

NUCLEAR PLANT OPERATIONS
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1POPO5-EO-EC32 REV. 3

SGTR WITH LOSS OF REACTOR COOLANT - SATURATED RECOVERY DESIRED

STATION PROCEDURE

SAFETY RELATED

William A. Kinsley
PLANT MANAGER

7-21-88
DATE APPROVED

7-27-88
DATE EFFECTIVE



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO	1POP05- EO-EC32	REV	3
PAGE	1 OF 63	Supervisor's Copy	

ACTION / EXPECTED RESPONSE	CONTINGENCY ACTION
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PURPOSE

This procedure provides actions to cooldown and depressurize the RCS to cold shutdown conditions while minimizing loss of RCS inventory.

SYMPTOMS OR ENTRY CONDITIONS

This procedure is entered from:

1. 1POP05-EO-EC31, SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED, Step 13.0, WHEN RWST LVL is low without a corresponding increase in CNTMT Sump LVL.
2. 1POP05-EO-EC31, SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED RECOVERY DESIRED, Step 13.0, WHEN the ruptured S/G LVL is high AND Plant Staff selects saturated recovery method.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 110F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
IPOP05-
EO-EC32

Rev.
3

Page 3 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

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*
* IF RWST LVL decreases to < 16%, THEN the SI
* System should be aligned for Cold Leg RECIRC
* per IPOP05-EO-ES13, TRANSFER TO COLD LEG
* RECIRCULATION.
*

CAUTION

NOTE

The first thirteen (13) steps of IPOP05-EO-EC31,
SGTR WITH LOSS OF REACTOR COOLANT - SUBCOOLED
RECOVERY DESIRED, should be performed before
continuing with this procedure.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

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- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO10, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
1 FOP05-
EO-EC32
REV. 3

PAGE 5 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

NOTE

SFP CLNG should be restored as soon as possible,
BUT NOT to exceed eight (8) hrs. after SI
isolation.

NOTE

Operator Addenda should be handed out.

[P] 1.0 ADD M/U WTR to RWST as
necessary.

1.1 OPEN locally CVCS to RWST
M/U ISOL VLVs 1*CV-0206 and
1*CV-0209. (MAB EL 41' VCT
Blender Room)

1.2 START 1A and/or 1B BA
Pump(s).
(1-CF004)

1.3 START 1A and/or 1B RMW
Pump(s).
(1-CF004)

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 35%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-E0-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-E0-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, IF RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1P0P05-
EO-EC32
REV. 3
PAGE 7 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

- 1.4 THROTTLE RMW Flow CONTR
1*CV-FV-0111A AND BA Flow
CONTR 1*CV-FV-0110A to
establish a M/U Blend between
3500 ppm and 2700 ppm.
(1-CP004)
- 1.5 VERIFY Flow on M/U Flow
Recorder 1*CV-FR-0110 AND
RWST LVL Increase.
Primary-ERFDADS(PAMS)
Alternate-QDES(QUAL PAMS)
MCB IND
(1-CP001)
LEVEL
1*SI-LI-0931
1*SI-LI-0932
1*SI-LR-0931

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
1P0205-
EO-EC32

Rev.
3

Page 9 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

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CAUTION

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MONITOR RCS PRESS. IF RCS PRESS decreases to
< 400 psig, THEN the LHSI Pumps must be
manually restarted.

[P] 2.0 CHECK If LHSI Pumps should be
stopped.

2.1 CHECK RCS PRESS:
Primary - ERFDADS(0122)
Alternate - QDEPS(RCS-1)
MCB IND

GO to Step 3.0.

2.1.1 PRESS - > 400 psig.
(1-CP018)
PRESSURE
1*RC-PR-0407 1*RC-PR-0406
Loop 1 Loop 3
Loop 2

2.1.2 PRESS - Stable or
increasing.

2.2 STOP LHSI Pumps AND PLACE
In STBY.
(1-CP001)
LHSI 1A
LHSI 1B
LHSI 1C

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

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- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
IPOP05-
EO-EC32
3
PAGE 11 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[S] 3.0 CHECK if S/G(s) are intact.

Primary - ERFDADS(3022)
Alternate - QDPS(SEC-2)
MCB IND

3.1 CHECK PRESSs in all S/G(s):

3.1.1 S/G PRESS controlled and
stable.

(1-CP006)

STM PRESS

S/G 1A S/G 1C

1*MS-PI-514 1*MS-PI-534

1*MS-PI-515 1*MS-PI-535

S/G 1B S/G 1D

1*MS-PI-524 1*MS-PI-544

1*MS-PI-525 1*MS-PI-545

3.1.2 ALL S/G PRESS > 0 PSIG
AND approximately equal.

VERIFY all faulted S/G(s) isolated UNLESS
needed for CLDN.

a. STM LNs

b. Feed LNs

IF NOT isolated, THEN GO to
IPOP05-EO-EO20, FAULTED STEAM GENERATOR
ISOLATION.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

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- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - W/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EG-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EG-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1POPO5-
EO-EC32 3
PAGE 13 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

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CAUTION

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M/U to AFW STOR TK should be commenced as soon
as possible to preclude inventory problems
later in CLDN. Consider HOTWL Dump Pump as
source.

[S] 4.0

CHECK Intact S/G LVLs.
Primary - ERFDADS(3022)
Alternate - QDES(H)-MCB IND

4.1

N/R LVL - > 5% [21% Adverse
CNTMT].

(1-CP006)

SG LVL

S/G IA S/G IC

1*FW-LI-0519 1*FW-LI-0539

1*FW-LI-0571 1*FW-LI-0573

S/G IB S/G ID

1*FW-LI-0529 1*FW-LI-0549

1*FW-LI-0572 1*FW-LI-0574

CON'T ON NEXT PAGE

MAINTAIN Total Feed Flow > 576 gpm until
N/R LVL is > 5% [21% Adverse CNTMT] in at
least one (1) S/G.

(1-CP006)

FLOW

1*AF-FI-7525 (S/G IA)

1*AF-FI-7524 (S/G IB)

1*AF-FI-7523 (S/G IC)

1*AF-FI-7526 (S/G ID)

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

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2. RED PATH SUMMARY

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- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump' as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
IPOP05-
EO-EC32
3
PAGE 15 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

4.2

CONTROL Feed Flow to maintain
N/R LVL between 5% (21%
Adverse CNTMT) and 50%.

AFW REG

1*AF-FV-7525 (S/G 1A)
1*AF-FV-7524 (S/G 1B)
1*AF-FV-7523 (S/G 1C)
1*AF-FV-7526 (S/G 1D)

IF N/R LVL in any intact S/G continues to
increase in an uncontrolled manner, THEN
GO to IPOP05-EO-EO30, STEAM GENERATOR
TUBE RUPTURE, Step 1.0.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

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- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTET PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-E0-E020. FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-E0-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 120P05-
EO-EC32 3
PAGE 17 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

NOTE

Shutdown Margin should be monitored during RCS
CLDN.

