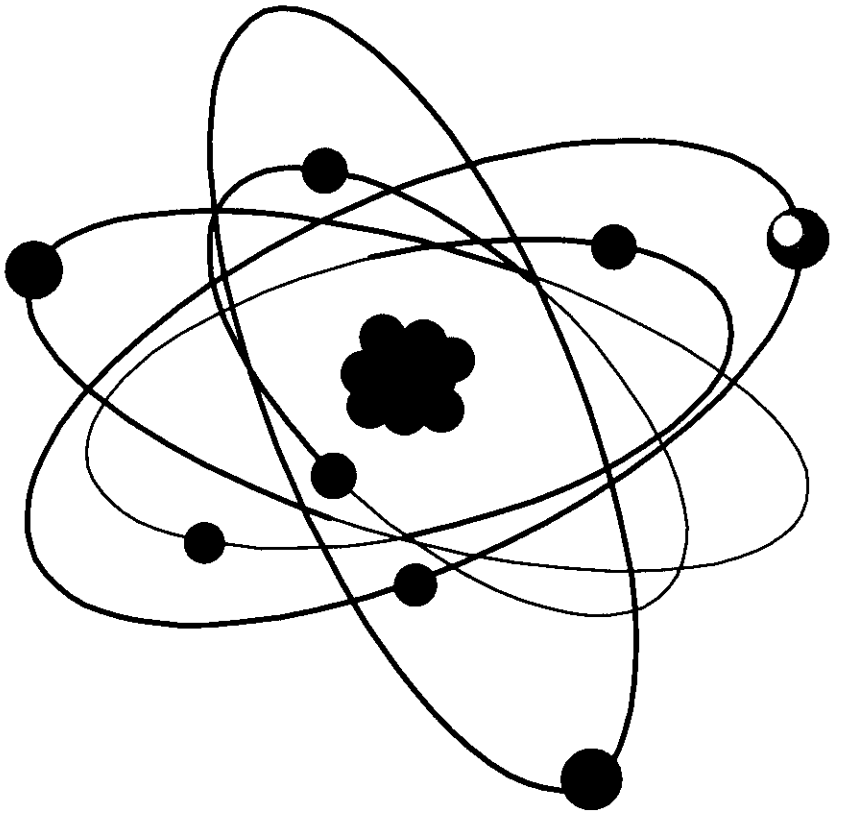
FINAL SUBMITTAL

MCGUIRE EXAM 2000-301
50-369, 370/2000-301

MAY 8 - 12, MAY 19,
MAY 22 - 25, 2000

FINAL RO/SRO ADMIN

FINAL
NRC COPY



2000
RO ADMIN

Facility: McGuire Date of Examination: : May 8, 2000

Examination Level (circle one): **RO** / SRO Operating Test Number: _____

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Reactivity Management K/A 2.1.7 3.7/4.4	**JPM:** Perform an Estimated Critical Boron Concentration calculation
	Security K/A 2.1.13 *2.0/2.9	**QUESTION:** Entry authorization for vital areas.
		QUESTION: Visitor escort requirements.
A.2	Equipment Control K/A 2.2.22 3.4/4.1	**JPM:** Determine acceptable Main Generator MegaVars for specified conditions.
A.3	Control of Rad Releases K/A 2.3.11 2.7/3.2	**JPM:** Perform a Unit Vent Flow (VQ) Calculation
A.4	Emergency Plan K/A 2.4.43 2.8/3.5	**JPM:** Make initial notifications to the State/Counties

NOTE: * Plant Specific Change

Prepared By Charles Sawyer

Reviewed By Rob Bills

Approved By Thomas C. Cook

TASK: **Perform an Estimated Critical Boron Concentration (ECB) Calculation**

POSITION: **RO**

Operator's Name_____

Location: **Simulator/Plant**

Method: **Perform**

Estimated JPM Completion Time: 30 Minutes

Actual JPM Completion Time: ___ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: OP/0/A/6100/06 Reactivity Balance Calculation

JPM verified current with references by _____

Date __/__/__

Rev. 08/05-2-00

*** DENOTES CRITICAL**

INITIAL CONDITIONS

Following a 100 day continuous run, Unit 1 was forced into a shutdown 30 hours ago for equipment repair. All repairs are complete. Startup is in progress per OP/1/A/6100/01 (Controlling Procedure for Unit Startup). All steps are complete up to determining the desired estimated critical boron concentration. The following conditions exist:

- Reactor Startup is expected to commence in 10 hours
- Unit 1 Cycle 14
- Core Age = 188 EFPD
- NC Boron = 1350 ppm
- Predicted Xenon worth at time of criticality = -1780 pcm
- Samarium difference = -10 pcm
- Desired Critical Rod Height = "D" Bank at 160 steps withdrawn

The SRO has instructed you to perform an ECB per OP/0/A/6100/06 (Reactivity Balance Calculation) enclosure 4.1. The REACT Computer Program is unavailable.

JPM OVERALL STANDARD: The Estimated Critical Boron Concentration calculated by the candidate agrees with the predicted JPM value (± 10 ppm).

NOTES: The candidate should be provided a copy OP/1/A/6100/06 (Reactivity Balance Calculation) enclosure 4.1 and the appropriate data book references.

*** DENOTES CRITICAL**

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.1.1	Unit: ___ Cycle: _____	Records: Unit _**1**_ Cycle__**14**__		
3.1.2.1	Date/Time of Shutdown: _____/_____	Records: **Current DATE & TIME MINUS 30 HOURS AGO**		
3.1.2.2	Anticipated Date/Time of Criticality: _____/_____	Records: **Current DATE & TIME PLUS 10 HOURS**		
3.1.3	Burnup: _____ EFPD	Records: Burnup __**188**___ EFPD		
3.1.4	NC System Boron Concentration: _____ ppm	Records: Boron ___**1350**___ ppm		
3.1.5	Desired critical rod position: Bank __ Steps W/D ____	Records: Bank **D** Steps W/D **160**		
3.1.6	Xenon worth at anticipated time of criticality: _____ pcm	Records: Xenon __**-1780**__ pcm		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.1.7	Difference between equilibrium and present Samarium worth: _____ pcm	Records: Samarium __**-10**__ pcm		
3.1.8	Determine the fission product buildup correction by performing the case 1 thru 4 that applies Case performed ___ Shutdown fission product worth correction ___ ppm	Uses Case 1 to determine: Number of hrs shutdown: **30 ago + 10 (till critical)** = **40 hours** Using Table 6.7 and 40 hrs shutdown, determines S/D FP worth correction of **20.2 ppm**		
3.2	Automated calculations using REACT.	RO determines from initial conditions that REACT is unavailable and N/A's Section #3.2		
3.3.1	ARO, HZP, No Xenon, equilibrium samarium boron concentration: _____pcm	From Graph 6.1, RO determines this value to be; ___**1520**___pcm **1510 to 1550 ppm**		
3.3.2	ARO differential boron worth for present burnup: - _____pcm/ppm	From Graph 6.8, RO determines this value to be; ___**-6.86**___pcm/ppm **6.84 to 6.9 pcm/ppm**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.3.3	Peak Xenon worth for present burnup: - _____pcm	From Table 6.9, RO determines this value to be; ___**-4183**___pcm		
3.3.4	Integral rod worth at HZP, no xenon: - _____pcm	From Table 6.3.A, RO determines this value to be; ___**-247**___pcm		
3.3.5	Integral rod worth at HZP, peak xenon: - _____pcm	From Table 6.3.B, RO determines this value to be; ___**-343**___pcm		
3.3.6	Calculate expected HZP rod worth for xenon at time of criticality: [(___ - ___) x (___ / ___)] + ___	RO calculates the following: [(-343 - -247) x (-1780 / -4183)] + -247 = ___**-287.9**____pcm		
3.3.7	Calculate the sum of reactivity effects: (____ + _____ + _____)	RO calculates the following: (-1780 + -287.9 + -10) = ___**-2077.9**____pcm		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.3.8	Calculate the equivalent boron concentration of reactivity effects: (____ / _____) - _____	RO calculates the following: (-2077.9 / -6.86) - 20.2 = ____**282.7**____ppm **283.6 to 280.9**		
3.3.9	Calculate the critical boron concentration: (_____ - _____)	RO calculates the following: (1520 - 282.7) = ___**1237.5**____ppm **ACCEPTABLE RANGE:** **(1236.4 to 1239.1 ppm)**		
4	Signs and Dates the procedure enclosure: Calculations Performed By _____ (RO) Date _____	RO signs and dates the procedure enclosure: Calculations Performed By _____ (RO) Date _____		

STOP TIME_____

*** DENOTES CRITICAL**

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

1. Limits and Precautions

1.1 The calculation shall be performed twice. A Licensed Reactor Operator performs the calculation and signs the "Calculation Performed By" section. The second, independent calculation shall be performed by a Qualified Reactor Engineer as a separate verification of the original calculation. {NSD 304}

1.2 Non-conservative 1/M predictions may occur if criticality is attempted with Control Bank D too far out of core. A conservative, general guideline is to select the desired rod position for criticality at a position obtained from Data Book Curve 6.3.B approximately 1000 pcm above the Rod Insertion Limits.

2. Initial Conditions

2.1 None.

ANSWER KEY

3. Procedure

3.1 Record required data

____ 3.1.1 Unit 1 Cycle 14

3.1.2 Record shutdown and startup times Dependent on time of SPI

____ 3.1.2.1 Date/Time of Shutdown _____/_____

____ 3.1.2.2 Anticipated Date/Time of Criticality: _____/_____

____ 3.1.3 Record the burnup: 188 EFPD (M1P1457 or M2P1457)

____ 3.1.4 Record the NC system boron concentration: 1350 ppm (Sample)

____ 3.1.5 List the desired critical rod position: Bank D Steps W/D 160

____ 3.1.6 Record the xenon worth at anticipated time of criticality (from OAC program Xenon Samarium - XESM or REACT program). -1780 pcm

____ 3.1.7 **IF** burnup from step 3.1.3 is greater than 12 EFPD, record the difference between equilibrium and present samarium worth. (OAC point M1P1475 or M2P1475 or Samarium program on OAC or REACT) ≥ 10 pcm

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

____ 3.1.8 **IF** burnup from step 3.1.3 is greater than 12 EFPD, determine the fission product buildup correction by performing the case 1 through 4 that applies.

Case performed 1
Shutdown fission product worth correction 20.2 ppm

Case 1: Unit operated greater than 3 EFPD from previous shutdown to current shutdown.

Use data book table 6.7 to determine the shutdown fission product worth correction.

Number of hours shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) 40 hrs
Shutdown fission product worth correction 20.2 ppm

Case 2: Unit operated less than 1 EFPD from previous shutdown to current shutdown.

Use data book table 6.7 to determine the shutdown fission product worth correction based on the number of hours since the first shutdown.

Number of hours since first shutdown
(difference between Step 3.1.2.2 and time of first shutdown) _____ hrs
Shutdown fission product worth correction _____ ppm

ANSWER KEY

Enclosure 4.1
Estimated Critical Boron Concentration (ECB)

Case 3: Unit operated between 1 EFPD and 3 EFPD from previous shutdown to current shutdown and current shutdown is less than 72 hours.

Use data book table 6.7 to determine the shutdown fission product worth correction based on the number of hours determined by the function below.

Number of hours during the previous shutdown _____ hrs
Shutdown fission product worth correction (C1) _____ ppm

Number of hours during the current shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) _____ hrs
Shutdown fission product worth correction (C2) _____ ppm

Shutdown fission product worth correction
(C1 x 0.5) + C2 = _____ ppm

ANSWER KEY

Case 4: Unit operated between 1 EFPD and 3 EFPD from previous shutdown to current shutdown and current shutdown is greater than 72 hours.

Use data book table 6.7 to determine the shutdown fission product worth correction using the time of the current shutdown only.

Number of hours shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) _____ hrs
Shutdown fission product worth correction _____ ppm

NOTE: Perform either section 3.2 or 3.3. N/A the unused section.

3.2 Automated calculations using REACT.

N/A 3.2.1 Enter data from section 3.1 into REACT and calculate.

____ 3.2.2 Attach REACT output to this enclosure.

3.3 Manual Calculations

____ 3.3.1 Record the value for all rods out (ARO), hot zero power (HZP), no xenon, equilibium samarium boron concentration (from Data Book Graph 6.1) 1520 ppm
1510 to 1550

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

____ 3.3.2	Record the ARO differential boron worth for present burnup from step 3.1.3 (Data Book Graph 6.8)		-6.86 pcm/ppm 6.84 to 6.9
____ 3.3.3	Record the peak xenon worth for present burnup from step 3.1.3 (Data Book Table 6.9).		-4183 pcm
____ 3.3.4	Record the integral rod worth at HZP, no xenon from step 3.1.5 (Data Book Table 6.3.A).		-247 pcm
____ 3.3.5	Record the integral rod worth at HZP, peak xenon for step 3.1.5 (Data Book Table 6.3.B).		-343 pcm
____ 3.3.6	Calculate expected HZP rod worth for xenon at time of criticality [(Step 3.3.5 - Step 3.3.4) x (Step 3.1.6/Step 3.3.3)] + Step 3.3.4 [(-343 - -247) x (-1780/-4183)] + -247		-287.9 pcm
____ 3.3.7	Calculate the sum of reactivity effects. (Step 3.1.6 + Step 3.3.6 + Step 3.1.7) (-1780 + -287.9 + -10)		-2077.9 pcm
____ 3.3.8	Calculate the equivalent boron concentration of reactivity effects (Step 3.3.7/Step 3.3.2) - Step 3.1.8 (-2077.9 / -6.86) - 20.2		282.7 ppm 283.6 to 280.9
____ 3.3.9	Calculate the critical boron concentration (Step 3.3.1 - Step 3.3.8) (1520 - 282.7)		1237.5 ppm 1236.4 to 1239.

Calculations Performed By: _____ (RO) Date: _____

Separate Verification By: _____ (QRE) Date: _____

End of Enclosure

ANSWER KEY

INITIAL CONDITIONS

Following a 100 day continuous run, Unit 1 was forced into a shutdown 30 hours ago for equipment repair. All repairs are complete. Startup is in progress per OP/1/A/6100/01 (Controlling Procedure for Unit Startup). All steps are complete up to determining the desired estimated critical boron concentration. The following conditions exist:

- Reactor Startup is expected to commence in 10 hours
- Unit 1 Cycle 14
- Core Age = 188 EFPD
- NC Boron = 1350 ppm
- Predicted Xenon worth at time of criticality = -1780 pcm
- Samarium difference = -10 pcm
- Desired Critical Rod Height = "D" Bank at 160 steps withdrawn

The SRO has instructed you to perform an ECB per OP/0/A/6100/06 (Reactivity Balance Calculation) enclosure 4.1. The REACT Computer Program is unavailable.

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. OP/0/A/6100/006
Revision No. 053

INFORMATION ONLY

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title **Reactivity Balance Calculation**

(4) Prepared By Thomas D. Ray Date 4/9/99

(5) Requires 10CFR50.59 evaluation?

- [X] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By Tanya M. Hamilton-Sealey (QR) Date 04/13/99

Cross-Disciplinary Review By [signature] (QR) NA _____ Date 4-13-99

Reactivity Mgmt. Review By Tanya M. Hamilton-Sealey (QR) NA _____ Date 4/13/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By SC Ballard Date 4-13-99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- [ ] Yes [ ] N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?
- [ ] Yes [ ] N/A Listed enclosures attached?
- [ ] Yes [ ] N/A Data sheets attached, completed, dated and signed?
- [ ] Yes [ ] N/A Charts, graphs, etc. attached, dated, identified, and marked?
- [ ] Yes [ ] N/A Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks *(attach additional pages, if necessary)*

Reactivity Balance Calculation

1. Purpose

1.1 To estimate critical NC system boron concentration before criticality based on other assumed core reactivity conditions.

1.2 To estimate critical control bank position before criticality based on other assumed core reactivity conditions.

1.3 To predict critical control bank position during withdrawal to criticality using 1/M monitoring.

1.4 To calculate shutdown margin in Modes 1 and 2.

1.5 To calculate the NC system boron concentration at which shutdown margin will NOT be met in Modes 5, 4, 3, and 2 with $K_{eff} < 1.0$ without credit for xenon worth.

1.6 To calculate the NC system boron concentration at which shutdown margin will NOT be met in Modes 5, 4, 3, and 2 with $K_{eff} < 1.0$ with credit for xenon worth.

1.7 To verify the ability to maintain Mode 3 with shutdown banks withdrawn and to estimate the time that boration will be required to maintain Mode 3.

2. Limits and Precautions

NOTE: All curves/tables used in this procedure are found in OP/1(2)/A/6100/022 (Unit One (Two) Data Book). These procedures will be referred to as the "Data Book".

2.1 Ensure all data used by this procedure are for the correct unit.

2.2 NC System Tavg should be maintained within ±1°F of Tref in Modes 1 and 2 to reduce uncertainties in calculations.

2.3 Shutdown margin shall be ≥1000 pcm in Mode 5 (Technical Specification 3.1.1).

2.4 Shutdown margin shall be ≥1300 pcm in Modes 2 with K_{eff} <1.0, 3, and 4 (Technical Specification 3.1.1).

2.5 Each shutdown bank shall be within insertion limits while in Mode 1 or 2 with any control bank not fully inserted. Shutdown Margin must be verified ≥ 1300 pcm within 1 hour should a shutdown bank not meet insertion limits. (Technical Specification 3.1.5)

2.6 Control banks shall be within the insertion, sequence, and overlap limits while in Mode 1 or 2 with $K_{eff} \geq 1.0$. Shutdown Margin must be verified > 1300 pcm within 1 hour should control bank not meet insertion, sequence, or overlap limits. (Technical Specification 3.1.6)

2.7 NC system boron concentration shall be ≥ shutdown margin required boron concentration for a new NC system Tavg BEFORE beginning NC system Tavg change in Modes 3, 4, and 5.

2.8 Criticality should NOT be obtained outside the maximum window (±750 pcm) of estimated critical control bank position.

NOTE: Step 2.8.1 does not apply to initial criticality following refueling.

2.8.1 **IF** rods are withdrawn to the upper limit of ECP band and criticality has not yet been reached, stop withdrawing rods and recheck ECP calculations. Approach to criticality can continue at the discretion of Station management after reviewing recommendations from the Reactor Group duty engineer.

2.8.2 **IF** it appears to operator that criticality will be achieved below lower ECP band limit (for ICRR< 0.15) or below rod insertion limit, insert all control banks and recheck calculations. After inserting control banks, check shutdown margin per Enclosure 4.5 or 4.6 and ensure inadvertent criticality will not occur per Enclosure 4.7 before any attempt at criticality is made.

2.8.3 **IF** criticality is unexpectedly achieved below Technical Specification insertion limits then simultaneously insert all control banks AND initiate emergency boration per OP/0/A/6100/003, Enclosure 4.3.

3. Procedure

3.1 Enclosures 4.1 through 4.7 are used to determine the estimated critical boron concentration, estimated critical rod position, 1/M monitoring for startup, shutdown margin determination and boron concentration determination as required.

4. Enclosures

4.1 Estimated Critical Boron Concentration (ECB)

4.2 Estimated Critical Rod Position (ECP)

4.3 1/M Monitoring During Startup

4.4 Shutdown Margin - Unit at Power, Modes 1 and 2

4.5 Shutdown Margin - Modes 5, 4, or 3 Without Xenon Credit

4.6 Shutdown Margin - Mode 5, 4, or 3 With Xenon Credit

4.7 Verification of K-eff < 0.99 with Shutdown Banks Withdrawn

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

1. Limits and Precautions

1.1 The calculation shall be performed twice. A Licensed Reactor Operator performs the calculation and signs the "Calculation Performed By" section. The second, independent calculation shall be performed by a Qualified Reactor Engineer as a separate verification of the original calculation. {NSD 304}

1.2 Non-conservative 1/M predictions may occur if criticality is attempted with Control Bank D too far out of core. A conservative, general guideline is to select the desired rod position for criticality at a position obtained from Data Book Curve 6.3.B approximately 1000 pcm above the Rod Insertion Limits.

2. Initial Conditions

2.1 None.

3. Procedure

3.1 Record required data

____ 3.1.1 Unit _____ Cycle _____

3.1.2 Record shutdown and startup times

____ 3.1.2.1 Date/Time of Shutdown _____/_____

____ 3.1.2.2 Anticipated Date/Time of Criticality: _____/_____

____ 3.1.3 Record the burnup: _____ EFPD (M1P1457 or M2P1457)

____ 3.1.4 Record the NC system boron concentration: _____ ppm (Sample)

____ 3.1.5 List the desired critical rod position: Bank _____ Steps W/D _____

____ 3.1.6 Record the xenon worth at anticipated time of criticality (from OAC program Xenon Samarium - XESM or REACT program). - _____pcm

____ 3.1.7 **IF** burnup from step 3.1.3 is greater than 12 EFPD, record the difference between equilibrium and present samarium worth. (OAC point M1P1475 or M2P1475 or Samarium program on OAC or REACT) ± _____pcm

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

____ 3.1.8 **IF** burnup from step 3.1.3 is greater than 12 EFPD, determine the fission product buildup correction by performing the case 1 through 4 that applies.

Case performed _____
Shutdown fission product worth correction _____ ppm

Case 1: Unit operated greater than 3 EFPD from previous shutdown to current shutdown.

Use data book table 6.7 to determine the shutdown fission product worth correction.

Number of hours shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) _____ hrs
Shutdown fission product worth correction _____ ppm

Case 2: Unit operated less than 1 EFPD from previous shutdown to current shutdown.

Use data book table 6.7 to determine the shutdown fission product worth correction based on the number of hours since the first shutdown.

Number of hours since first shutdown
(difference between Step 3.1.2.2 and time of first shutdown) _____ hrs
Shutdown fission product worth correction _____ ppm

Enclosure 4.1
Estimated Critical Boron Concentration (ECB)

Case 3: Unit operated between 1 EFPD and 3 EFPD from previous shutdown to current shutdown and current shutdown is less than 72 hours.

Use data book table 6.7 to determine the shutdown fission product worth correction based on the number of hours determined by the function below.

Number of hours during the previous shutdown _____ hrs
Shutdown fission product worth correction (C1) _____ ppm

Number of hours during the current shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) _____ hrs
Shutdown fission product worth correction (C2) _____ ppm

Shutdown fission product worth correction
(C1 x 0.5) + C2 = _____ ppm

Case 4: Unit operated between 1 EFPD and 3 EFPD from previous shutdown to current shutdown and current shutdown is greater than 72 hours.

Use data book table 6.7 to determine the shutdown fission product worth correction using the time of the current shutdown only.

Number of hours shutdown
(difference between Step 3.1.2.2 and 3.1.2.1) _____ hrs
Shutdown fission product worth correction _____ ppm

NOTE: Perform either section 3.2 or 3.3. N/A the unused section.

3.2 Automated calculations using REACT.

_____ 3.2.1 Enter data from section 3.1 into REACT and calculate.

_____ 3.2.2 Attach REACT output to this enclosure.

3.3 Manual Calculations

_____ 3.3.1 Record the value for all rods out (ARO), hot zero power (HZP), no xenon, equilibium samarium boron concentration (from Data Book Graph 6.1) _____ ppm

Enclosure 4.1
Estimated Critical Boron Concentration
(ECB)

____ 3.3.2	Record the ARO differential boron worth for present burnup from step 3.1.3 (Data Book Graph 6.8)	- _____ pcm/ppm
____ 3.3.3	Record the peak xenon worth for present burnup from step 3.1.3 (Data Book Table 6.9).	- _____ pcm
____ 3.3.4	Record the integral rod worth at HZP, no xenon from step 3.1.5 (Data Book Table 6.3.A).	- _____ pcm
____ 3.3.5	Record the integral rod worth at HZP, peak xenon for step 3.1.5 (Data Book Table 6.3.B).	- _____ pcm
____ 3.3.6	Calculate expected HZP rod worth for xenon at time of criticality [(Step 3.3.5 - Step 3.3.4) x (Step 3.1.6/Step 3.3.3)] + Step 3.3.4 [(_____ - _____) x (_____/_____)] + _____	_____ pcm
____ 3.3.7	Calculate the sum of reactivity effects. (Step 3.1.6 + Step 3.3.6 + Step 3.1.7) (_____ + _____ + _____)	_____ pcm
____ 3.3.8	Calculate the equivalent boron concentration of reactivity effects (Step 3.3.7/Step 3.3.2) - Step 3.1.8 (_____/_____) - _____	_____ ppm
____ 3.3.9	Calculate the critical boron concentration (Step 3.3.1 - Step 3.3.8) (_____ - _____)	_____ ppm

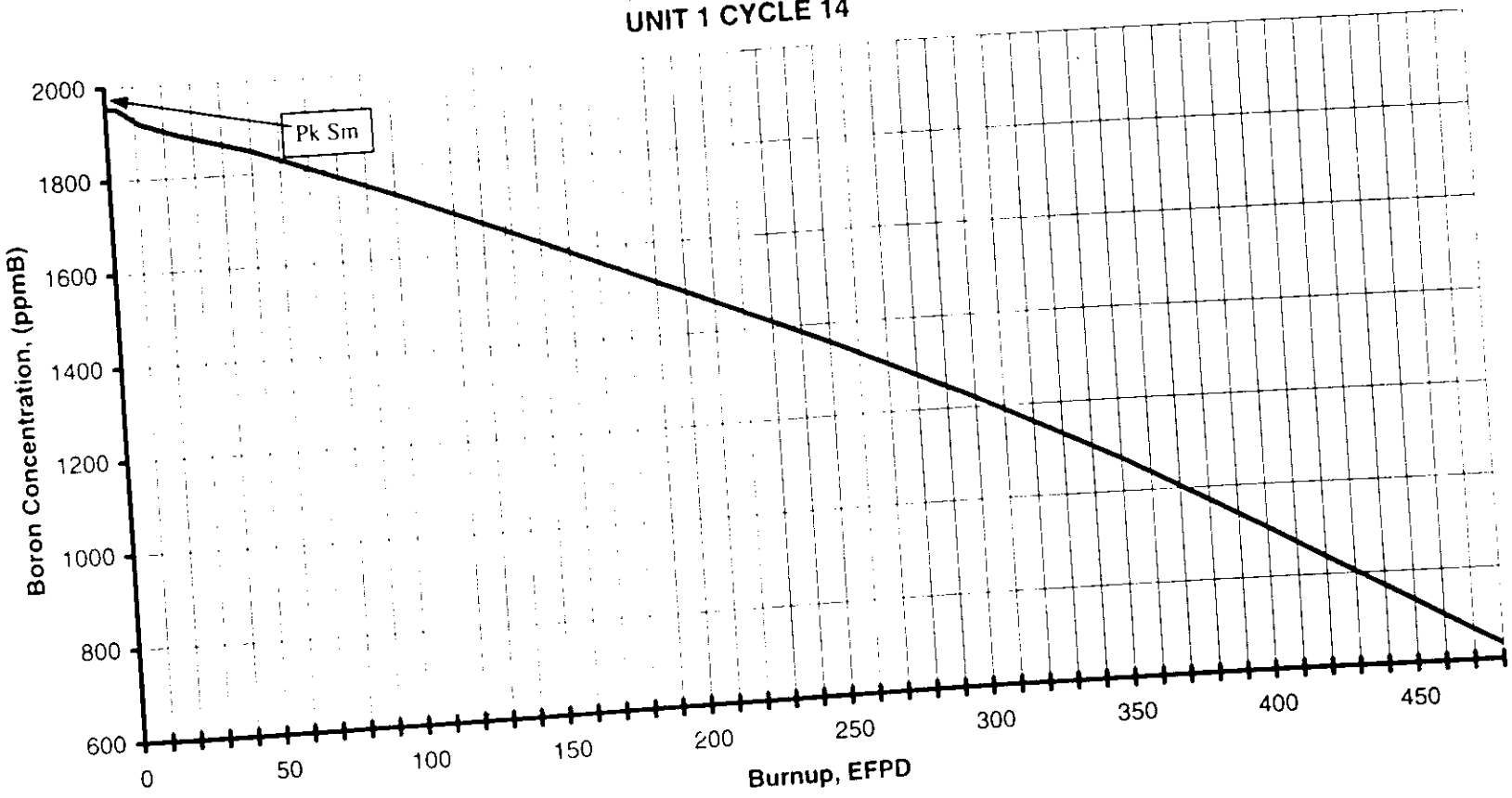
Calculations Performed By: _____ (RO) Date: _____

Separate Verification By: _____ (QRE) Date: _____

End of Enclosure

UNIT 1

OP/1/A/6100/22
ENCLOSURE 4.3 - GRAPH 6.1
CRITICAL BORON CONCENTRATION
HZP, ARO, No Xe, EQ Sm
UNIT 1 CYCLE 14



EFPD	0	4	12	25	50	100	150	200	250	300	350	400	450	470	480
PPMB	1955	1952	1918	1891	1849	1738	1616	1490	1360	1221	1071	907	736	667	633

UNIT 1

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.A

Integral Rod Worth in Overlap
HZP, No Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
Bk A	Bk B	Bk C	Bk D	0 - 75 EFPD IRW (PCM)	76 - 150 EFPD IRW (PCM)	151 - 250 EFPD IRW (PCM)	251 - 350 EFPD IRW (PCM)	351 - 480 EFPD IRW (PCM)
224	224	224	224	0	0	0	0	0
224	224	224	220	4	5	6	9	14
224	224	224	215	8	10	15	21	32
224	224	224	210	12	16	23	33	51
224	224	224	205	25	32	44	59	84
224	224	224	200	37	48	65	86	118
224	224	224	195	50	64	86	113	152
224	224	224	190	63	80	107	140	186
224	224	224	185	80	100	132	167	218
224	224	224	180	97	121	156	195	250
224	224	224	175	113	141	180	223	282
224	224	224	170	130	161	204	250	314
224	224	224	165	148	181	225	273	335
224	224	224	160	166	201	247	295	357
224	224	224	155	184	220	268	317	379
224	224	224	150	201	240	290	340	401
224	224	224	145	219	258	307	356	415
224	224	224	140	236	276	324	372	429
224	224	224	135	253	293	342	389	443
224	224	224	130	271	311	359	405	457
224	224	224	125	287	326	373	416	464
224	224	224	120	304	342	386	427	472
224	224	224	116	317	354	397	436	478
224	224	224	108	341	377	418	454	492
224	224	221	105	353	389	430	467	509
224	224	216	100	373	409	451	490	536
224	224	211	95	400	438	487	536	599
224	224	206	90	426	467	523	583	662
224	224	201	85	453	497	560	630	726
224	224	196	80	479	526	596	676	789

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.A

Integral Rod Worth in Overlap
HZP, No Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
224	224	191	75	511	562	639	730	857
224	224	186	70	543	597	682	784	925
224	224	181	65	575	633	725	837	993
224	224	176	60	607	669	768	891	1061
224	224	171	55	642	707	811	938	1115
224	224	166	50	677	745	853	985	1168
224	224	161	45	712	782	896	1032	1222
224	224	156	40	747	820	938	1079	1276
224	224	151	35	784	859	978	1122	1319
224	224	146	30	822	898	1018	1166	1362
224	224	141	25	859	938	1058	1209	1404
224	224	136	20	896	977	1098	1252	1447
224	224	131	15	934	1015	1138	1291	1480
224	224	126	10	972	1053	1177	1330	1513
224	224	121	5	1010	1090	1217	1370	1545
224	224	116	0	1048	1128	1256	1409	1578
224	224	108	0	1078	1158	1287	1440	1604
224	221	105	0	1100	1180	1309	1461	1623
224	216	100	0	1136	1216	1346	1497	1654
224	211	95	0	1175	1255	1386	1538	1697
224	206	90	0	1213	1294	1426	1578	1740
224	201	85	0	1252	1333	1467	1619	1783
224	196	80	0	1291	1372	1507	1660	1826
224	191	75	0	1340	1420	1554	1705	1870
224	186	70	0	1388	1468	1601	1751	1915
224	181	65	0	1436	1516	1649	1796	1959
224	176	60	0	1485	1564	1696	1842	2004
224	171	55	0	1543	1621	1748	1885	2039
224	166	50	0	1601	1678	1799	1928	2074
224	161	45	0	1659	1734	1851	1971	2109

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.A

Integral Rod Worth in Overlap
HZP, No Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
				IRW	IRW	IRW	IRW	IRW
Bk A	Bk B	Bk C	Bk D	(PCM)	(PCM)	(PCM)	(PCM)	(PCM)
224	156	40	0	1718	1791	1903	2014	2144
224	151	35	0	1773	1843	1945	2045	2166
224	146	30	0	1828	1894	1987	2076	2188
224	141	25	0	1883	1946	2030	2108	2210
224	136	20	0	1938	1998	2072	2139	2232
224	131	15	0	1975	2031	2097	2157	2243
224	126	10	0	2011	2064	2123	2175	2255
224	121	5	0	2047	2096	2148	2192	2267
224	116	0	0	2083	2129	2173	2210	2278
224	108	0	0	2110	2154	2193	2225	2290
221	105	0	0	2126	2168	2207	2239	2306
216	100	0	0	2152	2193	2229	2261	2331
211	95	0	0	2182	2222	2262	2300	2381
206	90	0	0	2211	2252	2294	2339	2432
201	85	0	0	2240	2281	2326	2378	2482
196	80	0	0	2270	2311	2358	2417	2533
191	75	0	0	2304	2346	2396	2460	2583
186	70	0	0	2338	2381	2433	2503	2634
181	65	0	0	2372	2416	2470	2547	2684
176	60	0	0	2406	2450	2508	2590	2735
171	55	0	0	2442	2487	2544	2628	2773
166	50	0	0	2479	2523	2581	2666	2811
161	45	0	0	2515	2559	2618	2704	2849
156	40	0	0	2551	2595	2655	2742	2887
151	35	0	0	2586	2629	2688	2774	2914
146	30	0	0	2621	2663	2721	2806	2940
141	25	0	0	2656	2697	2754	2838	2966
136	20	0	0	2691	2732	2787	2870	2993
131	15	0	0	2720	2760	2814	2893	3007
126	10	0	0	2750	2789	2842	2916	3021

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.A

Integral Rod Worth in Overlap
HZP, No Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
121	5	0	0	2779	2818	2869	2939	3035
116	0	0	0	2809	2847	2896	2962	3049
108	0	0	0	2835	2872	2920	2981	3060
105	0	0	0	2848	2884	2931	2989	3064
100	0	0	0	2869	2904	2948	3001	3071
95	0	0	0	2891	2924	2963	3010	3075
90	0	0	0	2912	2943	2977	3019	3078
85	0	0	0	2934	2962	2992	3028	3082
80	0	0	0	2955	2981	3006	3037	3085
75	0	0	0	2974	2996	3015	3041	3086
70	0	0	0	2994	3011	3025	3045	3087
65	0	0	0	3013	3025	3034	3049	3088
60	0	0	0	3032	3040	3043	3053	3089
55	0	0	0	3046	3050	3048	3056	3090
50	0	0	0	3059	3059	3053	3059	3090
45	0	0	0	3073	3069	3058	3061	3091
40	0	0	0	3087	3078	3063	3064	3092
35	0	0	0	3094	3082	3065	3064	3092
30	0	0	0	3101	3087	3067	3065	3092
25	0	0	0	3107	3091	3069	3066	3093
20	0	0	0	3114	3095	3072	3067	3093
15	0	0	0	3117	3096	3072	3067	3093
10	0	0	0	3119	3098	3073	3067	3093
5	0	0	0	3121	3099	3074	3067	3093
0	0	0	0	3123	3101	3075	3067	3093

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.A

Integral Rod Worth in Overlap
HZP, No Xenon

McGuire 1 Cycle 14

Control Bank Position	Shutdown Bank Position Steps Withdrawn * SD E	SD D	SD C	SD B	SD A	50 EFPD 0 - 75 EFPD IRW (PCM)	100 EFPD 76 - 150 EFPD IRW (PCM)	200 EFPD 151 - 250 EFPD IRW (PCM)	300 EFPD 251 - 350 EFPD IRW (PCM)	400 EFPD 351 - 480 EFPD IRW (PCM)
224	224	224	224	224	224	0	0	0	0	0
0	224	224	224	224	224	3123	3101	3075	3067	3093
0	0	224	224	224	224	3832	3838	3860	3893	3930
0	0	0	224	224	224	4455	4440	4427	4433	4480
0	0	0	0	224	224	5184	5133	5066	5045	5105
0	0	0	0	0	224	6152	6106	6041	6018	6093
0	0	0	0	0	0	6284	6231	6155	6126	6208

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.B

Integral Rod Worth in Overlap
HZP, Peak Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
224	224	224	224	0	0	0	0	0
224	224	224	220	8	9	12	15	20
224	224	224	215	19	20	27	35	45
224	224	224	210	29	32	42	54	69
224	224	224	205	55	61	75	90	110
224	224	224	200	81	89	107	127	151
224	224	224	195	107	118	140	163	192
224	224	224	190	134	147	173	199	233
224	224	224	185	162	177	204	232	266
224	224	224	180	191	206	235	265	299
224	224	224	175	219	236	267	297	332
224	224	224	170	248	266	298	330	365
224	224	224	165	271	290	321	352	386
224	224	224	160	294	313	343	375	408
224	224	224	155	317	337	366	397	430
224	224	224	150	341	361	389	420	452
224	224	224	145	358	378	404	434	464
224	224	224	140	375	394	420	448	476
224	224	224	135	393	411	435	461	488
224	224	224	130	410	428	451	475	500
224	224	224	125	423	440	461	483	506
224	224	224	120	436	451	470	490	511
224	224	224	116	446	460	478	496	515
224	224	224	108	466	479	494	510	529
224	224	221	105	478	491	508	526	549
224	224	216	100	498	512	531	553	583
224	224	211	95	539	558	586	619	660
224	224	206	90	579	604	641	684	737
224	224	201	85	619	649	696	749	813
224	224	196	80	659	695	751	815	890

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.B

Integral Rod Worth in Overlap
HZP, Peak Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
224	224	191	75	705	747	811	883	964
224	224	186	70	752	798	870	952	1039
224	224	181	65	798	849	930	1021	1113
224	224	176	60	844	901	990	1089	1187
224	224	171	55	887	946	1039	1143	1241
224	224	166	50	931	991	1087	1196	1295
224	224	161	45	975	1036	1136	1249	1349
224	224	156	40	1018	1081	1185	1302	1403
224	224	151	35	1059	1123	1227	1344	1443
224	224	146	30	1100	1165	1269	1386	1482
224	224	141	25	1140	1207	1312	1428	1521
224	224	136	20	1181	1249	1354	1469	1561
224	224	131	15	1217	1285	1389	1499	1584
224	224	126	10	1252	1322	1424	1529	1607
224	224	121	5	1288	1358	1459	1559	1630
224	224	116	0	1324	1395	1494	1589	1653
224	224	108	0	1351	1423	1522	1614	1673
224	221	105	0	1371	1442	1541	1633	1693
224	216	100	0	1403	1473	1574	1665	1726
224	211	95	0	1439	1512	1616	1712	1780
224	206	90	0	1476	1551	1658	1759	1835
224	201	85	0	1513	1589	1701	1807	1889
224	196	80	0	1549	1628	1743	1854	1943
224	191	75	0	1596	1675	1791	1903	1995
224	186	70	0	1642	1722	1839	1952	2047
224	181	65	0	1689	1769	1887	2001	2098
224	176	60	0	1736	1816	1935	2051	2150
224	171	55	0	1792	1870	1983	2092	2188
224	166	50	0	1848	1924	2031	2133	2227
224	161	45	0	1905	1978	2079	2175	2265

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.B

Integral Rod Worth in Overlap
HZP, Peak Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
224	156	40	0	1961	2031	2127	2216	2304
224	151	35	0	2016	2079	2164	2243	2325
224	146	30	0	2071	2127	2201	2269	2347
224	141	25	0	2125	2175	2237	2295	2368
224	136	20	0	2180	2223	2274	2322	2390
224	131	15	0	2212	2250	2293	2335	2400
224	126	10	0	2243	2276	2312	2349	2411
224	121	5	0	2275	2303	2332	2363	2421
224	116	0	0	2307	2330	2351	2377	2432
224	108	0	0	2331	2351	2367	2390	2444
221	105	0	0	2346	2365	2382	2405	2461
216	100	0	0	2370	2390	2406	2431	2491
211	95	0	0	2405	2426	2448	2479	2545
206	90	0	0	2439	2463	2489	2526	2599
201	85	0	0	2473	2500	2531	2574	2653
196	80	0	0	2507	2536	2572	2622	2707
191	75	0	0	2546	2577	2616	2669	2755
186	70	0	0	2585	2618	2660	2716	2802
181	65	0	0	2624	2658	2704	2763	2850
176	60	0	0	2662	2699	2748	2809	2898
171	55	0	0	2701	2737	2784	2844	2930
166	50	0	0	2740	2774	2820	2880	2963
161	45	0	0	2779	2812	2857	2915	2996
156	40	0	0	2818	2850	2893	2950	3028
151	35	0	0	2850	2880	2919	2972	3047
146	30	0	0	2883	2909	2945	2994	3065
141	25	0	0	2916	2939	2971	3016	3083
136	20	0	0	2948	2969	2997	3038	3101
131	15	0	0	2971	2988	3013	3050	3110
126	10	0	0	2993	3008	3029	3062	3118

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.B

Integral Rod Worth in Overlap
HZP, Peak Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
				IRW	IRW	IRW	IRW	IRW
Bk A	Bk B	Bk C	Bk D	(PCM)	(PCM)	(PCM)	(PCM)	(PCM)
121	5	0	0	3015	3027	3045	3074	3127
116	0	0	0	3037	3047	3061	3086	3136
108	0	0	0	3056	3063	3073	3095	3141
105	0	0	0	3063	3069	3077	3097	3142
100	0	0	0	3075	3079	3084	3102	3144
95	0	0	0	3085	3086	3088	3104	3146
90	0	0	0	3094	3093	3093	3107	3148
85	0	0	0	3103	3100	3098	3110	3149
80	0	0	0	3113	3107	3102	3112	3151
75	0	0	0	3119	3111	3105	3114	3152
70	0	0	0	3125	3115	3107	3115	3153
65	0	0	0	3131	3119	3110	3116	3154
60	0	0	0	3137	3123	3112	3118	3155
55	0	0	0	3140	3125	3113	3118	3155
50	0	0	0	3144	3127	3114	3118	3155
45	0	0	0	3147	3130	3115	3118	3155
40	0	0	0	3151	3132	3115	3118	3155
35	0	0	0	3153	3133	3116	3119	3155
30	0	0	0	3154	3135	3116	3119	3155
25	0	0	0	3156	3137	3117	3119	3155
20	0	0	0	3158	3138	3117	3120	3155
15	0	0	0	3159	3138	3117	3120	3155
10	0	0	0	3160	3138	3117	3120	3155
5	0	0	0	3161	3139	3117	3120	3155
0	0	0	0	3162	3139	3117	3120	3155

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.B

Integral Rod Worth in Overlap
HZP, Peak Xenon

McGuire 1 Cycle 14

Control Bank Position	Shutdown Bank Position Steps Withdrawn *					50 EFPD 0 - 75 EFPD IRW (PCM)	100 EFPD 76 - 150 EFPD IRW (PCM)	200 EFPD 151 - 250 EFPD IRW (PCM)	300 EFPD 251 - 350 EFPD IRW (PCM)	400 EFPD 351 - 480 EFPD IRW (PCM)
	SD E	SD D	SD C	SD B	SD A					
224	224	224	224	224	224	0	0	0	0	0
0	224	224	224	224	224	3162	3139	3117	3120	3155
0	0	224	224	224	224	3840	3836	3852	3876	3919
0	0	0	224	224	224	4490	4472	4466	4481	4534
0	0	0	0	224	224	5257	5215	5174	5174	5245
0	0	0	0	0	224	6305	6271	6196	6203	6293
0	0	0	0	0	0	6432	6396	6357	6364	6467

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/1/A/6100/22
Enclosure 4.3
Table 6.7

Shutdown Fission Product Correction

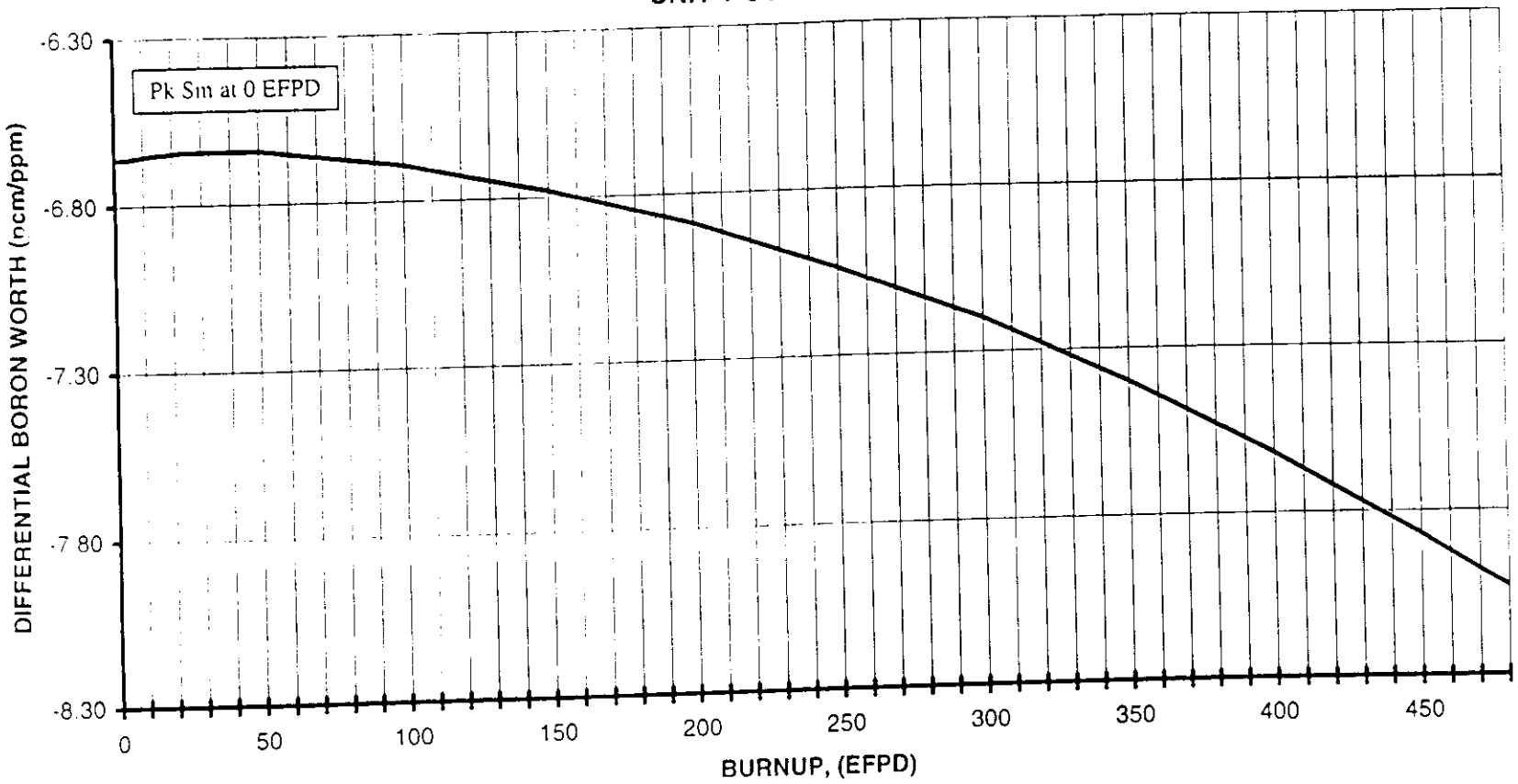
Time (hours)	Time (days)	Correction (ppm)
0	0.00	0.0
6	0.25	2.7
12	0.50	5.5
18	0.75	9.3
24	1.00	13.0
30	1.25	15.7
36	1.50	18.4
42	1.75	21.1
48	2.00	23.7
54	2.25	26.3
60	2.50	28.9
66	2.75	31.6
72	3.00	34.2
78	3.25	35.1
84	3.50	36.1
90	3.75	37.1
96	4.00	38.0
102	4.25	39.0
108	4.50	39.9
114	4.75	40.8
120	5.00	41.7
126	5.25	42.1
132	5.50	42.5
138	5.75	42.8
144	6.00	43.2
150	6.25	43.6
156	6.50	43.9
162	6.75	44.3
168	7.00	44.6
174	7.25	45.0
180	7.50	45.4
186	7.75	45.7
192	8.00	46.1
198	8.25	46.5
204	8.50	46.8
210	8.75	47.2
216	9.00	47.5
222	9.25	47.9
228	9.50	48.3
234	9.75	48.6

Time (hours)	Time (days)	Correction (ppm)
240	10.00	49.0
246	10.25	49.0
252	10.50	49.1
258	10.75	49.2
264	11.00	49.2
270	11.25	49.3
276	11.50	49.3
282	11.75	49.4
288	12.00	49.4
312	13.00	49.7
336	14.00	49.9
360	15.00	50.1
384	16.00	50.3
408	17.00	50.6
432	18.00	50.8
456	19.00	51.0
480	20.00	51.2
504	21.00	51.5
528	22.00	51.7
552	23.00	51.9
576	24.00	52.2
600	25.00	52.4
624	26.00	52.6
648	27.00	52.8
672	28.00	53.1
696	29.00	53.3
720	30.00	53.5
744	31.00	53.6
768	32.00	53.8
792	33.00	53.9
816	34.00	54.0
840	35.00	54.2
864	36.00	54.3
888	37.00	54.4
912	38.00	54.5
936	39.00	54.7
960	40.00	54.8
984	41.00	54.9
1008	42.00	55.0
1032	43.00	55.2

Time (hours)	Time (days)	Correctior (ppm)
1056	44.00	55.3
1080	45.00	55.4
1104	46.00	55.6
1128	47.00	55.7
1152	48.00	55.8
1176	49.00	55.9
1200	50.00	56.1
1224	51.00	56.2
1248	52.00	56.3
1272	53.00	56.5
1296	54.00	56.6
1320	55.00	56.7
1344	56.00	56.8
1368	57.00	57.0
1392	58.00	57.1
1416	59.00	57.2
1440	60.00	57.4
1464	61.00	57.3
1488	62.00	57.3
1512	63.00	57.2
1536	64.00	57.2
1560	65.00	57.2
1680	70.00	57.0
1800	75.00	56.8
1920	80.00	56.7
2040	85.00	56.5
2160	90.00	56.3
2280	95.00	56.2
2400	100.00	56.0
2520	105.00	55.8
2640	110.00	55.6
2760	115.00	55.5
2880	120.00	55.3
3000	125.00	55.1
3120	130.00	54.9
3240	135.00	54.7
3360	140.00	54.5
3480	145.00	54.3
3600	150.00	54.1

UNIT 1

OP/1/A/6100/22
ENCLOSURE 4.3 - GRAPH 6.8
DIFFERENTIAL BORON WORTH
HZP, ARO, No Xe, EQ Sm
UNIT 1 CYCLE 14



EFPD	0	4	12	25	50	100	150	200	250	300	350	400	450	470	480
PPMB	-6.66	-6.66	-6.65	-6.64	-6.64	-6.69	-6.78	-6.89	-7.04	-7.2	-7.4	-7.62	-7.87	-7.98	-8.03

UNIT 1

This data is also available on the OAC

McGuire 1 Cycle 14

Xenon and Samarium Worths

Burnup (EFPD)	HFP Equilibrium Xenon (pcm)	HZP Peak Xenon (pcm)	HFP Equilibrium Samarium (pcm)
0	--	-	557
4	2580	3996	510
12	2577	3990	643
25	2579	3990	735
50	2587	4001	773
100	2610	4038	810
150	2640	4120	843
200	2673	4203	875
250	2708	4288	904
300	2746	4425	930
350	2784	4559	954
400	2822	4712	976
450	2857	4827	998
470	2877	4944	1004
480	2886	4999	1008

QUESTION #01

NO REFERENCES ALLOWED

What is the requirement for visitors to be escorted into a vital area?

Describe the process for an escort and a visitor to enter a vital area.

ANSWER: The escort must have access allowed by Security (as indicated on his/her badge).

The visitor must be logged into and out of the area by swiping their badge through the card reader. The escort must then swipe his/her badge through the card reader within 5 seconds after the visitor.

MISCINFO: K/A 2.1.13 *2.0/2.9
* - Plant Specific Change

REFERENCES: Plant Access Training Student Guide (Rev. #5)
Page # 86

OBJECTIVES: LPRO OBJ: #7 (2,9)

QUESTION #02

NO REFERENCES ALLOWED

When acting as an escort for visitors, how are the following situations handled?

1. One (1) visitor of the opposite sex must use the bathroom
2. One (1) visitor wishes to visit an area in the Radiation Control Area (RCA)
3. Eight (8) visitors wish to be escorted by you into a vital area
4. One (1) visitor does not desire to use hearing protection

ANSWER:

1. The visitor may enter the bathroom or locker room unescorted provided there is only one entrance/exit and the entrance/exit is continuously observed by the escort.

2. Visitors are NOT allowed to enter the RCA unless authorized by Radiation Protection management.

3. The MAXIMUM number of visitors that may be escorted into a vital area by one escort is five (5) individuals.

4. The escort must ensure the visitor follows all applicable policies and procedures.

MISCINFO: K/A 2.1.13 *2.0/2.9
* - Plant Specific Change

REFERENCES: Plant Access Training Student Guide (Rev. #5)
Pages #84 - 86

OBJECTIVES: LPRO OBJ: #7 (2,9)

QUESTION #01

NO REFERENCES ALLOWED

What is the requirement for visitors to be escorted into a vital area?

Describe the process for an escort and a visitor to enter a vital area.

QUESTION #02

NO REFERENCES ALLOWED

When acting as an escort for visitors, how are the following situations handled?

1. One (1) visitor of the opposite sex must use the bathroom
2. One (1) visitor wishes to visit an area in the Radiation Control Area (RCA)
3. Eight (8) visitors wish to be escorted by you into a vital area
4. One (1) visitor does not desire to use hearing protection

Reviewed By Charles Sawyer

Approved By Thomas C. Cole

TASK: **Determine acceptable Main Generator MegaVars for specified conditions.**

POSITION: **RO**

Operator's Name_____

Location: **Control Room** Method: **Perform**

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: Data Book Section #3

Attachments:

INITIAL CONDITIONS

Unit #1 is at 84% reactor power with the following conditions:

- Generator load is 1000 MWE
- Power factor is 0.9 lagging
- Generator Hydrogen pressure is 75 psig
- Generator voltage is 24.01 KV

Power increase to 100% is imminent.

The OSM has directed you to determine the following assuming a power factor of 0.9 is maintained constant during the power increase:

- **the maximum permissible generator load**
- **the maximum reactive load (ASSUME NO VIBRATION LIMITATIONS)**
- **the desired voltage per the Generator Voltage Operating Schedule**

JPM OVERALL STANDARD: The examinee should select the correct Generator Capability Curve (Curve 3.1.2) and use it to determine the maximum permissible generator load and reactive load. Once completed, the candidate should determine the desired voltage per the Generator Voltage Operating Schedule.

NOTES: The operator should be given the attached Data Book Curves and Data Sheets for review and use.

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	The candidate should retrieve the MNS Data Book and find the Generator Capability curves in Section #3.	Candidate finds the MNS Data Book and turns to Section #3. When the candidate finds the MNS Data Book, Section #3; the examiner should provide the candidate with a Working Copy of OP/1/A/6100/22 Encl. 4.3; **Curves 3.1.1 & # 3.1.2** and **Tables 3.1.3 & 3.1.4** (Total of 4 documents)		
2	Using Table 3.1.4, determine the appropriate Generator Limits Curve.	Candidate uses Curve 3.1.2 to determine limits.		
*3	Using 0.9 power factor and 75 psig H2 pressure, candidate determines the maximum permissible generator load to be: **1210 Mw**	Using 0.9 power factor and 75 psig H2 pressure, candidate determines the maximum permissible generator load to be: **1210 Mw** **NOTE:** If candidate uses wrong curve, an incorrect answer will be derived. **1205 to 1220 acceptable range**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*4	Using 0.9 power factor and 75 psig H2 pressure, candidate determines the maximum permissible reactive load to be: **590 MVARs**	Using 0.9 power factor and 75 psig H2 pressure, candidate determines the maximum permissible reactive load to be: **590 MVARs)** **580 to 590 acceptable range**		
5	Uses the Generator Voltage Operating Schedule to determine the Desired Generator Voltage for Unit #1 Generator.	Candidate uses Table 3.1.3 to determine limits.		
*6	Using todays Date and Time, determines the Desired Voltage to be **23.8 KV** for Unit #1.	Using todays Date and Time, determines the Desired Voltage to be **23.8 KV** for Unit #1.		

*** DENOTES CRITICAL**

INITIAL CONDITIONS

Unit #1 is at 84% reactor power with the following conditions:

- Generator load is 1000 MWE
- Power factor is 0.9 lagging
- Generator Hydrogen pressure is 75 psig
- Generator voltage is 24.01 KV

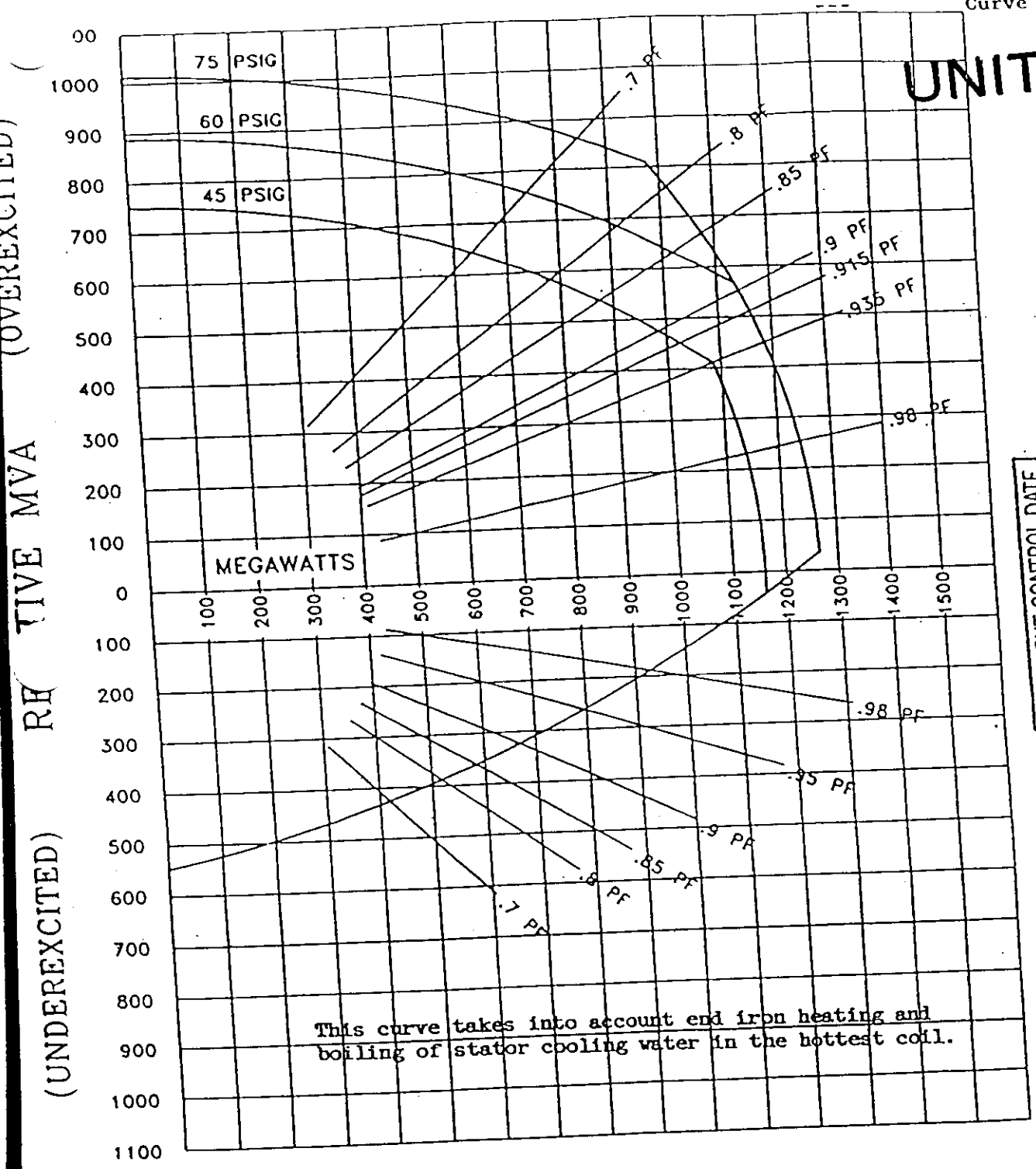
Power increase to 100% is imminent.

