



Jaime H. McCoy
Vice President Engineering

August 3, 2017
ET 17-0018

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

Reference: Letter ET 17-0005, dated March 9, 2017, from J. H. McCoy, WCNOC, to
USNRC

Subject: Docket No. 50-482: Commitment Closure and Supplemental Information
for the Seismic High Frequency Confirmation Report

To Whom It May Concern:

During a teleconference on March 28, 2017, Mr. Stephen Wyman, Nuclear Regulatory Commission (NRC), requested Wolf Creek Nuclear Operating Corporation (WCNOC) provide the following two items:

1. Notification of the closure of the commitment made in Reference 1.
2. Clarification of the term *Functionally Screens* used in Table B-1 of Reference 1.

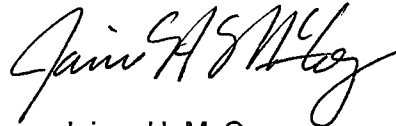
Reference 1 provided the Seismic High Frequency Confirmation for Wolf Creek Generating Station (WCGS). Reference 1 contained a commitment to provide documentation of seismic acceptability of the 38 components requiring resolution, as identified in Table B-1 of the Seismic High Frequency Confirmation Report, by analytical, testing, or recommended action approaches. The commitment was satisfied by revising Procedure, OFN SG-003, Natural Events. The Enclosure to this letter provides the revised procedure.

The report listed as Reference 17 in the Enclosure to Reference 1, was uploaded to the STARS e-Portal, as requested during the teleconference. The aforementioned report was provided for clarification of the term *Functionally Screens*, used in Table B-1 of the Enclosure to Reference 1.

ADD
NRR

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Cynthia R. Hafenstine (620) 364-4204.

Sincerely,

A handwritten signature in black ink, appearing to read "Jaime H. McCoy". The signature is fluid and cursive, with the first name "Jaime" being more prominent.

Jaime H. McCoy

JHM/rlt

Enclosure: Procedure, OFN SG-003, Natural Events, Revision 32

cc: K. M. Kennedy (NRC), w/e
B. K. Singal (NRC), w/e
N. H. Taylor (NRC), w/e
S. M. Wyman (NRC), w/e
Senior Resident Inspector (NRC), w/e

Enclosure to ET 17-0018

**Procedure, OFN SG-003, Natural Events, Revision 32
(57 Pages)**



OFN SG-003

NATURAL EVENTS

Responsible Manager

Manager Operations

Revision Number	32
Use Category	Continuous
Administrative Controls Procedure	No
Management Oversight Evolution	No
Program Number	21A

DC24 05/10/2017

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1.0 PURPOSE

1.1 This procedure provides instructions for operator response to any of the following naturally occurring events.

- * Earthquake
- * Tornado/High Winds
- * Flooding
- * Loss of cooling lake

2.0 SYMPTOMS OR ENTRY CONDITIONS

2.1 This procedure is entered after an earthquake based on any of the following symptoms:

- * Annunciator 00-098B, SSE - LIT
- * Annunciator 00-098D, OBE - LIT
- * Annunciator 00-098E, SEISMIC RECORDER ON - LIT
- * The effects of an earthquake are heard, seen, or felt.

2.2 This procedure is entered to respond to a tornado or high winds based on any of the following symptoms:

- * Tornado warning is in effect for the Coffey County area including WCGS.
- * A tornado has been sighted near the plant.
- * Reports of a tornado moving towards the plant.
- * Predicted or observed winds of greater than 95 mph is in effect for the Coffey County area including WCGS.

2.3 This procedure is entered to respond to flooding based on the following.

- * Reported flooding.
- * Annunciator 00-097A, COND PIT LEV HI - LIT

2.4 This procedure is entered to respond to loss of cooling lake based on any of the following symptoms:

- * Reported cooling dam failure.
- * Cooling lake level less than 1080 feet
- * Condenser vacuum degraded or trending adversely.
- * Condenser temperature greater than 130°F.

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3.0 REFERENCES AND COMMITMENTS

3.1 References

- a. Bechtel Calculation Number FL-05 Rev. 0, "Control Building Flooding"
- b. DCP 07225, Emergency Makeup Water Requirement For AFW From ESW/UHS (Attachment D, Step D10)
- c. CCP 11151, Missile Shield/Hatch Cover Requirement (Attachment B, Step B1 NOTE)
- d. PIR 2003-1857, MCB Sump Level Alarms Not Seismically Qualified. (Attachment A, Step A10 Note)
- e. DCP 12511, Full Electrical Closure For CWP Discharge Valves (Attachment C, Step C5)
- f. EPRI NP-6695, Guidelines For Nuclear Plant Response To An Earthquake (Attachment A, Step A5 Note, Attachment E)
- g. CR 00027988/DCP 5846 Revision 7, Revise Procedure OFN SG-003 To Ensure Locking Device Installed On Each NK11, NK12, NK13, And NK14 Battery Is Intact And Not Loose (Attachment A, Step A22)
- h. CR 00027553, Revise Procedure STN PE-040G For Turbine Pedestal Columns And Deck Beam Inspections Post-SSE (Attachment A, Step A23)
- i. CR 00037373, Recommended Enhancements From IER 11-01
- j. NRC Reg Guide 1.167, Restart Of A Nuclear Power Plant Shutdown By A Seismic Event
- k. NRC Reg Guide, 1.166, Pre-Earthquake Planning And Immediate Nuclear Power Plant Operator Post-Earthquake Actions
- l. NRC Information Notice NO. 84-69, Operation Of Emergency Diesel Generators In Modes Other Than Standby (Attachment B, Step B1)
- m. CR 91022, Tracking EF-M-076 Limitations
- n. DCP 13424/14746, ESW Water Hammer Mitigation
- o. S&A Seismic HF Study And Report 16C4405-RPT-004.

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3.2 Commitments

- a. RCMS #99-073, Spent Fuel Pool Rack Inspection Following Earthquake. [Attachment A, Step A21]
- b. CR 00049040, INPO IER L2 12-12, Earthquake Results In A Loss Of Offsite Power And Reactor Trip. [Attachment A, Step A2.c, Step A6, Step A9, Step A16, Step A17 Note, Step A18, Attachment F, Attachment G]
- c. RCMS 2017-505, ET 17-0005, Seismic High Frequency Confirmation For WCGS [Attachment A, Step A4, Attachment H, Attachment J]

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1. **Determine Appropriate Attachment For Natural Event From Table Below**

IF a natural event is NOT in progress, THEN return to procedure and step in effect.

EVENT	ATTACHMENT
EARTHQUAKE	A
TORNADO/HIGH WINDS	B
FLOODING	C
COOLING DAM FAILURE	D

2. **Go To Appropriate Attachment For Natural Event**
3. **Return To Procedure And Step In Effect**

-END-

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 1 of 10)
EARTHQUAKE RESPONSE

**A1. Check Earthquake Magnitude -
GREAT ENOUGH TO START SEISMIC
RECORDER**

- o Annunciator 00-098E,
SEISMIC RECORDER ON - LIT
- o Earthquake Effects - SEEN,
FELT, OR HEARD

Perform the following:

- a. Check With Plant Personnel
For Earthquake Effects -
SEEN, FELT OR HEARD

* Security

OR

* Site Watch

- b. IF earthquake was sensed
by plant personnel but not
detected by seismic
instrumentation, THEN
direct personnel to report
any damage discovered
during rounds using the
corrective action program
and return to procedure
and step in effect.

- c. IF earthquake is NOT
confirmed, THEN return to
procedure and step in
effect.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 2 of 10)
EARTHQUAKE RESPONSE

NOTES

- o During a seismic event, indications provided by seismically qualified instruments may not be reliable but should function correctly after the event.
- o If a plant trip occurs or if the plant should be shutdown due to the seismic event, stabilize the plant, using EMGs, while continuing with this procedure

A2. Stabilize Plant Conditions:

- a. Stop All Plant Evolutions.
- b. Maintain Steady State Conditions.
- c. Ensure Vital Plant Parameters - STABLE
 - o Reactor Power
 - o RCS Temperature
 - o RCS Flow
 - o Pressurizer Pressure
 - o Pressurizer Level
 - o Steam Generator Level
 - o Steam Generator Pressure
 - o Turbine Load
 - o Loose Parts Monitor
 - o Fire Protection
 - o Tank Levels
(AP, BN, BL, EP)
 - o Main Turbine Vibration
 - o Main Feed Pump Vibration

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 3 of 10)
EARTHQUAKE RESPONSE

**A3. Check BLENDED SUPPLY HDR ISO
- LOCKED CLOSED**

- o BG-V192 (2000' AUX BLDG,
VCT VLV ROOM) - LOCKED
CLOSED

Perform the following:

- o Lock BLENDED SUPPLY HDR ISO
closed.
- o BG-V192 - LOCKED CLOSED
- o Ensure BLENDED SUPPLY TO
RWST ISO is closed.
- o BG-V195 (2000' AUX BLDG
VCT VLV ROOM) - CLOSED

**A4. Check Earthquake Magnitude -
LESS THAN SSE**

- o 00-098B, SSE - CLEAR

Perform Attachment H,
POTENTIAL MALFUNCTIONS DUE TO
RELAY CHATTER while
continuing with this
procedure.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 4 of 10)
EARTHQUAKE RESPONSE

CAUTION

When inspecting plant for damage following a natural event, be alert for possible hazards such as steam leaks, standing water and damaged electrical equipment.

NOTE

Plant walkdowns should be completed within 8 hours of the earthquake occurrence. Refer to ATTACHMENT E, POST-EARTHQUAKE PLANT INSPECTION REQUIREMENTS for guidance on walkdowns and inspections.

**A5. Initiate Inspection Of Plant
Equipment With Emphasis On
The Following
Systems/Components: Refer To
Attachment E For Inspection
Guidance.**

- o Rod Control System
- o Reactor Coolant System
- o Steam Dump System
- o Boric Acid Transfer Pump
- o Boric Acid Storage Tank
- o Auxiliary Feedwater
- o Charging System
- o Component Cooling Water
- o Essential Service Water
- o Off-Site Power/Switchyard
- o Ctmr Isolation Valves
- o Residual Heat Removal
System
- o Cold Overpressure
Mitigation System

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 5 of 10)
EARTHQUAKE RESPONSE

**A6. Dispatch Personnel To Inspect
For Site Damage:**

- o Dispatch Personnel To
Inspect The Switch Yard
- o Dispatch Site Watch To
Inspect All Facilities
Normally Toured
- o Dispatch Security To
Inspect All Buildings
Outside The Powerblock

**A7. Check Plant Radiation
Monitors - AVAILABLE**

- o Area Radiation Monitors
- o Process Radiation Monitors

Direct Radiation Protection
to survey the following
areas:

- o Containment
- o Auxiliary Building
- o Fuel Building
- o Radwaste Building

**A8. Check Plant Radiation Levels
- NORMAL**

Respond to abnormal radiation
levels, using OFN SP-010,
ACCIDENTAL RADIOACTIVE
RELEASE, while continuing in
this procedure.

**A9. Contact Chemistry To Sample
And Analyze The Following For
Activity:**

- o Steam Generators
- o Reactor Coolant

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 6 of 10)
EARTHQUAKE RESPONSE

CAUTION

The Fire Protection System is not seismically qualified in areas of the Aux Building that do not contain Safety Related Equipment. Any Aux Building flooding should be assumed to be from Fire Protection unless there is positive indication that it is not. Per flooding calculation FL-01, this flooding must be stopped within 35 minutes. ATTACHMENT C, FLOODING RESPONSE has steps to secure Fire Pumps.

NOTE

The Main Control Board sump level alarms are not seismically qualified and may not function following an earthquake. Main Control Board sump level meter indications are seismically qualified and can be monitored for indication of flooding.

A10. Check Flooding - NOT PRESENT

- * LF LI-103 - AUX BLD SUMP
- * LF LI-104 - AUX BLD SUMP
- * LF LI-124 - CTRL BLD SUMP
- * LF LI-125 - CTRL BLD SUMP
- * LF LI-101 - RHR PUMP RM B
- * LF LI-102 - RHR PUMP RM A
- * LE LI-105 - DG RM A
- * LE LI-106 - DG RM B
- * LF LI-9 - CTMT NORM SUMP
- * LF LI-10 - CTMT NORM SUMP
- * Verbal Reports

Respond to flooding, using ATTACHMENT C, FLOODING RESPONSE, while continuing with this ATTACHMENT.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 7 of 10)
EARTHQUAKE RESPONSE

A11. Contact Oklahoma Geological Survey Office In Tulsa (918-366-4152) To Confirm The Earthquake And To Obtain Information On Location And Magnitude

Review US GEOLOGICAL SURVEY site on the internet at <http://earthquake.usgs.gov/earthquakes/map> to obtain earthquake location and magnitude.

A12. Determine Emergency Action Level, Using EPP 06-005, EMERGENCY CLASSIFICATION

A13. Contact Engineering To Perform AI 23-009, RESPONSE TO A SEISMIC EVENT

NOTE

Performance of Channel Operability Test (COT) STS IC-894, COT TRIAX TIME HISTORY AND RESPONSE SPECTRUM RECORDING SYSTEM will satisfy both Condition C.2 and C.4 of TR 3.3.11 when completed.

A14. Complete The Following Within 4 Hours Of Earthquake Occurrence:

- o Evaluation of the actuated free-field instrumentation (SGAR0001) by the System Engineer
- o STS IC-894, COT TRIAX TIME HISTORY AND RESPONSE SPECTRUM RECORDING SYSTEM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT A
(Page 8 of 10)
EARTHQUAKE RESPONSE

A15. Check Earthquake Magnitude:

- | | |
|---|--|
| <p>a. Evaluation of the Seismic Monitoring System (SG058) by the System Engineer per AI 23-009, RESPONSE TO A SEISMIC EVENT indicated the OBE limits were not exceeded.</p> | <p>a. Perform the following:</p> <ol style="list-style-type: none"> 1) <u>IF</u> OBE readings are accurate as indicated by satisfactory completion of STS IC-894, COT TRIAX TIME HISTORY AND RESPONSE SPECTRUM RECORDING SYSTEM, <u>THEN</u> go to Step A18. 2) <u>IF</u> OBE readings are <u>NOT</u> accurate as indicated by unsatisfactory completion of STS IC-894, COT TRIAX TIME HISTORY AND RESPONSE SPECTRUM RECORDING SYSTEM, <u>THEN</u> go to step A16. |
|---|--|

A16. Check Attachment E, POST-EARTHQUAKE PLANT INSPECTION REQUIREMENTS Has Been Completed

NOTE

If plant shutdown is required due to damage, per EPRI NP-6695 OBE should be assumed to be exceeded and all requirements of EPRI NP-6695 would be required.

