TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SYSTEM OPERATING INSTRUCTION

0-SO-30-2

CONTROL ROOM ISOLATION

Revision 13

QUALITY RELATED

PREPARED/PROOFREAD BY: W. T. LEARY

RESPONSIBLE ORGANIZATION: OPERATIONS

APPROVED BY: TONEY WHITTEN

EFFECTIVE DATE: 01/05/06

LEVEL OF USE: **CONTINUOUS USE**

REVISION

DESCRIPTION: Revised to relocate direction to perform Section 8.2 from Section 8.1. This provides for verification of required automatic actions in Section 8.1 regardless of the source or validity of the initiating signal.

TABLE OF CONTENTS

Page 1 of 1

1.0 INTRODUCTION

1.1 Purpose

To provide instructions for the verification and recovery from control room isolations.

1.2 Scope

A. Emergency Mode Control Room Isolation.

B. Recovery from Control Room Isolation

2.0 REFERENCES

2.1 Performance References

None

2.2 Developmental References

A. 0-SO-30-1, *Control Building Heating, Air Conditioning, and Ventilation*

B. SSP-12.6, *Equipment Status Verification And Checking Program*

C. FSAR 6.4

D. Technical Specifications 3.7.7

E. TVA Drawings

1. 47W611-31-1 thru 6
2. 47W865-3,7
3. 47W866-4
4. 47W867-1 thru 4

Date_____

3.0 PRECAUTIONS AND LIMITATIONS

A. Replacing HEPA and charcoal filters will be necessary if their differential pressure reaches 3" H_2O.

4.0 PREREQUISITE ACTIONS

NOTE Throughout this Instruction where an **IF/THEN** statement exists, the step should be **N/A** if condition does not exist.

[1] **ENSURE** Instruction to be used is a copy of the effective version. _____

[2] **ENSURE** Precautions and Limitations Section 3.0, has been reviewed. _____

[3] **IF** ventilation alignment changes are made which could impact door closure, **THEN**
NOTIFY Fire Operations. _____

[4] **ENSURE** each performer documents their name and initials:

Print Name	Initials

[5] **INDICATE** below which performance section of this Instruction will be used and the reason for its performance. _____

☐ 8.0 INFREQUENT OPERATION

REASON: _____

_____

_____

Date_____

5.0 STARTUP/STANDBY READINESS

None

6.0 NORMAL OPERATION

None

7.0 SHUTDOWN

None

Date_____

8.0 INFREQUENT OPERATION

8.1 Emergency Mode Control Room Isolation

[1] **ACKNOWLEDGE** Control Room Ventilation Isolation alarm. _____

[2] **IF** CRI is from a valid SIS or High Radiation signal, **THEN**

NOTIFY RADCON to monitor Control Building el. 732 work areas for habitability impact. _____

[3] **ENSURE** either Control Building A/C AHU **RUNNING** and associated AHU inlet **OPEN**:

CONTROL BLDG A/C AHU	RUNNING √	AHU INLET	OPEN √
A	☐	0-FCO-311-20	☐
B	☐	0-FCO-311-23	☐

[4] **IF** Control Building A/C AHUs stopped, **THEN**

DISPATCH personnel to:

[a] **OPEN** Mechanical equipment room door C-39. ☐

[b] **OPEN** MCR door C-48 or C-56. ☐

[5] **ENSURE** either Electrical Board Room Chiller **RUNNING** and associated AHU inlet **OPEN**:

ELECTRICAL BOARD ROOM A/C AHU	RUNNING √	AHU INLET	OPEN √
A	☐	0-FCO-311-27	☐
B	☐	0-FCO-311-28	☐

Date_____

8.1 Emergency Mode Control Room Isolation (Continued)

[6] **ENSURE** either Control Building Emergency Air Cleanup fan **RUNNING** and associated fan inlet **OPEN**:

CONTROL BLDG EMERGENCY AIR CLEANUP FAN	RUNNING √	FAN INLET	OPEN √
A	☐	0-FCO-311-9	☐
B	☐	0-FCO-311-11	☐

[7] **ENSURE** at least one Emergency Air Pressurizing Fan **RUNNING** and associated fan inlet **OPEN**:

CONTROL BLDG _EMERGENCY PRESSURIZING FAN	RUNNING √	FAN INLET	OPEN √
A	☐	0-FCO-311-108	☐
B	☐	0-FCO-311-109	☐

[8] **ENSURE** MCR and Spreading Room Fresh Air Fans **STOPPED**:

[a] Spreading Room Supply Fan. ☐

[b] Spreading Room Exhaust Fan A. ☐

[c] Spreading Room Exhaust Fan B. ☐

Date_____

8.1 Emergency Mode Control Room Isolation (Continued)

NOTE During Train testing the dampers that are not applicable to the Train being tested can be N/A.

[9] ENSURE MCR and Spreading Room Fresh Air Dampers **CLOSED**:

DAMPER	CRI TRAIN	DESCRIPTION	CLOSED √
0-FCV-311-105A	A	MCR fresh air	☐
0-FCV-311-106A	B	MCR fresh air	☐
0-FCV-311-105B	A	Spreading room fresh air	☐
0-FCV-311-106B	B	Spreading room fresh air	☐
0-FCO-311-79	A/B	Spreading Room Exhaust Fan A outlet	☐
0-FCO-311-80	A/B	Spreading Room Exhaust Fan B outlet	☐
0-FCO-311-17	A	Spreading room supply discharge	☐
0-FCO-311-102	B	Spreading room supply discharge	☐

[10] ENSURE Locker Room Exhaust Fan **STOPPED**. ☐

NOTE During Train testing the dampers that are not applicable to the Train being tested can be N/A.

[11] ENSURE Locker Room Exhaust Dampers **CLOSED**:

DAMPER	CRI TRAIN	DESCRIPTION	CLOSED √
0-FCO-311-103	A	TOILET AND LOCKER ROOM EXHAUST FAN DISCHARGE	☐
0-FCO-311-104	B	TOILET AND LOCKER ROOM EXHAUST FAN DISCHARGE	☐

Date_____

8.1 Emergency Mode Control Room Isolation (Continued)

NOTE Battery Room Exhaust Fans are started and stopped, via their respective breakers on the 480V C&A Vent Boards.

[12] **IF** one Electrical Board Room AHU in service, **THEN** **ENSURE** one of the following Battery Room Exhaust Fans **RUNNING**:

- **[a]** Battery Room Exhaust Fan A. [C&A Vent Board 1A1-A / 12A] ☐
- **[b]** Battery Room Exhaust Fan B. [C&A Vent Board 1B1-B / 11E] ☐
- **[c]** Battery Room Exhaust Fan C. [C&A Vent Board 2B1-B / 11E] ☐

NOTE All Battery Room Exhaust Fans may be out of service no greater than 11 days. If the TSC is manned, it will assume responsibility for tracking and initiating corrective action. If the TSC is NOT manned, the MCR will retain this responsibility.

[13] **IF** all Electrical Board Room AHUs stopped, **THEN** **PERFORM** the following:

[a] **ENSURE** all battery room exhaust fans stopped. ☐

[b] **RECORD** present time _____. ☐

[c] **IF** TSC is manned, **THEN** **NOTIFY** TSC to track and initiate corrective action. ☐

[14] **IF** Battery Room Exhaust Fans off and either Electrical Board Room AHU running, **THEN**

CLOSE damper **[31A-157]** (Located above Auxiliary Instrument Room Access Door). ☐

[15] **ENSURE** Shutdown Board Room Pressurizing Fans A and B are **STOPPED**:

FAN	DESCRIPTION	STOPPED √
1A-A	Pressurizing Fan	☐
1B-B	Pressurizing Fan	☐
2A-A	Pressurizing Fan	☐
2B-B	Pressurizing Fan	☐

Date_____

8.1 **Emergency Mode Control Room Isolation** (Continued)

CAUTION **Placing a train of CREVS in P-Auto (standby mode) will prevent automatic start on an accident signal. Refer to Tech Spec LCO 3.7.7.**

NOTE: One train of CREVS may be stopped and placed in standby to protect the charcoal bed filter for that train.

NOTE: Control Building Emergency Pressurization Fan A takes suction through the normal suction flowpath (north end of Control Bldg). If smoke and/or radiation is still entering the MCR after CRI is actuated, then stopping Emergency Press Fan A may prevent further smoke and/or radiation intake.

[16] **IF** it is desired to align the Train A Control Room Emergency Ventilation System (CREVS) to P-Auto (standby mode) operation, **THEN**

PERFORM the following:

[a] **PLACE** CREVS fan handswitches to the **P-AUTO** position (hand switches in **Pull Out** position):

[1] **[0-HS-311-108A]**, Control Building Emergency Pressurization Fan A _____

[2] **[0-HS-311-8A]**, Control Building Emergency Air Cleanup Fan A. _____

[b] **PLACE** the CREVS fan handswitches to the **STOP** position:

[1] **[0-HS-311-108A]**, Control Building Emergency Pressurization Fan A. _____

[2] **[0-HS-311-8A]**, Control Building Emergency Air Cleanup Fan A. _____

[c] **VERIFY** the applicable fan inlet dampers are **CLOSED**:

[1] **[0-FCO-311-108]**, Control Building Emergency Pressurization Fan A Inlet damper. _____

[2] **[0-FCO-311-9]**, Control Building Emergency Air Cleanup Fan A Inlet damper. _____

Date_____

8.1 Emergency Mode Control Room Isolation (Continued)

CAUTION **Placing a train of CREVS in P-Auto (standby mode) will prevent automatic start on an accident signal. Refer to Tech Spec LCO 3.7.7.**

NOTE: One train of CREVS may be stopped and placed in P-Auto (standby) to protect the charcoal bed filter for that train.

NOTE: Control Building Emergency Pressurization Fan B takes suction through the emergency suction flowpath (south end of Control Building). If smoke and/or radiation is entering the MCR after CRI is actuated, then stopping Emergency Press Fan B may prevent further smoke and or radiation intake.

[17] **IF** it is desired to align the Train B Control Room Emergency Ventilation System (CREVS) to P-AUTO (standby mode operation), **THEN**

PERFORM the following:

[a] **PLACE** CREVS fan handswitches to the **P-AUTO** position (hand switches in **Pull Out** position):

[1] **[0-HS-311-109A]** Control Building Emergency Pressurization Fan B _____

[2] **[0-HS-311-10A]** Control Building Emergency Air Cleanup Fan B. _____

[b] **PLACE** the CREVS fan handswitches to the **STOP** position:

[1] **[0-HS-311-109A]** Control Building Emergency Pressurization Fan B. _____

[2] **[0-HS-311-10A]** Control Building Emergency Air Cleanup Fan B. _____

[c] **VERIFY** the applicable fan inlet dampers are **CLOSED**:

[1] **[0-FCO-311-109]** Control Building Emergency Pressurization Fan B Inlet damper. _____

[2] **[0-FCO-311-11]** Control Building Emergency Air Cleanup Fan B Inlet damper. _____

Date_____

8.1 Emergency Mode Control Room Isolation (Continued)

[18] **IF** paint or solvents were used on Control Building el 732 or the Control Building roof within the 24 hours prior to CREVS startup, **THEN**

NOTIFY Systems Engineering to evaluate affect on CREVS charcoal filters and to ensure compliance with Tech Spec 4.7.7.c. _____

[19] **WHEN** recovery from Control Room Isolation is desired, **THEN**

PERFORM Section 8.2, Recovery from Control Room Isolation. _____

END OF TEXT

Date_____

8.2 Recovery From Control Room Isolation

[1] **OBTAIN** permission from the Shift Manager to perform the Recovery From Control Room Isolation. _____

NOTE The following handswitch alignment prevents all four fans from starting and possibly over pressurizing the Shutdown Board Rooms when the Control Room Isolation (CRI) is reset.

[2] **ENSURE** two of the following handswitches (one per Unit) are in the **P-AUTO** position and the other two handswitches (one per Unit), are in the **OFF** position:

DESCRIPTION	HANDSWITCH	P-AUTO (√)	OFF (√)	INITIALS
SD BD RM A PRESS FAN 1A-A	0-HS-313-383A			_____
SD BD RM A PRESS FAN 1B-B	0-HS-313-384A			_____
SD BD RM B PRESS FAN 2A-A	0-HS-313-391A			_____
SD BD RM B PRESS FAN 2B-B	0-HS-313-392A			_____

Date_____

8.2 Recovery from Control Room Isolation (Continued)

[4] **RESET** the Control Room Ventilation Isolation signal with one pair of the following Unit's handswitches (N/A handswitches not used):

[a] **[1-HS-31A-7A]**, Control Bldg. Isol. Train A. _____

[b] **[1-HS-31A-38A]**, Control Bldg. Isol. Train B. _____

OR

[c] **[2-HS-31A-7A]**, Control Bldg. Isol. Train A. _____

[d] **[2-HS-31A-38A]**, Control Bldg. Isol. Train B. _____

[5] **VERIFY** the Control Room Ventilation Isolation signal has been reset by the following annunciator windows on panel 1, 2-XA-55-6C not lit:

[a] Control Room Isolation Train A (Window E-5). _____

[b] Control Room Isolation Train B (Window E-6). _____

NOTE Manual operation of the Main Control Room and Spreading Room Fresh Air Dampers will be required when their applicable handswitches are not in the **A-AUTO** position.

[6] **VERIFY** the following automatic operations occur:

EQUIPMENT IDENTIFICATION	POSITION	INITIALS
Main Control Room Fresh Air Damper 0-FCV-311-105A	OPEN	_____
Main Control Room Fresh Air Damper 0-FCV-311-106A	OPEN	_____
Spreading Room Fresh Air Damper 0-FCV-311-105B	OPEN	_____
Spreading Room Fresh Air Damper 0-FCV-311-106B	OPEN	_____
T & L Rm Exh Fan Disch 0-FCO-311-103	OPEN	_____
T & L Rm Exh Fan Disch 0-FCO-311-104	OPEN	_____
Spreading Room Supply Fan Discharge Damper 0-FCO-311-102	OPEN	_____
Spreading Room Supply Fan Discharge Damper 0-FCO-311-17	OPEN	_____

Date_____

8.2 Recovery from Control Room Isolation (Continued)

[7] **ENSURE** the Control Building Emergency Pressurizing Fan A has been **STOPPED AND**

[0-HS-311-108A], Control Building Emergency Press Fan A, is in the **A-AUTO** position. _____

[8] **VERIFY** [0-FCO-311-108], Control Building Emergency Press Fan A Inlet, is **CLOSED**. _____

[9] **ENSURE** the Control Building Emergency Pressurizing Fan B has been **STOPPED AND**

[0-HS-311-109A], Control Building Emergency Press Fan B, is in the **A-AUTO** position. _____

[10] **VERIFY** [0-FCO-311-109], Control Building Emergency Press Fan B Inlet, is **CLOSED**. _____

[11] **ENSURE** the Control Building Emergency Air Cleanup Fan A has been **STOPPED AND**

[0-HS-311-8A], Control Building Emergency Air Cleanup Fan A, is in the **A-AUTO** position. _____

[12] **VERIFY** [0-FCO-311-9], Control Building Emergency Air Cleanup Fan A Inlet, is **CLOSED**. _____

[13] **ENSURE** the Control Building Emergency Air Cleanup Fan B has been **STOPPED AND**

[0-HS-311-10A], Control Building Emergency Air Cleanup Fan B, is in the **A-AUTO** position. _____

[14] **VERIFY** [0-FCO-311-11], Control Building Emergency Air Cleanup Fan B Inlet, is **CLOSED**. _____

Date_____

8.2 Recovery from Control Room Isolation (Continued)

[15] **PLACE** one of the Spreading Room Exhaust Fans in service by performing the following:

[a] **START** fan using its applicable handswitch (**N/A** fan not started):

[1] **[0-HS-311-79A]**, Spreading Room Exhaust Fan A. _____

[2] **[0-HS-311-80A]**, Spreading Room Exhaust Fan B. _____

[b] **VERIFY** the applicable fan's discharge damper **OPENS** (**N/A** damper for fan not started):

[1] **[0-FCO-311-79]**, Spreading Room Exhaust Fan A Out. _____

[2] **[0-FCO-311-80]**, Spreading Room Exhaust Fan B Out. _____

[16] **ENSURE** both of the Spreading Room Exhaust Fan handswitches are in the **A-AUTO** position:

[a] **[0-HS-311-79A]**, Spreading Room Exhaust Fan A. _____

[b] **[0-HS-311-80A]**, Spreading Room Exhaust Fan B. _____

CAUTION **The Spreading Room Exhaust Fan should have been operating for at least 20 seconds to prevent Spreading Room Supply Fan trip out on low flow.**

[17] **PLACE [0-HS-311-36A]**, Spreading Room Supply Fan, in **START AND**

RETURN to **A-AUTO**. _____

Date_____

8.2 Recovery from Control Room Isolation (Continued)

[18] **ENSURE** Locker Room Exhaust Fan running, **AND**

[0-HS-311-81A] in **A-AUTO**. _____

NOTE The following selected fans may start when initially placed in the **P-AUTO** position, but should be **STOPPED** and returned back to **P-AUTO**.

[19] **VERIFY** the two Shutdown Board Room Fans that were selected in step **[2]** for **P-AUTO** are running, **THEN**

PLACE the other two Shutdown Board Room Fans handswitches, which were in the **OFF** position in step **[2]**, to the **P-AUTO** position:

DESCRIPTION	HANDSWITCH	RUNNING (√)	P-AUTO (√)	INITIALS
SD BD RM A PRESS FAN 1A-A	0-HS-313-383A			_____
SD BD RM A PRESS FAN 1B-B	0-HS-313-384A			_____
SD BD RM B PRESS FAN 2A-A	0-HS-313-391A			_____
SD BD RM B PRESS FAN 2B-B	0-HS-313-392A			_____

Date_____

8.2 Recovery from Control Room Isolation (Continued)

[20] INDEPENDENTLY VERIFY following handswitch positions:

DESCRIPTION	HANDSWITCH	POSITION	INITIALS
SD BD RM A PRESS FAN 1A-A	0-HS-313-383A	P-AUTO	_____
SD BD RM A PRESS FAN 1B-B	0-HS-313-384A	P-AUTO	_____
SD BD RM B PRESS FAN 2A-A	0-HS-313-391A	P-AUTO	_____
SD BD RM B PRESS FAN 2B-B	0-HS-313-392A	P-AUTO	_____
Locker Room Exhaust Fan	0-HS-311-81A	A-AUTO	_____
Spreading Room Supply Fan	0-HS-311-36A	A-AUTO	_____
Spreading Room Exhaust Fan A	0-HS-311-79A	A-AUTO	_____
Spreading Room Exhaust Fan B	0-HS-311-80A	A-AUTO	_____
Cntl Bldg Emerg Air Clean Up Fan A	0-HS-311-8A	A-AUTO	_____
Cntl Bldg Emerg Air Clean Up Fan B	0-HS-311-10A	A-AUTO	_____
Cntl Bldg Emerg Press Fan A	0-HS-311-108A	A-AUTO	_____
Cntl Bldg Emerg Press Fan B	0-HS-311-109A	A-AUTO	_____

[21] IF self contained breathing apparatus were used, **THEN NOTIFY** RADCON of need for replacements. _____

[22] IF paint or solvents were used on Control Building el 732 or the Control Building roof within the 24 hours prior to CREVS startup, **THEN**

NOTIFY Tech Support to evaluate affect on CREVS charcoal filters and to ensure compliance with Tech Spec 4.7.7.c. _____

END OF TEXT

9.0 RECORDS

Completed copies of all sections shall be transmitted to the Operations Superintendent 's Secretary.

SOURCE NOTES

REQUIREMENTS STATEMENT	SOURCE DOCUMENT	IMPLEMENTING STATEMENT
Procedures that do not contain appropriate verification requirements will be revised. (This item is not annotated within the procedure, since the entire procedure must meet the verification program requirements)	NCO970071001	**C.1**

CVCS-HEAT TRACE-UHI
1-XA-55-6C

	1	2	3	4	5	6	7	
A	TS-62-239 A/B BORIC ACID TANK A TEMP HIGH-LOW	FS-62-139A/B REACTOR COOLANT MAKE UP B.A. FLOW DEVIATION	LS-62-129A/B VOLUME CONTROL TANK LEVEL HI-LOW	TS-62-78 LTDN HX OUTLET TO DEMIN TEMP HIGH	CONTAINMENT ISOLATION PHASE B TRAIN A	CONTAINMENT ISOLATION PHASE B TRAIN B	RCS MID LOOP LEVEL LOW	A
B	TIT-62-243 BORIC ACID TANK C TEMP HIGH-LOW	FS-62-142A/B REACTOR COOLANT MAKE UP DEMIN WATER FLOW DEVN	TS-62-131 VOLUME CONTROL TANK TEMP HIGH	FS-62-82 LOW PRESS LTDN FLOW HIGH PRESSURE HIGH	CONTAINMENT ISOLATION PHASE A TRAIN A	CONTAINMENT ISOLATION PHASE A TRAIN B	RCS MID LOOP LEVEL HIGH	B
C	LS-62-238A/B BORIC ACID TANK A LEVEL HI-LOW	AUTO MAKE-UP START SIGNAL BLOCKED	PS-62-122A/B VOLUME CONTROL TANK PRESS HI-LOW	TS-62-75 LOW PRESSURE LETDOWN RELIEF TEMP HIGH	CONTAINMENT VENTILATION ISOLATION TRAIN A	CONTAINMENT VENTILATION ISOLATION TRAIN B	BORIC ACID SYSTEM AREA TEMPERATURE LOW	C
D	LS-62-242A/B BORIC ACID TANK C LEVEL HI-LOW	SPARE	FS-62-93A/B CHARGING LINE FLOW ABNORMAL	TS-62-71 REGENERATIVE HX LETDOWN LINE TEMP HIGH	AUX BUILDING ISOLATION TRAIN A	AUX BUILDING ISOLATION TRAIN B	SI/CNTMT SPRAY FREEZE PROTECTION SYS TEMP HI/LO	D
E	SPARE	SPARE	LS-63-104 CONTAINMENT SUMP FULL	LS-63-176 CNTMT LEVEL HI RHR RECIRC	CONTROL ROOM ISOLATION TRAIN A	CONTROL ROOM ISOLATION TRAIN B	FCV-74-1/2 TROUBLE OR RHR PRESS HI	E
	1	2	3	4	5	6	7	

Source	Setpoint	CONTROL ROOM ISOLATION TRAIN A
SER 1255 TS 31A-5A High Temp TS 31A-6A High Temp RE-90-125 Radiation K-608 Relay Operation (U-1 or U-2)	N/A	

Probable Causes

1. Manual from HS-31A-7A on 1-M-6 or 2-M-6.
2. Hi temp (> 200°F) in air inlet duct to control building pressurization fans A-A or B-B.
3. Safety Injection signal from U-1 or U-2.
4. Indicating noble gas > setpoint in duct from control building pressurization fan A-A.

Corrective Actions

[1] **ENSURE** Control Room Isolation:

REFER TO Section 8.1 of 0-SO-30-2, Emergency Mode Control Room Isolation. **[C.4]**

[2] **DETERMINE** cause of alarm.

[3] **EVALUATE** EPIP-1, Emergency Plan Classification Matrix.

[4] **WHEN** Control Room ventilation can be returned to normal operation, **THEN**

REFER TO Section 8.2 of 0-SO-30-2, Recovery From Control Room Isolation.

References

45N631-2, 45B655-06C-0, 47W611-31-1, 47W611-31-2, 47W866-4

Source	Setpoint	CONTROL ROOM ISOLATION TRAIN B
SER 1262 TS 31A-5B High Temp TS 31A-6B High Temp RE-90-126 Radiation K-608 Relay Operation (U-1 or U-2)	N/A	

Probable Causes

1. Manual from HS-31A-38A on 1-M-6 or 2-M-6.
2. Hi temp (> 200°F) in air inlet duct to control building pressurization fans A-A or B-B.
3. Safety Injection signal from U-1 or U-2.
4. Indicating noble gas > setpoint in duct from control building pressurization fan B-B.

Corrective Actions

[1] **ENSURE** Control Room Isolation:

REFER TO Section 8.1 of 0-SO-30-2, Emergency Mode Control Room Isolation. **[C.4]**

[2] **DETERMINE** cause of alarm.

[3] **EVALUATE** EPIP-1, Emergency Plan Classification Matrix.

[4] **WHEN** Control Room ventilation can be returned to normal operation, **THEN**

REFER TO Section 8.2 of 0-SO-30-2, Recovery From Control Room Isolation.

References

45N631-2, 45B655-06C-0, 47W611-31-1, 47W611-31-2, 47W866-4

SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE

B.1.d JPM 013AP1/SIM

Transfer to Hot Leg Recirculation

Original Signatures on File

PREPARED/ REVISED BY: _____ Date/ _____

VALIDATED BY: * _____ Date/ _____

APPROVED BY: _____ Date/ _____
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
0	Transfer from Word Perfect	N	1994	All	HJ Birch
1	Add cover sheep and Incorporate Rev B minor changes. Chgd performance time to based on validation.	Y	9/12/95	All	HJ Birch
pen/ink	Chg intiating cue to since time of event to match ES-1.3. Comment from student.	N	1/25/96	4	HJ Birch
pen/ink	Chg due to procedure revision and chg recirc criteria from 12 hr to 5.5 hr	N	03/19/02	4	WR Ramsey
2	Incorporated pen/ink changes	N	8/22/02	4	J P Kearney
3	Updated to current revision of EOP.	N	9/22/03	All	MG Croteau
4	Corrected IC. Corrected typos. 5 vice 5.5 hours.	N	8/2/04	All	MG Croteau
5	Corrected IC. Revised JPM to conform to latest revision of ES-1.4.	Y	9/30/2005	All	JJ Tricoglou
6	Minor format changes	N	2/13/2007	All	RH Evans

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:
Transfer to Hot Leg Recirculation

JA/TA Task # : 0000790501 **(RO)**

K/A Ratings:

194001 A1.02 (4.1/3.9)	194001 A1.13 (4.3/4.1)	000011 EA1.11 (4.2/4.2)
000011 EA1.13 (4.1/4.2)	006020 A4.01 (3.7/3.6)	000011 EA1.05 (4.3/3.9)
006020 A4.02 (3.9/3.8)		

Task Standard:
Successful realignment of RHR to cold leg injection and BOTH trains of safety injection to the hot leg recirculation flow path. (RHR hot leg injection valve fails to open)

Evaluation Method : Simulator ___X_____ In-Plant _____

==========

Performer: _____
NAME Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____ Finish Time _____

Evaluator: _____/_____
SIGNATURE DATE

==========

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Critical steps identified by '**Critical Step**'
2. Sequenced steps identified by an "s"
3. Any UNSAT requires comments
4. Initialize the simulator in **IC-93**.
5. NOTE: This JPM has been pre-shot in **IC # 93**. Should **IC # 93** be erased or fail to perform as expected then use the following set-up instructions:
   a. Initialize the simulator to sump recirc IC - 24(if available) then, after automatic Containment sump swapover is initiated, perform required alignment of ECCS to Containment Sump per ES-1.3. Include the following remote functions:
      i. **IRF RH14 f:1**
      ii. **IRF SIR06 f:0**)
      iii. **IOR ZDIHS63172A f:0** (**Fails [FCV-63-172] CLOSED**)
   b. If sump recirc IC is not available then initialize to IC 16 and complete the following setup:
      i. Insert - **IMF TH01A f:10** (10% LOCA on Loop #1 Hot Leg), and Trip RCPs.
      ii. After automatic containment sump swapover is initiated, perform required alignment of ECCS to Containment Sump per ES-1.3.
      iii. Place operating power on FCV-63-1 (remote function **IRF RHR14 f:1**)
      iv. When RWST level decreases to 8% realign Containment Spray Pump suction to Cntmt Sump per ES-1.3.
      v. Place operating power on FCV-63-22 (remote function **IRF SIR06 f:0**).
      vi. Insert override **IOR ZDIHS63172A f:0 (Fails [FCV-63-172] CLOSED)**
      vii. Acknowledge and clear ALL alarms.
      viii. Freeze simulator after realignment of Cntmt Spray suction to Cntmt Sump.
   c. To keep out nuisance alarms: insert overrides on following alarms
      i. **IMF AN_OV_304 f:3** (Containment Moisture High)
      ii. **IMF AN_OV_420 f:3** (Saturation Monitor)
      iii. **IMF AN_OV_96 f:3** (Turbine Zero Speed)
   d. Ensure operator performs the following required actions for **SELF-CHECKING;**
      i. Reviews the intended action and expected response.
      ii. Compares the actual response to the expected response.

Validation Time: CR. 13 mins **Local** _____

Tools/Equipment/Procedures Needed:

ES-1.4 "Transfer to Hot Leg Recirculation"

References:

	Reference	Title	Rev No.
1.	ES-1.4	Transfer to Hot Leg Recirculation	5

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. All ECCS components and Containment Spray pumps are aligned and taking suction from Containment sump per ES-1.3.
2. RCS pressure is less than 180 psig. RHR spray is not in service.
3. Both RHR pumps are in service.
4. 5 hours have elapsed since the time of the event

INITIATING CUES:

1. You are the Unit 1 OATC and are to transfer to Hot Leg Recirculation per ES-1.4.
2. When you have completed ES-1.4 notify the US/SRO.

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 1: Obtain a copy of the appropriate procedure. STANDARD: Operator obtains a copy of ES-1.4 and implements the actions to align to hot leg recirculation. COMMENTS:	___ SAT ___ UNSAT Start Time____
STEP 2: **[1]** **DETERMINE** if RHR spray should be isolated: STANDARD: Operator verifies **[FCV-72-40]** and 41 are closed and goes to step 2.	___ SAT ___ UNSAT
STEP 3: **[2]** **CHECK** RHR Pump A-A Running. STANDARD: Operator verifies "A-A" RHR pump running by RED lights on HS (may also check pump amps) COMMENTS:	___ SAT ___ UNSAT
STEP 4: **[3]** ALIGN RHR Train A for hot leg recirculation: **[a]** **CLOSE** RHR Train "A" cold leg isolation valve FCV-63-93. STANDARD: Operator closes FCV-63-93 and verifies CLOSED as indicated by green position indicating light ON. **This step is critical to isolate cold leg injection prior to opening the hot leg recirculation flow path.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
EVALUATOR NOTE Steps 5, 6 and 7 are part of procedure step 3.	
STEP 5: **[b]** **ENSURE** RHR Train "B" discharge crosstie valve FCV-74-35 CLOSED. STANDARD: Operator ensures RHR Train "B" discharge crosstie valve CLOSED, FCV-74-35, as indicated by green indicating light ON. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 6: **[c]** **OPEN** RHR Train "A" discharge crosstie valve FCV-74-33. STANDARD: Operator opens FCV-74-33 and verifies OPEN as indicated by red position indicating light ON. COMMENTS:	___ SAT ___ UNSAT
STEP 7: **[d]** **OPEN** FCV-63-172, RHR HL injection valve. **NOTE:** **FCV-63-172 fails to open. Operator must perform RNO and realign both RHR trains to cold legs.** STANDARD: RHR HL injection FCV-63-172 CLOSED as indicated by green position indicating light remaining ON. **Operator performs RNO. This step is critical to align A train RHR to the hot leg recirculation flow path.** COMMENTS:	___ SAT ___ UNSAT
EVALUATOR NOTE Steps 8, 9, 10 and 11 are part of procedure step 3 RNO.	
STEP 8: **1)** **ENSURE** RHR hot leg injection valve FCV-63-172 CLOSED. STANDARD: Operator ensures RHR hot leg injection valve FCV-63-172 CLOSED, as indicated by green indicating light ON. COMMENTS:	___ SAT ___ UNSAT
STEP 9: **2)** **ENSURE** RHR Train A discharge crosstie valve FCV-74-33 CLOSED. STANDARD: Operator closes FCV-74-33, as indicated by green indicating light ON. **This step is critical to return flow path to cold leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 10: **3)** **ENSURE** RHR Train A cold leg isolation valve FCV-63-93 OPEN. STANDARD: Operator opens FCV-63-93, as indicated by red indicating light ON. **This step is critical to return flow path to cold leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 11: **4)** IF RHR hot leg injection valve FCV-63-172 is NOT capable of opening from the MCR, THEN GO TO Step 11. STANDARD: Operator transitions to step 11. COMMENTS:	___ SAT ___ UNSAT
STEP 12: **[11] CHECK** SI pump A-A Running. STANDARD: Operator checks "A-A" SI pump running by RED lights on HS (may also check pump amps). COMMENTS:	___ SAT ___ UNSAT
STEP 13: **[12]** ALIGN SI pump A-A for hot leg recirculation: **a. ENSURE** SI Pump "A-A" STOPPED. STANDARD: Operator stops SI Pump "A-A" as indicated by green indicating light ON (HS-63-10A). **This step is critical to prevent pump damage during the transfer to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 14: **b. CLOSE** SI Train "A" crosstie valve FCV-63-152. STANDARD: Operator closes Train "A" crosstie FCV-63-152 as indicated by green position indicating light ON. **This step is critical to isolate the cold leg recirculation flow path.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 15: **c. WHEN** FCV-63-152 Closed, THEN PERFORM the following: 1) **OPEN** SI Train "A" HL injection valve FCV-63-156. STANDARD: Operator opens Train "A" HL injection FCV-63-156 as indicated by red position indicating light ON. **This step is critical to align flow path to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 16: 2) **START** SI pump "A-A". STANDARD: SI Pump "A-A" is started as indicated by red indicating light ON (HS-63-10A). **This step is critical to establish flow to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 17: **[13] VERIFY** SI Train A discharge flow on FI-63-151. STANDARD: Operator verifies Train A flow established as indicated on FI-63-151.	___ SAT ___ UNSAT
STEP 18: **[14] CHECK** SI pump B-B Running. STANDARD: Operator checks "B-B" SI pump running by RED lights on HS (may also check pump amps). COMMENTS: –	___ SAT ___ UNSAT
STEP 19: **[15] ALIGN** SI pump B-B for hot leg recirculation: a. **STOP** SI Pump "B-B". STANDARD: Operator stops SI Pump "B-B" as indicated by green indicating light ON (HS-63-15A).). **This step is critical to prevent pump damage during the transfer to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 20: b. **CLOSE** SI Train "B" crosstie valve FCV-63-153, STANDARD: Operator closes Train "B" crosstie FCV-63-153, and verifies closed as indicated by green position indicating light ON. **This step is critical to isolate the cold leg recirculation flow path.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 21: c. **WHEN** FCV-63-153 closed, **THEN** PERFORM the following: 1) **OPEN** SI Train "B" HL injection valve FCV-63-157. STANDARD: Operator opens Train "B" HL Injection FCV-63-157, and verifies open as indicated by red position indicating light ON. **This step is critical to align flow path to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 22: 2) **START** SI Pump "B-B". STANDARD: Operator starts SI Pump "B-B" ON as indicated by red indicating light ON (HS-63-15A). **This step is critical to establish flow to hot leg recirculation.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 23: **[16]** **CHECK** SI Train B discharge flow on FI-63-20. STANDARD: Operator verifies Train "B" HL flow established as indicated on FI-63-20. COMMENTS:	___ SAT ___ UNSAT
STEP 24: **[17]** ISOLATE SI pump flow to cold legs: a. **CHECK** BOTH SI pumps ALIGNED for hot leg recirculation. STANDARD: Operator verifies that both SI pumps were properly aligned in the previous steps. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
Evaluator Note: EA-201-1 restored power to FCV-63-22 as directed by E-1 prior to transition to this procedure.	
STEP 25: **b. CHECK** power AVAILABLE to FCV-63-22. **NOTE: IRF SIR06 f:0 will place power on FCV-63-22.** ***Cue: When dispatched, report that power has been restored to FCV-63-22*** STANDARD: Operator dispatches AUO to restore power to FCV-63-22. SRO if power is restored to FCV-63-22. COMMENTS:	___ SAT ___ UNSAT
STEP 26: **c. CLOSE** SI pump CL injection valve FCV-63-22. STANDARD: FCV-63-22 CLOSED as indicated by green position indicating light ON. COMMENTS:	___ SAT ___ UNSAT
STEP 27: Inform the US/SRO when Hot Leg Recirculation has been established. STANDARD: Operator verifies Hot leg Recirc alignment and informs the US/SRO. COMMENTS:	___ SAT ___ UNSAT Stop Time____

END OF JPM

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

All ECCS components and Containment Spray pumps are aligned and taking suction from Containment sump per ES-1.3.

RCS pressure is less than 180 psig. RHR spray is not in service.

Both RHR pumps are in service.

5 hours have elapsed since the time of the event.

INITIATING CUES:

You are the Unit 1 OATC and are to transfer to Hot Leg Recirculation per ES-1.4.

When you have completed ES-1.4 notify the US/SRO.

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

EOI PROGRAM MANUAL

EMERGENCY SUBPROCEDURE

ES-1.4

TRANSFER TO HOT LEG RECIRCULATION

Revision **5**

QUALITY RELATED

PREPARED/PROOFREAD BY: D. A. PORTER

RESPONSIBLE ORGANIZATION: OPERATIONS

APPROVED BY: W. T. LEARY

EFFECTIVE DATE: 08/01/2005

REVISION DESCRIPTION: Revised to improve contingency actions for valve failures (PER 75660).

This procedure contains a Handout Page (2 copies).

HANDOUT

Page 1 of 1

STEP	ACTION
12.c.	**WHEN** FCV-63-152 closed, **THEN PERFORM** the following:
	1) **OPEN** SI Train A hot leg injection FCV-63-156.
	2) **START** SI pump A-A.
15.c.	**WHEN** FCV-63-153 closed, **THEN PERFORM** the following:
	1) **OPEN** SI Train B hot leg injection FCV-63-157.
	2) **START** SI pump B-B.
17.b. RNO	(if both SI pumps aligned for hot leg recirculation) **WHEN** power available to FCV-63-22, **THEN CLOSE** SI pump cold leg injection valve FCV-63-22.

HANDOUT

Page 1 of 1

STEP	ACTION
12.c.	**WHEN** FCV-63-152 closed, **THEN PERFORM** the following:
	1) **OPEN** SI Train A hot leg injection FCV-63-156.
	2) **START** SI pump A-A.
15.c.	**WHEN** FCV-63-153 closed, **THEN PERFORM** the following:
	1) **OPEN** SI Train B hot leg injection FCV-63-157.
	2) **START** SI pump B-B.
17.b. RNO	(if both SI pumps aligned for hot leg recirculation) **WHEN** power available to FCV-63-22, **THEN CLOSE** SI pump cold leg injection valve FCV-63-22.

1.0 PURPOSE

This procedure provides the necessary instructions for transferring the Safety Injection System to hot leg recirculation.

2.0 SYMPTOMS AND ENTRY CONDITIONS

2.1 ENTRY CONDITIONS

E-1 Loss of Reactor or Secondary Coolant:

- 5 hours after event initiation.

ES-1.2 Post LOCA Cooldown and Depressurization:

- when TSC determines hot leg recirculation is required

ES-1.3 Transfer to RHR Containment Sump

- when TSC determines hot leg recirculation is required

3.0 OPERATOR ACTIONS

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

1. **DETERMINE** if RHR spray should be isolated:

   a. **CHECK** RHR spray IN SERVICE:

   - Train A RHR spray valve FCV-72-40 OPEN

   OR

   - Train B RHR spray valve FCV-72-41 OPEN.

   a. **GO TO** Step 2.

   b. **CHECK** containment pressure less than 4 psig.

   b. **IF** Train B RHR spray valve FCV-72-41 is open,
   THEN
   GO TO Step 2.

   IF Train A RHR spray valve FCV-72-40 is open,
   THEN
   GO TO Step 7.

   c. **ENSURE** RHR spray valves CLOSED:

   - Train A RHR spray valve FCV-72-40
   - Train B RHR spray valve FCV-72-41.

   c. **CLOSE** valves locally.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

2. **CHECK** RHR pump A-A RUNNING.

IF Train B RHR spray valve FCV-72-41 is closed,
THEN
GO TO Step 8.

IF Train B RHR spray valve FCV-72-41 is open,
THEN
GO TO Step 11.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

3. **ALIGN** RHR Train A for hot leg recirculation:

   a. **CLOSE** RHR Train A cold leg isolation valve FCV-63-93.

   b. **ENSURE** RHR Train B discharge crosstie valve FCV-74-35 CLOSED.

   c. **OPEN** RHR Train A discharge crosstie valve FCV-74-33.

   d. **OPEN** RHR hot leg injection valve FCV-63-172.

PERFORM the following:

1) **ENSURE** RHR hot leg injection valve FCV-63-172 CLOSED.

2) **ENSURE** RHR Train A discharge crosstie valve FCV-74-33 CLOSED.

3) **ENSURE** RHR Train A cold leg isolation valve FCV-63-93 OPEN.

4) **IF** FCV-63-172 is NOT capable of opening from MCR,
THEN
GO TO Step 11.

5) **IF** Train B RHR spray valve FCV-72-41 is open,
THEN
GO TO Step 11.

6) **IF** Train B RHR spray valve FCV-72-41 is closed,
THEN
GO TO Step 7.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	**VERIFY** RHR hot leg injection flow on FI-63-173.	**IF** RCS pressure is less than 300 psig **AND** NO RHR flow to hot legs is indicated, **THEN** **PERFORM** the following: a. **VERIFY** valves aligned as specified in Step 3. b. **EVALUATE** MCR indications: • RHR pump A-A amps • FCV-74-12 RHR Pump A-A miniflow valve position. c. **NOTIFY** TSC to investigate cause WHILE continuing in this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.	**ENSURE** RHR Train B cold leg isolation valve FCV-63-94 CLOSED.	**IF** FCV-63-94 CANNOT be closed from MCR, **THEN** **PERFORM** the following: a. **VERIFY** RHR pump A-A RUNNING and aligned for hot leg recirculation as specified in Step 3. b. **VERIFY** the following valves OPEN: • FCV-63-8, RHR pump to CCP suction • FCV-63-6 or FCV-63-7, RHR pump discharge to SI pump suction c. **IF** substeps a and b are met, **THEN** **PERFORM** the following: 1) **ENSURE** only one CCP RUNNING. (Train A preferred) 2) **ENSURE** idle CCP placed in PULL TO LOCK. 3) **ENSURE** only one SI pump RUNNING. (Train A preferred) 4) **ENSURE** idle SI pump placed in PULL TO LOCK. 5) **ENSURE** RHR pump B-B STOPPED and **PLACE** in PULL TO LOCK.
6.	**GO TO** