

POST-EXAM COMMENTS
(Green Paper)

Licensee Submitted
Post-Exam Comments

- Attached *LTR DTD 12-7-2007 (OP TEST)*
LTR DTD 1/4/08 FOR WRITTEN
- None

FARLEY NOVEMBER -DECEMBER 2007
EXAM NOS. 05000348, 05000364/2007301

POST-EXAM COMMENTS

**Southern Nuclear
Operating Company, Inc.**
Post Office Drawer 470
Ashford, Alabama 36312

Tel 334.899.5156
Fax 334.814.4661

FNP-2007-0148-TRN



12/07/2007
Mr. Frank Ehrhardt
United States Nuclear Regulatory Commission
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW, Suite 23T85
Atlanta, Georgia 30303-8931

Dear Mr. Ehrhardt,

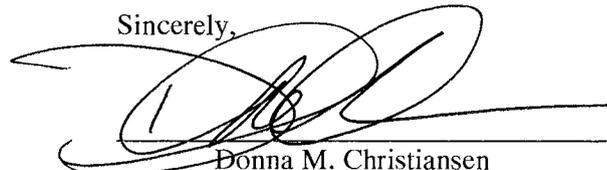
Concerning the Farley HLT-31 NRC Exam, administered on the weeks of November 5, 2007 and November 13, 2007 at Farley Nuclear Plant, attached is a three page document entitled "Post Exam Comments On: A.1.1 Conduct of operations ADMIN G2.1.10 – SRO".

Changes Requested based on supporting document pages 1-3 of 3 attached:

- Make element 3 non-critical for consistency with all the other conditions in this task that do NOT preclude Mode 4 entry based on the literal interpretation of our licensing documents Technical Specifications and Bases. This leaves two other critical tasks which must be properly evaluated to determine Mode 4 entry IS prohibited for reasons other than the EDG inoperability.
- Element 3 stated that the 1B DG was required to be immediately declared inoperable due to low fuel oil supply. This is incorrect due to the 1B DG not being required in mode 5, and the DG is required to be declared inoperable only in the mode in which it is required. Element 3 should say that "an Admin LCO must be written for the 1B DG" (This is required by Farley policy, but not by Technical Specifications, and this is not a critical task due to it not being a mandatory LCO).

This material discusses a part of this exam that has already been administered. If you have any questions, please contact Charles V. (Vince) Richter at (334) 814-4758.

Sincerely,



Donna M. Christiansen
OPS Training Supervisor

CVR/DMC:las
cc: File

DEC 10 2007

Attached to letter FNP-2007-0148-TRN

Concerning: Farley NRC Exam 3012007, Week of NOV 5, 2007

Post Exam Comments On: A.1.1 Conduct of operations ADMIN G2.1.10 - SRO

POST EXAM COMMENTS ON: A.1.1 Conduct of operations ADMIN G2.1.10 - SRO

CHANGE REQUESTED:

- Make element 3 non-critical for consistency with all the other conditions in this task that do NOT preclude Mode 4 entry based on the literal interpretation of our licensing documents Technical Specifications and Bases. This leaves two other critical tasks which must be properly evaluated to determine Mode 4 entry IS prohibited for reasons other than the EDG inoperability.
- Element 3 stated that the 1B DG was required to be immediately declared inoperable due to low fuel oil supply. This is incorrect due to the 1B DG not being required in mode 5, and the DG is required to be declared inoperable only in the mode in which it is required. Element 3 should say that “an Admin LCO must be written for the 1B DG” (This is required by Farley policy, but not by Technical Specifications, and this is not a critical task due to it not being a mandatory LCO).

SUMMARY:

This task presented initial conditions for evaluation to determine if Mode 4 entry from Mode 5 was allowed. Several items were evaluated, and three conditions were intended to preclude Mode 4 entry. Identifying these three items correctly were critical tasks. The JPM also required evaluating several other items that would not prevent a Mode 4 entry, and identifying these correctly were not critical tasks.

Element 3 required declaring the 1B DG inoperable due to low fuel oil supply, which precluded a mode change from Mode 5 to Mode 4. Two trains of DGs are required in Mode 4 and the 1B DG is considered to be one entire train or set. (1-2A and 1C DG are considered to be the A Train set This is consistent with Plant Policy and management expectations (which is not written down), but not with the Technical Specifications and bases as written in Action B (note LCO 3.0.4c).

In Element 3, Plant Policy and management expectations require both trains of DGs to enter Mode 4, but the Technical Specification is written to allow Mode 4 entry as long only one of the 3 DGs is inoperable (including the 1B EDG, even though it is one train by itself). The plant policy has been that the clause in Tech Specs allowing mode change with only one of the three DGs inoperable applied only to the two “A” Train DGs which are shared between units. For the A Train DGs, either DG being inoperable does not completely eliminate an entire train to either unit. The B Train DGs are unit specific and treated differently as standalone DG trains. This policy and expectation is not documented in approved plant procedures which precluded providing the applicants with this information for their evaluation. Previous training and knowledge of on-shift plant-practice is required to determine this interpretation. Subsequent to this operating exam, a post exam condition report will be written to include documenting this policy.

The students were provided the Technical Specifications and Bases for TS 3.8.1: AC Sources - Operating, & T.S. 3.8.3: Diesel Fuel Oil, Lube Oil, and Starting Air. All Technical Specifications and bases were available on request. Based on a literal interpretation of these documents, the applicants would determine Mode 4 entry was NOT precluded by the 1B DG being inoperable, as long as 1C & 1-2A (both A Train DGs) were operable as was the case in this task.

Attached to letter FNP-2007-0148-TRN

Concerning: Farley NRC Exam 3012007, Week of NOV 5, 2007

Post Exam Comments On: A.1.1 Conduct of operations ADMIN G2.1.10 - SRO

The Technical Specification guidance and Plant procedure are explained below:

- The 1B DG is required to be declared inoperable in Mode 4, due to low fuel oil supply, which precludes a mode change from Mode 5 to Mode 4. Two trains of DGs are required in Mode 4 and the 1B DG is one entire train. One of two required trains being inoperable would normally preclude a mode change, and plant management expectations and past practice requires not changing modes without both trains of DGs, even though the Technical Specifications allow it per the following:

- There is a stated allowance for the mode change in a note in the DG Technical Specification 3.8.1, REQUIRED ACTION B: “LCO 3.0.4c is applicable when only one of the three DGs is inoperable”.

LCO 3.0.4c states: “When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made: (c.) When an allowance is stated in the individual value, parameter, or other Specification [in this case, the allowance is made in the Specification in the note of 3.8.1]”

- The 1B DG is the only DG inoperable as presented in the conditions given, so per the note in TS 3.8.1, the mode change may occur.
- STP-35.1, Mode change procedure, Step 4.2, states: Units 1/2 Technical Specifications Amendments 170/163, INCREASING FLEXIBILITY IN MODE RESTRAINTS, issued 02-22-2006, **revised LCO 3.0.4 to allow entry into a MODE while relying on the associated ACTIONS, provided that either**
 - (a) the ACTIONS to be entered permit continued operation in the MODE for an unlimited period of time,
 - (b) a risk assessment is performed which justifies the use of LCO 3.0.4 (unless there’s an exception in the Specification), or
 - **(c) an NRC approved allowance is provided in the Specification to be entered..**
- The note in TS 3.8.1 REQUIRED ACTION B allows mode change with only one of the 3 required DGs inoperable, and is an NRC approved allowance provided in the Specification [3.8.1] to be entered.

Attached to letter FNP-2007-0148-TRN
Concerning: Farley NRC Exam 3012007, Week of NOV 5, 2007
Post Exam Comments On: A.1.1 Conduct of operations ADMIN G2.1.10 - SRO

The following is from the ADMIN JPM A.1.1 SRO ONLY “as administered”:

TITLE: Determine if current conditions allow Mode 4 entry

TASK STANDARD: Determine while completing a mode change checklist that mode 4 entry is prohibited by two unsat STPs, STP-10.4 & STP-15, and an inoperable 1B DG (due to low Fuel Oil Storage tank content).

CONDITIONS

When I tell you to begin, you are to determine if Mode 4 entry is allowed. IF mode 4 entry is prohibited, identify which conditions preclude Mode 4 entry.

- a. Unit 1 is in Mode 5.
- b. You are the Shift Support Supervisor. You are to complete filling out STP-35.1 and determine if Mode 4 entry is allowed. If any conditions preclude Mode 4 entry, then identify all conditions that preclude Mode 4 entry.
- c. Shift turnover and shift brief has just been completed.
 1. STP-35.1, step 5.3, is in progress reviewing requirements for Mode 4 entry.
 2. STP-1.0 has been performed 7 hours ago for mode 4.
 3. All STPs have been reviewed per FNP-1-STP-35.1E with exceptions noted on coversheet.
 4. Taggout review is complete sat.
 5. All applicable signatures and initials have been completed in STP-35.1 except on the pages provided.
 6. Review for mode 4 LCOs has been completed except for DG which have parameters listed:

	1/2A	1C	1B
Diesel Fuel Oil storage tank contents	25,500 gals	25,500 gals	20,350 gals
Lube Oil inventory	248 gals	183 gals	255 gals
Starting Air receiver pressures	415 psig	240 psig	425 psig

A.1.1 Conduct of operations ADMIN G2.1.10 - SRO

TITLE: Determine if current conditions allow Mode 4 entry

TASK STANDARD: Determine while completing a mode change checklist that mode 4 entry is prohibited by two unsat STPs, STP-10.4 & STP-15, and an inoperable 1B DG (due to low Fuel Oil Storage tank content).

PROGRAM APPLICABLE: SOT ___ SOCT ___ OLT X LOCT ___

ACCEPTABLE EVALUATION METHOD: X PERFORM ___ SIMULATE ___ DISCUSS ___

EVALUATION LOCATION: X CLASS ROOM

PROJECTED TIME: 30 MIN **SIMULATOR IC NUMBER:** N/A

ALTERNATE PATH ___ **TIME CRITICAL** ___ **PRA** ___

Examinee:

Overall JPM Performance: **Satisfactory** **Unsatisfactory**

Evaluator Comments (attach additional sheets if necessary)

EXAMINER: _____

CONDITIONS

When I tell you to begin, you are to determine if Mode 4 entry is allowed. IF mode 4 entry is prohibited, identify which conditions preclude Mode 4 entry.

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EVALUATION CHECKLIST

ELEMENTS:	STANDARDS:	RESULTS: (CIRCLE)
START TIME		
*1. Determines that STP-10.4, EMERGENCY BORATION CHECK VALVES INSERVICE TEST, is UNSAT due to step 5.8 (1B BAT pump flow low). This precludes Mode 4 entry.	Determines that STP-10.4, EMERGENCY BORATION CHECK VALVES INSERVICE TEST, is UNSAT due to step 5.8 flow lower than graph of 44 gpm (1B BAT pump flow low). This precludes Mode 4 entry.	S / U
*2. Determines that STP-15.0, CONTAINMENT AIR LOCK DOOR SEAL OPERABILITY TEST, is unsat due to 5.2.20 NOT ≤ 2347 sccm. This precludes Mode 4 entry.	Determines that STP-15.0, CONTAINMENT AIR LOCK DOOR SEAL OPERABILITY TEST, is unsat due to 5.2.20 NOT ≤ 2347 sccm. This precludes Mode 4 entry.	S / U

EVALUATION CHECKLIST

ELEMENTS:

*3. Determines that of the 9 given DG parameters, one makes the 1B DG inoperable due to usable Fuel Level. This TS also requires immediately declaring the 1B DG inoperable. This precludes Mode 4 entry due to two trains of DGs required in Mode 4. (SEE table on next page for KEY)
(TS 3.8.3 Cond. E)

STANDARDS:

Determines that of the 9 given DG parameters, one makes the 1B DG inoperable due to usable Fuel Level. This TS also requires immediately declaring the 1B DG inoperable.

**RESULTS:
(CIRCLE)**

S / U

TS 3.8.3:

	1/2A	1C	1B
Diesel Fuel Oil storage tank contents	25,500 gals	25,500 gals	20,350 gals Inoperable (TS 3.8.3 Cond F. & TS 3.8.1)
Lube Oil inventory	248 gals	183 gals	255 gals
Starting Air receiver pressures	415 psig	240 psig	425 psig

STOP TIME

Terminate when all initial conditions have been evaluated.

CRITICAL ELEMENTS: Critical Elements are denoted with an asterisk (*) before the element number.

GENERAL REFERENCES:

1. Technical Specifications, TRM, & Basis

Current Amendment, Revision, or Version Numbers	
Last Update: 8-14-07	
	Unit 1 / Unit 2
Tech Spec.....	175 / 168
Tech Spec Bases.....	39
Environmental Protection Plan.....	90 / 83
COLR..... (Cycle-Rev)	21-2 / 19-0
PTLR.....	2 / 3
Tech Requirements Manual.....	15
Tech Requirements Manual Bases.....	5

2. K/A: G2.1.10 SRO 3.9

GENERAL TOOLS AND EQUIPMENT:

Provide:

1. Marked up STP-35.1
2. Marked up STP-10.4
3. Marked up STP-15.0
4. Technical Specifications & Basis for TS 3.8.1 & 3.8.3

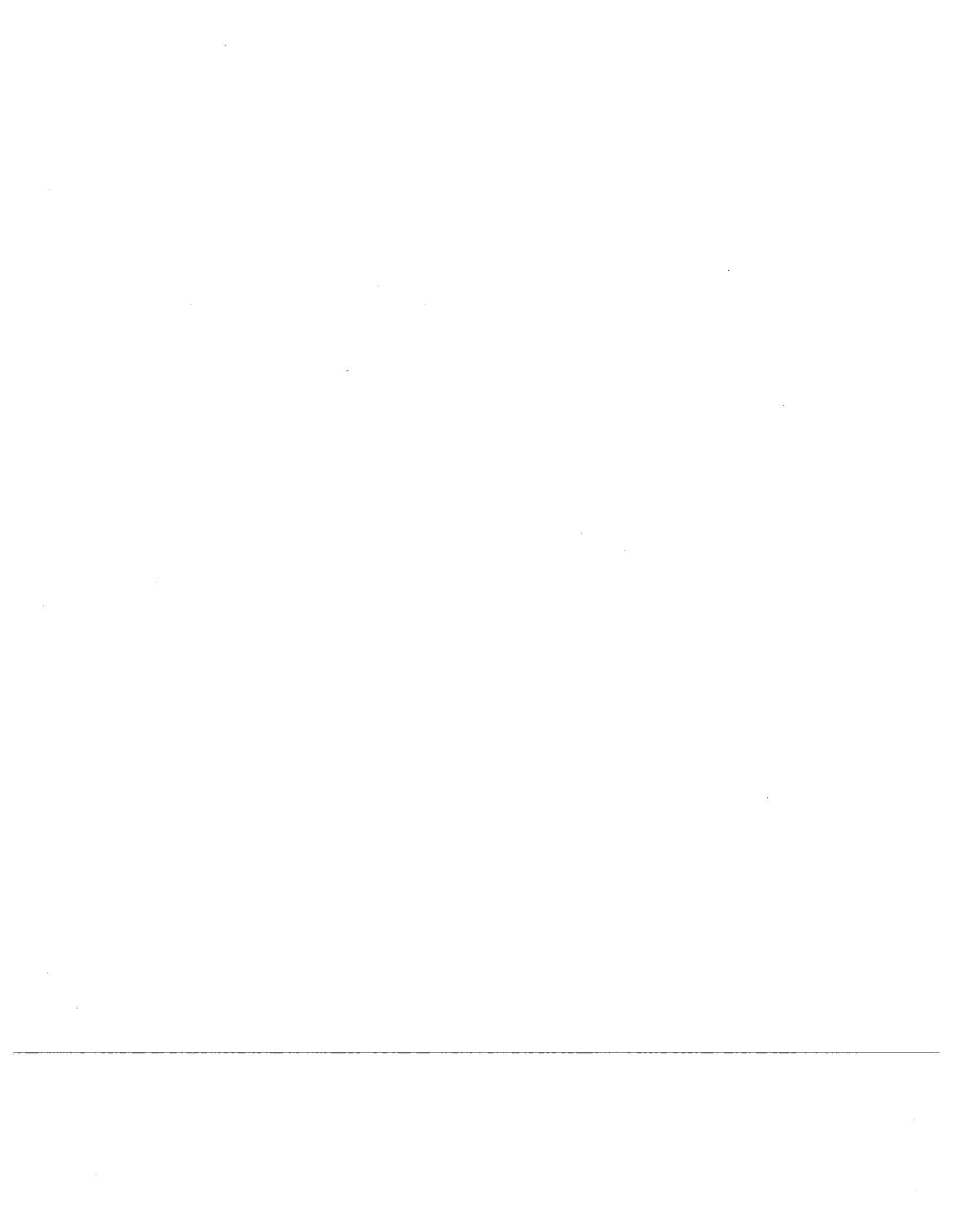
COMMENTS:

CONDITIONS

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FNP-2008-002-TRN



1/4/2008
Mr. Frank Ehrhardt
United States Nuclear Regulatory Commission
Sam Nunn Atlanta Federal Center
61 Forsyth Street SW, Suite 23T85
Atlanta, Georgia 30303-8931

Dear Mr. Ehrhardt,

Enclosed is our Post-Written Examination submittal of examination grade sheets, post-exam comments, and other materials. The ES-201 Form, Examination Security Agreement, is in the process of being signed off as personnel become available. The ES-201 Form will be set at a later date as soon as all required signatures are obtained.

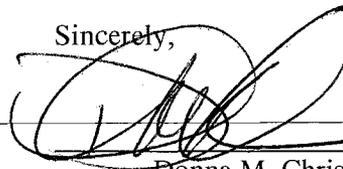
Enclosed you will find the following forms and materials for the NRC Written examination administered on 12-21-2007 at Farley Nuclear Plant.

Hard Copy:

- 1) Eleven, 5 SRO & 6 RO, exam grade sheets for electronic scanning in LXR software (scantron sheets)
- 2) Exam cover sheets signed by Applicants
- 3) Preliminary grades
- 4) ES-403-1, Written Examination Grading Quality Checklist
- 5) ES-401-6, Written Examination Quality Checklist (resubmitted original due to some inadvertently omitted initials on previously submitted form)
- 6) Written Exam seating chart
- 7) List of Questions and replies during exam
- 8) Post exam comments for potential Key changes

Question 95, G2.1.6, is security related and must be withheld from public disclosure. The remainder of this material should be withheld from public disclosure until after the examination grading is complete. If you have any questions, please contact Charles V. (Vince) Richter at (334) 814-4758.

nmn

Sincerely,


Donna M. Christiansen
OPS Training Supervisor

Enclosure

CVR/DMC
cc: File

Farley NRC Written exam Applicant questions and answers during exam, 12-21-2007
 Examination proctors: Vince Richter & Gary Ohmstede
 NRC chief examiner available by telephone: Frank J. Ehrhardt

[bracketed text indicates post exam comments NOT communicated by or to any applicants during the exam]

#	Applicant	Question/comment	Answer
17	Newell	Does "the BKR Panel" mean the 1A 120V Vital panel?	Yes
17	Pickens	Can I assume that RCP BKR ind is lost?	[After phone call with chief examiner]: Assume all systems are aligned per normal actual plant conditions
16	Rose	LT-459 Failed low, how low did it fail?	As low as it can fail.
36	Newell	R-15A is at midscale, is it stable at mid scale to start with?	Take the statement at face value
25	Rose	Valves are stated to be closed, can I assume the SI signal to the valves has been disabled?	Take statements at face value. Everything that has been done is stated or implied in the question
77	Payne	Desire documentation of comment for this question because Payne thought that A was most correct and was going to choose it, but thought the 2 nd part of A was not correct. The A choice stated that subcooling being too low was the reason, but the real reason should be that a LOCA is in progress.	We'll document your comment. [There was no problem found with this question or choice A]
86	Payne	Assuming MSIV Auto closure has occurred, since an assumption must be made to distinguish between A & D	We'll document your assumption. [This assumption was not necessary. Stem conditions indicated that an auto MSIV closure had occurred on low steam pressure]
89	Payne	Can I assume that "Releases can continue" means only future releases but not the current release?	Yes.

Farley NRC Written exam Applicant questions and answers during exam, 12-21-2007
 Examination proctors: Vince Richter & Gary Ohmstede
 NRC chief examiner available by telephone: Frank J. Ehrhardt

[bracketed text indicates post exam comments NOT communicated by or to any applicants during the exam]

17	Nall	Does this question ask the BKR Position between the two times 1000 & 1010?	Answer the question as written. [The time of the question was clearly stated in the stem].
90	Carrol	Does placing B TRN of SW on service mean placing C SW Pump on B train?	The statement means what it says.
87	Szollosi	The high alarm light is stated to be NOT lit. Was the high alarm light ever lit just previous to these conditions?	Answer based on conditions given.
55	Prichett	Is the loss of A train SW just U-2, or is it a total loss of SW?	Unit 2 only.
82	Taylor	What time is the 6 hours in choice "C" referenced to of the several times in the stem?	Answer the question as written.
22	Carrol	Confused about what A and B choices actually meant. [Ended up without asking a question or making a comment. Applicant talked through it while trying to explain his confusion and said: "I guess I answered my own question"]	[No response required]
36	Prichett	Does this mean SJAЕ Filtration is on service when the Rx Trips?	It means what it says.
32	Carrol	What is RCS Press? Did Letdown operate?	This is as expected during an ATWT event.
74	Wilhoit	Is the location in Choice "B" really what it means?	It means what it says.

FNP - 12-21-07
Seating Chart

FRONT

Courtney Rose		Tracey Newell
Mike Wilhoit		Taylor Joseph
Rob Szollosy		Matt Pickens
Josh Pritchett		Brannon Payne
Josh Carroll		Steve Lee
Matt Nall		

Question 32, 029 EK1.01

References: FRP-S.1

Given the following:

- An ATWT has occurred on Unit 2 during coastdown prior to entering a refueling outage.
- The crew is performing actions of FRP-S.1, Response to Nuclear Power Generation/ATWT.
- An operator has been dispatched to trip the reactor locally.
- Attempts to establish Emergency Boration have been unsuccessful.
- Reactor power indicates 6%.
- Intermediate Range Startup rate is slightly positive.
- The RCS temperature is slowly rising.

Which ONE of the following describes the actions required IAW FRP-S.1?

A. [Originally identified as Correct] Allow the RCS to heat up, and continue attempts to place the reactor in a subcritical condition.

B. [Also Correct] Allow the RCS to heat up, and open one PORV as necessary to maintain pressurizer pressure less than 2135 psig to increase charging flow.

C. & D [Incorrect, no change to C & D]

Comment: Both 'B' and 'A' should be accepted as correct, since the first parts of both are the same, and the second part of B is a subset of A. FRP-S.1 has procedure steps for continuing attempts to place the reactor in a subcritical condition which include, during establishing emergency boration, step 4.5 RNO "open one PORV as necessary to maintain pressurizer pressure less than 2135 psig to increase charging flow." The words "as necessary" in the second part of 'B' make it correct. Even though there is no reason to believe that the PORVs would not open and control pressure automatically, in which case it would not be necessary to open the PORVs manually, it is still true that "opening PORVs as **necessary**" is required.

Post Exam
Comments with
references.

Questions

32 029EK1.01

90 G2.1.2

100 G2.4.44

Question 90, 076 G2.1.2

References: SOP-24.0, AOP-10.0, ARP-1.1 Window AE4

Given the following:

- Unit 2 is at 100% power with "A" Train on service.
- At 1200 on 11/7/2007, 2E Service Water pump tripped and "B" Train SW was declared INOPERABLE.

Which ONE of the following describes the Technical Specification REQUIRED ACTION IAW 3.7.8, Service Water System, and the action required to make "B" Train Service Water OPERABLE?

A. [Originally identified as Correct]• Immediately declare the DG supported by Train "B" Service Water INOPERABLE.

- Place "B" Train of SW on service and align 2C SW pump to auto start for 2E SW pump IAW SOP-24.0, Service Water System.

B. [Also Correct]• Immediately declare the DG supported by Train "B" Service Water INOPERABLE.

- Align 2C SW pump to auto start for 2E SW pump IAW AOP-10.0, Loss of Service Water.

C. & D [Incorrect, no change to C & D]

Comment: Both 'B' and 'A' should be accepted as correct, since the first parts of both are the same, and the second parts of both provide procedurally correct paths to obtain the same result. They would both result in the B Train Service Water Operable as the question asks.

The differences between choices 'A' & 'B' are:

- 1) 'A' states a more complete description of the action of "placing C SW pump on the B Train and then aligning it to auto start for E", but the shortened description in 'B' "Align 2C SW pump to auto start for 2E" includes all the actions to perform this by the procedure: SOP-24.0. IF both trains of SW were >60 psig after AOP-10.0 directed starting the 2C SW pump, the ARP would direct SOP-24.0 and 'A' is the correct choice.
- 2) 'A' states the alignment is performed per SOP-24 which is correct. Even though, per 'B' choice, AOP-10.0 does not directly provide guidance for aligning the 2C SW Pump for E, AOP-10 does direct swapping per AOP-24.0 later in the procedure. AOP-10.0 is entered and performed, and if SW pressure is not > 60 psig in both Trains, AOP-10.0 will be continued to the point of directing 2C SW Pump swap and alignment to auto start for 2E per SOP-24.0. SW Pressure is not given in the question stem, so knowledge of the procedure led some to choose 'B' because the stem did not preclude AOP-10 directing the alignment. The simulator is modeled for SW pressure being > 60 psig after starting 2C SW pump, but in the plant, it may be < 60 psig in other plant conditions than the simulator modeling (e.g. heat of the summer with all SW cooling valves throttled max open).

Question 100, G2.4.44

References: EIP-9.0

A Site Area Emergency was declared 35 minutes ago. Subsequently, conditions have degraded and a General Emergency classification needs to be declared.

When upgrading to the General Emergency classification, which one of the following contains **ONLY** required actions IAW FNP-0-EIP-9.0, Emergency Actions?

A. & D. [Incorrect, No change]

B. [Previously inadvertently identified in LXR as correct]

- Sounding of the plant emergency alarm.

- Notify Alabama and Georgia of the status of the unaffected Unit.

C. [Should have been identified in LXR as correct]

- Notify Alabama and Georgia of Protective Action Recommendations.

- Announce needed evacuation instructions to plant personnel.

Comment: 'B' is incorrect because the plant emergency alarm has already been actuated for the Site Area Emergency. The alarm is not directed to be sounded again for the General Emergency. Also, the second part is incorrect because the unaffected Unit status is not required for the initial General Emergency notification.

'C' is correct, and should be accepted as the only correct answer, since the PARs are required for both Alabama and Georgia for the General Emergency, and the procedure requires the announcement of needed evacuation instructions to plant personnel.

32. 029 EK1.01 001

Given the following:

- An ATWT has occurred on Unit 2 during coastdown prior to entering a refueling outage.
- The crew is performing actions of FRP-S.1, Response to Nuclear Power Generation/ATWT.
- An operator has been dispatched to trip the reactor locally.
- Attempts to establish Emergency Boration have been unsuccessful.
- Reactor power indicates 6%.
- Intermediate Range Startup rate is slightly positive.
- The RCS temperature is slowly rising.

Which ONE of the following describes the actions required IAW FRP-S.1?

- A. Allow the RCS to heat up, and continue attempts to place the reactor in a subcritical condition.
- B. Allow the RCS to heat up, and open one PORV as necessary to maintain pressurizer pressure less than 2135 psig to increase charging flow.
- C. Stop the RCS heatup by increasing AFW flow to greater than 700 gpm, and verify dilution paths isolated.
- D. Stop the RCS heatup by dumping steam to the main condenser, and continue attempts to place the reactor in a subcritical condition.

FRP-S.1 version 25

17 Continue emergency boration. 17 Perform the following.

17.1 Determine if moderator temperature coefficient positive or negative.

[] Core Physics Curve 5

17.2 IF moderator temperature coefficient negative, THEN allow RCS to heat up.

A. correct. During coastdown at EOL, MTC is negative under all conditions. Do not leave FRP-S.1 until power below 5%. IF power was to be >5% or a positive SUR on the IR, then in addition to continuing the emergency boration, if the MTC is negative, then the RCS would be allowed to HU to add positive reactivity to the core and help shut it down.

B. incorrect The RCS is allowed to heatup, but the PORVs are not cycled to maintain pressure less than 2135 psig unless pressure is > 2335 psig.

C. incorrect because S.1 does not have the AFW flow to be >700 gpm for this reason, but does have an RNO step to increase AFW flow to 700 gpm if SGWLs are not >31%

D. incorrect RCS temperature is not stabilized, it is allowed to rise.

Farley Nuclear Plant
2006-301 SRO Initial Exam

029 Anticipated Transient Without Scram (ATWS)

EK1.01 Knowledge of the operational implications of the following concepts as they apply to the ATWS:

Reactor nucleonics and thermo-hydraulics behavior

Question Number: 46

Tier 1 Group 1

Importance Rating: RO 2.8

Technical Reference: FRP-S.1

Proposed references to be provided to applicants during examination: None

Learning Objective:

10 CFR Part 55 Content: 41.10

Comments:

This meets the KA in that this tests the operational implications during an ATWT and the effects that we would take if the reactor was still critical after emergency boration and rods going in what would happen temperature wise, ie. thermo-hydraulic behavior.

UNIT 1

FNP-1-FRP-S.1
4-20-2007
Revision 25

FARLEY NUCLEAR PLANT
FUNCTION RESTORATION PROCEDURE

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

PROCEDURE USAGE REQUIREMENTS-per FNP-0-AP-6	SECTIONS
Continuous Use	Remainder of Procedure
Reference Use	Steps 1-2
Information Use	

S
A
F
E
T
Y

R
E
L
A
T
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Approved:

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Date Issued: 04/23/07

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

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A. Purpose

This procedure provides actions to add negative reactivity to a core which is observed to be critical when expected to be shutdown.

B. Symptoms or Entry Conditions

- I. This procedure is entered when reactor trip is not verified and manual trip is not effective; from the following:
 - a. FNP-1-EEP-0, REACTOR TRIP OR SAFETY INJECTION, step 1
- II. This procedure is entered from the Subcriticality Critical Safety Function Status Tree on either a Red or Orange condition.

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Step

Action/Expected Response

Response NOT Obtained

CAUTION: [CA] RCPs should NOT be tripped with reactor power GREATER THAN 5%.

NOTE: Steps 1 and 2 are IMMEDIATE ACTION steps.

1 Verify reactor - TRIPPED.

RX TRIP
ACTUATION
[] AB to TRIP

1 Perform the following.

1.1 Trip CRDM MG set supply breakers.

1A(1B) MG SET
SUPP BKR
[] N1C11E005A
[] N1C11E005B

1.2 IF reactor still NOT tripped, THEN perform the following.

- Insert control rods in manual control.
OR
- Verify rods insert in AUTO at greater than 48 steps per minute.

1.2.1 Dispatch an operator to locally trip the reactor trip and bypass breakers.

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Action/Expected Response

Response NOT Obtained

NOTE: The DEH Valve Test Display may be used for alternate indication of turbine stop valve and governor valve position.

2 Check turbine - TRIPPED.

- TSLB2 14-1 lit
- TSLB2 14-2 lit
- TSLB2 14-3 lit
- TSLB2 14-4 lit

2 Perform the following.

- 2.1 Place MAIN TURB EMERG TRIP switch to TRIP for at least 5 seconds.
- 2.2 IF turbine NOT tripped, THEN close GVs.
 - 2.2.1 Reduce GV position demand signal to zero from DEH panel.
 - TURBINE MANUAL depressed
 - GV CLOSE depressed
 - FAST ACTION depressed

Step 2 continued on next page.

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Step	Action/Expected Response	Response NOT Obtained
3	Verify AFW pumps - RUNNING.	
	3.1 MDAFWPs - RUNNING	
	[] 1A amps > 0	
	[] 1B amps > 0	
	3.2 TDAFWP - RUNNING IF NECESSARY	
	• TDAFWP STM SUPP FROM 1B(1C) SG	
	[] MLB-4 1-3 lit	
	[] MLB-4 2-3 lit	
	[] MLB-4 3-3 lit	
	• TDAFWP SPEED	
	[] SI 3411A > 3900 rpm	
	• TDAFWP SPEED CONT	
	[] SIC 3405 at 100%	

NOTE:

- 2500 gallons of emergency boration is required for each control rod not fully inserted, up to a maximum of 17,309 gallons.
- [CA] Emergency boration should continue until an adequate shutdown margin is established.

4 Initiate Emergency Boration of the RCS.

4.1 Verify at least one CHG PUMP - RUNNING.

All of step 4 is attempting to add neg reactivity.

Step 4 continued on next page.

Page Completed

Step	Action/Expected Response	Response NOT Obtained
4.2	Start a boric acid transfer pump.	4.2 Perform the following.
	BATP	4.2.1 Align charging pump suction to RWST.
	[] 1A	RWST
	[] 1B	TO CHG PUMP
		[] Q1E21LCV115B open
		[] Q1E21LCV115D open
		VCT
		OUTLET ISO
		[] Q1E21LCV115C closed
		[] Q1E21LCV115E closed
		4.2.2 Proceed to step 4.4.
4.3	Align normal emergency boration.	4.3 Perform the following.
	EMERG BORATE	• Align charging pump suction to RWST.
	TO CHG PUMP SUCT	RWST
	[] Q1E21MOV8104 open	TO CHG PUMP
		[] Q1E21LCV115B open
		[] Q1E21LCV115D open
		VCT
		OUTLET ISO
		[] Q1E21LCV115C closed
		[] Q1E21LCV115E closed
		<u>OR</u>
		• Align manual emergency boration flow path.
		BORIC ACID
		TO BLENDER
		[] Q1E21FCV113A open
		MAN EMERG
		BORATION
		[] Q1E21V185 open
		(100 ft, AUX BLDG rad-side chemical mixing tank area)

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Step	Action/Expected Response	Response NOT Obtained
4.4	Establish adequate letdown.	
4.4.1	Verify 45 GPM letdown orifice - IN SERVICE. LTDN ORIF ISO 45 GPM <input type="checkbox"/> Q1E21HV8149A open	
4.4.2	Verify one 60 GPM letdown orifice - IN SERVICE. LTDN ORIF ISO 60 GPM <input type="checkbox"/> Q1E21HV8149B open <input type="checkbox"/> Q1E21HV8149C open	
4.5	Check pressurizer pressure LESS THAN 2335 psig.	4.5 Verify PRZR PORVs and PRZR PORV ISOs - OPEN. <u>IF NOT</u> , <u>THEN</u> open PRZR PORVs and PORV ISOs as necessary until pressurizer pressure less than 2135 psig.
4.6	Establish adequate charging flow. <ul style="list-style-type: none"> • <u>IF</u> boration is from boric acid storage tank, <u>THEN</u> verify charging flow - GREATER THAN 40 GPM. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • <u>IF</u> boration is from the RWST, <u>THEN</u> verify charging flow - GREATER THAN 92 GPM. 	<p style="font-size: 1.2em; font-family: cursive;">ensures enough charging for adequate Emerg. Boration.</p>

Step 4 continued on next page.

Page Completed

Step	Action/Expected Response	Response NOT Obtained
<input type="checkbox"/>		
4.7	Verify emergency boration flow adequate.	
4.7.1	<p><u>IF</u> normal emergency boration flow path aligned, <u>THEN</u> check emergency boration flow greater than 30 GPM.</p> <p>BORIC ACID EMERG BORATE [] FI 110</p>	
4.7.2	<p><u>IF</u> manual emergency boration flow path aligned, <u>THEN</u> check boric acid flow greater than 30 GPM.</p> <p>MAKEUP FLOW TO CHG/VCT [] BA FI 113</p>	
4.7.3	<p><u>IF</u> boration is from the RWST, <u>THEN</u> verify charging flow - GREATER THAN 92 GPM.</p>	

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Step	Action/Expected Response	Response NOT Obtained
<p>5</p> <p>5.1 Verify containment purge dampers - CLOSED.</p> <p style="margin-left: 20px;"> <input type="checkbox"/> 3197 <input type="checkbox"/> 3198D <input type="checkbox"/> 3198C <input type="checkbox"/> 3196 <input type="checkbox"/> 3198A <input type="checkbox"/> 3198B </p> <p>5.2 Verify containment mini purge dampers - CLOSED.</p> <p style="margin-left: 20px;"> CTMT PURGE DMPRS MINI-2866C & 2867C FULL-3198A & 3198D <input type="checkbox"/> 2866C <input type="checkbox"/> 2867C CTMT PURGE DMPRS MINI-2866D & 2867D FULL-3196 & 3197 BOTH-3198B & 3198C <input type="checkbox"/> 2866D <input type="checkbox"/> 2867D </p> <p>5.3 Stop MINI PURGE SUPP/EXH FAN.</p>	<p>Verify containment ventilation isolation.</p>	<p>5.1 Manually close dampers.</p> <p>5.2 Manually close dampers.</p>
<p>6</p> <p>6.1 Check any SI actuated indication.</p> <p style="margin-left: 20px;"> BYP & PERMISSIVE SAFETY INJECTION <input type="checkbox"/> ACTUATED status light lit <input type="checkbox"/> MLB-1 1-1 lit <input type="checkbox"/> MLB-1 11-1 lit </p> <p>6.2 Initiate ATTACHMENT 1, AUTOMATIC SAFETY INJECTION VERIFICATION.</p>	<p>Check SI actuated.</p>	<p>6 [CA] <u>IF</u> an SI signal is actuated during this procedure, <u>THEN</u> initiate ATTACHMENT 1, AUTOMATIC SAFETY INJECTION VERIFICATION.</p>

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Step	Action/Expected Response	Response NOT Obtained
7	Check the following trips.	
	7.1 Verify all reactor trip and reactor trip bypass breakers - OPEN.	7.1 Locally open the reactor trip and reactor trip bypass breakers.
	7.2 Check turbine - TRIPPED.	7.2 Locally place turbine overspeed lever to TRIP for at least 5 seconds. (189 ft, TURB BLDG)
	[] TSLB2 14-1 lit [] TSLB2 14-2 lit [] TSLB2 14-3 lit [] TSLB2 14-4 lit	

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Action/Expected Response

Response NOT Obtained

CAUTION: Emergency boration should be continued until adequate shutdown margin is established.

NOTE: Step 8 is a continuing action step.

8

[CA] Check if reactor still critical.

8

Go to procedure and step in effect.

- Check power range indication
- GREATER THAN OR EQUAL TO
5%.

PR1(2,3,4)
PERCENT FULL POWER

- NI 41B
- NI 42B
- NI 43B
- NI 44B

OR

- Check any intermediate range
startup rate - POSITIVE.

IR1(2)
S/U RATE

- NI 35D
- NI 36D

Step	Action/Expected Response	Response NOT Obtained
9	Monitor CST level.	
	9.1 [CA] Check CST level greater than 5.3 ft. CST LVL <input type="checkbox"/> LI 4132A <input type="checkbox"/> LI 4132B	9.1 Align AFW pumps suction to SW using FNP-1-SOP-22.0, AUXILIARY FEEDWATER SYSTEM.
	9.2 Align makeup to the CST from water treatment plant <u>OR</u> demin water system using FNP-1-SOP-5.0, DEMINERALIZED MAKEUP WATER SYSTEM, as necessary.	
10	Check SG levels.	
	10.1 Check at least one SG narrow range level - GREATER THAN 31%{48%}.	10.1 Perform the following. 10.1.1 Verify total AFW flow greater than 700 gpm. AFW FLOW TO 1A(1B,1C) SG <input type="checkbox"/> FI 3229A <input type="checkbox"/> FI 3229B <input type="checkbox"/> FI 3229C AFW TOTAL FLOW <input type="checkbox"/> FI 3229

Step 10 continued on next page.

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Action/Expected Response

Response NOT Obtained

10.1.2 Verify AFW valves open.

MDAFWP TO 1A(1B,1C) SG
FLOW CONT

HIC 3227AA

HIC 3227BA

HIC 3227CA

TDAFWP TO 1A(1B,1C) SG
FLOW CONT

HIC 3228AA

HIC 3228BA

HIC 3228CA

AFW TO 1A(1B,1C) SG
STOP VLV

Q1N23MOV3350A

Q1N23MOV3350B

Q1N23MOV3350C

MDAFWP TO
1A(1B,1C) SG ISO (BOP)

Q1N23MOV3764A

Q1N23MOV3764D

Q1N23MOV3764F

Q1N23MOV3764E

Q1N23MOV3764B

Q1N23MOV3764C

Step 10 continued on next page.

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Action/Expected Response

Response NOT Obtained

10.2 [CA] WHEN SG narrow range level greater than 31%{48%}, THEN maintain SG narrow range level 31%-65%{48%-65%}.

10.2.1 Control MDAFWP flow.

MDAFWP FCV 3227

RESET

A TRN reset

B TRN reset

MDAFWP TO

1A/1B/1C SG

B TRN

FCV 3227 in MOD

SG	1A	1B	1C
MDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3227A in MOD	<input type="checkbox"/> 3227B in MOD	<input type="checkbox"/> 3227C in MOD
MDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3227AA adjusted	<input type="checkbox"/> 3227BA adjusted	<input type="checkbox"/> 3227CA adjusted

Step 10 continued on next page.

Page Completed

Step	Action/Expected Response	Response NOT Obtained
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10.2.2 Control TDAFWP flow.

TDAFWP FCV 3228
 RESET reset

TDAFWP
 SPEED CONT
 SIC 3405 adjusted

SG	1A	1B	1C
TDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3228A in MOD	<input type="checkbox"/> 3228B in MOD	<input type="checkbox"/> 3228C in MOD
TDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3228AA adjusted	<input type="checkbox"/> 3228BA adjusted	<input type="checkbox"/> 3228CA adjusted

11 Verify dilution paths isolated.

11.1 Isolate RMW to boric acid
blender.

RMW
 TO BLENDER
 Q1E21FCV114B closed

11.2 Notify Chemistry to secure the
zinc addition system (ZAS).

11.3 Verify RMW supp iso to CHG
pump suction locked closed
(key # Z-58).

Q1E21V212 locked closed
 (100' elev. AUX BLDG BIT area
 at suction of CHG pumps)

11.1 Locally isolate RMW to CVCS.

RMW TO CVCS ISO
 Q1E21V233 closed
 (100' elev. AUX BLDG above
 hydro test pump)

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<p><input type="checkbox"/> 12</p> <p>Check for reactivity addition from UNCONTROLLED RCS cooldown:</p> <ul style="list-style-type: none"> • Check RCS cold leg temperature - DECREASING IN AN UNCONTROLLED MANNER. <p>RCS COLD LEG TEMP <input type="checkbox"/> TR 410</p> <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • Check any SG pressure - FALLING IN AN UNCONTROLLED MANNER <u>OR</u> LESS THAN 50 psig. 	<p>12</p> <p>Perform the following:</p> <p>12.1 Stop any CONTROLLED cooldown.</p> <p>12.2 Proceed to step 15.</p>	
<p><input type="checkbox"/> 13</p> <p>Check main steam line isolation and bypass valves - CLOSED.</p>	<p>13</p> <p>Close the main steam line isolation and bypass valves.</p> <p>1A(1B,1C) SG MSIV - TRIP</p> <p><input type="checkbox"/> Q1N11HV3369A <input type="checkbox"/> Q1N11HV3369B <input type="checkbox"/> Q1N11HV3369C <input type="checkbox"/> Q1N11HV3370A <input type="checkbox"/> Q1N11HV3370B <input type="checkbox"/> Q1N11HV3370C</p> <p>1A(1B,1C) SG MSIV - BYPASS</p> <p><input type="checkbox"/> Q1N11HV3368A <input type="checkbox"/> Q1N11HV3368B <input type="checkbox"/> Q1N11HV3368C <input type="checkbox"/> Q1N11HV3976A <input type="checkbox"/> Q1N11HV3976B <input type="checkbox"/> Q1N11HV3976C</p>	
<p><input type="checkbox"/> 14</p> <p>Check SGs not faulted.</p> <p>14.1 Check no SG pressure - FALLING IN AN UNCONTROLLED MANNER OR LESS THAN 50 psig.</p>	<p>14.1 Isolate faulted SG(s) using ATTACHMENT 2.</p>	
<p><input type="checkbox"/> 15</p> <p>Check core exit T/Cs - LESS THAN 1200°F.</p>	<p>15</p> <p><u>IF</u> fifth hottest core exit T/C greater than 1200°F <u>AND</u> rising, <u>THEN</u> go to FNP-1-SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE.</p>	

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<p><u>CAUTION:</u> Emergency boration should be continued until adequate shutdown margin is established.</p> <p>*****</p>			
<p>16</p>	<p>Check if reactor still critical.</p> <ul style="list-style-type: none"> • Check power range indication - GREATER THAN OR EQUAL TO 5%. <p>PR1(2,3,4) PERCENT FULL POWER</p> <p><input type="checkbox"/> NI 41B <input type="checkbox"/> NI 42B <input type="checkbox"/> NI 43B <input type="checkbox"/> NI 44B</p> <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • Check any intermediate range startup rate - POSITIVE. <p>IR1(2) S/U RATE</p> <p><input type="checkbox"/> NI 35D <input type="checkbox"/> NI 36D</p>	<p>16</p>	<p>Go to procedure and step in effect.</p>
<p>17</p>	<p>Continue emergency boration.</p>	<p>17</p>	<p>Perform the following.</p> <p>17.1 Determine if moderator temperature coefficient positive or negative.</p> <p><input type="checkbox"/> Core Physics Curve 5</p> <p>17.2 <u>IF</u> moderator temperature coefficient negative, <u>THEN</u> allow RCS to heat up.</p>

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Action/Expected Response

Response NOT Obtained

NOTE: Actions of other Function Restoration Procedures in effect which will not add positive reactivity to the core may be performed while efforts to return the core to a subcritical condition continue.

18 Return to step 4.

-END-

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START STEP

CONTINUOUS ACTION

- | | | |
|--------------------------|----|---|
| <input type="checkbox"/> | 1 | CAUTION [CA] RCPs should NOT be tripped with reactor power GREATER THAN 5%. |
| <input type="checkbox"/> | 4 | NOTE [CA] Emergency boration should continue until an adequate shutdown margin is established. |
| <input type="checkbox"/> | 6 | 6[R] [CA] IF an SI signal is actuated during this procedure, THEN initiate ATTACHMENT 1, AUTOMATIC SAFETY INJECTION VERIFICATION. |
| <input type="checkbox"/> | 8 | [CA] Check if reactor still critical. |
| <input type="checkbox"/> | 9 | 9.1 [CA] Check CST level greater than 5.3 ft. |
| <input type="checkbox"/> | 10 | 10.2 [CA] WHEN SG narrow range level greater than 31%{48%}, THEN maintain SG narrow range level 31%-65%{48%-65%}. |

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Action/Expected Response

Response NOT Obtained

ATTACHMENT 1

AUTOMATIC SAFETY INJECTION VERIFICATION

CAUTION: Diesel generator damage may occur if all running diesels are not supplied with service water within three minutes.

1 Check power to 4160 V ESF busses.

1.1 4160 V ESF busses - AT LEAST ONE ENERGIZED

- A Train (F & K) power available lights lit

OR

- B Train (G & L) power available lights lit

1.2 4160 V ESF busses - BOTH ENERGIZED

- A Train (F & K) power available lights lit
- B Train (G & L) power available lights lit

1.2 Try to restore power to deenergized 4160 V ESF bus as time permits while continuing with the remainder of this procedure.

1.3 Verify operating diesel generators are being supplied from at least one SW pump.

1.3 IF service water flow cannot be readily restored to a running diesel generator THEN secure the diesel generator using operator aid located on EPB.

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Response NOT Obtained

ATTACHMENT 1

2 Check SI Status.

2.1 Check any SI actuated indication.

BYP & PERMISSIVE
SAFETY
INJECTION

- ACTUATED status light lit
- MLB-1 1-1 lit
- MLB-1 11-1 lit

2.2 Verify both trains of SI-ACTUATED.

- MLB1 1-1 AND MLB1 11-1 lit

2.2 Manually actuate SI.

3 Verify main feedwater status.

3.1 Verify main feedwater flow control and bypass valves - CLOSED.

1A(1B,1C) SG
FW FLOW

- FCV 478
- FCV 488
- FCV 498

1A(1B,1C) SG
FW BYP FLOW

- FCV 479
- FCV 489
- FCV 499

3.1 Verify main feedwater stop valves closed.

MAIN FW TO 1A(1B,1C) SG
STOP VLV

- Q1N21MOV3232A
- Q1N21MOV3232B
- Q1N21MOV3232C

3.2 Verify both steam generator feed pumps - TRIPPED.

3.2 Stop both EH PUMPs.

3.3 Verify SG blowdown - ISOLATED.

1A(1B,1C) SGBD
ISO

- Q1G24HV7614A closed
- Q1G24HV7614B closed
- Q1G24HV7614C closed

Step 3 continued on next page.

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ATTACHMENT 1		
<p>3.4 Verify SG blowdown sample ISOLATED MLB lights lit.</p> <p>1A(1B,1C) SGBD SAMPLE ISO</p> <p><input type="checkbox"/> MLB4 6-4 lit Q1P15HV3328 closed</p> <p><input type="checkbox"/> MLB4 7-4 lit Q1P15HV3329 closed</p> <p><input type="checkbox"/> MLB4 8-4 lit Q1P15HV3330 closed</p>	<p>3.4 Locally verify SGBD sample - isolated (BOP).</p> <p>STEAM GEN 1A(1B,1C) SAMPLE ISO</p> <p><input type="checkbox"/> Q1P15HV3328 closed</p> <p><input type="checkbox"/> Q1P15HV3329 closed</p> <p><input type="checkbox"/> Q1P15HV3330 closed</p> <p style="text-align: center;"><u>OR</u></p> <p>Locally verify SGBD sample-isolated (PRIP). STEAM GEN 1A(1B,1C)SAMPLE ISO</p> <p><input type="checkbox"/> Q1P15HV3179C closed</p> <p><input type="checkbox"/> Q1P15HV3180C closed</p> <p><input type="checkbox"/> Q1P15HV3181C closed</p>	
<p>4 Verify PHASE A CTMT ISO.</p> <p>4.1 Verify PHASE A CTMT ISO - ACTUATED.</p> <p><input type="checkbox"/> MLB-2 1-1 lit</p> <p><input type="checkbox"/> MLB-2 11-1 lit</p>		
<p>NOTE: The turbine building SW isolation valves Q1P16V515, 517, 514 and 516 will take approximately two minutes to fully stroke closed.</p>		
<p>4.2 Check all MLB-2 lights - LIT.</p>	<p>4.2 Verify proper PHASE A CTMT ISO alignment.</p>	
<p>5 Verify one CHG PUMP in each train - STARTED.</p> <p><input type="checkbox"/> A train (1A or 1B) amps > 0</p> <p><input type="checkbox"/> B train (1C or 1B) amps > 0</p>		

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Step	Action/Expected Response	Response NOT Obtained
ATTACHMENT 1		
6	Verify RHR PUMPs - STARTED. RHR PUMP <input type="checkbox"/> 1A amps > 0 <input type="checkbox"/> 1B amps > 0	
7	Verify each train of CCW - STARTED. 7.1 Verify one CCW PUMP in each train- STARTED. A train HX 1C or 1B CCW FLOW <input type="checkbox"/> FI 3043CA > 0 gpm <u>OR</u> <input type="checkbox"/> FI 3043BA > 0 gpm B train HX 1A or 1B CCW FLOW <input type="checkbox"/> FI 3043AA > 0 gpm <u>OR</u> <input type="checkbox"/> FI 3043BA > 0 gpm	7.2 Modulate open SW to the associated CCW HX's. <input type="checkbox"/> Q1P16FV3009A <input type="checkbox"/> Q1P16FV3009B <input type="checkbox"/> Q1P16FV3009C
8	Verify each SW train - HAS TWO SW PUMPs STARTED. <input type="checkbox"/> A train (1A,1B or 1C) <input type="checkbox"/> B train (1D,1E or 1C)	

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Response NOT Obtained

ATTACHMENT 1

9 Verify containment fan cooler alignment.

9.1 Verify at least one containment fan cooler per train - STARTED IN SLOW SPEED.

CTMT CLR FAN
SLOW SPEED

• A train

1A

1B

• B train

1C

1D

9.2 Verify associated emergency service water outlet valves - OPEN.

EMERG SW FROM
1A(1B,1C,1D) CTMT CLR

Q1P16MOV3024A

Q1P16MOV3024B

Q1P16MOV3024C

Q1P16MOV3024D

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Response NOT Obtained

ATTACHMENT 1

10 Check no main steam line isolation actuation signal present.

10 Perform the following.

10.1 Verify main steam line isolation and bypass valves closed.

Signal	Setpoint	Coincidence	TSLB
LO SG PRESS	< 585 psig	2/3	TSLB4 19-2 19-3 19-4
HI STEAM FLOW	> 40%	1/2 ON 2/3	TSLB4 16-3 16-4 17-3 17-4 18-3 18-4
<u>AND</u> LO-LO TAVG	< 543°F	2/3	TSLB2 10-1 10-2 10-3
HI-HI CTMT PRESS	>16.2 psig	2/3	TSLB1 2-2 2-3 2-4

- 1A(1B,1C) SG
MSIV - TRIP
 Q1N11HV3369A
 Q1N11HV3369B
 Q1N11HV3369C
 Q1N11HV3370A
 Q1N11HV3370B
 Q1N11HV3370C

- 1A(1B,1C) SG
MSIV - BYP
 Q1N11HV3368A
 Q1N11HV3368B
 Q1N11HV3368C
 Q1N11HV3976A
 Q1N11HV3976B
 Q1N11HV3976C

10.2 IF any main steam isolation valve open,
THEN place the associated test switch in the TEST position.

SG	1A	1B	1C
1A(1B,1C) SG MSIV - TEST Q1N11HV	<input type="checkbox"/> 3369A/ 70A	<input type="checkbox"/> 3369B/ 70B	<input type="checkbox"/> 3369C/ 70C

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 1

CAUTION: RCPs should NOT be tripped with reactor power GREATER THAN 5%.

NOTE: Step 11 is a continuing action step while in this procedure.

11 Check containment pressure -
HAS REMAINED LESS THAN 27 psig.

CTMT PRESS
 PR 950

11 Perform the following.

11.1 Verify PHASE B CTMT ISO -
ACTUATED.

- MLB-3 1-1 lit
- MLB-3 6-1 lit

11.2 Stop all RCPs.

- RCP
- 1A
 - 1B
 - 1C

11.3 Verify PHASE B CTMT ISO
alignment.

11.3.1 Check All MLB-3 lights lit.

11.3.2 IF any MLB-3 light NOT lit,
THEN verify proper PHASE B
CTMT ISO alignment.

Step 11 continued on next page.

___Page Completed

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 1

11.4 Check containment spray.

11.4.1 Check containment spray flow in both trains greater than 0 gpm.

CS FLOW

FI 958A

FI 958B

11.4.2 IF containment spray flow in both trains NOT greater than 0 gpm, THEN verify containment spray pump suction valves open.

RWST TO

1A(1B) CS PUMP

Q1E13MOV8817A

Q1E13MOV8817B

-END-

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

FAULTED SG ISOLATION

CAUTION: A loss of secondary heat sink will result from failure to maintain at least one SG available for RCS cooldown.

1 Isolate all faulted SGs.

1.1 Verify all faulted SG atmospheric reliefs - MANUALLY CLOSED.

Faulted SG	1A	1B	1C
1A(1B,1C) MS ATMOS REL VLV PC	<input type="checkbox"/> 3371A	<input type="checkbox"/> 3371B	<input type="checkbox"/> 3371C

1.1 Locally unlock and close one isolation valve for any failed atmospheric relief. (127 ft, AUX BLDG main steam valve room)

Faulted SG	1A	1B	1C
Q1N11V	<input type="checkbox"/> 004A <input type="checkbox"/> 004B	<input type="checkbox"/> 004C <input type="checkbox"/> 004D	<input type="checkbox"/> 004E <input type="checkbox"/> 004F
Key	Z-131 Z-126	Z-125 Z-124	Z-123 Z-122

1.2 Verify all faulted SG main feed stop valves - CLOSED.

Faulted SG	1A	1B	1C
MAIN FW TO 1A(1B,1C) SG STOP VLV Q1N21MOV	<input type="checkbox"/> 3232A	<input type="checkbox"/> 3232B	<input type="checkbox"/> 3232C

1.2 Locally close all faulted SG main feed stop valves. (127 ft, AUX BLDG main steam valve room)

Step 1 continued on next page.

UNIT 1

FNP-1-FRP-S.1	RESPONSE TO NUCLEAR POWER GENERATION/ATWT	Revision 25
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Step	Action/Expected Response	Response NOT Obtained
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ATTACHMENT 2

1.3 Verify blowdown from all faulted SGs - ISOLATED.

1.3 Locally isolate blowdown. (121 ft, AUX BLDG rad side at PRIP)

Faulted SG	1A	1B	1C
1A(1B,1C) SGBD ISO Q1G24HV	<input type="checkbox"/> 7614A closed	<input type="checkbox"/> 7614B closed	<input type="checkbox"/> 7614C closed

Faulted SG	1A	1B	1C
1A(1B,1C) SGBD PENE RM ISO Q1G24HV	<input type="checkbox"/> 7697A stopped <input type="checkbox"/> 7697B stopped	<input type="checkbox"/> 7698A stopped <input type="checkbox"/> 7698B stopped	<input type="checkbox"/> 7699A stopped <input type="checkbox"/> 7699B stopped

CAUTION: The TDAFWP will not be available if both steam supplies are isolated. At least one steam supply should remain aligned if TDAFWP required.

1.4 IF 1C SG faulted,
THEN isolate TDAFWP steam supply from 1C SG.

1.4 Proceed to step 1.5.

1.4.1 Isolate TDAFWP steam supply from 1C SG at hot shutdown panel.

1.4.1 Locally unlock and close STM LINE 1C TO TDAFWP ISO VLV Q1N12V005B. (Key Z-132) (127 ft, AUX BLDG main steam valve room)

TDAFWP STM SUPP
FROM 1C SG
 Q1N12HV3235B in LOCAL (HSDP-F)

TDAFWP STM SUPP
FROM 1C SG
 Q1N12HV3235B to STOP (HSDP-D)

Step 1 continued on next page.

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

1.5 IF 1B SG faulted,
THEN isolate TDAFWP steam
supply from 1B SG.

1.5 Proceed to step 2.

1.5.1 IF TDAFWP NOT required,
THEN isolate TDAFWP steam
supply from 1B SG at hot
shutdown panel.

TDAFWP STM SUPP
FROM 1B SG

Q1N12HV3235A/26 in LOCAL
(HSDP-F)

TDAFWP STM SUPP
FROM 1B SG

Q1N12HV3235A/26 to STOP
(HSDP-D)

Step 1 continued on next page.

___Page Completed

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

CAUTION: Failing open TDAFWP STM SUPP ISO Q1N12HV3226 will cause the RGSC to ramp to maximum output. Admitting steam to the TDAFWP with TDAFWP SPEED CONT SIC-3405 NOT set to 0% could cause a TDAFWP overspeed trip.

1.5.2 IF TDAFWP required,
THEN perform one of the following.

- Perform the following:
 - a) Close TDAFWP STM SUPP WARMUP ISO valves (BOP)
 - Q1N12HV3234A Closed
 - Q1N12HV3234B Closed
 - b) IF the TDAFWP is NOT in operation,
THEN adjust TDAFWP SPEED CONT to 0%
 - SIC 3405 adjusted to 0%
 - c) Open TDAFWP STM SUPP ISO Q1N12HV3226 by failing air supply. (100 ft, AUX BLDG TDAFWP room)

Step 1 continued on next page.

