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(Rev. 3-2009)

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Section 9: FINAL BROWNS FERRY 2014-301 SRO WRITTEN EXAM

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147 # pgs

FACILITY NAME: BROWNS FERRY

Section 9

REPORT NUMBER: 05000259/260/296 2014-301

FINAL SRO WRITTEN EXAM

CONTENTS:

- ☒ Final SRO Written Exam (25 'as given' questions with changes made during administration annotated)
- ☒ Reference Handouts Provided To Applicants
- ☒ Answer Key

Location of Electronic Files:

Submitted By: B. Challen

Verified By: [Signature]

<p style="text-align: center;">NRC Exam</p> <p style="text-align: center;">Site-Specific SRO Written Examination</p>
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Applicant Information

Name: _____

Date:

Facility/Unit: Browns Ferry

Region:	I	II	III	IV
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Reactor Type:	W	CE	BW	GE
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Start Time:

Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Instructions

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Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Applicant's Signature

Results

RO/SRO-Only/Total Examination Values	<u>75</u> / <u>25</u> / <u>100</u> Points
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Applicant's Scores	_____ / _____ / _____ Points
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Applicant's Grade	_____ / _____ / _____ Percent
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SRO

United States
Nuclear Regulatory Commission
Examination Answer Sheet



EXAMINEE DOCKET NUMBER

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FACILITY DOCKET NUMBER

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D	D	D	D	D	D	D
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G	G	G	G	G	G	G
H	H	H	H	H	H	H
I	I	I	I	I	I	I
J	J	J	J	J	J	J
K	K	K	K	K	K	K
L	L	L	L	L	L	L
M	M	M	M	M	M	M
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Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z

TEST FORM

A B C D

1	B	C	D	11	A	B	C	21	A	B	C	31	B	C	D	41	A	B	C	D
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110	A	B	C	120	A	B	C	130	A	B	C	140	A	B	C	150	A	B	C	D

DATE

LICENSE

FACILITY

QUESTION 76

Unit 2 is operating at 100% Reactor Power, when the following alarms are received:

- HPCI LOGIC POWER FAILURE, (2-9-3F, Window 3)
- HPCI 120 VAC POWER FAILURE, (2-9-3F, Window 7)
- ADS BLOWDOWN POWER FAILURE, (2-9-3C, Window 32)
- CORE SPRAY SYS II LOGIC PWR FAILURE, (2-9-3F, Window 23)
- RHR SYS II LOGIC POWER FAILURE, (2-9-3E, Window 5)

Which ONE of the following completes both statements below?

The 250 VDC RMOV Board __ (1) __ has been lost.

In accordance with Tech Spec Bases 3.8.7, Distribution Systems – Operating, if this RMOV Board is transferred to its alternate source, it __ (2) __.

- A. (1) 2A
(2) must be declared inoperable
- B. (1) 2A
(2) remains OPERABLE
- C. (1) 2B
(2) must be declared inoperable
- D. (1) 2B
(2) remains OPERABLE

QUESTION 77

A reactor scram has occurred on Unit 1.

Current plant conditions are:

- Mode Switch: SHUTDOWN
- 17 Control Rods are at position 02
- RPV level: (+) 31 inches
- Reactor Pressure: 955 psig
- Drywell Pressure: 4 psig and rising
- DRYWELL RADIATION HIGH, (1-9-7C, Window 15), is alarming AND verified valid
- Standby Liquid Control is injecting

Which ONE of the following completes both statements below?

Based on the current plant conditions, control rod insertion is directed in accordance with __ (1) __.

If the Unit Operator **subsequently** reports that ALL control rods are fully inserted, the Unit Supervisor will __ (2) __.

- A. (1) 1-AOI-100-1, Reactor Scram
(2) stop Boron injection
- B. (1) 1-AOI-100-1, Reactor Scram
(2) continue Boron injection
- C. (1) 1-EOI-1, RPV CONTROL, RC/Q
(2) stop Boron injection
- D. (1) 1-EOI-1, RPV CONTROL, RC/Q
(2) continue Boron injection

QUESTION 78

Given the following conditions for Unit 2:

- Reactor has scrammed due to a loss of control air header pressure.
- Suppression pool temperature is 115° F
- Control Air header pressure is 25 psig
- RPV water level was deliberately lowered to (-) 55 inches

Which ONE of the following completes the statements below?

MSIV status is __ (1) __.

__ (2) __ contains the steps to re-align Drywell Control Air to the MSIVs.

NOTE: 2-AOI-32-2, Loss of Control Air

2-EOI Appendix-8B, Reopening MSIVs/Bypass Valve Operation

- A. (1) all MSIVs CLOSED
(2) 2-AOI-32-2
- B. (1) all MSIVs CLOSED
(2) 2-EOI Appendix-8B
- C. (1) inboard MSIVs OPEN, outboard MSIVs CLOSED
(2) 2-AOI-32-2
- D. (1) inboard MSIVs OPEN, outboard MSIVs CLOSED
(2) 2-EOI Appendix-8B

QUESTION 79

Unit 1 was at 100% power when one Safety Relief Valve failed open and was unable to be closed. The Reactor Mode Switch was placed in SHUTDOWN.

The following conditions exist:

- Reactor power 8% and lowering
- Reactor pressure 900 psig and stable
- Suppression pool temperature 190 °F and rising
- Suppression pool level 16.0 ft and slowly rising

Which ONE of the following identifies the required action in accordance with 1-EOI-2, Primary Containment Control?

REFERENCE PROVIDED

- A. lower reactor pressure but maintain cool down rate limitations, in accordance with 1-EOI-1, RPV Control
- B. lower reactor pressure irrespective of cool down rate, in accordance with 1-EOI-1, RPV Control
- C. anticipate Emergency Depressurization in accordance with 1-C-2, Emergency RPV Depressurization
- D. Emergency Depressurize in accordance with 1-C-2, Emergency RPV Depressurization

QUESTION 80

Unit 1 was operating at 100% power, when an ATWS occurred with the following conditions:

- Reactor Power is unknown
- RPV pressure is being maintained between 800 to 1000 psig
- Suppression Pool temperature is 102 °F and stabilizing
- RHR Suppression Pool cooling is in service in accordance with 1-EOI Appendix-17A, RHR System Operation Suppression Pool Cooling

Which ONE of the following completes both statements below?

In accordance with Emergency Operating Instructions, the RPV Level Band is __ (1) __ inches.

In accordance with 1-EOI-1, RPV Control, implementation of Appendix-3A, SLC Injection __ (2) __ required.

- A. (1) (+) 51 to (-) 180
(2) is
- B. (1) (+) 51 to (-) 180
(2) is NOT
- C. (1) (-) 50 to (-) 180
(2) is
- D. (1) (-) 50 to (-) 180
(2) is NOT

QUESTION 81

The following conditions exist for Unit 1:

- Mode 3
- Reactor Pressure 75 psig
- Core Spray Loop 2 is INOPERABLE
- RHR Loop 2 is operating in Shutdown Cooling

Which ONE of the following identifies a **subsequent** inoperability that, in combination with the conditions listed above, requires an hourly fire watch?

REFERENCE PROVIDED

- A. Preaction System for HPCI, 1-26-37
- B. Unit 1 Auxiliary Instrument Room CO2 System
- C. Fire Detection for RHR on Panel 1-LPNL-25-545
- D. Fire Detection for RCIC on Panel 1-LPNL-25-545

QUESTION 82

All three units are at 100% power when the following occurs:

- 0-AOI-57-1E, Grid Instability, has been entered
- The Transmission Operator (TOp) reports the status of offsite power sources:
 - 161 kV is UNQUALIFIED
 - 500 kV is QUALIFIED
- BOTH starting air receivers are at 167 psig for the 3A Diesel Generator

Which ONE of the following completes the statement below?

The MOST limiting condition for Unit 3 in accordance with T.S. 3.8.1, AC Sources – Operating, is condition ____.

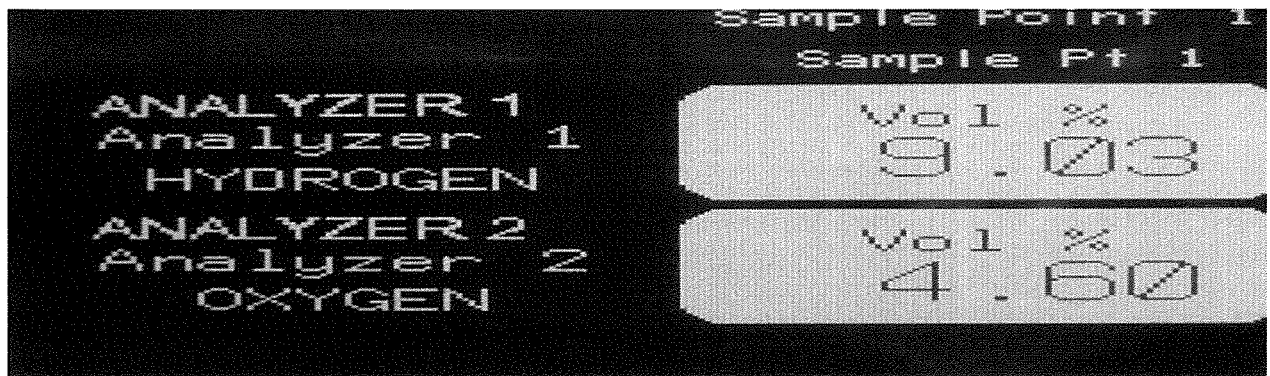
REFERENCE PROVIDED

- A. A
- B. E
- C. F
- D. J

QUESTION 83

Given the following conditions:

- A loss of coolant accident (LOCA) has occurred on Unit 1
- Suppression Pool level is 16 feet
- Drywell Pressure is 25 psig
- H_2/O_2 concentrations are as indicated below:



Which ONE of the following completes the statements below?

In accordance with 1-EOI-Appendix-19, H_2/O_2 Analyzer Operation, readings from 1-XR-76-110 H_2/O_2 Concentration Recorder (Panel 1-9-54) or from 1-MON-76-110, H_2/O_2 Analyzer (Panel 1-9-55) __ (1) __.

Based on the given parameters, in accordance with EPIP-1, Emergency Classification the current classification is a(an) __ (2) __.

REFERENCE PROVIDED

- A. (1) are valid as soon as the analyzer is placed in service
(2) Alert
- B. (1) are valid as soon as the analyzer is placed in service
(2) Site Area Emergency
- C. (1) are NOT valid until ten minutes after the analyzer is placed in service
(2) Alert
- D. (1) are NOT valid until ten minutes after the analyzer is placed in service
(2) Site Area Emergency

QUESTION 84

Unit 1 has experienced a LOCA and the following containment parameters exist:

- Drywell Pressure is 23.4 psig
- Suppression Chamber Pressure is 22 psig
- Hydrogen concentration in the Drywell is 2.9%
- Suppression Pool Level is 15 feet
- Reactor Water Level is (-) 170 inches and rising

Which ONE of the following completes the statements below?

