INL/MIS-22-69406-Revision-0

Emergency Procedure Network entry procedure and CSFTs

November 2022

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ENTRY PROCEDURE	Identifier: E-0 Revision: 20 Effective Date: 11/09/22 Page: 1 of

ATR Complex	Emergency Procedure Network	**USE TYPE 2**	DCR Number: 696275

Manual: ATR Complex – ATR Emergency Response Procedure Network Manual
Document Owner: Shift Supervisor

TSR PROCEDURE

NOTE: *This document uses the word "diesel" to refer to equipment powered from either a diesel generator or the 480 V Diesel UPS, 670-E-1576.*

ENTRY CONDITIONS

This procedure is entered:

- On any reactor scram
- On any reactor scram where one has been called for but has not occurred
- Any time a loss of commercial, diesel, or commercial and diesel power occurs with the reactor in an outage condition
- Any time a complete loss of primary flow occurs during an outage condition.
- Any time an uncontrolled loss of primary coolant is determined to be in progress with the reactor in an outage condition
- Any time a pressurizing and gland seal pump shutoff ESF Actuation System has actuated or 2 or more high-high inlet pressure alarms have been received during reactor outage.
- At the discretion of CRS/SS, when reactor is in an outage condition.

INSTRUCTIONS

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
	NOTE: *A # sign indicates immediate actions.*	
#1.	VERIFY all active safety rods inserted: • Position indicator – ZERO in. • Lower limit switch light – ON • Seat switch light – ON.	1. INITIATE a manual scram from any or all of the following: • At the reactor console • Using the emergency backup scram pushbuttons • From the LOCS experiment loop panel. • From the RMC per OMM-7.22.2.1.1, "ATR Remote Management Capability Startup." AND INITIATE a REVERSE.
#2.	VERIFY reactor shutdown: • Power – LESS THAN N_L • Period – NEGATIVE.	2. GO TO FRP-S.1, "Uncontrolled Power Generation/ATWS."
#3.	INSERT all OSCCs 4 degrees.	3. PROCEED TO Step 4.

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
#4.	VERIFY Vessel ΔP (Vessel dP) – LESS THAN 133.3 psid.	**CAUTION** **Maintain PCS flow for at least 30 minutes following Reactor scram. [TSR-186, 3.3.3]** PCS flow is required during capsule Experiment Flow Cooling Time following reactor shutdown, flow from a single ECP ensures adequate cooling. (SAR-153, 10.3.5.2.2)
		CHECK at least one emergency pump is operating, AND SECURE, as necessary, the operating PCPs.
5.	CONTROL reactor inlet temperature TR-509X by one or more of the following methods: • CONTROLLING cooling tower fans as necessary • PLACING reactor inlet temperature controller TIC-1-10 – IN MANUAL • ADJUST valve TCV-1-10 using controller TIC-1-10 – OFF MINIMUM STOP.	5. PROCEED TO Step 6.
6.	VERIFY E-3 is energized or commercial power is available.	6. GO TO ECAP-0, "Loss of All Commercial and Diesel Power."

NOTE: *If all commercial and E-3 power is lost between Step 7 and completion of the procedure, GO TO ECAP-0.*

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
7.	VERIFY a total loss of process DCS indication and control has NOT occurred – At least one work station indicates active values and controls.	7. INITIATE a REVERSE THEN: PERFORM AOP-0.3, "Total Loss of Process DCS Indications and Controls," AND in conjunction GO TO ERP-0.5, "Total Loss of Process DCS Indications and Controls."
8.	VERIFY PCS Intact: a. Upper vessel level LI-514X – GREATER THAN 90 in. [99 ft 6 in.] b. Firewater injection pressure PI-534X – GREATER THAN 30 psia c. Flow balance: pressurizing flow FIC-1-8A/FIC-1-8B To PCV-1-1 Flow "PRI to DEGAS" LESS THAN 300 gpm OR FIC-1-8A/FIC-1-8B Not over-ranged (INST HIGH-BAD).	8. INITIATE a REVERSE THEN: GO TO E-1, "Loss of Primary Coolant."
9.	VERIFY Adequate core cooling: Emergency Flow – (FI-503X) – GREATER THAN 3,800 gpm OR Vessel ΔP (Vessel dP, DP-500X) – GREATER THAN 15 psid	9. INITIATE a REVERSE THEN: GO TO E-2, "Loss of Primary Coolant Flow."

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
10.	VERIFY secondary flow (DPT-2-13) greater than 1.2 psid or UCW flow (FIC-2-4) – GREATER THAN 1,500 gpm.	10. ENSURE breakers 22 and 23 on 670-E-1745 are SHUT AND RESET UCW trips on DCS as necessary, THEN: START UCW pump from DCS.
11.	BEGIN MONITORING critical safety function status trees.	11. BEGIN MONITORING critical safety function status trees.
12.	VERIFY: a. The pressurizing and gland seal pump shutoff ESF Actuation System HAS NOT ACTUATED AND b. A high-high inlet PCS Pressure –WAS NOT REACHED. (385 psig on 2 or 3 channels).	12. GO TO ERP-0.2, "High PCS Pressure."
13.	VERIFY reactor outlet temperature TRS-1-17 – LESS THAN 180ºF.	13. INITIATE a REVERSE THEN: GO TO FRP-C.3, "Degraded Core Cooling."
14.	VERIFY power to all 4,160-V busses supplied by commercial power has – NOT BEEN INTERRUPTED.	14. GO TO ERP-0.3, "Loss of Commercial Power."
15.	IF: The E-3 bus was being supplied by a diesel generator, AND The 480 V UPS is in bypass, THEN: VERIFY power to the 4,160-V diesel bus has – NOT BEEN INTERRUPTED.	15. GO TO ERP-0.4, "Loss of Diesel Power."

STEP	INSTRUCTIONS	RESPONSE NOT OBTAINED
16.	CALCULATE PCS leak rate (OMM-7.3.13.1.33, "Primary Coolant System Leak Rate Calculation.") LEAKAGE LESS THAN 50 gpm.	16. INITIATE a REVERSE AND IF: Less than 300 gpm, THEN: GO TO AOP-1.3, "Increased PCS Leakage." IF NOT: GO TO E-1, "Loss of Primary Coolant."
17.	As directed by ATR Operations Management a. GO TO DOP-7.2.13, "Quick Reactor Startup." OR b. GO TO DOP-7.2.7, "Reactor Outage," OR c. GO TO any appropriate procedure.	

END OF PROCEDURE

Appendix A

Risks and Controls

NOTE: *During performance of this procedure, expect to encounter these routine hazards. If any other routine hazards listed in LI-295, "Hazard Controls for General Maintenance/Operations," are encountered, the job may continue without a procedure change request, with JS concurrence.*

Sequence of Basic Activities	Potential Hazard	Hazard Control
1. Operation of circuit breakers or switches >240 V up to 600 V with no live exposed parts. (Generally for performing system line-ups or electrical lockout/tagout) Per LI-728, "Operating Switches, Disconnects and Overcurrent Protection Devices."	1. Arc flash	1. 1) Per LI-295. 2) Per LI-728.

Certification/Qualification/Training Required

None.

PPE Required

None.

Appendix B

Review Requirements

PROCEDURE REVIEW REQUIREMENTS			
DISCIPLINE	CHANGE	DISCIPLINE	CHANGE
OPERATIONS	X	TRAINING	X
MAINTENANCE	N/A	QUALITY ASSURANCE	*
EXPERIMENT ENGINEERING	N/A	ENVIRONMENTAL	*
ENGINEERING	X	RADIOLOGICAL CONTROLS	*
REACTOR ENGINEERING	*	INDUSTRIAL HYGIENE	*
NUCLEAR SAFETY ENGINEERING	*	INDUSTRIAL SAFETY	*
SORC	X	EMERGENCY MANAGEMENT	*
TSR REVIEW	X	FIRE PROTECTION	N/A
CUI REVIEW	X	INFRASTRUCTURE/FACILITY	N/A
* SP-10.2.2.3 AND DOCUMENT OWNER WILL DETERMINE ACTUAL REVIEWS NEEDED FOR DOCUMENTS IN ORDER TO MITIGATE HAZARDS ASSOCIATED WITH THE SCOPE OF THE CHANGE.			

Revision Log

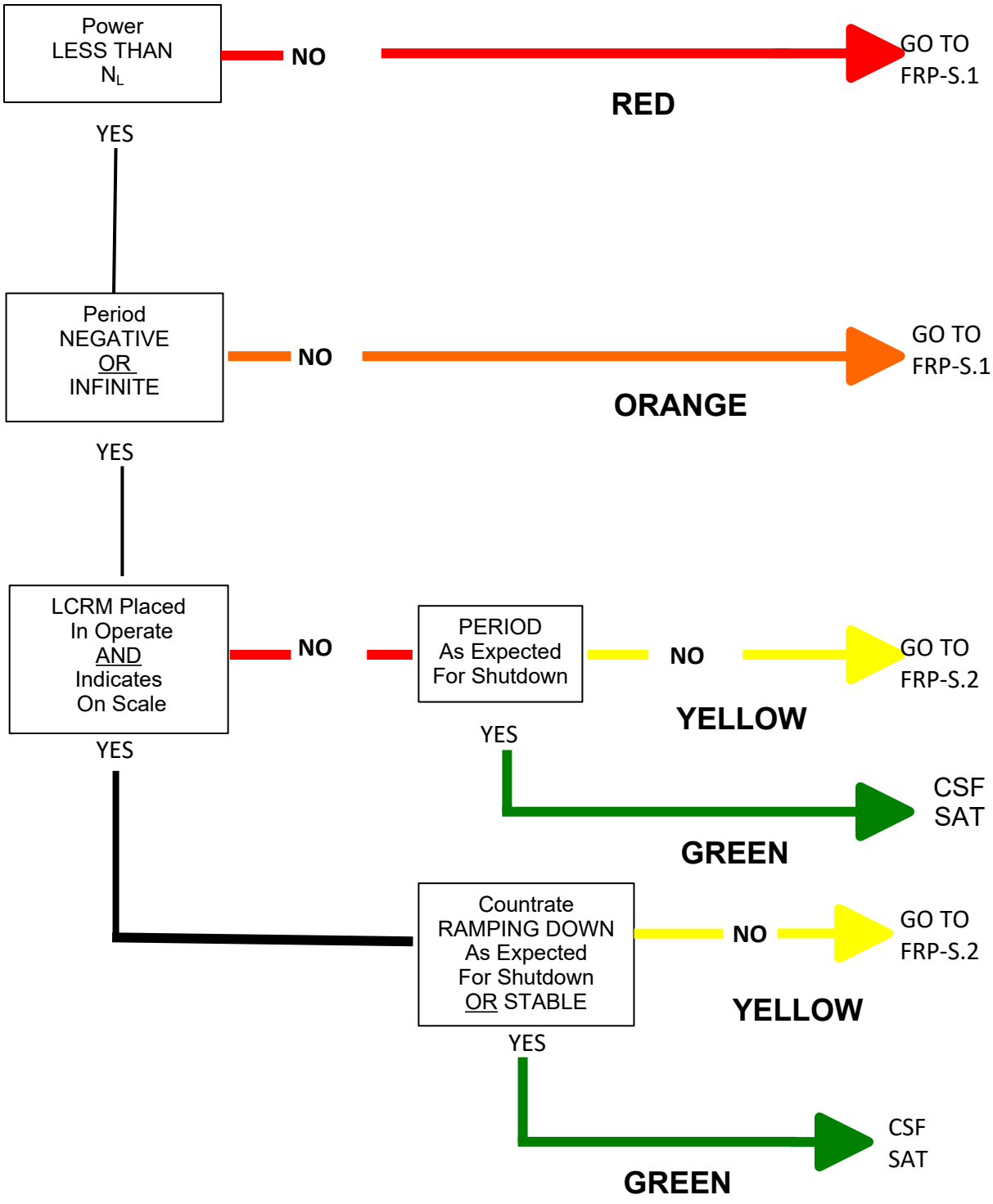
Rev.	Date	Affected Pages	Revision Description
7	08/06/09	All	See eCR 562422. Revise.
8	11/30/11	All	See eCR 582662. Revise. 588214. Revise for Procedure Upgrade Plan.
9	11/30/11	2	See eCR 600286. Minor Change.
10	12/12/11	2, 4	See eCR 600575. Revise.
11	09/26/13	3, 4	See eCR 616300. Revise.
12	01/29/15	All	See eCRs 624040. Revise. 628171. Permanent Field Change.
13	02/04/15	2	See eCR 628943. Minor change.
14	02/04/15	ALL	See eCR 633142. Revise.
15	04/06/16	All	See eCR 624676. Revise.
16	05/31/18	All	See eCR 660090. Revise.
17	06/09/18	4	See eCR 660478. Revise.
18	08/15/18	All	See eCR 660584. ATR Complex-USQ-2014-458.
19	12/11/18	All	See eCR 662091. Periodic Review.
20	11/09/22	All	See DCR 696275. Revise. BF-1-14 Implementation.

REFERENCE PAGE

IF this procedure is used during a reactor outage,
THEN performance of some steps may not be appropriate based on current plant or system conditions. Steps are to be performed at the SS's discretion.

In case of instrument or indication failure. Alternate or diverse indications may be substituted with CRS/SS permission.

ATR EMERGENCY PROCEDURE NETWORK



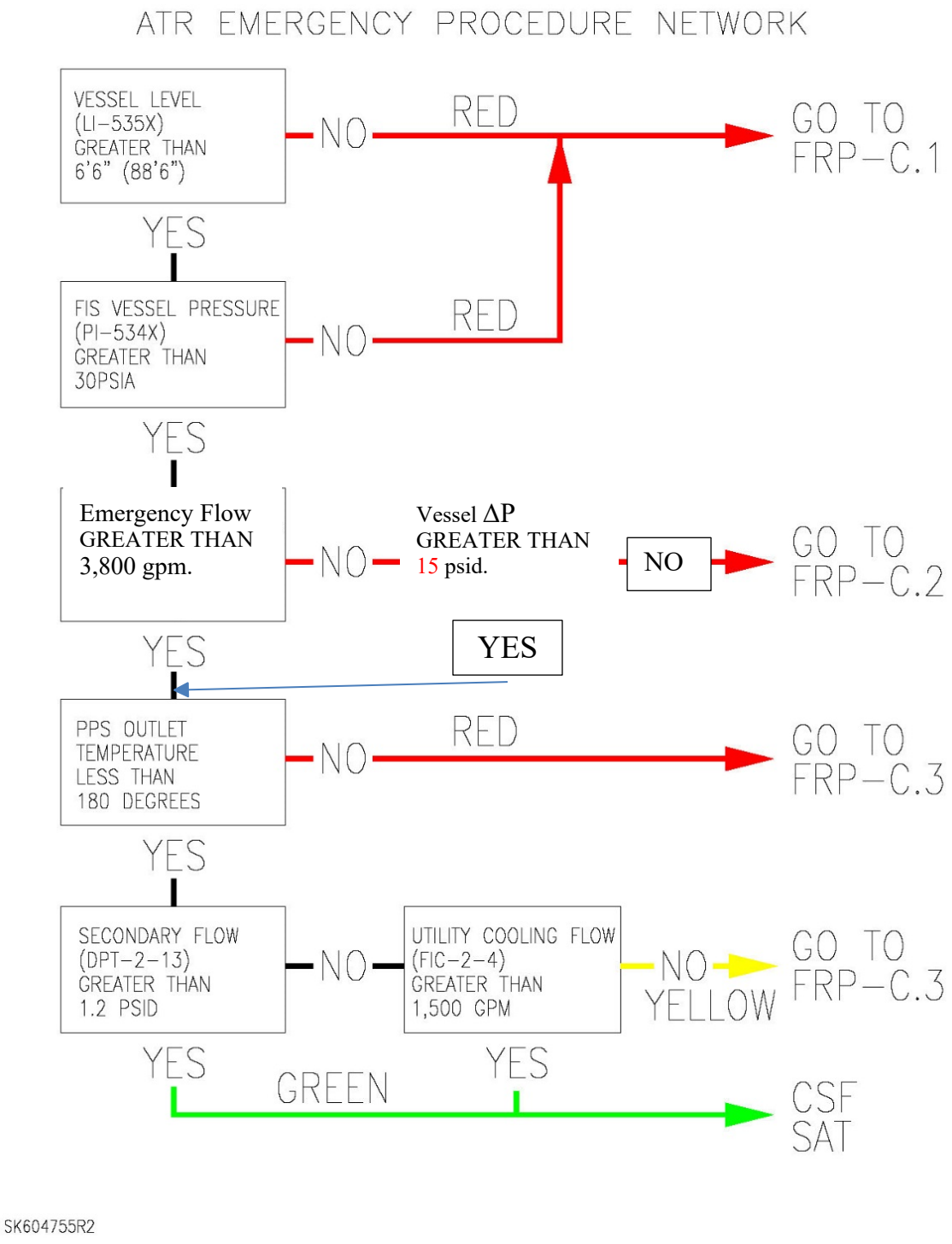
Appendix B

ATR EMERGENCY PROCEDURE NETWORK

PROCEDURE REVIEW REQUIREMENTS PER SP-10.2.2.3			
DISCIPLINE	CHANGE	DISCIPLINE	CHANGE
ATR OPERATIONS	X	INDUSTRIAL SAFETY	*
NUCLEAR MAINTENANCE	N/A	QUALITY	*
EXPERIMENT ENGINEERING	N/A	ENVIRONMENTAL	*
ENGINEERING	*	RADCON	*
NUCLEAR ENGINEERING	X	INDUSTRIAL HYGIENE	*
TRAINING	X	F&SS	N/A
SORC	X	EMERGENCY PREPAREDNESS	N/A
TSR REVIEW	X	FIRE PROTECTION	N/A
CUI REVIEW	X	WASTE GENERATOR SERVICES	N/A
* DOCUMENT OWNER SHALL DETERMINE THE NEED FOR THESE REVIEWS BASED UPON THE SCOPE OF THE CHANGE			

REVISION LOG

Rev.	Date	Affected Pages	Revision Description
N/A	03/16/00	All	See DAR 65065. MCP-3562 review.
1	09/20/05	All	See DAR 123248. Periodic Review.
2	11/13/13	All	See eCR 601257. Periodic Review.


ATR EMERGENCY PROCEDURE NETWORK
VESSEL LEVEL (LI-535X) GREATER THAN 6'6" (88'6")
NO
RED
GO TO FRP-C.1
YES
FIS VESSEL PRESSURE (PI-534X) GREATER THAN 30PSIA
NO
RED
YES
Emergency Flow GREATER THAN 3,800 gpm.
NO
Vessel ΔP GREATER THAN 15 psid.
NO
GO TO FRP-C.2
YES
YES
PPS OUTLET TEMPERATURE LESS THAN 180 DEGREES
NO
RED
GO TO FRP-C.3
YES
SECONDARY FLOW (DPT-2-13) GREATER THAN 1.2 PSID
NO
UTILITY COOLING FLOW (FIC-2-4) GREATER THAN 1,500 GPM
NO
YELLOW
GO TO FRP-C.3
YES
GREEN
YES
CSF SAT
SK604755R2

Appendix B

TSR PROCEDURE

PROCEDURE REVIEW REQUIREMENTS			
DISCIPLINE	CHANGE	DISCIPLINE	CHANGE
OPERATIONS	X	TRAINING	*
MAINTENANCE	N/A	QUALITY ASSURANCE	*
EXPERIMENT ENGINEERING	N/A	ENVIRONMENTAL	*
ENGINEERING	*	RADIOLOGICAL CONTROLS	*
REACTOR ENGINEERING	*	INDUSTRIAL HYGIENE	*
NUCLEAR SAFETY ENGINEERING	*	INDUSTRIAL SAFETY	*
SORC	X	EMERGENCY MANAGEMENT	N/A
TSR REVIEW	X	FIRE PROTECTION	N/A
CUI REVIEW	X	INFRASTRUCTURE/FACILITY	N/A
* SP-10.2.2.3 AND DOCUMENT OWNER WILL DETERMINE ACTUAL REVIEWS NEEDED FOR DOCUMENTS IN ORDER TO MITIGATE HAZARDS ASSOCIATED WITH THE SCOPE OF THE CHANGE.			

Revision Log

Rev.	Date	Affected Pages	Revision Description
0	03/16/00	All	See DAR 65065. MCP-3562 review.
1	04/07/05	All	See DAR 121600.
2	08/06/09	All	See eCR 561204.
3	11/30/11	All	See eCR 582700.
4	12/12/11	1	See eCR 600577. Revise.
5	06/22/15	1	See eCR 620610. PUP Periodic Review. 624671. Revision.
6	12/19/17	1	See eCR 654789. Revise.
7	06/09/18	1	See eCR 660477. Revise.

REFERENCE PAGE

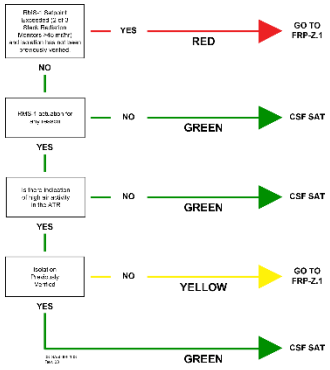
IF this procedure is used during a control room evacuation,
THEN PERFORM this procedure using the following controls and indications available from TRA-680 RMC as applicable:

- SCRAM and Reverse function using TRA-680 RMC HS8, "ENABLE REMOTE SHUTDOWN PANEL" key switch
- Firewater Injection Level LI-535A, LI-535B, and LI-535C
- Firewater Injection Pressure PI-534A, PI-534B, and PI-534C
- EFIS Pressure Bypass Switch
- Upper Vessel and Bottom Head Firewater Injection Manual Actuation
- Vessel Vent Manual Actuation
- Indications available from the CDS
- Controls and Indications available from the DCS.

ATR Complex	Status Tree/EPN		eCR Number: 647286

Manual: ATR Complex – EPN – ATR Critical Safety Functional Status Trees
Document Owner: Shift Supervisor

ATR EMERGENCY PROCEDURE NETWORK



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ENTRY PROCEDURE	Identifier: E-0 Revision: 20 Effective Date: 11/09/22 **Reference Page**

ATR EMERGENCY PROCEDURE NETWORK

PROCEDURE REVIEW REQUIREMENTS			
DISCIPLINE	CHANGE	DISCIPLINE	CHANGE
OPERATIONS	X	TRAINING	*
MAINTENANCE	N/A	QUALITY ASSURANCE	*
EXPERIMENT ENGINEERING	N/A	ENVIRONMENTAL	*
ENGINEERING	*	RADIOLOGICAL CONTROLS	N/A
REACTOR ENGINEERING	*	INDUSTRIAL HYGIENE	*
NUCLEAR SAFETY ENGINEERING	X	INDUSTRIAL SAFETY	*
SORC	X	EMERGENCY MANAGEMENT	N/A
TSR REVIEW	N/A	FIRE PROTECTION	N/A
CUI REVIEW	X	INFRASTRUCTURE/FACILITY	N/A
* SP-10.2.2.3 AND DOCUMENT OWNER WILL DETERMINE ACTUAL REVIEWS NEEDED FOR DOCUMENTS IN ORDER TO MITIGATE HAZARDS ASSOCIATED WITH THE SCOPE OF THE CHANGE.			

REVISION LOG

Rev.	Date	Affected Pages	Revision Description
NA	03/16/00	All	See DAR 65065. MCP-3562 review.
1	10/04/05	All	See DAR 123251. Periodic Review.
2	09/03/08	1	See eCR 562846. Periodic Review.
3	09/14/17	All	See eCR 647286. Revision.

ATR Complex	Status Tree/EPN		eCR Number: 647286

Idaho National Laboratory

ENTRY PROCEDURE	Identifier: E-0 Revision: 20 Effective Date: 11/09/22	**Reference Page**

Manual: ATR Complex – EPN – ATR Critical Safety Functional Status Trees
Document Owner: Shift Supervisor

ATR EMERGENCY PROCEDURE NETWORK

Idaho National Laboratory

ENTRY PROCEDURE	Identifier: E-0 Revision: 20 Effective Date: 11/09/22 **Reference Page**

ATR EMERGENCY PROCEDURE NETWORK

PROCEDURE REVIEW REQUIREMENTS			
DISCIPLINE	CHANGE	DISCIPLINE	CHANGE
OPERATIONS	X	TRAINING	*
MAINTENANCE	N/A	QUALITY ASSURANCE	*
EXPERIMENT ENGINEERING	N/A	ENVIRONMENTAL	*
ENGINEERING	*	RADIOLOGICAL CONTROLS	N/A
REACTOR ENGINEERING	*	INDUSTRIAL HYGIENE	*
NUCLEAR SAFETY ENGINEERING	X	INDUSTRIAL SAFETY	*
SORC	X	EMERGENCY MANAGEMENT	N/A
TSR REVIEW	N/A	FIRE PROTECTION	N/A
CUI REVIEW	X	INFRASTRUCTURE/FACILITY	N/A
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REVISION LOG

Rev.	Date	Affected Pages	Revision Description
NA	03/16/00	All	See DAR 65065. MCP-3562 review.
1	10/04/05	All	See DAR 123251. Periodic Review.
2	09/03/08	1	See eCR 562846. Periodic Review.
3	09/14/17	All	See eCR 647286. Revision.