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FPL Energy.

Duane Arnold Energy Center

December 20, 2007

NG-07-0971
10 CFR 50.90

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

Duane Arnold Energy Center
Docket 50-331
License No. DPR-49

TSCR-098, Application for Technical Specification Improvement to Adopt TSTF-475, Revision 1, "Revise Control Rod Notch Surveillance Frequency, and Clarify Frequency Example"

Affected Technical Specifications: Sections 1.4, 3.1.3, and 3.1.4

Pursuant to 10 CFR 50.90, FPL Energy Duane Arnold, LLC (FPL Energy Duane Arnold) hereby requests revision to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC).

The proposed amendment would: (1) revise the TS surveillance requirement (SR) frequency in TS 3.1.3, "Control Rod OPERABILITY," and (2) revise Example 1.4-3 in Section 1.4 "Frequency" to clarify the applicability of the 1.25 surveillance test interval extension.

Enclosure A provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications. Enclosure B provides the existing TS and Bases pages marked up to show the proposed change. Enclosure C provides revised (clean) TS pages. Enclosure D provides a summary of the regulatory commitments made in this submittal.

FPL Energy Duane Arnold requests approval of this amendment request by May 31, 2008 and requests an implementation period of 120 days after issuance of the license amendment.

A copy of this submittal, along with the 10 CFR 50.92 evaluation of "No Significant Hazards Consideration," is being forwarded to our appointed state official pursuant to 10 CFR 50.91.

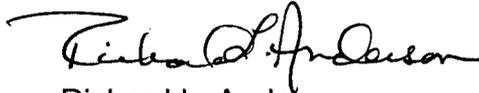
Commitments made in this submittal are listed Enclosure D. If you have any questions or require additional information, please contact Steve Catron at (319) 851-7234.

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I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 20, 2007.



Richard L. Anderson
Vice President, Duane Arnold Energy Center
FPL Energy Duane Arnold, LLC

Enclosures: A) Evaluation of Proposed Change
B) Proposed Technical Specification and Bases Changes (Mark-Up)
C) Proposed Technical Specification Pages (Re-Typed)
D) Regulatory Commitments

cc: Administrator, Region III, USNRC
Project Manager, DAEC, USNRC
Resident Inspector, DAEC, USNRC
D. McGhee (State of Iowa)

ENCLOSURE A

EVALUATION OF PROPOSED CHANGE

Subject: Application for Technical Specification Improvement to Adopt TSTF-475, Revision 1, "Revise Control Rod Notch Surveillance Frequency and Clarify Frequency Example"

- 1.0 DESCRIPTION
- 2.0 PROPOSED CHANGES
- 3.0 REGULATORY ANALYSIS
- 4.0 ENVIRONMENTAL EVALUATION

**Application for Technical Specification Improvement to Adopt
TSTF-475, Revision 1, "Revise Control Rod Notch Surveillance Frequency and
Clarify Frequency Example"**

1.0 DESCRIPTION

The proposed amendment would: (1) Revise the Technical Specification (TS) surveillance requirement (SR 3.1.3.2) frequency in TS 3.1.3, "Control Rod OPERABILITY," and (2) revise Example 1.4-3 in Section 1.4, "Frequency," to clarify the applicability of the 1.25 surveillance test interval extension. The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) change TSTF-475, Revision 1. The Federal Register Notice published on November 13, 2007 announced the availability of this TS improvement through the consolidated line item improvement process (CLIP).

2.0 PROPOSED CHANGES

2.1 Applicability of Published Safety Evaluation

FPL Energy Duane Arnold has reviewed the safety evaluation dated November 5, 2007 as part of the CLIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-475, Revision 1. FPL Energy Duane Arnold has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to the Duane Arnold Energy Center (DAEC) and justify this amendment for the incorporation of the changes to the DAEC TS.

2.2 Optional Changes and Variations

FPL Energy Duane Arnold is not proposing any variations or deviations from the TS changes described in the modified TSTF-475, Revision 1 and the NRC staff's model safety evaluation dated November 5, 2007.