___Page Completed

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

d) Isolate TDAFWP steam supply from 1B SG at hot shutdown panel.

TDAFWP STM SUPP FROM 1B SG

Q1N12HV3235A/26 in LOCAL (HSDP-F)

TDAFWP STM SUPP FROM 1B SG

Q1N12HV3235A/26 to STOP (HSDP-D)

e) Adjust TDAFWP SPEED CONT SIC 3405 as required when starting or stopping TDAFWP.

OR

- Locally unlock and close STM LINE 1B TO TDAFWP ISO VLV Q1N12V006A. (Key Z-130) (127 ft, AUX BLDG main steam valve room)

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

2 IF all SGs faulted,
THEN maintain 20 gpm AFW flow
to each SG.

2 Proceed to step 3.

2.1 Control MDAFWP flow.

MDAFWP FCV 3227 RESET

- A TRN reset
- B TRN reset

MDAFWP TO
1A/1B/1C SG
B TRN

- FCV 3227 in MOD

SG	1A	1B	1C
MDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3227A in MOD	<input type="checkbox"/> 3227B in MOD	<input type="checkbox"/> 3227C in MOD
MDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3227AA adjusted	<input type="checkbox"/> 3227BA adjusted	<input type="checkbox"/> 3227CA adjusted

Step 2 continued on next page.

___Page Completed

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

2.2 Control TDAFWP flow.

TDAFWP FCV 3228
 RESET reset

TDAFWP
 SPEED CONT
 SIC 3405 adjusted

SG	1A	1B	1C
TDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3228A in MOD	<input type="checkbox"/> 3228B in MOD	<input type="checkbox"/> 3228C in MOD
TDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3228AA adjusted	<input type="checkbox"/> 3228BA adjusted	<input type="checkbox"/> 3228CA adjusted

2.3 Proceed to step 4.

3 Isolate AFW flow to all faulted SGs.

3.1 Close MDAFWP isolation valves to all faulted SGs. (BOP)

3.1 Close MDAFWP flow control valves to all faulted SGs.

Faulted SG	1A	1B	1C
MDAFWP TO 1A(1B,1C) SG ISO Q1N23MOV	<input type="checkbox"/> 3764A <input type="checkbox"/> 3764E	<input type="checkbox"/> 3764B <input type="checkbox"/> 3764D	<input type="checkbox"/> 3764C <input type="checkbox"/> 3764F

Faulted SG	1A	1B	1C
MDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3227A in MOD	<input type="checkbox"/> 3227B in MOD	<input type="checkbox"/> 3227C in MOD
MDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3227AA	<input type="checkbox"/> 3227BA	<input type="checkbox"/> 3227CA

Step 3 continued on next page.

UNIT 1

FNP-1-FRP-S.1

RESPONSE TO NUCLEAR POWER GENERATION/ATWT

Revision 25

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 2

3.2 Close TDAFWP flow control valves to all faulted SGs.

Faulted SG	1A	1B	1C
TDAFWP TO 1A(1B,1C) SG Q1N23HV	<input type="checkbox"/> 3228A in MOD	<input type="checkbox"/> 3228B in MOD	<input type="checkbox"/> 3228C in MOD
TDAFWP TO 1A(1B,1C) SG FLOW CONT HIC	<input type="checkbox"/> 3228AA	<input type="checkbox"/> 3228BA	<input type="checkbox"/> 3228CA

3.3 Locally unlock and close flow control valve inlet isolation to all faulted SGs. (100 ft, AUX BLDG above AFW pump rooms)

Faulted SG	1A	1B	1C
Q1N23V	<input type="checkbox"/> 017A	<input type="checkbox"/> 017B	<input type="checkbox"/> 017C
Key	Z-139	Z-170	Z-141

4 Notify control room of SG isolation status.

-END-

90. 076 G2.1.2 001

Given the following:

- Unit 2 is at 100% power with "A" Train on service.
- At 1200 on 11/7/2007, 2E Service Water pump tripped and "B" Train SW was declared INOPERABLE.

Which ONE of the following describes the Technical Specification REQUIRED ACTION IAW 3.7.8, Service Water System, and the action required to make "B" Train Service Water OPERABLE?

- A✓ • Immediately declare the DG supported by Train "B" Service Water INOPERABLE.
- Place "B" Train of SW on service and align 2C SW pump to auto start for 2E SW pump IAW SOP-24.0, Service Water System.
- B. • Immediately declare the DG supported by Train "B" Service Water INOPERABLE.
- Align 2C SW pump to auto start for 2E SW pump IAW AOP-10.0, Loss of Service Water.
- C. • Declare the DG supported by Train "B" Service Water INOPERABLE no later than 1600 on 11/7/2007 (4 hours later).
- Align 2C SW pump to auto start for 2E SW pump IAW AOP-10.0, Loss of Service Water.
- D. • Declare the DG supported by Train "B" Service Water INOPERABLE no later than 1600 on 11/7/2007 (4 hours later).
- Place B Train of SW on service and align 2C SW pump to auto start for 2E SW pump IAW SOP-24.0, Service Water System.

Meets 10 CFR 55.43 (b) 2 and 5 requirements for SRO level question

A. Correct. This TS immediately entered from 3.7.8 and the DG is declared INOP. Then the 2C SW pump is aligned to auto start for 2E. The trains are swapped to do this. This will allow both trains to be operable.

AOP-10

CAUTION: Based on plant needs, shifting electrical trains in FNP-1-SOP-24.0, SERVICE WATER SYSTEMS, may be delayed. Subsequent shifting of electrical trains is required for train separation.

19 IF affected train NOT leaking, THEN evaluate aligning 1C SW pump to affected train using FNP-2-SOP-24.0, SERVICE WATER SYSTEM.

Bases 3.7.8

LCO Two SWS trains are required to be OPERABLE to provide the required redundancy to

Farley Nuclear Plant
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ensure that the system functions to remove post accident heat loads, assuming that the worst case single active failure occurs coincident with the loss of offsite power.
An SWS train is considered OPERABLE during MODES 1, 2, 3, and 4 when:

- a. Two pumps are OPERABLE; and
- b. The associated piping, valves, and instrumentation and controls required to perform the safety related function are OPERABLE.

Note from A.1

The first Note indicates that the applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources—Operating," should be entered if an inoperable SWS train results in an inoperable emergency diesel generator.

FSD 181001

3.1.5.1 The Service Water pumps shall be automatically started by a signal from the LOSP or ESS sequencer. The Service Water swing pump shall be automatically started by a signal from the LOSP or ESS sequencer when in service replacing one of the train oriented pumps. (References 6.7.039 and 6.1.009)

SOP-24 P&L

3.3 Service Water pump 1C may be selected for auto-start from the ESS or the LOSP sequencers, instead of an A Train or B Train pump, by using key-interlocked selector switches at the SW local control panels. Normal position of both the A Train and B Train selector switches will be the 1C position and 1C SW pump will not autostart.

B. Incorrect.

This TS is immediately entered from 3.7.8 and the DG is declared INOP.
The second part is in part correct but B Train would be however AOP-10 sends the operator to SOP-24 to select the 2C SWP to autostart and if this was done w/o swapping trains it would be in an incorrect alignment. This has to be done in 72 hours (3 days later) IAW TS 3.7.8. NOT 7 days.

C. incorrect.

4 hours would NOT be allowed to declare inop if DG was OOS.
The second part is in NOT correct. See above.

D. incorrect.

4 hours would NOT be allowed to declare inop if DG was OOS.
Second part of this is correct.

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076 Service Water System

G2.1.2 Conduct of Operations: Knowledge of **operator responsibilities** during all modes of plant operation.

Question Number: 90

Tier 2 Group 1

Importance Rating: 4.0

Technical Reference: TS 3.7.8, 3.8.1, AOP-10, SOP-24

Proposed references to be provided to applicants during examination: None

Learning Objective:

10 CFR Part 55 Content: 43.2

Comments:

fixed per FJE comments and added how to restore B train to operable status.

FARLEY NUCLEAR PLANT
ABNORMAL OPERATING PROCEDURE
FNP-2-AOP-10.0

LOSS OF SERVICE WATER

PROCEDURE USAGE REQUIREMENTS	SECTIONS
CONTINUOUS USE - Each step of the procedure is to be read prior to performing that step. Each step is to be performed in the sequence given. Where required, each step is to be signed off as complete before proceeding to the next step.	ALL
REFERENCE USE - The procedure is to be referred to periodically to confirm that all required parts of a work activity have been performed. Where required, steps are to be signed off to show that procedure requirements have been met.	
INFORMATION USE - An activity may be performed from memory, but the procedure should be available for use as needed and for training.	

S
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D

Approved:

Ray Martin

Operations Manager

Date Issued: 01/31/2005

Table of Contents

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A. Purpose

This procedure provides actions for response to a loss of one or both trains of service water.

This procedure is applicable at all times.

B. Symptoms or Entry Conditions

I. This procedure is entered when a loss of either train of service water is indicated by any of the following:

- a. Actuation of SW PRESS A TRN LO annunciator AD4 or SW PRESS B TRN LO annunciator AD5 (60 psig)
- b. Actuation of SW PUMP TRIPPED annunciator AE4
- c. Actuation of SW TO AUX BLDG HDR PRESS A OR B TRN LO annunciator AE5 (50 psig)
- d. Trip of any operating SW PUMP
- e. Rising temperatures on components supplied by service water
- f. Loss of power to one or both SW 4160 V busses 2K or 2L

Step

Action/Expected Response

Response NOT Obtained

NOTE: SW TO TURB BLDG ISO A(B) TRN valves will automatically close if SW flow in either train is greater than 17,600 gpm.

1 Verify affected SW 4160 V supply breakers closed.

- [] BKR DF02 closed
>[] BKR DG02 closed

2 IF a SW PUMP trips, THEN verify standby SW PUMP started.

3 IF SW pressure in both trains greater than 60 psig, THEN go to procedure and step in effect.

CAUTION: A running diesel generator will overheat if adequate SW flow is not provided. Steps 4.2.1 through 4.2.6 must be performed immediately to verify adequate SW flow to a running diesel generator.

4 Check diesel generators.

4.1 Check any diesel generator in affected train - STARTED.

4.1 Proceed to step 5.

Step 4 continued on next page.

Page Completed

Step	Action/Expected Response	Response NOT Obtained
<p>NOTE: The loss of Service Water to the Turbine Building could be unisolable and would affect both trains of Service Water. The intent of Step 4.2 RNO is to allow isolation of an affected train if possible. If both trains are affected then the Turbine Building must be isolated and the turbine generator removed from service.</p>		
<p>4.2 <u>IF</u> diesel generator <u>NOT</u> required, <u>THEN</u> secure diesel generator using ATTACHMENT 1.</p>	<p>4.2 Perform the following SW isolations.</p> <p>4.2.1 Isolate SW on the affected train(s) to the turbine building.</p> <p>Close A TRN SW TO TURB BLDG ISO valves.</p> <p><input type="checkbox"/> Q2P16V515</p> <p><input type="checkbox"/> Q2P16V516 (B trn elect)</p> <p>Close B TRN SW TO TURB BLDG ISO valves.</p> <p><input type="checkbox"/> Q2P16V514</p> <p><input type="checkbox"/> Q2P16V517 (A trn elect)</p> <p>Close A TRN SW FROM TURB BLDG HDR ISO valves.</p> <p><input type="checkbox"/> Q2P16V540</p> <p><input type="checkbox"/> Q2P16V542</p> <p>VOLIAN</p> <p>Close B TRN SW FROM TURB BLDG HDR ISO valves.</p> <p><input type="checkbox"/> Q2P16V541</p> <p><input type="checkbox"/> Q2P16V543</p>	
<p>Step 4 continued on next page.</p>		
<p>Page Completed</p>		

Step

Action/Expected Response

Response NOT Obtained

4.2.2 IF both trains of service water have been isolated to the turbine building, THEN perform the following:

4.2.2.1 IF Rx power is less than 35%,
THEN trip the turbine and refer to FNP-2-AOP-3.0, TURBINE TRIP BELOW THE P9 SET POINT.

4.2.2.2 IF Rx power is greater than 35%,
THEN trip the reactor and refer to FNP-2-EOP-0.0, REACTOR TRIP

4.2.3 Perform FNP-2-AOP-7.0, LOSS OF TURBINE BUILDING SERVICE WATER in conjunction with this procedure.

4.2.4 Close SW TO RCP MTR AIR CLRS Q2P16MOV3135 and SW TO BLDN HX & BTRS CHLR Q2P16MOV3149.

4.2.5 Verify diesel building SW header valves open.

SW TO/FROM
DG BLDG HDR A

Q2P16V519/537 open

SW TO/FROM
DG BLDG HDR B

Q2P16V518/536 open

Step 4 continued on next page.

Page Completed

Step	Action/Expected Response	Response NOT Obtained
		<p>4.2.6 <u>IF</u> unable to maintain running diesel generator(s) lube oil temperature below the alarm(155' DG BLDG local control panel) <u>THEN</u> perform the following.</p>
		<p>4.2.6.1 For shared diesel generators verify Unit 1 Service Water aligned.</p>
<p>NOTE: No evaluation has been performed to demonstrate that the Unit 1 'B' Train Service Water System is capable of supplying the cooling requirements for 1B and 2B diesel at the same time.</p>		
		<p>4.2.6.2 <u>IF</u> Unit 1 SW is available for 2B diesel generator. <u>THEN</u> align Unit 1 SW supply to 2B diesel generators.</p>
		<p>2B DIESEL GENERATOR SW SUPP TO/FROM UNIT 1(UNIT 2) [] Q1P16V592/593 open [] Q2P16V592/593 closed</p>
		<p>4.2.7 <u>IF</u> unable to maintain running diesel generator(s) lube oil temperature alarm clear (155' DG BLDG local control panel) <u>THEN</u> stop affected diesel generator.using ATTACHMENT 1.</p>
5	<p>Verify all available SW PUMPs STARTED.</p>	

Step

Action/Expected Response

Response NOT Obtained

6

Check pressure in a SW train
GREATER THAN 60 psig.

6

IF, one train of Service Water
cannot be immediately restored
to the Turbine Building,
THEN.perform the following:

6.1 Isolate SW to the turbine
building.

Close SW TO TURB BLDG ISO
A TRN ISO valves.

Q2P16V515

Q2P16V516 (B Trn Electrical)

Close SW TO TURB BLDG ISO
A TRN ISO valves.

Q2P16V514

Q2P16V517 (A Trn Electrical)

Close SW FROM TURB BLDG
A HDR ISO valves

Q2P16V540

Q2P16V542

Close SW FROM TURB BLDG
B HDR ISO valves

Q2P16V541

Q2P16V543

6.2 IF Rx power is less than 35%,
THEN trip the turbine and
refer to ENP-2-AOP-3.0,
TURBINE TRIP BELOW THE P9 SET
POINT.

6.3 IF Rx power is greater than
35%,
THEN trip the reactor and
refer to ENP-2-EOP-0.0,
REACTOR TRIP

6.4 Close SW TO RCP MTR AIR CLRS
Q2P16MOV3135 and SW TO BLDN HX
& BTRS CHLR Q2P16MOV3149.

6.5 Perform ENP-2-AOP-7.0, LOSS OF
TURBINE BUILDING SERVICE WATER
in conjunction with this
procedure.

Step 6 continued on next page.