The OSM has directed you to determine the following assuming a power factor of 0.9 is maintained constant during the power increase:

- **the maximum permissible generator load**
- **the maximum reactive load (ASSUME NO VIBRATION LIMITATIONS)**
- **the desired voltage per the Generator Voltage Operating Schedule for the Date and Time provided.**

CALCULATED CAPABILITY CURVES
AT 95 PER CENT VOLTAGE (22.8 KV)
McGuire #1

OP/1/A/6100/22
Enclosure 4.3
Curve 3.1.1



DOCUMENT CONTROL DATE
NOV 1 8 1992
DUKE POWER COMPANY

HYDROGEN INNER-COOLED TURBINE GENERATOR
1264 MVA .9 PF 22.8 KV 32000 AMPERES
3 PHASE 60 HERTZ 1800 RPM .5 SCR 75 PSIG
ENGINEER- S. MCCONNON DATE- 11/30/90 CURVE NO.- 633732C
D1-JPV13092B

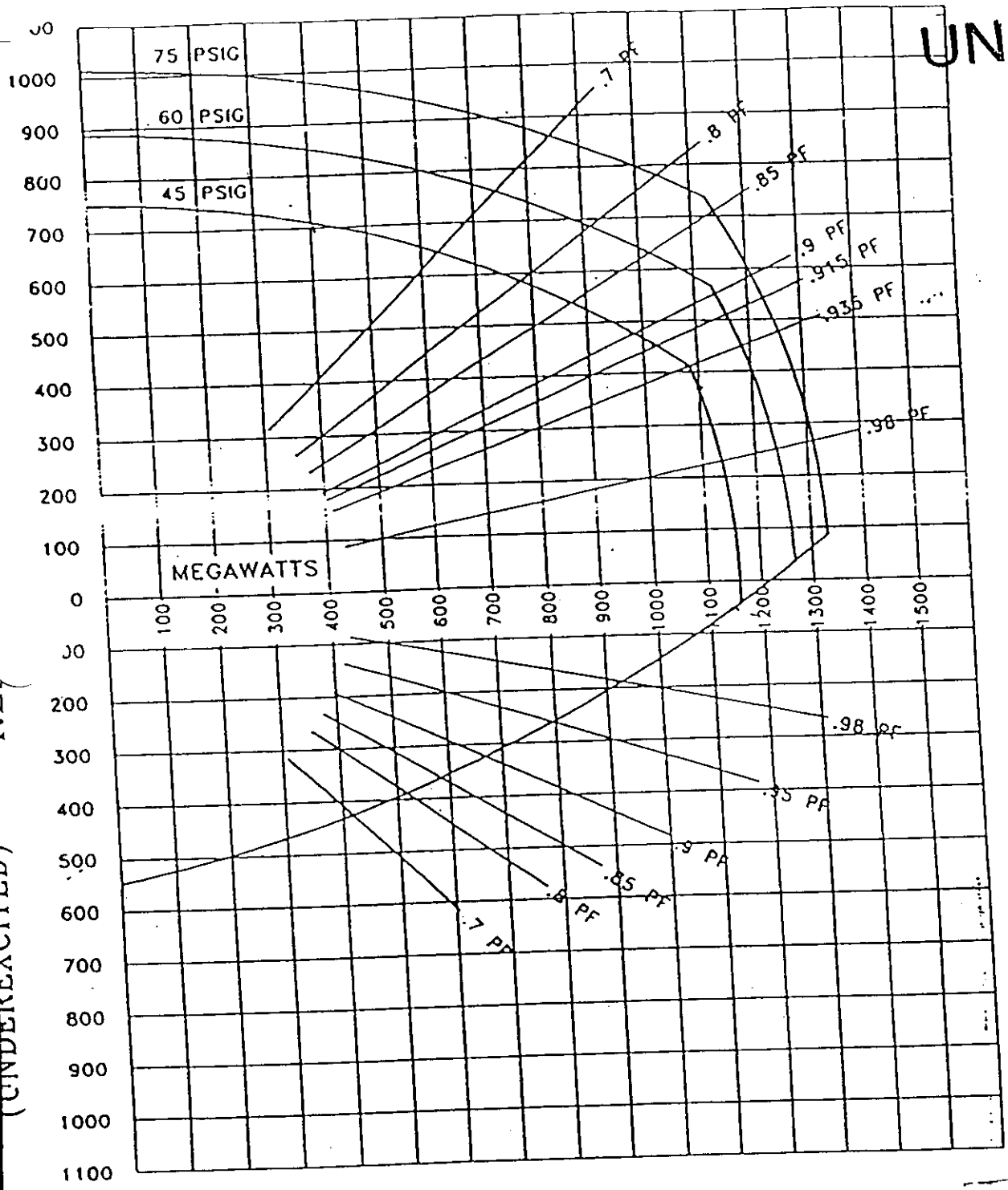
Fig. 2

UNIT 1

WESTINGHOUSE ELECTRIC CORPORATION
CALCULATED CAPABILITY CURVES
AT 100 PER CENT VOLTAGE (24 KV)
McGuire #1

OP/1/A/6100/22
Enclosure 4.3
Curve 3.1.2

UNIT 1



DOCUMENT CONTROL DATE
NOV 18 1992
DUKE POWER COMPANY

UNIT 1

HYDROGEN INNER-COOLED TURBINE GENERATOR
1330 MVA .9 PF 24 KV 32000 AMPERES
3 PHASE 60 HERTZ 1800 RPM .5 SCR 75 PSIG
ENGINEER- SRM/GRL DATE- 07/22/92 CURVE NO.- 633732B

McGuire Nuclear Station
Generator Voltage Operating Schedule (kV)

				Switchyard (Reference)		Generator Buses (Control Point)	
				230 kV	500 kV	M1A0972 MNS 1	M2A0972 MNS 2
Summer	Weekday	Peak	0800-2300, M-F	239.2	537.9	24.1	23.7
6/21 - 9/20	Weekday	Off-peak	2300-0800, M-F	236.8	534.8	23.6	23.4
1999	Weekend	All hours	Sat-Sun	237.1	535.2	23.6	23.3
Fall	Weekday	Peak	0600-2200, M-F	236.9	537.2	23.8	23.7
9/21 - 12/20	Weekday	Off-peak	2200-0600, M-F	235.7	533.2	23.5	23.2
1999	Weekend	All hours	Sat-Sun	235.7	533.2	23.5	23.2
Winter	Weekday	Peak	0600-2100, M-F	238.1	538.0	23.8	23.7
12/21 - 3/20	Weekday	Off-peak	2100-0600, M-F	236.9	534.0	23.7	23.3
1999/2000	Weekend	All hours	Sat-Sun	235.8	535.0	23.4	23.5
Spring	Weekday	Peak	0600-2200, M-F	238.6	539.7	23.8	23.7
3/21 - 6/20	Weekday	Off-peak	2200-0600, M-F	236.7	533.3	23.5	23.3
2000	Weekend	All hours	Sat-Sun	236.7	533.3	23.5	23.3

As agreed to, the nuclear units will follow the generator bus voltage. The switchyard voltage is only for reference.

As required by system conditions, the SOC may request changes to these voltages.

Do not exceed stator or field temperature limits or plant bus voltage alarm setpoints in complying with this voltage schedule. If a limit is encountered, reduce voltage until out of alarm, then notify the SOC of the situation.

DO NOT EXCEED PLANT BUS VOLTAGE ALARM SETPOINTS

Note: Routine Task Calendar will be impacted if the schedule is changed.

OP/ 1/A/6100/022
Enclosure 4.3
Table 3.1.4

McGuire Nuclear Station

Generator Capability Curve Application Guidance

1 22.8kV Capability Curve (Curve 3.1.1 of Enclosure 4.3) to be used when generator output voltage is between 22.8kV and 24.0 kV.

2 24.0kV Capability Curve (Curve 3.1.2 of Enclosure 4.3) to be used when generator output voltage is over 24.0 kV.

NOTE: MVAR limits provided below are based upon Full Power (1200 MWs) operation. At reduced power MVAR limits should be obtained from generator capability curves. Actual MVAR limits are based upon operating generator voltage, H2 pressure, MW output, etc.

NOTE: Due to the current vibration level on the # 10 generator bearing, MVARs should be limited to 150 MVARs for normal, continuous operation and to 250 MVARs when requested by the System Operation Center (SOC) for short term operation.

CAUTION: Do not place the voltage regulator to the "OFF" or "TEST" position. Automatic controls will attempt to correct rapid high increases and fluctuations and better response can be achieved than in "OFF" or "TEST".

3 When generator MVARs exceed capability curve in lagging (+ MVARs) direction, immediate action to bring operation within the curve should be taken. Use voltage adjust to reduce lagging MVARs to within capability curve.

CAUTION: Do not place the voltage regulator to the "OFF" or "TEST" position. Automatic controls will attempt to correct rapid high increases and fluctuations and better response can be achieved than in "OFF" or "TEST".

4 a. When generator MVARs exceed 650 MVARs lagging (+ 650 MVARs), immediate action to bring operation within the curve must be taken. Use voltage adjust to reduce lagging MVARs to within capability curve.

b. If over +650 MVARs for more than 2 minutes total in any 10 minute period, trip the unit.

CAUTION: Do not place the voltage regulator to the "OFF" or "TEST" position. Automatic controls will attempt to correct rapid high increases and fluctuations and better response can be achieved than in "OFF" or "TEST".

5 a. If MVARs (and voltage) fluctuations (swinging) are occurring within the (-) 10 to (+) 400 MVAR range, do the
1) null Balance Voltage with voltage adjuster, and
2) move regulator to the "TEST" position (on a temporary basis) to stabilize unit output.

b. If output does not become stable, do the following:
1) null balance voltage with Base Adjuster, and
2) return regulator to "ON" position.

6 a. When generator MVAR exceeds capability curve in leading (- MVARs) direction, immediate action to bring operation within the curve should be taken.

b. If Voltage Regulator is in "ON", use voltage adjust to raise voltage and reduce leading MVARs (add + MVARs) to within capability curve.

c. If Voltage Regulator is in "OFF" or "TEST", use base adjust to raise voltage and reduce leading MVARs (add + MVARs) to within capability curve.

NOTE: A substantial decrease will be needed to obtain significant MVAR margin.

d. Reduce Turbine Generator Load (MW Output); this will provide more allowable MVARs per the capability curve.

7 a. When generator MVARs exceed 100 MVARs leading (- 100 MVARs), immediate action to bring operation within the curve must be taken.

b. If Voltage Regulator is in "ON", use voltage adjust to raise voltage and reduce leading MVARs (add + MVARs) to within capability curve.

c. If Voltage Regulator is in "OFF" or "TEST", use base adjust to raise voltage and reduce leading MVARs (add + MVARs) to within capability curve.

NOTE: A substantial decrease in MWswill be needed to obtain significant MVAR margin.

d. Reduce Turbine Generator Load (MW Output); this will provide more allowable MVARs per the capability curve.

e. IF over (-) 100 MVARs for more than 2 minutes total in any 10 minute period, trip the unit.

Reviewed By Charles Lawyer

Approved By T Carlin

TASK: **Perform an Emergency VQ Release without GWR Release Paperwork and calculate volume released**

POSITION: **RO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: ___ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: OP/1/A/6450/17 Containment Air Release and Addition
PIP# M-97-02402
PIP #M-97-02448

JPM verified current with references by _____

Date __/__/__

INITIAL CONDITIONS

Unit 1 is in Mode 5 with a Containment Purge (VP) release in progress. In order to close both Personnel Airlocks Doors (PALS), VP has been shutdown. Due to delays, the PALS are finally closed 65 minutes later. Radiation Protection (RP) informs the Control Room that a sample must be pulled before VP can be placed in service again. This will take roughly 45 – 60 minutes.

GWR paperwork is unavailable for a Unit 1 Containment Air Release (VQ) Release. The VQ Flow Monitor is INOPERABLE due to pending modifications.

Due to rising containment pressure, it has been decided to perform an "Emergency VQ Release Without GWR Release Paperwork". It is desired to start a VQ Release to reduce pressure to approximately 0.12 psig.

The SRO instructs you to perform a Containment Air Release per OP/1/A/6450/17 (Containment Air Release and Addition) Enclosure 4.8 (Emergency VQ Release Without GWR Release Paperwork) and calculate the volume released.

- Containment Pressure is currently 0.24 psig.
- All valves are aligned per the valve checklist.
- Initial conditions have been satisfied.
- All R&R's have been evaluated.

JPM OVERALL STANDARD: The VQ Release Flow path is aligned to allow a Containment Air Release and then the candidate must calculate the volume released.

NOTES: A working copy of OP/1/A/6450/17 Encl. 4.8 should be provided to the operator.

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.1	Evaluate all outstanding R&Rs that may impact the performance of this procedure	Operator determines that R&Rs have already been evaluated from Initial Conditions.		
3.2	If the EMF monitoring the release (1EMF-39L or 1EMF-36L) becomes inoperable, perform the following, (in the procedure)...	**Cue:** **1EMF-39L is operable and will be utilized to monitor the release.**		
3.3	Notify RP of need to initiate an immediate VQ release.	**Cue:** **RP has been notified of immediate need of VQ release.**		
3.3.1	If 1EMF-39L operable, have RP verify Trip 1 and 2 setpoints.	**Cue:** **1EMF-39L Trip 1 and 2 setpoints have already been verified by RP.**		
3.4	If VP was in operation, close out any VP release paperwork.	**Cue:** **Another operator will close out the VP release paperwork.**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.5	Notify Control Room SRO that VQ releases may commence with following limitations: • release rate <300 cfm • Start/Stop times & volumes released MUST be recorded until GWR available	Same **Cue:** **SRO has been notified.**		
3.6	If VQ Flow Monitor is inoperable, go to Step 3.14.	Procedure flowpath direction step.		
*3.14	Open 1VQ-1A (Cont Air Rel Inside Isol)	Same **Cue:** **Pushbutton depressed, lamp illuminated**		
*3.15	Fully open 1VQ-4 (VQ to Unit Vent) per Attachment 3.	Operator fully opens 1-VQ-4 and logs DATE/TIME and DOER initials on Attachment 3. **Note:** 1VQ-4 is required to be full open to release with the flow monitor inoperable. **Cue:** **Knob rotated upward to 100%**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*3.16	Start the air release by performing the following: Open 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 2. Record on Attachment 2 the containment pressure when release is initiated.	Same **Cue:** **Pushbutton depressed, lamp illuminated** Operator records **0.24 psig** Start Pressure on Attachment 2 and **DATE/TIME** and **DOER initials**.		
*3.17.1	When containment pressure reaches 0.12 psig, secure VQ release as follows: Close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 2	**Cue:** **Containment pressure is 0.12 psig and 50 minutes have elapsed.** Based on Containment pressure of 0.12 psig, the operator should close 1VQ-2B and log on Attachment 2. **Cue:** **Pushbutton depressed, lamp illuminated**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*3.17.2	Calculate the volume released using the following: **Cu. Ft. Released =** **X + (Y x Z)** Where **X** and **Y** are from Table 1, **Z** is actual release duration in minutes from Attachment 2	Operator records DOER, DATE, & TIME on Attachment 2. **Cue:** Operator calculates: **X** + (**Y** x **Z**) = released **ANSWER:** **103.09 + (219.44 x 50)** = **11,075.09 Cu. Ft.**		
*3.17.3	Record on Attachment 2 the volume (cubic feet) released.	Operator records **11,075.09 Cu. Ft.** released on Attachment 2		
3.18	For subsequent releases, perform Steps 3.16 through 3.17 to maintain containment pressure less than 0.20 psig.	**Cue:** **It is not desired to initiate another release**		
3.19	**WHEN** it is desired to secure all VQ releases, perform the following: ...	**Cue:** **It is not desired to secure all VQ paperwork.**		

STOP TIME_____

*** DENOTES CRITICAL**

INITIAL CONDITIONS

Unit 1 is in Mode 5 with a Containment Purge (VP) release in progress. In order to close both Personnel Airlocks Doors (PALS), VP has been shutdown. Due to delays, the PALS are finally closed 65 minutes later. Radiation Protection (RP) informs the Control Room that a sample must be pulled before VP can be placed in service again. This will take roughly 45 – 60 minutes.

GWR paperwork is unavailable for a Unit 1 Containment Air Release (VQ) Release. The VQ Flow Monitor is INOPERABLE due to pending modifications.

Due to rising containment pressure, it has been decided to perform an Emergency VQ Release Without GWR Release Paperwork. It is desired to start a VQ Release to reduce pressure to approximately 0.12 psig.

The SRO instructs you to perform a Containment Air Release per OP/1/A/6450/17 (Containment Air Release and Addition) Enclosure 4.8 (Emergency VQ Release Without GWR Release Paperwork) and calculate the volume released.

- Containment Pressure is currently 0.24 psig.
- All valves are aligned per the valve checklist.
- Initial conditions have been satisfied.
- All R&R's have been evaluated.

(R09-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. OP/1/A/6450/017
Revision No. 15

INFORMATION ONLY

PREPARATION

(2) Station McGuire Nuclear Station

(3) Procedure Title Containment Air Release And Addition System

(4) Prepared By Randy Gibson Date February 17, 1999

(5) Requires 10CFR50.59 evaluation?
- ☒ Yes (New procedure or revision with major changes)
- ☐ No (Revision with minor changes)
- ☒ No (To incorporate previously approved changes)

(6) Reviewed By _____ (QR) Date 2/19/99

Cross-Disciplinary Review By _____ (QR) NA RLB Date 2/19/99

Reactivity Mgmt. Review By _____ (QR) NA RLB Date 2/19/99

(7) Additional Reviews

Reviewed By Bill Spencer Date 2/18/99

Reviewed By DAVID SEXTON Date 2/22/99

(8) Temporary Approval (*if necessary*)

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 2/22/99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- ☐ Yes ☐ N/A Check lists and/or blanks properly initialed, signed, dated or filled in N/A or N/R, as appropriate?
- ☐ Yes ☐ N/A Listed enclosures attached?
- ☐ Yes ☐ N/A Data sheets attached, completed, dated and signed?
- ☐ Yes ☐ N/A Charts, graphs, etc. attached and properly dated, identified and marked?
- ☐ Yes ☐ N/A Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks (*attach additional pages, if necessary*)

Containment Air Release And Addition System

1. Purpose

To outline the operation of the VQ System in the following modes:

- Air Addition Mode
- Air Release Mode

2. Limits and Precautions

2.1 Containment Pressure Tech Spec limit is ±0.3 psig.

2.2 All Engineered Safeguards Valves shall be cycled electrically after any manual operation.

2.3 Valves operated in this procedure shall be operated by normal means only. Artificial assistance is prohibited (Examples: Tightening an MOV with the handwheel or using a cheater-bar on a manual valve).

3. Procedure

See Section 4.

4. Enclosures

4.1 Air Addition Mode

4.2 Air Release Mode With VQ Flow Monitor Operable

4.3 Air Release Mode With VQ Flow Monitor Inoperable

4.4 Valve Checklist

4.5 Establishing Conditions For Testing Penetration 1M-243

4.6 Establishing Conditions For Testing Penetration 1M-384

4.7 Swapping VQ Filters

4.8 Emergency VQ Release Without GWR Release Paperwork

End Of Body

Unit 1

Emergency VQ Release Without GWR Release Paperwork

1. Limits and Precautions

1.1 Containment Pressure Tech Spec limit is ±0.3 psig.

1.2 All Engineered Safeguard Valves shall be cycled electrically after any manual operation.

2. Initial Conditions

_____ 2.1 Containment pressure requires an air release.

3. Procedure

☐ 3.1 Evaluate all outstanding R&Rs that may impact the performance of this procedure.

_____ 3.2 **IF** EMF monitoring release (1EMF-39L or 1EMF-36L) becomes inoperable, perform the following:

☐ 3.2.1 Notify RP.

_____ _____/_____
Person Contacted Date Time

☐ 3.2.2 Refer to SLC Table 16.11-5.

_____ 3.3 Notify RP of need to initiate an immediate VQ Release.

_____ _____/_____
Person Contacted Date Time

_____ 3.3.1 **IF** 1EMF-39L operable, have RP verify Trip 1 and 2 setpoints.

_____ 3.4 **IF** VP was in operation, close out any VP release paperwork.

_____ 3.5 Notify Control Room SRO that VQ releases may commence with the following limitations:

☐ 3.5.1 VQ release rate remains less than 300 cfm.

☐ 3.5.2 Operations records start/stop times and volumes released until a VQ GWR is provided.

Emergency VQ Release Without GWR Release Paperwork

NOTE: Steps 3.7 through 3.13 are performed for an operable VQ Flow Monitor. Steps 3.14 through 3.19 are performed for an inoperable VQ Flow Monitor.

_____ 3.6 **IF** VQ Flow Monitor is inoperable, go to step 3.14.

_____ 3.7 Reset the VQ Flow Monitor.

☐ 3.8 Throttle 1VQ-4 (VQ To Unit Vent Control) 15% open per Attachment 3.

_____ 3.9 Open 1VQ-1A (Cont Air Rel Inside Isol).

3.10 Start VQ release by performing the following:

☐ 3.10.1 Open 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 1.

☐ 3.10.2 Maintain a release rate less than of 300 cfm by throttling 1VQ-4 (VQ To Unit Vent Control) per Attachment 3.

☐ 3.10.2.1 Record any additional adjustments to 1VQ-4 (VQ To Unit Vent Control) on Attachment 3.

☐ 3.10.3 Record on Attachment 1 that VQ Flow Monitor is counting.

_____ 3.10.4 **IF** the VQ Flow Monitor stops counting or becomes inoperable, close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 1.

☐ 3.11 To secure the release, close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 1.

☐ 3.12 For subsequent releases without existing GWR paperwork, perform Steps 3.10 through 3.11 to maintain containment pressure less than 0.20 psig.

3.13 **WHEN** it is desired to secure VQ release, perform the following:

_____ 3.13.1 Close 1VQ-1A (Cont Air Rel Inside Isol).

☐ 3.13.2 Close 1VQ-4 (VQ To Unit Vent Control) per Attachment 3.

☐ 3.13.3 Close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 1.

Emergency VQ Release Without GWR Release Paperwork

☐ 3.13.4 Notify RP of following:

A. 1EMF-38, 1EMF-39, and 1EMF-40 setpoints need to be evaluated. {PIP 1-M97-1925}

B. _____Total Cubic Feet Released

_____ _____/_____
Person Contacted Date Time

☐ 3.13.5 Reset VQ Flow Monitor.

NOTE: Steps 3.14 through 3.19 are performed for an inoperable VQ Flow Monitor. 1VQ-4 (VQ To Unit Vent Control) is required to be in the full open position for air releases with VQ Flow Monitor inoperable.

_____ 3.14 Open 1VQ-1A (Cont Air Rel Inside Isol).

_____ _____ 3.15 Fully open 1VQ-4 (VQ To Unit Vent Control) per Attachment 3.
DV

3.16 Start VQ release by performing the following:

☐ 3.16.1 Open 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 2.

☐ 3.16.2 Record on Attachment 2 the containment pressure when VQ release is initiated.

3.17 **WHEN** containment pressure reaches 0.12 psig, secure VQ release as follows:

☐ 3.17.1 Close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 2.

☐ 3.17.2 Calculate the volume released using the following:

Cu. Ft. Released = X + (Y x Z)

Where: **X** and **Y** are from Table 1
Z is actual release duration in minutes from Attachment 2

☐ 3.17.3 Record on Attachment 2 the volume (cubic ft) released.

Table 1

Start Pressure (psig)	Stop Pressure (Always 0.12) (psig)	X (ft^3)	Y (ft^3/min)
0.12	0.12	0	0
0.13	0.12	0	188.29
0.14	0.12	0.64	191.71
0.15	0.12	2.39	194.98
0.16	0.12	5.60	198.10
0.17	0.12	10.51	201.10
0.18	0.12	17.31	203.99
0.19	0.12	26.13	206.78
0.20	0.12	37.07	209.47
0.21	0.12	50.21	212.07
0.22	0.12	65.57	214.60
0.23	0.12	83.20	217.06
0.24	0.12	103.09	219.44

❑ 3.18 For subsequent releases, perform Steps 3.16 through 3.17 to maintain containment pressure less than 0.20 psig.

3.19 **WHEN** it is desired to secure all VQ releases, perform the following:

_____ 3.19.1 Close 1VQ-1A (Cont Air Rel Inside Isol).

_____ _____ 3.19.2 Close 1VQ-4 (VQ To Unit Vent Control) per Attachment 3.
DV

_____ 3.19.3 Notify RP that VQ release has been secured and that 1EMF-38, 1EMF-39, and 1EMF-40 setpoints need to be evaluated. {PIP 1-M97-1925}

_____ _____/_____
Person Contacted Date Time

❑ 3.19.4 Close 1VQ-2B (Cont Air Rel Outside Isol) per Attachment 2.

❑ 3.19.5 Record on Attachment 2 the Total Cu. Ft released.

❑ 3.19.6 Send a copy of Attachment 2 to RP.

Unit 1

Emergency VQ Release Without GWR Release Paperwork

Attachment 1

Sheet ____ of ____

1VQ-2B Open				1VQ-2B Closed		
Doer	**DV**	**VQ Flow Monitor Counting (✓)**	**Date/Time**	**Doer**	**DV**	**Date/Time**

Unit 1

Emergency VQ Release Without GWR Release Paperwork

Attachment 2

Sheet ____ of ____

1VQ-2B Open				1VQ-2B Closed				
Doer	DV	Date/Time	Start Pressure (psig)	Doer	DV	Date/Time	Stop Pressure (psig)	Cubic Ft Released
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							0.12	
							Total Cu. Ft Released	

Unit 1

Emergency VQ Release Without GWR Release Paperwork

Attachment 3

Sheet ____ of ____

Date/Time	1VQ-4 Open	1VQ-4 Closed	1VQ-4 Throttled
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer
	____/____ DV Doer	____/____ DV Doer	____/____ DV Doer

End Of Enclosure

Unit 1

Prepared By Charles Sawyer

Reviewed By Rob Billy

Approved By Thomas L. Cuba

TASK: **Make Initial Notification to State and Counties**

POSITION: **RO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 12 Minutes

Actual JPM Completion Time: ____ Minutes

Required Time Critical Completion Time 15 Minutes

Actual Time Critical Completion Time ____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: RP/0/A/5700/002 (Rev.12) Alert
RP/0/A/5700/000 (Rev.04) Classification of Emergency

JPM verified current with references by _____

Date __/__/__

Rev. 07/04-19-00

INITIAL CONDITIONS

Both Units are at 100% power.

A Security Event in the Plant Protected Area has occurred. An intruder has forced his way into the Protected Area by hostile force. Security is taking actions to subdue the individual.

An Alert has just been declared by the OSM. An SRO has completed the Enclosure 4.1 (Emergency Notification Form) in accordance with Enclosure 4.2, Section 1 of RP/0/A/5700/002 (Alert).

The OSM has directed you to make the initial notification to State and County authorities using the Emergency Notification Form in accordance with Enclosure 4.2, Section 2 of RP/0/A/5700/002 (Alert).

Note: The evaluator(s) will provide all feedback and **NO ACTUAL CALL OR FAX TO THE STATE/COUNTIES WILL BE MADE.**

Event declaration time/date is now _____/_____ **(current time/date)**

This is a TIME CRITICAL JPM.

JPM OVERALL STANDARD: The ENS Notification form is completed and contact with the counties and/or State is established within 15 minutes. (Contact with State/Counties will be simulated.)