The required procedure is __ (1) __.

Vent under these conditions __ (2) __.

- A. (1) 1-EOIAPPENDIX-12, Primary Containment Venting
(2) irrespective of offsite radioactive release rates
- B. (1) 1-EOIAPPENDIX-12, Primary Containment Venting
(2) ONLY if offsite radioactive release rates can be maintained below ODCM limits
- C. (1) 1-EOIAPPENDIX-15, RPV Venting for Primary Containment Flooding
(2) irrespective of offsite radioactive release rates
- D. (1) 1-EOIAPPENDIX-15, RPV Venting for Primary Containment Flooding
(2) ONLY if offsite radioactive release rates can be maintained below ODCM limits

QUESTION 85

Unit 1 was operating at 100% Reactor Power when a Reactor Scram occurred.

Following the Scram a primary system leak into Secondary Containment, with the following alarms and indications:

- RX BLDG AREA RADIATION HIGH, (1-9-3A, Window 22)
- RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH, (1-9-3A, Window 4)
- Elevation 565 East ARM meter indicating off-scale high
- Elevation 565 Northeast ARM meter indicating 600 mr/hr and stable
- An Unusual Event has been declared based on Stack Noble Gas (WRGERMS) exceeding 2.88×10^{-7} $\mu\text{Ci/sec}$ for more than an hour.

Which ONE of the following completes the statement?

In accordance with 1-EOI-3, Secondary Containment Control, the crew is required to enter __ (1) __.

A potential isolation source in accordance with Table 4, Secondary Cntmt Area Radiation is __ (2) __.

(1)

(2)

- | | |
|---|--|
| A. 1-EOI-1, RPV Control | SDV vents and drains |
| B. 1-EOI-1, RPV Control | RWCU suction and return isolation valves |
| C. 0-EOI-4, Radioactivity Release Control | SDV vents and drains |
| D. 0-EOI-4, Radioactivity Release Control | RWCU suction and return isolation valves |

QUESTION 86

Unit 2 was shutdown due to RHR Loop II being inoperable for 6 days.

- RHR Loop II is tagged out for maintenance on the 2-FCV-74-66, Outboard LPCI Injection Valve
- RHR Loop I is in Shutdown Cooling with RHR pump 2A

Which ONE of the following completes both statements below?

In accordance with Technical Specification 3.5.2, ECCS Shutdown, for these plant conditions, __ (1) __ low pressure ECCS injection/spray subsystem(s) is(are) required to be Operable.

While aligned for Shutdown Cooling, RHR pump 2A __ (2) __ be considered an Operable ECCS subsystem.

- A. (1) one
(2) can
- B. (1) one
(2) CANNOT
- C. (1) two
(2) can
- D. (1) two
(2) CANNOT

QUESTION 87

Unit 3 has entered Mode 1 two hours ago.

During Instrument Maintenance (IM) testing on the APRM 2-Out-Of-4 Voters, **Voter 1** failed and the IMs have determined that Voter 1 will NOT generate an output signal to RPS.

During troubleshooting activities Engineering and IMs have determined that due to a common mode failure 2-Out-Of-4 **Voter 3** also will NOT generate an output signal to RPS.

Which ONE of the following identifies the MOST limiting Technical Specification required action?

REFERENCE PROVIDED

- A. Required Action A.1 OR A.2 with a Completion Time of 12 Hours
- B. Required Action B.1 OR B.2 with a Completion Time of 6 Hours
- C. Required Action C.1 with a Completion Time of 1 Hour
- D. Required Action G.1 with a Completion Time of 12 Hours

QUESTION 88

Given the following plant conditions on May 5, 2014 at 08:00:

- Unit 1 is starting up, currently in Mode 2
- Unit 2 is in Mode 1, 100% power
- Unit 3 is in Mode 5 with core unloading in progress
- Diesel Generator 3ED is inoperable

At 09:00, SGT Train B is declared inoperable.

Which ONE of the following identifies whether further fuel movement is allowed and the EARLIEST time Unit 1 and 2 must be placed in Mode 3?

REFERENCE PROVIDED

- A. Fuel moves may continue; May 5 at 23:00
- B. Fuel moves may continue; May 6 at 02:00
- C. Fuel moves may NOT continue; May 5 at 23:00
- D. Fuel moves may NOT continue; May 6 at 02:00

QUESTION 89

Unit 3 is at 100% power and the following condition exists:

- Unit Battery 3 is on a float charge and ventilation for this area has been lost
- Ambient room temperature at Unit 3 Battery is 103 °F
- All other battery cell parameters are normal

Which ONE of the following completes both statements below?

Unit 3 Battery is __ (1) __.

The procedure which provides guidance for setting up temporary ventilation to the area where this battery is located is __ (2) __.

- A. (1) OPERABLE
(2) 0-OI-30F, Common and DG Building Ventilation
- B. (1) OPERABLE
(2) 0-OI-31, Control Bay and Off-Gas Treatment Building Air Conditioning System
- C. (1) INOPERABLE
(2) 0-OI-30F, Common and DG Building Ventilation
- D. (1) INOPERABLE
(2) 0-OI-31, Control Bay and Off-Gas Treatment Building Air Conditioning System

QUESTION 90

Unit 1 is Mode 5 with vessel reassembly in progress with gates installed. RHR Pump 1A is operating in Shutdown Cooling.

- RBCCW Pump 1B has tripped
- RBCCW PUMP SUCTION HDR TEMP has increased to 106° F
- Spare RBCCW Pump is UNAVAILABLE

RWCU System AND the Fuel Pool Cooling System have been shutdown as directed by 1-AOI-70-1, Loss of Reactor Building Closed Cooling Water.

NOTE: Section 8.14, Initiation of Supplemental Fuel Pool Cooling with RHR Drain Pump B

Section 8.16, Initiation of Supplemental Fuel Pool Cooling with RHR Pumps B or D

Which ONE of the following completes the statements below?

The Fuel Pool temperature limit in TRM 3.9.2 is __ (1) __.

In accordance with 1-OI-74, RHR System, the preferred method of supplemental fuel pool cooling is __ (2) __.

- A. (1) 125° F
(2) Section 8.14
- B. (1) 125° F
(2) Section 8.16
- C. (1) 150° F
(2) Section 8.14
- D. (1) 150° F
(2) Section 8.16

QUESTION 91

Unit 1 was operating at 75% power at 70% core flow, when the Reactor Recirc Loop B flow transmitter, 1-FT-68-81C, input to APRM 3 fails downscale.

Which ONE of the following completes both statements below?

A Control Rod Block __ (1) __ occur.

In accordance with Technical Specification 3.3.2.1, Control Rod Block Instrumentation, Action Condition A __ (2) __.

REFERENCE PROVIDED

- A. (1) will NOT
(2) is NOT required at this time
- B. (1) will NOT
(2) is required at this time
- C. (1) will
(2) is NOT required at this time
- D. (1) will
(2) is required at this time

QUESTION 92

Unit 2 Mode Switch is in Startup/Hot Standby, Reactor Power is 8%, and preparations are being made to place the Mode Switch in Run.

Subsequently:

- A failure in Main Turbine Bypass Valve control has caused Reactor Pressure to rise
- Attempts to manually control Main Turbine Bypass Valves were unsuccessful
- The Reactor was MANUALLY scrammed when pressure was 1060 psig and rising

Which ONE of the following completes both statements below?

Technical Specification 3.4.10, Reactor Steam Dome Pressure, Limiting Condition for Operation __ (1) __ exceeded.

The FIRST Immediate NRC Notification required is a __ (2) __ report in accordance with NPG-SPP-03.5, Regulatory Reporting Requirements.

REFERENCE PROVIDED

- A. (1) was
(2) 4-Hour
- B. (1) was
(2) 8-Hour
- C. (1) was NOT
(2) 4-Hour
- D. (1) was NOT
(2) 8-Hour

QUESTION 93

Unit 2 is operating at 100% power with hydrogen water chemistry in service.

Subsequently:

- 2-FCV-66-14 and 18, Off-Gas Outlet Valve from SJA E A and B automatically close.

Which ONE of the following completes both statements below?

The reason why hydrogen concentration is expected to initially rise is because __ (1) __.

The required action if hydrogen concentration reaches and remains above 4.1% in accordance with 2-AOI-66-1, Off-Gas H₂ High is to perform __ (2) __.

- A. (1) HWC is still in service
(2) 2-GOI-100-12, Power Maneuvering
- B. (1) HWC is still in service
(2) 2-GOI-100-12A, Unit Shutdown from Power Operation to Cold Shutdown and Reductions In Power During Power Operations
- C. (1) HWC has isolated
(2) 2-GOI-100-12, Power Maneuvering
- D. (1) HWC has isolated
(2) 2-GOI-100-12A, Unit Shutdown from Power Operation to Cold Shutdown and Reductions In Power During Power Operations

QUESTION 94

Unit 1 is at 8% power performing 1-GOI-100-1A, Unit Startup, and preparing to transition to MODE 1.

The following alarm and pump seal pressure indications are received:

- RECIRC PUMP 1A NO 1 SEAL LEAKAGE ABN (1-9-4A, Window 25)
- No. 1 Seal Pressure: 980 psig
- No. 2 Seal Pressure: 980 psig

In accordance with Tech Specs, which ONE of the following completes the statements below?

The alarm/indications __ (1) __ RCS pressure boundary leakage.

Mode 1 __ (2) __ be entered if the previous 24 hour period average for TOTAL operational leakage is 31 gpm.

- A. (1) signify
(2) can
- B. (1) signify
(2) CANNOT
- C. (1) do NOT signify
(2) can
- D. (1) do NOT signify
(2) CANNOT

QUESTION 95

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

Given the above LCO:

Pump 1 becomes inoperable at 0600 on May 11th.

Pump 2 becomes inoperable at 0100 on May 12th.

Which ONE of the following completes the statements below?
(Both pumps are in the same system)

If Pump 1 is restored to OPERABLE at 0800 on May 12th, and if Pump 2 is NOT restored to OPERABLE then Condition B is entered at time __ (1) __.

If Pump 2 is restored to OPERABLE at 0800 on May 12th, and if Pump 1 is NOT restored to OPERABLE then Condition B is entered at time __ (2) __.

- A. (1) 0100 May 19th
(2) 0600 May 18th
- B. (1) 0100 May 19th
(2) 0600 May 19th
- C. (1) 0100 May 20th
(2) 0600 May 18th
- D. (1) 0100 May 20th
(2) 0600 May 19th

QUESTION 96

Unit 3 was operating at 100% Reactor Power. RHR Pump 3B was tagged out for planned maintenance at 0600 on 1/13/14.

At 1000 on 1/14/14, a trip of Loop I Core Spray Room Cooler occurred.

Based on these conditions, which ONE of the following identifies the **LATEST** time that Unit 3 must be in Mode 3 in accordance with Tech Spec 3.5.1, ECCS-Operating?

