



November 24, 2003

L-2003-297  
10 CFR 50.36

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

Re: St. Lucie Unit 2  
Docket No. 50-389  
Request for Notice of Enforcement Discretion from Technical Specification 3.8.1.1  
Limiting Condition for Operation for the 2B Startup Transformer

Attachment 1 is the written documentation of the background and technical information supporting the St. Lucie Unit 2 Notice of Enforcement Discretion (NOED) request that was approved by the NRC staff in a telephone conference call on November 22, 2003. As discussed in detail in Attachment 1, an extension of the 72-hour allowed outage time (AOT) limit of Technical Specification (TS) 3.8.1.1 Action "a" was requested in order to perform restoration activities associated with the 2B startup transformer.

The details of the circumstances surrounding this NOED request are contained in Attachment 1. As shown in the attached justification, FPL maintains that granting of a NOED in this case was in the best interest of nuclear safety. On November 22, 2003, the St. Lucie Facility Review Group (FRG) approved this NOED request. The NOED was subsequently approved by the NRC at 2300 hours on November 22, 2003, with the agreement that FPL would provide a written update on the startup transformer breaker issues. The breaker update is provided in Attachment 2, and was reviewed by the St. Lucie FRG on November 24, 2003.

At 0100 hours on November 23, 2003, St. Lucie replaced breaker 2-20302, completing the requisite action that allowed the 1B startup transformer to be aligned to Unit 2 as allowed by TS 3.8.1.1 Action "f." TS 3.8.1.1 Action "a" was exited with only five minutes remaining on the original 72-hour AOT. Therefore, the NRC approved NOED was not actually utilized. The 2B startup transformer corrective maintenance continues at this time and should be returned to service no later than 1800 hours on November 25, 2003.

Should you have any questions, please contact Mr. Terry L. Patterson, Manager of Licensing, at (772) 467-7162.

Sincerely,

A handwritten signature in black ink, appearing to read 'WJ', is written over the word 'Sincerely,'.

William Jefferson, Jr.  
Site Vice President  
St. Lucie Nuclear Plant

WJ/KWF

Attachments

ADD1

## REQUEST FOR ENFORCEMENT DISCRETION

### Purpose

This document contains the justification and supporting information for a temporary, one-time deviation from Technical Specification requirements. The vehicle for continued operation in current plant status is provided by the NRC via a Notice of Enforcement Discretion (NOED). Justification and required actions are provided in the following sections.

The requested NOED is considered a region-issued NOED since the noncompliance is nonrecurring and is expected not to exceed 14 days duration. A license amendment is not practical because the plant will return to compliance in a short period of time.

### 1. TECHNICAL SPECIFICATION OR OTHER LICENSE CONDITION THAT WILL BE VIOLATED

St. Lucie Unit 2 Technical Specification 3.8.1.1 provides the Limiting Condition for Operation (LCO) associated with ac electrical power sources. This LCO includes requirements for both offsite and onsite ac power sources; however, this request is only with respect to the ability to comply with the requirements for offsite power sources. The following portions of the Technical Specification are applicable:

#### LIMITING CONDITION FOR OPERATION:

As a minimum, the following ac electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system.

APPLICABILITY: MODES 1, 2, 3, and 4.

#### ACTION:

- a. With one offsite circuit of 3.8.1.1.a inoperable, except as provided in Action f. below, demonstrate the OPERABILITY of the remaining ac sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
- f. With one Unit 2 startup transformer (2A or 2B) inoperable and with a Unit 1 startup transformer (1A or 1B) connected to the same A or B offsite power circuit and administratively available to both units, then should Unit 1 require the use of the startup transformer administratively available to both units, Unit 2 shall demonstrate the operability of the remaining ac sources by performing Surveillance Requirement 4.8.1.1.1a within 1 hour and at least once per 8 hours thereafter. Restore the inoperable startup transformer to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

2. CIRCUMSTANCES SURROUNDING THE SITUATION, INCLUDING APPARENT ROOT CAUSES, THE NEED FOR PROMPT ACTION AND IDENTIFICATION OF ANY RELEVANT HISTORICAL EVENTS

The 1B (Unit 1) and 2B (Unit 2) startup transformers were removed from service at 0105 hrs on November 20<sup>th</sup> in support of a planned on-line maintenance activity to replace insulators and perform relay, breaker, and other maintenance activities. Both units are currently operating in Mode 1, which required entry into the appropriate 72-hour Technical Specification Action (both units). The planned maintenance for both the 1B and 2B startup transformers was scheduled to run about 48 hours of the 72-hour allowed outage time (AOT). While working the 2B startup transformer, three of the 230 kV insulator supports were found to be substantially degraded to the extent that they are no longer reliable. Repair of the degraded insulator supports will prevent return of the 2B startup transformer to service within the 72-hour AOT. Maintenance work on the 1B startup transformer has been completed and the transformer has been returned to service.

