Florida Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

August 31, 1998
3F0898-04

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: License Amendment Request #234, Revision 0
Additional Post-Accident Monitoring Instrumentation

Dear Sir:

Florida Power Corporation (FPC) hereby submits a request for an amendment to its Facility Operating License No. DPR-72 for Crystal River Unit 3 (CR-3) in accordance with 10 CFR 50.90. The attached License Amendment Request (LAR) #234 proposes changes to the CR-3 Improved Technical Specifications (ITS) to add three additional Regulatory Guide (RG) 1.97 Type A Category 1 post-accident monitoring (PAM) instrumentation variables and one Type B Category 1 PAM instrumentation variable to ITS Table 3.3.17-1, Post-Accident Monitoring Instrumentation.

The additional variables are being added as a result of a third party review of the FPC RG 1.97 Type A variable list and a review of the latest approved emergency operating procedures (EOPs). Type A Category 1 variables added include low pressure injection (LPI) pump run status, LPI suction from reactor building (RB) sump isolation valves DHV-42 and DHV-43 open position, and high pressure injection (HPI) pump run status. The Type B Category 1 variable added includes reactor coolant system (RCS) low range pressure.

As discussed in Attachment A (Description of Changes, Reason for Request and Evaluation of Request), FPC has determined that the change does not involve a significant hazard. Attachment B (Proposed ITS and ITS Bases Change Pages - Strikeout/Highlight), and Attachment C (Proposed ITS and ITS Bases Change Pages - Revision Bars) provide details of the proposed changes to CR-3 ITS Table 3.3.17-1, ITS 3.3.17 Surveillance Requirements, and ITS Bases Section 3.3.17.

To support timely closure of this issue prior to restart from Refueling Outage 11, FPC requests that this license amendment be approved by September 30, 1999.

This letter establishes no new regulatory commitments.

If you have any questions regarding this submittal, please contact Ms. Sherry Bernhoft, Manager, Nuclear Licensing at (352) 563-4566.

Sincerely,

J.J. Holden
Director
Site Nuclear Operations

JJH/gew

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

Attachments

A. Description of Changes, Reason for Request, and Evaluation of Request
B. Proposed ITS and ITS Bases Change Pages - Strikeout/Highlight
C. Proposed ITS and ITS Bases Change Pages - Revision Bars

STATE OF FLORIDA

COUNTY OF CITRUS

John J. Holden states that he is the Director, Site Nuclear 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.

John J. Holden
Director
Site Nuclear Operations

Sworn to and subscribed before me this 31st day of August 1998, by John J. Holden.

Charlene Miller
Signature of Notary Public
State of Florida

CHARLENE MILLER
COMMISSION NO. CC666870
EXPIRES 11/4/2000
BONDED THRU ABA - 1-800-NOTARY1

(Print, type, or stamp Commissioned Name of Notary Public)

Personally Known ✓ -OR- Produced Identification _____

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

ATTACHMENT A

LICENSE AMENDMENT REQUEST #234

REVISION 0

Description of Changes,

Reason for Request, and

Evaluation of Request

ATTACHMENT A

LICENSE AMENDMENT REQUEST (LAR) #234, REVISION 0
ADDITIONAL POST-ACCIDENT MONITORING INSTRUMENTATION

LICENSE DOCUMENT INVOLVED: Improved Technical Specifications

PORTIONS: Table 3.3.17-1
Surveillance Requirement (SR) 3.3.17.2 and SR 3.3.17.3

SUMMARY OF CHANGES:

Attachments B and C provide details of the change described below, and are included in this submittal to provide clarity and provide context for the changes being proposed.

ITS Table 3.3.17-1, Post-Accident Monitoring Instrumentation

This license amendment request proposes to add three additional Regulatory Guide (RG) 1.97 Type A Category 1 post-accident monitoring (PAM) instrumentation variables and one Type B Category 1 PAM instrumentation variable as follows:

1. A new Function 23 is added and designated as "LPI Pump Run Status," with 2 required channels (1 per pump) and Condition E referenced from Required Action D.1.

2. A new Function 24 is added and designated as "DHV-42 and DHV-43 Open Position," with 2 required channels (1 per valve) and Condition E referenced from Required Action D.1.

3. A new Function 25 is added and designated as "HPI Pump Run Status," with 2 required channels (1 per Engineered Safeguards (ES) selected pump) and Condition E referenced from Required Action D.1.

4. A new Function 26 is added and designated as "RCS Pressure (Low Range)," with 2 required channels and Condition E referenced from Required Action D.1.

ITS SR 3.3.17.2, Channel Calibration

This license amendment request proposes to add a note to SR 3.3.17.2 to exclude the new Functions 23 and 25 from the requirements to perform a CHANNEL CALIBRATION, since no adjustment of these on-off indications is possible.