Page Completed

Step

Action/Expected Response

Response NOT Obtained

6.6 Verify SW isolated to standby CCW heat exchanger.

Standby CCW HX	2C	2B	2A
SW TO 2C(2B,2A) CCW HX Q2P16MOV	<input type="checkbox"/> 3130C closed	<input type="checkbox"/> 3130B closed	<input type="checkbox"/> 3130A closed

6.7 Maintain SW flow to in service CCW heat exchanger 3500-4000 gpm.

In Service CCW HX	2C	2B	2A
2C(2B,2A) CCW HX DISCH FCV HIC	<input type="checkbox"/> 3009C adjusted	<input type="checkbox"/> 3009B adjusted	<input type="checkbox"/> 3009A adjusted

7 Check operating CCW train - SUPPLIED FROM AFFECTED SW TRAIN.

7 Proceed to step 14.

8 Verify CCW PUMP in non affected train - STARTED.

9 Verify CHG PUMP in non affected train - STARTED.

CAUTION: Steps 8 and 9 must be complete before step 10 is performed to ensure seal injection is maintained to the RCPs.

10 Verify all CHG PUMPs in affected train - STOPPED.

11 Perform FNP-2-AOP-9.0, LOSS OF COMPONENT COOLING WATER in conjunction with this procedure.

Step	Action/Expected Response	Response NOT Obtained
12	Monitor RCP motor bearing temperatures - LESS THAN 195°F.	12 Perform the following. 12.1 <u>IF</u> reactor critical, <u>THEN</u> perform the following.

NOTE: The remainder of this procedure should be performed in conjunction with FNP-2-ESP-0.1, REACTOR TRIP RESPONSE if sufficient personnel are available.

- 12.1.1 Trip the reactor.
- 12.1.2 IF reactor tripped,
THEN stop all RCPs.
 - RCP
 - 2A
 - 2B
 - 2C
- 12.1.3 Proceed to step 13.
- 12.2 IF reactor NOT critical,
THEN perform the following.
 - 12.2.1 Verify all reactor trip and reactor trip bypass breakers open.
 - Reactor trip breaker A
 - Reactor trip breaker B
 - Reactor trip bypass breaker A
 - Reactor trip bypass breaker B
 - 12.2.2 Stop all RCPs.
 - RCP
 - 2A
 - 2B
 - 2C
 - 12.2.3 IF unit in Mode 3 or 4,
THEN perform FNP-2-AOP-4.0, LOSS OF REACTOR COOLANT FLOW in conjunction with this procedure.

Step	Action/Expected Response	Response NOT Obtained
13	Minimize CCW loads in affected train.	
13.1	Check on service SFP HX - SUPPLIED FROM NON AFFECTED SW TRAIN.	13.1 Place non affected SFP HX in service using FNP-2-SOP-54.0, SPENT FUEL PIT COOLING AND PURIFICATION SYSTEM.
13.2	<u>IF</u> RHR system in operation, <u>THEN</u> check operating RHR train supplied from non affected SW train.	13.2 <u>IF</u> RHR system in operation, <u>THEN</u> perform the following. 13.2.1 Place non affected RHR train in service using FNP-2-SOP-7.0, RESIDUAL HEAT REMOVAL SYSTEM. 13.2.2 Secure affected RHR train using FNP-2-SOP-7.0, RESIDUAL HEAT REMOVAL SYSTEM.
NOTE: The CCW Pump Room Coolers are not considered to be attendant equipment; however, the room cooler fan must be tagged out of service when SW is lost to the affected cooler(s) (Ref. NEL-96-0101; REA 95-0873).		
13.3	Check on service CCW train - SUPPLIED FROM NON AFFECTED SW TRAIN.	13.3 Align non affected CCW train as on service train using FNP-2-SOP-23.0, COMPONENT COOLING WATER SYSTEM.

Step	Action/Expected Response	Response NOT Obtained
14	Minimize SW loads in affected train.	
14.1	If required, secure BTRS using FNP-2-SOP-3.0, BORON THERMAL REGENERATION SYSTEM.	
14.2	Minimize A TRAIN SW LOADS as required.	
14.2.1	Secure SGBD using FNP-2-SOP-16.1, STEAM GENERATOR BLOWDOWN PROCESSING SYSTEM.	
14.2.2	Close SW TO BLDN HX & BTRS CHLR Q2P16MOV3149	
14.2.3	Stop A TRAIN CTMT CLRS	
	<input type="checkbox"/> A Ctmt Cooler Q2E12H001A-A <input type="checkbox"/> B Ctmt Cooler Q2E12H001B-A	
14.3	Minimize B TRAIN SW LOADS as required.	
14.3.1	Close SW TO RCP MTR AIR CLRS Q2P16MOV3135.	
14.3.2	Stop B TRAIN CTMT CLRS	
	<input type="checkbox"/> C Ctmt Cooler Q2E12H001C-B <input type="checkbox"/> D Ctmt Cooler Q2E12H001D-B	
14.4	Verify CTMT CLRS in non-affected train - STARTED.	
	A TRAIN CTMT CLRS <input type="checkbox"/> A Ctmt Cooler Q2E12H001A-A <input type="checkbox"/> B Ctmt Cooler Q2E12H001B-A	
	B TRAIN CTMT CLRS <input type="checkbox"/> C Ctmt Cooler Q2E12H001C-B <input type="checkbox"/> D Ctmt Cooler Q2E12H001D-B	
15	Evaluate event classification and notification requirements using FNP-0-EIP-9, EMERGENCY CLASSIFICATION AND ACTIONS.	

Step

Action/Expected Response

Response NOT Obtained

16

Check pressure in both SW trains - GREATER THAN 60 psig.

16

Perform the following.

- 16.1 Verify affected train SW PUMP MINI FLOW valves closed. (SWIS)
- 16.2 Dispatch personnel to inspect SW system for leakage.
- 16.3 WHEN SW system leakage source is identified, THEN isolate leakage.
- 16.4 Close affected train dilution bypass line isolation valve.

Affected train	A	B
DILUTION BYPASS ISOLATION VALVE Q2P16V	<input type="checkbox"/> 558 155 AUX bldg RADSIDE HALL	<input type="checkbox"/> 557 155 AUX bldg RADSIDE HALL

- 16.5 IF pressure in both SW trains greater than 60 psig, THEN go to procedure and step in effect IF NOT, proceed to step 18.

17

Go to procedure and step in effect.

Step	Action/Expected Response	Response NOT Obtained
18	<p>Verify SW alignment to diesel generators based on affected train:</p>	
18.1	<p><u>IF</u> affected train has a Shared diesel generator running <u>THEN</u> verify Unit 1 SW aligned.</p>	
	<p>1-2A DIESEL GENERATOR (A TRN) SW SUPP TO/FROM UNIT 1(UNIT 2) <input type="checkbox"/> Q1P16V526/534 open <input type="checkbox"/> Q1P16V527/535 closed</p>	
	<p>1C DIESEL GENERATOR (A TRN) SW SUPP TO/FROM UNIT 1(UNIT 2) <input type="checkbox"/> Q1P16V524/532 open <input type="checkbox"/> Q1P16V525/533 closed</p>	
	<p>2C DIESEL GENERATOR (B TRN) SW SUPP TO/FROM UNIT 1(UNIT 2) <input type="checkbox"/> Q1P16V521/529 open <input type="checkbox"/> Q1P16V520/528 closed</p>	
<p>NOTE: No evaluation has been performed to demonstrate that the Unit 1 'B' Train Service Water System is capable of supplying the cooling requirements for 1B and 2B diesel at the same time.</p>		
18.2	<p><u>IF</u> Unit 1 SW is available for 2B diesel generator, <u>THEN</u> align Unit 1 SW supply to 2B diesel generators.</p>	
	<p>2B DIESEL GENERATOR SW SUPP TO/FROM UNIT 1(UNIT 2) <input type="checkbox"/> Q1P16V592/593 open <input type="checkbox"/> Q2P16V592/593 closed</p>	
<p>Page Completed</p>		

Step

Action/Expected Response

Response NOT Obtained

CAUTION: To prevent a leak on one train from affecting both trains, 2C SW pump must not be realigned to a train with an unisolated leak.

CAUTION: Based on plant needs, shifting electrical trains in FNP-1-SOP-24.0, SERVICE WATER SYSTEMS, may be delayed. Subsequent shifting of electrical trains is required for train separation.

___19 IF affected train NOT leaking, THEN evaluate aligning 1C SW pump to affected train using FNP-2-SOP-24.0, SERVICE WATER SYSTEM.

___20 Align 2C battery charger room cooler to non affected train using FNP-2-SOP-37.1, 125 V D. C. AUXILIARY BUILDING DISTRIBUTION SYSTEM.

___21 Align 2B charging pump to non affected train using FNP-2-SOP-2.1, CHEMICAL AND VOLUME CONTROL SYSTEM PLANT STARTUP AND OPERATION.

___22 Monitor 600 V load centers cooled by affected train.

22.1 IF load center operation is degraded, THEN evaluate transferring loads to a non affected load center using FNP-2-SOP-36.3, 600, 480 AND 208/120 VOLT AC ELECTRICAL DISTRIBUTION SYSTEM.

___23 Check pressure in both SW trains - GREATER THAN 60 psig.

23 Return to step 1.

Step

Action/Expected Response

Response NOT Obtained

ATTACHMENT 1

SECURING A DIESEL GENERATOR

1 Secure affected diesel generator from EPB.

- 1.1 Place the affected diesel generator MODE SELECTOR SWITCH to MODE 2.
- 1.2 Depress affected diesel generator DIESEL EMERG START RESET pushbutton.

CAUTION: Failure to perform steps 1.4 and 1.5 immediately following step 1.3 may result in restart of the diesel generator when the low speed relay de-energizes.

- 1.3 Depress affected diesel generator STOP pushbutton.

[] DIESEL STOP light lit

- 1.4 Place affected diesel generator MODE SELECTOR SWITCH to MODE 3.
- 1.5 Depress affected diesel generator DIESEL EMERG START RESET pushbutton.

- 1 Secure affected diesel generator from diesel local control panel (155 ft, DIESEL BLDG).

- a) Place affected diesel generator MODE 4 SELECTOR SWITCH to MODE 4.
- b) Depress affected diesel generator local STOP pushbutton.

-END-

4.5 Aligning Train B (A) SW to charging pump 2B room cooler.

CAUTION: Service water will be temporarily isolated from the charging pump 2B room cooler during the performance of the following procedure.

NOTE: Service water to charging pump 2B room cooler shall be aligned to the same train that charging pump 2B is aligned to in the CVCS. This procedure should be performed by FNP-2-SOP-2.1, CHEMICAL AND VOLUME CONTROL SYSTEM PLANT STARTUP AND OPERATION, which aligns charging pump 2B to Train B (A).

4.5.1 Align Train B (A) SW to Charging Pump 2B Room Cooler per FNP-2-SOP-2.1, CHEMICAL AND VOLUME CONTROL SYSTEM PLANT STARTUP AND OPERATION.

4.6 Aligning service water pump 2C to A train.

4.6.1 To align service water pump 2C to A train, perform FNP-2-SOP-24.0C.

4.7 Aligning service water pump 2C to B train.

4.7.1 To align service water pump 2C to B train, perform FNP-2-SOP-24.0D.

4.8 Shutdown of service water system train A (B).

NOTE: Prior to taking any actions that will significantly affect service water dilution flow, notify the shift radiochemist to ensure any chlorination can be adjusted or terminated as needed.

4.8.1 Close SW FROM TURB BLDG A (B) HDR ISO valves:

- Q2P16V540 (Q2P16V541)
- Q2P16V542 (Q2P16V543).

4.8.2 Close SW TO TURB BLDG A (B) TRN

- Q2P16V515 (Q2P16V514)
- Q2P16V516 (Q2P16V517).

4.8.3 Secure all but one A(B) train service water pump.

SYSTEM CHECKLIST SOP-24.0D

ALIGNING SW PUMP 2C TO B TRAIN

Situation Requiring Completion Of Check List:

Performed By: _____ Date/Time _____

Verified By: _____ Date/Time _____

Reviewed By: _____ Date/Time _____

This Check List consists of 6 pages.

SYSTEM CHECKLIST SOP-24.0D

ALIGNING SW PUMP 2C TO B TRAIN

1.0 Electrical Alignment

- ___ 1.1 The version of this procedure has been verified to be the current version for the task. (OR 1-98-498)
- ___ 1.2 The version of this procedure has been verified to be for the correct unit for the task. (OR 1-98-498)
- ___ 1.3 IF 2C service water pump is to be aligned for auto-start, THEN obtain key #LL299 from the Shift Support Supervisor.
- ___ 1.4 Stop or verify stopped 2C service water pump.
- ___ 1.5 IF 2C service water pump is selected to Auto Start on A Train, THEN select 2C position on A Train spare pump selector switch and remove key #LL299.
- / 1.6 Open DC control power breaker for DK05-2, SERVICE WATER PUMP 2C
CV Q2P16M001C-AB.

NOTE: During the performance of the following steps of racking out the breaker and removing it from the cubicle, special consideration should be given to prevent damage to the key or to the interlock. (OR 1-98-009)

- ___ 1.7 Rack out circuit breaker DK05-2, SERVICE WATER PUMP 2C Q2P16M001C-AB, to the DISC (disconnect) position.
- ___ 1.8 Turn key #RE-11579 in the mechanical interlock on the circuit breaker DK05-2, SERVICE WATER PUMP 2C Q2P16M001C-AB, and remove the key.
- ___ 1.9 IF required for seismic consideration, THEN remove circuit breaker DK05-2, SERVICE WATER PUMP 2C Q2P16M001C-AB, from the cubicle and take appropriate actions with the breaker.
- ___ 1.10 Insert key #RE-11579 into mechanical interlock on SERVICE WATER PUMP 2C 4KV DISC SW 2A, Q2R18A501A-A, and turn key. Key #RE-11579 is now held in place.

- / 1.11 Open SERVICE WATER PUMP 2C 4KV DISC SW 2A, Q2R18A501A-A and
 CV verify the position indicator reads SW OPEN.
- ___ 1.12 Turn key #RE-11578 in its mechanical interlock on SERVICE WATER PUMP
2C 4KV DISC SW 2A, Q2R18A501A-A and remove key. Disconnect 2A is now
locked open.
- ___ 1.13 Insert key #RE-11578 into its mechanical interlock on SERVICE WATER PUMP
2C 4KV DISC SW 2B, Q2R18A501B-B, and turn key. Key #RE-11578 is now
held in place.
- / 1.14 Close SERVICE WATER PUMP 2C 4KV DISC SW 2B, Q2R18A501B-B and
 CV verify the position indicator reads SW CLOSED.
- ___ 1.15 Turn key #RE-11580 in its mechanical interlock on SERVICE WATER PUMP
2C 4KV DISC SW 2B, Q2R18A501B-B, and remove key. Disconnect switch 2B
is now locked closed.