- [S] 5.0 INITIATE RCS CLDN to Cold
Shutdown.
- 5.1 MAINTAIN CLDN Rate in RCS
Cold Legs - < 100F/HR.
Primary - ERFDADS(PT)
Alternate - QDPS(PT LMT-2)
MCB IND
(1-CP018)
LOOP TEMP
1ARC-TR-413 (Loop 1)
1ARC-TR-423 (Loop 2)
1ARC-TR-433 (Loop 3)
1ARC-TR-443 (Loop 4)
- 5.2 USE RHR System if in
service.
(1-CP001)

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

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- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ESI3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO

1P0205-
EO-EC32

RE.

3

PAGE 19 OF 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

---5.3

DUMP STM to CND SR from
Intact S/G(s).
(1-CP007)
HDR PRESS CONT
1-MS-PK-0557

DUMP STM manually or locally from Intact
S/G(s).

a. USE S/G PORV.
(1-CP006)

PORV

1*MS-PV-7411 (S/G 1A)
1*MS-PV-7421 (S/G 1B)
1*MS-PV-7431 (S/G 1C)
1*MS-PV-7441 (S/G 1D)

OR

b. ESTABLISH S/G BLWDN.

b.1 OPEN BLWDN ISOL VLVs on
Intact S/G.
(1-CP006)

BLDN ISOL

1*SB-FV-4153 (S/G 1A)
1*SB-FV-4152 (S/G 1B)
1*SB-FV-4151 (S/G 1C)
1*SB-FV-4150 (S/G 1D)

b.2 THROTTLE BLWDN FLOW CONT VLV
to establish CLDN.

(1-CP018)

BLWDN FLOW CONT

1*SB-FV-4157 (S/G 1A)
1*SB-FV-4156 (S/G 1B)
1*SB-FV-4155 (S/G 1C)
1*SB-FV-4154 (S/G 1D)

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

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- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1POP05-
EO-EC32
PAGE 21 OF 63
Supervisor's
Copy

RE. 3

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

c. IF no intact S/G available, THEN
PERFORM either of the following:

USE faulted S/G(s).

OR

IF RHR System not in service, THEN
USE ruptured S/G.

CONDITIONAL INFORMATION PAGE

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3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, 1% RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
IPOP05-
EO-EC32

Rev.
3

Page 23 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 6.0 CHECK RCS Subcooling - > 35F GO to Step 16.0.

[45F Adverse CNTMT].

Primary - ERFADDS(PAMS)

Alternate - QDEP(RCS)

MCB IND

(1-CP018)

RCS SUBCOOLING

1*RC-TR-0051

[P] 7.0 CHECK SI pump status: GO to Step 12.0.

(1-CP001)

HHSI_PUMP 1A, 1B, 1C - ANY

Running

OR

LHSI_PUMP 1A, 1B, 1C - ANY

Running

[P] 8.0 PLACE all PRZR HTRs in OFF.

(1-CP004)

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No. 1POF05-
EO-EC32

Rev. 3

Page 25 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

* CAUTION *****
*
*
*
* Voiding may occur in the RCS during RCS
* depressurization. This will result in a
* rapidly increasing PRZR LVL.
*

[P]___9.0 DEPRESSURIZE RCS to fill
PRZR.
Primary - ERFDADS(PAMS)
Alternate - QDPS(RCS)
MCB IND
(1-CP004)

___9.1 USE NORM PRZR Spray.
SPRAY CONT
1*RC-PV-0655B
1*RC-PV-0655C

USE AUX Spray. IF AUX Spray NOT
available, THEN USE one (1) PRZR PORV.

___9.2 CHECK PRZR LVL - > 22% [50%
Adverse CNTMT].
LEVEL
1*RC-LI-0465
1*RC-LI-0466
1*RC-LI-0467

CONTINUE with Step 10.0. WHEN PRZR LVL
is > 22% [50% Adverse CNTMT], THEN DO
Step 9.3.

PORV
1*RC-PV-0655A
1*RC-PV-0656A
AUX SPRAY
1-CV-LV-3119

___9.3 STOP RCS depressurization.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1 POP05-
EO-EC31 3
PAGE 27 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

*
*
*
*
* IF RCP Seal CLNG had previously been lost,
* THEN the affected RCP(s) should not be
* started prior to a status evaluation by Plant
* Engineering.
*

CAUTION

NOTE

RCP(s) should be run in order of priority to
provide NORM PRZR Spray. USE 1D, 1A, THEN 1B OR
1C.

[P] 10.0 CHECK IF a RCP should be
started.

10.1 All RCP(s) stopped.
Primary - ERFDADS(RC)
Alternate - MCB IND
(1-CP005)

STOP all but one (1) RCP. GO to
Step 11.0

10.2 RCS Subcooling - > 35F
[45F Adverse CNTMT].

GO to Step 16.0.

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO26, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.

ACTION / EXPECTED RESPONSE		CONTINGENCY ACTION
10.3	PRZR LVL - > 22% (50% Adverse CNTMT).	RETURN to Step 9.0.
10.4	ESTABLISH RCP conditions for starting a RCP USE Addendum 3.	

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for KCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
IPOP05-
EO-EC32

Rev.
3

Page 31 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

NOTE

After stopping any HHSI Pump, RCS PRESS should be allowed to stabilize or increase before stopping another SI Pump.

[P] 11.0 CHECK IF one (1) HHSI Pumps should be stopped.

11.1 Any HHSI Pump - Running. GO to Step 12.0.

11.2 DETERMINE required RCS Subcooling from table:

RCS SUBCOOLING (F)			
CHARGING PUMP STATUS	ONE HHSI RUNNING	TWO HHSI RUNNING	THREE HHSI RUNNING
NONE	DO NOT STOP	67	54
RUNNING A	HHSI PUMP	77	64
ONE	N 183	63	53
RUNNING A	195	73	63
TWO	N 113	60	52
RUNNING A	125	69	65

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CVTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1POF05-

EO-EC32

3

PAGE 33 OF 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

--- 11.3 RCS Subcooling - greater than required in Step 11.2. DO NOT stop HHSI Pump. GO to Step 16.0.

--- 11.4 PRZR LVL - > 22% (50% Adverse CNTMT). DO NOT stop HHSI Pump. RETURN to Step 9.0.

--- 11.5 STOP one (1) additional HHSI Pump.

--- 11.6 RETURN to Step 11.1.