It should be noted that FPL Energy Duane Arnold does not use the same language as the Improved Standard TS (NUREG-1433) in the Note prior to SR 3.1.3.2. The DAEC TS specifies that the frequency of SR 3.1.3.2, notch testing of fully withdrawn control rod, is performed "31 days after the control rod is withdrawn and THERMAL POWER is greater than 20% [Rated Thermal Power] RTP" instead of "31 days after the control rod is withdrawn and THERMAL POWER is greater than the [Low Power Setpoint] LPSP of the [Rod Worth Minimizer] RWM." This deviation from NUREG-1433 was incorporated into the DAEC TS by Amendment 223 dated May 22, 1998 (ML021920121) in the conversion of the DAEC TS to the Improved Standard TS.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

FPL Energy Duane Arnold has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. FPL Energy Duane Arnold has concluded that the proposed NSHCD presented in the Federal Register notice is applicable to the DAEC and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Verification and Commitments

As discussed in the notice of availability published in the Federal Register on November 13, 2007 for this TS improvement, FPL Energy Duane Arnold verifies the applicability of TSTF-475 to the DAEC, and will establish the Technical Specification Bases for TS B 3.1.3 and TS B 3.1.4 consistent with those shown in TSTF-475, Revision 1.

These changes are based on TSTF change traveler TSTF-475, Revision 1, which proposes revisions to the Standard Technical Specifications by: (1) Revising the frequency of SR 3.1.3.2, notch testing of fully withdrawn control rod, from "7 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP" to "31 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP," and (2) revising Example 1.4-3 in Section 1.4 "Frequency" to clarify that the 1.25 surveillance test interval extension in SR 3.0.2 is applicable to time periods discussed in NOTES in the "SURVEILLANCE" column in addition to the time periods in the "FREQUENCY" column.

4.0 ENVIRONMENTAL EVALUATION

FPL Energy Duane Arnold has reviewed the environmental evaluation included in the model safety evaluation dated November 5, 2007 as part of the CLIIP. FPL Energy Duane Arnold has concluded that the staff's findings presented in that evaluation are applicable to the DAEC and the evaluation is hereby incorporated by reference for this application.

ENCLOSURE B

PROPOSED TECHNICAL SPECIFICATION AND BASES
CHANGES

(MARK-UP)

1.4 Frequency

EXAMPLES
(continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Not required to be performed until 12 hours after $\geq 25\%$ RTP. -----</p>	
<p>Perform channel adjustment.</p>	<p>7 days</p>

The interval continues whether or not the unit operation is $< 25\%$ RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is $< 25\%$ RTP, this Note allows 12 hours after power reaches $\geq 25\%$ RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was $< 25\%$ RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours (*plus the extension allowed by SR 3.0.2*) with power $\geq 25\%$ RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (*plus the extension allowed by SR 3.0.2*), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

(continued)

Control Rod OPERABILITY
3.1.3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the Low Power Setpoint (LPSP) of the RWM.
	<u>AND</u> A.4 Perform SR 3.1.1.1	72 hours
B. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1 -----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. -----	3 hours
	Fully insert inoperable control rod. <u>AND</u>	
		(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	24 hours
SR 3.1.3.2	<p style="text-align: center;">NOTE</p> <p>Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP.</p> <hr/> <p>Insert each fully withdrawn control rod at least one notch.</p>	7 days
SR 3.1.3.23	<p style="text-align: center;">NOTE</p> <p>Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP.</p> <hr/> <p>Insert each partially withdrawn control rod at least one notch.</p>	31 days
SR 3.1.3.34	Verify each control rod scram time from fully withdrawn to notch position 04 is ≤ 7 seconds.	In accordance with SR 3.1.4.1 and SR 3.1.4.2

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.1.3.45 Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position <u>AND</u> Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position 04. These control rods are inoperable, in accordance with SR 3.1.3.34, and are not considered "slow."
-

NOTCH POSITION	SCRAM TIMES ^(a) (seconds) when REACTOR STEAM DOME PRESSURE ≥ 800 psig
46	0.44
38	0.93
26	1.83
06	3.35

(a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.

BASES

ACTIONS

A.1, A.2, A.3, and A.4 (continued)

a location adjacent to two "slow" control rods, b) the stuck control rod occupies a location adjacent to one "slow" control rod, and the one "slow" control rod is also adjacent to another "slow" control rod, or c) the stuck control rod occupies a location adjacent to one "slow" control rod when there is another pair of "slow" control rods adjacent to one another. The description of "slow" control rod is provided in LCO 3.1.4, "Control Rod Scram Times." In addition, the associated control rod drive must be disarmed in 2 hours. The allowed Completion Time of 2 hours is acceptable, considering the reactor can still be shut down, assuming no additional control rods fail to insert, and provides a reasonable time to perform the Required Action in an orderly manner. The control rod must be isolated from both scram and normal insert and withdraw pressure. Isolating the control rod from scram and normal insert and withdraw pressure prevents damage to the CRDM. The control rod must be isolated by isolating the hydraulic control unit from the scram and normal insert and withdraw pressure, while still maintaining cooling water to the CRD.