REFERENCE PROVIDED

- A. 2200 on 1/14/14
- B. 2300 on 1/14/14
- C. 1800 on 1/20/14
- D. 2200 on 1/21/14

QUESTION 97

Which ONE of the following completes both statements below in accordance with 0-SI-4.8.A.1-1, Liquid Effluent Permit?

A release that is to be performed with an inoperable 0-RM-90-130, Radwaste Effluent Monitor, is required to be authorized by the __ (1) __.

If the 0-RM-90-130 monitor is declared inoperable during a release, then the release __ (2) __.

- A. (1) Chemistry Manager and the Unit Supervisor
(2) may continue if an independent verification of the valve lineup and release calculation is immediately performed
- B. (1) Chemistry Manager and the Unit Supervisor
(2) must be terminated and a new release permit initiated
- C. (1) Unit Supervisor ONLY
(2) may continue if an independent verification of the valve lineup and release calculation is immediately performed
- D. (1) Unit Supervisor ONLY
(2) must be terminated and a new release permit initiated

QUESTION 98

Which ONE of the following completes the statements below?

In accordance with the Technical Specification Bases of 3.9.1, Refueling Equipment Interlocks, with one or more required refueling equipment interlocks inoperable, in-vessel fuel movements __ (1) __.

In accordance with 0-GOI-100-3C, Fuel Movement Operations During Refueling, work above Drywell elevation __ (2) __ during fuel movements is controlled in accordance with RCI-17, Control of High Radiation Areas and Very High Radiation Areas.

- A. (1) are allowed, provided that ALL Control Rods are fully inserted AND a Control Rod Withdrawal Block is applied
(2) 584'
- B. (1) will be suspended and can NOT be continued until required refueling equipment interlocks are OPERABLE
(2) 584'
- C. (1) are allowed, provided that ALL Control Rods are fully inserted AND a Control Rod Withdrawal Block is applied
(2) 604'
- D. (1) will be suspended and can NOT be continued until required refueling equipment interlocks are OPERABLE
(2) 604'

QUESTION 99

A LOCA event has just been upgraded to a General Emergency Classification.

All Emergency response organizations were already staffed and operational when the General Emergency declaration was made.

Which ONE of the following completes both statements below in accordance with EPIP-5, General Emergency?

Notification of the NRC is required to be completed as soon as possible not to exceed __ (1) __ minutes from declaration.

The determination of protective action recommendations will come from the __ (2) __.

- A. (1) 15
(2) Central Emergency Control Center
- B. (1) 15
(2) Technical Support Center
- C. (1) 60
(2) Central Emergency Control Center
- D. (1) 60
(2) Technical Support Center

QUESTION 100

An ATWS has occurred on Unit 1 with the following conditions:

- An Alert has been declared
- The On-Call SED has assumed the duties of the SED.
- There are no radiological or other hazards in the Reactor Building

Subsequently:

- It becomes necessary to perform 1-EOI Appendix-1B, Vent and Depressurize the Scram Pilot Air Header.

Which ONE of the following completes both statements below?

The AUO will perform 1-EOI Appendix-1B at the __ (1) __.

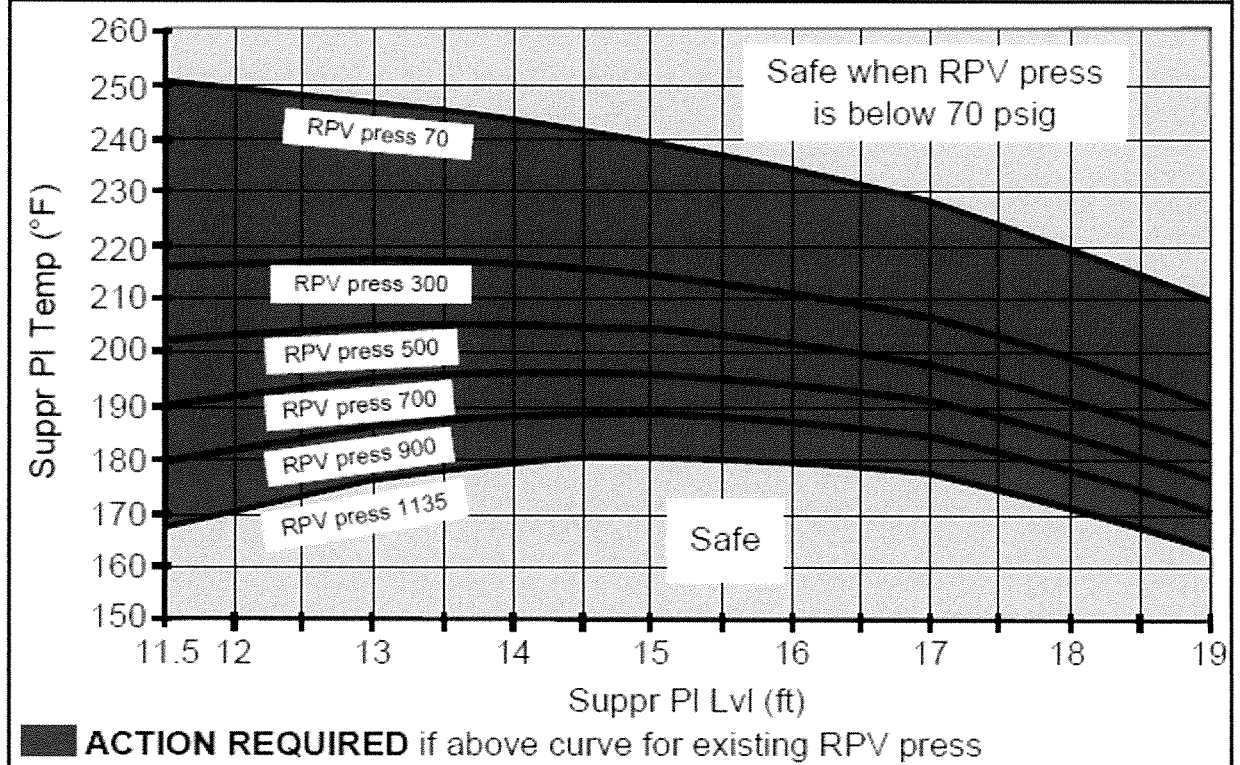
In accordance with BFN-ODM-4.2, Radiological Emergency Plan (REP) Assignments, at this point in the emergency, the control room __ (2) __ allowed to DIRECTLY dispatch the AUO into this area.

- A. (1) 565' elevation north east at the CRD station
(2) is
- B. (1) CRD catwalk above Hydraulic Control Units
(2) is
- C. (1) 565' elevation north east at the CRD station
(2) is not
- D. (1) CRD catwalk above Hydraulic Control Units
(2) is not

SRO References

- #16 ~~PIP 95-64~~ **20**
- #25 EOI Caution 1 (including Curve 8 and Table 6)
- #64 2-EOI Appendix-17C, Curve 2
- #79 EOI Curve #3 HCTL
- #81 Fire Protection Report Volume 1
- #82 U3 TS 3.8.1
- #83 EPIP-1
- #87 U3 TS 3.3.1.1
- #88 Unit 1/2/3 TS 3.6.4.3, Unit 1 and 2 TS 3.8.1, U3 TS 3.8.2
- #91 U1 TS 3.3.2.1
- #92 NPG-SPP-03.5 Appendix A
- #96 U3 TS 3.5.1

Curve 3 Heat Capacity Temp Limit



TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT

FIRE PROTECTION REPORT

VOLUME 1

QA Record

	R0	R15	R16	R17
EFFECTIVE DATE	05/10/2007	<u>06/07/2013</u>	<u>08/02/2013</u>	10/15/2013
PREPARED	L.T. Stafford	D.S. Kammer	D.S. Kammer	D.S. Kammer
CHECKED	R. Abbas	L.T. Stafford	L.T. Stafford	L.T. Stafford
REVIEWED	R. Abbas	L.T. Stafford	L.T. Stafford	L.T. Stafford
APPROVED	R.G. Jones	S. Bono	S. Bono	S. Bono

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

- LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:
- Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System;
 - Unit 3 diesel generators (DGs) with two divisions of 480 V load shed logic and common accident signal logic OPERABLE; and
 - Unit 1 and 2 DG(s) capable of supplying the Unit 1 and 2 4.16 kV shutdown board(s) required by LCO 3.8.7, "Distribution Systems - Operating."

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Verify power availability from the remaining OPERABLE offsite transmission network. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter (continued)

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 47 OF 205</p>
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LOSS OF AC POWER										
Description					Description					
5.1-U		NOTE	TABLE	US					UNUSUAL EVENT	
Loss of normal and alternate supply voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes AND At least two Diesel Generators supplying power to unit specific 4KV shutdown boards listing in Table 5.1. OPERATING CONDITION: ALL										
5.1-A1		NOTE	TABLE	US	5.1-A2		NOTE	TABLE	US	ALERT
Loss of voltage to ANY THREE unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes AND Only ONE source of power available to the remaining board. OPERATING CONDITION: Mode 1 or 2 or 3					Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes. OPERATING CONDITION: Mode 4 or 5 or Defueled					
5.1-S		NOTE	TABLE	US						SITE EMERGENCY
Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 for greater than 15 minutes. OPERATING CONDITION: Mode 1 or 2 or 3										
5.1-G		NOTE	TABLE	US						GENERAL EMERGENCY
Loss of voltage to ALL unit specific 4KV shutdown boards from Table 5.1 AND Either of the following conditions exists; • Restoration of at least one 4KV shutdown board is NOT likely within three hours. • Adequate core cooling can NOT be assured. OPERATING CONDITION: Mode 1 or 2 or 3										