NOTES: The evaluator should begin the JPM by giving the examinee the following:

- Initial Conditions
- The completed Enclosure 4.1 (Emergency Notification Form)
- RP/0/A/5700/014 Emergency Telephone Directory
- RP/0/A/5700/002 Alert, Enclosure 4.2, Section 2

EXAMINER NOTE:

Immediately after reading the Initial Conditions to the examinee, record the following information on the completed Enclosure 4.1 (Emergency Notification Form):

1. Item #6 – mark " **current time MINUS 10 minutes** and the **current date** ".

2. Item #16 – mark "**current time** and **current date**".

*** DENOTES CRITICAL**

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1.1	Make initial notification to State and County authorities using the Emergency Notification Form in accordance with Enclosure 4.2, section 2.	Same		
2.1	Continuing with step 2.1 of Enclosure 4.2 of RP/0/A/5700/002 (Alert): **TRANSMISSION OF THE EMERGENCY NOTIFICATION FORM** Use the Selective Signaling telephone by dialing *1 and depressing the push to talk button.	Operator simulates dialing *1 on Selective Signaling phone and pressing the push to talk button as needed in following steps. **Cue:** ***1 dialed on Selective Signaling telephone, the push to talk button is depressed.**		
2.2	IF selective signaling fails, **THEN** go to RP/0/A/5700/014, Tab 1 for manual selective signaling numbers.	**Cue:** **The Selective Signaling telephone is functioning as expected.**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.3	As the State and Counties answer, check them off on the back of the notification form. At least one attempt using the individual selective signaling code must be made for any missing agencies. **Proceed with the notification promptly following an attempt to get missing agencies on the line.**	Operator listens to the Selective Signaling phone and checks off each agency on the back of the Notification form as they come on the line. Operator may or may not respond after each agency comes on line. **Cue:** **This is North Carolina Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Iredell County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.3	**Continued**	**Cue:** **This is Catawba County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Gaston County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Cabarrus County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.3	**Continued**	**Cue:** **This is Lincoln County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Note to evaluator:** **There is NO RESPONSE from Mecklenburg County. Operator should use RP/0/A5700/014 Emergency Telephone Directory, Enclosure 4.1 (Emergency Response Numbers) to manually use the individual selective signal code for Mecklenburg County . Operator should use "116" to individually call Mecklenburg County.** **When operator dials 116, Cue:** **This is Mecklenburg County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*2.4	Verify the State and Counties are on the line, document this time in item #3 on the form. This time should not exceed 15 minutes from the time of declaration (Item # 6).	Operator verifies the State and Counties are on the line, documents current time and date on line # 3 of the Notification form. **Time State/Counties are on the line:** _____ This is the Stop Time for the Time Critical Task		
2.5	Tell them you have an emergency notification from the McGuire Control Room and to get out the Emergency Notification Form.	Same. (No response is expected from agencies.)		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.6	Read the message slowly beginning with Item # 1, allowing ample time to copy.	Operator holds down the press to talk button and reads from Enclosure 4.1 (Emergency Notification Form) provided: "This is a drill message" **Item 1**-This is a drill. This is an initial notification, message # 1. **Item 2**-The site is McGuire Nuclear Site, Unit #1&2. Reported by _____ (the operator's name making the transmission) **Item 3**-The transmittal time/date is _____ (as listed on line #3). Confirmation phone number is 704-875-6044."		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.7	**NOTE**: Refer to page 6 of 8 of this Enclosure for the authentication codeword list.	**Note to evaluator**: When the operator turns to page 6 of the Enclosure (which is blank), give him/her Attachment #1 of this JPM. Instruct them to use Attachment #1 for authentication purposes.		
	When you reach item #4, ask the State or County to authenticate the message. The agency should give you a number and you should provide the appropriate codeword. Write the number and codeword on the form.	Operator asks any one of the agencies to authenticate. The Operator references Attachment #1 of this JPM and finds the corresponding codeword. Both code number and codeword are written in on line 4 of Enclosure 4.1. Operator holds down the push to talk button, "_____County, please authenticate this message." then releases the button on the receiver. **Cue:** **This is (same as above) County, the authentication number is 91.** Operator holds down the push to talk button, "**Item 4**-_____ County, the codeword for **# 91** is **fairway**", then releases the button on the receiver.		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.8	After communicating the initial message, ask if there are any questions. Record individuals' names and times on the back of the form. The time is the same time as Item #3.	Operator continues reading the initial message as follows: "**Item 5**-The Emergency Classification is 'B'- Alert. "**Item 6**-'A'-The Emergency was declared at _____" (time/date listed on form) "**Item 7**-: "Security Event in a Plant Protected Area. Intrusion into plant Protected Area by a hostile force." "**Item 8**-'B' and/or Plant conditions are Stable." "**Item 9**-'B'-Both Reactors are at ___100%___." "**Item 10**- Emergency Releases-'A'-None are happening at this time." "**Item 15**-'A'-No recommended protective actions at this time."		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.8	**Continued**	"**Item 16**-This Emergency Notification was approved by the Emergency Coordinator, John Doe, at _____ (time/date listed on form) Are there any questions?" PAUSE...NO QUESTIONS. Operator records names, dates and times on back of form. "I need to verify the name of each agency representative. When I call out the agency, please give your name... North Carolina State," **Cue: Alan Smith** "Mecklenburg County," **Cue: Stan Bronson** "Gaston County," **Cue: Walter Jones** "Lincoln County," **Cue: Phillip Gray** "Iredell County," **Cue: Carl Benson** "Catawba County," **Cue: Sarah Gordon** "Cabarrus County." **Cue: Don Becker**		

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2.9	After verbally transmitting the message, FAX a copy (front page only) to the agencies. Refer to pages 7 of 8 and 8 of 8 of this enclosure for FAX operation. **OPERATION OF THE FAX** (from page 7 of Enc. 4.2) Insert the Emergency Notification Form face down into the FAX. Press – Group FAX.	Operator refers to page 7 of Enc. 4.2, simulates placing the Emergency Notification Form face down into the FAX and depressing the "Group Fax" button. **Note to evaluator**: Ensure FAX transmission is **ONLY SIMULATED**. **Cue:** **Form inserted face down, Group FAX pushbutton depressed, FAX is transmitting.**		
2.10	Continuous attempts to contact missing agencies must be made if unable to complete the notification per step 2.3. Document the time these agencies were contacted on the back of the notification form.	**Cue:** **All agencies have been notified.**		

STOP TIME_____

*** DENOTES CRITICAL**

EMERGENCY NOTIFICATION

1. [X] THIS IS A DRILL [ ] ACTUAL EMERGENCY [X] INITIAL [ ] FOLLOW-UP MESSAGE NUMBER # 1
2. SITE: McGuire Nuclear Site UNIT: 1 & 2 REPORTED BY: _____
3. TRANSMITTAL TIME/DATE: _____ (Eastern) ___ / ___ / ___ (mm / dd / yy) CONFIRMATION PHONE NUMBER: (704) 875-6044
4. AUTHENTICATION (If Required): _____ (Number) _____ (Codeword)

5. EMERGENCY CLASSIFICATION:
   [A] NOTIFICATION OF UNUSUAL EVENT [X] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY
6. [X] Emergency Declaration At: [B] Termination At: TIME/DATE: _____ (Eastern) ___ / ___ / ___ (mm / dd / yy) (If B, go to item 16.)
7. EMERGENCY DESCRIPTION/REMARKS: SECURITY EVENT IN A PLANT PROTECTED AREA. INTRUSION INTO PLANT PROTECTED AREA BY A HOSTILE FORCE.
8. PLANT CONDITION: [A] IMPROVING [X] STABLE [C] DEGRADING
9. REACTOR STATUS: [A] SHUTDOWN: TIME/DATE: _____ (Eastern) ___ / ___ / ___ (mm / dd / yy) BOTH [X] 100 % POWER
10. EMERGENCY RELEASE(S):
    [X] NONE (Go to item 14.) [B] POTENTIAL (GO TO ITEM 11.) [C] IS OCCURRING [D] HAS OCCURRED
**11. TYPE OF RELEASE: [ ] ELEVATED [ ] GROUND LEVEL
    [A] AIRBORNE: Started: _____ Time (Eastern) ___ / ___ / ___ Date Stopped: _____ Time (Eastern) ___ / ___ / ___ Date
    [B] LIQUID: Started: _____ Time (Eastern) ___ / ___ / ___ Date Stopped: _____ Time (Eastern) ___ / ___ / ___ Date
**12. RELEASE MAGNITUDE: [ ] CURIES PER SEC. [ ] CURIES NORMAL OPERATING LIMITS: [ ] BELOW [ ] ABOVE
    [A] NOBLE GASES _____ [B] IODINES _____
    [C] PARTICULATES _____ [D] OTHER _____
**13. ESTIMATE OF PROJECTED OFFSITE DOSE: [ ] NEW [ ] UNCHANGED PROJECTION TIME: _____ (Eastern)

	TEDE mrem	Thyroid CDE mrem
SITE BOUNDARY		
2 MILES		
5 MILES		
10 MILES		

ESTIMATED DURATION: _____ HRS.

**14. METEOROLOGICAL DATA: [A] WIND DIRECTION (from) _____ ° [B] SPEED (mph) _____
    [C] STABILITY CLASS _____ [D] PRECIPITATION (type) _____

15. RECOMMENDED PROTECTIVE ACTIONS:
    [X] NO RECOMMENDED PROTECTIVE ACTIONS
    [B] EVACUATE _____
    [C] SHELTER IN-PLACE _____
    [D] OTHER _____

16. APPROVED BY: JOHN DOE (Name) Emergency Coordinator (Title) TIME/DATE: _____ (Eastern) ___ / ___ / ___ (mm / dd / yy)

* If items 8-14 have not changed, only items 1-7 and 15-16 are required to be completed.
** Information may not be available on initial notifications.

GOVERNMENT AGENCIES NOTIFIED

Record the name, date, time and agencies notified:

1. ALAN SMITH (name)

(date) (time) NC State (agency)
EOC Sel. Sig. 314
EOC Bell Line (919) 733-3943

2. STAN BRONSON (name)

(date) (time) Mecklenburg County (agency)
WP Sel. Sig. 116
WP Bell line 943-6200

3. WALTER JONES (name) VM

(date) (time) Gaston County (agency)
WP Sel. Sig. 112
WP Bell Line (704) 866-3300

4. PHILLIP GRAY (name) ANSWR

(date) (time) Lincoln County (agency)
WP Sel. Sig. 113
WP Bell line (704) 735-8202

5. CARL BENSON (name) A

(date) (time) Iredell County (agency)
WP Sel. Sig. 114
WP Bell line (704) 878-3039

6. SARAH GORDON (name)

(date) (time) Catawba County (agency)
WP Sel. Sig. 118
WP Bell line (828) 464-3112

7. DON BECKER (name)

(date) (time) Cabarrus County (agency)
WP Sel. Sig. 119
WP Bell line (704) 788-3108

Attachment 1
(For Training Use Only)

Excerpt From Authentication Codes List (RP/0/A/5700/xxx)
Theme: Sports
Effective 12/18/96-12/31/98

1. Fishing
2. Lacrosse
3. Ice Hockey
4. Roller blades
5. Wrestling
6. Sweatshirt
7. Pool
8. Hurdle
9. Equestrian
10. Net
11. Putt
12. Bowling
13. Cricket
14. Iron
15. Arrow
16. Jai alai
17. Nascar
18. Tent
19. Stance
20. Officials
21. Karate
22. freestyle
23. Pitcher
24. Rodeo
25. Raft
26. Walking
27. Nautilus
28. Baseball
29. Arena
30. Jumpshot
31. Kneepads
32. Football
33. Hunting
34. Court
35. Skating
36. Canoe
37. Match
38. Defense
39. Competition
40. Snorkeling
41. Bobsled
42. Pigskin
43. Camping
44. Aerobics
45. Uniform
46. Spirit
47. Huddle
48. Referees
49. Tackle
50. Yacht
51. Baseball
52. Gymnastics
53. Tennis
54. Driver
55. Surfing
56. Jersey
57. Pool
58. Marathon
59. Backpack
60. Race car
61. Puck
62. Waterskiing
63. Jogging
64. Sandtrap
65. Goal
66. End zone
67. Sneakers
68. Coach
69. Basket
70. Shotgun
71. Mask
72. Paddle
73. Bow
74. Sailing
75. Bunt
76. Winner
77. Exercise
78. Winston cup
79. Parachute
80. Loser
81. Jockey
82. Bronco
83. Archery
84. Track
85. Strike
86. Grip
87. Somersault
88. Wheel
89. Skis
90. Tournament
91. Fairway
92. Handball
93. Stadium
94. Fitness
95. Baton
96. Fans
97. Timeout
98. Touchdown
99. League
100. Bulls eye
101. Catcher
102. Rifle
103. Rod
104. Cleats
105. Shinguard
106. Team
107. Rugby
108. Glove
109. Bullet
110. Volleyball
111. Etc.....

INITIAL CONDITIONS

Both Units are at 100% power.

A Security Event in the Plant Protected Area has occurred. An intruder has forced his way into the Protected Area by hostile force. Security is taking actions to subdue the individual.

An Alert has just been declared by the OSM. An SRO has completed the Enclosure 4.1 (Emergency Notification Form) in accordance with Enclosure 4.2, Section 1 of RP/0/A/5700/002 (Alert).

The OSM has directed you to make the initial notification to State and County authorities using the Emergency Notification Form in accordance with Enclosure 4.2, Section 2 of RP/0/A/5700/002 (Alert).

Note: The evaluator(s) will provide all feedback and **NO ACTUAL CALL OR FAX TO THE STATE/COUNTIES WILL BE MADE.**

Event declaration time/date is now _____ / _____ **(current time/date)**

This is a TIME CRITICAL JPM.

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/014
Revision No. 008

INFORMATION ONLY

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title Emergency Telephone Directory

(4) Prepared By James R. Painter Date 3/4/99

(5) Requires 10CFR50.59 evaluation?
- [x] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By Alan L. Beaver (QR) Date 3/8/99

Cross-Disciplinary Review By _____ (QR) NA AHB Date 3/8/99

Reactivity Mgmt. Review By _____ (QR) NA AHB Date 3/8/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 3/11/99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- [ ] Yes [ ] N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?
- [ ] Yes [ ] N/A Listed enclosures attached?
- [ ] Yes [ ] N/A Data sheets attached, completed, dated and signed?
- [ ] Yes [ ] N/A Charts, graphs, etc. attached, dated, identified, and marked?
- [ ] Yes [ ] N/A Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks *(attach additional pages, if necessary)*

Duke Power Company McGuire Nuclear Station **Emergency Telephone Directory** **Multiple Use**	Procedure No. RP/**0**/A/5700/014 Revision No. 008 Electronic Reference No. MC0048MH

Emergency Telephone Directory

1. Symptoms

An emergency has been declared and the Emergency Response organization has been called to staff the TSC/OSC/EOF.

2. Immediate Actions

N/A

3. Subsequent Actions

Use telephone numbers listed in these enclosures for communications with the referenced facility.

4. Enclosures

4.1 Emergency Response Numbers

4.2 NRC Telephone Numbers

4.3 Duke Management Telephone Listing

4.4 TSC & OSC Telephone Numbers

4.5 Other Offsite Agencies

4.6 Decision Line Network

4.7 Operation of EOF Telephones

4.8 Access Control Telephone Numbers

Emergency Response Numbers

NOTE: Programmed numbers are for EOF only.

Location	Sel. Sig. Number	Bell Line Number	Programmed Number	Fax Number	Radio Number
NC EOC {PIP-0-M98-3522}	314	1-919-733-3943 1-800-858-0368 1-919-733-3942 1-919-733-3920	12	1-919-733-7554	WPDW704
NC WP	117	1-919-733-3861	03	1-919-733-8134	
Meck. Co. WP	116	943-6200	01	943-6189	21
Meck. Co. EOC	116	943-6200	01	943-6189	21
Gaston Co. WP	112	1-704-866-3300	02	1-704-866-7623	26
Gaston Co. EOC	112	1-704-866-3243	11	1-704-868-4150	26
Lincoln Co. WP	113	1-704-735-8202	06	1-704-732-9035	25
Lincoln Co. EOC	113	1-704-736-8511	15	1-704-732-9036	25
Iredell Co. WP	114	1-704-878-3039	07	1-704-878-5354	23
Iredell Co. EOC	114	1-704-878-3039	07	1-704-878-5354	23
Catawba Co. WP	118	1-828-464-3112	08	1-828-465-1220	27
Catawba Co. EOC	118	1-828-464-3112	08	1-828-465-1220	27
Cabarrus Co. WP	119	1-704-788-3108	09	1-704-784-1919	28
Cabarrus Co. EOC		1-704-788-8137	18	1-704-784-1919	28
McGuire TSC	312	875-1951		875-1954	
McGuire EOF	111	382-0724		382-0722	
NC Emer. Mgmt. Western Branch Office	211	1-704-466-5555		1-704-466-5578	
MNS News Group				875-5602	
JIC				382-0069	

Attachment 1
(For Training Use Only)

Excerpt From Authentication Codes List (RP/0/A/5700/xxx)
Theme: Sports
Effective 12/18/96-12/31/98

1. Fishing
2. Lacrosse
3. Ice Hockey
4. Roller blades
5. Wrestling
6. Sweatshirt
7. Pool
8. Hurdle
9. Equestrian
10. Net
11. Putt
12. Bowling
13. Cricket
14. Iron
15. Arrow
16. Jai alai
17. Nascar
18. Tent
19. Stance
20. Officials
21. Karate
22. freestyle
23. Pitcher
24. Rodeo
25. Raft
26. Walking
27. Nautilus
28. Baseball
29. Arena
30. Jumpshot
31. Kneepads
32. Football
33. Hunting
34. Court
35. Skating
36. Canoe
37. Match
38. Defense
39. Competition
40. Snorkeling
41. Bobsled
42. Pigskin
43. Camping
44. Aerobics
45. Uniform
46. Spirit
47. Huddle
48. Referees
49. Tackle
50. Yacht
51. Baseball
52. Gymnastics
53. Tennis
54. Driver
55. Surfing
56. Jersey
57. Pool
58. Marathon
59. Backpack
60. Race car
61. Puck
62. Waterskiing
63. Jogging
64. Sandtrap
65. Goal
66. End zone
67. Sneakers
68. Coach
69. Basket
70. Shotgun
71. Mask
72. Paddle
73. Bow
74. Sailing
75. Bunt
76. Winner
77. Exercise
78. Winston cup
79. Parachute
80. Loser
81. Jockey
82. Bronco
83. Archery
84. Track
85. Strike
86. Grip
87. Somersault
88. Wheel
89. Skis
90. Tournament
91. Fairway
92. Handball
93. Stadium
94. Fitness
95. Baton
96. Fans
97. Timeout
98. Touchdown
99. League
100. Bulls eye
101. Catcher
102. Rifle
103. Rod
104. Cleats
105. Shinguard
106. Team
107. Rugby
108. Glove
109. Bullet
110. Volleyball
111. Etc.....

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/002
Revision No. 012

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title Alert

(4) Prepared By Alan L. Brewer Date 5/4/99

(5) Requires 10CFR50.59 evaluation?

- [x] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By _____ (QR) Date 5/5/99

Cross-Disciplinary Review By _____ (QR) NA _____ Date 5/5/99

Reactivity Mgmt. Review By _____ (QR) NA _____ Date 5/5/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 5/13/99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- [ ] Yes [ ] N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?
- [ ] Yes [ ] N/A Listed enclosures attached?
- [ ] Yes [ ] N/A Data sheets attached, completed, dated and signed?
- [ ] Yes [ ] N/A Charts, graphs, etc. attached, dated, identified, and marked?
- [ ] Yes [ ] N/A Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks *(attach additional pages, if necessary)*

1. Completion of the Emergency Notification Form

NOTE: ONLY Items 1 - 10, 15 and 16 are required.
Items 11 - 14 may be skipped.

1.1 Complete Enclosure 4.1 (Emergency Notification Form) as follows:

NOTE: Message #'s should be sequentially numbered throughout the drill/emergency.

—— Item 1 Check A for Drill **OR** B for Actual Emergency **AND**
Check INITIAL **AND**
Write in message number.

NOTE: Certain events could occur at the plant site such that both units are affected. These may include: #4.1.4 - High Radiation/Radiological Effluents, #4.1.7 - Fires and Security Actions, #4.1.9 - Natural Disasters and Other Hazards, and #4.1.10 - Other Abnormal Plant Conditions from RP/0/A/5700/000, (Classification of Emergency). {PIP 0-M97-4638}

NOTE: REPORTED BY: is the communicator's name.

—— Item 2 Write in the unit(s) **AND** Communicator's name.

NOTE: Information for Items 3 and 4 will be completed during transmission of the Emergency Notification Form.

—— Item 3 Write in the transmittal time **AND** date.

—— Item 4 Write in appropriate number **AND** codeword.

—— Item 5 Check B for ALERT.

—— Item 6 Check A for Emergency Declaration At: **AND**
Write the time **AND** date the classification was declared.

NOTE: Reference RP/0/A/5700/000, (Classification of Emergency)

_____ Item 7 Enter a brief description of the reason for declaring the emergency classification (in layman's terms, if possible). **DO NOT** use system abbreviations, acronyms or jargon which may cause confusion. Instead, write out the description in long hand. Be sensitive to the fact that certain descriptive technical terms may elicit unanticipated reactions from others. {PIP 0-M98-2065}

_____ Item 8 Check the appropriate plant condition. {PIP 0-M97-4210 NRC-1}

- A **Improving**: Emergency conditions are improving in the direction of a lower classification or termination of the event.
- B **Stable:** The emergency situation is under control. Emergency core cooling systems, equipment, plans, etc., are operating as designed.
- C **Degrading**: Given current and projected plant conditions/equipment status, recovery efforts are not expected to prevent entry into a higher emergency classification or the need to upgrade offsite Protective Action Recommendations.

_____ Item 9 Check A SHUTDOWN **AND** write the time and date of Reactor Shutdown

OR

Check B **AND** write in the Reactor Power level.

NOTE: 1. **An emergency release is any unplanned, quantifiable discharge to the environment associated with a declared emergency event.** (This definition is based on an NRC commitment made on 11/30/90 following McGuire's Steam Generator Tube Rupture.) {PIP 0-M97-4256}

2. Notify the OSM if box C or box D is checked.

____ Item 10 Check the appropriate box for emergency release.

- **A** **NONE:** clearly no emergency release is occurring or has occurred.
- **B** **POTENTIAL:** discretionary option for the EC or EOFD.
- **C** **IS OCCURRING:** meets the specified conditions.
- **D** **HAS OCCURRED:** previously met the specified conditions.

Base the determination of emergency release on:

- EMF readings,
- containment pressure and other indications,
- field monitoring results,
- knowledge of the event and its impact on systems operation and resultant release paths.

An emergency release is occurring if any one or more of the following bulleted conditions are met associated with a declared emergency:

- Either containment particulate, gaseous, iodine monitor (EMFs 38, 39 and/or 40) readings indicate an increase in activity,

  OR

  Containment monitor (EMFs 51A and/or 51B) readings indicate greater than 1.5R/hr,

  AND

  Either containment pressure is greater than 0.3 psig,

  OR

  An actual containment breach is known to exist.

- Unit vent particulate, gaseous, iodine monitor (EMFs 35, 36, and/or 37) readings indicate an increase in activity.

- Condenser air ejector exhaust monitor (EMF 33) or other alternate means indicate Steam Generator tube leakage.

- Confirmed activity in the environment reported by Field Monitoring Team(s).

- Knowledge of the event and its impact on systems operation and resultant release paths.

_____ Item 15 Check A, NO RECOMMENDED PROTECTIVE ACTIONS.

_____ Item 16 Have the Emergency Coordinator approve the message **AND** Write in the time **AND** date the message was approved.

2. TRANSMISSION OF THE EMERGENCY NOTIFICATION FORM

NOTE:
1. All initial notifications are **verbal**. Avoid using abbreviations or jargon likely to be unfamiliar to the State and Counties. If any information is not available or not applicable, write out "Not Available" or "Not Applicable" in the margin or other space as appropriate. Do not abbreviate "N.A.".
2. The backup means of communications are the Bell line or County Emergency Response Radio. RP/0/A/5700/014, Tab 1 is available for needed backup numbers.
3. Refer to page 5 of 8 of this Enclosure for instructions on how to use the County Emergency Response Radio if selective signaling or Bell line is not available.

_____ 2.1 Use the Selective Signaling telephone by dialing *1 and depressing the push to talk button.

_____ 2.2 **IF** selective signaling fails, **THEN** go to RP/0/A/5700/014, Tab 1 for manual selective signaling numbers.

_____ 2.3 As the State and Counties answer, check them off on the back of the notification form. At least one attempt using the individual selective signaling code must be made for any missing agencies. **Proceed with the notification promptly following an attempt to get missing agencies on the line.**

_____ 2.4 Verify the State and Counties are on the line, document this time in item #3 on the form. This time should not exceed 15 minutes from the time of declaration (Item # 6).

_____ 2.5 Tell them you have an emergency notification from the McGuire Control Room and to get out the Emergency Notification Form.

_____ 2.6 Read the message slowly beginning with Item # 1, allowing ample time to copy.

NOTE: Refer to page 6 of 8 of this Enclosure for the authentication codeword list.

_____ 2.7 When you reach item #4, ask the State or a County to authenticate the message. The agenc should give you a number and you should provide the appropriate codeword. Write the number and codeword on the form.

_____ 2.8 After communicating the initial message, ask if there are any questions. Record individuals names and times on the back of the form. This time is the same time as Item #3.

—— 2.9 After verbally transmitting the message, FAX a copy (front page only) to the agencies. Refer to pages 7 of 8 and 8 of 8 of this Enclosure for FAX operation.

—— 2.10 Continuous attempts to contact missing agencies must be made if unable to complete the notification per step 2.3. Document the time these agencies were contacted on the back of the notification form.

COUNTY EMERGENCY RESPONSE RADIO

NOTE: This radio will only contact the County warning points. The State cannot be contacted on this radio. Have one of the Counties relay the message to the State.

Group Call:

—— 1. Press **20** to activate all County radio units.

—— 2. When the ready light comes on, press the bar on the transmitter microphone and say:

"This is McGuire Control Room to all Counties, do you copy?"

Once all Counties respond, begin transmitting the message.

Proceed with the notification promptly following an attempt to get missing agencies on the air.

NOTE: RP/0/A/5700/014, Tab 1 is available for needed individual radio codes.

—— 3. If a County fails to respond on the group call, press their individual code on the encoder and say:

"This is McGuire Control Room to (Agency you are calling), do you copy?"

Once the County responds, begin transmitting the message.

—— 4 After you have finished transmitting the message, conclude the message by saying: "This is WQC700 base clear."

—— 5. Continuous attempts to contact missing agencies must be made if unable to complete the notification per step 2. Document the time these agencies were contacted on the back of the notification form.

AUTHENTICATION CODEWORD LIST

This page is left intentionally blank.

OPERATION OF THE FAX

A. GROUP FAX

NOTE: 1. The FAX will dial each agency in sequence. If the FAX is busy, it will try again after completing the other calls.

2. This sends a FAX to all County Warning Points, State EOC, TSC, EOF, News Group and JIC.

____ 1. Insert the Emergency Notification Form face down into the FAX.

____ 2. Press - Group Fax.

B. INDIVIDUAL FAX

____ 1. Insert the Emergency Notification Form face down into the FAX.

____ 2. Press News Group.

____ 3. Press TSC.

____ 4. Press State of North Carolina EOC.

____ 5. Press Mecklenburg County Warning Point.

____ 6. Press Gaston County Warning Point.

____ 7. Press Lincoln County Warning Point.

____ 8. Press Iredell County Warning Point.

____ 9. Press Catawba County Warning Point.

____ 10. Press Cabarrus County Warning Point.

____ 11. Press EOF.

____ 12. Press JIC.

NOTE:	RP/0/A/5700/014, Tab 1 is available for needed manual FAX numbers.

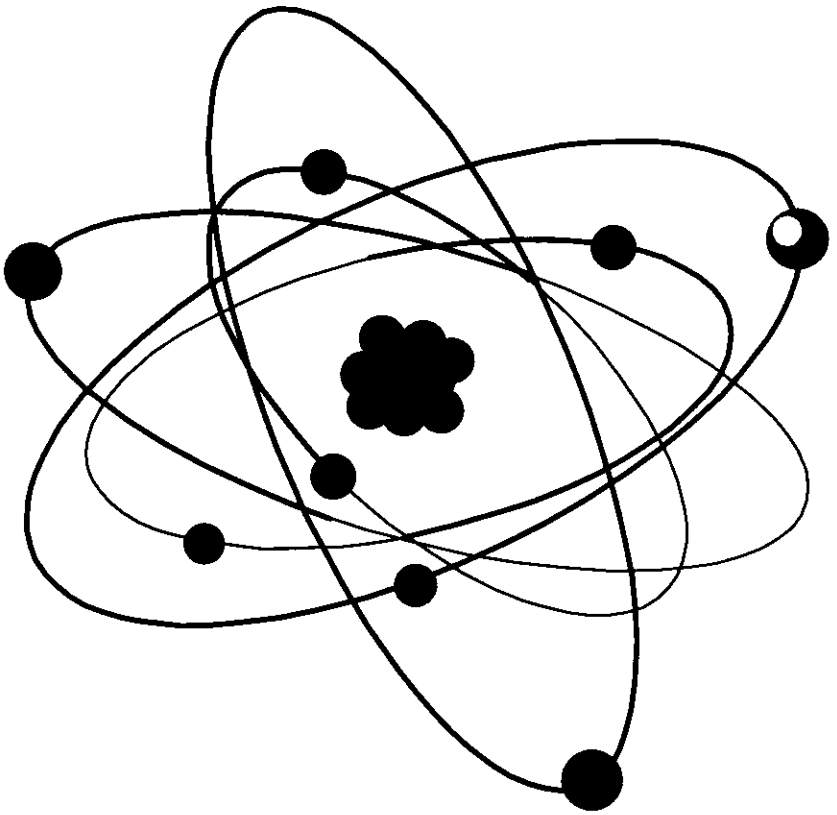
C. To send a FAX to a <u>single</u> location dialing manually:

—— 1. Insert the document face down into the FAX.

—— 2. Using the keypad, dial the number that you wish to call.

—— 3. Press Start button.

FINAL
NRC COPY



2000
SRO ADMIN

Facility: McGuire		Date of Examination: May 8, 2000
Examination Level (circle one): RO / **SRO**		Operating Test Number: _____
Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Reactivity Management K/A 2.1.7 3.7/4.4	**JPM:** Perform a Shutdown Margin calculation
	Shift Staffing Requirements K/A 2.1.5 2.3/3.4	**JPM:** Determine required Minimum Shift Crew Composition for turnover conditions
A.2	Equipment Control K/A 2.2.23 2.6/3.8	**JPM:** Manually complete Tech Spec evaluation and logbook entry
A.3	Radiation Work Permits K/A 2.3.7 2.0/3.3	**JPM:** Determine dress requirements of RWP
A.4	Emergency Plan K/A 2.4.43 2.8/3.5	**JPM:** Complete the ENS Form and make initial notifications to the State/Counties

Reviewed By _____

Approved By _____

TASK: **Perform a Manual Shutdown Margin Calculation**

POSITION: **SRO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: ____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: OP/0/A/6100/06 (Rev. 53) Reactivity Balance Calculation
OP/1/A/6100/22 Unit 1 Data Book

JPM verified current with references by _____

Date __/__/__

INITIAL CONDITIONS

You are the Unit 1 Operator at the Controls (OATC).

Based on the information provided to you, perform a Shutdown Margin Calculation per OP/0/A/6100/006 Enclosure 4.4 (Shutdown Margin - Unit at Power, Modes 1 and 2) and determine if adequate Shutdown Margin exists. The REACT Computer Program is unavailable.

JPM OVERALL STANDARD: Shutdown Margin is calculated and correctly evaluated against Technical Specification 3.1.5 and 3.1.6 requirements (1.3%ΔK/K). Examinee determines that adequate SDM does NOT exists.

NOTES: The instructor shall complete the attached Data Sheet prior to administering this JPM. The instructor shall also complete a copy of Enclosure 4.4 based on information given on the data sheet and record this information in the spaces provided within this JPM.

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.1.1	Record required data: Date/Time _____/_____	Operator records information according to data given on data sheet in the following steps. Any verbal cues needed are boxed in gray. **Date/Time now/ now**		
3.1.2	Unit ____ Cycle _____	**Unit 1 Cycle 14**		
3.1.3	Present Power _____%	**Present Power 95 %**		
3.1.4	Burnup _____ EFPD	**Burnup 175 EFPD**		
3.1.5	NCS Boron Concentration _____ ppm (sample)	**NCS Boron Concentration 1350 ppm (sample)**		
3.1.6	Current control bank position: Bank _____ Position _____	**Bank "D"** **190 Steps Withdrawn**		
*3.1.7	Number of Known Inoperable Control Rods (RCCAs) _____	Operator records 2 for the number of inoperable control rods **2**		

* **DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3.1.8	Inoperable RCCA core location(s) _____	Operator records H-8 and M-4 as the core location of the inoperable control rods **H-8, M-4**		
*3.1.9	**IF** burnup from step 3.1.4 is greater than 12 EFPD, record the difference between equilibrium and present samarium worth.	Operator records (-) 25.5 pcm Samarium. **(-) 25.5 PCM**		
	NOTE: Perform either section 3.2 or 3.3. N/A the unused section.	Operator N/A section 3.2 and proceeds to section 3.3 "Manual Calculations"		
*3.3.1	Worst Case Reactivity Penalty of one Inoperable Rod (Data Book Table 6.3.2 Line B – for conservatism take the maximum stuck rod worth between BOC and EOC.) - _____ pcm	Same **(-) 904 PCM**		

* **DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*3.3.2	Total Available Rod Worth (from Data Book Table 6.3.2 Line C – for conservatism take the minimum Total Rod Worth value between BOC and EOC.) _____ pcm	Same **4972 PCM**		
*3.3.3	Calculate the Reactivity Penalty of Known Inoperable Rods 3.1.7 above **X** 3.3.1 above -_____ pcm	Same **(-) 1808 PCM**		
*3.3.4	Power Defect (Interpolate as needed from tabular Data Book Curve 6.4 for power in 3.1.3 and burnup in 3.1.4) - _____ pcm	Same **(-) 1702.5 PCM**		
*3.3.5	Rod Worth of inserted rods from present Control Bank position in step 3.1.6 (Data Book Table 6.3.3) - _____ pcm	Same **(-) 85 PCM**		
*3.3.6	Maximum Reactivity Effect of Flux Redistribution (from Data Book Table 6.3.2 in note at bottom of page) - _____ pcm	Same **(-) 261 PCM**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*3.3.7	Calculate the Effective Shutdown Margin for Present Conditions Step 3.3.2 + Step 3.3.3 + Step 3.3.4 + Step 3.3.5 + Step 3.3.6 – Step 3.1.9 (_____ + _____ + _____ + _____ + _____) - _____ = _____ pcm	Same **(4972 + -1808 + -1702.5 + - 85 + - 261 - - 25.5) =** **1141 pcm ± 10 pcm**		
*	**NOTE**: A shutdown margin of 1300 pcm is required by Technical Specification 3.1.5 and 3.1.6	Operator correctly determines that adequate SDM does NOT exist. **Cue:** **Does adequate Shutdown Margin exist for current conditions?** **_____ YES __X__ NO**		
	Calculations Performed By: _____ Date: _____ Separate Verification By: _____ Date: _____	**Cue:** **No Separate Verification of the calculation will be performed**		

STOP TIME_____

*** DENOTES CRITICAL**

INITIAL CONDITIONS

You are the Unit 1 Operator at the Controls (OATC).

Based on the information provided to you, perform a Shutdown Margin Calculation per OP/0/A/6100/006 Enclosure 4.4 (Shutdown Margin - Unit at Power, Modes 1 and 2) and determine if adequate Shutdown Margin exists. The REACT Computer Program is unavailable.

DATA SHEET

Unit	1
Current Cycle	14
Inoperable Control Rod(s)	H-8, M-4
Current Power Level	95%
Cycle Burnup	175 EFPD
Control Rod Bank D Position	"D" @ 190 steps
Present NCS Boron Concentration (sample)	873 PPM
Samarium Difference	(-) 25.5 PCM

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. OP/0/A/6100/006
Revision No. 053

INFORMATION ONLY

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title **Reactivity Balance Calculation**

(4) Prepared By Thomas D. Ray Date 4/9/99

(5) Requires 10CFR50.59 evaluation?

- [X] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By Tanya M. Hamilton-Sealey (QR) Date 04/13/99

Cross-Disciplinary Review By MtCl (QR) NA ____ Date 4-13-99

Reactivity Mgmt. Review By Tanya M. Hamilton-Sealey (QR) NA ____ Date 4/13/99

(7) Additional Reviews

Reviewed By ____ Date ____

Reviewed By ____ Date ____

(8) Temporary Approval *(if necessary)*

By ____ (SRO/QR) Date ____

By ____ (QR) Date ____

(9) Approved By SC Ballard Date 4-13-99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy ____ Date ____

Compared with Control Copy ____ Date ____

Compared with Control Copy ____ Date ____

(11) Date(s) Performed ____

Work Order Number (WO#) ____

COMPLETION

(12) Procedure Completion Verification

- [ ] Yes [ ] N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?
- [ ] Yes [ ] N/A Listed enclosures attached?
- [ ] Yes [ ] N/A Data sheets attached, completed, dated and signed?
- [ ] Yes [ ] N/A Charts, graphs, etc. attached, dated, identified, and marked?
- [ ] Yes [ ] N/A Procedure requirements met?

Verified By ____ Date ____

(13) Procedure Completion Approved ____ Date ____

(14) Remarks *(attach additional pages, if necessary)*

Reactivity Balance Calculation

1. Purpose

1.1 To estimate critical NC system boron concentration before criticality based on other assumed core reactivity conditions.

1.2 To estimate critical control bank position before criticality based on other assumed core reactivity conditions.

1.3 To predict critical control bank position during withdrawal to criticality using 1/M monitoring.

1.4 To calculate shutdown margin in Modes 1 and 2.

1.5 To calculate the NC system boron concentration at which shutdown margin will NOT be met in Modes 5, 4, 3, and 2 with $K_{eff} < 1.0$ without credit for xenon worth.

1.6 To calculate the NC system boron concentration at which shutdown margin will NOT be met in Modes 5, 4, 3, and 2 with $K_{eff} < 1.0$ with credit for xenon worth.

1.7 To verify the ability to maintain Mode 3 with shutdown banks withdrawn and to estimate the time that boration will be required to maintain Mode 3.

2. Limits and Precautions

NOTE: All curves/tables used in this procedure are found in OP/1(2)/A/6100/022 (Unit One (Two) Data Book). These procedures will be referred to as the "Data Book".

2.1 Ensure all data used by this procedure are for the correct unit.

2.2 NC System Tavg should be maintained within ±1°F of Tref in Modes 1 and 2 to reduce uncertainties in calculations.

2.3 Shutdown margin shall be ≥1000 pcm in Mode 5 (Technical Specification 3.1.1).

2.4 Shutdown margin shall be ≥1300 pcm in Modes 2 with K_{eff} <1.0, 3, and 4 (Technical Specification 3.1.1).

2.5 Each shutdown bank shall be within insertion limits while in Mode 1 or 2 with any control bank not fully inserted. Shutdown Margin must be verified ≥ 1300 pcm within 1 hour should a shutdown bank not meet insertion limits. (Technical Specification 3.1.5)

2.6 Control banks shall be within the insertion, sequence, and overlap limits while in Mode 1 or 2 with $K_{eff} \geq 1.0$. Shutdown Margin must be verified > 1300 pcm within 1 hour should control bank not meet insertion, sequence, or overlap limits. (Technical Specification 3.1.6)

2.7 NC system boron concentration shall be ≥ shutdown margin required boron concentration for a new NC system Tavg BEFORE beginning NC system Tavg change in Modes 3, 4, and 5.

2.8 Criticality should NOT be obtained outside the maximum window (±750 pcm) of estimated critical control bank position.

NOTE: Step 2.8.1 does not apply to initial criticality following refueling.

2.8.1 IF rods are withdrawn to the upper limit of ECP band and criticality has not yet been reached, stop withdrawing rods and recheck ECP calculations. Approach to criticality can continue at the discretion of Station management after reviewing recommendations from the Reactor Group duty engineer.

2.8.2 IF it appears to operator that criticality will be achieved below lower ECP band limit (for ICRR< 0.15) or below rod insertion limit, insert all control banks and recheck calculations. After inserting control banks, check shutdown margin per Enclosure 4.5 or 4.6 and ensure inadvertent criticality will not occur per Enclosure 4.7 before any attempt at criticality is made.

2.8.3 IF criticality is unexpectedly achieved below Technical Specification insertion limits then simultaneously insert all control banks AND initiate emergency boration per OP/0/A/6100/003, Enclosure 4.3.

3. Procedure

3.1 Enclosures 4.1 through 4.7 are used to determine the estimated critical boron concentration, estimated critical rod position, 1/M monitoring for startup, shutdown margin determination and boron concentration determination as required.

4. Enclosures

4.1 Estimated Critical Boron Concentration (ECB)

4.2 Estimated Critical Rod Position (ECP)

4.3 1/M Monitoring During Startup

4.4 Shutdown Margin - Unit at Power, Modes 1 and 2

4.5 Shutdown Margin - Modes 5, 4, or 3 Without Xenon Credit

4.6 Shutdown Margin - Mode 5, 4, or 3 With Xenon Credit

4.7 Verification of K-eff < 0.99 with Shutdown Banks Withdrawn

Enclosure 4.4
Shutdown Margin - Unit at Power, Modes 1 and 2

NOTE: In Modes 1 and 2 with $K_{eff} \geq 1.0$ with all RCCAs operable, shutdown margin is satisfied provided that control banks are positioned above the control bank insertion limits with proper sequence and overlap (Technical Specification 3.1.6), and shutdown banks are positioned above the shutdown bank insertion limits (Technical Specification 3.1.5). No calculations required. This is verified in PT/1,2/A/4600/003A, Semi Daily Surveillance Items.

1. Limits and Precautions

1.1 NC System T_{avg} should be maintained within ± 1°F of T_{ref} in Modes 1 and 2 to reduce calculation uncertainties.

1.2 Shutdown margin shall be ≥ 1300 pcm in Modes 1, 2 with $K_{eff} \geq 1.0$ (Technical Specification 3.1.5 and 3.1.6).

2. Initial Conditions

2.1 At least one control rod inoperable or control banks below the rod insertion limits.

3. Procedure

3.1 Record required data:

____ 3.1.1 Date/Time _____/_____

____ 3.1.2 Unit _____ Cycle _____

____ 3.1.3 Record the present power _____% (M1P1385 or M2P1385)

____ 3.1.4 Record the burnup _____ EFPD (M1P1457 or M2P1457)

____ 3.1.5 Record the NCS boron concentration _____ ppm

____ 3.1.6 Record current control bank position: Bank _____ Position _____ swd

____ 3.1.7 Record the number of known inoperable control rods (RCCAs) _____

____ 3.1.8 Record the inoperable RCCA core location(s) _____

____ 3.1.9 **IF** burnup from step 3.1.4 is greater than 12 EFPD, record the difference between equilibrium and present samarium worth. (OAC point M1P1475 or M2P1475 or Samarium program on OAC or REACT) - _____ pcm

Enclosure 4.4
Shutdown Margin - Unit at Power,
Modes 1 and 2

NOTE: Perform either section 3.2 or 3.3. N/A the unused section.

3.2 Automated calculations using REACT.

_____ 3.2.1 Enter data from section 3.1 into REACT and calculate.

_____ 3.2.2 Attach REACT output to this enclosure.

3.3 Manual Calculations

_____ 3.3.1 Record the worst case reactivity penalty of one inoperable rod (Data Book Table 6.3.2 Line B -- for conservatism take the maximum stuck rod worth between BOC and EOC.) - _____ pcm

_____ 3.3.2 Record the total available rod worth (from Data Book Table 6.3.2 Line C -- for conservatism take the minimum total rod worth value between BOC and EOC.) _____ pcm

_____ 3.3.3 Calculate the reactivity penalty of known inoperable rods 3.1.7 above x 3.3.1 above - _____ pcm

_____ 3.3.4 Record the power defect (Interpolate as needed from tabular Data Book Table 6.4 for power in Step 3.1.3 and burnup in Step 3.1.4) - _____ pcm

_____ 3.3.5 Record the rod worth of inserted rods from present control bank position in Step 3.1.6 (Data Book Table 6.3.3) - _____ pcm

_____ 3.3.6 Record the maximum reactivity effect of flux redistribution (from Data Book Table 6.3.2 in note at bottom of page) - _____ pcm

NOTE: In Step 3.3.7, the values of 3.3.3, 3.3.4, 3.3.5, and 3.3.6 should decrease the value of Step 3.3.2. The value of Step 3.1.9 should increase the value of Step 3.3.2.

_____ 3.3.7 Calculate the Effective Shutdown Margin for Present Conditions
Step 3.3.2 + Step 3.3.3 + Step 3.3.4 + Step 3.3.5 + Step 3.3.6 – Step 3.1.9
(_____ + _____ + _____ + _____ + _____ - _____)= _____ pcm

NOTE: A shutdown margin of 1300 pcm is required by Technical Specification 3.1.5 and 3.1.6.

Calculations Performed By: _____ Date: _____

Separate Verification By: _____ Date: _____

End of Enclosure

UNIT 1

OP/1/A/6100/22
ENCLOSURE 4.3
TABLE 6.3.2

TOTAL AVAILABLE ROD WORTH
HZP, ARI, MOST REACTIVE ROD STUCK
McGUIRE 1 CYCLE 14

BOC:

A. Total rod worth	6414 pcm
B. Maximum stuck rod worth	804 pcm
C. Total available rod worth*	5049 pcm

EOC:

A. Total rod worth	6428 pcm
B. Maximum stuck rod worth	904 pcm
C. Total available rod worth*	4972 pcm

NOTES:

1. *Total available rod worth value includes 10% uncertainty.
2. All calculations performed with HFP boron concentrations.
3. The Unit 1 Cycle 14 maximum redistribution reactivity is 261 pcm.

UNIT 1

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.3

Integral Rod Worth in Overlap
HFP, Equilibrium Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
				IRW	IRW	IRW	IRW	IRW
Bk A	Bk B	Bk C	Bk D	(PCM)	(PCM)	(PCM)	(PCM)	(PCM)
224	224	224	224	0	0	0	0	0
224	224	224	220	5	6	6	8	11
224	224	224	215	11	13	14	19	25
224	224	224	210	17	20	23	29	39
224	224	224	205	29	33	38	48	62
224	224	224	200	42	46	54	66	85
224	224	224	195	54	59	69	85	107
224	224	224	190	67	72	85	103	130
224	224	224	185	81	88	103	124	153
224	224	224	180	96	105	122	144	176
224	224	224	175	110	122	140	164	199
224	224	224	170	125	138	158	185	222
224	224	224	165	141	155	176	204	242
224	224	224	160	158	172	194	222	262
224	224	224	155	174	189	211	241	283
224	224	224	150	191	206	229	260	303
224	224	224	145	207	223	246	277	320
224	224	224	140	224	239	262	294	338
224	224	224	135	240	256	279	311	355
224	224	224	130	257	272	296	328	373
224	224	224	125	273	288	312	344	388
224	224	224	120	290	304	328	359	404
224	224	224	116	303	317	340	372	416
224	224	224	108	327	341	364	396	441
224	224	221	105	341	355	379	412	459
224	224	216	100	364	378	404	438	489
224	224	211	95	395	410	439	478	535
224	224	206	90	425	442	475	518	581
224	224	201	85	456	474	511	559	627
224	224	196	80	487	506	547	599	673

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

UNIT 1

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.3

Integral Rod Worth in Overlap
HFP, Equilibrium Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
				IRW	IRW	IRW	IRW	IRW
Bk A	Bk B	Bk C	Bk D	(PCM)	(PCM)	(PCM)	(PCM)	(PCM)
224	224	191	75	526	547	589	646	725
224	224	186	70	565	587	632	693	777
224	224	181	65	604	627	674	740	828
224	224	176	60	644	668	717	787	880
224	224	171	55	687	712	765	834	930
224	224	166	50	730	756	812	882	980
224	224	161	45	774	800	860	929	1029
224	224	156	40	817	844	907	976	1079
224	224	151	35	863	892	953	1024	1127
224	224	146	30	908	940	999	1072	1175
224	224	141	25	954	988	1045	1120	1223
224	224	136	20	1000	1037	1091	1167	1271
224	224	131	15	1045	1080	1134	1211	1314
224	224	126	10	1091	1124	1178	1254	1357
224	224	121	5	1136	1167	1221	1298	1400
224	224	116	0	1182	1211	1264	1342	1443
224	224	108	0	1217	1244	1298	1376	1477
224	221	105	0	1240	1268	1322	1400	1502
224	216	100	0	1279	1307	1362	1441	1544
224	211	95	0	1325	1352	1408	1489	1595
224	206	90	0	1370	1398	1455	1537	1645
224	201	85	0	1415	1443	1501	1585	1696
224	196	80	0	1460	1489	1548	1633	1746
224	191	75	0	1513	1541	1601	1686	1800
224	186	70	0	1565	1594	1653	1739	1854
224	181	65	0	1618	1647	1706	1792	1908
224	176	60	0	1670	1699	1759	1845	1962
224	171	55	0	1725	1753	1813	1897	2013
224	166	50	0	1779	1807	1868	1948	2064
224	161	45	0	1833	1860	1922	2000	2115

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.3

Integral Rod Worth in Overlap
HFP, Equilibrium Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
				IRW	IRW	IRW	IRW	IRW
Bk A	Bk B	Bk C	Bk D	(PCM)	(PCM)	(PCM)	(PCM)	(PCM)
224	156	40	0	1887	1914	1977	2051	2166
224	151	35	0	1944	1969	2028	2102	2215
224	146	30	0	2000	2024	2079	2152	2264
224	141	25	0	2056	2079	2131	2203	2313
224	136	20	0	2112	2134	2182	2253	2363
224	131	15	0	2155	2176	2221	2292	2400
224	126	10	0	2198	2217	2261	2330	2438
224	121	5	0	2241	2259	2300	2368	2476
224	116	0	0	2283	2300	2340	2406	2514
224	108	0	0	2315	2331	2370	2435	2544
221	105	0	0	2335	2351	2389	2455	2565
216	100	0	0	2368	2384	2420	2487	2600
211	95	0	0	2402	2420	2457	2525	2642
206	90	0	0	2437	2456	2494	2564	2685
201	85	0	0	2472	2492	2531	2602	2727
196	80	0	0	2506	2528	2568	2640	2770
191	75	0	0	2550	2570	2609	2684	2815
186	70	0	0	2594	2611	2650	2727	2861
181	65	0	0	2637	2653	2691	2771	2907
176	60	0	0	2681	2695	2732	2814	2953
171	55	0	0	2721	2734	2773	2856	2996
166	50	0	0	2761	2774	2813	2898	3039
161	45	0	0	2801	2813	2854	2940	3081
156	40	0	0	2840	2853	2894	2982	3124
151	35	0	0	2882	2894	2935	3022	3164
146	30	0	0	2924	2935	2976	3062	3204
141	25	0	0	2966	2977	3017	3102	3244
136	20	0	0	3008	3018	3058	3142	3283
131	15	0	0	3040	3050	3090	3173	3313
126	10	0	0	3072	3081	3121	3204	3343

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

OP/ 1/A/6100/022
Enclosure 4.3
Table 6.3.3

Integral Rod Worth in Overlap
HFP, Equilibrium Xenon

McGuire 1 Cycle 14

Control Bank Position Steps Withdrawn *				50 EFPD	100 EFPD	200 EFPD	300 EFPD	400 EFPD
				0 - 75 EFPD	76 - 150 EFPD	151 - 250 EFPD	251 - 350 EFPD	351 - 480 EFPD
Bk A	Bk B	Bk C	Bk D	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)	IRW (PCM)
121	5	0	0	3105	3113	3152	3235	3373
116	0	0	0	3137	3145	3184	3266	3403
108	0	0	0	3164	3171	3210	3292	3427
105	0	0	0	3175	3182	3221	3302	3436
100	0	0	0	3194	3201	3239	3320	3452
95	0	0	0	3213	3219	3257	3336	3467
90	0	0	0	3232	3238	3275	3353	3481
85	0	0	0	3251	3256	3293	3369	3496
80	0	0	0	3270	3275	3310	3386	3510
75	0	0	0	3288	3292	3326	3400	3523
70	0	0	0	3305	3309	3342	3414	3535
65	0	0	0	3323	3326	3358	3429	3547
60	0	0	0	3340	3343	3374	3443	3559
55	0	0	0	3357	3359	3389	3456	3570
50	0	0	0	3374	3375	3404	3469	3581
45	0	0	0	3392	3391	3419	3482	3592
40	0	0	0	3409	3408	3434	3494	3602
35	0	0	0	3424	3422	3446	3505	3611
30	0	0	0	3438	3436	3459	3516	3620
25	0	0	0	3453	3450	3471	3527	3629
20	0	0	0	3468	3464	3484	3537	3638
15	0	0	0	3476	3471	3490	3542	3642
10	0	0	0	3483	3477	3496	3547	3647
5	0	0	0	3491	3484	3502	3552	3651
0	0	0	0	3498	3491	3507	3557	3655

*NOTE: For actual ALL Rods Out Position and Rod Overlap Data, see Enclosure 4.3, Section 1.13 of the Data Book.

UNIT 1

OP/ 1/A/6[illegible]022
Enclosure 4.3
Table 6.4

Total Power Defect (PCM) as a Function of Power and Cycle Burnup from 0 - 100% Power

McGuire 1 Cycle 14

POWER (%FP)

BURNUP (EFPD)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
0	0	78	157	235	313	391	467	543	618	694	770	847	924	1000	1077	1154	1230	1305	1381	1456	1532
20	0	80	161	241	322	402	480	557	634	711	789	867	945	1023	1101	1180	1257	1334	1411	1488	1565
40	0	82	164	246	328	410	489	567	645	724	802	881	960	1039	1118	1198	1276	1354	1433	1511	1590
60	0	33	167	250	334	417	497	576	655	734	814	894	974	1053	1133	1213	1293	1373	1453	1532	1612
80	0	85	170	255	339	424	505	585	665	745	825	906	987	1067	1148	1229	1310	1391	1472	1553	1634
100	0	86	173	259	345	431	512	594	675	756	837	919	1000	1082	1163	1245	1327	1409	1492	1574	1657
120	0	88	176	265	353	441	524	606	689	771	854	937	1021	1104	1187	1271	1355	1439	1524	1608	1693
140	0	90	180	271	361	451	535	619	703	787	871	956	1041	1126	1211	1297	1383	1470	1556	1643	1729
160	0	92	184	276	369	461	546	632	717	803	888	975	1062	1149	1236	1323	1411	1500	1588	1677	1765
180	0	94	188	282	376	471	557	644	731	818	905	994	1082	1171	1260	1349	1439	1530	1620	1711	1801
200	0	96	192	288	384	480	569	657	745	834	922	1013	1103	1194	1284	1375	1467	1560	1652	1745	1838
220	0	99	198	296	395	494	585	675	766	856	947	1040	1132	1225	1318	1411	1506	1601	1697	1792	1887
240	0	101	203	304	406	507	600	693	786	879	972	1067	1162	1257	1352	1447	1545	1643	1741	1839	1937
260	0	104	208	313	417	521	616	711	806	902	997	1094	1191	1288	1386	1483	1584	1684	1785	1886	1987
280	0	107	214	321	427	534	632	729	827	924	1022	1121	1221	1320	1419	1519	1622	1726	1830	1933	2037
300	0	110	219	329	438	548	648	747	847	947	1047	1148	1250	1352	1453	1555	1661	1768	1874	1980	2087
320	0	113	226	339	452	565	668	770	873	976	1079	1183	1287	1392	1496	1601	1710	1820	1930	2040	2150
340	0	116	233	349	465	582	688	793	899	1005	1111	1218	1325	1432	1539	1646	1760	1873	1986	2099	2213
360	0	120	240	359	479	599	708	816	925	1034	1142	1252	1362	1472	1582	1692	1809	1925	2042	2159	2275
380	0	123	246	370	493	616	728	839	951	1063	1174	1287	1400	1512	1625	1738	1858	1978	2098	2218	2338
400	0	127	253	380	506	633	748	862	977	1092	1206	1322	1437	1553	1668	1784	1907	2031	2154	2278	2401
420	0	129	259	388	517	647	764	881	998	1116	1233	1351	1469	1587	1705	1823	1950	2076	2202	2329	2455
440	0	132	264	396	528	660	780	900	1020	1140	1260	1380	1501	1621	1742	1862	1992	2121	2251	2380	2509
460	0	135	270	404	539	674	796	919	1041	1164	1286	1409	1533	1656	1779	1902	2034	2167	2299	2431	2564
470	0	136	272	408	545	681	804	928	1052	1176	1300	1424	1548	1673	1797	1922	2055	2189	2323	2457	2591
480	0	138	275	413	550	688	813	938	1063	1188	1313	1439	1564	1690	1816	1941	2077	2212	2347	2482	2618

Reviewed By _____

Approved By _____

TASK: **Determine Minimum Shift Crew Composition for turnover conditions**

POSITION: **SRO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: ____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: OMP 5-8

JPM verified current with references by _____

Date __/__/__

INITIAL CONDITIONS

Both Units at MNS are at 100% power.

Due to inclement weather conditions, the following is a list of the Operations personnel who have reported for duty at shift turnover. No additional personnel will be available for at least three (3) hours.

SRO-A (OSM)	RO-A	NLO-A	STA-A	NO SPOC personnel
SRO-B	RO-B	NLO-B		
		NLO-C		
		NLO-D		

Based on the information provided to you,

- **determine if adequate shift manning exists.**
- **determine how many crew members (if any) must be held over.**
- **determine what positions need to be manned.**

JPM OVERALL STANDARD: The Control Room SRO Turnover Checklist Section IV is filled out to show that it will be necessary to holdover six (6) to seven (7) operators/SPOC personnel from the present shift. SRO's should be assigned to the #1 (OSM), #3, #4 positions. RO's should be assigned to the #5 positions. STA should be assigned to the #2 position. NLO's/SPOC should be assigned to the #6 & #7 positions as appropriate (see answer key). An SRO should be assigned to the #9 position (could be same person as the #7A if SRO).

NOTES: Ensure that the latest manning sheet is used from OMP 5-8.

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	Candidate completes Section IV of the Control Room SRO Turnover Checklist, using personnel listed in the initial conditions.	❑ Items #1 & #3 have SRO's listed ❑ Item #4 has a Holdover SRO listed ❑ Item #2 has the STA listed ❑ Item #5 has RO's listed, as well as 1 Holdover RO ❑ Item #6 has 3 NLO's listed ❑ Item #7 has 1 NLO listed and 4 Holdovers (1 SRO or 1 RO and 1 NLO and 2 SPOC/NLOs) ❑ Item #9 has 1 Holdover SRO, but can be same individual as #7A if SRO.		

STOP TIME_____

*** DENOTES CRITICAL**

IV. Minimum Shift Crew Composition:

SHIFT CREW POSITION	MODE REQUIRED		NAME
1. Operations Shift Manager (OSM)	1-6 or defueled		SRO - A (OSM)
2. Shift Technical Advisor	1-4		STA - A
3. Senior Reactor Operator (other than OSM)	1-4		SRO - B
4. Offsite Communicator**	At All Times		HOLDOVER (SRO)
5. Nuclear Control Operator			
A. Unit 1	1-6 or defueled		A. RO - A
B. Unit 2	1-6 or defueled		B. RO - B
C. Relief NCO	1-6		C. HOLDOVER (RO)
6. Non-Licensed Operator			
A. Unit 1	1-6 or defueled		A. NLO - A
B. Unit 2	1-6 or defueled		B. NLO - B
C. Extra NLO	1-6 or defueled		C. NLO - C
7. SLC Required Fire Brigade*			
A. Leader (must be an RO or SRO)	At all times		A. HOLDOVER (RO or SRO)
B. Team Members			B1. NLO - D
			B2. HOLDOVER (NLO)
		***	B3. HOLDOVER (NLO) OR (SRO
		***	B4. HOLDOVER (NLO) OR (SRO
8. Supplemental Fire Brigade (Not SLC Related)			1.
			2.
		***	3.
9. Plant SRO	1-6 or defueled		*HOLDOVER (SRO) OR

*CAN BE SAME AS *7, A
IF SRO HELD OVER.

EXAMINER COPY

* A 5 member fire brigade must be onsite at all times. None of the minimum shift crew composition from positions 1 throug 6 can be listed on fire brigade.

** The Offsite Communicator must be an SRO who is not serving as the OSM, Shift Technical Advisor, Senior Reactor Operator (other than the OSM), or Fire Brigade Leader.

*** Normally covered by SPOC.

IV. Minimum Shift Crew Composition:

SHIFT CREW POSITION	MODE REQUIRED	NAME
1. Operations Shift Manager (OSM)	1-6 or defueled	
2. Shift Technical Advisor	1-4	
3. Senior Reactor Operator (other than OSM)	1-4	
4. Offsite Communicator**	At All Times	
5. Nuclear Control Operator		
A. Unit 1	1-6 or defueled	A.
B. Unit 2	1-6 or defueled	B.
C. Relief NCO	1-6	C.
6. Non-Licensed Operator		
A. Unit 1	1-6 or defueled	A.
B. Unit 2	1-6 or defueled	B.
C. Extra NLO	1-6 or defueled	C.
7. SLC Required Fire Brigade*		
A. Leader (must be an RO or SRO)	At all times	A.
B. Team Members		B1.
		B2.
	***	B3.
	***	B4.
8. Supplemental Fire Brigade (Not SLC Related)		1.
		2.
	***	3.
9. Plant SRO	1-6 or defueled	

* A 5 member fire brigade must be onsite at all times. None of the minimum shift crew composition from positions 1 throug 6 can be listed on fire brigade.

** The Offsite Communicator must be an SRO who is not serving as the OSM, Shift Technical Advisor, Senior Reactor Operator (other than the OSM), or Fire Brigade Leader.

*** Normally covered by SPOC.

16.13 CONDUCT OF OPERATIONS

16.13.1 Fire Brigade

COMMITMENT A site Fire Brigade of at least five members shall be maintained onsite.

APPLICABILITY At all times.

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fire Brigade composition requirements not met.	A.1 Initiate action to fill required positions. AND A.2 Restore minimum fire brigade composition.	Immediately 2 hours

TESTING REQUIREMENTS

TEST	FREQUENCY
TR 16.13.1.1 Verify fire brigade composition.	12 hours

BASES

The primary purpose of the Fire Protection Program is to minimize both the probability and consequences of postulated fires. Despite designed active and passive Fire Protection Systems installed throughout the plant, a properly trained and equipped fire brigade organization of at least five members is needed to provide immediate response to fires that may occur at the site. The Fire Brigade shall not include three members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

Fire Brigade equipment and training conform to the recommendations of the National Fire Protection Association, Appendix A to Branch Technical Position 9.5-1 and supplemental NRC Staff guidelines.

This selected licensee commitment is part of the McGuire Fire Protection Program and therefore subject to the provisions of McGuire Facility Operating License Conditions C.4 (Unit 1) and C.7 (Unit 2).

REFERENCES

1. McGuire Nuclear Station UFSAR, Chapter 13.2.
2. McGuire Nuclear Station, SER Supplement 2, Chapter 9.5.1 and Appendix D.
3. McGuire Nuclear Station, SER Supplement 5, Chapter 9.5.1 and Appendix B.
4. McGuire Fire Protection Review, as revised.
5. McGuire Nuclear Station, SER Supplement 6, Chapter 9.5.1 and Appendix C.
6. McGuire Nuclear Station Facility Operating Licenses, Unit 1 License Condition C.(4) and Unit 2 License Condition C.(7)

INITIAL CONDITIONS

Both Units at MNS are at 100% power.

Due to inclement weather conditions, the following is a list of the Operations personnel who have reported for duty at shift turnover. No additional personnel will be available for at least three (3) hours.

SRO-A (OSM)	RO-A	NLO-A	STA-A	NO SPOC personnel
SRO-B	RO-B	NLO-B		
		NLO-C		
		NLO-D		

Based on the information provided to you,

- **determine if adequate shift manning exists.**
- **determine how many crew members (if any) must be held over.**
- **determine what positions need to be manned.**

OMP 5-8 **Control Room SRO Turnover**	Reviewed	
	Approved	
	Rev # 4	Date 4/28/97

McGuire Nuclear Station **Shift SRO Turnovers** **Information Use**	Document No. **OMP 5-8** Revision No. 010 Electronic Reference No. MP0070O4

Prepared By Susan Traywick Date 6/14/99

Requires 10CFR50.59 evaluation? ☐ Yes ☒ No

Reviewed By _____ (QR) Date 06/22/99

Cross-Disciplinary Review By _____ (QR) NA BD Date _____

Reactivity Mgmt. Review By _____ (QR) NA BD Date _____

Additional Reviews

Reviewed By _____ Date 6/30/99

Reviewed By _____ Date _____

Approved By _____ Date 6.30.99

1. Purpose

1.1 To provide a procedure to promote continuity during the shift turnover process.

2. Reference

2.1 INPO Good Practice OP-201 (Shift Relief And Turnover)

2.2 PIP 0-M97-0086

3. Description

3.1 To provide the procedure for preparing for and performing turnover, and for expectations following the completion of turnover.

3.2 To provide the procedure for Control Room SRO relief.

3.3 To describe additional expectations for turnover during shutdown conditions.

3.4 To describe the succession plan for the unavailability of an OSM.

4. Responsibilities

4.1 The OSM or designee:

4.1.1 Shall ensure a shift crew briefing is conducted shortly after assuming watch, and that relevant information from turnovers and daily schedule are discussed during the briefing.

4.1.2 Shall ensure turnovers are complete and accurate.

4.2 Control Room SRO:

4.2.1 Shall wear a clear plastic sleeve over the security badge to prevent exit from the control room without proper relief.

4.2.2 Shall prepare for and conduct the Control Room SRO turnover.

4.2.3 Shall ensure turnover information is understood.

4.3 Work Control Center (WCC) SRO:

4.3.1 Shall be the offsite communicator unless that responsibility has been reassigned by the OSM.

4.3.2 Shall prepare for and conduct the WCC SRO turnover.

4.3.3 Shall ensure turnover information is understood.

4.4 Plant SRO

4.4.1 Shall prepare for and conduct the Plant SRO turnover.

4.4.2 Shall ensure turnover information is understood.

4.5 Shift Work Manager

4.5.1 Shall prepare for and conduct the SWM turnover.

4.5.2 Shall ensure turnover information is understood.

5. Succession Plan

5.1 **IF** the Operations Shift Manager (OSM) and OSM designee become unavailable due to sickness, injury, or other emergency, the senior (by years in position) Shift Supervisor with an active license will assume the position of OSM until a qualified replacement becomes available.

6. Turnover Procedure

6.1 The OSM, the SWM, Control Room, Plant, and WCC SROs shall review the status of systems and equipment prior to being relieved and shall ensure all conditions are registered in logs and records for which they are responsible.

6.2 Attachments 1, 2, 3 and 4 shall be completed. Attachment 8 (Unit 1 and 2 Conditional Surveillances) shall be completed by Control Room SRO when required.

7. Turnover Process

7.1 The status of plant system and equipment shall be reviewed. Out-of-normal conditions as well as all available information on expected occurrences which could affect plant operation shall be emphasized in this review.

7.2 WHEN the process is complete and the turnover information is understood, the relieving SRO shall declare that he/she has assumed the assigned responsibilities.

7.3 No off going SROs may leave their assigned duties until properly assured that their responsibilities have been assumed by their relief or until receiving verbal approval from an OSM or designee.

8. Following Turnover

8.1 The SROs shall, as soon as possible, review, at a minimum, those areas listed on their turnover checklists. Operating areas shall be toured as soon as practicable to verify equipment conditions. On the first day of each shift, the Operator Workarounds should be reviewed.

8.2 The Control Room SRO shall identify those individuals who will fill positions required for minimum shift composition.

8.3 The shift SROs who may relieve the Control Room SRO shall review the Control Room SRO Turnover checklist as soon as practical.

8.4 A shift crew briefing shall be conducted to ensure that all crew personnel are informed of current plant status, planned evolutions, and any other information deemed relevant by any crew member.

9. Other Expectations During Shutdown Conditions

9.1 Prior to entry into mode 5 from mode 4, the Control Room SRO shall ensure the appropriate entries are made on Attachment 7 (Shutdown Assessment/Status Sheet).

9.2 The Control Room SRO shall ensure Attachment 7 (Shutdown Assessment/Status Sheet) is updated as conditions change until the associated unit is returned to mode 4.

9.3 WHEN ND is in service and fuel is in the core, the Control Room SRO shall complete Attachment 5 (NC System Emergency Make-up Sources) and attach it to the Control Room SRO Turnover checklist. The attachment shall be updated as conditions change.

9.4 WHEN Containment Closure is required and fuel is in the core, the Control Room SRO shall complete Attachment 6 (Thermal Margin Determination) and attach it to the Control Room SRO Turnover checklist.

10. Control Room SRO Relief Process

10.1 **WHEN** the Control Room SRO requires relief the following process shall be followed:

10.1.1 An active SRO (on or off shift) shall relieve the Control Room SRO.

10.1.2 Any changes that have occurred since initial turnover shall be discussed including changes in sections I, II, III.A, and VI of the Control Room SRO turnover checklist. Any significant activities affecting operations or indication shall be discussed.

10.1.3 **IF** the relief is for a duration of greater than 30 minutes, then section VII of the turnover checklist shall be reviewed.

10.1.4 **IF** relief is by an off shift SRO, then a complete review of the turnover checklist shall be performed.

10.1.5 The relieving SRO shall complete section VIII of the Control Room turnover checklist and change the name tag in the On Duty Control Room SRO placard.

10.2 **WHEN** the Control Room SRO returns to assume duties from the relief SRO:

10.2.1 Any changes that have occurred since relief shall be discussed including changes in sections I, II, III.A, and VI of the Control Room SRO turnover checklist. Any significant activities affecting operations or indication shall be discussed.

10.2.2 **IF** the relief was for a duration of greater than 30 minutes, then section VII of the turnover checklist shall be reviewed.

10.2.3 The Control Room SRO shall complete section VIII of the Control Room turnover checklist and change the name tag in the On Duty Control Room SRO placard.

11. Records

11.1 The Control Room SRO turnover checklist shall be routed to Master File.

11.2 The Plant SRO, WCC SRO and SWM turnover checklist may be discarded.

12. Attachments

12.1 Attachment 1 (Control Room SRO Turnover Checklist)

12.2 Attachment 2 (Plant SRO Turnover Checklist)

12.3 Attachment 3 (Work Control Center SRO Turnover Checklist)

12.4 Attachment 4 (Shift Work Manager Turnover Checklist)

12.5 Attachment 5 (NC System Emergency Make-up Sources)

12.6 Attachment 6 (Thermal Margin Determination)

12.7 Attachment 7 (Shutdown Assessment/Status)

12.8 Attachment 8 (Unit 1 and Unit 2 Conditional Surveillances)

End of Body

OMP 5-8
Attachment 1
Control Room SRO Turnover Checklist

Shift being relieved: A B C D E (circle one)

Date/Time_____

	UNIT 1	UNIT 2
I.	Mode of Operation _____ Power Level _____	Mode of Operation _____ Power Level _____

II. Review the general status of each section of the Main Control Boards and note any abnormal conditions. The Nuclear Control Operator of the shift being relieved agrees to the status of each section.

Unit 1 Remarks: _____

_____

_____

_____

_____

_____

_____

Unit 1 NCO (Initials) _____

Unit 2 Remarks: _____

_____

_____

_____

_____

_____

_____

Unit 2 NCO (Initials) _____

III. Review:

	Control Room SRO (Being Relieved)	Control Room SRO (Relieving)
A.		
1. Unit 1 and 2 Technical Specifications Action Items	_____	_____
2. Status of Unit 1 and 2 ESF Monitor Light Panels	_____	_____
3. Shutdown Assessment/ Status Sheet (Attachment 7) (required in Modes 5 and 6)		
Unit 1	_____	
Unit 2	_____	
4. NC System Emergency Makeup sources (Attachment 5- required in Modes 4, 5 and 6 while ND in service)		
Unit 1	_____	
Unit 2	_____	
5. Thermal Margin Determination (Attachment 6 - Required in Modes 5 and 6)		
Unit 1	_____	
Unit 2	_____	
6. Conditional Surveillances (Attachment 8) If required		
Unit 1	_____	
Unit 2	_____	

B. The following documents are reviewed and signed; one column should be checked and one N/A.

	0700-1900	1900-0700
1. Semi-Daily Surveillance PT		
Unit 1	_____	_____
Unit 2	_____	_____
2. Daily Surveillance PT		
Unit 1		_____
Unit 2		_____
3. NCO Turnover & Alarm Summary Unit 1	_____	_____
Unit 2	_____	_____
4. Unit 1 and Unit 2 RO/SRO Logs	_____	_____

IV. Minimum Shift Crew Composition:

SHIFT CREW POSITION	MODE REQUIRED	NAME
1. Operations Shift Manager (OSM)	1-6 or defueled	
2. Shift Technical Advisor	1-4	
3. Senior Reactor Operator (other than OSM)	1-4	
4. Offsite Communicator**	At All Times	
5. Nuclear Control Operator		
A. Unit 1	1-6 or defueled	A.
B. Unit 2	1-6 or defueled	B.
C. Relief NCO	1-6	C.
6. Non-Licensed Operator		
A. Unit 1	1-6 or defueled	A.
B. Unit 2	1-6 or defueled	B.
C. Extra NLO	1-6 or defueled	C.
7. SLC Required Fire Brigade*		
A. Leader (must be an RO or SRO)	At all times	A.
B. Team Members		B1.
		B2.
	***	B3.
	***	B4.
8. Supplemental Fire Brigade (Not SLC Related)		1.
		2.
	***	3.
9. Plant SRO	1-6 or defueled	

* A 5 member fire brigade must be onsite at all times. None of the minimum shift crew composition from positions 1 throug 6 can be listed on fire brigade.

** The Offsite Communicator must be an SRO who is not serving as the OSM, Shift Technical Advisor, Senior Reactor Operator (other than the OSM), or Fire Brigade Leader.

*** Normally covered by SPOC.

V. Unit 1 & 2 - 1.47 Byp Panels.

1

MD CA Pump 1A Byp	D/G 1A Inop	VX 1A Byp	WL&NM 1A Byp	E/S PMP Rm AHU 1A Byp	VE 1A Byp	PRT Isol Sys 1A Byp
MD CA Pump 1B Byp	D/G 1B Inop	VX 1B Byp	WL&NM 1B Byp	E/S PMP Rm AHU 1B Byp	VE 1B Byp	PRT Isol Sys 1B Byp
TD CA Pump Train 1A Byp	NC Pzr Relief 1A Byp	SI 1A Not Available	NI Accum 1A Not Available	NI Chg 1A Not Available	Ice Cond AHU Gly Isol 1A Byp	KF 1A Byp
TD CA Pump Train 1B Byp	NC Pzr Relief 1B Byp	SI 1B Not Available	NI Accum 1B Not Available	NI Chg 1B Not Available	Ice Cond AHU Gly Isol 1B Byp	KF 1B Byp
ND 1A Byp	RN 1A Byp	KC 1A Byp	NV 1A Byp		NS 1A Byp	VC-YC A-Byp
ND 1B Byp	RN 1B Byp	KC 1B Byp	NV 1B Byp		NS 1B Byp	VC-YC B-Byp
FWST LVL Inst Chan 1 Byp	FWST LVL Inst Chan 2 Byp	FWST LVL Inst Chan 4 Byp	WZ 1A Byp	WZ 1B Byp	WN 1A Byp	WN 1B Byp

2

MD CA Pump 2A Byp	D/G 2A Inop	VX 2A Byp	WL&NM 2A Byp	E/S PMP Rm AHU 2A Byp	VE 2A Byp	PRT Isol Sys 2A Byp
MD CA Pump 2B Byp	D/G 2B Inop	VX 2B Byp	WL&NM 2B Byp	E/S PMP Rm AHU 2B Byp	VE 2B Byp	PRT Isol Sys 2B Byp
TD CA Pump Train 2A Byp	NC Pzr Relief 2A Byp	SI 2A Not Available	NI Accum 2A Not Available	NI Chg 2A Not Available	Ice Cond AHU Gly Isol 2A Byp	KF 2A Byp
TD CA Pump Train 2B Byp	NC Pzr Relief 2B Byp	SI 2B Not Available	NI Accum 2B Not Available	NI Chg 2B Not Available	Ice Cond AHU Gly Isol 2B Byp	KF 2B Byp
ND 2A Byp	RN 2A Byp	KC 2A Byp	NV 2A Byp		NS 2A Byp	
ND 2B Byp	RN 2B Byp	KC 2B Byp	NV 2B Byp		NS 2B Byp	
FWST LVL Inst Chan 1 Byp	FWST LVL Inst Chan 2 Byp	FWST LVL Inst Chan 4 Byp			WN 2A Byp	WN 2B Byp

Control Room SRO Turnover Checklist

NOTE: The C/R SRO being relieved shall circle the blocks corresponding to any lamps lit. For any lamp lit that has a work request associated with it, place an asterisk (*) in the associated block after circling it.

Control Rm SRO (being relieved) Initial _____.

Control Rm SRO (relieving) Initial _____.

VI.

Unit 1 Additional Remarks: _____

_____

_____

_____

Unit 2 Additional Remarks: _____

_____

_____

LWR In Progress _____ Yes _____ No

WMT A or B VUCDT Unit 1 or 2

(Circle Appropriate Tank or Unit)

GWR In Progress _____ Yes _____ No

VP Unit 1 or Unit 2

VQ Unit 1 or Unit 2

Waste Gas Tank A B C D E F

(Circle Appropriate Tank Or Unit)

	(Shift Being Relieved)	(Relieving Shift)
Control Room SRO	_____ (Signature)	_____ (Signature)
OSM Review	_____ (Signature)	_____ (Signature)

OMP 5-8
Attachment 1
Control Room SRO Turnover Checklist

VII. Review as soon as possible after assuming shift responsibilities.

Initial

____ Ensure all outstanding Immediate Training Sheets have been reviewed by designated personnel.

____ RO/SRO Logs since last on shift or at least the seven preceding days.

____ Special Orders/Reactor Group Guidance/Operability Evaluation Book.

____ Main Control Boards.

____ Hold Shift Crew Briefing and review Medical and Other Restriction Status of on-coming shift, per OMP 3-2 (Shift and Pre-Job Briefing).

VIII. Documentation of designated Control Room SRO Relief (Short Term and Long Term)

Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time
Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time
Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time
Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time
Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time
Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time
Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time
Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time
Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time

Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time
Relief Control Room SRO assumes watch	_____ Signature	____/____ Date/Time
Designated Control Room SRO resumes watch	_____ Signature	____/____ Date/Time

End of Attachment

Reviewed By _____

Approved By _____

TASK: **Manually Complete Technical Specification Evaluation and Logbook Entry**

POSITION: **SRO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 20 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: MNS Tech Specs

JPM verified current with references by _____

Date __/__/__

INITIAL CONDITIONS

You are the Control Room SRO. The Technical Specification Action Item (TSAIL) computer program is out of service on Unit #1. Reactor Power is 100% on both units.

At 0700 on March 11th, ND pump 1B is declared INOPERABLE due to a motor breaker problem on 1ETB. Tech Spec 3.5.2.A (ECCS – Operating) is entered and repairs are initiated. (Refer to attached manual Tech Spec logbook entry.)

The following day (March 12th), it is discovered that there is excessive oil leakage on the lower motor bearing due to a crack in the oil casing on the 1A ND pump. At 1100 hours, the pump is isolated and is declared INOPERABLE at that time. Tech Spec 3.0.3 is entered at that time due to two trains of ECCS INOPERABLE. (Refer to attached manual Tech Spec logbook entries.)

Later that day (March 12th), repairs to ND pump 1B are completed and at 1500 hours the pump is returned to OPERABLE status.

Evaluate plant status in accordance with Technical Specifications, based upon the data provided. Complete any necessary Technical Specification Logbook entries as required, to include any clearing, initiating, or modifying entries as necessary to maximize times for repairs.

JPM OVERALL STANDARD: Tech Spec evaluation is completed and the required Technical Specification Logbook entry completed in accordance with OMP-5-3.

NOTES: A copy of MNS Tech Specs must be available to the examinee.

The correct time and date for this evaluation is **0700 on March 15th**. While Tech Spec 3.5.2.A is still applicable from the initial inoperability, a 24 hour extension (Tech Spec 1.3) is applied to the initial completion time (0700 on March 14th) provided this time does not exceed the completion time of the subsequent inoperability (1100 on March 15th).

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	Determine proper reference to be used for evaluation.	Determines the need to reference MNS Tech Specs (3.5.2 & 3.0.3)		
*2	Determine need to clear the ND Pump 1B entry due to return to Operable	Completes logbook entry to clear entry of TS 3.5.2A for ND Pump 1B at **1500** on **March 12th**.		
*3	Determine Tech Spec impact of exiting TS 3.0.3 and completes logbook entry for exit of TS 3.0.3	Completes logbook entry to clear entry of TS 3.0.3 at **1500** on **March 12th**.		
4	Refers to Tech Spec for required Completion Times (TS 1.3)	TS 1.3 referenced.		
*5	Determines time and date required for 1A ND pump to be restored.	Applies the 24 hour extension available to initial inoperability. **Date: March 15th and Time: 0700**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*6	Complete Attachment 1 of OMP 5-3.	Attachment 1 completed for new entry and clears original entry on 1A ND pump. **Note:** It is acceptable for the examinee to elect to adjust the previous TS entry to <u>new required Date/Time for Completion</u> for 1A ND pump. **(Date: March 15th and Time: 0700)** Refer to answer key for example of completed Attachment 1.		

*** DENOTES CRITICAL**

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

EXAMPLE ONLY

- Item Number: 001
- Component or System: ND
- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A
- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-11-00/0700
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND Pump 1B

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: 3-14-00/0700
- Date/Time Declared Operable: > 3-12-00/1500
- Corrective Action Taken for Operability: WR SUBMITTED
- Verified by (full name): > ANY NAME
- SRO (restoration): > ANY NAME
- REMARKS: > RESTORED TO OPERABLE @ 1500 ON 3/12/00.

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 003
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.0.3

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.0.3	BOTH ND PUMP ON UNIT #1 INOPERABLE

EXAMINATION COPY

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: BEGIN S/D BY 1200 AND ASAP / MODE 3 BY 1800
- Date/Time Declared Operable: 3/12/00 1500
- Corrective Action Taken for Operability: WR SUBMITTED / BEGIN S/D
- Verified by (full name): ANY NAME
- SRO (restoration): ANY NAME
- REMARKS: 1B ND RESTORED TO OPERABLE STATUS, TECH SPEC #001 CLEARED.

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

RELATED SPECS

- Item Number: 002
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

SPEC #	DESCRIPTION
3.5.2.A	AFD PUMP 1A

EXAMINER COPY

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: 3-14-00 / 0700
- Date/Time Declared Operable: > 3-12-00 / 1500
- Corrective Action Taken for Operability: WR SUBMITTED / ENTERED T.S. 3.0.3
- Verified by (full name): > ANY NAME
- SRO (restoration): > ANY NAME
- REMARKS:

> CLEARED TECH SPEC # 002 AND ENTERED TECH SPEC # 004 WITH ALLOWABLE EXTENDED COMPLETION TIME.

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 004
- Component or System: ND
- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A
- Ind. Ack.: ANY NAME
- SRO (removal): ANY NAME
- Time Inoperable: 3/12/00 1100
- Removal: ANY NAME

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND PUMP 1A

EXAMINER COPY (4 OF 4)

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: 3/15/00 0700
- Date/Time Declared Operable:
- Corrective Action Taken for Operability: WR SUBMITTED
- Verified by (full name):
- SRO (restoration):
- REMARKS: STATED COMPLETION TIME/DATE IS ALLOWABLE COMPLETION PLUS 24 HOUR EXTENSION TIME FROM INITIAL ENTRY INTO TECH SPEC 3.5.2.A (SEE TS # 001)

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 001
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-11-00/0700
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND Pump 1B

Item Type[1] - Item #	Description	Date Comp. Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: 3-14-00/0700
- Date/Time Declared Operable: .
- Corrective Action Taken for Operability: WR SUBMITTED
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 002
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND PUMP 1A

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: 3-14-00 / 0700
- Date/Time Declared Operable: .
- Corrective Action Taken for Operability: WR SUBMITTED / ENTERED T.S. 3.0.3
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 003
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.0.3

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.0.3	BOTH ND PUMP ON UNIT #1 INOPERABLE

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: BEGIN S/D BY 1200 AND ASAP / MODE 3 BY 1800
- Date/Time Declared Operable:
- Corrective Action Taken for Operability: WR SUBMITTED / BEGIN S/D
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number _____
- Component or System _____

- 3-0-4 Applicable: Yes No
- Tracking Entry: Yes No
- Tech Spec Number: _____

- Ind. Ack.: _____
- SRO (removal): _____
- Time Inoperable: _____
- Removal: _____

RELATED SPECS

SPEC #	DESCRIPTION

Item Type[1] - Item #	Description	Date Comp.Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: _____
- Date/Time Declared Operable: _____
- Corrective Action Taken for Operability: _____
- Verified by (full name): _____
- SRO (restoration): _____
- REMARKS:

_____
_____
_____
_____
_____
_____
_____
_____
_____

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 2

- Item Number _____
- Component or System _____

- 3-0-4 Applicable: Yes No
- Tracking Entry: Yes No
- Tech Spec Number: _____

- Ind. Ack.: _____
- SRO (removal): _____
- Time Inoperable: _____
- Removal: _____

RELATED SPECS

SPEC #	DESCRIPTION

Item Type[2] - Item #	Description	Date Comp.Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: _____
- Date/Time Declared Operable: _____
- Corrective Action Taken for Operability: _____
- Verified by (full name): _____
- SRO (restoration): _____
- REMARKS:

_____
_____
_____
_____
_____
_____
_____

End of Attachment

[2] Item Type Should Be: WR, WO, R&R, Proc., Other

INITIAL CONDITIONS

You are the Control Room SRO. The Technical Specification Action Item (TSAIL) computer program is out of service on Unit #1. Reactor Power is 100% on both units.

At 0700 on March 11th, ND pump 1B is declared INOPERABLE due to a motor breaker problem on 1ETB. Tech Spec 3.5.2.A (ECCS – Operating) is entered and repairs are initiated. (Refer to attached manual Tech Spec logbook entry.)

The following day (March 12th), it is discovered that there is excessive oil leakage on the lower motor bearing due to a crack in the oil casing on the 1A ND pump. At 1100 hours, the pump is isolated and is declared INOPERABLE at that time. Tech Spec 3.0.3 is entered at that time due to two trains of ECCS INOPERABLE. (Refer to attached manual Tech Spec logbook entries.)

Later that day (March 12th), repairs to ND pump 1B are completed and at 1500 hours the pump is returned to OPERABLE status.

Evaluate plant status in accordance with Technical Specifications, based upon the data provided. Complete any necessary Technical Specification Logbook entries as required, to include any clearing, initiating, or modifying entries as necessary to maximize times for repairs.

Duke Power Company Station Name **Tech Spec Action Items Log** **Information Use**	Document No. **OMP 5-3** Revision No. 014 Electronic Reference No. MP0070OD

Prepared By Susan Traywick Date 11/11/98

Requires 10CFR50.59 evaluation? ☐ Yes ☒ No

Reviewed By _____ (QR) Date 11/11/98

Cross-Disciplinary Review By _____ (QR) NA ____ Date 11/12/98

Reactivity Mgmt. Review By _____ (QR) NA _____ Date 11/12/98

Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

Approved By _____ Date 11/12/98

1. Purpose

To provide instruction for documenting operation in a degraded condition as permitted by a Tech Spec ACTION statement for the existing mode.

2. References

2.1 McGuire Tech Specs

2.2 MAD 1-91-011C,D

3. Description

3.1 This procedure describes the methods used to document the information required by Operations to assess the impact of operating in a Tech Spec ACTION statement.

3.2 This procedure describes the following items associated with the Tech Spec Action Item Log (TSAIL):

3.2.1 General Instructions

3.2.2 Criteria for Log Entries

3.2.3 Log Entries

3.2.4 Contingency Plan for Computer System Unavailability

3.2.5 Review

3.2.6 Retention

3.2.7 Autolog Interface

3.3 This procedure describes the methods to properly use the Conditional Surveillance Board.

4. Responsibilities

4.1 SRO responsibilities:

4.1.1 The SRO making the entry (normally one of the SROs in the WCC) is responsible for ensuring that all entries are made per this procedure to the appropriate unit's log.

4.1.2 The CR SRO, WCC SRO and Plant SRO is responsible for ensuring that a printout from Autolog of the outstanding entries is used for their shift turnover and this printout is retained until another printout is obtained.

4.1.3 The CR SRO is responsible for ensuring all entries are made to the Conditional Surveillance Board per section 6.10 of this OMP.

4.1.4 A second SRO (normally one of the SROs in the WCC) shall review all initial entries (the original entry made when the Tech Spec LCO or SLC was not met) and all entries when a TSAIL is cleared. The purpose of this review during the initial entry is to ensure all applicable Tech Spec LCO and SLC numbers are listed, 'Tracking Only' and 'Required for Mode Change' checked as appropriate, 'ORAM-Sentinel' code displayed as appropriate, 'Declared Inoperable' date/time is correct, 'Required Operable' date/time is correct, and all applicable 'Inoperability Reasons' noted. The purpose of this review when a TSAIL item is cleared is to verify all 'Inoperability Reasons' are cleared and that the 'Declared Operable' date/time is correct.

4.1.5 The "Operable SRO" who is identified with clearing each Inoperability Reason under the Inoperability Reasons tab is responsible for verifying all inoperability questions are answered to his/her satisfaction prior to clearing the specific reason for inoperability. Other station personnel may be used to assist in this evaluation, such as the Shift Work Manager. Where documentation exists that supports clearing an inoperability reason, such as a Work Order, signed off procedure sections, Operability Evaluations, completed PIPs, etc, the "Operable SRO" must personally verify this documentation is completed to his/her satisfaction.

4.1.6 One of the WCC SROs involved with a TSAIL entry shall ensure the CR SRO is informed of all new entries, changes to existing entries, and clearing of entries.

4.1.7 The CR SRO shall ensure the affected Unit(s) RO(s) is informed when TSAIL entries are initially made and when an entry is cleared. This is normally accomplished automatically by a data link between TSAIL and the Autolog sub-log "TSAIL". The affected Unit RO should discuss with the CR SRO any potential problems on unit operation they are aware of that may be caused by the inoperability.

4.2 The Shift Work Manager:

4.2.1 Shall be aware of detailed TSAIL status for turnover.

4.3 The Shift Operations Manager, his/her designee, other Operations individual filling the role of "TSAIL Program Administrator", or the MNS IT Operations contact:

4.3.1 Shall be responsible for ensuring resolution of any functional problems with the TSAIL computer program or program enhancement feedback.

4.4 ALL Operations SROs who interface with the TSAIL program shall be responsible for documenting program functional problems via the TSAIL internal feedback feature (through the 'Help' feature). For functional problems that occur during normal working hours, the SWM shall be responsible for contacting the appropriate MNS IT contact for resolution. At other times, C-SPOC shall be contacted to arrange an MNS IT call out as necessary. The TSAIL internal feedback feature should also be used to communicate and document TSAIL enhancement request.

4.5 The OSM shall note any conditional actions/surveillances being tracked on the Operations Conditional Surveillance Board in the 'Conditional Surveillance' section of the Management Focus Report and cover these items at the 0700 and 1900 meetings to increase the stations awareness of the non-routine requirement.

5. Reporting Requirements

Refer to Work Process Manual 404 (Work Control Center), Appendix I (Notification Matrix).

6. General Instructions

6.1 All entries shall be made by or at the direction of an SRO.

6.2 **IF** necessary to make handwritten entries, then all such entries shall be made in ink in a neat and legible fashion. A single line will be drawn through mistakes, errors or changes and initialed and dated by the writer.

6.3 A separate log shall be maintained for each licensed unit. Items affecting both units should be logged in the shared (0) log.

6.4 All entries should be made (ie. assigned a date/time inoperable) at the time of occurrence or when knowledge of the occurrence is first obtained.

6.5 Ensure redundant train of an affected Safety Function is checked operable before removing equipment from service.

6.6 Prior to declaring the component operable, supporting documentation shall be reviewed by the 'Operable SRO' to ensure that work needed to be done prior to returning that component back to operable status has been completed. Some examples of supporting documentation are: R&R completed, red tags cleared, work request completed, performance retest complete. More than one of the preceding documents may be required to be reviewed to return some components to operable. The SRO should be satisfied beyond any doubt that the component is operable and has seen supporting documentation specific to that component. Some examples of completed documentation needed for specific jobs are:

Example 1 - Seal Leak on NV Pump

1) Completed Restoration Section of an R&R

2) Completed work request with all necessary functional verification and/or retest satisfactorily documented

Example 2 - Slave Relay Testing

1) Applicable portion of slave relay test procedure completed.

6.7 For Tech Specs which require monitoring of operational parameters, i.e., pressure, flows, temperatures, no documentation will be required to clear them from TSAIL. Visual verification of the parameter will be sufficient. Some examples are:

Examples:
1) Rod Insertion Limits Violated
2) NC Temperature below 551°F with the Reactor Critical.

6.8 Any comments on the TSAIL program should be documented via the internal feedback function (located under 'Help'). The OPS TSAIL Program Administrator or MNS IT contact will resolve these comments in a timely fashion. Any functional problems should be immediately communicated to the MNS IT Operations contact or other MNS IT personnel as necessary. During times others than normal working hours, C-SPOC should be contacted to arrange a call-out from MNS IT.

6.9 **WHEN** compensatory measures in the TAC sheets are used to maintain operability, verbatim compliance with those measures should be performed whenever possible. **WHEN** verbatim compliance isn't possible, then the appropriate system engineers shall be consulted to ensure the desired alternate measures are within the confines of the operability evaluation and the 50.59 review for the measures specified in the TAC sheet. **IF** not, then an operability evaluation must be performed in accordance with NSD-203. Document compensatory measures in accordance with Section 7.2.

6.10 **WHEN** entering a Tech Spec Action Statement or SLC Remedial Action that requires non-routine conditional actions or surveillances, the Conditional Surveillance Board should be used if the frequency of the action/surveillance is greater than 4 hours and there is no other built-in process to ensure completion of the action/surveillance.

6.10.1 **IF** the WCC SRO has made a log entry that requires non-routine conditional actions or surveillances, he/she shall notify the Control Room SRO to update the conditional surveillance board. The CR SRO shall complete all required entries on the Conditional Surveillance Board when the criteria for logging the item is met. The CR SRO should set a count down timer to "time out" with sufficient time remaining to perform the required action/surveillance. This is not meant to identify the time the action/surveillance should be performed, but to alert the CR SRO that if the action/surveillance has not started, it should be to meet the "next due" date/time. The countdown timer is an additional flag of the pending required action/surveillance.

6.10.2 **WHEN** the action/surveillance is performed, the CR SRO should determine the "next due" date/time, change this info on the board, and again set the countdown timer with sufficient time to perform the required action/surveillance prior to the "next due" date/time. The countdown timer should be attached to the board adjacent to the conditional action/surveillance entry.

6.10.3 **WHEN** the countdown timer alerts the CR SRO that the conditional action/surveillance is due, the CR SRO should ensure that action is taken to meet the "next due" date/time. The timer is used as a back-up, not as a means of scheduling the required action/surveillance.

6.10.4 **IF** the responsible group for the action/surveillance is other than Operations and the group does not have an approved procedure or administrative process for tracking the due action/surveillance, the CR SRO shall track the action/surveillance as previously described to alert the responsible group of their pending action/surveillance.

6.10.5 **WHEN** the conditional action/surveillance is no longer required, the CR SRO should erase the entry off the board and reset the timer. If the responsible group is other than Operations, they shall be notified that the action/surveillance is no longer required.

6.10.6 These requirements are in addition to the data entered into the TSAIL program internal Conditional Surveillance feature. This feature shall not be used as the sole indicator of actions/conditional surveillances coming due.

7. Criteria For Logging Items

7.1 The following guidelines shall be used in logging items in TSAIL. The list is not all inclusive and any additional items may be logged at the discretion of the OSM or other shift SROs.

7.1.1 Anytime a Tech Spec applicability determination is being made, the Tech Spec Reference Manual or Design Basis Document should be used as a guideline in making this determination. {2.2}

7.1.2 **WHEN** logging items in TSAIL and the component or system that is being logged is listed on the "pull-down" list box for system or components then the item in the list box shall be used for the entry. This will ensure that the component or system is properly recognized by the computer system in order for the computer system to properly list "related" Tech Spec items for the entry. {2.2}

7.1.3 Anytime a Tech Spec Limiting Condition for Operation (LCO) or SLC cannot be met without reliance on the associated Action or Remedial Action statement, the spec should be logged.

7.1.4 Anytime a Surveillance Requirement (of a Tech Spec or SLC) is not performed within the given time period (including the additional time allowance specified in SR 3.0.2 of the Applicability Section) the spec should be logged.

7.1.5 **IF** a system or component cannot meet the requirements stated in the Surveillance Requirement of a spec, it should be logged inoperable. Items requiring surveillance under Tech Spec 5.5.8 (Inservice Testing Program) that **DO NOT** have an attendant LCO will not be logged when they are inoperable.

7.1.6 Any system or component which is made inoperable by taking one or more of its support systems (instrumentation, controls, cooling or seal water, lubrication or other required auxiliary equipment) out of service will also be logged. Refer to Attachment 3 (Safety Function Determination Program)

7.1.7 During instrument surveillance testing, the instrument being tested along with any other instrument channels affected during testing should be logged. Example: If power range channel 41 is being tested for surveillance, it along with the S/G level channels, OPΔT channels and any other affected instrumentation should be logged.

7.1.8 Items that are not applicable in the present MODE may be logged inoperable to allow progression to the next highest mode where the provisions of LCO 3.0.4 is not applicable and the ACTION statement is followed.

Example: The Remote Shutdown Monitoring instrumentation is required to be operable in Modes 1, 2, and 3. If an instrument required by this spec is inoperable with the unit in Mode 4 and entry into Mode 3 is desired, a log entry can be made allowing the Mode 3 Checklist to be signed as operable. The unit can then proceed to Mode 3 (provided all other Mode 3 items are satisfied) and the action statement associated inoperable Remote Shutdown Monitoring instrumentation is met.

7.1.9 Tracking entries should be made when a system has redundant components all of which are not required to be operable in the existing operating mode, but further degradation of equipment operability could require compliance with an Action statement. Tracking entries will be designated by a "check" indication in the box labeled "Tracking Only".

Example: SLC requires DG Halon System to be operable, which can be satisfied with one bank of Halon cylinders. However, we have two banks installed (Main and Reserve). If one of the two banks become inoperable, it should be logged even though the Commitment is satisfied.

Example: **WHEN** shut down, Tech Spec 3.8.2 only requires one DG to be operable in Mode 5. However, if one of the two DGs become inoperable, it should be logged even though the LCO is satisfied if entry into Mode 5 may be made soon.

7.1.10 TSAIL entries are not required for specifications which apply only in Modes 1, 2, 3 or 4 when the unit is in mode 5, 6 or defueled. For example, the NS system should not be logged in TSAIL when in modes 5 or 6. The operability of the systems that fall into this category will be verified by procedure, R&R, and work order completion prior to changing into a mode in which they are required.

However, there may be situations where operations would desire to maintain status of Mode 1-4 items when in Mode 5 by logging as TSAIL items. Refer to the following examples:

Example 1: The unit is in a "mini-outage" and it is determined that the unit will only be in Mode 5 for a short time period and a quick return to power is anticipated. In this case, Operations may elect to track the status of Mode 1-4 Tech Spec items by logging in TSAIL.

Example 2: A unit startup is in progress, with the unit in Mode 5, and it is determined that work will be performed on a Mode 4 Tech Spec item prior to the unit entering Mode 4. The Mode 4 checklist has already been signed-off for outstanding Mode 4 work orders and modifications. Rather than one-lining these sign-offs, operations may elect to track the Mode 4 Tech Spec item work by making a TSAIL entry to ensure completion of the work before entering Mode 4.

WHEN in Mode 5, 6 or de-fueled, all specifications that apply for Mode 5, 6 or at all times should be logged in TSAIL. Attachment 2 (Tech Spec Items for Shutdown Logging) should be used as an aid in determining whether to log a component/system in TSAIL when in Mode 5, 6 or another shutdown condition.

7.1.11 Fire Barriers (penetrations, plugs, doors, etc) are not required to be logged in TSAIL. The Fire Barrier Tag Logbook located in the WCC is considered to be an extension of TSAIL and satisfies all logging requirements. Other Safety Functions directly made inoperable by an open fire barrier (such as D/G halon if a D/G room door is blocked open) shall be logged in TSAIL.

7.2 Anytime compensatory measures are used to maintain system operability, that system/component shall be logged for tracking either in TSAIL or SRO Autolog. A description of the compensatory measure shall be entered into SRO Autolog.

8. Log Entries

The TSAIL computer program shall be used if available. Anytime the computer program becomes unavailable and it is necessary to construct a manual log till the computer is available, use section 9 of this OMP.

8.1 A sequential number shall be assigned to each item automatically by the computer.

8.2 The following items shall be entered on the entry screen for new items:

Train: A, B, AB, or N (none) from the "pull-down" box.

System: This entry has a "pull-down" box associated with it. If the "pull-down" box has the system listed that is to be entered, this item shall always be entered by selecting it from the "pull-down" box list. If the system is not in the "pull-down" box list, use System 'N/A' and provide feedback via the internal feedback feature to the TSAIL Program Administrator that the missing system needs to be added.

Component: This entry has a "pull-down" box associated with it. If the "pull-down" box has the component listed that is to be entered, this item should always be entered by selecting it from the "pull-down" box list. If the component is not in the "pull-down" box list, use System 'N/A' and provide feedback via the internal feedback feature to the TSAIL Program Administrator that the missing component needs to be added.

Additional Description: This entry is used to provide more detail regarding the cause of the inoperability. For example, if the Component selected is "1A CA pump", this entry can be used to specify "1A CA pump motor".

ORAM Sentinel: This entry contains a "pull-down" box from which the PRA type is selected.

Tracking Only: This box will have a "check" indicated if the entry is being made for tracking purposes. If the entry is not being made for tracking purposes, the box will be blank. Where a system has redundant components all of which are not required to be operable in the existing operating mode, but further degradation of equipment operability could require compliance with an action statement, inoperability of such equipment should be listed.

Example: SLC requires 2 RY pumps to be operable (C plus either A or B), but 3 RY pumps are installed. If A or B RY pump becomes inoperable, it should be logged and indicated as a tracking entry even though compliance with the Remedial Action is not required. There may be other situations in which it is desired to make an entry in the log for tracking purposes only and this indicator will be used to show that purpose for any such entries.

Required for Mode Change: This box will show a "check" to indicate that LCO 3.0.4 is applicable for this entry and will be blank when it is not applicable.

Under the TSAIL Panel tabs:

Tech Specs/SLC: The Tech Spec or SLC number along with the associated applicable mode(s) will be listed. By double clicking on the Tech Spec Number, the conditions and required actions can be chosen.

Plant Condition: Used to provide additional information describing plant condition change affects on the entry. The computer program may supply information automatically in this field. The originating SRO will verify correct information supplied from the computer program.

Example: CLAs logged inoperable in Mode 4 and must be operable in Mode 3 prior to NC System pressure increasing greater than 1000 psig. This information can be documented in this field.

Instructions: Additional information as desired related to the original inoperability or to returning the item to operable. The computer program may supply information automatically in this field. The originating SRO will verify correct information supplied from the computer program.

Inoperability Reasons: Select WO, WR, RR, Proc, or other, from the "pull-down" box as applicable. Fill in WO, WR, RR, or procedure number as applicable.
Use the description field to further describe the WO, WR, RR, or procedure.
The SRO originating an Inoperability Reason for an active entry will be designated as the "Inoperable SRO". The program will automatically date an Inoperability Reason for an active entry.

The SRO who verifies all operability questions are answered for an Inoperability Reason will be designated the 'Operable SRO'. The program will automatically date an Inoperability Reason being cleared.

Operability: The date/time the system or component is declared inoperable or the action statement entered will automatically be populated. "SRO" is the SRO originating the active or planning TSAIL entry and "Review" is the SRO reviewing the entry.
The date/time the system or component must be declared operable will be automatically calculated by the program.

The date and time the system or component is declared operable will automatically be populated when clearing a TSAIL item. "SRO" is the SRO originating the clearing of the entry and "Review" is the SRO reviewing the clearing of the entry.

3.0.6 Items (if applicable): **IF** entry being made, results in supported systems being inoperable, a listing of the systems along with the max completion time will be provided.

3.0.6 Tech Specs (if applicable): A listing of all Tech Specs that apply to the supported systems. The list is all inclusive and does not distinguish between plant modes.

9. Contingency Plan For Computer System Unavailability

9.1 The local IT group shall be contacted either through the C-SPOC or directly to return the computer system to service. This group supports both the TSAIL program itself and the supporting computer system hardware and software necessary for the program to operate. If possible, entries should not be made until the computer system is operable. If this is not possible, the following steps should be performed to construct a working "paper" log that has all the pertinent information necessary for plant operation.

9.1.1 Obtain the last available Autolog printout of outstanding entries from the last WCC SRO turnover package.

9.1.2 Mark-up changes to the original outstanding entries from the Autolog TSAIL printout.

9.1.3 A "paper" log should now exist that correctly shows the status of the outstanding entries as well as indicating the next sequential number to be used for new entries. Using this "paper" log, add new entries as necessary and update information on outstanding entries as necessary until the computer system becomes available.

NOTE: It will be necessary to use the printed copies of the reference material till the computer system becomes available.

9.1.4 For new entries while the computer is down, Use Attachment 1 (Log Sheets To Be Used When Computer System is Unavailable) of this OMP.

9.1.5 LCO 3.0.6 will not be utilized during periods when the TSAIL program is down. Therefore, all supported systems will be direct cascaded. This will be accomplished by listing the systems and affected Tech Specs under "Related Spec" on Attachment 1. In doing this, "3.0.6 max completion time" will not need to be calculated.

WHEN THE COMPUTER SYSTEM BECOMES AVAILABLE, CONTINUE WITH THE FOLLOWING STEPS:

9.1.6 Enter all information onto the computer system that was recorded on the "paper" log after the computer was removed from service. This is necessary to make the computer system show all TSAIL transactions and be the official record.

9.1.7 Verify that all information that is on the "paper" log is recorded on the computer system.

9.1.8 The computer system should now be updated and the "paper" log discontinued and discarded.

10. Review

10.1 The Shift Work Manager shall review the log for each unit prior to his/her relief to gather information for transfer to his/her relief.

10.2 The log shall be reviewed prior to Mode changes and/or changes in plant status as required by procedure, (Startup-Shutdown Checklist). This will ensure there are no outstanding Tech Spec items applicable to that Mode/condition.

10.3 The log should be audited periodically by the Work Control SRO to ensure the outstanding "P" (planning, ie. P1-00445) entries are not being carried unnecessarily.

10.3.1 At the time of the review all open "P" entries should be opened and then deleted using a selection under 'Edit' called "Delete Model/Pre-Plan" if they are not planned to be used in the future.

11. Retention

11.1 Outstanding items summary report printouts which are used for shift turnover should be retained until another printout is obtained. This will facilitate contingency actions if the computer system goes out of service.

11.2 At the end of each shift route the Autolog TSAIL printouts to the Shift Support Technician. The Shift Support Technician will route the Printouts to Master File for retention. Retention requirements for these printouts are the same as for the Control Room Unit Logs.

12. Autolog Interface

12.1 The TSAIL program is data linked to an Autolog sub-log named 'TSAIL'. A line item of Inoperability and Operability will automatically enter this log each time a TSAIL item is originally made inoperable and when it is cleared from TSAIL. This is intended to keep the Control Room ROs informed of TSAIL activity.

13. Attachments

13.1 Attachment 1 (Log Sheets To Be Used When Computer System Is Unavailable)

13.2 Attachment 2 (Tech Spec Items for Shutdown Logging)

13.3 Attachment 3 (Safety Function Determination Program)

End Of Body

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 001
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-11-00/0700
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND Pump 1B

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: 3-14-00/0700
- Date/Time Declared Operable:
- Corrective Action Taken for Operability: WR SUBMITTED
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 002
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.5.2.A

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.5.2.A	ND PUMP 1A

Item Type[1] - Item #	Description	Date Comp.Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: 3-14-00 / 0700
- Date/Time Declared Operable: .
- Corrective Action Taken for Operability: WR SUBMITTED / ENTERED T.S. 3.0.3
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number: 003
- Component or System: ND

- 3-0-4 Applicable: (Yes) No
- Tracking Entry: Yes (No)
- Tech Spec Number: 3.0.3

- Ind. Ack.: B. Smith
- SRO (removal): T. Jones
- Time Inoperable: 3-12-00/1100
- Removal: A. Brown

RELATED SPECS

SPEC #	DESCRIPTION
3.0.3	BOTH ND PUMP ON UNIT #1 INOPERABLE

Item Type[1] - Item #	Description	Date Comp.	Verif. Comp.
1			
2			
3			
4			

- Time Required - Time Required Info: ASAP / BEGIN S/D BY 1200 AND MODE 3 BY 1800
- Date/Time Declared Operable:
- Corrective Action Taken for Operability: WR SUBMITTED / BEGIN S/D
- Verified by (full name):
- SRO (restoration):
- REMARKS:

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number _____
- Component or System _____

- 3-0-4 Applicable: Yes No
- Tracking Entry: Yes No
- Tech Spec Number: _____

- Ind. Ack.: _____
- SRO (removal): _____
- Time Inoperable: _____
- Removal: _____

RELATED SPECS

SPEC #	DESCRIPTION

Item Type[1] - Item #	Description	Date Comp.Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: _____
- Date/Time Declared Operable: _____
- Corrective Action Taken for Operability: _____
- Verified by (full name): _____
- SRO (restoration): _____
- REMARKS:

_____

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

OMP 5-3
Attachment 1
Log Sheets To Be Used When Computer System Is Unavailable

UNIT 1

- Item Number _____
- Component or System _____

- 3-0-4 Applicable: Yes No
- Tracking Entry: Yes No
- Tech Spec Number: _____

- Ind. Ack.: _____
- SRO (removal): _____
- Time Inoperable: _____
- Removal: _____

RELATED SPECS

SPEC #	DESCRIPTION

Item Type[1] - Item #	Description	Date Comp.Verif. Comp.
1		
2		
3		
4		

- Time Required - Time Required Info: _____
- Date/Time Declared Operable: _____
- Corrective Action Taken for Operability: _____
- Verified by (full name): _____
- SRO (restoration): _____
- REMARKS:

_____

[1] Item Type Should Be: WR, WO, R&R, Proc., Other

Reviewed By C Lawyer

Approved By [signature]

TASK: **Determine Requirements for Work in a Radiation Area**

POSITION: **RO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 10 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: RWP #1091

JPM verified current with references by _____

Date __/__/__

Rev. 03/04-19-00

INITIAL CONDITIONS

Unit 1 is in Mode 3 immediately following a reactor trip in preparation for a refueling outage. A work crew has been directed to enter lower containment and perform a general inspection. RP has directed the crew to perform the work under the provisions of RWP #1091. Using RWP #1091, list the requirements of this RWP for an "G" worker.

JPM OVERALL STANDARD: Operator determines the proper Dress requirements, Dosimetry requirements, Respiratory requirements, Dose Alarm setpoint, Dose Rate Alarm setpoint, any Special requirements, and Any Facial Sheilding requirements.

NOTES: The examinee must be provided a copy of **RWP #1091** and **Enclosure 5.3** Selection of Protective Clothing.

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
		Cue: **Determine the required protective clothing necessary to perform work under this RWP as an G worker**		
*1	Determine the required protective clothing for RWP #1091 G worker	Operator determines the following protective clothing required: Cloth hood, disposable coveralls, cotton and rubber gloves, booties and shoecovers. Secure gloves and booties (tape, elastic, Velcro, straps). **Cue:** **Determine the dosimetry requirements for this RWP**		
*2	Determine Dosimetry requirements using RWP #1091	Operator determines that an electronic dosimeter (accept pocket dosimeter) and a TLD are required.		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
		Cue: **Determine the Respiratory requirements for this RWP**		
3	Determine there are no Respiratory requirements using RWP #1091	Operator determines that there are no respiratory requirements for a "G" worker for this RWP **Cue:** **Determine the Dose Alarm setpoint and the Dose Rate Alarm setpoint in effect for this RWP**		
*4	Determine the Dose Alarm and Dose Rate Alarm setpoints for RWP #1091	Operator determines the following setpoints: Dose Alarm: **50 MREM** Dose Rate Alarm: **150 MREM/HR**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
		Cue: **Under what conditions does RP need to be notified and/or present?**		
*5	Determine the times where RP needs to be notified per the requirements of RWP #1091.	Operator determines that RP needs to be notified for the following conditions: • Prior to the start of work. • Continuous RP coverage is required. **Cue:** **What, if any, Special Instructions must be met prior to entry**		
*6	Determine the Special Instructions necessary prior to entry per RWP #1091	Operator determines that a **Pre-Job Briefing** is required prior to entry **Cue:** **Determine if any facial contamination shielding requirements must be met**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	Determine the shielding requirements to prevent facial contamination per RWP #1091	Operator determines that Face shielding and/or hood socks may be required by RP to prevent facial contamination per this RWP.		

STOP TIME_____

*** DENOTES CRITICAL**

INITIAL CONDITIONS

Unit 1 is in Mode 3 immediately following a reactor trip in preparation for a refueling outage. A work crew has been directed to enter lower containment and perform a general inspection. RP has directed the crew to perform the work under the provisions of RWP #1091. Using RWP #1091, list the requirements of this RWP for an "G" worker.

RADIATION WORK PERMIT # 1091 REV: 4 DATE/TIME: 02/21/96 14:22

MCGUIRE NUCLEAR STATION ACTIVATION DATE: 02/21/96 18:00

Job Title: AMAN INITIAL ENTRY INTO U1 RX BLDG AFTER UNIT TRIP

STANDING REQUIREMENTS FOR USE OF THIS RWP

EACH RADIATION WORKER IS RESPONSIBLE FOR:

- KNOWING THEIR WORK AREA DOSE RATES.
- FOLLOWING REQUIREMENTS OF THIS RWP.
- BEING ALARA.
- HOUSEKEEPING.
- WEARING A POCKET OR ELECTRONIC DOSIMETER AND A TLD.
- FOLLOWING POSTED REQUIREMENTS.
- REVIEWING AREA RADIOLOGICAL PLAN VIEW WHEN AVAILABLE PRIOR TO ENTRY.
- NOTIFYING RADIATION PROTECTION PRIOR TO SWEEPING, BRUSHING, GRINDING, WELDING, OR USE OF COMPRESSED AIR IN CONTAMINATED AREAS.
- FOLLOWING POSTED DRESS CATEGORY REQUIREMENTS.
- WEARING MODESTY GARMENTS WHEN NOT WEARING PERSONAL OUTER CLOTHING.
- MONITORING PERSONNEL/TOOL/EQUIPMENT REQUIRED WHEN LEAVING RCA OR CONTAMINATED RCZ.

DRESS CATEGORY AND TASK DESCRIPTION

A 1. WORKER IN CLEAN AREAS

E 2. WORK ASSOCIATED WITH A CONTAMINATED SYS AND/OR CONTAMINATED/RAD MATL WHERE POTENTIAL FOR PERSONNEL CONTAMINATION IS LOW.

G 3. WORKER IN DRY CONTAMINATED AREA TO PERFROM LIGHT WORK.

H 4. WORKER IN DRY CONTAMINATED AREA.

K 5. WORKER IN CONTAMINATED AREA WHERE ADDITIONAL CONTAMINATION CONTROLS ARE REQUIRED OR HOT PARTICLES EXIST.

N 6. WORKER IN WET AREA (BOTTOMS ONLY WHEN CONCERNS ARE BELOW THE WAIST).

M 7. WORKER IN DRY CONTAMINATED AREA WHERE HEAVY WORK IS PERFORMED AND ADDITIONAL CONTROLS ARE NEEDED-RP APPROVAL REQ.

SPECIAL DOSIMETRY

RESPIRATORY

TASK DESCRIPTION

< 4,5,6,7 > FULL FACE PART (ADD HOOD)

SPECIAL INSTRUCTIONS/PRECAUTIONS

* NOTIFY RP PRIOR TO START OF WORK
* PRE-JOB BRIEFING REQUIRED
* CONTINUOUS RP COVERAGE REQUIRED

COMMENTS

FACE SHIELD AND/OR HOOD SOCKS MAY BE REQUIRED BY RP TO PREVENT FACIAL CONTAMINATION.

ED (MG) SETPOINTS:

DOSE ALARM: 50 MREM DOSE RATE ALARM: 150 MREM

APPROVED BY: KPK1495
DATE/TIME: 02/21/96 14:22

TERMINATED BY:
DATE/TIME:

5.3.6 PROTECTIVE CLOTHING FOR EACH DRESS CATEGORY

DRESS CATEGORY	PROTECTIVE CLOTHING
A	None.
B	Surgical gloves.
C	Cotton and rubber gloves.
D	Cotton and rubber gloves, booties and shoecovers.
E	Labcoat, cotton and rubber or surgical gloves.
F	Labcoat, cotton and rubber gloves, booties and shoecovers.
G	Cloth hood, disposable coveralls, cotton and rubber gloves, booties and shoecovers. Secure gloves and booties (tape, elastic, Velcro, straps).
H	Cloth hood, cloth coverall, cotton and rubber gloves, booties and shoecovers, no personal outer clothing. Secure gloves and booties (tape, elastic, Velcro, straps).
I	Cloth hood, cloth coverall, cotton gloves, 2 pair rubber gloves, booties and shoecovers, no personal outer clothing. Secure gloves and booties (tape, elastic, Velcro, straps).
J	Cloth hood, cloth coverall, cotton gloves, 2 pair rubber gloves, booties, shoecovers, no personal outer clothing and additional outer booties or shoecovers. Secure gloves and booties (tape, elastic, Velcro, straps).
K	Cloth hood, cloth coverall, disposable coveralls, cotton gloves, rubber gloves, booties and shoecovers, no personal outer clothing. Secure gloves and booties (tape, elastic, Velcro, straps).
L	Cloth hood, cloth coverall, disposable coveralls, cotton gloves, 2 pair rubber gloves, booties and shoecovers, no personal outer clothing and additional outer booties or shoecovers. Secure gloves and booties (tape, elastic, Velcro, straps).
M	Cloth hood, 2 pair cloth coveralls, cotton gloves, 2 pair rubber gloves, 2 pair booties and shoecovers, no personal outer clothing. Secure gloves and booties (tape, elastic, Velcro, straps).
N	Cloth hood, cloth coverall, wetsuit, cotton gloves, 2 pair rubber gloves, booties and shoecovers, no personal outer clothing. Secure gloves and booties (tape, elastic, Velcro, straps).
O	Cloth hood, cloth coverall, bubble suit, cotton gloves, 2 pair rubber gloves, booties, shoecovers, no personal outer clothing and additional shoe covers or jump boots. Secure gloves and booties (tape, elastic, Velcro, straps).
Z	Special dress as required by Radiation Protection.

Prepared By _____

Reviewed By _____

Approved By _____

TASK: **Complete the ENS Form and Make Initial Notification to State and Counties**

POSITION: **SRO**

Operator's Name_____

Location: **Plant/Simulator** Method: **Perform**

Estimated JPM Completion Time: 12 Minutes

Actual JPM Completion Time: _____ Minutes

Required Time Critical Completion Time 15 Minutes

Actual Time Critical Completion Time _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature_____ Date __/__/__

References: RP/0/A/5700/001 (Rev.12) Notification of Unusual Event
RP/0/A/5700/000 (Rev.04) Classification of Emergency

JPM verified current with references by _____

Date __/__/__

Rev. 05/01-19-00

INITIAL CONDITIONS

You are the WCC SRO/Off-site Communicator.

A loss of offsite power has occurred on Unit #2 while in Mode 2. Both D/Gs functioned as designed and powered up the 4kv busses. A Notification of Unusual Event has just been declared on Unit #2.

The OSM has directed you to complete Enclosure 4.8 (WCC SRO Immediate and Subsequent Actions) of RP/0/A/5700/001 (Notification of Unusual Event).

Note: The evaluator(s) will provide all feedback and **NO ACTUAL CALL OR FAX TO THE STATE/COUNTIES WILL BE MADE.**

Event declaration time/date is now _____/_____ **(current time/date)**

This is a TIME CRITICAL JPM.

JPM OVERALL STANDARD: The ENS Notification form is completed and contact with some of the counties and/or State is established within 15 minutes. (Contact with State/Counties will be simulated.)

NOTES: The evaluator should begin the JPM by giving the examinee the initial conditions, the Data Sheet (Attachment 2) and RP/0/A/5700/000 (Classification of Emergency), to use for reference while filling out the ENS form. Give the examinee Attachment 1 (Authentication Codes List) as noted in JPM step #10.

The Time Critical **start** time is the declaration time listed in the initial conditions. The evaluator should write in the declaration time (on the initial conditions sheet) as soon as the JPM initial conditions have been read. The Time Critical **stop** time is the time recorded in step #7 of this JPM. Ensure the same source (clock, watch) is used for all documented times.

Copies of RP/0/A/5700/001 (Notification of Unusual Event) and RP/0/A/5700/000 (Classification of Emergency) shall be provided for this JPM. The Notification portion of this task may be done as a "Walkthrough" in the Simulator **OR** as a "Walkthrough" in the Control Room. Inform the examinee prior to beginning that the evaluator(s) will provide all feedback and **NO ACTUAL CALL OR FAX TO THE STATE/COUNTIES WILL BE MADE.**

START TIME_____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	**WCC SRO Immediate and Subsequent Actions** (Enc. 4.8) Complete items 1 - 10, 15 and 16 on Enclosure 4.1 - Emergency Notification Form in accordance with Enclosure 4.2, section 1	Operator uses guidance in Enc. 4.2 to fill out the Emergency Notification Form (Enc. 4.1)		
2	**COMPLETION OF THE EMERGENCY NOTIFICATION FORM** Complete Enclosure 4.1- Emergency Notification Form as follows: Check A for Drill **OR** B for Emergency **AND** Check INITIAL **AND** Write in message number. Write in the unit(s) **AND** Communicator's name	Same **Cue:** **This is a Actual Emergency** **Item 1** - Operator checks "B" – Actual Emergency Checks "INITIAL" Operator writes message number 1 **Item 2** - Operator writes in Unit #2 Operator writes in his or her own name.		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	**Continued** **NOTE:** Information for items 3 and 4 will be completed during transmission of the Emergency Notification Form			
	Write in the transmittal time **AND** date	**Item 3** - Operator will not enter a time and date until they are actually making the transmission.		
	Write in the appropriate number **AND** code word	**Item 4** - Operator will not enter number and codeword until they are actually making the transmission.		
	Check "A" for NOTIFICATION OF UNUSUAL EVENT	**Item 5** - Checks "A" for NOTIFICATION OF UNUSUAL EVENT		
	Check A for Emergency Declaration At: **AND**	**Item 6** - Checks "A" for Emergency Declaration At:		
	Write the time **AND** date the classification was declared	The Declaration Time is that time listed in the initial conditions of the JPM and designates the start of the Time Critical portion of this JPM.		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	**Continued** **Note**: Reference RP/0/A/5700/000, (Classification of Emergency) Enter a brief description for declaring the classification (in layman's terms, if possible).	**Item 7** - Operator enters information from initial conditions or RP/000 in layman's terms. Expected to include the following: **"Loss of All Offsite Power to Essential Busses for Greater Than 15 minutes."**		
	Check the appropriate plant condition: **A-IMPROVING** **B-STABLE** **C-DEGRADING**	**Item 8** - Checks "A" or "B"		
	Check A SHUTDOWN **AND** write the time and date of Reactor Shutdown **OR**	**Item 9** - Checks "A" SHUTDOWN **Cue:** **Time: current time minus 20 minutes** **Date: "today's date"**		
	Check B **AND** write in the Reactor Power level	N/A		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	**Continued** Check the appropriate box, for emergency release **A-NONE** **B-POTENTIAL** **C-IS OCCURRING** **D-HAS OCCURRED**	**Item 10** - Checks "A" or "B" Note: **If** the operator requests Meteorological information give the following cue: **Cue:** **Meteorological information is not available at this time.**		
	Check A, NO RECOMMENDED PROTECTIVE ACTIONS	**Item 15** - Checks "A", NO RECOMMENDED PROTECTIVE ACTIONS		
	Have the Emergency Coordinator approve the message	**Item 16** - **Cue:** **The Emergency Coordinator, John Doe, just approved the message**		
	AND			
	Write in the time **AND** date the message was approved	Operator writes in current time and date		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	**WCC SRO Immediate and Subsequent Actions** (Enc. 4.8) Make initial notification to State and County authorities using the Emergency Notification Form in accordance with Enclosure 4.2, section 2.	Same		
4 *	Continuing with step 2.1 of Enclosure 4.2 of RP/0/A/5700/001 (Notification of Unusual Event): **TRANSMISSION OF THE EMERGENCY NOTIFICATION FORM** Use the Selective Signaling telephone by dialing *1 and depressing the push to talk button.	Operator simulates dialing *1 on Selective Signaling phone, presses the push to talk button as needed in following steps. **Cue:** ***1 dialed on Selective Signaling telephone, the push to talk button is depressed.**		
5	**IF** selective signaling fails, **THEN** go to RP/0/A/5700/014, Tab 1 for manual selective signaling numbers.	**Cue:** **The Selective Signaling telephone is functioning as expected.**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	As the State and Counties answer, check them off on the back of the notification form. At least one attempt using the individual selective signaling code must be made for any missing agencies. **Proceed with the notification promptly following an attempt to get missing agencies on the line.**	Operator listens to the Selective Signaling phone and checks off each agency on the back of the Notification form as they come on the line. Operator may or may not respond after each agency comes on line. **Cue:** **This is North Carolina Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Gaston County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	**Continued**	**Cue:** **This is Lincoln County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Iredell County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Catawba County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	**Continued**	**Cue:** **This is Cabarrus County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please". **Cue:** **This is Mecklenburg County Emergency Response Organization.** Operator holds down the push to talk button, responds "This is McGuire Nuclear Station, Hold please".		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*7	Verify the State and Counties are on the line, document this time in item #3 on the form. This time should not exceed 15 minutes from the time of declaration (Item # 6).	Operator verifies the State and Counties are on the line, documents current time and date on line # 3 of the Notification form. **Time State/Counties are on the line:** _____ This is the Stop Time for the Time Critical Task		
8	Tell them you have an emergency notification from the McGuire Control Room and to get out the Emergency Notification Form.	Same. (No response is expected from agencies.)		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	Read the message slowly beginning with Item # 1, allowing ample time to copy.	Operator holds down the press to talk button and reads from Enclosure 4.1 (Emergency Notification Form) provided: "This is a drill message" "**Item 1**-This is a drill. This is an initial notification, message # 1. **Item 2**-The site is McGuire Nuclear Site, Unit #2. Reported by _____ (the operator's name making the transmission) **Item 3**-The transmittal time/date is _____ (as listed on line #3). Confirmation phone number is 704-875-6044."		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
10	**NOTE**: Refer to page 6 of 8 of this Enclosure for the authentication codeword list.	**Note to evaluator**: When the operator turns to page 6 of the Enclosure (which is blank), give him/her Attachment #1 of this JPM. Instruct them to use Attachment #1 for authentication purposes.		
	When you reach item #4, ask the State or County to authenticate the message. The agency should give you a number and you should provide the appropriate codeword. Write the number and codeword on the form.	Operator asks any one of the agencies to authenticate. The Operator references Attachment #1 of this JPM and finds the corresponding codeword. Both code number and codeword are written in on line 4 of Enclosure 4.1. Operator holds down the push to talk button, "_____County, please authenticate this message." then releases the button on the receiver. **Cue:** **This is (same as above) County, the authentication number is 70.** Operator holds down the push to talk button, "**Item 4**-_____ County, the codeword for # 70 is shotgun", then releases the button on the receiver.		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	After communicating the initial message, ask if there are any questions. Record individuals' names and times on the back of the form. The time is the same time as Item #3.	Operator continues reading the initial message as follows: "**Item 5**-The Emergency Classification is 'A'-Notification of Unusual Event. "**Item 6**-'A'-The Emergency was declared at _____" (time/date listed on form) "**Item 7**- "Loss of All Offsite Power to Essential Busses for Greater Than 15 minutes." "**Item 8**-'B'-Plant conditions are Stable." "**Item 9**-'A'-The Reactor is shutdown, at _____." (time / date listed on form) "**Item 10**- Emergency Releases-'A'-None are happening at this time." "No meteorological data is available at this time." "**Item 15**-'A'-No recommended protective actions at this time."		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	**Continued**	"**Item 16**-This Emergency Notification was approved by the Emergency Coordinator, John Doe, at _____ (time/date listed on form) Are there any questions?" PAUSE...NO QUESTIONS. Operator records names, dates and times on back of form. "I need to verify the name of each agency representative. When I call out the agency, please give your name... North Carolina State," **Cue: Adam Jones** "Mecklenburg County," **Cue: Sam Brown** "Gaston County," **Cue: Willie Smith** "Lincoln County," **Cue: Patty Green** "Iredell County," **Cue: Claude Barnes** "Catawba County," **Cue: Sarah Ashe** "Cabarrus County." **Cue: Don Kimball**		

*** DENOTES CRITICAL**

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
12	After verbally transmitting the message, FAX a copy (front page only) to the agencies. Refer to pages 7 of 8 and 8 of 8 of this enclosure for FAX operation. **OPERATION OF THE FAX** (from page 7 of Enc. 4.2) Insert the Emergency Notification Form face down into the FAX. Press – Group FAX.	Operator refers to page 7 of Enc. 4.2, simulates placing the Emergency Notification Form face down into the FAX and depressing the "Group Fax" button. **Note to evaluator**: Ensure FAX transmission is **ONLY SIMULATED.** **Cue:** **Form inserted face down, Group FAX pushbutton depressed, FAX is transmitting.**		
13	Continuous attempts to contact missing agencies must be made if unable to complete the notification per step 2.3. Document the time these agencies were contacted on the back of the notification form.	**Cue:** **All agencies have been notified.**		
14	**WCC SRO Subsequent Actions** (Enc. 4.8) Notify the NRC Operations Center by completing Enclosure 4.3 and transmitting immediately but no later than 1 hour of the event declaration using RP/0/A/5700/014, Tab2.	Operator returns to Enclosure 4.8 after the notification transmission is complete. **Cue:** **Another operator will make the NRC notification and complete Enclosure 4.8.**		

STOP TIME_____

*** DENOTES CRITICAL**

EMERGENCY NOTIFICATION

1. [A] THIS IS A DRILL [X] ACTUAL EMERGENCY [X] INITIAL [ ] FOLLOW-UP MESSAGE NUMBER 1

2. SITE: McGuire Nuclear Site UNIT: 2 REPORTED BY: _____

3. TRANSMITTAL TIME/DATE: _____ (Eastern) ___/___/___ (mm/dd/yy) CONFIRMATION PHONE NUMBER: (704) 875-6044

4. AUTHENTICATION (If Required): _____ (Number) _____ (Codeword)

5. EMERGENCY CLASSIFICATION:
   [X] NOTIFICATION OF UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY

6. [X] Emergency Declaration At: [B] Termination At: TIME/DATE: _____ (Eastern) ___/___/___ (mm/dd/yy) (If B, go to Item 16.)

7. EMERGENCY DESCRIPTION/REMARKS: Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes.

8. PLANT CONDITION: [A] IMPROVING [X] STABLE [C] DEGRADING

9. REACTOR STATUS: [X] SHUTDOWN: TIME/DATE: _____ (Eastern) ___/___/___ (mm/dd/yy) [B] N/A % POWER

10. EMERGENCY RELEASE(S):
    [X] NONE (Go to item 14.) [B] POTENTIAL (GO TO ITEM 14.) [C] IS OCCURRING [D] HAS OCCURRED

**11. TYPE OF RELEASE: [ ] ELEVATED [ ] GROUND LEVEL

[A] AIRBORNE: Started: _____ Time (Eastern) ___/___/___ Date Stopped: _____ Time (Eastern) ___/___/___ Date

[B] LIQUID: Started: _____ Time (Eastern) ___/___/___ Date Stopped: _____ Time (Eastern) ___/___/___ Date

**12. RELEASE MAGNITUDE: [ ] CURIES PER SEC. [ ] CURIES NORMAL OPERATING LIMITS: [ ] BELOW [ ] ABOVE

[A] NOBLE GASES _____ [B] IODINES _____

[C] PARTICULATES _____ [D] OTHER _____

**13. ESTIMATE OF PROJECTED OFFSITE DOSE: [ ] NEW [ ] UNCHANGED PROJECTION TIME: _____ (Eastern)

	TEDE mrem	Thyroid CDE mrem
SITE BOUNDARY		
2 MILES		
5 MILES		
10 MILES		

ESTIMATED DURATION: _____ HRS.

**14. METEOROLOGICAL DATA: [A] WIND DIRECTION (from) _____ ° [B] SPEED (mph) _____

[C] STABILITY CLASS _____ [D] PRECIPITATION (type) _____

15. RECOMMENDED PROTECTIVE ACTIONS:
    [X] NO RECOMMENDED PROTECTIVE ACTIONS
    [B] EVACUATE _____
    [C] SHELTER IN-PLACE _____
    [D] OTHER _____

16. APPROVED BY: _____ (Name) Emergency Coordinator (Title) TIME/DATE: _____ (Eastern) ___/___/___ (mm/dd/yy)

* If items 8-14 have not changed, only items 1-7 and 15-16 are required to be completed.

** Information may not be available on initial notifications.

GOVERNMENT AGENCIES NOTIFIED

Record the name, date, time and agencies notified:

1. Adam Jones (name)

(date) (time) NC State (agency)
EOC Sel. Sig. 314
EOC Bell Line (919) 733-3943

2. SAM BROWN (name)

(date) (time) Mecklenburg County (agency)
WP Sel. Sig. 116
WP Bell line 943-6200

3. Willie Smith (name) KEY

(date) (time) Gaston County (agency)
WP Sel. Sig. 112
WP Bell Line (704) 866-3300

4. PATTY GREEN (name) ANSWER

(date) (time) Lincoln County (agency)
WP Sel. Sig. 113
WP Bell line (704) 735-8202

5. Claude Barnes (name)

(date) (time) Iredell County (agency)
WP Sel. Sig. 114
WP Bell line (704) 878-3039

6. SARAH ASHE (name)

(date) (time) Catawba County (agency)
WP Sel. Sig. 118
WP Bell line (828) 464-3112

7. DON Kimball (name)

(date) (time) Cabarrus County (agency)
WP Sel. Sig. 119
WP Bell line (704) 788-3108

Attachment 1
(For Training Use Only)

Excerpt From Authentication Codes List (RP/0/A/5700/xxx)
Theme: Sports
Effective 12/18/96-12/31/98

1. Fishing
2. Lacrosse
3. Ice Hockey
4. Roller blades
5. Wrestling
6. Sweatshirt
7. Pool
8. Hurdle
9. Equestrian
10. Net
11. Putt
12. Bowling
13. Cricket
14. Iron
15. Arrow
16. Jai alai
17. Nascar
18. Tent
19. Stance
20. Officials
21. Karate
22. freestyle
23. Pitcher
24. Rodeo
25. Raft
26. Walking
27. Nautilus
28. Baseball
29. Arena
30. Jumpshot
31. Kneepads
32. Football
33. Hunting
34. Court
35. Skating
36. Canoe
37. Match
38. Defense
39. Competition
40. Snorkeling
41. Bobsled
42. Pigskin
43. Camping
44. Aerobics
45. Uniform
46. Spirit
47. Huddle
48. Referees
49. Tackle
50. Yacht
51. Baseball
52. Gymnastics
53. Tennis
54. Driver
55. Surfing
56. Jersey
57. Pool
58. Marathon
59. Backpack
60. Race car
61. Puck
62. Waterskiing
63. Jogging
64. Sandtrap
65. Goal
66. End zone
67. Sneakers
68. Coach
69. Basket
70. Shotgun
71. Mask
72. Paddle
73. Bow
74. Sailing
75. Bunt
76. Winner
77. Exercise
78. Winston cup
79. Parachute
80. Loser
81. Jockey
82. Bronco
83. Archery
84. Track
85. Strike
86. Grip
87. Somersault
88. Wheel
89. Skis
90. Tournament
91. Fairway
92. Handball
93. Stadium
94. Fitness
95. Baton
96. Fans
97. Timeout
98. Touchdown
99. League
100. Bulls eye
101. Catcher
102. Rifle
103. Rod
104. Cleats
105. Shinguard
106. Team
107. Rugby
108. Glove
109. Bullet
110. Volleyball
111. Etc.....

INITIAL CONDITIONS

You are the WCC SRO/Off-site Communicator.

A loss of offsite power has occurred on Unit #2 while in Mode 2. Both D/Gs functioned as designed and powered up the 4kv busses. A Notification of Unusual Event has just been declared on Unit #2.

The OSM has directed you to complete Enclosure 4.8 (WCC SRO Immediate and Subsequent Actions) of RP/0/A/5700/001 (Notification of Unusual Event).

Note: The evaluator(s) will provide all feedback and **NO ACTUAL CALL OR FAX TO THE STATE/COUNTIES WILL BE MADE.**

Event declaration time/date is now _____/_____ **(current time/date)**

This is a TIME CRITICAL JPM.

Attachment 2
(For Training Use Only)

DATA SHEET

SEQUENCE OF EVENTS:

T_0	A loss of offsite power has occurred on Unit #2 while in Mode 2. Both D/Gs functioned as designed and powered up the 4kv busses.
$T_0 + 1$	A manual Reactor Trip was initiated by the Operator at the Controls.
$T_0 + 2$	EP/2/A/5000/E-0 (Reactor Trip or Safety Injection) is implemented.
$T_0 + 3$	Immediate Actions of EP/2/A/5000/E-0 (Reactor Trip or Safety Injection) were completed.
$T_0 + 4$	EP/2/A/5000/ES-0.1 (Reactor Trip Response) was implemented.
$T_0 + 8$	AP/2/A/5500/07 (Loss of Electrical Power) is being reviewed by another SRO.
$T_0 + 16$	Switchyard personnel were dispatched to investigate and repair electrical problems at the switchyard.

AP's and EP's used (in sequence):

EP/2/A/5000/E-0 Reactor Trip or Safety Injection
EP/2/A/5000/ES-0.1 Reactor Trip Response
AP/2/A/5500/07 Loss of Electrical Power

MALFUNCTIONING/INOPERABLE EQUIPMENT:

None

OTHER INFORMATION:

No notifications to the State/Counties have been made.

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. RP/0/A/5700/014
Revision No. 008

INFORMATION ONLY

PREPARATION

(2) Station **McGuire Nuclear Station**

(3) Procedure Title Emergency Telephone Directory

(4) Prepared By James R. Painter Date 3/4/99

(5) Requires 10CFR50.59 evaluation?

- [x] Yes (New procedure or revision with major changes)
- [ ] No (Revision with minor changes)
- [ ] No (To incorporate previously approved changes)

(6) Reviewed By Alan L. Beaver (QR) Date 3/8/99

Cross-Disciplinary Review By _____ (QR) NA AHB Date 3/8/99

Reactivity Mgmt. Review By _____ (QR) NA AHB Date 3/8/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval *(if necessary)*

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By _____ Date 3/11/99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

- ☐ Yes ☐ N/A Check lists and/or blanks initialed, signed, dated or filled in NA, as appropriate?
- ☐ Yes ☐ N/A Listed enclosures attached?
- ☐ Yes ☐ N/A Data sheets attached, completed, dated and signed?
- ☐ Yes ☐ N/A Charts, graphs, etc. attached, dated, identified, and marked?
- ☐ Yes ☐ N/A Procedure requirements met?

Verified By _____ Date _____

13) Procedure Completion Approved _____ Date _____

14) Remarks *(attach additional pages, if necessary)*

Duke Power Company McGuire Nuclear Station **Emergency Telephone Directory** **Multiple Use**	Procedure No. RP/0/A/5700/014 Revision No. 008 Electronic Reference No. MC0048MH

Emergency Telephone Directory

1. Symptoms

An emergency has been declared and the Emergency Response organization has been called to staff the TSC/OSC/EOF.

2. Immediate Actions

N/A

3. Subsequent Actions

Use telephone numbers listed in these enclosures for communications with the referenced facility.

4. Enclosures

4.1 Emergency Response Numbers

4.2 NRC Telephone Numbers

4.3 Duke Management Telephone Listing

4.4 TSC & OSC Telephone Numbers

4.5 Other Offsite Agencies

4.6 Decision Line Network

4.7 Operation of EOF Telephones

4.8 Access Control Telephone Numbers

Emergency Response Numbers

NOTE: Programmed numbers are for EOF only.

Location	Sel. Sig. Number	Bell Line Number	Programmed Number	Fax Number	Radio Number
NC EOC {PIP-0-M98-3522}	314	1-919-733-3943 1-800-858-0368 1-919-733-3942 1-919-733-3920	12	1-919-733-7554	WPDW704
NC WP	117	1-919-733-3861	03	1-919-733-8134	
Meck. Co. WP	116	943-6200	01	943-6189	21
Meck. Co. EOC	116	943-6200	01	943-6189	21
Gaston Co. WP	112	1-704-866-3300	02	1-704-866-7623	26
Gaston Co. EOC	112	1-704-866-3243	11	1-704-868-4150	26
Lincoln Co. WP	113	1-704-735-8202	06	1-704-732-9035	25
Lincoln Co. EOC	113	1-704-736-8511	15	1-704-732-9036	25
Iredell Co. WP	114	1-704-878-3039	07	1-704-878-5354	23
Iredell Co. EOC	114	1-704-878-3039	07	1-704-878-5354	23
Catawba Co. WP	118	1-828-464-3112	08	1-828-465-1220	27
Catawba Co. EOC	118	1-828-464-3112	08	1-828-465-1220	27
Cabarrus Co. WP	119	1-704-788-3108	09	1-704-784-1919	28
Cabarrus Co. EOC		1-704-788-8137	18	1-704-784-1919	28
McGuire TSC	312	875-1951		875-1954	
McGuire EOF	111	382-0724		382-0722	
NC Emer. Mgmt. Western Branch Office	211	1-704-466-5555		1-704-466-5578	
MNS News Group				875-5602	
JIC				382-0069	

Attachment 2
(For Training Use Only)

DATA SHEET

SEQUENCE OF EVENTS:

T_0 A loss of offsite power has occurred on Unit #2 while in Mode 1.

T_0 + 1 Automatic Reactor Trip occurred. Neither D/G started automatically.

T_0 + 2 EP/2/A/5000/E-0 (Reactor Trip or Safety Injection) is implemented.

T_0 + 3 Immediate Actions of EP/1/A/5000/E-0 (Reactor Trip or Safety Injection) were completed. Both D/Gs had to be manually started. Power was restored to 2ETA & 2ETB within 3-4 minutes.

T_0 + 9 EP/2/A/5000/ES-0.1 (Reactor Trip Response) was implemented.

AP's and EP's used:

EP/2/A/5000/E-0 Reactor Trip or Safety Injection
EP/2/A/5000/ES-0.1 Reactor Trip Response
AP/2/A/5500/07 Loss of Electrical Power

MALFUNCTIONING/INOPERABLE EQUIPMENT:

Initially both Unit #2 D/Gs (Auto ONLY)

OTHER INFORMATION:

No notifications have been made.

Attachment 1
(For Training Use Only)

Excerpt From Authentication Codes List (RP/0/A/5700/xxx)
Theme: Sports
Effective 12/18/96-12/31/98

1. Fishing
2. Lacrosse
3. Ice Hockey
4. Roller blades
5. Wrestling
6. Sweatshirt
7. Pool
8. Hurdle
9. Equestrian
10. Net
11. Putt
12. Bowling
13. Cricket
14. Iron
15. Arrow
16. Jai alai
17. Nascar
18. Tent
19. Stance
20. Officials
21. Karate
22. freestyle
23. Pitcher
24. Rodeo
25. Raft
26. Walking
27. Nautilus
28. Baseball
29. Arena
30. Jumpshot
31. Kneepads
32. Football
33. Hunting
34. Court
35. Skating
36. Canoe
37. Match
38. Defense
39. Competition
40. Snorkeling
41. Bobsled
42. Pigskin
43. Camping
44. Aerobics
45. Uniform
46. Spirit
47. Huddle
48. Referees
49. Tackle
50. Yacht
51. Baseball
52. Gymnastics
53. Tennis
54. Driver
55. Surfing
56. Jersey
57. Pool
58. Marathon
59. Backpack
60. Race car
61. Puck
62. Waterskiing
63. Jogging
64. Sandtrap
65. Goal
66. End zone
67. Sneakers
68. Coach
69. Basket
70. Shotgun
71. Mask
72. Paddle
73. Bow
74. Sailing
75. Bunt
76. Winner
77. Exercise
78. Winston cup
79. Parachute
80. Loser
81. Jockey
82. Bronco
83. Archery
84. Track
85. Strike
86. Grip
87. Somersault
88. Wheel
89. Skis
90. Tournament
91. Fairway
92. Handball
93. Stadium
94. Fitness
95. Baton
96. Fans
97. Timeout
98. Touchdown
99. League
100. Bulls eye
101. Catcher
102. Rifle
103. Rod
104. Cleats
105. Shinguard
106. Team
107. Rugby
108. Glove
109. Bullet
110. Volleyball
111. Etc.....

EMERGENCY NOTIFICATION

1. [A] THIS IS A DRILL [B] ACTUAL EMERGENCY [ ] INITIAL [ ] FOLLOW-UP MESSAGE NUMBER _____

2. SITE: McGuire Nuclear Site UNIT: _____ REPORTED BY: _____

3. TRANSMITTAL TIME/DATE: _____ (Eastern) ____ / ____ / ____ (mm / dd / yy) CONFIRMATION PHONE NUMBER: (704) 875-6044

4. AUTHENTICATION (If Required): _____ (Number) _____ (Codeword)

5. EMERGENCY CLASSIFICATION:

[A] NOTIFICATION OF UNUSUAL EVENT [B] ALERT [C] SITE AREA EMERGENCY [D] GENERAL EMERGENCY

6. [A] Emergency Declaration At: [B] Termination At: TIME/DATE: _____ (Eastern) ____ / ____ / ____ (mm / dd / yy) (If B, go to item 16.)

7. EMERGENCY DESCRIPTION/REMARKS: _____

8. PLANT CONDITION: [A] IMPROVING [B] STABLE [C] DEGRADING

9. REACTOR STATUS: [A] SHUTDOWN: TIME/DATE: _____ (Eastern) ____ / ____ / ____ (mm / dd / yy) [B] _____ % POWER

10. EMERGENCY RELEASE(S):

[A] NONE (Go to item 14.) [B] POTENTIAL (GO TO ITEM 14.) [C] IS OCCURRING [D] HAS OCCURRED

**11. TYPE OF RELEASE: [ ] ELEVATED [ ] GROUND LEVEL

[A] AIRBORNE: Started: _____ Time (Eastern) ____ / ____ / ____ Date Stopped: _____ Time (Eastern) ____ / ____ / ____ Date

[B] LIQUID: Started: _____ Time (Eastern) ____ / ____ / ____ Date Stopped: _____ Time (Eastern) ____ / ____ / ____ Date

**12. RELEASE MAGNITUDE: [ ] CURIES PER SEC. [ ] CURIES NORMAL OPERATING LIMITS: [ ] BELOW [ ] ABOVE

[A] NOBLE GASES _____ [B] IODINES _____

[C] PARTICULATES _____ [D] OTHER _____

**13. ESTIMATE OF PROJECTED OFFSITE DOSE: [ ] NEW [ ] UNCHANGED PROJECTION TIME: _____ (Eastern)

	TEDE mrem	Thyroid CDE mrem
SITE BOUNDARY		
2 MILES		
5 MILES		
10 MILES		

ESTIMATED DURATION: _____ HRS.

**14. METEOROLOGICAL DATA: [A] WIND DIRECTION (from) _____ ° [B] SPEED (mph) _____

[C] STABILITY CLASS _____ [D] PRECIPITATION (type) _____

15. RECOMMENDED PROTECTIVE ACTIONS:

[A] NO RECOMMENDED PROTECTIVE ACTIONS

[B] EVACUATE _____

[C] SHELTER IN-PLACE _____

[D] OTHER _____

16. APPROVED BY: _____ (Name) Emergency Coordinator (Title) TIME/DATE: _____ (Eastern) ____ / ____ / ____ (mm / dd / yy)

* If items 8-14 have not changed, only items 1-7 and 15-16 are required to be completed.

** Information may not be available on initial notifications.

GOVERNMENT AGENCIES NOTIFIED

Record the name, date, time and agencies notified:

1. (name)

(date) (time)

NC State
(agency)
EOC Sel. Sig. 314
EOC Bell Line (919) 733-394

2. (name)

(date) (time)

Mecklenburg County
(agency)
WP Sel. Sig. 116
WP Bell line 943-6200

3. (name)

(date) (time)

Gaston County
(agency)
WP Sel. Sig. 112
WP Bell Line (704) 866-330

4. (name)

(date) (time)

Lincoln County
(agency)
WP Sel. Sig. 113
WP Bell line (704) 735-8202

5. (name)

(date) (time)

Iredell County
(agency)
WP Sel. Sig. 114
WP Bell line (704) 878-3039

6. (name)

(date) (time)

Catawba County
(agency)
WP Sel. Sig. 118
WP Bell line (828) 464-3112

7. (name)

(date) (time)

Cabarrus County
(agency)
WP Sel. Sig. 119
WP Bell line (704) 788-3108