Monitoring of the insertion capability of each withdrawn control rod must also be performed within 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM. SR 3.1.3.2 and SR 3.1.3.3 performs periodic tests of the control rod insertion capability of withdrawn control rods. Testing each withdrawn control rod ensures that a generic problem does not exist. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." The Required Action A.3 Completion Time only begins upon discovery of Condition A concurrent with THERMAL POWER greater than the actual LPSP of the RWM, since the notch insertions may not be compatible with the requirements of rod pattern control (LCO 3.1.6) and the RWM (LCO 3.3.2.1). The allowed Completion Time of 24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the low power setpoint (LPSP) of the RWM provides a reasonable time to test the control rods, considering the potential for a need to reduce power to perform the tests.

(continued)

BASES

ACTIONS
(continued)

E.1

If any Required Action and associated Completion Time of Condition A, C, or D are not met, or there are nine or more inoperable control rods, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. This ensures all insertable control rods are inserted and places the reactor in a condition that does not require the active function (i.e., scram) of the control rods. The number of control rods permitted to be inoperable when operating above 10% RTP (e.g., no CRDA considerations) could be more than the value specified, but the occurrence of a large number of inoperable control rods could be indicative of a generic problem, and investigation and resolution of the potential problem should be undertaken. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems.

SURVEILLANCE
REQUIREMENTS

SR 3.1.3.1

The position of each control rod must be determined to ensure adequate information on control rod position is available to the operator for determining control rod OPERABILITY and controlling rod patterns. Control rod position may be determined by the use of OPERABLE position indicators, by moving control rods to a position with an OPERABLE indicator, by use of TIP traces, by alternate rod position determination methods, or by the use of other appropriate methods. The 24 hour Frequency of this SR is based on operating experience related to expected changes in control rod position and the availability of control rod position indications in the control room.

SR 3.1.3.2 and SR 3.1.3.3

Control rod insertion capability is demonstrated by inserting each partially or fully withdrawn control rod at least one notch and observing that the control rod moves. The control rod may then be returned to its original position. This ensures the control rod is not stuck and is free to insert on a scram signal. These Surveillances are not required when THERMAL POWER is less

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.3.2 and SR 3.1.3.3 (continued)

than or equal to 20% RTP since the notch insertions may not be compatible with the requirements of the Banked Position Withdrawal Sequence (BPWS) (LCO 3.1.6) and the RWM (LCO 3.3.2.1). ~~The 7 day Frequency of SR 3.1.3.2 is based on operating experience related to the changes in CRD performance and the ease of performing notch testing for fully withdrawn control rods. Partially and fully withdrawn control rods are tested at a 31 day Frequency, based on the potential power reduction required to allow the control rod movement and considering the large testing sample of SR 3.1.3.2. Furthermore, the 31 day Frequency takes into account operating experience related to changes in CRD performance. At any time, if a control rod is immovable (e.g., due to an inoperable insert or withdrawn solenoid valve), a determination of that control rod's ability to be moved with scram pressure OPERABILITY must be made and appropriate action taken.~~

~~Thisese SRs isare modified by a Notes that allows 7 days and 31 days respectively, after withdrawal of the control rod and increasing power to above 20% RTP, to perform the Surveillance. This acknowledges that the control rod must be first withdrawn and THERMAL POWER must be increased to above 20% RTP before performance of the Surveillance, and therefore the Notes avoids potential conflicts with SR 3.0.3 and SR 3.0.4.~~

SR 3.1.3.34

Verifying that the scram time for each control rod to notch position 04 is ≤ 7 seconds provides reasonable assurance that the control rod will insert when required during a DBA or transient, thereby completing its shutdown function. This SR is performed in conjunction with the control rod scram time testing of SR 3.1.4.1 and SR 3.1.4.2. The LOGIC SYSTEM FUNCTIONAL TEST in LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," and the functional testing of SDV vent and drain valves in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlap this Surveillance to provide complete testing of the assumed safety function. The associated Frequencies are acceptable, considering the more frequent testing performed to

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.1.3.34 (continued)

demonstrate other aspects of control rod OPERABILITY and operating experience, which shows scram times do not significantly change over an operating cycle.

SR 3.1.3.45

Coupling verification is performed to ensure the control rod is connected to the CRDM and will perform its intended function when necessary. The Surveillance requires verifying a withdrawn control rod does not go to the withdrawn overtravel position. The overtravel position feature provides a positive check on the coupling integrity since only an uncoupled CRD can reach the overtravel position. The verification is required to be performed any time a control rod is withdrawn to the "full out" position (notch position 48) or prior to declaring the control rod OPERABLE after work on the control rod or CRD System that could affect coupling. This includes control rods inserted one notch and then returned to the "full out" position during the performance of SR 3.1.3.2. This Frequency is acceptable, considering the low probability that a control rod will become uncoupled when it is not being moved and operating experience related to uncoupling events.

REFERENCES

1. UFSAR, Sections 3.1.2.3.7, 3.1.2.3.8, 3.1.2.3.9, and 3.1.2.3.10
2. UFSAR, Section 4.3.3.
3. UFSAR, Section 5.2.2 and Appendix 5B.
4. UFSAR, Section 15.0.
5. NEDO-21231, "Banked Position Withdrawal Sequence," Section 7.2, January 1977

BASES

LCO
(continued)

measurement of the "dropout" times. To ensure that local scram reactivity rates are maintained within acceptable limits, no more than two of the allowed "slow" control rods may occupy adjacent locations.

Table 3.1.4-1 is modified by two Notes which state that control rods with scram times not within the limits of the table are considered "slow" and that control rods with scram times > 7 seconds are considered inoperable as required by SR 3.1.3.34.

This LCO applies only to OPERABLE control rods since inoperable control rods will be inserted and disarmed (LCO 3.1.3). Slow scrambling control rods may be conservatively declared inoperable and not accounted for as "slow" control rods.

APPLICABILITY

In MODES 1 and 2, a scram is assumed to function during transients and accidents analyzed for these plant conditions. These events are assumed to occur during startup and power operation; therefore, the scram function of the control rods is required during these MODES. In MODES 3 and 4, the control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate requirements for control rod scram capability during these conditions. Scram requirements in MODE 5 are contained in LCO 3.9.5, "Control Rod OPERABILITY-Refueling."

ACTIONS

A.1

When the requirements of this LCO are not met, the rate of negative reactivity insertion during a scram may not be within the assumptions of the safety analyses. Therefore, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

(continued)

ENCLOSURE C

PROPOSED TECHNICAL SPECIFICATION PAGES

(RE-TYPED)

1.4 Frequency

EXAMPLES
(continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Not required to be performed until 12 hours after $\geq 25\%$ RTP. -----</p>	
<p>Perform channel adjustment.</p>	<p>7 days</p>

The interval continues whether or not the unit operation is $< 25\%$ RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is $< 25\%$ RTP, this Note allows 12 hours after power reaches $\geq 25\%$ RTP to perform the Surveillance. The Surveillance is still considered to be within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day interval (plus the extension allowed by SR 3.0.2), but operation was $< 25\%$ RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours (plus the extension allowed by SR 3.0.2) with power $\geq 25\%$ RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval (plus the extension allowed by SR 3.0.2), there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

(continued)

Control Rod OPERABILITY
3.1.3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	B.3 Perform SR 3.1.3.2 for each withdrawn OPERABLE control rod.	24 hours from discovery of Condition A concurrent with THERMAL POWER greater than the Low Power Setpoint (LPSP) of the RWM.
	<u>AND</u> B.4 Perform SR 3.1.1.1	72 hours
E. Two or more withdrawn control rods stuck.	B.1 Be in MODE 3.	12 hours
F. One or more control rods inoperable for reasons other than Condition A or B.	C.1 -----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. -----	3 hours
	Fully insert inoperable control rod. <u>AND</u>	
		(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	24 hours
SR 3.1.3.2	<p>-----NOTE----- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than 20% RTP. -----</p> <p>Insert each withdrawn control rod at least one notch.</p>	31 days
SR 3.1.3.3	Verify each control rod scram time from fully withdrawn to notch position 04 is ≤ 7 seconds.	In accordance with SR 3.1.4.1 and SR 3.1.4.2
SR 3.1.3.4	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	Each time the control rod is withdrawn to "full out" position <u>AND</u> Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling

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Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

3. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 4. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to notch position 04. These control rods are inoperable, in accordance with SR 3.1.3.3, and are not considered "slow."
-

NOTCH POSITION	SCRAM TIMES ^(a) (seconds) when REACTOR STEAM DOME PRESSURE ≥ 800 psig
46	0.44
38	0.93
26	1.83
06	3.35

- (b) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.

ENCLOSURE D

REGULATORY COMMITMENTS

REGULATORY COMMITMENTS

Regulatory Commitment	Due Date/Event
FPL Energy Duane Arnold will establish the Technical Specification Bases for TS B 3.1.3 and TS B 3.1.4 consistent with those shown in TSTF-475, Revision 1, "Control Rod Notch Testing Frequency and SRM Insert Control Rod Action."	Implemented within 120 days of issuance of amendment.