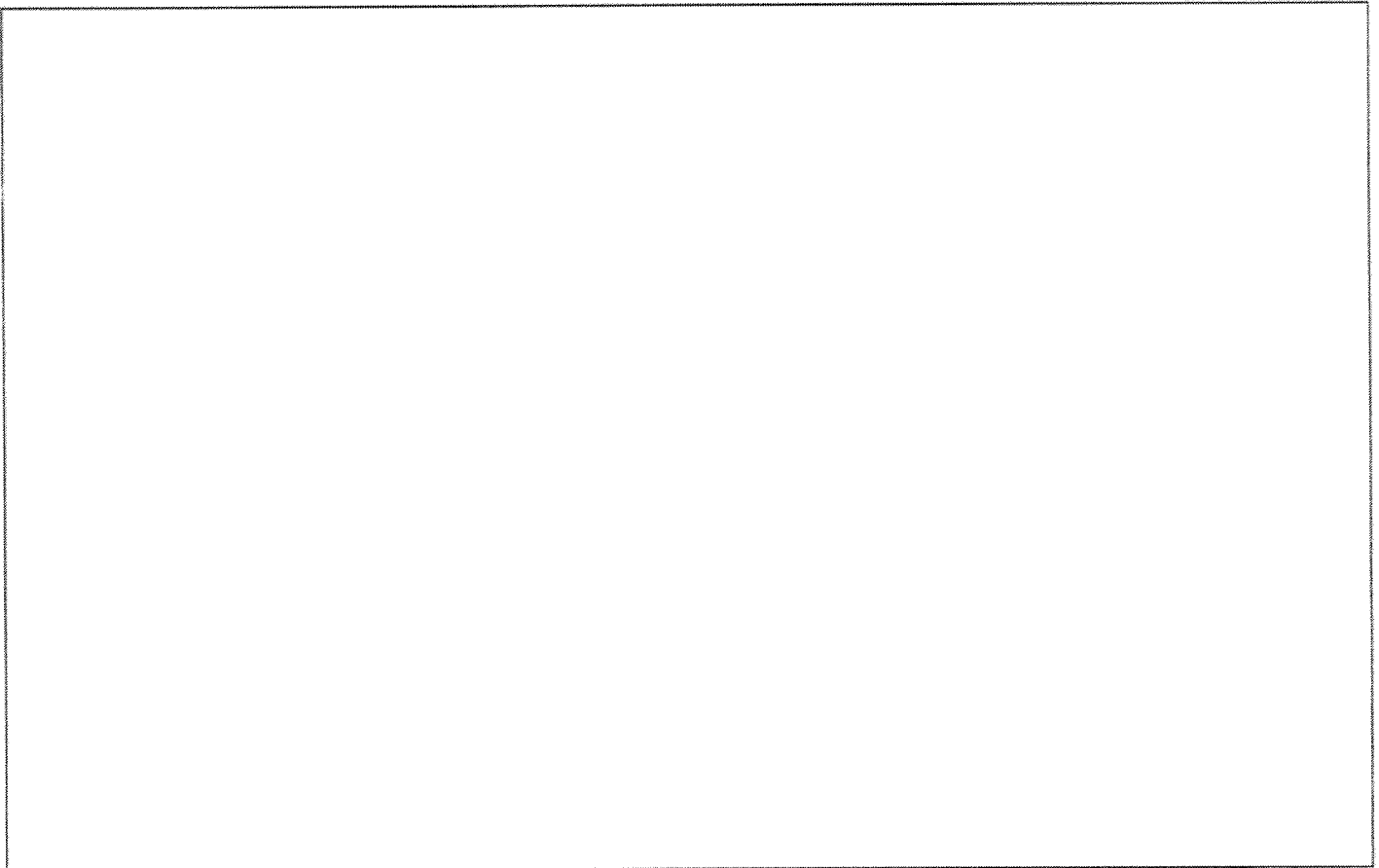
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NOTES

- 5.2 250V DC power voltage below 248 volts constitutes a loss of DC power to the affected board. The voltage readings may be obtained at the 250V Shutdown Battery Board (or the 250V Plant Battery Board) that is feeding the affected board.

CURVES/TABLES:

Table 5.2-U UNIT 4KV SHUTDOWN BOARD APPLICABILITY	
APPLICABLE UNIT	APPLICABLE 4KV SHUTDOWN BOARDS
UNIT 1	A, B, C, AND D
UNIT 2	A, B, C, AND D
UNIT 3	3A, 3B, 3C, AND 3D



LOSS OF 250V DC POWER									
Description					Description				
5.2-U		NOTE	TABLE	US					
Unplanned loss of 250V DC control power to ALL unit specific 4KV shutdown boards from Table 5.2-U for greater than 15 minutes OR Unplanned loss of 250V DC control power to unit specific 480V shutdown boards A and B for greater than 15 minutes. OPERATING CONDITION: Modes 4 or 5									
5.2-S		NOTE	TABLE	US					
Loss of 250V DC power to ALL combinations (I, II, III, and IV) of essential systems from Table 5.2-S for greater than 15 minutes. OPERATING CONDITION: Mode 1 or 2 or 3									

UNUSUAL EVENT

ALERT

SITE EMERGENCY

GENERAL EMERGENCY

HAZARDS

6.0

RADIOLOGICAL									
Description					Description				
6.1-U									
Valid, unexpected increase of ANY in-plant ARM reading to 1000 mrem/hr (except TIP room).									
OPERATING CONDITION: ALL									
6.1-A1					6.1-A2				
Valid, unexpected increase of ANY in-plant ARM reading to 1000 mrem/hr (except TIP room). AND Personnel required in the affected area(s).					Control Room radiation levels greater than 15 mrem/hr.				
OPERATING CONDITION: ALL					OPERATING CONDITION: ALL				

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CONTROL ROOM EVACUATION					TURBINE FAILURE				
Description					Description				
					6.3-U				UNUSUAL EVENT
					Turbine failure resulting in casing penetration OR Significant damage to turbine or generator seals during operation. OPERATING CONDITION: Mode 1, or 2				
6.2-A					6.3-A				ALERT
Control Room Abandonment from entry into 1, 2, or 3-AOI-100-2 or 0-SSI-16 for ANY Unit Control Room. OPERATING CONDITION: ALL					Turbine failure resulting in visible structural damage to or visible penetration of ANY of the following structures from missiles: •Reactor Building •Diesel Generator Building •Intake Structure •Control Bay OPERATING CONDITION: Mode 1 or 2				
6.2-S									SITE EMERGENCY
Control Room Abandonment from entry into 1, 2, or 3-AOI-100-2 or 0-SSI-16 for ANY Unit Control Room AND Control of reactor water level, reactor pressure, and reactor power (for Modes 1, or 2, or 3) or decay heat removal (for Modes 4, or 5) per 1, 2, or 3-AOI-100-2 or 0-SSI-16 as applicable, can NOT be established within 20 minutes after evacuation is initiated. OPERATING CONDITION: ALL									
									GENERAL EMERGENCY

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NOTES

CURVES/TABLES:

Table 6.4-U1 APPLICABLE PLANT AREA
Reactor Building
Refuel Floor
4KV Shutdown Board Rooms
4KV Shutdown Battery Board Rooms
480V Shutdown Board Rooms
RMOV Board 3A and 3B Rooms
4KV Bus Tie Board Room
Control Bay Elevation 593', 606', And 617'
Diesel Generator Buildings (All Elevations)
Turbine Building (All Elevations)
Intake Pumping Station (All Elevations)
Radwaste Building (All Elevations)
Cable Tunnel (Intake To Turbine Building)
Standby Gas Treatment Building

Table 6.4-A APPLICABLE PLANT AREA
Reactor Building
Refuel Floor
4KV Shutdown Board Rooms
4KV Shutdown Battery Board Rooms
480V Shutdown Board Rooms
RMOV Board 3A and 3B Rooms
4KV Bus Tie Board Room
Control Bay Elevation 593', 606', And 617'
Diesel Generator Buildings (All Elevations)
Intake Pumping Station (All Elevations)
Cable Tunnel (Intake To Turbine Building)
Standby Gas Treatment Building

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FIRE / EXPLOSION									
Description					Description				
6.4-U1			TABLE		6.4-U2				
Confirmed fire in ANY plant area listed in Table 6.4-U1 AND NOT extinguished within 15 minutes. OPERATING CONDITION: ALL					Unanticipated explosion within the protected area resulting in visible damage to ANY permanent structure or equipment. OPERATING CONDITION: ALL				
6.4-A			TABLE						
Fire or explosion in ANY plant area listed in Table 6.4-A affecting safety system performance OR Fire or explosion causing visible damage to permanent structure of safety systems in ANY plant area listed in Table 6.4-A. OPERATING CONDITION: ALL									

UNUSUAL EVENT

ALERT

SITE EMERGENCY

GENERAL EMERGENCY

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 58 OF 205
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NOTES

CURVES/TABLES:

Table 6.5/6.6 APPLICABLE PLANT AREA
Reactor Building
Refuel Floor
Control Bay
Diesel Generator Buildings
Turbine Building
Intake Pumping Station
Radwaste Building
Cable Tunnel (Intake To Turbine Building)
Standby Gas Treatment Building

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 59 OF 205
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TOXIC GASES					
Description					
6.5-U			TABLE		UNUSUAL EVENT
EITHER of the following conditions exists: <ul style="list-style-type: none">• Normal operations impeded due to access restrictions caused by toxic gas concentrations within any building or structure listed in Table 6.5/6.6.• Confirmed report by local, county, or state officials that a large offsite toxic gas release has occurred within one mile of the site with potential to enter the site boundary in concentrations at or above the Permissible Exposure Limit (PEL) causing an evacuation of any site personnel. OPERATING CONDITION: ALL					
6.5-A			TABLE		ALERT
ALL of the following conditions exist: <ul style="list-style-type: none">• Plant personnel report toxic gas within any building or structure listed in Table 6.5/6.6.• Plant personnel report severe adverse health reactions due to toxic gas (i.e., burning eyes, throat, or dizziness), or sampling results by Fire Protection or Industrial Safety personnel indicate levels above the Permissible Exposure Limit (PEL).• Determination by the Site Emergency Director that plant personnel would be unable to perform actions necessary to establish and maintain cold shutdown conditions while utilizing appropriate personnel protective equipment. OPERATING CONDITION: ALL					
					SITE EMERGENCY
					GENERAL EMERGENCY

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 63 OF 205</p>
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SECURITY									
Description					Description				
6.7-U									
<p>1. A SECURITY CONDITION that does NOT involve a HOSTILE ACTION as reported by the Security Shift Supervisor.</p> <p>OR</p> <p>2. A credible Browns Ferry threat notification</p> <p>OR</p> <p>3. A validated notification from NRC providing information of an aircraft threat.</p> <p>OPERATING CONDITION: ALL</p>									
6.7-A									
<p>1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.</p> <p>OR</p> <p>2. A validated notification from NRC of an airliner attack threat within 30 minutes of the site.</p> <p>OPERATING CONDITION: ALL</p>									
6.7-S									
<p>A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor</p> <p>OPERATING CONDITION: ALL</p>									
6.7-G									
<p>1. A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions.</p> <p>OR</p> <p>2. A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMINENT fuel damage is likely for a freshly off-loaded reactor core in pool.</p> <p>OPERATING CONDITION: ALL</p>									

UNUSUAL EVENT

ALERT

SITE EMERGENCY

GENERAL EMERGENCY

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 65 OF 205</p>
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VEHICLE CRASH					
Description					
6.8-U					UNUSUAL EVENT
<p>Vehicle crash (for example; aircraft or barge) into plant structures or systems within the protected area boundary.</p> <p>OPERATING CONDITION: ALL</p>					
6.8-A					ALERT
<p>Vehicle crash (for example; aircraft or barge) into ANY plant vital area.</p> <p>OPERATING CONDITION: ALL</p>					
					SITE EMERGENCY
					GENERAL EMERGENCY

SPENT FUEL STORAGE					
Description					
6.9-U					UNUSUAL EVENT
Damage to a loaded cask CONFINEMENT BOUNDARY from ANY of the following: <ul style="list-style-type: none">• Natural phenomena (e.g., seismic event, tornado, flood, lightning, snow/ice accumulation, etc.)• Accident (e.g., dropped cask, tipped over cask, explosion, missile damage, fire damage, burial under debris, etc.).• Judgement of the Site Emergency Director that the CONFINEMENT BOUNDARY damage is a degradation in the level of safety of the ISFSI. OPERATING CONDITION: ALL					
					ALERT
					SITE EMERGENCY
					GENERAL EMERGENCY