<p>NOTE: During the performance of the following steps of returning the breaker to the cubicle and racking it in, special consideration should be given to prevent damage to the key or to the interlock. (OR 1-98-008)</p>
--

- ___ 1.16 Rack or verify racked circuit breaker DL05-2, SERVICE WATER PUMP 2C
Q2P16M001C-AB to the DISC (disconnect) position.
- ___ 1.17 Insert key #RE-14253 into the mechanical interlock on circuit breaker DL05-2,
SERVICE WATER PUMP 2C Q2P16M001C-AB, and turn key. Key #RE-14253
is now held in place.
- ___ 1.18 Rack circuit breaker DL05-2, SERVICE WATER PUMP 2C Q2P16M001C-AB
to the connected position.
- / 1.19 Close DC control power breaker for DL05-2, SERVICE WATER PUMP 2C
 CV Q2P16M001C-AB and verify breaker spring charges.

2.0 Mechanical Alignment

2.1 On Service Water Pumps cooling header close or verify closed the following valves:

___ 2.1.1 A trn S.W. pump motor clg water header iso valve Q2P16V712

___ 2.1.2 A trn S.W. pump motor clg water header iso valve Q2P16V713

2.2 Open or verify open the following valves:

___ 2.2.1 B trn S.W. pump motor clg water header iso valve Q2P16V714

___ 2.2.2 B trn S.W. pump motor clg water header iso valve Q2P16V715

NOTE: IF 2C Service Water Pump is already aligned to B Train, THEN step 2.3.1 and 2.3.2 may be marked N/A.

2.3 At the SW structure, close the following breakers (in any order):

___ 2.3.1 FK-L2 SW pmp 2C to SW HDR A Q2P16V507.

___ 2.3.2 FL-L2 SW pmp 2C to SW HDR B Q2P16V506.

NOTE: Service water pump 2C train A and B header isolation valves Q2P16V506 and Q2P16V507 should not be open or stroking simultaneously to prevent cross connection of trains.

___ 2.4 On the main control board close or verify closed 2C SW PUMP TO A HDR ISO Q2P16V507.

___ 2.5 On the main control board open or verify open 2C SW PUMP TO B HDR ISO Q2P16V506.

2.6 At the SW structure, open the following breakers (in any order):

___ 2.6.1 FL-L2 SW pmp 2C to SW HDR B Q2P16V506.

___ 2.6.2 FK-L2 SW pmp 2C to SW HDR A Q2P16V507.

2.7 INDEPENDENTLY VERIFY the following at the SW structure:

- 2.7.1 A trn S.W. pump motor clg water header iso valve Q2P16V712 closed.
IV
- 2.7.2 A trn S.W. pump motor clg water header iso valve Q2P16V713 closed.
IV
- 2.7.3 B trn S.W. pump motor clg water header iso valve Q2P16V714 open.
IV
- 2.7.4 B trn S.W. pump motor clg water header iso valve Q2P16V715 open.
IV
- 2.7.5 Breaker FL-L2 for SW pmp 2C to SW hdr B Q2P16V506 open.
IV
- 2.7.6 Breaker FK-L2 for SW pmp 2C to SW hdr A Q2P16V507 open.
IV

2.8 INDEPENDENTLY VERIFY the following on the MCB (verification may be performed locally if desired).

- 2.8.1 2C SW PUMP TO A HDR ISO Q2P16V507 closed.
IV
- 2.8.2 2C SW PUMP TO B HDR ISO Q2P16V506 open.
IV

NOTE: The next step preferred action is to start the 2C SW pump and place it on-service. If extenuating circumstances preclude placing the pump on-service, then bumping the pump is allowed with the shift supervisor's permission.

2.9 Perform one of the following:

- 2.9.1 IF desired, THEN place the 2C service water pump on-service..
- 2.9.2 IF desired, THEN bump service water pump 2C

 2.10 IF NOT needed in section 3.0, THEN return key #LL299 to the Shift Support Supervisor.

3.0 Selecting 2C SW pump for B Train auto-start

- NOTES:**
- **The following steps may be performed even if 2C SW pump is already running.**
 - **IF 2C SW pump is running on B trn as indicated by a red running light on DL05 handswitch, THEN only section 2.0 of the alignment need be completed.**
 - **IF 2C SW pump is selected for auto-start in B Train, THEN the 2D or the 2E SW pump it replaces will NOT sequence on following an SI or LOSP.**

- ____ 3.1 Verify that 2C SW pump is aligned mechanically and electrically to B Train per the above sections 1.0 and 2.0.

NOTE: The following step is performed to ensure that the 2C SW Pump will start and run normally prior to selecting it for autostart. (OR 2-98-070) **IF** the 2C SW Pump is already running, **THEN** step 3.2 may be marked N/A.

- ____ 3.2 Bump the 2C Service Water Pump to verify that it will start and run normally.
- ____ 3.3 **IF NOT** obtained in section 1.0, **THEN** obtain Key # LL299 from the Shift Support Supervisor.
- ____ 3.4 Check that the 2C SW pump A Train auto-start selector switch is in the 2C position. **IF NOT**, **THEN** stop and notify the Shift Supervisor.

NOTE: Key may only be inserted or removed if switch is in the 2C position.

- ____ 3.5 Insert Key # LL299 into the 2C SW pump B Train spare pump selector switch lock. (Directly above spare pump selector switch.)
- ____ 3.6 Turn Key # LL299 clockwise. The key is now held in place. Select 2D or 2E pump with the spare pump selector switch. Record position selected.

_____ Position

- ___ 3.7 INDEPENDENTLY VERIFY 2C SW pump B Train spare pump selector switch selected to 2D or 2E pump with Key # LL299 held in place.

CAUTION: THERE IS NO INDICATION OR ALARM ON THE MCB FOR 2C PUMP AUTO-START SELECTOR SWITCH POSITION.

- ___ 3.8 Place a caution tag on the MCB B Train handswitch for SW pump 2C noting the auto-start selector switch position.

- 4.0 Returning 2C Service Water pump auto-start to normal.

NOTE: Steps 4.1 and 4.2 are performed to ensure that the de-selected B Train SW Pump will start and run normally prior to selecting it for autostart. (OR 2-98-070) IF the de-selected B Train SW Pump is already running, THEN steps 4.1 and 4.2 may be marked N/A.

- ___ 4.1 Verify that the pump recorded in step 3.6 of this checklist is aligned per System Checklist FNP-2-SOP-24.0A.
- ___ 4.2 Bump the B Train pump identified in step 4.1 of this checklist to verify that it will start and run normally.
- ___ 4.3 Select 2C with the spare pump selector switch.
- ___ 4.4 Turn key # LL299 counterclockwise and remove key.
- ___ 4.5 Return key # LL299 to the Shift Support Supervisor.
- ___ 4.6 Remove the caution tag from the MCB B Train handswitch for 2C SW Pump.
- ___ 4.7 INDEPENDENTLY VERIFY 2C SW pump B Train spare pump selector switch selected to 2C SW pump.
- ___ 4.8 INDEPENDENTLY VERIFY 2C SW pump B Train spare pump selector switch Key #LL299 removed.

UNIT 2

LOCATION AE4

SETPOINT: 1. Not Applicable

- ORIGIN: 52-B Contact on any one of the following breakers
1. DK03-2A SW Pump
 2. DK04-2B SW Pump
 3. DK05-2C SW Pump A Train
 4. DL05-2C SW Pump B Train
 5. DL03-2D SW Pump
 6. DL04-2E SW Pump

E4	<p>SW PUMP TRIPPED</p>
----	--------------------------------

PROBABLE CAUSE

1. 2A, 2B, 2C, 2D, or 2E Service Water Pump tripped due to an overload or an electrical fault.

AUTOMATIC ACTION

NONE

OPERATOR ACTION

1. Check indications and determine which service water pump has tripped.
2. Start another service water pump (in the same train) as the tripped pump.
3. Refer to FNP-2-AOP-10.0, LOSS OF SERVICE WATER.
4. Refer to Technical Specification 3.7.8 for LCO requirements with a loss of train A or B service water.
5. Notify appropriate personnel to determine and correct the cause of the alarm.
6. Return the Service Water electrical and component lineup to normal as soon as possible.

This requires 2C to be aligned to B and started.

References: A-207100, Sh. 74A-C; D-202747; D-202748; D-202749; D-202750; D-202751; D-202752; Technical Specification 3.7.8

100. G2.4.44 045

A Site Area Emergency was declared 35 minutes ago. Subsequently, conditions have degraded and a General Emergency classification needs to be declared.

When upgrading to the General Emergency classification, which one of the following contains **ONLY** required actions IAW FNP-0-EIP-9.0, Emergency Actions?

- A. • Sounding of the plant emergency alarm.
 - Announce needed evacuation instructions to plant personnel.
- B. ✓ • Sounding of the plant emergency alarm.
 - Notify Alabama and Georgia of the status of the unaffected Unit.
- C. • Notify Alabama and Georgia of Protective Action Recommendations.
 - Announce needed evacuation instructions to plant personnel.
- D. • Notify Alabama and Georgia of Protective Action Recommendations.
 - Notify Alabama and Georgia of the status of the unaffected Unit.

Meets 10 CFR 55.43 (b) requirements for SRO level question since the IR is a 2.1 for an RO and not required knowledge or an action for an RO.

EIP-9.0

A: Incorrect: This action is required by the General Emergency Guideline Procedure only when not already previously performed. The SRO must know that it was required, and was already sounded, for the SAE. Second part correct

II. Emergency Director Actions

NOTE: THE SHIFT MANAGER SHALL PERFORM THE DUTIES OF THE EMERGENCY DIRECTOR UNTIL HIS ARRIVAL AND ASSUMPTION OF DUTIES.

Initials

A. Notify personnel on site

1. **If the Plant Emergency alarm has not already been activated,** then announce over the public address system "All Plant Personnel Report to Designated Assembly Area," **activate the PEA [Plant Emergency alarm]** for 30 seconds and repeat the announcement.

2. **Announce** the classification, and the condition, request setup of the TSC and OSC **and give needed evacuation instructions over plant public address system.**

Farley Nuclear Plant
2006-301 SRO Initial Exam

1. UNUSUAL MAJOR EVENT MESSAGE # _____

2. INITIAL NOTIFICATION: TIME _____ DATE / / AUTHENTICATION # N/A

3. SITE: FARLEY NUCLEAR PLANT (334) 814-4662, 814-4663
Confirmation Phone #: (334) 794-0800, 892-5155 (ext 4662, 4663)

4. EMERGENCY CLASSIFICATION: GENERAL EMERGENCY

5. PROTECTIVE ACTION RECOMMENDATIONS:

EVACUATE A B-1 B-2 C-1 C-2 C-3 C-4 D-1 D-2 E-1 E-2 F-1 F-2 G-1 G-2 H-1 H-2 I-1 I-2 J-1 J-2 K-1 K-2

SHELTER A B-1 B-2 C-1 C-2 C-3 C-4 D-1 D-2 E-1 E-2 F-1 F-2 G-1 G-2 H-1 H-2 I-1 I-2 J-1 J-2 K-1 K-2

Advise Remainder of EPZ to Monitor Local Radio TV Stations / TAPs for Additional Information and Consider the USE of KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.

OTHER _____

6. EMERGENCY RELEASE: None Is Occurring Has Occurred

7. RELEASE SIGNIFICANCE: Not applicable Within normal operating limits Above normal operating limits Under evaluation

8. EVENT PROGNOSIS: Improving Stable Degrading

9. METEOROLOGICAL DATA: Wind Direction from _____ degrees Wind Speed _____ mph
35 foot elevation preferred Precipitation _____ Stability Class A B C D E F G

10. DECLARATION Time _____ Date _____

11. AFFECTED UNIT(S): 1 2 3

12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)
 UN _____ % Power Shutdown at Time _____ Date / /
 UC _____ % Power Shutdown at Time _____ Date / /

13. REMARKS: No additional remarks read additional remarks on separate page

B. Correct: Notification of Protective Action Recommendations is required to be completed for the Initial Notification of a General Emergency. (Not required for any other classification including Site Area Emergency). Announcement with evacuation instructions required per step II. A. 2. of Guideline 2, EIP-9.0.

C: Incorrect: First part correct, second part incorrect. For initial notifications the Form "Guideline 1" states: (Unaffected Unit(s) Status Not Required for Initial Notifications)

D: Incorrect: First part correct, second part incorrect.

G2.4.44

Knowledge of emergency plan protective action recommendations.

Question Number: 100

Tier 3 Group 4

Importance Rating: 4.0

Technical Reference: EIP-9.0

Proposed references to be provided to applicants during examination: NO

Learning Objective:

10 CFR Part 55 Content: 43.5

Comments: Replaced the question with one that does not require reference material and is not a direct lookup. It is more closely related to what an SRO duty is in the emergency plan and required knowledge for an SRO.

SHARED

GUIDELINE 1

GENERAL EMERGENCY

I. Purpose of Classification

The classification of General Emergency applies to those events which are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. The potential for release of radioactive material for the General Emergency classification is more than 1000 Ci of I-131 equivalent or more than 10⁶ Ci of Xe-133 equivalent.

The purpose of the declaration of a General Emergency is to:

- (a) Initiate predetermined protective actions for the public.
- (b) Provide continuous assessment of information from licensee and offsite measurement.
- (c) Initiate additional measures as indicated by event releases or potential releases and,
- (d) Provide current information for and consultation with offsite authorities and the public.

A General Emergency would be declared based on FNP-0-EIP-9.2

II. Emergency Director Actions

NOTE: THE SHIFT MANAGER SHALL PERFORM THE DUTIES OF THE EMERGENCY DIRECTOR UNTIL HIS ARRIVAL AND ASSUMPTION OF DUTIES.

Initials

A. Notify personnel on site

____ 1. If the Plant Emergency alarm has not already been activated, then announce over the public address system "All Plant Personnel Report to Designated Assembly Area," activate the PEA for 30 seconds and repeat the announcement.

↳ NIA due to PEA already previously activated for the SAE

____ 2. Announce the classification, and the condition, request setup of the TSC and OSC and give needed evacuation instructions over plant public address system.

GUIDELINE 1**GENERAL EMERGENCY**

B. Callout the ERO staff

- _____ 1. Activate the ERO callout system per FNP-0-EIP-8.3, Table 2. (Located in the Unit 2 SS desk)

NOTE: IF POSSIBLE AND TIME PERMITTING, DISCUSS WITH ALABAMA RADIATION CONTROL AND GEORGIA EMERGENCY MANAGEMENT AGENCY ABOUT THE PARs PRIOR TO ANNOUNCING THEM OVER THE ENN.

C Complete Notification form

- _____ 1. Fill in the General Emergency Initial Notification Form (last pages of this guideline), including developing protective action recommendations per step L. Take into account the zones and evacuation time estimates shown in Figure 1.

NOTE: INITIAL NOTIFICATIONS WILL NORMALLY BE MADE BY THE OPERATIONS SHIFT COMMUNICATOR, BUT MAY BE MADE BY OPERATIONS STAFF, TSC STAFF OR OTHER QUALIFIED PERSON USING THE INITIAL NOTIFICATION FORM (LAST PAGES OF THIS GUIDELINE).