[P] --- 12.0 CONTROL CHG Flow to maintain RCS inventory.
Primary - ERFDADS(1623)
Alternate - QDEPS(RCS)
MCB IND
(1-CP004)
CHG FLOW CONT
1*CV-FCV-0205

12.1 MAINTAIN RVWL > 85%

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, If RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1

POP05-
EO-EC32

3

PAGE 35 OF 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

* CAUTION *
*
* IF RCP Seal CLNG had previously been lost, *
* THEN the affected RCP(s) should not be *
* started prior to a status evaluation by Plant *
* Engineering. *
* *****

NOTE

RCP(s) should be run in order of priority to
provide NORM PRZR Spray. USE ID, 1A, THEN 1B OR
1C.

[P] 13.0 CHECK RCP status.

13.1 RCP(s) - At least one (1)
running.
(1-CP005)

TRY to start one (1) RCP:

a. ESTABLISH conditions for starting a
RCP. USE Addendum 3.

b. IF an RCP can NOT be started, THEN
REFER to Addendum 4 to verify
Natural CIRC.

c. IF Natural CIRC NOT verified, THEN
INCREASE STM Dump.

13.2 STOP all but one (1) RCP.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pump as necessary if EITHER condition listed below occurs:

o Core Exit T/Cs - increasing.

o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

o SUBCRITICALITY - Nuclear power > 5%.

o CORE COOLING - Core Exit T/Cs > 1200F.

o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.

o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.

o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

NO

1 POP05-
EO-EC32

PAGE 37 OF 63

Supervisor's
Copy

SGIR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

*
*
*
* IF SI has been terminated, the accumulators
* should be isolated prior to depressurizing
* the RCS to less than 900 psig.
*

CAUTION

*
*
*
* Voiding may occur in the RCS during RCS
* depressurization. This will result in a
* rapidly increasing PRZR LVL.
*

CAUTION

[P] ____ 14.0 DEPRESSURIZE RCS to between
5F and 6F Subcooling based on
Core Exit T/Cs.
(1-CP004)

____ 14.1 USE NORM Spray.

USE Aux Spray. IF Aux Spray not
available, THEN USE one PRZR PORV.

PORV
1*RC-PV-655A
1*RC-PV-656A
Aux Spray
1*CV-LV-3119

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STREAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SCTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. REV.

1FOP05-

EQ-EC12

3

PAGE OF

39 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

--- 14.2 ENERGIZE PRZR HTRS as necessary.

--- 14.3 DEPRESSURIZE RCS until either of the following conditions satisfied:

PRZR LVL - > 70% [53% Adverse CNTMT].

OR

RCS Subcooling between 5F and 0F.

[P] --- 15.0 VERIFY adequate Shutdown Margin:

--- 15.1 SAMPLE ruptured S/G(s) for boron.

--- 15.2 SAMPLE RCS for boron.

--- 15.3 Shutdown Margin - Adequate. BORATE as necessary.

[P] --- 16.0 VERIFY SI Flow NOT required:

--- 16.1 Core Exit T/Cs - Decreasing.

INCREASE dumping STM. IF Core Exit T/Cs do not decrease, THEN manually OPERATE SI Pump as necessary.

--- 16.2 CHECK RVWL IND > 85%.

OPERATE SI Pumps as necessary.

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION. Step 1.0, If RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
1 POP05-
EO-EC32

Rev.
3

Page 41 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 17.0 CHECK if SI ACCs should be isolated:

17.1

RCS Subcooling - > 35F
[45F Adverse CNTMT].
(1-CP018)

RCS SUBCOOLING
1*RC-TR-0051

IF RCS Hot Leg TEMP > 400F, THEN GO to
Step 18.0. IF NOT, THEN GO TO Step 17.2.

17.2

PRZR LVL - > 8% [40%
Adverse CNTMT].

LEVEL

1*RC-LI-0465
1*RC-LI-0466
1*RC-LI-0467

RETURN to Step 9.0

17.3

ENERGIZE ACC ISOL VLV.
PLACE the PWR Interlock
Switches in the "Power On"
position.
Primary - ERFDADS(9503)
Alternate - QDPS(RCS)
MCB IND

(1-CP004)

PWR LOCKOUT

1*SI-MOV-0039A (1A)
1*SI-MOV-0039B (1B)
1*SI-MOV-0039C (1C)

DISPATCH RPO to energize VLVs at:
(ACC 1A) 480V MCC E1A4- BKRrs E3 and G1
(10' EAB)
(ACC 1B) 480V MCC E1B4-BKRrs F1 and J4
(35' EAB)
(ACC 1C) 480V MCC E1C4-BKRrs D4 and J4
(60' EAB)

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RVST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No.
1P0P05-
E0-EC32

Rev.
3
Page 43 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

---17.4 CLOSE all ACC ISOL VLVs.
(1-CP001)

DISCH

1*SI-MOV-0039A (1A)
1*SI-MOV-0039B (1B)
1*SI-MOV-0039C (1C)

VENT any unisolated ACC.

a. CLOSE N₂ SUPP.

(1-CP001)
HDR OCIV
1*SI-FV-3983

a.1 OPEN unisolable ACC Vent.
(1-CP001)

ACC N₂ SPLY/VENT

1*SI-FV-3930 (1A)
1*SI-FV-3929 (1B)
1*SI-FV-3928 (1C)

a.2 OPEN ACC Vent to CNTMT.
VENT

1*SI-FV-0899

HDR VENT
1*SI-HC-0900

---17.5 DEENERGIZE ACC ISOL VLVs.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED_PATH_SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD_LEG_RECIRCULATION_SWITCHOVER_CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1POF05-
EQ-EC32 3
PAGE 45 OF
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 18.0 CHECK if DGs should be
stopped:
Primary - ERFDADS(ELEC)
Alternate - MCB IND
(1-CP003)

18.1 VERIFY AC EMER Busses
energized by Offsite PWR.
BUS E1A VOLTS
BUS E1B VOLTS
BUS E1C VOLTS

AND

NORM PDR BKR3 - Closed
FROM STBY BUS 1F
FROM STBY BUS 1G
FROM STBY BUS 1H

18.2 STOP any unloaded DG AND
PLACE in STBY.

19.0 MINIMIZE Secondary System
Contamination per Addendum 5.

RESTORE Offsite PWR to ESF Busses per
IPOP04-AE-0001, MAIN or AUXILIARY
TRANSFORMER LOCKOUT OR IPOP04-AE-0003,
STANDBY TRANSFORMER LOCKOUT.

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
1P0P05-
EO-EC32
3
PAGE 47 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 20.0 CHECK RCP CLNG.
Primary - ERFDADS(1104)
Alternate - MCB IND
ESTABLISH NORM CLNG to RCP(s). USE
Addendum 5.

20.1 RCP CCW Flow - NORM.

20.1.1 VERIFY OPEN CCW to RCP(s)
CNTMT ISOL VLV.
(1-CP002)
INL ISOL
1*CC-MOV-G291
1*CC-MOV-G318

20.1.2 VERIFY OPEN CCW from RCP
Thermal Barrier ISOL
VLVs.

(1-CP004)
CCW THERM BAR ISOL
1*CC-MOV-0339 (RCP 1A)
1*CC-MOV-0374 (RCP 1B)
1*CC-MOV-0390 (RCP 1C)
1*CC-MOV-0356 (RCP 1D)

20.2 CHECK RCP Seal INJ
Flow 6-13 gpm.
(1-CP004)
RCP 1A SEAL FLOW
(1-CV-FV-156)
RCP 1B SEAL FLOW
(1-CV-FV-157)
RCP 1C SEAL FLOW
(1-CV-FV-158)
RCP 1D SEAL FLOW
(1-CV-FV-159)

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cool. Leg TEMP decrease > 100° in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EG-E020, FACILTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
IPOP05-
EG-EC32
PAGE 49 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 21.0 CHECK if RCP Seal RTN should be established:

21.1 OPEN CCW ISOL VLVs to the GO to Step 22.0.

Seal WTR HX for the CCW
Pumps running.

TRAIN A TRAIN B

SUCT ISOL SUCT ISOL

1*CC-MOV-768 1*CC-MOV-770

RET ISOL RET ISOL

1*CC-MOV-772 1*CC-MOV-774

TRAIN C

SUCT ISOL

1*CC-MOV-771

RET ISOL

1*CC-MOV-775

X-CONN Supply

1*CC-FV-4656

X-CONN Supply

1*CC-FV-4657

OPEN VLVs.

21.2 CHECK RCP Seal LXF ISOL
VLVs - Open.

(1-CP004)

1-CV-FV-3154 (RCP 1A)

1-CV-FV-3155 (RCP 1B)

1-CV-FV-3156 (RCP 1C)

1-CV-FV-3157 (RCP 1D)

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - Increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT

SATURATED RECOVERY DESIRED

NO

IPOP05-
EO-EC32

Rev.

3

PAGE 51 OF 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

21.3 OPEN Seal RTN CNMT ISOL

VLVs.

(I-CP004)

SEAL RTN ICIV

I*CV-MOV-077

SEAL RTN OCIV

I*CV-MOV-079

NOTE

Extended Range NIs should be used for flux indication, however, the Source Range Detectors need to be energized to provide interlocks and permissives associated with Rx protection.

[P] 22.0 CHECK if SR NIs should be energized:

Primary - ERFDADS(NI)

Alternate - QDPS(NIS)

MCB IND

22.1 CHECK if IR NI < 10⁻¹⁰ amps.

(I-CP005)

IR CURRENT

I*NI-NI-0035B

I*NI-NI-0036B

CONTINUE with Step 23.0. WHEN flux is < 10⁻¹⁰ amps, THEN DO Steps 22.2 and 22.3.

CON'T ON NEXT PAGE

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200°F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244°F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to 1POPO5-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to 1POPO5-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 120P05-

EO-EC32

3

PAGE 53 OF 63

Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

22.2 VERIFY SR NIs are energized.
(1-CP005)
SR COUNTS
1*NI-NI-0031B
1*NI-NI-0032B

Manually ENERGIZE SI NI's.
(1-CP005)
PLACE SR TRN R UNBLOCK/BLOCK Switch to UNBLOCK
PLACE SR TRN S UNBLOCK/BLOCK Switch to UNBLOCK

22.3 TRANSFER Nuclear Recorder (NR-0045) to Highest SR NI and Highest IR NI.
(1-CP018)

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% (21% Adverse CNTMT) AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-E0-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-E0-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO 1P0P05-
EO-EC32
PAGE 55 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[S] 23.0 SHUTDOWN unnecessary plant
equipment per Addendum 7.

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CAUTION

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Feed Flow should not be initiated to any
ruptured S/G if it is faulted UNLESS needed
for RCS CLDN.

[S] 24.0 CHECK ruptured S/G(s) N/R LVL REFILL ruptured S/G to 87% [69% Adverse
> 5% [21% Adverse CNTMT]. IF either of the following
occurs, THEN STOP Feed Flow to the
ruptured S/G UNLESS needed for RCS CLDN:

a. Ruptured S/G PRESS decreases in an
uncontrolled manner.

OR

b. Ruptured S/G PRESS increases to
1200 psig.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1FOP05-
EO-EC32 3

PAGE 57 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] ___ 25.0 CHECK if RCP(s) must be stopped.

Primary - MCB IND
Alternate - None

___ 25.1 CHECK the following:

GO to Step 26.0.

___ 25.1.1 Number One Seal D/P < 220 psig.

(1-CP004)

SEAL 1 DP

1-CV-PI-0152 (RCP 1A)
1-CV-PI-0153 (RCP 1B)
1-CV-PI-0154 (RCP 1C)
1-CV-PI-0155 (RCP 1D)

___ 25.1.2 Number One Seal LKF
Flow - Out of Safe
Operating Range of Figure
1 of Addendum 3.

(1-CP004)

RCP SEAL FLOW

1-CV-FR-0156 (RCP 1A)
1-CV-FR-0157 (RCP 1B)
1-CV-FR-0158 (RCP 1C)
1-CV-FR-0159 (RCP 1D)

___ 25.2 STOP affected RCP(s).
(1-CP005)

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP03-EO-EO20, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP03-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, If RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO. 1POP05-
RO-EC32 3
PAGE 59 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

[P] 26.0 CHECK if RHR System can be placed in service.
Primary - ERFDARS(8401)
Alternate - QDEP(RCS)
MCB IND
(1-CF018)

26.1 CHECK the following: GO to Step 27.0.

26.1.1 RCS Hot Leg TEMP - < 350F.

LOOP TEMP
1*RC-TR-413 (Loop 1)
1*RC-TR-423 (Loop 2)
1*RC-TR-433 (Loop 3)
1*RC-TR-443 (Loop 4)

26.1.2 RCS PRESS - < 350 psig.
PRESSURE
1*RC-PR-0407 1*RC-PR-0406
Loop 1 Loop 3
Loop 2

26.2 CONSULT Plant Engineering Staff to determine if RHR should be placed in service.

[P] 27.0 DEENERGIZE PRZR HTRs.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% [21% Adverse CNTMT] AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider NOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

No. IPOP05-
EO-EC32

Rev.

3

Page 61 Of 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

*
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*
*
* DO NOT increase RCS PRESS.
*

CAUTION

[P] ___ 28.0 COOL AND FILL the PRZR.