ITS SR 3.3.17.3, Channel Functional Test

This license amendment request proposes to add a new SR 3.3.17.3 to require a CHANNEL FUNCTIONAL TEST for Functions 23 and 25 at a frequency of once every 24 months, to verify OPERABILITY of these on-off indications. This is consistent with other existing surveillance requirements for these pumps and with the existing CHANNEL CALIBRATION frequency in SR 3.3.17.2.

DESCRIPTION OF REQUEST:

FPC is requesting NRC approval of the addition of specified PAM instrumentation variables to the CR-3 ITS and ITS Bases as a result of a third party review of the FPC RG 1.97 Type A variable list and a review of the latest approved emergency operating procedures (EOPs).

Type A Category 1 variables added include low pressure injection (LPI) pump run status, LPI suction from reactor building (RB) sump isolation valves DHV-42 and DHV-43 open position, and high pressure injection (HPI) pump run status. A Type A variable is one of "those variables that provide primary information needed to permit the control room operating personnel to take the specified manually controlled actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for design basis events." Each of these Type A Category 1 variables are used in the EOPs to provide appropriate information to the operator for initiating required manual actions for certain design basis accident scenarios.

Surveillance testing of the two pump run status variables excludes CHANNEL CALIBRATION, since no adjustment of these on-off indications is possible. Instead, an additional surveillance requirement to perform a CHANNEL FUNCTIONAL TEST every 24 months is proposed for the pump run status variables. Functional tests of these on-off indications, at the frequency proposed, are sufficient to verify OPERABILTY of these indications and is consistent with other existing surveillance testing requirements for these pumps.

Performance of a CHANNEL CALIBRATION every 24 months for the new valve open position variable is also consistent with other existing surveillance testing requirements for these and similar valves.

The Type B Category 1 variable added includes reactor coolant system (RCS) low range pressure. A Type B variable is one of "those variables that provide information to indicate whether plant safety functions are being accomplished." This Type B Category 1 variable is used in the EOPs as an indicator to the operator for maintaining acceptable RCS pressures for several contingency actions included in the EOPs for verifying the proper automatic operation of the emergency core cooling systems.

Surveillance testing of the new pressure instrumentation, including a monthly CHANNEL CHECK and biennial CHANNEL CALIBRATION, is consistent with the surveillance testing requirements for similar instrumentation. This instrumentation was recently installed and placed into service, and the reviews previously conducted in accordance with Generic Letter 91-04 of the instrument drift data for similar instrumentation at CR-3 supports the proposed 24 month CHANNEL CALIBRATION frequency.

REASON FOR REQUEST:

Based on a third party review of the FPC RG 1.97 Type A variable list and a review of the latest approved EOPs, FPC has determined that the variables described in this request should be added to the controlled list of RG 1.97 PAM instrumentation. Accordingly, FPC has revised the design basis document for Post Accident Monitoring Instrumentation to add these new variables. Since these new variables are either RG 1.97 Type A or Non-Type A Category 1 PAM instrumentation variables, then they are also required to be included in the ITS and ITS Bases.

LPI Pump Run Status

The current EOPs include instructions for the operator to verify LPI pump run status during several evolutions. During loss of coolant accidents (LOCA), the LPI pump is manually aligned to provide suction to the associated HPI pump, in a configuration called LPI/HPI piggyback. These actions are necessary whenever the inventory in the borated water storage tank (BWST) is nearing depletion and the size of a LOCA is such that RCS pressure remains higher than the shutoff head of the LPI pump. In addition, LPI/HPI piggyback operation is required whenever single failures occur resulting in only one train of LPI being available. Since the HPI pump cannot take suction directly from the reactor building (RB) sump, the only way to continue HPI injection is to place the systems into the LPI/HPI piggyback mode.

The EOPs contain an action to verify each LPI pump is operating prior to opening the applicable valve (DHV-11 and DHV-12) between the LPI pump discharge and the associated HPI pump suction. The EOPs also contain actions to transfer suction for each LPI pump to the RB sump, and to check the operational status of each LPI pump before isolating the associated HPI pump suction from the BWST. This ensures the associated HPI pump has an adequate suction source at all times, and remains available for long-term emergency core cooling.

LPI Pump Run Status is therefore a RG 1.97 Type A variable because it is used by the operator to determine if LPI/HPI piggyback operation can be implemented as required to mitigate LOCAs and maintain long-term emergency core cooling.

DHV-42 and DHV-43 Open Position

The current EOPs require verification that DHV-42 and DHV-43 have been successfully opened by the operator to ensure suction has been established from the RB sump for the LPI pumps and building spray (BS) pumps prior to isolating suction from the BWST using valves DHV-34 and DHV-35. Verification that valves DHV-42 and DHV-43 are open is necessary to preserve the operability of the LPI and BS pumps, and possibly the HPI pump during LPI/HPI piggyback operation, by allowing isolation of pump suction from the BWST and preventing possible cavitation of the operating pumps.

DHV-42 and DHV-43 Open Position is therefore a RG 1.97 Type A variable because it is used by the operator to determine if completion of transfer from BWST to RB sump can be accomplished as required to mitigate LOCAs and to maintain long-term emergency core cooling and containment cooling.

HPI Pump Run Status

During emergency operations, the two ES selected HPI pumps are designed to automatically start. The current EOPs contain actions to verify the operating HPI pump(s) status during several evolutions. During certain LOCAs, the HPI pump run status is necessary to comply with required EOP actions for opening of the HPI pump recirculation valves to protect the necessary HPI pump(s) from damage due to low flow conditions. The EOPs specify different minimum HPI pump flow rates for opening the HPI pump recirculation valves depending upon the number of HPI pumps in operation.

HPI Pump Run Status is therefore a RG 1.97 Type A variable because it is used by the operator to ensure protection of the operating HPI pump(s) from damage due to low flow conditions as required to mitigate LOCAs and maintain long-term emergency core cooling.

RCS Pressure (Low Range)

The RCS Pressure (Low Range) digital indicators display RCS pressures for the range of 0-600 psig. This indication provides the operator with more accurate information needed during post-accident conditions with the RCS at lower pressures to determine that the automatic functions of the emergency core cooling systems should have occurred, specifically the low pressure injection actuation.

Since RCS Pressure (Low Range) is used to determine when proper automatic operation of the low pressure injection system should have occurred, then it is a RG 1.97 Type B Variable.

EVALUATION OF REQUEST:

RG 1.97 contains twelve specific recommendations applicable to RG 1.97 Category 1 instrumentation. These include the following:

1. Equipment Qualification

Environmental Qualification

The instrumentation should be qualified in accordance with Regulatory Guide 1.89, "Qualification of Class 1E Equipment for Nuclear Power Plants," and the methodology described in NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment."

Instrumentation whose ranges are required to extend beyond those ranges calculated in the most severe design basis accident event for a given variable should be qualified using the guidance provided in paragraph 6.3.6 of ANS-4.5.

Qualification applies to the complete instrumentation channel from sensor to display where the display is a direct-indicating meter or recording device. If the instrumentation channel signal is to be used in a computer-based display, recording, or diagnostic program, qualification applies from the sensor up to and including the channel isolation device.

Seismic Qualification

The instrumentation should be qualified in accordance with Regulatory Guide 1.89, "Qualification of Class 1E Equipment for Nuclear Power Plants," and the methodology described in NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment."

Instrumentation whose ranges are required to extend beyond those ranges calculated in the most severe design basis accident event for a given variable should be qualified using the guidance provided in paragraph 6.3.6 of ANS-4.5.

Qualification applies to the complete instrumentation channel from sensor to display where the display is a direct-indicating meter or recording device. If the instrumentation channel signal is to be used in a computer-based display, recording, or diagnostic program, qualification applies from the sensor up to and including the channel isolation device.

2. Redundancy

No single failure within either the accident monitoring instrumentation, its auxiliary supporting features, or its power sources concurrent with the failures that are a condition or result of a specific accident should prevent the operators from being presented the information necessary for them to determine the safety status of the plant and to bring the plant to and maintain it in a safe condition following that accident. Where failure of one accident-monitoring channel results in information ambiguity (that is, the redundant displays disagree) that could lead operators to defeat or fail to accomplish a required safety function, additional information should be provided to allow the operators to deduce the actual conditions in the plant. This may be accomplished by providing additional independent channels of information of the same variable (addition of an identical channel) or by providing an independent channel to monitor a different variable that bears a known relationship to the multiple channels (addition of a diverse channel). Redundant or diverse channels should be electrically independent and physically separated from each other and from equipment not classified important to safety in accordance with Regulatory Guide 1.75, "Physical Independence of Electric Systems," up to and including any isolation device. Within each redundant division of a safety system, redundant monitoring channels are not needed except for steam generator level instrumentation in two-loop plants.

3. Power Source

The instrumentation should be energized from station standby power sources as provided in Regulatory Guide 1.32, "Criteria for Safety-Related Electrical Power Systems for Nuclear Power Plants," and should be backed up by batteries where momentary interruption is not tolerable.

4. Channel Availability

The instrumentation channel should be available prior to an accident except as provided in paragraph 4.11, "Exception," as defined in IEEE Std. 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," or as specified in the technical specifications.

5. Quality Assurance

The recommendations of the following regulatory guides pertaining to quality assurance should be followed:

Regulatory Guide 1.28 "Quality Assurance Program Requirements (Design and Construction)"

Regulatory Guide 1.30 "Quality Assurance Requirements for the Installation, (Safety Guide 30) Inspection, and Testing of Instrumentation and Electric Equipment"

Regulatory Guide 1.38 "Quality Assurance Requirements for Packing, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants"

Regulatory Guide 1.58 "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel"

Regulatory Guide 1.64 "Quality Assurance Requirements for the Design of Nuclear Power Plants"

Regulatory Guide 1.74 "Quality Assurance Terms and Definitions"

Regulatory Guide 1.88 "Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records"

Regulatory Guide 1.123 "Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants"

Regulatory Guide 1.144 "Auditing of Quality Assurance Programs for Nuclear Power Plants"

Regulatory Guide 1.146 "Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants"

Reference to the above regulatory guides (except Regulatory Guides 1.30 and 1.38) is being made pending issuance of a revision to Regulatory Guide 1.28 that is under development (Task RS 002-5) and that will endorse ANSI/ASME NQA-1-1979, "Quality Assurance Program Requirements for Nuclear Power Plants."

6. Display and Recording

Continuous real-time display should be provided. The indication may be on a dial, digital display, CRT, or stripchart recorder. Recording of instrumentation readout information should be provided for at least one redundant channel.

If direct and immediate trend or transient information is essential for operator information or action, the recording should be continuously available on redundant dedicated recorders. Otherwise, it may be continuously updated, stored in computer memory, and displayed on

demand. Intermittent displays such as data loggers and scanning recorders may be used if no significant transient response information is likely to be lost by such devices.

7. Range

If two or more instruments are needed to cover a particular range, overlapping of instrument span should be provided. If the required range of monitoring instrumentation results in a loss of instrumentation sensitivity in the normal operating range separate instruments should be used.

8. Equipment Identification

Types A, B, and C instruments designated as Categories 1 and 2 should be specifically identified with a common designation on the control panels so that the operator can easily discern that they are intended for use under accident conditions.

9. Interfaces

The transmission of signals for other use should be through isolation devices that are designed as part of the monitoring instrumentation and that meet the provisions of this document.

10. Servicing, Testing, and Calibration

Servicing, testing, and calibration programs should be specified to maintain the capability of the monitoring instrumentation. If the required interval between testing is less than the normal time interval between plant shutdowns, a capability for testing during power operation should be provided.

Whenever means for removing channels from service are included in the design, the design should facilitate administrative control of the access to such removal means.

The design should facilitate administrative control of access to all setpoint adjustments, module calibration adjustments, and test points.

Periodic checking, testing, calibration, and calibration verification should be in accordance with the applicable portions of Regulatory Guide 1.118, "Periodic Testing of Electric Power and Protection Systems," pertaining to testing of instrument channels. (Note: Response time testing not usually needed.)

The location of the isolation device should be such that it would be accessible for maintenance during accident conditions.

11. Human Factors

The instrumentation should be designed to facilitate the recognition, location, replacement, repair, or adjustment of malfunctioning components or modules.

The monitoring instrumentation design should minimize the development of conditions that would cause meters, annunciators, recorders, alarms, etc., to give anomalous indications potentially confusing to the operator. Human factors analysis should be used in determining

type and location of displays. To the extent practicable, the same instruments should be used for accident monitoring as are used for the normal operations of the plant to enable the operators to use, during accident situations, instruments with which they are most familiar.

12. Direct Measurement

To the extent practicable, monitoring instrumentation inputs should be from sensors that directly measure the desired variables. An indirect measurement should be made only when it can be shown by analysis to provide unambiguous information.

LPI Pump Run Status

LPI Pump Run Status is used by the operator to determine if LPI/HPI piggyback operation can be implemented as required to mitigate certain LOCAs and maintain long-term emergency core cooling. Therefore, LPI Pump Run Status is a RG 1.97 Type A variable.

FPC has evaluated LPI Pump Run Status for compliance with twelve specific recommendations applicable to RG 1.97 Category 1 instrumentation as follows:

1. **Equipment Qualification - Full.** The initiating devices for each of the red indicating lights are breaker contacts in the Train A and Train B safety-related 4160 VAC switchgear (ES Buses 3A and 3B). Control power for the red indicating lights comes from Train A and Train B safety-related 125 VDC distribution panels (DPDP-5A and DPDP-5B). All of these devices and components are located in the Control Complex which is classified as a Mild Environment, and therefore are not required to be part of the environmental qualification (EQ) program. The 4160 VAC switchgear and 125 VDC distribution panels, including emergency power sources, controls, and cabling, are seismically qualified. The initiating devices and the emergency power sources, controls, and cabling for the ES Light Matrix indicator for each LPI pump are also located in the Control Complex which is classified as a Mild Environment, and are also seismically qualified.

2. **Redundancy - Full.** A single red indicating light for each LPI pump is located on the main control board. These red indicating lights are fed from redundant, train-separated electrical switchgear. A single ES Light Matrix indicator for each LPI pump is also located on the main control board, and the indicators are fed from redundant, train-separated electrical switchgear.

3. **Power Source - Full.** Control power is available for each of the red indicating lights from DPDP-5A and DPDP-5B, respectively. Each control power train is backed by the respective emergency diesel generator and safety-related 250/125 VDC battery. Control power for the ES Light Matrix indicator for each LPI pump is also backed by the respective emergency diesel generator and safety-related 250/125 VDC battery.

4. **Channel Availability - Full.** Either the red indicating light or the ES Light Matrix indicator for each LPI pump will be available prior to an accident. The required actions if both indicators are inoperable for one or both LPI pumps are contained in the proposed ITS Table 3.3.17-1.

5. **Quality Assurance - Full.** All string components were procured from a 10 CFR 50 Appendix B supplier and certified as qualified. The requirements of the FPC Quality Assurance Program and 10 CFR 21 apply.

6. **Display & Recording - Full.** The red indicating lights and the ES Light Matrix indicators provide continuous indication of LPI pump run status, including positive indication that the breakers are closed. Breaker contacts for each LPI pump also go to the RECALL/SPDS computer to provide the recording function.

7. **Range - Full.** This is an on-off indication showing the breaker closed (LPI pump running).

8. **Equipment Identification - Full.** The red indicating lights and ES Light Matrix indicators will be designated as RG 1.97 with an orange label with black lettering designating them as Category 1 instruments.

9. **Interfaces - Full.** Each string is isolated from the other, and the input to the RECALL/SPDS computer is isolated.

10. **Servicing, Testing, and Calibration - Full.** Both the red indicating light and the ES Light Matrix indicator for each LPI pump will be contained in the appropriate surveillance procedures. Both indicators for each LPI pump will be subject to a monthly CHANNEL CHECK and a biennial CHANNEL FUNCTIONAL TEST as described in existing SR 3.3.17.1 and the proposed SR 3.3.17.3. Biennial CHANNEL CALIBRATION is not required for either of these indications, as they are on-off indications that are satisfactorily verified to be able to perform their safety-related function during the biennial CHANNEL FUNCTIONAL TEST. Additionally, these on-off indications are not adjustable.

11. **Human Factors - Full.** These indicators were evaluated per the plant specific guidance contained in SP-5145, "Human Factors Design Conventions for the Control Room Specification and Criteria."

12. **Direct Measurement - Full.** The red indicating lights and ES Light Matrix indicators receive a contact closure signal input from breaker contacts directly indicating whether the pump is running. The operator can confirm the pump is running by observing the ammeters on the main control board directly above the breaker lights, but these meters are not a part of the RG 1.97 instrumentation.

<u>DHV-42 and DHV-43 Open Position</u>

DHV-42 and DHV-43 Open Position is used by the operator to determine if completion of transfer from BWST to RB sump can be accomplished as required to maintain emergency core cooling and containment cooling. Therefore, DHV-42 and DHV-43 Open Position is a RG 1.97 Type A variable.

FPC has evaluated DHV-42 and DHV-43 Open Position for compliance with twelve specific recommendations applicable to RG 1.97 Category 1 instrumentation as follows:

1. **Equipment Qualification - Full.** The initiating devices for each of the red indicating lights are limit switch contacts on the safety-related motor operators for these valves. The motor operators including limit switches, and the control power cabling located outside of the Control Complex, are environmentally qualified and maintained as part of the EQ program, and are seismically qualified. All of the other devices and components are located in the Control Complex which is classified as a Mild Environment, and therefore are not required to be part of the EQ program. The 480 VAC motor control centers, including emergency power sources, controls, and cabling, are seismically qualified.

2. **Redundancy - Full.** A single red indicating light for each valve is located on the main control board. These red indicating lights are fed from redundant, train-separated electrical switchgear.

3. **Power Source - Full.** Control power is available for each of the red indicating lights from safety-related 480 VAC motor control centers MTMC-3 and MTMC-5, respectively. Each control power train is backed by the respective emergency diesel generator, but is not backed by the respective safety-related 250/125 VDC battery.

4. **Channel Availability - Full.** The red indicating light for each valve will be available prior to an accident. The required actions if the indicator is inoperable for one or both of the valves are contained in the proposed ITS Table 3.3.17-1.

5. **Quality Assurance - Full.** All string components were procured from a 10 CFR 50 Appendix B supplier and certified as qualified. The requirements of the FPC Quality Assurance Program and 10 CFR 21 apply.

6. **Display & Recording - Partial.** The red indicating lights provide continuous indication of DHV-42 and DHV-43 open position. There is no recording function for these indicators. Recording is not considered to be required, since the operator does not monitor the position of these valves (RB sump suction valves to the LPI pumps) throughout the accident to determine when to take manual actions to close DHV-34 and DHV-35 (BWST suction valves to the LPI pumps). Instead, the operator verifies the position of these valves in a single step in the EOP to ensure the valves are open before closing DHV-34 and DHV-35, assuring that the RB sump and the BWST do not remain as a common suction source for any longer than necessary. Because these valve positions are only monitored for one step in the EOP, it is not necessary to continuously record their position over the course of the accident.

7. **Range - Full.** This is an on-off indication showing the valves open.

8. **Equipment Identification - Full.** The red indicating lights will be designated as RG 1.97 with an orange label with black lettering designating them as Category 1 instruments.

9. **Interfaces - Full.** Each string is isolated from the other.

10. **Servicing, Testing, and Calibration - Full.** The red indicating light for each valve will be contained in the appropriate surveillance procedures. The indicator for each valve will be

subject to a monthly CHANNEL CHECK as described in existing ITS SR 3.3.17.1, and a biennial CHANNEL CALIBRATION will also be performed as described in existing ITS SR 3.3.17.2.

11. **Human Factors - Full.** These indicators were evaluated per the plant specific guidance contained in SP-5145, "Human Factors Design Conventions for the Control Room Specification and Criteria."

12. **Direct Measurement - Full.** The red indicating lights receive a contact closure signal input from limit switches directly indicating whether the valve is open.

HPI Pump Run Status

HPI Pump Run Status is used by the operator to ensure protection of the operating HPI pump(s) from damage due to low flow conditions as required to mitigate LOCAs and maintain long-term emergency core cooling. Therefore, HPI Pump Run Status is a RG 1.97 Type A variable.

FPC has evaluated HPI Pump Run Status for compliance with twelve specific recommendations applicable to RG 1.97 Category 1 instrumentation as follows:

1. **Equipment Qualification - Full.** The initiating devices for each of the red indicating lights are breaker contacts in the Train A and Train B safety-related 4160 VAC switchgear (ES Buses 3A and 3B). Control power for the red indicating lights comes from Train A and Train B safety-related 125 VDC distribution panels (DPDP-5A and DPDP-5B). All of these devices and components are located in the Control Complex which is classified as a Mild Environment, and therefore are not required to be part of the EQ program. The 4160 VAC switchgear and 125 VDC distribution panels, including emergency power sources, controls, and cabling, are seismically qualified. The initiating devices and the emergency power sources, controls, and cabling for the ES Light Matrix indicator for each HPI pump are also located in the Control Complex which is classified as a Mild Environment, and are also seismically qualified.

2. **Redundancy - Full.** A single red indicating light for each ES selected HPI pump is located on the main control board. These red indicating lights are fed from redundant, train-separated electrical switchgear. A single ES Light Matrix indicator for each ES selected HPI pump is also located on the main control board, and the indicators are fed from redundant, train-separated electrical switchgear.

3. **Power Source - Full.** Control power is available for each of the red indicating lights from DPDP-5A or DPDP-5B. Each control power train is backed by the respective emergency diesel generator and safety-related 250/125 VDC battery. Control power for the ES Light Matrix indicator for each ES selected HPI pump is also backed by the respective emergency diesel generator and safety-related 250/125 VDC battery.

4. **Channel Availability - Full.** Either the red indicating light or the ES Light Matrix indicator for each ES selected HPI pump will be available prior to an accident. The required actions if both indicators are inoperable for one or both ES selected HPI pumps are contained in the proposed ITS Table 3.3.17-1.

5. **Quality Assurance - Full.** All string components were procured from a 10 CFR 50 Appendix B supplier and certified as qualified. The requirements of the FPC Quality Assurance Program and 10 CFR 21 apply.

6. **Display & Recording - Full.** The red indicating lights and the ES Light Matrix indicators provide continuous indication of HPI pump run status, including positive indication that the breakers are closed. Breaker contacts for each HPI pump also go to the RECALL/SPDS computer to provide the recording function.

7. **Range - Full.** This is an on-off indication showing the breaker closed (HPI pump running).

8. **Equipment Identification - Full.** The red indicating lights and ES Light Matrix indicators will be designated as RG 1.97 with an orange label with black lettering designating them as Category 1 instruments.

9. **Interfaces - Full.** Each string is isolated from the other, and the input to the RECALL/SPDS computer is isolated.

10. **Servicing, Testing, and Calibration - Full.** Both the red indicating light and the ES Light Matrix indicator for each HPI pump will be contained in the appropriate surveillance procedures. Both indicators for each HPI pump will be subject to a monthly CHANNEL CHECK and a biennial CHANNEL FUNCTIONAL TEST as described in existing SR 3.3.17.1 and the proposed SR 3.3.17.3. Biennial CHANNEL CALIBRATION is not required for either of these indications, as they are on-off indications that are satisfactorily verified to be able to perform their safety-related function during the biennial CHANNEL FUNCTIONAL TEST. Additionally, these on-off indications are not adjustable.

11. **Human Factors - Full.** These indicators were evaluated per the plant specific guidance contained in SP-5145, "Human Factors Design Conventions for the Control Room Specification and Criteria."

12. **Direct Measurement - Full.** The red indicating lights and ES Light Matrix indicators receive a contact closure signal input from breaker contacts directly indicating whether the pump is running. The operator can confirm the pump is running by observing the ammeters on the main control board directly above the breaker lights, but these meters are not a part of the RG 1.97 instrumentation.

<u>RCS Pressure (Low Range)</u>

RCS Pressure (Low Range) is used to verify proper automatic operation of the emergency core cooling systems. Therefore, RCS Pressure (Low Range) is a RG 1.97 Type B variable.

FPC has evaluated RCS Pressure (Low Range) for compliance with twelve specific recommendations applicable to RG 1.97 Category 1 instrumentation as follows:

1. **Equipment Qualification - Full.** The transmitters are safety-related Class 1E, and are environmentally qualified and maintained in accordance with the EQ program and are

seismically qualified. The indicators are safety-related Class 1E and are seismically qualified. All other instrument string components are safety-related Class 1E, and appropriately qualified.

2. **Redundancy - Full.** Redundant indicators exist on the main control board and are fed from redundant, train-separated instrument loops.

3. **Power Source - Full.** Redundant AC power supplies are available for each instrument loop from Train A and Train B vital buses VBDP-3 and VBDP-4, respectively. Each power supply is backed by the respective emergency diesel generator and safety-related 250/125 VDC battery.

4. **Channel Availability - Full.** Both instrument channels will be available prior to an accident. The required actions if one or both indicators are inoperable are contained in the proposed ITS Table 3.3.17-1.

5. **Quality Assurance - Full.** All string components were procured from a 10 CFR 50 Appendix B supplier and certified as qualified. The requirements of the FPC Quality Assurance Program and 10 CFR 21 apply.

6. **Display & Recording - Full.** These indicators on the main control board provide continuous indication of RCS low range pressure. However, there are no line recorders for these specific instrument loops. The current FPC commitment for RCS pressure PAM instrumentation does not distinguish between low range and wide range indication, only a total range of 0-3000 psig. FPC is in full compliance for at least one channel for the 0-3000 pressure range, including both continuous indication and recording on the main control board. The existing 0-3000 psig instrument string also includes recording in the 0-600 psig span on the main control board. Additionally, each of these instrument strings, including the original 0-3000 psig instrument and the additional 0-600 psig instruments, go to the RECALL/SPDS computer to provide additional recording function.

7. **Range - Full.** The current RG 1.97 PAM instrumentation for RCS pressure covers the entire range of 0-3000 psig. This additional instrumentation provides increased accuracy for the 0-600 psig range.

8. **Equipment Identification - Full.** The new indicators, RC-147-PI1 and RC-148-PI1, will be designated as RG 1.97 with an orange label with black lettering designating them as Category 1 instruments.

9. **Interfaces - Full.** Each string is isolated from the other, and the input to the RECALL/SPDS computer is isolated.

10 **Servicing, Testing, and Calibration - Full.** These instrument loops will be contained in the appropriate surveillance procedures, and will be subject to a monthly CHANNEL CHECK and a biennial CHANNEL CALIBRATION as described in existing ITS SR 3.3.17.1 and ITS SR 3.3.17.2. This testing is consistent with the existing surveillance requirements for similar instrumentation.

11. **Human Factors - Full.** These indicators were evaluated per the plant specific guidance contained in SP-5145, "Human Factors Design Conventions for the Control Room Specification and Criteria." Additionally, the digital readouts for these indicators were evaluated using the guidance in NUREG-0700, "Human/System Interface Design Review Guideline, Final Report," Revision 1, and meet the applicable recommendations for digital indication.

12. **Direct Measurement - Full.** These indicators receive signal input from pressure transmitters directly sensing and measuring RCS pressure.

CONCLUSION:

Addition of these variables will ensure completeness of ITS Table 3.3.17-1 by including all identified Type A and Non-Type A Category 1 PAM instrumentation variables. This will ensure instrumentation necessary for providing the operators required information during the implementation of the EOPs is available before and during design basis accidents.

Each of these instruments have been evaluated against the criteria contained in RG 1.97, and have been shown to either be fully in compliance with this criteria, with the only exception being the recording criteria for DHV-42 and DHV-43 Open Position. However, recording of these valve positions for trending purposes would not provide any useful information to the operators during the mitigation of a design basis accident. Addition of these instruments will ensure continued safe operation of the facility and the capability to safely mitigate design basis accidents through the use of specific EOP requirements.

NO SIGNIFICANT HAZARDS CONSIDERATION:

Florida Power Corporation has reviewed the requirements of 10 CFR 50.92 as they apply to the proposed License Amendment and considers the changes not to involve a significant hazards consideration. In support of this conclusion, the following analysis is provided:

1. *Involve a significant increase in the probability or consequences of an accident previously evaluated?*

   The addition of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases is to ensure instrumentation is available for use by the operators for performing manual actions, or to verify automatic actions have occurred, which are required to mitigate the effects of a design basis accident. The instrumentation is used for monitoring by the operators only after an accident occurs, performs no automatic functions, and there are no credible failures of this instrumentation which could initiate any accident previously evaluated. Therefore, the probability of occurrence of any accident previously evaluated is unaffected.

   The availability and use of this instrumentation ensures that the prescribed manual operator actions for mitigating the consequences of an accident will be implemented when necessary, and that the operator has sufficient information to verify required automatic actions have occurred when necessary. Therefore, the availability and use of the

instrumentation provides assurance that the consequences of accidents will not be greater than that previously evaluated.

2. *Create the possibility of a new or different kind of accident from previously evaluated accidents?*

   The addition of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases is to ensure instrumentation is available for use by the operators for performing manual actions, or to verify automatic actions have occurred, which are required to mitigate the effects of a design basis accident. The instrumentation is used for monitoring by the operators only after an accident occurs, performs no automatic functions, and there are no credible failures of this instrumentation which could initiate a new or different kind of accident. Therefore, the possibility of a new or different kind of accident occurring as a result of this passive instrumentation is not created.

3. *Involve a significant reduction in a margin of safety?*

   The addition of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases is to ensure instrumentation is available for use by the operators for performing manual actions, or to verify automatic actions have occurred, which are required to mitigate the effects of a design basis accident. The instrumentation is used for monitoring by the operators only after an accident occurs, and performs no automatic functions. The availability and use of this instrumentation ensures that the prescribed manual operator actions for mitigating the consequences of an accident will be implemented when necessary, and that the operator has sufficient information to verify required automatic actions have occurred when necessary. These required manual and automatic actions are necessary to preserve the margin of safety as defined in the CR-3 ITS and ITS Bases. The availability and use of this instrumentation provides assurance that the existing margin of safety will be maintained, and assumptions related to the margin of safety during mitigation of design basis accidents will be preserved. Therefore, the existing margin of safety will not be reduced.

ENVIRONMENTAL IMPACT EVALUATION:

While 10 CFR 51 requires an environmental assessment (EA) or environmental impact statement (EIS) for any "major Federal action significantly affecting the quality of the human environment," it does allow the NRC discretion in evaluating the extent to which EAs or EISs are necessary. EAs or EISs are not required for any action included in the list of "categorical exclusions" set forth in 10 CFR 51.22(c). Specifically, 10 CFR 51.22(c)(9), provides that an EA is not required for the issuance of an amendment provided that:

(i) the amendment involves no significant hazards consideration,

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and

(iii) there is no significant increase in individual or cumulative occupational radiation exposure.

FPC considers that the provisions of 10 CFR 51.22(c)(9) are applicable to this request for additions of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases. For the reasons described below and elsewhere in this submittal, FPC believes that the three criteria of 10 CFR 51.22(c)(9) are satisfied. Therefore, this License Amendment should be considered under the "categorical exclusions" provisions of 10 CFR 51.22(c)(9).

The basis for this determination includes the following:

1. The proposed additions of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases do not involve significant hazards as discussed above in the No Significant Hazards Consideration.

2. The proposed additions of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases do not result in a significant change in the types or significant increase in the amounts of any effluents that may be release offsite. The change does not result in an increase in the consequences of previously evaluated accidents. Therefore, there will be no environmental impact from addition of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases.

3. The proposed additions of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases do not result in a significant increase in individual or cumulative occupational exposure. This conclusion is based on the facts that additions of post-accident monitoring instrumentation to the CR-3 ITS and ITS Bases does not result in any increased consequences of accidents previously evaluated, and that failure of post-accident monitoring instrumentation is not an initiator of a design basis accident or event. Therefore, for the reasons given in this submittal, there will be no change in offsite consequences due to this action and its impact is bounded by the impacts assumed in the existing Final Environmental Statement (FES) for CR-3. Even if the NRC chooses to perform an EA, information provided in the FES, together with this submittal should assist the NRC in making a "finding of no significant impact" in accordance with 10 CFR 51.32.