Repair of the three degraded insulator supports requires the fabrication and installation of insulator mounting boxes. This activity will prevent the 2B startup transformer from returning to service within the 72-hour AOT. In addition, the plant is unable to align the 1B startup transformer to Unit 2 as allowed by Technical Specification 3.8.1.1, Action f, because the crosstie breaker 2-20703 could not initially be maintained in the closed position. This breaker has been closed but troubleshooting is still in progress. In addition, during post maintenance testing, the breaker feeding the non-essential bus from the startup transformer (2-20302) would not close when attempting to transfer power to the 1B startup transformer from the 2B auxiliary transformer. Trouble shooting is in progress. The failure of breaker 2-20703 was initially attributed to an infrequently used close control switch, but was later inspected to be satisfactory. The tripping of the breaker following the initial closure attempt appears to be related to the trip latch adjustment. Since this breaker is now closed the slight misalignment of the trip latch will not cause the breaker to trip open. This breaker does not have to cycle for any reason. The failure of breaker 2-20302 was isolated to an excessive clearance on the trip latch adjustment. Adjustment of this trip latch was not successful and an available spare breaker is being prepared for service. In both these cases, these breakers had been racked out and were being returned to service. Returning a breaker to service requires energizing and closing the breaker. Therefore, such concerns are discovered prior to placing a breaker in service and thus this failure mechanism does not apply to in service breakers.

A plant shutdown and cooldown would be required if the 72-hour AOT is exceeded without the 2B startup transformer and associated breakers returned to service. The LCO requires a plant shutdown to COLD SHUTDOWN if the required offsite power circuits are not restored within the AOT.

No historical events apply to this request.

3. SAFETY BASIS FOR THE REQUEST, INCLUDING AN EVALUATION OF THE SAFETY SIGNIFICANCE AND POTENTIAL CONSEQUENCES OF THE PROPOSED COURSE OF ACTION. THIS EVALUATION SHOULD INCLUDE AT LEAST A QUALITATIVE RISK ASSESSMENT USING BOTH RISK INSIGHTS AND INFORMED JUDGEMENTS, AS APPROPRIATE

The startup transformers are non-safety components that are used to provide offsite power to the plant when the unit is shutdown. Startup transformers are sized to accommodate the auxiliary loads of the unit under any operating or accident conditions.

**Safety Basis/Risk Impact:**

This request for enforcement discretion has been evaluated from a probabilistic risk perspective. This evaluation determined that there is no net increase in risk associated with maintaining the plant at power for an additional 72 hours with the 2B startup transformer inoperable over the risk associated with performing a reactor shutdown.

An evaluation was performed using St. Lucie's PRA to quantify the "at-power" risk. For the evaluation, two zero test and maintenance quantifications of the PRA model were performed: one quantification run assumed all equipment was available (as a base case) and the other case assumed the 2B startup transformer was unavailable. No other equipment that would have an effect on Unit 2 risk was assumed unavailable since no risk significant equipment is currently out of service. Compensatory measures will be in place to ensure the risk evaluation remains valid (see question 7 response).

This risk assessment is based on the following:

- Used OLRM for quantitative assessment of "at-power" risk
  - Small change in risk compared to ICCDP criteria in RG 1.177
  - Small-small change in risk compared to "change in CDF" criteria in RG 1.174
- Qualitative shutdown risk assessment performed
  - During normal power operation the startup transformers are in standby.
  - When the unit is on-line, plant electrical loads are powered from the output of the main generator via the auxiliary transformers.
  - If the unit is forced to shutdown with the 2B startup transformer OOS, the "B" train electrical loads must be powered by the 2B EDG. This would result in an unnecessary challenge to the 2B EDG and one train of safe shutdown loads being powered from their emergency power source.
- The risk assessment conclusion is that the shutdown risk is greater than or equal to the at-power risk associated with a 2B startup transformer AOT extension of 72 hours
  - No net increase in risk

The compensatory measures proposed (see section 7) reduce the potential for requiring transfer of power from the 2B auxiliary transformer to the non operable 2B startup transformer. In addition, the compensatory measures also reduce the potential to affect the ability to supply power to the 2B vital buses either from the 2B EDG or by cross tying via the station blackout cross tie to the Unit 1 EDGs.

In addition to the above compensatory measures, the EDGs have been successfully tested according to their normal surveillance schedule. This includes closure of the EDG output breaker thus ensuring that these breakers are reliable when needed.

After considering the total risk associated with an additional 72 hours of power operation and the risks associated with plant shutdown, it is concluded that there is no net increase in risk associated with extending the AOT of the 2B startup transformer from 72 hours to 144 hours.

#### 4. JUSTIFICATION FOR THE DURATION OF THE NONCOMPLIANCE

FPL proposes to extend the 72-hour AOT to a total of 144 hours to allow sufficient time to repair the 2B startup transformer insulator supports and perform post-maintenance and operability testing before the transformer could be restored to an operable status. As discussed above, there is no net increase in risk associated with operating Unit 2 for an additional 72 hours.

#### 5. BASIS FOR THE CONCLUSION THAT THE NONCOMPLIANCE WILL NOT BE OF POTENTIAL DETRIMENT TO THE PUBLIC HEALTH AND SAFETY, AND THAT NO SIGNIFICANT HAZARD CONSIDERATION IS INVOLVED

FPL has evaluated this request for enforcement discretion against the criteria set forth in 10 CFR 50.92 and concludes that the request involves no significant hazards consideration. The evaluation is provided below.

1. Does the change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

Extending the 72-hour AOT by 72 hours does not physically alter any plant structures, systems, or components, and does not affect or create new accident initiators or precursors. The allowed outage time for a component is not an accident initiator; therefore, there is no effect on the probability of accidents previously evaluated.

The offsite power system is not required to mitigate the consequences of accidents previously evaluated in the UFSAR. Extending the 72-hour AOT by an additional 72 hours does not increase the consequences of an accident since the emergency diesel generators, which are not affected by this request, are credited with providing electrical power. In addition, the probability of an accident occurring during the 72-hour extension is low. The requested action does not affect the types or amounts of radionuclides released following an accident, nor the initiation and duration of their release.

Therefore, the probability of occurrence or the consequences of accidents previously evaluated are not increased because there is no net increase in risk associated with extending the AOT of the 2B startup transformer from 72 hours to 144 hours.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The requested action to extend the 72-hour AOT by 72 hours does not physically alter any structures, systems, or components, and does not affect or create new accident initiators or precursors. The accident analysis assumptions and results are unchanged. No new failures or interactions have been created.

Extending the 72-hour AOT by an additional 72 hours does not introduce new failure modes or mechanisms associated with plant operation. Furthermore, the additional 72-hour period associated with the restoration of the 2B startup transformer would not create a new accident type.

Therefore, the change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

FPL has determined that no net increase in risk is associated with extending the 72-hour AOT by an additional 72 hours (see response to question 3). Although the proposed action deviates from a requirement in TS 3.8.1.1, it does not affect any safety limits, setpoints in the TS, or other operational parameters, nor does it affect any margins assumed in the accident analyses. The redundant 2A startup transformer and the plant's emergency diesel generators continue to be operable to perform their required design function.

Therefore, the proposed action does not significantly reduce the margin of safety.

6. THE BASIS FOR THE LICENSEE'S CONCLUSION THAT THE NONCOMPLIANCE WILL NOT INVOLVE ADVERSE CONSEQUENCES TO THE ENVIRONMENT

FPL has evaluated the requested enforcement discretion request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. FPL has determined that the requested action does not change requirements with respect to the use of a facility component located within the restricted area as defined in 10 CFR Part 20. The requested action involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and no significant increase in individual or cumulative occupational radiation exposure. FPL concludes that the requested action involves no significant hazards consideration and meet the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and that, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment need not be prepared.

## 7. PROPOSED COMPENSATORY MEASURES

During the period the 2B startup transformer is inoperable, the following compensatory measures and restrictions will be in effect:

- No Unit 2 safety-related equipment will be removed from service for planned maintenance.
- No work will be performed on or in the vicinity of the 2A startup transformer.
- No work will be performed on 4160v switchgear except that required to return the 2B startup transformer to service.
- No work will be performed which will potentially jeopardize either unit operation (i.e., waterbox flushing, pump swaps, etc.).
- With the exception of work related to restoration of the 2B startup transformer, no switchyard work will be performed.
- The 2AB bus will remain aligned to the "A" side.
- No EDG (on either unit) or station blackout bus tie work will be performed.
- There will be senior management oversight to ensure timely restoration of the 2B startup transformer.
- The system dispatcher was contacted to confirm that in the event system degradation or perturbations were to occur, the control room will be notified.
- Administrative controls will be put in place to limit access to equipment such as: 2A and 2B auxiliary transformers, 2A startup transformer, 2A and 2B EDG, and switchyard.

In addition, during the period the 2B startup transformer is inoperable, any forecast of severe weather will be evaluated by the Shift Manager for potential impact on offsite power sources. If such an impact is identified, then with concurrence of the Manager of Operations or Supervisor of Operations, the NRC Senior Resident Inspector will be notified, and Unit 2 will be shut down in an orderly manner.

## 8. STATEMENT THAT THE REQUEST HAS BEEN APPROVED BY THE FACILITY ORGANIZATION THAT NORMALLY REVIEWS SAFETY ISSUES

This request has been reviewed and approved by the St. Lucie Facility Review Group.

## 9. CRITERIA FOR APPROPRIATE PLANT CONDITIONS SPECIFIED IN NRC INSPECTION MANUAL CHAPTER 9900 SECTION B

FPL evaluated the requested enforcement discretion against the criteria specified in Section B.2.1.1.a of NRC Inspection Manual Chapter 9900. This section states that the NOED is

intended to avoid unnecessary transients as a result of compliance with the license condition and thus minimize potential safety consequences and operational risks.

FPL considered that the condition satisfied this criterion. Compliance with TS 3.8.1.1, Action "a" could result in an undesirable transient by requiring Unit 2 to be in Mode 5 by 1305 hours on November 24<sup>th</sup>. Extending the allowed outage time from 72 hours to 144 hours allows continued Unit 2 operation for that additional time needed to replace the 2B startup transformer insulator supports and restore the transformer to operable status. No corresponding health and safety benefit would be gained by requiring a plant shutdown. Based on the above, the criteria is satisfied.

#### 10. FOLLOW-UP LICENSE AMENDMENT

No Technical Specification changes are required.

#### 11. CIRCUMSTANCES INVOLVING SEVERE WEATHER OR OTHER NATURAL EVENTS

The request for enforcement discretion does not involve severe weather or other natural events.



**Update on St. Lucie Plant Breakers Associated  
With Operation of the 1B and 2B Startup Transformers  
(Status as of November 24, 2003)**

During the November 22, 2003 teleconference with the NRC regarding FPL's request for enforcement discretion, FPL indicated that there was difficulty with a couple of breakers related to the 2B4 4160 volt bus, which feeds Unit 2 from either the 1B or 2B startup transformer. At the time enforcement discretion was verbally authorized, the NRC requested that FPL include an update on the breaker problems as part of the written request required to be submitted within two working days of the Notice of Enforcement Discretion (NOED) authorization. This documents that update.

There are two breaker locations where problems were reported – breaker location 2-20703, which is the cross-connect isolation between Unit 2 startup transformer bus 2B4 and the 1B startup transformer (Unit 1), and breaker location 2-20302, which is a breaker that feeds Unit 2 loads from 2B startup transformer bus 2B4.

Breaker Location 2-20703

As noted in the request for enforcement discretion, there was difficulty maintaining this breaker in the closed position. As part of troubleshooting, the breaker was racked-out and tested on an umbilical cord. The breaker closed and tripped with no problems. A test device (lockout relay) was then installed on the breaker to help determine the cause of the tripping. The test device should trip if the breaker trip coil receives an electrical trip signal. When the breaker was subsequently racked-in and closed, it immediately tripped without tripping the test device. This indicated that the trip was not electrical in nature, but was a mechanical trip generated from within the breaker itself.

FPL inspected the floor tripper mechanisms with the breaker in the cubicle and observed no problems. The breaker was again closed, and it remained closed. The breaker was then repeatedly closed-in (3 times), each time remaining closed. A breaker specialist then inspected the mechanical trip mechanisms and concluded the breaker trip and close latches were solidly latched and there was no concern with the breaker spuriously tripping if left in the closed position.

The breaker was subsequently removed, inspected, and no causal factors were identified. In normal operation breaker location 2-20703 is left empty, and the breaker was returned to service in breaker location 2-20701.

Breaker Location 2-20302

As noted in the request for enforcement discretion, this breaker was observed to close and immediately trip. A breaker specialist inspected the mechanical trip mechanisms and concluded the breaker trip latch was out of adjustment. He was then able to manually position the trip latch to its correct position, confirming his observation that it was improperly positioned. The breaker was then racked-out to make an adjustment to the trip latch.

After numerous attempts to make this adjustment in accordance with the applicable maintenance procedure, it was decided there was a mechanical problem within the breaker that

would not allow the proper adjustment to be made. The breaker was subsequently removed from the Unit 2 turbine switchgear room and quarantined for further root cause determination.

A spare breaker was obtained and inspected/setup for use in accordance with the applicable maintenance procedure. This spare breaker was racked-in and inspected and determined to require no further adjustment.

**Additional information:**

FPL will inspect all breakers currently out on clearance for the 1B/2B startup transformer in an effort to identify any problems with these breakers prior to returning them to service. Once racked-in, each breaker will be inspected prior to attempting closure.