NOTE: INITIAL AND UPGRADE CLASSIFICATIONS AND NOTIFICATIONS SHOULD BE PERFORMED BY THE CONTROL ROOM OR THE TSC STAFF, WITH THE EOF INFORMED AS SOON AS POSSIBLE.

D. Initial Notifications

- _____ 1. Within 15 minutes of declaration, verbally notify the state and local agencies using the General Emergency Initial Notification Form (last pages of this guideline).
- _____ 2. Verify notifications complete and documented on the General Emergency Initial Notification Form (last pages of this guideline).
- _____ 3. Complete Figure 6, follow-up message. Instructions for completing the form are available as part of the figure.
- _____ 4. Within one hour of the General Emergency Initial Notification Form (Verbal Notification) transmittal, fax Figure 6, follow-up message to state and local agencies. The goal should be within 30 minutes of the verbal notification.
- _____ 5. Complete Figure 5, NRC notification message. Instructions for completing the form are available in Figure 5.

SHARED

GUIDELINE 1

GENERAL EMERGENCY

_____ 6. Provide the information on Figure 5, to the NRC as soon as possible, but within one hour of the declaration per the instructions on Figure 5.

E. Emergency Organization Notifications

- _____ 1. On-call Emergency Director
- _____ 2. On-call EOF Manager
- _____ 3. SNC Duty Manager
- _____ 4. Notify Security of Emergency, incoming personnel and access restrictions (4611).

F. Other Notifications

- _____ 1. Have Regulatory ERDS activated to transmit data to the NRC within one hour of the declaration of the emergency (EIP-8-3, step 10).
- _____ 2. If personnel injury or fire is involved, refer to FNP-0-EIP-11.0 and 13.0 respectively for additional actions and EIP-8.0 steps 5.0 and 6.0 for additional notification requirements.
- _____ 3. U.S. Army EOD group at Fort Benning, GA, if necessary.
- _____ 4. Savannah River Operations Office, if necessary.
- _____ 5. If there is a security event involved ensure appropriate notifications and actions of FNP-0-AOP-49 and FNP-0-SP 37.0 are performed
- _____ 6. If there is a security event involved and access to the plant from off site is restricted by local law enforcement (LLE) and it is desired to bring a plant employee to the site or additional off site resources such as fire departments or law enforcement then perform the following:
 - Contact the Houston County EMA to arrange a route and provide the names of individuals or resources that require access to the plant for relay to LLE.
 - In conjunction with Houston County EMA determine on site and off site staging areas for off-site resources using Appendix 1
 - Inform the individuals and resources that are coming to the site of the required route to the site. Individuals must have a company picture ID to get through the roadblocks

SHARED

GUIDELINE 1

GENERAL EMERGENCY

G. In Plant Protective Actions

- ___ 1. Ensure personnel accountability per EIP-10.0.
- ___ 2. Plan and initiate reentry's per EIP-14.0.
- ___ 3. Ensure proper Control Room response.
- ___ 4. Assign an individual to provide periodic plant status updates.
- ___ 5. Assign an individual to maintain a log of important Emergency Director activities.
- ___ 6. Assign an individual to keep a record of all off-site communications.
- ___ 7. Determine what should be done with a unit that is not affected by the declared emergency. Consider the effect on the emergency unit, manpower utilization, plant and grid stability, and other relevant factors.
- ___ 8. In the event of mass casualties refer to FNP-0-EIP-11.0 step 15 to arrange for triage and additional ambulances.

H. Off-Site Support

- ___ 1. Ensure Field Monitoring teams have been dispatched per EIP-4.0.
- ___ 2. Provide information to the EOF Manager for use in press releases and recovery planning.

I. Information to Off Site Authorities

- ___ 1. Provide periodic plant status updates, meteorological and dose estimates and release projections based on plant conditions and foreseeable contingencies.

J. Re-Assess plant conditions

- ___ 1. Continue to assess plant and radiological conditions to ensure the correct emergency classification is declared.
- ___ 2. If plant and radiological conditions no longer require the current emergency classification terminate the emergency class using FNP-0-EIP-28.0.

K. Long term concerns

- ___ 1. Within 8 hours, provide for full TSC and OSC reliefs.

GUIDELINE 1

GENERAL EMERGENCY

- _____ 2. Within 16 hours, provide for 24 hour TSC and OSC coverage.
- _____ 3. If an LOSP has occurred evaluate the event to ensure that an adequate supply of fuel oil is available for the Diesel Generators for 7 days. Refer to REA 00-2337 and FNP-0-SOP-42.0 Figure 1.
- L. Protective action recommendation guidance
 - _____ 1. Make Protective Action Recommendations (PARs) for all General Emergency declarations in accordance with NMP-EP-109. If an upgrade to PARS is required after making this notification use figure 4 to transmit the new PARS to the state and county agencies.

SHARED GUIDELINE 1

GENERAL EMERGENCY RED VERBAL NOTIFICATION FORM

1. DRILL ACTUAL EVENT MESSAGE # _____

2. INITIAL NOTIFICATION: TIME _____ DATE ____/____/____ AUTHENTICATION # N/A

3. SITE: **FARLEY NUCLEAR PLANT** (334) 814-4662, 814-4663
Confirmation Phone # (334) 794-0800, 899-5156 (ext 4662, 4663)

4. EMERGENCY CLASSIFICATION: GENERAL EMERGENCY
 BASED ON EAL # _____

5. PROTECTIVE ACTION RECOMMENDATIONS:

<input checked="" type="checkbox"/> EVACUATE	<input type="checkbox"/> A	<input type="checkbox"/> B-5	<input type="checkbox"/> C-5	<input type="checkbox"/> D-5	<input type="checkbox"/> E-5	<input type="checkbox"/> F-5	<input type="checkbox"/> I-5	<input type="checkbox"/> J-5	<input type="checkbox"/> K-5	
	<input type="checkbox"/> B-10	<input type="checkbox"/> C-10	<input type="checkbox"/> D-10	<input type="checkbox"/> E-10	<input type="checkbox"/> F-10	<input type="checkbox"/> G-10	<input type="checkbox"/> H-10	<input type="checkbox"/> I-10	<input type="checkbox"/> J-10	<input type="checkbox"/> K-10
<input type="checkbox"/> SHELTER	<input type="checkbox"/> A	<input type="checkbox"/> B-5	<input type="checkbox"/> C-5	<input type="checkbox"/> D-5	<input type="checkbox"/> E-5	<input type="checkbox"/> F-5	<input type="checkbox"/> I-5	<input type="checkbox"/> J-5	<input type="checkbox"/> K-5	

Advise Remainder of EPZ to Monitor Local Radio/TV Stations/ TARs for Additional Information and
 CONSIDER THE USE OF KI (POTASSIUM IODIDE) IN ACCORDANCE WITH STATE PLANS AND POLICY.

OTHER _____

6. EMERGENCY RELEASE: None Is Occurring Has Occurred

7. RELEASE SIGNIFICANCE: Not applicable Within normal operating limits Above normal operating limits Under evaluation

8. EVENT PROGNOSIS: Improving Stable Degrading

9. METEOROLOGICAL DATA: Wind Direction from _____ degrees Wind Speed _____ mph
 35 foot elevation preferred Precipitation _____ Stability Class A B C D E F G

10. DECLARATION Time _____ Date ____/____/____

11. AFFECTED UNIT(S): 1 2 All

12. UNIT STATUS: (Unaffected Unit(s) Status Not Required for Initial Notifications)
 U1 _____ % Power Shutdown at Time _____ Date ____/____/____
 U2 _____ % Power Shutdown at Time _____ Date ____/____/____

13. REMARKS: No additional remarks read additional remarks on separate page

17. APPROVED BY: _____ Title Emergency Director Time _____ Date ____/____/____

- NOTE: The information that is highlighted on this form must be correct for the notification to be considered correct.
- A. Line 1 check box A or B. Select B only if it is an actual event in the plant
 - B. Line 1 Number each verbal initial and follow-up messages sequentially starting at 001 for the first verbal message.
 - C. Line 2 Notification time to be completed by ENN communicator just prior to making the ENN notification
 - D. Line 4 Enter the EAL number as listed in EIP-9.2 Example RA1, FSI etc.
 - E. Line 5 Refer to NMP-EP-109. Protective Action Recommendations to determine appropriate Protective Action Recommendations (PARs). Mark box B or C and the appropriate zones for evacuation or sheltering. Box D is pre marked Mark and complete box E if PAR 4 is required or there are other PARS beyond NMP-EP-109.
 - F. Line 6 An emergency release is occurring if an effluent monitor has increased by a factor of 10 over and above normal operating levels OR is in alarm. The effluent monitors are R-18, R-23B, R-15, R-14, R-22, R-60 (A,B,C,D) and R-29B(NG)
 - Mark box A if no emergency release is in progress or has occurred
 - Mark box B if an emergency release is in progress
 - Mark box C if an emergency release has occurred, but is currently stopped
 - G. Line 7 Release Significance. Mark box A, B, C or D. Normal limits are being exceeded if an effluent monitor listed in step F above is in alarm
 - Mark box A if 6A is marked
 - Mark box B if 6B or 6C is marked and **NO** effluent monitor is or has been in alarm.
 - Mark box C if 6B or 6C is marked and **ANY** effluent monitor is or has been in alarm.
 - Mark box D if 6B or 6C is marked and it can not be determined if an effluent monitor is or has been in alarm.

SHARED GUIDELINE 1

GENERAL EMERGENCY RED VERBAL NOTIFICATION FORM

- H. Line 8 Event Prognosis. Mark box A, B or C.
- A should be marked if mitigation efforts appear successful , progressing toward termination/recovery.
 - B should be marked if escalation to a higher classification is unlikely based on current conditions.
 - C should be marked if escalation to a higher emergency classification or PAR change is likely.

- I. Line 9 Meteorological Data
- Fill in the meteorological data required (35 foot elevation preferred).
 - When possible use 15 minute average data, available from EP WEATHER.
 - If stability class is not available it can be calculated from delta temperature from the below table

ΔT (200' elev. temp, °F - 35' elev. temp, °F)	Stability Class
<-1.74	A
-1.74 to <-1.56	B
-1.56 to <-1.38	C
-1.38 to <-0.46	D
-0.46 to < 1.38	E
1.38 to 3.60	F
>3.60	G

- J. Line 10 Time is for the declaration checked in line 4
- K. Line 11 Mark the unit that is involved with the emergency declaration, or all if both units are affected.
- L. Line 12 Fill in the per cent power or the time of shutdown for units involved with the event
- M. Line 13 If additional remarks are required mark the box for additional remarks and write them on a separate paper and have them read over the ENN, or mark the box for no additional remarks
- N. The Emergency Director must sign the form with time and date.
- O. Within 15 minutes of declaration time, using the ENN contact the state and local agencies listed below.
- P. Verify the Southern LINC ENN Radio being used is turned on
- Q. If the Southern LINC display does not show "WIDE AREA, FEP ENN" when group is pressed in step R, THEN perform the following:
- Press the button with the square until the top line is indicated, then press the arrow buttons until "WIDE AREA" is displayed, then press the button under OK. Press the button with the square until the second line is indicated then press the arrow buttons until "FEP ENN" is displayed, and then press the button under OK.
- R. Press group pushbutton, verify display shows WIDE AREA, FEP ENN. Correct per above step if necessary. Pickup handset or leave in cradle, press to talk (PTT), wait for the chirp and announce "This is name/title at Farley Nuclear Plant. Please obtain a GENERAL EMERGENCY RED initial notification form and monitor the ENN." Release the PTT.
- S. Contact one state and county agency listed in each of the four boxes below.

Indicate the time of initial attempt to contact any Alabama agency. Circle agency actually contacted. Indicate the name of the individual contacted. Underlined phone numbers staffed 24 hours a day

PTT and request one Alabama agency in the order listed below acknowledge manning of the ENN. State agency name and ask if they are on the line. Release the PTT after each request.

ALABAMA State Agencies In preferred order

- Alabama Radiation Control at Montgomery EOC. ENN (1305), OPX (6628), (334-206-5391), (334-324-0076)
- AEMA ENN (1306), OPX(6619), (205-280-2312, 205-280-2310)
- Alabama Radiation Control at Alabama Forward EOC, ENN (1307), OPX 6621), (334-793-1565)
- HOUSTON COUNTY ENN (1307), OPX (6621), (334-794-9720, 793-9655, 677-4807, 4808)

Time _____ Name _____ Acknowledged

SHARED GUIDELINE 1

GENERAL EMERGENCY RED VERBAL NOTIFICATION FORM

Indicate the time of initial attempt to contact any Georgia agency. Circle agency actually contacted. Indicate the name of the individual contacted. Underlined phone numbers staffed 24 hours a day

PTT and request one Georgia agency in the order listed below acknowledge manning of the ENN. State agency name and ask if they are on the line. Release the PTT after each request.

GEORGIA State Agencies In preferred order

- GEMA at Atlanta EOC, ENN (1304), OPX (6629), (404-635-7200)
- GEMA at Georgia Forward EOC, ENN (1308) OPX (6626), (229-723-4826)
- EARLY COUNTY, ENN(1308) OPX (6622), (229-723-3577, 3578, 4826)

Time _____ Name _____ Acknowledged

Indicate the time of initial attempt to contact Houston County. Indicate the name of the individual contacted. Underlined phone numbers staffed 24 hours a day

PTT and request Houston County acknowledge manning of the ENN. State agency name and ask if they are on the line. Release the PTT after each request.

HOUSTON COUNTY

- HOUSTON COUNTY, ENN(1307), OPX (6621), (334-794-9720, 793-9655, 334-677-4807, 4808)

Time _____ Name _____ Acknowledged

Indicate the time of initial attempt to contact Early County. Indicate the name of the individual contacted. Underlined phone numbers staffed 24 hours a day

PTT and request Early County acknowledge manning of the ENN. State agency name and ask if they are on the line. Release the PTT after each request.

EARLY COUNTY

- EARLY COUNTY, ENN(1308) OPX (6622), (229-723-3577, 3578, 4826)

Time _____ Name _____ Acknowledged

T. _____ Fill in the date and time on line 2 using the time that the first state agency contact ATTEMPT was made

U. _____ PTT and announce on the ENN "**Please prepare to receive a GENERAL EMERGENCY, RED initial notification message with acknowledgment**", then slowly read the GE initial notification form over the ENN. Release the PTT after reading two or three lines to allow individuals to respond.

V. _____ Have the agencies contacted above, acknowledge receipt of the message and fill in the acknowledge checkbox above when they do.

W. _____ If any required agency could not be contacted on the ENN, then use numbers listed with each agency or in FNP-0-EIP-8.1 to contact them by any available means as soon as possible.

X. _____ Fax a copy of the previous page GENERAL EMERGENCY RED VERBAL NOTIFICATION FORM to the State of Florida, EOF using speed dial #10

Y. _____ Wait for the Fax report indicating the fax was received then verify the state of Florida has received the Fax by calling. (800-320-0519) (850-413- 9911)