A17. Check Plant Damage - Inspection Of Plant Equipment And Structures Indicated Sufficient Damage To Warrant Plant Shutdown

IF plant damage does NOT require plant shutdown, THEN obtain Plant Manager or Call Superintendent authorization to continue plant operation and go to step A20.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 9 of 10)
EARTHQUAKE RESPONSE

NOTE

Pre-shutdown inspections should focus on functional damage to the equipment that may impair the capability of the damaged equipment to perform its safety related function. Physical damage that does not affect equipment operability is not a major concern in these inspections.

A18. Perform Pre-Shutdown Inspections:

Do not shutdown until required equipment is available.

- o Attachment F, PRE-SHUTDOWN INSPECTIONS, completed

NOTE

Initiation of plant shutdown will be based upon completion of plant inspections and their results.

A19. Shutdown The Plant, Using Appropriate Procedure, While Continuing With This Procedure:

- * GEN 00-004, POWER OPERATION

OR

- * GEN 00-005, MINIMUM LOAD TO HOT STANDBY

OR

- * GEN 00-006, HOT STANDBY TO COLD SHUTDOWN

OR

- * OFN MA-038, RAPID PLANT SHUTDOWN

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 10 of 10)
EARTHQUAKE RESPONSE

**A20. Initiate A Condition Report
To Ensure The Following Is
Completed Within 10 Days Of
The Earthquake Occurrence:**

- o Evaluation of the data
retrieved from remaining
actuated monitoring
instrumentation.

**A21. Direct Engineering To Inspect
The Spent Fuel Pool Racks To
Determine If Rack-To-Rack
Gaps Or Peripheral Rack-To-
Wall Gaps Have Changed As
Compared To Dimensions Found
On Drawing C-175A-00134**

**A22. Verify The Battery Cell Lock
Assemblies Installed On Each
Battery In The NK11, NK12,
NK13 And NK14 Battery Rooms
Are Not Broken Or Loose**

**A23. Check Earthquake Magnitude -
LESS THAN SSE**

Direct Support Engineering to
inspect turbine pedestal
columns and deck beams to
verify structural integrity
per STN PE-040G, TRANSIENT
EVENT WALKDOWN.

**A24. Make Equipment Out Of Service
Log Entries As Required**

**A25. Consult Shift Manager/Control
Room Supervisor For Further
Direction**

**A26. Return To Procedure And Step
In Effect**

-END-

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 1 of 8)
TORNADO/HIGH WIND RESPONSE

CAUTION

Emergency Diesel Generators should not be connected to offsite power during Tornado or High winds as this could adversely affect emergency power availability.

NOTES

- o Refer to AI 14-006, SEVERE WEATHER, while continuing with this procedure.
- o The Containment Missile Shield does not have to be in place in Mode 3 with SI accumulators isolated, 4, 5, 6 or defueled.

**B1. Check Containment Missile
Shield - IN PLACE**

IF the reactor building equipment hatch ZX01 is open, THEN direct the Containment Coordinator to close equipment hatch with at least 6 bolts.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;">ATTACHMENT B (Page 2 of 8) TORNADO/HIGH WIND RESPONSE</p>		
B2.	<p>Check If Tornado/High Wind Response Is Required:</p> <p>* Tornado Warning In Effect For Coffey County Area That Includes The WCGS</p> <p style="text-align: center;"><u>OR</u></p> <p>* Tornado Sighted Near Plant</p> <p style="text-align: center;"><u>OR</u></p> <p>* Reports Of Tornado Moving Towards The Plant</p> <p style="text-align: center;"><u>OR</u></p> <p>* Predicted or observed continuous winds of greater than or equal to 95 mph (Continuous winds is defined as the fastest observed one minute value)</p>	Return to procedure and step in effect.
B3.	Ensure Control Room Outer Missile Door - CLOSED	
B4.	Review The Breach Authorization Log And Close Any Open Pressure Doors, While Continuing With This Procedure	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT B
(Page 3 of 8)
TORNADO/HIGH WIND RESPONSE

NOTE

If weather conditions warrant and personnel need to take cover, the Shift Manager or Control Room Supervisor may authorize sounding of the tornado siren even though a tornado is not present.

B5. Check If Tornado Has Been Sighted:

- a. Check Tornado - SIGHTED NEAR PLANT
- b. Announce a tornado has been sighted and personnel should take appropriate cover.
- c. Direct Security to activate tornado siren.
- d. Stop the transfer of radioactive materials.
- e. Stop using all cranes.
- f. Notify Systems Operation of tornado sighting and potential of site damage.

Perform the following:

1. Maintain stable plant conditions.
2. IF a Tornado Warning is in effect, THEN Direct Security Shift Lieutenant to perform the following:
 - a) Station a tornado watch.
 - b) Ensure All Doors Listed In SECURITY 50-130 ATTACHMENT B, VITAL DOOR CHECKLIST - CLOSED
 - c) Ensure Terry Turbine Room door 13311 is closed.
 - d) Notify all onsite personnel tornado warning is in effect.
 - e) Activate tornado siren, as directed by SM/CRS.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B

(Page 4 of 8)

TORNADO/HIGH WIND RESPONSE

B6. Check For Continuous High Winds Of Greater Than Or Equal To 95 mph (Continuous Winds Is Defined As The Fastest Observed One Minute Value)

Maintain stable plant conditions.

a. Stop transfer of radioactive materials.

b. Stop using all cranes.

B7. Check If Fuel Handling Should Be Stopped:

a. Check Plant Refueling - IN PROGRESS

a. Observe NOTE PRIOR TO STEP B8 and go to step B8.

b. Place Fuel Transfer Cart in Spent Fuel Pool.

c. Ensure Fuel Transfer Tube Gate Valve - CLOSED

o EC-V995 (2047' FUEL BLDG, BY UPENDER CONTROL PANEL)

d. Transfer all remaining elements in refueling pool to reactor vessel.

e. Report refueling pool status to Control Room.

NOTE

When securing loose gear and equipment, areas around power distribution equipment should be done first.

B8. Secure Loose Gear And Equipment As Time And Safety Considerations Permit

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B

(Page 5 of 8)

TORNADO/HIGH WIND RESPONSE

B9. Determine Emergency Action Level, Using EPP 06-005, EMERGENCY CLASSIFICATIONS

B10. Check Tornado Warning - OVER

Return to step B5.

B11. Check Plant Impacted By Severe Weather

Go to step B22.

CAUTION

When inspecting plant for damage following a natural event, be alert for possible hazards such as steam leaks, standing water and damaged electrical equipment.

B12. Inspect Plant For Tornado/High Wind Damage After The Threat Of Severe Weather Is Over:

- a. Direct Turbine Watch to inspect Turbine Building and transformers.
- b. Direct Site Watch to inspect all facilities normally toured.
- c. Direct all other building watches to inspect their areas for damage.
- d. Direct Security to inspect all buildings outside the powerblock.
- e. Perform OFN AF-025, UNIT LIMITATIONS for possible open phase condition.
- f. Direct Plant Engineering to perform thermography on large transformers and high voltage lines on site and in the switchyard.

f. Go to step B13.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B

(Page 6 of 8)

TORNADO/HIGH WIND RESPONSE

**B13. Obtain SM/CRS Permission To
Continue Plant Operation**

Shutdown plant, using the following procedure, while continuing with this procedure:

* GEN 00-004, POWER OPERATION

OR

* GEN 00-005, MINIMUM LOAD TO HOT STANDBY

OR

* OFN MA-038, RAPID PLANT SHUTDOWN

**B14. Check Flooding - NOT
PRESENT OR NOT IMMINENT**

Respond to flooding, using ATTACHMENT C, FLOODING RESPONSE, while continuing with this ATTACHMENT.

**B15. Evaluate Need For Personnel
Accountability, Using EPP
06-010, PERSONNEL
ACCOUNTABILITY**

NOTE

If fans are running, the tornado dampers may be verified open by comparing filter DP to pre-event value from logs, to ensure air flow is present.

**B16. Locally Check Unit Vent
Plenum Tornado Damper - OPEN**

o GTD002

Perform the following:

a. Stop all fans discharging to unit vent.

b. WHEN Unit Vent Plenum Tornado Damper has re-opened, THEN start fans to unit vent.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 7 of 8)
TORNADO/HIGH WIND RESPONSE

B17. Locally Check Control Building Exhaust Fans Tornado Damper Is Open.

o GKD0021

Perform the following:

- a. On RP068, stop Control Building Exhaust Fans.
 - o GK HIS-16
 - o GK HIS-17
- b. WHEN Control Building Exhaust Fans Tornado Damper has re-opened, THEN restart fans.

B18. Locally Check EDG "A" Supply And Exhaust Tornado Dampers Are Open.

- o GMD0001 (Supply)
- o GMD0004 (Exhaust)

Perform the following:

- a. On RL020, stop DG VENT SPLY FAN A.
 - o GM HIS-1A
- b. WHEN EDG "A" Supply And Exhaust Tornado Damper(s) has re-opened, THEN restart fan.

B19. Locally Check EDG "B" Supply And Exhaust Tornado Dampers Are Open.

- o GMD0006 (Supply)
- o GMD0009 (Exhaust)

Perform the following:

- a. On RL020, stop DG VENT SPLY FAN B.
 - o GM HIS-11A
- b. WHEN EDG "B" Supply And Exhaust Tornado Damper(s) has re-opened, THEN restart fan.

B20. Locally Check ESW Pump "A" Supply And Exhaust Tornado Dampers Are Open.

- o GDD0001 (Supply)
- o GDD0003 (Exhaust)

Perform the following:

- a. On RP068, stop ESW PMP RM SUPPLY FAN 1A.
 - o GD HIS-1A
- b. WHEN ESW Pump "A" Supply And Exhaust Tornado Damper(s) has re-opened, THEN restart fan.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT B

(Page 8 of 8)

TORNADO/HIGH WIND RESPONSE

**B21. Locally Check ESW Pump "B"
Supply And Exhaust Tornado
Dampers Are Open.**

- o GDD0008 (Supply)
- o GDD0010 (Exhaust)

Perform the following:

- a. On RP068, stop ESW PMP RM
SUPPLY FAN 1B.
 - o GD HIS-11A
- b. WHEN EDG "B" Supply And
Exhaust Tornado Damper(s)
has re-opened, THEN
restart fan.

**B22. Consult Shift Manager/Control
Room Supervisor For Further
Direction****B23. Return To Procedure And Step
In Effect**

-END-

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 1 of 7)
FLOODING RESPONSE

- C1. Review The Breach
Authorization Log Permit Log
And Close Any Open Water
Tight Doors, While Continuing
With This Procedure

CAUTION

The Fire Protection System is not seismically qualified in areas of the Aux Building that do not contain Safety Related Equipment. Any Aux Building flooding should be assumed to be from Fire Protection unless there is positive indication that it is not. Per flooding calculation FL-01, this flooding must be stopped within 35 minutes. ATTACHMENT C, FLOODING RESPONSE has steps to secure Fire Pumps.

- C2. Check Aux Building At 1974'
Elevation - NOT FLOODED

Perform the following:

- a. Notify Fire Brigade Leader that Fire Pumps will be secured.
- b. Dispatch personnel to secure all Fire Pumps.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 2 of 7)
FLOODING RESPONSE

NOTE

CRVIS is manually actuated, if flooding cannot be immediately stopped in the 1974' Control Building. This ensures GK HZ-172A & B, CHASE TK AREA SUPPLY ISO ACTUATORS and GK HZ-173A & B, CHASE TK AREA SUPPLY ISO ACTUATORS are in their required CRVIS line-up prior to any potential impact from the flooding.

**C3. Check Control Building At
1974 Feet - NOT FLOODED**

Perform the following:

- a. IF flooding can NOT be immediately stopped, THEN perform the following:
 - 1) Isolate both ESW trains from Service Water, using SYS EF-200, OPERATION OF THE ESW SYSTEM.
 - 2) Manually actuate CRVIS:
 - * SA HS-9
 - * SA HS-13
- b. IF flooding is due to break in Fire Protection piping, THEN perform the following:
 - 1) In Diesel Fire Pump room, at controller on 1PL06J, depress the OFF pushbutton.
 - 2) Open fire pumps breakers.
 - o 1SL31 CUB-6 For 1FP001PA, MOTOR DRIVEN FIRE PUMP
 - o SL4A1RB For 1FP002P, JOCKEY PUMP
 - 3) Isolate fire main leakage, using M-12KC P&IDs.
 - 4) Refer to AP 10-103, FIRE PROTECTION IMPAIRMENT CONTROL for required actions.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>ATTACHMENT C (Page 3 of 7) FLOODING RESPONSE</p> <p>C4. Check If Turbine Building Circulating Water Pipe Has Ruptured:</p> <p>o Annunciator 00-097A, COND PIT LEV HI - LIT</p> <p>Go to step C7.</p>		

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 4 of 7)
FLOODING RESPONSE

C5. Stop Circulating Water Pumps:

- a. Manually trip reactor.
- b. Stabilize the plant, using EMGs, while continuing with this procedure.
- c. Stop Circ Water Pumps.
 - o 1HS-CW001A
 - o 1HS-CW002A
 - o 1HS-CW003A

CAUTION

A 42 second time delay is required before remotely slow closing discharge valve, after pump secured, to ensure no damage to Circulating Water System piping.

NOTE

Remote slow close handswitches are located on respective Circ Water Pump Discharge Valve breaker cubicles.

- d. Check All Circ Water Pump Discharge Valves - CLOSED
 - o 1ZL-CW009A For Pump A
 - o 1ZL-CW010A For Pump B
 - o 1ZL-CW011A For Pump C
- d. After 42 second time delay, locally close Circ Water Pump Discharge Valves, by using remote slow close handswitch.
 - o 1HS-CW0012 At SL4A1RD For CW Pump A
 - o 1HS-CW0013 At SL4A1RE For CW Pump B
 - o 1HS-CW0014 At SL3A3RA For CW Pump C

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 5 of 7)
FLOODING RESPONSE

**C6. Complete Circulating Water
System Shutdown:**

- a. Locally perform the following:
 - 1) Open Turbine Building outside doors.
 - 2) Stop Waterbox Venting Pumps.
 - o DA HIS-24 For 1CDA01A
 - o DA HIS-25 For 1CDA01B
 - o DA HIS-29 For 1CDA01C
 - 3) Open Waterbox Venting System Vacuum Breaker.
 - o DA HS-30 For DA HV-30
- b. Complete Circ Water System Shutdown section of SYS DA-200, STARTUP, OPERATION AND SHUTDOWN OF THE CIRCULATING WATER SYSTEM, to ensure proper system alignment, while continuing in this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 6 of 7)
FLOODING RESPONSE

C7. Isolate Flooding Reported In Other Areas:

- a. Use available indications to locate source of flooding:
 - o Flows
 - o Temperatures
 - o Sumps levels
 - o Alarms
- b. Isolate water source.
- c. Isolated affected systems and components.
- d. Direct water away from equipment.
- e. Ensure Any Installed Sump Pumps - RUNNING
- f. Check Break - IN SYSTEM CONTAINING RADIOACTIVE FLUID
- g. Notify personnel to stay clear of affected area.
- h. Direct Radiation Protection to survey affected area.
- f. Go to step C8.

C8. Evaluate Equipment Damage

C9. Start Alternate Equipment, As Necessary

C10. Determine Emergency Action Level, Using EPP 06-005, EMERGENCY CLASSIFICATIONS

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 7 of 7)
FLOODING RESPONSE

**C11. Obtain SM/CRS Permission To
Continue Plant Operation**

Shutdown plant, using the
following procedure, while
continuing with this
procedure:

* GEN 00-004, POWER OPERATION

OR

* GEN 00-005, MINIMUM LOAD TO
HOT STANDBY

OR

* OFN MA-038, RAPID PLANT
SHUTDOWN

**C12. Return To Procedure And Step
In Effect**

-END-

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;">ATTACHMENT D (Page 1 of 8) COOLING DAM FAILURE RESPONSE</p>		
<p style="text-align: center;"><u>NOTE</u></p> <p>Cooling lake level of 1980 feet corresponds to 1080 feet on computer point EFL0027.</p>		
D1.	<p>Check Cooling Dam Failure - HAS OCCURRED OR IS IMMINENT</p> <p>* Reports Of Dam Failure Or Damage</p> <p style="text-align: center;"><u>OR</u></p> <p>* Cooling Lake Level - LESS THAN 1080 FEET</p> <p style="text-align: center;"><u>OR</u></p> <p>* Condenser vacuum degraded or trending adversely.</p> <p style="text-align: center;"><u>OR</u></p> <p>* Condenser Temperature - GREATER THAN 130°F</p>	Return to procedure and step in effect.
D2.	<p>Begin Plant Shutdown, Using The Following Procedures, As Directed By SM/CRS:</p> <p>* GEN 00-004, POWER OPERATION</p> <p style="text-align: center;"><u>OR</u></p> <p>* GEN 00-005, MINIMUM LOAD TO HOT STANDBY</p> <p style="text-align: center;"><u>OR</u></p> <p>* OFN MA-038, RAPID PLANT SHUTDOWN</p>	
D3.	<p>Notify Coffey County Sheriff Of Plant Status.</p> <p>o Telephone Number 364-2123</p>	

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT D
(Page 2 of 8)
COOLING DAM FAILURE RESPONSE

NOTE

All valves located 1974' CTRL BLDG ESW PIPE ROOM.

**D4. Place Both ESW Trains
Inservice:**

- | | |
|--|--------------------------|
| a. Start both ESW Pumps. | |
| b. Ensure ESW To UHS - OPEN | b. Locally open valves. |
| o EF HIS-37 For Train A | * EF HV-37 - OPEN |
| o EF HIS-38 For Train B | * EF HV-38 - OPEN |
| c. Ensure ESW To Service
Water Isolation - CLOSED | c. Locally close valves. |
| o Train A | * Train A |
| o EF HIS-23 | * EF HV-23 - CLOSED |
| o EF HIS-25 | * EF HV-25 - CLOSED |
| o EF HIS-39 | * EF HV-39 - CLOSED |
| o EF HIS-41 | * EF HV-41 - CLOSED |
| o Train B | * Train B |
| o EF HIS-24 | * EF HV-24 - CLOSED |
| o EF HIS-26 | * EF HV-26 - CLOSED |
| o EF HIS-40 | * EF HV-40 - CLOSED |
| o EF HIS-42 | * EF HV-42 - CLOSED |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT D
(Page 3 of 8)
COOLING DAM FAILURE RESPONSE

NOTE

Cooling lake level of 1975 feet corresponds to 1075 feet on computer point EFL0027.

D5. Check If Reactor Should Be Tripped:

- a. Check Cooling Lake Level -
GREATER THAN 1075 FEET
- b. Consult Shift
Manager/Control Room
Supervisor for further
direction.

Perform the following:

1. Manually trip reactor.
2. Stabilize the plant, using EMGs, while continuing with this procedure.
3. Stop Circ Water Pumps.
 - o 1HS-CW001A
 - o 1HS-CW002A
 - o 1HS-CW003A
4. At Circ Water Screen House, stop fire pumps.
 - a) In Diesel Fire Pump room, at controller on 1PL06J, depress the OFF pushbutton.
 - b) Open fire pump breakers.
 - o 1SL31 CUB-6 For 1FP001PA, MOTOR DRIVEN FIRE PUMP
 - o SL4A1RB For 1FP002PJOCKEY PUMP
 - c) Refer to AP 10-103, FIRE PROTECTION IMPAIRMENT CONTROL for required actions.
5. Break condenser vacuum, using SYS CG-320, BREAKING MAIN CONDENSER VACUUM.
6. Shutdown all equipment cooled by Service Water.
7. Place Service Water Pumps in pull-to-lock.
 - o 1HS-WS001A
 - o 1HS-WS002A
 - o 1HS-WS003A
 - o 1HS-WS004A

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT D
(Page 4 of 8)
COOLING DAM FAILURE RESPONSE

**D6. Dispatch Personnel To Check
ESW Vertical Loop Vacuum
Breakers NOT Leaking:**

- EF-V476 (ESW VERITCAL LOOP
PIPE CHASE)
- EF-V478 (ESW VERITCAL LOOP
PIPE CHASE)
- EF-V482 (ESW VERITCAL LOOP
PIPE CHASE)
- EF-V484 (ESW VERITCAL LOOP
PIPE CHASE)

Perform SYS EF-210, OPERATION
OF ESW VERTICAL LOOP VACUUM
BREAKERS ISOLATIONS to
isolate leaking valve while
continuing with this
procedure.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT D
(Page 5 of 8)
COOLING DAM FAILURE RESPONSE

NOTES

- o Cooling lake level of 1970 feet corresponds to 1070 feet on computer point EFL0027.
- o Calculation EF-M-076 requires ESW backpressure be increased 5 psig on running ESW Pumps to preclude the vacuum breakers from actuating if UHS level reaches 1070 feet.

D7. Check If ESW Backpressure Needs To Be Increased:

- a. Check Cooling Lake Level - GREATER THAN 1070 feet
- b. Consult Shift Manager/Control Room Supervisor for further direction.

Perform the following:

1. IF ESW PUMP A is running, THEN perform the following:
 - a) Establish communications with an operator at EF-V108, ESW A TO UHS HDR ISO.
 - b) Direct operator to unlock and throttle ESW A TO UHS HDR ISO closed until pressure indicated on EF PI-1, ESW PUMP A DISCH PRESS increases 5 psig.
 - o EF-V108 - THROTTLED CLOSED
 - o EF PI-1 - 5 PSIG INCREASE

(Step D7. continued on next page)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p style="text-align: center;">ATTACHMENT D (Page 6 of 8) COOLING DAM FAILURE RESPONSE</p> <p>Step D7. (continued from previous page)</p> <p style="margin-left: 400px;">2. <u>IF</u> ESW PUMP B is running, <u>THEN</u> perform the following:</p> <p style="margin-left: 100px;">a) Establish communications with an operator at EF-V117, ESW B TO UHS HDR ISO.</p> <p style="margin-left: 100px;">b) Direct operator to unlock and throttle ESW B TO UHS HDR ISO closed until pressure indicated on EF PI-2, ESW PUMP B DISCH PRESS increases 5 psig.</p> <p style="margin-left: 100px;">o EF-V117 - THROTTLED CLOSED</p> <p style="margin-left: 100px;">o EF PI-2 - 5 PSIG INCREASE</p> <p style="margin-left: 400px;">3. Update APF 21G 001-01, Log Of Locked COMPONENT MANIPULATIONS.</p> <p>D8. Determine Emergency Action Level, Using EPP 06-005, EMERGENCY CLASSIFICATION</p> <p>D9. Establish Continuous Fire Watches:</p> <p style="margin-left: 40px;">o In Plant Areas</p> <p style="margin-left: 40px;">o In Areas With Operating Equipment</p>		

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT D

(Page 7 of 8)

COOLING DAM FAILURE RESPONSE

D10. Close ESW To Aux Feedwater Pumps Suction Line Vent Valves:

- o AL-V136 (2000' MDAFWP A ROOM)
- o AL-V137 (2000' MDAFWP B ROOM)
- o AL-V138 (2000' TURBINE DRIVEN AUX FEED PUMP ROOM)
- o AL-V139 (2000' TURBINE DRIVEN AUX FEED PUMP ROOM)

D11. Inspect The Integrity Of The Piping Associated With A And B Air Compressors:

- a. At least every 4 hours, inspect all of the non-safety related portions of the Service Water System associated with Air Compressors A and B, to ensure no pipe breaks have occurred.
 - o CKA01A
 - o CKA01B

- a. Isolate affected air compressor:

- 1) Close Service Water Inlet Isolation valve.

* EF HV-43 (2000' AUX BLDG, NE) For Train A

* EF HV-44 (2000' AUX BLDG, NE) For Train B

- 2) Close Service Water Outlet Isolation valve.

* EF-V346 (2000' AUX BLDG, NE) For Train A

* EF-V345 (2000' AUX BLDG, NE) For Train B

D12. Direct Fire Protection Specialist To Make Provisions For Backup Fire Protection Equipment**D13. Consult Shift Manager/Control Room Supervisor For Further Direction**

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Continuous Use		Page 38 of 56

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT D
(Page 8 of 8)
COOLING DAM FAILURE RESPONSE

**D14. Return To Procedure And Step
In Effect**

-END-

ATTACHMENT E
(Page 1 of 2)
POST-EARTHQUAKE PLANT INSPECTION REQUIREMENTS

Once immediate corrective actions are taken, all accessible areas of the plant should be walked down and visually inspected. The purpose of the inspection is to determine the effects of the earthquake on the physical condition of plant equipment and structures.

In addition to those inspections performed during normal operator rounds, the visual inspections should include the following:

- Check for leaks in piping systems, especially at flanged or threaded connections and branch lines.
- Check for damage to low pressure tanks, particularly ground or floor mounted vertical storage tanks.
- Check for damage to switchyard equipment.
- Perform OFN AF-025 for possible open phase condition.
- Check fluid levels in tanks. Level switches may have been activated due to sloshing of the contained fluid (an actual but momentary change in level).
- Check for high vibration, high bearing temperature, and unusual noise in rotating equipment such as pumps and fans.
- Check for damage to equipment and structures due to impact with adjacent equipment and falling objects.
- Check the condition of a sampling of the equipment anchorage including deformation or loosening of anchor bolts, pullout or shear of anchor bolts, rocking, sliding, or misalignment of equipment.
- Check for damage to attached piping including hoses, tubing, and electrical conduit.
- Check for damage to pipe, and check pipe and component supports for evidence of excessive displacement.
- Check for distortion of electrical and control cabinets, including a brief visual check of a sampling of internally mounted components such as relays and circuit breakers.
- Check for major cracks or spalling in reinforced concrete structures. Hairline cracks in reinforced concrete structures are not considered significant.
- Check the operational status of important relays, breakers, and other potentially sensitive electric gear (in particular, those in protective and seal-in/lockout circuits whose change in state could affect operability of equipment and systems).
- Check elevators for trapped persons and damage, elevator function

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ATTACHMENT E
(Page 2 of 2)
POST-EARTHQUAKE PLANT INSPECTION REQUIREMENTS

should be tested without passengers prior to use.

- Check for portable equipment which may have fallen on safe shutdown equipment.

-END-

ATTACHMENT F
(Page 1 of 1)
PRE-SHUTDOWN INSPECTIONS

F1. The following are the required pre-shutdown equipment inspections that have to be completed prior to commencing a plant shutdown.

a. Perform the following equipment inspections:

- o Check each Control Rod Drive Mechanism for operability
- o Check in-core instrumentation readouts for abnormal changes
- o Check primary coolant radiation monitors for abnormal changes
- o Check primary coolant flow, temperature and pressure for abnormal changes
- o Check Loose Parts Monitor for changes in noise signatures
- o Compare primary coolant sample chemistry with pre-earthquake samples
- o Residual Heat Removal
- o Emergency Diesel Generators
- o Component Cooling Water
- o Essential Service Water
- o Aux Feedwater
- o Reactor Makeup Water Storage Tank
- o Refueling Water Storage Tank
- o Condensate Storage Tank
- o Station Emergency Electrical systems including station batteries, AC and DC buses and associated breakers and relays
- o Instrumentation and Control systems needed to regulate and monitor essential Safe Shutdown Systems

b. Determine the availability of off-site power sources:

- o Contact System Operations Transmission and determine the status of the grid, switchyard, and substations.
- o IF less than two off-site power sources are available, or the condition of the off-site power source is uncertain, THEN perform board checks of the on-site emergency power systems.
- o Board checks include verification that all circuit breakers and control power indicating lights on the power supply panel are indicating that conditions conform to normal operating procedure requirements.
- o Visually inspect the startup/auxiliary transformers, circuit breakers and the associated electrical distribution equipment. Specifically, check that any transformer sudden pressure switches have not actuated resulting in isolation of the startup transformer.
- o Perform OFN AF-025, UNIT LIMITATIONS for possible open phase condition.

-END-

ATTACHMENT G
(Page 1 of 2)
SURVEILLANCE REQUIREMENTS FOR EXCEEDING OBE

NOTES

- o The following information is from ERPI NP-6695, Appendix B and will be used to help provide a starting point for what components/systems need to be tested.
- o All identified components/systems should be entered in the Equipment Out Of Service Log.

- G1. Surveillance test include those tests performed at regular intervals to demonstrate the availability and operability of components and systems important to nuclear safety, or required to mitigate the consequences of accidents. Surveillance test are those identified in the plant Technical Specifications. They consist of checks, tests, calibrations and inspections to verify availability and performance of the tested component and system. Required surveillance test of components and systems include the following:
- o Measurement of the opening and closing times of motor operated valves.
 - o Measurement of the closing time and leak rate of Containment Isolation valves.
 - o Measurement of the flow and discharge pressure of pumps and fans.
 - o Measurement of the concentration, pressure, temperature and fluid level of tanks and heat exchangers.
 - o Verification of automatic startup of standby components and systems (e.g., Emergency Core Cooling pumps, Diesel Generators, etc.)
 - o Testing and calibration of instrumentation.
 - o Monitoring of Reactor Coolant System leakage.
 - o Visual inspection and disassembly of components.
 - o Verification of the control logic in Reactor Protection Systems and Engineered Safety Systems.
 - o Measurement of scram insertion times of the Control Rods.

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ATTACHMENT G
(Page 2 of 2)
SURVEILLANCE REQUIREMENTS FOR EXCEEDING OBE

G2. Systems for which surveillance test are provided for in plant Technical Specifications which should be tested include the following:

- o Reactor Protection System
- o Control Rod System
- o Protective Instrumentation
- o Containment Spray System
- o Pressurizer Safety Valves and PORV's
- o High Pressure Injection System
- o Low Pressure Injection System
- o Shutdown Cooling System
- o Containment Isolation Valves
- o Snubbers
- o Emergency Ventilation System
- o Control Room Ventilation System
- o Alarms
- o Emergency AC and DC Power Supplies
- o Diesel Generators
- o Fire Detection and Suppression
- o Remote Shutdown Panel
- o Radioactive Effluent Treatment and Instrumentation
- o Accident Monitoring Instrumentation
- o Auxiliary Feedwater System
- o Essential Service Water System
- o Component Cooling Water System
- o Containment Integrated Leak Rate test is not considered necessary if no significant physical or functional damage was found.

-END-

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 1 of 11)
POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

NOTE

See attachment J, RELAY TO PROCEDURE STEP CROSS REFERENCE for a cross reference of affected relays to procedure step.

**H1. Check RCS Sample Valves -
CLOSED:**

- o SJ HIS-127
- o SJ HIS-128
- o SJ HIS-129
- o SJ HIS-130

Perform the following:

- a. IF CISA has actuated, THEN
ensure RCS Sample Valves
are closed.
 - o SJ HIS-127
 - o SJ HIS-128
 - o SJ HIS-129
 - o SJ HIS-130
- b. IF CISA is NOT actuated,
THEN contact Chemistry to
determine correct RCS
Sample Valve lineup.
 - 1) Close any RCS Sample
Valve not required to
be open.
 - * SJ HIS-127
 - * SJ HIS-128
 - * SJ HIS-129
 - * SJ HIS-130

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 2 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

NOTE

A lockout on Breakers NB0110 and NB0113 could be caused by chatter in the Neutral Overcurrent Relay 151N/T and will be checked in step H4.

H2. Check NB01 Breakers Not Tripped:

- o NG HIS-2/NB0110
- o NE HIS-25/NB0111
- o NG HIS-1/NB0113
- o EF HIS-55A/NB0115
- o NG HIS-3/NB0116

Dispatch Operator and Electrical Maintenance to perform the following:

- a. Inspect NB01 and XNB01 for damage.
- b. IF there are no signs of damage, THEN reset NB01 breakers that were tripped but NOT locked out.
 - * NG HIS-2
 - * NE HIS-25
 - * NG HIS-1
 - * EF HIS-55A
 - * NG HIS-3
- c. Notify SM/CRS condition of affected NB01 breakers.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 3 of 11)
POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

NOTE

A lockout on Breakers NB0210 and NB0213 could be caused by chatter in the Neutral Overcurrent Relay 151N/T and will be checked in step H4.

H3. Check NB02 Breakers Not Tripped:

- o NG HIS-7/NB0210
- o NE HIS-26/NB0211
- o NG HIS-8/NB0213
- o EF HIS-56A/NB0215
- o NG HIS-6/NB0216

Dispatch Operator and Electrical Maintenance to perform the following:

- a. Inspect NB02 and XNB02 for damage.
- b. IF there are no signs of damage, THEN reset NB02 breakers that were tripped but NOT locked out.
 - * NG HIS-7
 - * NE HIS-26
 - * NG HIS-8
 - * EF HIS-56A
 - * NG HIS-6
- c. Notify SM/CRS condition of affected NB02 breakers.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 4 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

H4. Check NG Transformers Not locked out:

- o Annunciator 00-024D - CLEAR
- o Annunciator 00-025D - CLEAR
- o Annunciator 00-026D - CLEAR
- o Annunciator 00-027D - CLEAR

Perform the following:

- a. IF Annunciator 00-024D is NOT clear, THEN perform the following:
 - 1) Dispatch Operator and Electrical Maintenance to inspect XNG01 and NG01 for damage.
 - 2) IF there are no signs of damage, THEN perform the following:
 - a) Reset any tripped relay flags for the following breaker:
 - o NB0113
 - b) Reset 86 lock out relay for the following breaker:
 - o NB0113
 - c) Reset the following breaker:
 - o NG0101
 - d) Reset the following breaker:
 - o NG HIS-1

(Step H4. continued on next page)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 5 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

Step H4. (continued from previous page)

b. IF Annunciator 00-025D is
NOT clear, THEN perform
the following:

- 1) Dispatch Operator and
Electrical Maintenance
to inspect XNG02 and
NG02 for damage.
- 2) IF there are no signs
of damage, THEN perform
the following:
 - a) Reset any tripped
relay flags for the
following breaker:
 - o NB0213
 - b) Reset 86 lock out
relay for the
following breaker:
 - o NB0213
 - c) Reset the following
breaker:
 - o NG0201
 - d) Reset the following
breaker:
 - o NG HIS-8

(Step H4. continued on next page)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT H
(Page 6 of 11)
POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

Step H4. (continued from previous page)

c. IF Annunciator 00-026D is NOT clear, THEN perform the following:

- 1) Dispatch Operator and Electrical Maintenance to inspect XNG03 and NG03 for damage.
- 2) IF there are no signs of damage, THEN perform the following:
 - a) Reset any tripped relay flags for the following breaker:
 - o NB0110
 - b) Reset 86 lock out relay for the following breaker:
 - o NB0110
 - c) Reset the following breaker:
 - o NG0301
 - d) Reset the following breaker:
 - o NG HIS-2

(Step H4. continued on next page)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 7 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

Step H4. (continued from previous page)

- d. IF Annunciator 00-027D is NOT clear, THEN perform the following:
- 1) Dispatch Operator and Electrical Maintenance to inspect XNG04 and NG04 for damage.
 - 2) IF there are no signs of damage, THEN perform the following:
 - a) Reset any tripped relay flags for the following breaker:
 - o NB0210
 - b) Reset 86 lock out relay for the following breaker:
 - o NB0210
 - c) Reset the following breaker:
 - o NG0401
 - d) Reset the following breaker:
 - o NG HIS-7
- e. Notify SM/CRS condition of affected breakers.
- o IF any affected breakers could NOT be reset, THEN perform the applicable Alarm Response procedure:
 - * ALR 00-024D
 - * ALR 00-025D
 - * ALR 00-026D
 - * ALR 00-027D

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H

(Page 8 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

H5. Check "A" Emergency Generator Alarms - CLEAR

Dispatch Operator and Electrical Maintenance to perform the following:

a. Perform the following to reset the "A" EDG Shutdown Relay:

1) Check Diesel Engine for damage per the following:

- o Verify annunciator 501-04C, JACKET WATER TEMP. HIGH - CLEAR

- o Verify annunciator - 501-02A, LUBE OIL PRESS. LOW - CLEAR

- o Perform visual inspection of "A" Diesel Engine for other signs of damage.

2) IF annunciators 501-04C and 501-02A are clear AND there are no other signs of damage, THEN on panel NE107 reset Shutdown Relay:

- o KJ HS-12 - RESET

(Step H5. continued on next page)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 9 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

Step H5. (continued from previous page)

b. Perform the following to
reset "A" EDG 186-1/DG
Lockout Relay:

1) On panel NE107, check
186-1/DG lockout relay
reset.

o Blue light lit

2) IF 186-1/DG lockout
relay is NOT reset,
THEN check "A" Diesel
Generator and NB01 for
damage.

3) At NE107, ensure all
relay flags have been
reset.

4) IF 186-1/DG lockout
relay is NOT reset AND
there are no signs of
damage, THEN on panel
NE107 reset 186-1/DG
relay.

c. Verify all "A" EDG alarms
are clear.

d. Notify SM/CRS condition of
"A" EDG.

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 10 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

H6. Check "B" Emergency Generator Alarms - CLEAR

Dispatch Operator and Electrical Maintenance to perform the following:

a. Perform the following to reset the "B" EDG Shutdown Relay:

1) Check Diesel Engine for damage per the following:

- o Verify annunciator 502-04C, JACKET WATER TEMP. HIGH - CLEAR
- o Verify annunciator 502-02A, LUBE OIL PRESS. LOW - CLEAR
- o Perform visual inspection of "B" Diesel Engine for other signs of damage.

2) IF Alarms 502-04C AND 502-02A are clear AND there are no other signs of damage, THEN on panel NE106 reset Shutdown Relay:

- o KJ HS-112 - RESET

(Step H6. continued on next page)

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 11 of 11)

POTENTIAL MALFUNCTIONS DUE TO RELAY CHATTER

Step H6. (continued from previous page)

b. Perform the following to
reset "B" EDG 186-1/DG
Lockout Relay:

1) On panel NE106, check
186-1/DG lockout relay
reset.

o Blue light lit

2) IF 186-1/DG lockout
relay is NOT reset,
THEN check "B" Diesel
Generator and NB02 for
damage.

3) At NE106, ensure all
relay flags have been
reset.

4) IF 186-1/DG lockout
relay is NOT reset AND
there are no signs of
damage, THEN on panel
NE106 reset 186-1/DG
relay.

c. Verify all "B" EDG alarms
are clear.

d. Notify SM/CRS condition of
"B" EDG.

H7. Restore available equipment
as directed by SM/CRS.

-END-

ATTACHMENT J

(Page 1 of 2)

RELAY TO PROCEDURE STEP CROSS REFERENCE

J1. The following table is a cross reference for affected relay to the affected procedure step.

Device ID #	Panel	Contact Reference	OFN SG-003, Attachment H, step#
CT1	KJ121	E-13KJ01B	Step H5, RNO step a
CT2	KJ121	E-13KJ01B	Step H5, RNO step a
CT3	KJ121	E-13KJ01B	Step H5, RNO step a
CT4	KJ121	E-13KJ01B	Step H5, RNO step a
OP1	KJ121	E-13KJ01B	Step H5, RNO step a
OP2	KJ121	E-13KJ01B	Step H5, RNO step a
OP3	KJ121	E-13KJ01B	Step H5, RNO step a
OP4	KJ121	E-13KJ01B	Step H5, RNO step a
CT1	KJ122	E-13KJ03B	Step H6, RNO step a
CT2	KJ122	E-13KJ03B	Step H6, RNO step a
CT3	KJ122	E-13KJ03B	Step H6, RNO step a
CT4	KJ122	E-13KJ03B	Step H6, RNO step a
OP1	KJ122	E-13KJ03B	Step H6, RNO step a
OP2	KJ122	E-13KJ03B	Step H6, RNO step a
OP3	KJ122	E-13KJ03B	Step H6, RNO step a
OP4	KJ122	E-13KJ03B	Step H6, RNO step a
152NB00110	NB001	E-11NG01	Step H2
152NB00111	NB001	E-11NE01	Step H2
152NB00113	NB001	E-11NG01	Step H2
152NB00115	NB001	E-11NB01	Step H2
152NB00116	NB001	E-K1NG01	Step H2
152NB00210	NB002	E-11NG02	Step H3
152NB00211	NB002	E-11NE01	Step H3
152NB00213	NB002	E-11NG02	Step H3
152NB00215	NB002	E-11NB02	Step H3
152NB00216	NB002	E-K1NG01	Step H3

(Step J1. continued on next page)

ATTACHMENT J

(Page 2 of 2)

RELAY TO PROCEDURE STEP CROSS REFERENCE

Step J1. (continued from previous page)

Device ID #	Panel	Contact Reference	OFN SG-003, Attachment H, step#
124DG	NE106	E-13NE11	Step H6, RNO step b
151N-DG	NE106	E-13NE11	Step H6, RNO step b
124DG	NE107	E-13NE10	Step H5, RNO step b
151N-DG	NE107	E-13NE10	Step H5, RNO step b
151N/T NG00101	NG001	E-13NG10	Step H4
151N/T NG00201	NG002	E-13NG10A	Step H4
151N/T NG00301	NG003	E-13NG10	Step H4
151N/T NG00401	NG004	E-13NG10A	Step H4
3XSJ25	RP332	E-13SJ07	Step H1
3XSJ33	RP332	E-13SJ01	Step H1
3XSJ26	RP333	E-13SJ07A	Step H1
3XSJ34	RP333	E-13SJ02	Step H1

-END-