NATURAL EVENTS

7.0

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 71 OF 205
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EARTHQUAKE					
Description					
7.1-U					UNUSUAL EVENT
Valid annunciation in Unit 1 Control Room, Panel 1-XA-55-22C, Window 5, START OF STRONG MOTION ACCELEROGRAPH					
AND					
Assessment by Unit One and Two Control Room personnel that an earthquake has occurred.					
OPERATING CONDITION: ALL					
7.1-A					ALERT
Valid annunciation in the Unit 1 Control Room, Panel 1-XA-55-22C, Window 6, 1/2 SSE RESPONSE SPECTRUM EXCEEDED					
AND					
Assessment by Unit One and Two Control Room personnel that an earthquake has occurred.					
OPERATING CONDITION: ALL					
					SITE EMERGENCY
					GENERAL EMERGENCY

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 73 OF 205
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TORNADO / HIGH WINDS					
Description					
7.2-U					UNUSUAL EVENT
<p>Report by plant personnel of tornado striking within the protected area boundary.</p> <p>OPERATING CONDITION: ALL</p>					
7.2-A					ALERT
<p>Tornado striking plant vital area</p> <p style="text-align: center;">OR</p> <p>Onsite wind speed above 90 MPH as indicated using the meteorological data screen of the Integrated Computer System (ICS).</p> <p>OPERATING CONDITION: ALL</p>					
					SITE EMERGENCY
					GENERAL EMERGENCY

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 75 OF 205</p>
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FLOOD						
Description						
7.3-U					UNUSUAL EVENT	
Wheeler Lake level exceeds or is predicted to exceed elevation 565 feet.						
AND						
Water entering permanent plant structures due to flooding.						
OPERATING CONDITION: ALL						
7.3-A					ALERT	
Wheeler Lake level exceeds or is predicted to exceed elevation 565 feet.						
AND						
EITHER of the following conditions exists:						
<ul style="list-style-type: none">• Breech or failure of any water-tight structure is causing flooding of the structure• Equipment required for safe shutdown is affected.						
OPERATING CONDITION: ALL						
					SITE EMERGENCY	
					GENERAL EMERGENCY	

EMERGENCY DIRECTOR JUDGMENT 8.0

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 79 OF 205</p>
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TECHNICAL SPECIFICATIONS					
Description					
8.1-U					UNUSUAL EVENT
Inability to reach required shutdown condition (Mode 3 or Mode 4) within Technical Specification Limiting Conditions for Operation (LCO) limits.					
OPERATING CONDITION: Mode 1 or 2 or 3					ALERT
					SITE EMERGENCY
					GENERAL EMERGENCY

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 80 OF 205
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NOTES

CURVES/TABLES:

Table 8.2-U LOSS OF COMMUNICATIONS	
Onsite Communications	Offsite Communication
Plant Phone System Node 1	Bell Lines
Two-Way Radio System (NSS 1, NSS 2, OPS F2, and OPS F4)	Digital Microwave
Sound Power Phones	NRC Emergency Telecommunication System
Nextel Communication System	Cellular Phones (If Available)
	Health Physics Radio Network

LOSS OF COMMUNICATION						
Description						
8.2-U			TABLE			
<p>Unplanned loss of onsite communication listed in Table 8.2-U that defeats the Plant Operations Staff's ability to perform routine operations</p> <p style="text-align: center;">OR</p> <p>Unplanned loss of ALL off-site communication listed in Table 8.2-U.</p> <p>OPERATING CONDITIOIN: ALL</p>						UNUSUAL EVENT
						ALERT
						SITE EMERGENCY
						GENERAL EMERGENCY

BFN Unit 0	EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX	EPIP-1 Rev. 0049 PAGE 82 OF 205
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NOTES

- 8.3** Significant Transient is an unplanned event involving one or more of the following:
- (1) Automatic turbine runback greater than 25% thermal reactor power, or
 - (2) Electrical load reduction greater than 25% full electrical load, or
 - (3) Thermal power oscillations greater than 10%, or
 - (4) Reactor scram, or
 - (5) Valid ECCS initiation.

CURVES/TABLES:

Table 8.3-S APPLICABLE SAFETY FUNCTIONS	
Reactor Power	
Reactor Pressure	
Reactor Level	
Subcriticality	
Drywell Temperature	
Drywell Pressure	
Suppression Chamber Pressure	
Suppression Pool Temperature	
Suppression Pool Level	

<p>BFN Unit 0</p>	<p>EMERGENCY CLASSIFICATION PROCEDURE EVENT CLASSIFICATION MATRIX</p>	<p>EPIP-1 Rev. 0049 PAGE 83 OF 205</p>
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LOSS OF ASSESSMENT CAPABILITY					
Description					
8.3-U					UNUSUAL EVENT
Unplanned loss of most or all safety system annunciators or indicators which causes a significant loss of plant assessment capability for greater than 15 minutes					
AND					
Compensatory non-alarming safety system indications are available (SPDS, ICS)					
AND					
In the opinion of the Shift Manager, increased surveillance is required to safely operate the plant.					
OPERATING CONDITION: MODE 1, or 2, or 3					
8.3-A		NOTE			ALERT
Unplanned loss of most or all safety system annunciators or indicators which causes a significant loss of plant assessment capability for greater than 15 minutes					
AND					
In the opinion of the Shift Manager, increased surveillance is required to safely operate the plant					
AND					
EITHER of the following conditions exists:					
• Compensatory non-alarming safety system indications are NOT available (SPDS, ICS)					
• A significant transient is in progress.					
OPERATING CONDITION: MODE 1, or 2, or 3					
8.3-S		NOTE	TABLE		SITE EMERGENCY
Loss of most or all annunciators associated with safety systems					
AND					
Compensatory non-alarming safety system indications are NOT available (SPDS, ICS)					
AND					
Indications needed to monitor safety functions are NOT available (Refer to Table 8.3-S)					
AND					
A significant transient is in progress.					
OPERATING CONDITION: MODE 1, or 2, or 3					
					GENERAL EMERGENCY

NOTES

- 8.4-U** Table 8.4-U contains only example events that may justify Unusual Event classification. This event classification is intended to address unanticipated conditions not explicitly addressed elsewhere, but warrant declaration of an emergency because conditions exist which the Emergency Director believes to fall under the Unusual Event Classification. Additionally this EAL should be considered in making emergency classifications regarding challenges to fission product barriers not specifically address elsewhere in the EAL matrix.
- 8.4-A** This event classification is intended to address unanticipated conditions not explicitly addressed elsewhere, but that warrant declaration of an emergency because conditions exist which the Site Emergency Director believes to fall under the Alert classification. Additionally this EAL should be considered in making emergency classifications regarding challenges to fission product barriers not specifically address elsewhere in the EAL matrix.
- 8.4-S** This event classification is intended to address unanticipated conditions not explicitly addressed elsewhere, but that warrant declaration of an emergency because conditions exist which the Site Emergency Director believes to fall under the Site Area Emergency classification. Additionally this EAL should be considered in making emergency classifications regarding challenges to fission product barriers not specifically address elsewhere in the EAL matrix.
- 8.4-G** This event classification is intended to address unanticipated conditions not explicitly addressed elsewhere, but that warrant declaration of an emergency because conditions exist which the Site Emergency Director believes to fall under the General Emergency classification. Additionally this EAL should be considered in making emergency classifications regarding challenges to fission product barriers not specifically address elsewhere in the EAL matrix.

CURVES/TABLES:

Table 8.4-U OTHER EXAMPLE UNUSUAL EVENTS	
Plant Transient Response Unexpected Or Not Understood	
Unanalyzed Safety System Configuration Affecting, Threatening Safe Shutdown	
Inadequate Personnel To Achieve Or Maintain Safe Shutdown	
Degraded Plant Conditions Beyond License Basis Threatening Safe Operation Or Safe Shutdown	
Emergency Procedures Not Adequate To Maintain Safe Operation Or Achieve Safe Shutdown	

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OTHER					
Description					
8.4-U		NOTE	TABLE		UNUSUAL EVENT
Events are in process or have occurred which indicate a potential degradation in the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Refer to Table 8.4-U for examples. OR Any loss or any potential loss of containment. OPERATING CONDITION: ALL					
8.4-A		NOTE			ALERT
Events are in process or have occurred which involve an actual or potential substantial degradation in the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. OR Any loss or potential loss of fuel cladding or RCS pressure boundary. OPERATING CONDITION: ALL					
8.4-S		NOTE			SITE EMERGENCY
Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts (1) toward site personnel or equipment that could lead to the likely failure thereof or, (2) prevent effective access to equipment needed for protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. OR Any loss or potential loss of both fuel cladding and RCS pressure boundary. OR Potential loss of either fuel cladding or RCS pressure boundary and loss of any additional barrier. OPERATING CONDITION: ALL					
8.4-G		NOTE			GENERAL EMERGENCY
Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. OR Loss of any two barriers and potential loss of third barrier. OPERATING CONDITION: ALL					

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours
	<u>OR</u>	
	A.2 -----NOTE----- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, or 2.f. ----- Place associated trip system in trip.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, or 2.f. -----</p> <p>One or more Functions with one or more required channels inoperable in both trip systems.</p>	<p>B.1 Place channel in one trip system in trip.</p> <p><u>OR</u></p> <p>B.2 Place one trip system in trip.</p>	<p>6 hours</p> <p>6 hours</p>
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < 30% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate alternate method to detect and suppress thermal hydraulic instability oscillations.	12 hours
J. Required Action and associated Completion Time of Condition I not met.	J.1 Be in MODE 2	4 hours

RPS Instrumentation
3.3.1.1

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors					
a. Neutron Flux - High, (Setdown)	2	3(b)	G	SR 3.3.1.1.1 SR 3.3.1.1.6 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.16	
b. Flow Biased Simulated Thermal Power - High	1	3(b)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.16	
c. Neutron Flux - High	1	3(b)	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.16	

(b) Each APRM channel provides inputs to both trip systems.

RPS Instrumentation
3.3.1.1

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
d. Inop	1,2	3(b)	G	SR 3.3.1.1.16	NA
e. 2-Out-Of-4 Voter	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.14 SR 3.3.1.1.16	NA
f. OPRM Upscale	1	3(b)	I	SR 3.3.1.1.1 SR 3.3.1.1.7 SR 3.3.1.1.13 SR 3.3.1.1.16 SR 3.3.1.1.17	NA

(b) Each APRM channel provides inputs to both trip systems.

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During operations with a potential for draining the reactor vessel
(OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during OPDRVs.	C.1 Place two OPERABLE SGT subsystems in operation.	Immediately
	<u>OR</u> C.2 Initiate action to suspend OPDRVs.	Immediately
D. Two or three SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or three SGT subsystems inoperable during OPDRVs.	E.1 Initiate action to suspend OPDRVs.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During operations with a potential for draining the reactor vessel
(OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during OPDRVs.	C.1 Place two OPERABLE SGT subsystems in operation.	Immediately
	<u>OR</u> C.2 Initiate action to suspend OPDRVs.	Immediately
D. Two or three SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or three SGT subsystems inoperable during OPDRVs.	E.1 Initiate action to suspend OPDRVs.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Three SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During operations with a potential for draining the reactor vessel
(OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during OPDRVs.	C.1 Place two OPERABLE SGT subsystems in operation.	Immediately
	<u>OR</u> C.2 Initiate action to suspend OPDRVs.	Immediately
D. Two or three SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or three SGT subsystems inoperable during OPDRVs.	E.1 Initiate action to suspend OPDRVs.	Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

- LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:
- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System;
 - b. Unit 1 and 2 diesel generators (DGs) with two divisions of 480 V load shed logic and common accident signal logic OPERABLE; and
 - c. Unit 3 DG(s) capable of supplying the Unit 3 4.16 kV shutdown board(s) required by LCO 3.8.7, "Distribution Systems - Operating."

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Verify power availability from the remaining OPERABLE offsite transmission network. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one shutdown board concurrent with inoperability of redundant required feature(s)
	<u>AND</u> A.3 Restore required offsite circuit to OPERABLE status.	7 days <u>AND</u> 21 days from discovery of failure to meet LCO
B. One required Unit 1 and 2 DG inoperable.	B.1 Verify power availability from the offsite transmission network. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Evaluate availability of both temporary diesel generators (TDGs).	1 hour
	<u>AND</u>	<u>AND</u>
		Once per 12 hours thereafter
	B.3 Declare required feature(s), supported by the inoperable Unit 1 and 2 DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.4.1 Determine OPERABLE Unit 1 and 2 DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.4.2 Perform SR 3.8.1.1 for OPERABLE Unit 1 and 2 DG(s).	24 hours
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.5 Restore Unit 1 and 2 DG to OPERABLE status.	<p>7 days from discovery of unavailability of TDG(s)</p> <p><u>AND</u></p> <p>24 hours from discovery of Condition B entry \geq 6 days concurrent with unavailability of TDG(s)</p> <p><u>AND</u></p> <p>14 days</p> <p><u>AND</u></p> <p>21 days from discovery of failure to meet LCO</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One division of 480 V load shed logic inoperable.	C.1 Restore required division of 480 V load shed logic to OPERABLE status.	7 days
D. One division of common accident signal logic inoperable.	D.1 Restore required division of common accident signal logic to OPERABLE status.	7 days
E. Two required offsite circuits inoperable.	E.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition E concurrent with inoperability of redundant required feature(s)
	<p><u>AND</u></p> <p>E.2 Restore one required offsite circuit to OPERABLE status.</p>	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Only applicable when more than one 4.16 kV shutdown board is affected. -----</p> <p>F. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One Unit 1 and 2 DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems - Operating," when Condition F is entered with no AC power source to any 4.16 kV shutdown board. -----</p> <p>F.1 Restore required offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>F.2 Restore Unit 1 and 2 DG to OPERABLE status.</p>	<p>12 hours</p> <p>12 hours</p>
<p>-----NOTE----- Applicable when only one 4.16 kV shutdown board is affected. -----</p> <p>G. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One Unit 1 and 2 DG inoperable.</p>	<p>G.1 Declare the affected 4.16 kV shutdown board inoperable.</p>	<p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Two or more Unit 1 and 2 DGs inoperable.	H.1 Restore all but one Unit 1 and 2 DG to OPERABLE status.	2 hours
I. Required Action and Associated Completion Time of Condition A, B, C, D, E, F, or H not met.	I.1 Be in MODE 3.	12 hours
	AND I.2 Be in MODE 4.	36 hours
J. One or more required offsite circuits and two or more Unit 1 and 2 DGs inoperable. <u>OR</u> Two required offsite circuits and one or more Unit 1 and 2 DGs inoperable. <u>OR</u> Two divisions of 480 V load shed logic inoperable. <u>OR</u> Two divisions of common accident signal logic inoperable.	J.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One or more required Unit 3 DGs inoperable.	K.1 Declare required feature(s) supported by the inoperable Unit 3 DG inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition K concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	K.2 Declare affected SGT and CREVs subsystem(s) inoperable.	30 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

- LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:
- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System;
 - b. Unit 1 and 2 diesel generators (DGs) with two divisions of 480 V load shed logic and common accident signal logic OPERABLE; and
 - c. Unit 3 DG(s) capable of supplying the Unit 3 4.16 kV shutdown board(s) required by LCO 3.8.7, "Distribution Systems - Operating."

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Verify power availability from the remaining OPERABLE offsite transmission network. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Declare required feature(s) with no offsite power available inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no offsite power to one shutdown board concurrent with inoperability of redundant required feature(s)
	<u>AND</u> A.3 Restore required offsite circuit to OPERABLE status.	7 days <u>AND</u> 21 days from discovery of failure to meet LCO
B. One required Unit 1 and 2 DG inoperable.	B.1 Verify power availability from the offsite transmission network. <u>AND</u>	1 hour <u>AND</u> Once per 8 hours thereafter (continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Evaluate availability of both temporary diesel generators (TDGs).	1 hour <u>AND</u> Once per 12 hours thereafter
	B.3. Declare required feature(s), supported by the inoperable Unit 1 and 2 DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.4.1 Determine OPERABLE Unit 1 and 2 DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.4.2 Perform SR 3.8.1.1 for OPERABLE Unit 1 and 2 DG(s).	24 hours
	<u>AND</u>	
		(continued)

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.5 Restore Unit 1 and 2 DG to OPERABLE status.	<p>7 days from discovery of unavailability of TDG(s)</p> <p><u>AND</u></p> <p>24 hours from discovery of Condition B entry \geq 6 days concurrent with unavailability of TDG(s)</p> <p><u>AND</u></p> <p>14 days</p> <p><u>AND</u></p> <p>21 days from discovery of failure to meet LCO</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One division of 480 V load shed logic inoperable.	C.1 Restore required division of 480 V load shed logic to OPERABLE status.	7 days
D. One division of common accident signal logic inoperable.	D.1 Restore required division of common accident signal logic to OPERABLE status.	7 days
E. Two required offsite circuits inoperable.	E.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition E concurrent with inoperability of redundant required feature(s)
	<u>AND</u> E.2 Restore one required offsite circuit to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>-----NOTE----- Only applicable when more than one 4.16 kV shutdown board is affected. -----</p> <p>F. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One Unit 1 and 2 DG inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems - Operating," when Condition F is entered with no AC power source to any 4.16 kV shutdown board. -----</p> <p>F.1 Restore required offsite circuit to OPERABLE status.</p> <p><u>OR</u></p> <p>F.2 Restore Unit 1 and 2 DG to OPERABLE status.</p>	<p>12 hours</p> <p>12 hours</p>
<p>-----NOTE----- Applicable when only one 4.16 kV shutdown board is affected. -----</p> <p>G. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One Unit 1 and 2 DG inoperable.</p>	<p>G.1 Declare the affected 4.16 kV shutdown board inoperable.</p>	<p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Two or more Unit 1 and 2 DGs inoperable.	H.1 Restore all but one Unit 1 and 2 DG to OPERABLE status.	2 hours
I. Required Action and Associated Completion Time of Condition A, B, C, D, E, F, or H not met.	I.1 Be in MODE 3. <u>AND</u>	12 hours
	I.2 Be in MODE 4.	36 hours
J. One or more required offsite circuits and two or more Unit 1 and 2 DGs inoperable. <u>OR</u> Two required offsite circuits and one or more Unit 1 and 2 DGs inoperable. <u>OR</u> Two divisions of 480 V load shed logic inoperable. <u>OR</u> Two divisions of common accident signal logic inoperable.	J.1 Enter LCO 3.0.3.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One or more required Unit 3 DGs inoperable.	K.1 Declare required feature(s) supported by the inoperable Unit 3 DG inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition K concurrent with inoperability of redundant required feature(s)
	<p><u>AND</u></p> <p>K.2 Declare affected SGT and CREVs subsystem(s) inoperable.</p>	30 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

- LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:
- a. One qualified circuit connected between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown";
 - b. Two of the four Unit 3 diesel generators (DGs) each capable of supplying one 4.16 kV shutdown board of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.8, "Distribution Systems - Shutdown"; and
 - c. Unit 1 and 2 DGs capable of supplying the Unit 1 and 2 4.16 kV shutdown boards required by LCO 3.8.8.

APPLICABILITY: MODES 4 and 5,
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	<p>-----NOTE-----</p> <p>Enter applicable Condition and Required Actions of LCO 3.8.8, with any required 4.16 kV shutdown board not energized from a qualified source as a result of Condition A.</p> <p>-----</p>	
	<p>A.1 Declare affected required feature(s) with no qualified offsite power available inoperable.</p> <p><u>OR</u></p>	Immediately
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p>	Immediately
	<p>A.2.2 Suspend movement of irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p>	Immediately
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>AND</u> A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. One or more required Unit 3 DGs inoperable.	B.1.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> B.1.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u> B.1.3 Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u> B.1.4 Initiate action to restore required Unit 3 DGs to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more required Unit 1 and 2 DGs inoperable.	C.1 Declare affected SGT and CREV subsystem(s) inoperable.	30 days <u>AND</u> Immediately from discovery of Condition C concurrent with inoperability of redundant required feature(s)

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. OR Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram. OR	Immediately (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1.1 Verify ≥ 12 rods withdrawn.	Immediately
	<u>OR</u>	
	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year.	Immediately
	<u>AND</u>	
	C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	E.1 Suspend control rod withdrawal.	Immediately
	<u>AND</u>	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

Table 3.3.2.1-1 (page 1 of 1)
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Rod Block Monitor				
a. Low Power Range - Upscale	(a)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.8	(e)
b. Intermediate Power Range - Upscale	(b)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.8	(e)
c. High Power Range - Upscale	(f),(g)	2	SR 3.3.2.1.1 SR 3.3.2.1.4 SR 3.3.2.1.8	(e)
d. Inop	(g),(h)	2	SR 3.3.2.1.1	NA
e. Downscale	(g),(h)	2	SR 3.3.2.1.1 SR 3.3.2.1.4	(i)
2. Rod Worth Minimizer	₁ (c) ₂ (c)	1	SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.7	NA
3. Reactor Mode Switch — Shutdown Position	(d)	2	SR 3.3.2.1.6	NA

(a) THERMAL POWER $\geq 27\%$ and $\leq 82\%$ RTP and MCPR less than the value specified in the COLR.

(b) THERMAL POWER $> 82\%$ and $\leq 82\%$ RTP and MCPR less than the value specified in the COLR.

(c) With THERMAL POWER $\leq 10\%$ RTP, except during the reactor shutdown process if the coupling of each withdrawn control rod has been confirmed.

(d) Reactor mode switch in the shutdown position.

(e) Less than or equal to the Allowable Value specified in the COLR.

(f) THERMAL POWER $> 82\%$ and $< 90\%$ RTP and MCPR less than the value specified in the COLR.

(g) THERMAL POWER $\geq 90\%$ RTP and MCPR less than the value specified in the COLR.

(h) THERMAL POWER $\geq 27\%$ and $< 90\%$ RTP and MCPR less than the value specified in the COLR.

(i) Greater than or equal to the Allowable Value specified in the COLR.

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**Reporting of Events or Conditions Affecting
Licensed Nuclear Power Plants**

1.0 PURPOSE

This Appendix identifies reporting requirements; and instructions for determining reportability, preparation, and transmittal of LERs; and notification to NRC for events occurring at TVA's licensed nuclear plants.

2.0 SCOPE

TVA is required by §50.72 and §50.73 to promptly report various types of conditions or events and provide written follow-up reports, as appropriate. This appendix provides reporting guidance applicable to licensed power reactors.

NOTES

- 1) Appendix B provides additional reporting criteria found in §Part 20, 30, 40, and 70 that may be applicable to events involving byproduct, source or special nuclear material possessed by the licensed nuclear plant. Site Licensing and Site RadCon are responsible for making the reportability determinations for §Part 20, 30, 40, or 70 events associated with their site. Corporate Licensing and Corporate RadChem are responsible for making the reportability determinations for §Part 20, 30, 40, or 70 events associated with all other TVA licensed activities. Licensing is responsible for developing (with input from affected organizations) and submitting the immediate notification and written reports to NRC in accordance with §Part 20, 30, 40, or 70 requirements. Reporting requirements for personnel exposure required by §Part 20 are contained in RCTP-105, Personnel Inprocessing and Dosimetry Administrative Processes.
- 2) Appendix C contains the criteria for reporting if events or conditions affecting ISFSI. TVA, as the general licensee of the ISFSI, is required by §72.216 to make initial and written reports in accordance with §72.74 and §72.75. Operations is responsible for making the reportability determinations for §72.74 and §72.75 reports. For any event, condition, or issue having the potential for being reportable, contact Site Licensing for consultation and concurrence on the reportability determination. In no event shall the lack of licensing concurrence result in a failure to meet specified reporting timeframes. Operations is responsible for making the immediate notification to NRC in accordance with §72.74. Operations is responsible for making the immediate, 4-hour, and 24-hour notifications to NRC in accordance with §72.75. Licensing is responsible for developing (with input from affected organizations) and submitting the written reports required by §72.75.
- 3) Reporting requirements for events or conditions affecting the physical protection of the licensed nuclear plant specified in §73.71 are contained in NSDP-1, Safeguards Event Reporting Guidelines. Responsibilities for reportability determinations and immediate notification requirements are assigned to Site Nuclear Security and Corporate Nuclear Security. Licensing is responsible for developing (with input from affected organizations) and submitting the written reports required by §73.71.

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**Reporting of Events or Conditions Affecting
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3.0 REQUIREMENTS

NOTES
<ol style="list-style-type: none"> 1) Internal management notification requirements for plant events are found in Appendix D. The Operations Shift Manager is responsible for notifying Site Operations Management and the Duty Plant Manager. The Duty Plant Manager is responsible for making the remaining internal management notifications. 2) NRC NUREG-1022, Revision 3 and subsequent revisions should be used as guidance for determining reportability of plant events pursuant to §50.72 and §50.73. A text searchable copy of NUREG-1022 is maintained on the TVA NPG Nuclear Licensing Webpage. 3) In addition to reviewing the clarifying discussion and examples associated with specific reporting criteria [e.g., discussion of utilization of engineering judgment when evaluating Unanalyzed Conditions in NUREG -1022, Section 3.2.4(B)], NUREG-1022, Section 2, Reporting Areas Warranting Special Mention, should also be reviewed. [R.1]

3.1 Immediate Notification - NRC

TVA is required by §50.72 to notify NRC immediately if certain types of events occur. This appendix contains the types of events and the allotted time in which NRC must be notified. (Refer to Form NPG-SPP-03.5-1 or NRC Form 361). Operations is responsible for making the reportability determinations for §50.72 and §50.73 reports. For any event, condition, or issue having the potential for being reportable, contact Site Licensing for consultation and concurrence on the reportability determination. In no event shall the lack of licensing concurrence result in a failure to meet specified reporting timeframes. Operations is responsible for making the immediate notification to NRC in accordance with §50.72.

Notification is via the Emergency Notification System. If the Emergency Notification System is not operative, use a telephone, telegraph, mailgram, or facsimile.

NOTE
<p>The NRC Event Notification Worksheet may be used in preparing for notifying the NRC. This Worksheet may be obtained directly from the NRC website (www.nrc.gov) under Form 361, or TVA NPG Form NPG-SPP-03.5-1 may be used.</p>

- A. The Immediate Notification Criteria of §50.72 is divided into 1-hour, 4-hour, and 8- hour phone calls. Notify the NRC Operations Center within the applicable time limit for any item which is identified in the Immediate Notification Criteria.
- B. The following criteria require 1-hour notification:

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**Reporting of Events or Conditions Affecting
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3.1 Immediate Notification - NRC (continued)

1. (Technical Specifications) - Safety Limits as defined by the Technical Specifications which have been violated.
2. §50.72 (a)(1)(i) - The declaration of any of the Emergency classes specified in the licensee's approved Emergency Plan.

NOTE

If it is discovered that a condition existed which met the Emergency Plan criteria but no emergency was declared and the basis for the emergency class no longer exists at the time of discovery, an ENS notification (and notification of the Operations Duty Specialist), within one hour of discovery of the undeclared (or misclassified) event, shall be made. However, actual declaration of the emergency class is not necessary in these circumstances.

3. §50.72(b).(1)) - Any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x).
4. 10 CFR 73, Appendix G, paragraph I - Safeguards Events. The requirements of §73.71, Reporting of Safeguard Events, are also applicable. Refer to NSDP-1, "Safeguards Event Reporting Guidelines," for additional information.
 - a. Any event in which there is reason to believe that a person has committed or caused, or attempted to commit or cause, or has made a credible threat to commit or cause:
 - (1) A theft or unlawful diversion of special nuclear material; or
 - (2) Significant physical damage to a power reactor or any facility possessing SSNM or its equipment or carrier equipment transporting nuclear fuel or spent nuclear fuel, or to the nuclear fuel or spent nuclear fuel a facility or carrier possesses; or
 - (3) Interruption of normal operation of a licensed nuclear power reactor through the unauthorized use of or tampering with its machinery, components, or controls including the security system. [Note: a Confirmed Cyber Attack at any NPG site is reported to the NRC in accordance with the requirements of 10 CFR 73, Appendix G. Review the 'Incident Categorization' section in NPG-SPP-12.8.8.]
 - b. An actual entry of an unauthorized person into a protected area, material access area, controlled access area, vital area, or transport.

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3.1 Immediate Notification - NRC (continued)

- c. Any failure, degradation, or the discovered vulnerability in a safeguard system that could allow unauthorized or undetected access to a protected area, material access area, controlled access area, vital area, or transport for which compensatory measures have not been employed.
- d. The actual or attempted introduction of contraband into a protected area, material access area, vital area, or transport.

C. The following criteria require 4-hour notification:

- 1. §50.72(b)(2)(i) - The initiation of any nuclear plant shutdown required by the plant's Technical Specifications.
- 2. §50.72(b)(2)(iv)(A) - Any event that results or should have resulted in Emergency Core Cooling System (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.
- 3. §50.72(b)(2)(iv)(B) - Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

NOTES

- 1) NPG-SPP-05.14 provides additional instructions regarding addressing and informally communicating events to outside agencies involving radiological spills and leaks.
- 2) Routine or day-to-day communications between TVA organizations and state agencies typically do not constitute a formal notification to other government agencies that would require a report in accordance with §50.72(b)(2)(xi).

- 4. §50.72(b)(2)(xi) - Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactive contaminated materials.

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3.1 Immediate Notification - NRC (continued)

D. The following criteria require 8-hour notification:

NOTE

With the exception of "Events or Conditions that Could Have Prevented Fulfillment of a Safety Function," ENS notifications are required for any event that occurred within three years of discovery, even if the event was not ongoing at the time of discovery.

1. §50.72(b)(3)(ii)(A) - Any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded.
2. §50.72(b)(3)(ii)(B) - Any event or condition that results in the nuclear power plant being in an unanalyzed condition that significantly degrades plant safety.
3. §50.72(b)(3)(iv)(A) - Any event or condition that results in valid actuation of any of the systems listed in paragraph (b)(3)(iv)(B) [see list below], except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.
 - a. The systems to which the requirements of paragraph §50.72(b)(3)(iv)(A) apply are:

NOTE

Actuation of the RPS when the reactor is critical is also reportable under §50.72(b)(2)(iv)(B) above.

- (1) Reactor protection system (RPS) including: reactor scram or reactor trip.
- (2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).
- (3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.
- (4) ECCS for boiling water reactors (BWRs) including: core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.

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3.1 Immediate Notification - NRC (continued)

- (5) BWR reactor core isolation cooling system.
- (6) PWR auxiliary or emergency feedwater system.
- (7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.
- (8) Emergency ac electrical power systems, including: Emergency diesel generators (EDGs).

NOTE

For systems within scope, the inadvertent TS inoperability of a system in a required mode of applicability constitutes an event or condition for which there is no longer reasonable expectation that equipment can fulfill its safety function. Therefore, such events or conditions are reportable as an "Event or Condition that Could Have Prevented Fulfillment of a Safety Function."

- 4. §50.72(b)(3)(v) - Any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to:
 - (A) Shut down the reactor and maintain it in a safe shutdown condition;
 - (B) Remove residual heat;
 - (C) Control the release of radioactive material; or
 - (D) Mitigate the consequences of an accident.

NOTE

According to §50.72 (b)(3)(vi) events covered by §50.72(b)(3)(v) may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.

- 5. §50.72(b)(3)(xii) - Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.

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**Reporting of Events or Conditions Affecting
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3.1 Immediate Notification - NRC (continued)

6. §50.72(b)(3)(xiii) - Any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, emergency notification system, or offsite notification system).

E. Follow-up Notification (§50.72(c))

With respect to the telephone notifications made under paragraphs (a) and (b) [§50.72 (a) and §50.72 (b), respectively] of this section [§50.72], in addition to making the required initial notification, during the course of the event:

1. Immediately report:

- (i) Any further degradation in the level of safety of the plant or other worsening plant conditions including those that require the declaration of the Emergency Classes, if such a declaration has not been previously made; or
- (ii) Any change from one Emergency Class to another, or
- (iii) A termination of the Emergency Class.

