentration, specifically, surface areas of the flywheel near the bore and around the keyways. The dye penetrant examinations as well as all volumetric examinations performed on the flywheels have shown satisfactory results with no indications detected.
- o Low probability of RCP motor flywheel failure as demonstrated by CR-3's and industry operational experience. A review of industry information through the Babcock & Wilcox Owners Group, Westinghouse Owners Group and the Nuclear Plant Reliability Data System (NPRDS) revealed no critical flaws identified on RCP motor flywheels, and no RCP flywheel failures have been reported.
- o The Westinghouse Owners Group effort includes CR-3's flywheels. Detailed stress and fracture analyses as well as risk analysis have been completed with the results indicating that there would be no change in the probability of failure for RCP motor flywheels if all inspections were eliminated.
- o It will reduce unnecessary costs in personnel exposure, outage time and costs in replacement power.
- o It reduces the potential for increased probability of failure resulting from performing the inspections. During disassembly or reassembly, the possibility exists to upset the base metal causing a stress riser to propagate into the flywheel.
- o Previously analyzed accidents show limited consequences. The CR-3 FSAR describes flywheel failure analysis which determine that the consequences of a flywheel being unable to perform its coastdown function are acceptable.

Therefore, the delay of the complete volumetric examination and surface examination for one cycle does not affect the integrity of the flywheels or significantly increase the probability of failure.

DESCRIPTION OF STEPS REQUIRED FOR RCP MOTOR DISASSEMBLY TO PROVIDE ACCESS
FOR FLYWHEEL SURFACE EXAM AND COST ESTIMATE

1. Decouple pump from seal in order to build a bridge at the pump to support the rotating assembly.
2. Remove constant load support, platforms, grating, and structural steel interferences.
3. Disassemble upper end of motor:
 - Oil collection system
 - Oil cooling system and associated piping
 - Anti-rotation device
 - All upper bearings (radial and thrust bearings)
 - Remove upper end shield
4. Disassemble stator cooling ductwork (RCP flywheel is under ductwork).
5. Remove rotor from stator to provide access to both sides of flywheel.



Average Cost to Disassemble and Inspect (Surface Examination)

BWNT/Byron Jackson cost	\$ 58,070.00
FPC labor/material cost	<u>\$103,292.00</u>
	\$161,362.00
Cost of inspection	\$ 5,000.00
Cost per pump	\$166,362.00
Total cost for disassembly and inspection of 4 pumps	<u>\$665,448.00</u>

Cost to Perform Volumetric Examinations of 4 RCP Motor Flywheels

Scaffold erection	\$ 3,800.00
Scaffold removal	\$ 2,400.00
HP support	\$ 1,000.00
Perform UT inspection (4 pumps)	\$12,000.00
Electrical support	\$ 1,680.00
Labor direct cost	\$12,268.00
Labor indirect cost	\$ 3,120.00
Total Cost	\$36,068.00

Table 1
Volumetric Examinations (Four RCP Motor Flywheels)

Year	Refuel Outage No.	Examination	Results
1976	Pre-operation	100%	No recordable indications
1978	R1	100%	No recordable indications
1981	R3	100% (C motor, 75%)	No recordable indications
1987	R6	100%	No recordable indications
1992	R8	100%	No recordable indications
1994	R9	100%	No recordable indications

SHOLLY EVALUATION OF REQUEST

Florida Power Corporation has reviewed the requirements of 10 CFR 50.92 as they relate to the proposed change to Technical Specification 5.6.2.8.c and considers the proposed change to not involve a significant hazards consideration. In support of this conclusion the following analysis is provided:

1. The proposed change will not significantly increase the probability or consequences of an accident previously evaluated.

The safety function of the RCP flywheels is to provide a coastdown period during which the RCPs would continue to provide reactor coolant flow to the reactor after loss of power to the RCPs. The maximum loading on the RCP motor flywheel results from overspeed following a large LOCA. The estimated maximum obtainable speed in the event of a Reactor Coolant System piping break was established conservatively. The proposed one-time change does not affect that analysis. Reduced coastdown times due to a single failed flywheel would not place the plant in an unanalyzed condition since a locked rotor (instantaneous coastdown) is analyzed in the FSAR. The proposed change does not increase the amount of radioactive material available for release or modify any systems used for mitigation of such releases during accident conditions. Therefore, the proposed change does not involve a significant increase in the consequences of any accident previously evaluated.

2. The proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change will not change the design, configuration, or method of operation of the plant. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any previously evaluated.

3. The proposed change will not involve a significant reduction to any margin of safety.

FPC has performed two full volumetric examinations in excess of those recommended in RG 1.14, Revision 1 during the Second ISI Interval. The margins of safety defined in RG 1.14, Revision 1 used in the analysis are not significantly changed.

PROPOSED TECHNICAL SPECIFICATION REPLACEMENT PAGE