___ 28.1 OPEN CHG Flow CONT VLV.
(1-CP004)
CHG FLOW CONT
1*CV-FCV-0205

*
*
*
* DO not use AUX Spray if there is > 621F
* differential between the PRZR STM Space and
* CHG LN TEMP.
*

CAUTION

___ 28.2 OPEN AUX Spray VLV to reduce
PRESS AND COOL the PRZR.
(1-CP004)
AUX SPRAY
1-CV-LV-3119

___ 28.3 CHECK PRZR LVL - > 70%
[53% Adverse CNTMT].

CONTINUE CHG until PRZR LVL > 70%
[53% Adverse CNTMT], THEN REDUCE CHG to
minimum.

CONDITIONAL INFORMATION PAGE

1. SI REINITIATION CRITERIA

Manually OPERATE SI Pumps as necessary if EITHER condition listed below occurs:

- o Core Exit T/Cs - increasing.
- o RVWL - Plenum < 85%.

2. RED PATH SUMMARY

- o SUBCRITICALITY - Nuclear power > 5%.
- o CORE COOLING - Core Exit T/Cs > 1200F.
- o HEAT SINK - N/R LVL in all S/G(s) < 5% (21% Adverse CNTMT) AND Total Feed Flow < 576 gpm.
- o INTEGRITY - Cold Leg TEMP decrease > 100F in last 60 minutes AND RCS Cold Leg TEMP < 244F.
- o CONTAINMENT - CNTMT PRESS > 56.5 psig.

3. SECONDARY INTEGRITY CRITERIA

GO to IPOP05-EO-E020, FAULTED STEAM GENERATOR ISOLATION, Step 1.0, IF ANY S/G PRESS is decreasing in an uncontrolled manner OR has completely depressurized, AND has not been isolated, unless needed for RCS CLDN.

4. COLD LEG RECIRCULATION SWITCHOVER CRITERION

GO to IPOP05-EO-ES13, TRANSFER TO COLD LEG RECIRCULATION, Step 1.0, if RWST LVL decreases to < 16%.

5. AFW SUPPLY CRITERIA

M/U to AFW STOR TK should be commenced as early as possible to prevent low inventory problems later in CLDN. Consider HOTWL Dump Pump as source.



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

NO
1POP05-
EO-EC32

REV.
3
PAGE 63 OF 63
Supervisor's
Copy

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION

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CAUTION

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[P]___29.0 CLOSE RCP Seal LKF ISOL VLVs. CLOSE Seal RTN VLVs.
(1-CF004)
SEAL LKF ISOL
1-CV-FV-3154 (RCP 1A)
1-CV-FV-3155 (RCP 1B)
1-CV-FV-3156 (RCP 1C)
1-CV-FV-3157 (RCP 1D)
SEAL RTN
1*CV-MOV-0077
1*CV-MOV-0079

[P]___30.0 CHECK RCS TEMP < 200F. RETURN to Step 4.0.

[P]___31.0 EVALUATE long term plant status.

___31.1 MAINTAIN Cold Shutdown.

___31.2 CONSULT Plant Engineering.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 3
RCP START CRITERIA

NO.	REV.
1P0F05- EO-ZC32	3
PAGE 1	OF 6

1.0 Restarts

Two successive starts are permitted, provided the motor coasts to a stop. A third may be made when the winding and core have cooled by running for a period of twenty minutes or by standing idle for a period of forty-five minutes.

2.0 RCP Oil

NO alarms on the following annunciators:

1LB005M2

RCP 1A UPPER OIL RSVR LVL HI/LO C1	RCP 1B UPPER OIL RSVR LVL HI/LO C2	RCP 1C UPPER OIL RSVR LVL HI/LO C3	RCP 1D UPPER OIL RSVR LVL HI/LO C4
RCP 1A LOWER OIL RSVR LVL HI/LO D1	RCP 1B LOWER OIL RSVR LVL HI/LO D2	RCP 1C LOWER OIL RSVR LVL HI/LO D3	RCP 1D LOWER OIL RSVR LVL HI/LO D4
RCP L.O. CCW FLOW LO EI			



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 3
RCP START CRITERIA

NO. REV.
1P0P05- 3
EO-EC32

PAGE 2 OF 6

3.0 Sealwater Injection

Temperature
NO alarm on:

1LB004M8

SEAL WTR
INJ TEMP

HI
CI

FLOW (6 to 13 gpm) (1-CP004)

RCP 1A SEAL
FLOW FR-0156
BLUE PEN

RCP 1B SEAL
FLOW FR-0157
BLUE PEN

RCP 1C SEAL
FLOW FR-0158
BLUE PEN

RCP 1D SEAL
FLOW FR-0159
BLUE PEN

NO alarms on:

1LB004M7

RCP 1A SEAL
WTR INJ
FLOW LO
A1

RCP 1B SEAL
WTR INJ
FLOW LO
A3

RCP 1C SEAL
WTR INJ
FLOW LO
A5

RCP 1D SEAL
WTR INJ
FLOW LO
A1



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 3
RCP START CRITERIA

NO
1P0P05-
EO-EC32
3

PAGE
3 OF 6

4.0 Seal leakoff in safe operating range (Figure-1 of ADDENDUM 3)
(1-CP004)

RCP 1A SEAL
FLOW FR-0156
GREEN PEN

RCP 1B SEAL
FLOW FR-0157
GREEN PEN

RCP 1C SEAL
FLOW FR-0158
GREEN PEN

RCP 1D SEAL
FLOW FR-0159
GREEN PEN

NO alarms on:

1LB004M7

RCP 1A
NO. 1 SEAL LKF
FLOW HI/LO
B1

RCP 1B
NO. 1 SEAL LKF
FLOW HI/LO
B3

RCP 1C
NO. 1 SEAL LKF
FLOW HI/LO
B5

RCP 1D
NO. 1 SEAL LKF
FLOW HI/LO
B7

RCP 1A
NO. 2 SEAL LKF
FLOW HI
C1

RCP 1B
NO. 2 SEAL LKF
FLOW HI
C3

RCP 1C
NO. 2 SEAL LKF
FLOW HI
C5

RCP 1D
NO. 2 SEAL LKF
FLOW HI
C7

5.0 Standpipe level
NO alarms on:

1LB004M7

RCP 1A
STD PIPE
LVL HI
B2

RCP 1B
STD PIPE
LVL HI
B4

RCP 1C
STD PIPE
LVL HI
B6

RCP 1D
STD PIPE
LVL HI
B8

RCP 1A
STD PIPE
LVL LO
C2

RCP 1B
STD PIPE
LVL LO
C4

RCP 1C
STD PIPE
LVL LO
C6

RCP 1D
STD PIPE
LVL LO
C8



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 3
RCP START CRITERIA

NO	REV
1P0P05-	3
E0-EC32	
PAGE 4	OF 6

6.0 NO. 1 SEAL DP
Greater than 220 psid on: (1-CP004)

RCP 1A	RCP 1B	RCP 1C	RCP 1D
SEAL 1	SEAL 1	SEAL 1	SEAL 1
DP	DP	DP	DP
PI-0152	PI-0153	PI-0154	PI-0155

NO alarms on:

1LB004M7

RCP 1A	RCP 1B	RCP 1C	RCP 1D
NO. 1 SEAL	NO. 1 SEAL	NO. 1 SEAL	NO. 1 SEAL
DP LO	DP LO	DP LO	DP LO
A2	A4	A6	A8

7.0 Thermal Barrier and Motor Bearing Cooling Water
NO alarms on:

1LB002M3

RCP 1A THERM
BAR CCW
FLOW/TEMP HI
A6

1LB004M7

RCP 1B THERM	RCP 1B THERM	RCP 1B THERM	RCP 1D THERM
BAR CCW	BAR CCW	BAR CCW	BAR CCW
FLOW/TEMP TRBL	FLOW/TEMP TRBL	FLOW/TEMP TRBL	FLOW/TEMP TRBL
D2	D4	D6	D8



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 3

RCP START CRITERIA

NO.	REV.
1 POP05 - EO-KC32	3

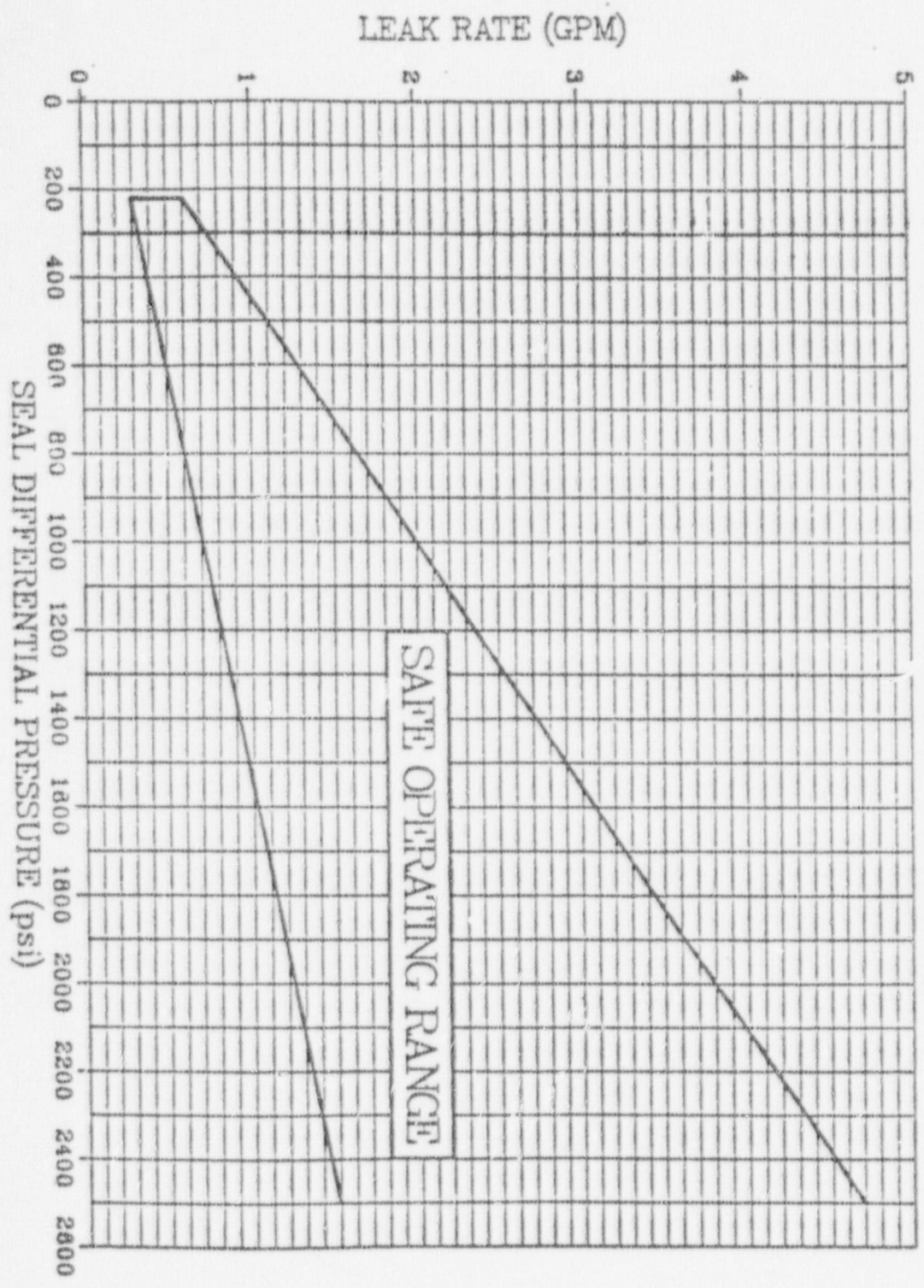
PAGE	5	OF	6
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- 8.0 START respective OIL LIFT PUMP (1-CP005).
- 9.0 VERIFY START PERM comes on for at least two minutes (1-CP005)
- 10.0 START RCP (1-CP005).
- 11.0 VERIFY flow increases to greater than 90% (1-CP005).
- | <u>LOOP 1A</u>
<u>FLOW</u> | <u>LOOP 1B</u>
<u>FLOW</u> | <u>LOOP 1C</u>
<u>FLOW</u> | <u>LOOP 1D</u>
<u>FLOW</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <u>1*RC-FI 0417A</u> | <u>1*RC-FI 0427A</u> | <u>1*RC-FI 0437A</u> | <u>1*RC-FI 0447A</u> |
- 12.0 VERIFY Starting Amperage decays to normal (1-CP005).
- 13.0 RETURN to step in effect.

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
RCP START CRITERIA
ADDENDUM 3
FIGURE 1

1P0F05-E0-EC32
Rev. 3
Page 6 of 6

Seal Performance Parameters





South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 4
VERIFICATION OF NATURAL CIRCULATION

NO.	REV.
1EOP05- EO-EC32	3
PAGE 1	OF 2

The following conditions support or indicate
Natural CIRC Flow under saturated conditions.

* C/G PRESSs - Stable or Decreasing.

(1-CP006)
STM PRESS

S/G 1A	S/G 1C
1*MS-PI-0514	1*MS-PI-0534
1*MS-PI-0513	1*MS-PI-0535

S/G 1B	S/G 1D
1*MS-PI-0524	1*MS-PI-0544
1*MS-PI-0525	1*MS-PI-0545

* RCS Hot Leg TEMPs - Stable or
Decreasing

* Core Exit T/Cs - Stable or Decreasing

(1-CP018)
CORE EXIT TEMP
1*RC-TR-0001



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 4

VERIFICATION OF NATURAL CIRCULATION

NO.	REV.
1 POP05- EC-EC32	3

PAGE	OF
2	2

* RCS Cold Leg TEMPs - At Saturation
TEMP for S/G PRESS.

(1-CP018)
LOOP TEMP

1*RC-TR-0413 (Loop 1)
1*RC-IR-0423 (Loop 2)
1*RC-TR-0433 (Loop 3)
1*RC-TR-0443 (Loop 4)



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 5
SECONDARY CONTAMINATION CONTROL

NO.	REV.
1P0P05- EO-EC32	3
PAGE 1	OF 1

1.0 OPEN Turbine Building Number One Sump Pump BKRs.

- Pump 1A - MCC 1F5 BKR B2 (TGB 29' EL. West)
- Pump 1B - MCC 1F5 BKR C2 (TGB 29' EL. West)
- Pump 1C - MCC 1G3 BKR D1 (TGB 29' EL. West)
- Pump 1D - MCC 1G3 BKR D2 (TGB 29' EL. West)

2.0 DIRECT Chem Ops to perform the following:

- 2.1 OPEN oily waste to Separator STOR TK ISOL. VLV 1-OW-0022.

- 2.2 CLOSE oily waste to RSVR ISOL. VLV 1-OW-0021.

3.0 MONITOR COND POL Waste Disposal System effluent radiation monitor 1-RIT-8042.

- 3.1 IF high radiation alarms exist, THEN perform the following:

- 3.1.1 DIRECT Chem Ops to verify closed effluent to Neutralization Basin Flow VLV 1-CP-FV-5804.

- 3.1.2 INSTRUCT Chem Ops to direct any COND POL Waste Disposal to the CPRWCT.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 6

RCP SEAL COOLING REESTABLISHMENT

NO.	REV.
1P0P05- EO-EC32	3
PAGE 1	OF 9

1.0 IF only RCP Seal INJ Flow is lost.
Primary - ERFDADS(1623)
Alternate - MCB IND
(1-CP004) GO to Step 2.0.

1.1 CHECK Seal INJ Hand CONT VLV - CLOSE 1*CV-HV-218.
Closed.
FLOW CONT
1*CV-HV-218

1.2 CHECK Individual Seal INJ OPEN Seal INJ VLVS.
VLVS - Open.
(1-CP004)
SEAL INJ ISOL
1*CV-MOV-33A (RCP 1A)
1*CV-MOV-33B (RCP 1B)
1*CV-MOV-33C (RCP 1C)
1*CV-MOV-33D (RCP 1D)

1.3 CHECK that a CCP is running. START a CCP.
(1-CP004)
CHARG PUMP 1A
CHARG PUMP 1B



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED

ADDENDUM 6

RCP SEAL COOLING REESTABLISHMENT

NO	REV
1P0P05- EO-EC32	3

PAGE	OF
2	9

- 1.4 OPEN slowly 1*CV-HV-218 until
a Seal INJ Flow of 6-8 gpm per
pump is established.
RCP 1A SEAL FLOW 1-CV-FR-156
RCP 1B SEAL FLOW 1-CV-FR-157
RCP 1C SEAL FLOW 1-CV-FR-158
RCP 1D SEAL FLOW 1-CV-FR-159
 - 1.5 RETURN to main body of
procedure, Step 20.0.
 - 2.0 IF only MCP Thermal Barrier CCW
Flow is lost.
Primary - MCB IND
Alternate - None
GO to Step 3.0.
 - 2.1 VERIFY a CCW Pump running.
START a CCW Pump.
 - 2.2 CHECK open CCW ISOL VLVS to
AND from the common HDR CCW
Pumps running.
OPEN CCW VLVS.
(1-CP002)
- TRAIN A
- CCW HDR ISOL
- 1*CC-MOV-316
- CCW RET HDR ISOL
- ISOL
- 1*CC-MOV-052
- 1*CC-MOV-132
- TRAIN B
- CCW HDR ISOL
- 1*CC-MOV-314
- CCW RET HDR
- ISOL
- TRAIN C
- CCW HDR ISOL
- 1*CC-MOV-312
- CCW RET HDR ISOL
- 1*CC-MOV-192



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT

SATURATED RECOVERY DESIRED

ADDENDUM 6

RCP SEAL COOLING REESTABLISHMENT

NO. 1
POP05-
EO-EC32
REV. 3

PAGE 3 OF 9

2.3 CHECK open CCW to RCP Thermal OPEN VLVs.

Barrier CNTMT ISOL VLVs.
(1-CP302) (1-CP001)

INL ISOL OUTL OCIV
1*CC-MOV-291 1*CC-MOV-404
INL ISOL OUTL OCIV
1*CC-MOV-318 1*CC-FV-4493

OUTL ICIV
1*CC-MOV-403
OUTL ICIV
1*CC-MOV-542

2.4 CHECK open RCP Thermal Barrier OPEN VLVs.

CCW Outlet VLVs.
(1-CP004)

CCW THERM BAR ISOL
1*CC-MOV-339 (RCP 1A)
1*CC-MOV-374 (RCP 1B)
1*CC-MOV-390 (RCP 1C)
1*CC-MOV-350 (RCP 1D)

2.5 RETURN to main body of procedure, Step 20.0.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 6
RCP SEAL COOLING REESTABLISHMENT

NO.	REV.
1EOP05- EO-EC32	3
PAGE 4	OF 9

- 3.0 IF both RCP Seal INJ Flow and Thermal Barrier CCW Flow are lost:
Primary - ERFDADS
Alternate - MCB IND(1623)
- 3.1 CHECK closed CCW RTN from RCP Thermal Barriers.
(1-CP001)
OUTL OCIV
1*CC-MOV-404
1*CC-FV-4493
CLOSE VLVS.
- 3.2 VERIFY A CCW Pump running.
START a CCW Pump.
- 3.3 CHECK open CCW Pump VLVS to AND from the common HDR for CCW Pumps running.
(1-CP002)
OPEN VLVS.
- TRAIN A
CCW HDR ISOL
1*CC-MOV-316
CCW RET HDR ISOL
ISOL
1*CC-MOV-052
- TRAIN B
CCW HDR ISOL
1*CC-MOV-314
CCW RET HDR ISOL
ISOL
1*CC-MOV-132
- TRAIN C
CCW SDR ISOL
1*CC-MOV-312
CCW RET HDR ISOL
1*CC-MOV-192



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 6
RCP SEAL COOLING REESTABLISHMENT

NO	REV.
1EOP05- EO-EC32	3

PAGE	OF
5	9

- 3.4 CHECK open CCW Supply to RCP Thermal Barrier CNTMT ISOL VLVs. (1-CP002)
INL ISOL
1*CC-MOV-291
1*CC-MOV-318
OPEN VLVs.
- 3.5 CHECK open CCW Return from RCP Thermal Barrier ICIVs. (1-CP001)
OUTL OCIV
1*CC-MOV-403
1*CC-MOV-542
OPEN VLVs.
- 3.6 CHECK open RCP Thermal Barrier CCW Outlet VLVs. (1-CP004)
CCW THERM BAR ISOL
1*CC-MOV-339 (RCP 1A)
1*CC-MOV-374 (RCP 1B)
1*CC-MOV-390 (RCP 1C)
1*CC-MOV-356 (RCP 1D)
OPEN VLVs.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 6
RCP SEAL COOLING REESTABLISHMENT

NO.	REV.
1 POP05 - EO-EC32	3
PAGE 6	OF 9

3.7

DISPATCH MEAB RPO to
deenergize the following:

CCW THERM BAR ISOL

1A - 1*CC-MOV-339

MCC-1J1-Cub, F3 and A5R

1B - 1*CC-MOV-374

MCC-1K1-Cub, K1 and U4L

1C - 1*CC-MOV-390

MCC-1L1-Cub, G1 and N4L

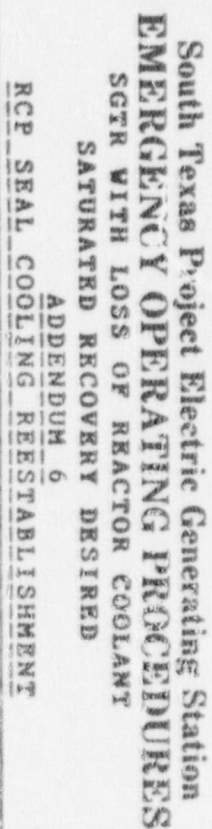
1D - 1*CC-MOV-356

MCC-1K1-Cub, B1 and B3R

OUTL OCIV

1*CC-MOV-404

MCC-1EC2-Cub, R2



NO.	1P0P05- EO-EC32	3
PAGE	7	9

ADDENDUM 6
RCP SEAL COOLING REESTABLISHMENT

CAUTION

The Plant Operator restoring CW flow through the Thermal Barrier flow should be in contact with the Control Room throughout the evolution AND should restore flow very slowly. Starting with a rate of no more than one turn of the handwheel per minute should give sufficient time to determine if there is any steam returning from the Thermal Barrier.

3.8 DISPATCH MEAB RPO to restore CCW flow to the RCP Thermal Barrier by slowly opening the CCW RTN from RCP(s) Thermal Barrier OCIV, 1*CC=MOV-404.

3.8.1 DISPLAY the T3MP points on the Proteus Computer CRT for the CCM Thermal Barrier RTNs.

T4527	(RCP1A THERM BAR CCW Outlet TEMP)
T4530	(RCP1B THERM BAR CCW Outlet TEMP)
T4533	(RCP1C THERM BAR CCW Outlet TEMP)
T4536	(RCP1D THERM BAR CCW Outlet TEMP)



South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

SGTR WITH LOSS OF REACTOR COOLANT

SAURATED RECOVERY DESIRED

ADDENDUM 6

RCP SEAL COOLING REESTABLISHMENT

NO	REV.
1P0P05- EO-EC32	3

PAGE	OF
8	9

3.9 WHEN Thermal Barrier Return

TEMPs decrease below 200F AND
their high TEMP alarms clear:

(1-CP004)

RCP 1A THERMAL BARRIER DISCH TEMP HI
RCP 1B THERMAL BARRIER DISCH TEMP HI
RCP 1C THERMAL BARRIER DISCH TEMP HI
RCP 1D THERMAL BARRIER DISCH TEMP HI

PERFORM the following:

3.9.1 OPEN fully 1*CC-MOV-404.

3.9.2 RESTORE power to the

following:

CGW THERM BAR ISOL

1A - 1*CC-MOV-339

MCC-1J1-Cub. F3 and A5R

1B - 1*CC-MOV-374

MCC-1K1-Cub. KI and U4R

1C - 1*CC-MOV-390

MCC-1L1-Cub. F3 and N4L

1D - 1*CC-MOV-356

MCC-1K1-Cub. F3 and B3R

OUTL OCIV

1*CC-MOV-404 MCC-E1C2-Cub. E2

OUTL OCIV

OPEN 1*CC-FV-4493.

3.9.3

3.10 CHECK Seal INJ Hand CONT VLV,
1*CV-HV-218 - Closed.

CLOSE 1*CV-HV-218.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 6
RCP SEAL COOLING REESTABLISHMENT

NO.	REV.
1 POP05- EO-EC32	3
PAGE 9	OF 9

- 3.11 CHECK Individual Seal INJ OPEN VLVS
VLVS - Open.
(1-CP004)
SEAL INJ ISOL
1*CV-MOV-33A (RCP 1A)
1*CV-MOV-33B (RCP 1B)
1*CV-MOV-33C (RCP 1C)
1*CV-MOV-33D (RCP 1D)
- 3.12 CHECK that a CCP - Running. START a CCP.
- 3.13 WHEN the highest Seal LKF TEMP decreases to < 235F, THEN slowly OPEN 1*CV-HV-218 until the seal inlet AND pump bearing TEMP start decreasing at a rate NOT to exceed 1F per minute. (Computer points available only on the Plant Computer.)
- 3.14 WHEN the seal inlet TEMP decreases to < 135F, THEN adjust 1*CV-HV-218 to maintain a Seal INJ Flow of 6-8 gpm per pump.
(1-CP004)
SEAL INJ TEMP
1-CV-TI-0216
- 3.15 RETURN to main body of procedure, Step 20.0.



South Texas Project Electric Generating Station
EMERGENCY OPERATING PROCEDURES
SGTR WITH LOSS OF REACTOR COOLANT
SATURATED RECOVERY DESIRED
ADDENDUM 7
SECONDARY EQUIPMENT SHUTDOWN

NO	REV
1P0P05- EO-EC32	3
PAGE 1	OF 1

- 1.0 WHEN RCS TEMP reaches 200F - CLOSE S/G MSIVs.
- S/G 1A 1MS-FV-7414
S/G 1B 1MS-FV-7424
S/G 1C 1MS-FV-7434
S/G 1D 1MS-FV-7444
- 2.0 WHEN turbine speed has decreased to 0 rpm:
- 2.1 VERIFY Turning Gear engages
(TURN GEAR).
(1-CP007)
- 2.2 BREAK CND SR Vacuum:
(1-CP009)
- 2.2.1 STOP CND SR Vacuum Pumps
- 2.2.2 OPEN CND SR Vacuum BKRS.
(1-CP009)
(CND SR VAC BKR)
- 3.0 STOP running DEAR Booster Pumps.
- 4.0 STOP running MSR Drip Pumps.
- 5.0 STOP LP HTR Drip Pumps.