(1) Immediately report:

- (i) The results of ensuing evaluations or assessments of plant conditions,
 - (ii) The effectiveness of response or protective measures taken, and
 - (iii) Information related to plant behavior that is not understood.
- (2) Maintain an open, continuous communication channel with the NRC Operations Center upon request by the NRC.**

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3.2 Twenty-Four Hour Notification - NRC

Any violation of the requirement contained in specific operating license conditions, shall be reported to NRC in accordance with the license condition.

3.3 Two-Day Notification - NRC

§50.9(b) - The NRC shall be notified of incomplete or inaccurate information which contains significant implications for the public health and safety or common defense and security. Notification shall be provided to the administrator of the appropriate regional office within two working days of identifying the information. Licensing is responsible for determining reportability (with input from affected organizations) and notifying NRC in accordance with §50.9.

3.4 Sixty-Day Verbal Report

§50.73(a)(2)(iv)(A) requires that any event or condition that resulted in manual or automatic actuation of the specified systems be reported as a Licensee Event Report (LER [Refer to Appendix A, Section 3.5]). This CFR section also allows that in the case of an invalid actuation, other than actuation of the reactor protection system when the reactor is critical, an optional telephone notification may be placed to the NRC Operations Center within 60 days after discovery of the event instead of submitting a written LER.

A. Verbal Report Required Content:

If the verbal notification option is selected (NUREG 1022, Revision 3, Section 3.2.6., System Actuation), instead of an LER, the verbal report:

1. Is not considered an LER.
2. Should identify that the report is being made under §50.73(a)(2)(iv)(A).
3. Should provide the following information:
 - a. The specific train(s) and system(s) that were actuated.
 - b. Whether each train actuation was complete or partial.
 - c. Whether or not the system started and functioned successfully.

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3.4 Sixty-Day Verbal Report (continued)

NOTE

Licensing will ensure that the information that is provided to NRC during the Sixty-Day Verbal Report is verified in accordance with NPG-SPP-03.10.

B. Verbal Report Development and Review

Licensing will:

1. Develop (with input from responsible organization) the response (i.e., report summary) to address the required input.
2. Ensure that the reporting details are approved by site vice president or his designee prior to making the verbal report.

C. Telephone Report Timeliness

Operations will make the 60-day telephone report promptly after the response is approved by the site vice president or his designee.

3.5 Written Report - NRC

- A. A report on a Safety Limit Violation shall be submitted to the NRC, the NSRB, and the Site Vice President if required by Technical Specifications.
- B. Any violation of the requirements contained in the Operating license conditions in lieu of other reporting requirements requires a written follow-up report if specified in the license.
- C. Reporting Radiation Injuries
 1. §140.6(a) requires, as promptly as possible, submittal of a written notice [e.g., report] in the event of:
 - a. Bodily injury or property damage arising out of or in connection with the possession or use of the radioactive material at the licensee's facility [location]; or
 - b. In the course of transportation; or
 - c. In the event any radiation exposure claim is made. (Refer to RCDP-9, Radiological and Chemistry Control Radiological Exposure Inquiries)

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3.5 Written Report - NRC (continued)

2. The written notice shall contain particulars sufficient to identify the licensee and reasonably obtainable information with respect to time, place, and circumstances thereof, or the nature of the claim.

D. Licensee Event Reports

A written report shall be prepared in accordance with §50.73(a)(i) for items in the 60-day report criteria or Technical Specifications. The report shall be complete and accurate in accordance with the methods outlined in this procedure. The completed forms shall be submitted to the USNRC, Document Control Desk, Washington, DC 20555. NUREG 1022, Revision 3, contains the instructions for completion of the LER form. Licensing is responsible for developing (with input from affected organizations) and submitting the written reports (or optional telephone reports [refer to Appendix A, Section 3.4]) required by §50.73.

NOTE

Unless otherwise specified in the reporting criteria below, an event shall be reported if it occurred within three years of the date of discovery regardless of the plant mode or power level, and regardless of the significance of the structure, system, or component that initiated the event.

E. Report Criteria

1. §50.73(a)(2)(i)(A) - The completion of any nuclear plant shutdown required by the plant's Technical Specifications.
2. §50.73(a)(2)(i)(B) - Any operation or condition which was prohibited by the plant's Technical Specifications, except when:
 - a. The Technical Specification is administrative in nature;
 - b. The event consisted solely of a case of a late surveillance test where the oversight was corrected, the test was performed, and the equipment was found to be capable of performing its specified safety functions; or
 - c. The Technical Specification was revised prior to discovery of the event such that the operation or condition was no longer prohibited at the time of discovery of the event.
3. §50.73(a)(2)(i)(C) - Any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x).

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3.5 Written Report - NRC (continued)

4. §50.73(a)(2)(ii)(A) - Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded.
5. §50.73(a)(2)(ii)(B) - Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety.
6. §50.73(a)(2)(iii) - Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant.
7. §50.73(a)(2)(iv)(A) - Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) [see list in Section 3.5E.8 below], except when
 - a. The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or
 - b. The actuation was invalid and
 - (i) Occurred while the system was properly removed from service or
 - (ii) Occurred after the safety function had been already completed.

NOTE

In the case of an invalid actuation, other than actuation of the reactor protection system (RPS) when the reactor is critical, a telephone notification to the NRC Operations Center within 60 days after discovery of the event may be provided instead of submitting a written LER (§50.73(a)). [Refer to Appendix A, Section 3.4]

8. §50.73(a)(2)(iv)(B) - The systems to which the requirements to paragraph (a)(2)(iv)(A) of this section apply are:
 - a. Reactor protection system (RPS) including: reactor scram or reactor trip.
 - b. General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).

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3.5 Written Report - NRC (continued)

- c. Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.
 - d. ECCS for boiling water reactors (BWRs) including: core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.
 - e. BWR reactor core isolation cooling system.
 - f. PWR auxiliary or emergency feedwater system.
 - g. Containment heat removal and depressurization systems, including containment spray and fan cooler systems.
 - h. Emergency ac electrical power systems, including: emergency diesel generators (EDGs).
 - i. Emergency service water systems that do not normally run and that serve as ultimate heat sinks.
9. §50.73(a)(2)(v) - Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to:
- (A) Shut down the reactor and maintain it in a safe shutdown condition;
 - (B) Remove residual heat;
 - (C) Control the release of radioactive material; or
 - (D) Mitigate the consequences of an accident.

NOTE

Events reported above may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to this criterion if redundant equipment in the same system was operable and available to perform the required safety function [§50.73(a)(2)(vi)].

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3.5 Written Report - NRC (continued)

10. §50.73(a)(2)(vii) - Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:
 - (A) Shut down the reactor and maintain it in a safe shutdown condition;
 - (B) Remove residual heat;
 - (C) Control the release of radioactive material; or
 - (D) Mitigate the consequences of an accident.
11. §50.73(a)(2)(viii)(A) - Any airborne radioactivity release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in Appendix B to Part 20, table 2, column 1.
12. §50.73(a)(2)(viii)(B) - Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in Appendix B to Part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.
13. §50.73(a)(2)(ix)(A) - Any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels in different systems that are needed to:
 - a. Shut down the reactor and maintain it in a safe shutdown condition;
 - b. Remove residual heat;
 - c. Control the release of radioactive material; or
 - d. Mitigate the consequences of an accident.

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3.5 Written Report - NRC (continued)

NOTE

Events covered above may include cases of procedural error, equipment failure, and/or discovery of a design, analysis, fabrication, construction, and/or procedural inadequacy. However, licensees are not required to report an event pursuant to this criterion if the event results from a shared dependency among trains or channels that is a natural or expected consequence of the approved plant design or normal and expected wear or degradation [§50.73(a)(2)(ix)(B)].

14. §50.73(a)(2)(x) - Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.
15. 10 CFR 73, Appendix G, paragraph I - If a one hour notification is made in Appendix A, section 3.1.B.4 of this procedure, then a written notification to the NRC is required within 60 days.
16. For reporting a defect found installed in the Plant's Safety Related Equipment, Radioactive Wastes System, and Special Nuclear Material within an LER, §Part 21 NRC Reporting of Defects and Noncompliance, see Appendix G in this procedure.
17. **SQN and WBN only** (Non-radiological environmental reporting requirements to the NRC, as required from SQN and WBN Tech Spec (TS), Appendix B.)
 - a. WBN or SQN shall record any occurrence of unusual or important environmental events. Unusual or important events are those that potentially could cause or indicate environmental impact causally related with station operation. The following are examples:
 - (1) Excessive bird impaction events;
 - (2) Onsite plant or animal disease outbreaks;
 - (3) Unusual mortality of any species protected by the Endangered Species Act of 1973;
 - (4) Fish kills near the plant site;

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3.5 Written Report - NRC (continued)

- (5) Unanticipated or emergency discharges of waste water or chemical substances that exceeds the limits of, or is not authorized by, the NPDES permit and requires 24-hour notification to the County or State of Tennessee;

WBN only

- (6) Identification of any threatened or endangered species for which the NRC has not initiated consultation with the Federal Wildlife Service (FWS).
 - (7) Increase in nuisance organisms or conditions in excess of levels anticipated in station environmental impact appraisals.
- b. SQN TS Appendix B compliance guidance is provided in the flowchart in NPG-SPP-05.5, Environmental Control, Appendix B.
 - c. WBN TS Appendix B compliance is met through the procedures referenced in NPG-SPP-05.5.
 - d. Once an unusual or important event has occurred, the required actions are:
 - (1) Refer to NPG-SPP-05.5, Environmental Control, Section Compliance with the NRC Appendix B to the Facility Operating License, for additional guidance.
 - (2) If required, SQN or WBN Site Licensing shall make a written report to the NRC in accordance with the NRC Non-routine Report, TS Appendix B, Subsections 5.4.2, within 30 days, in the event of a reportable occurrence in which a limit specified in a relevant permit or certificate issued by another Federal, State, or local agency is exceeded.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,

ACTIONS

-----NOTE-----
LCO 3.0.4.b is not applicable to HPCI.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One low pressure coolant injection (LPCI) pump in both LPCI subsystems inoperable.	A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	B.2 Be in MODE 4.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. HPCI System inoperable.		Immediately
	<p><u>AND</u></p> <p>C.2 Restore HPCI System to OPERABLE status.</p>	14 days
D. HPCI System inoperable. <u>AND</u> Condition A entered.	D.1 Restore HPCI System to OPERABLE status.	72 hours
	<p><u>OR</u></p> <p>D.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.</p>	72 hours
E. One ADS valve inoperable.	E.1 Restore ADS valve to OPERABLE status.	14 days
F. One ADS valve inoperable. <u>AND</u> Condition A entered.	F.1 Restore ADS valve to OPERABLE status.	72 hours
	<p><u>OR</u></p> <p>F.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.</p>	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition C, D, E, or F not met.</p>	<p>G.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>G.2 Reduce reactor steam dome pressure to ≤ 150 psig.</p>	<p>12 hours</p> <p>36 hours</p>
<p>H. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p>	<p>H.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>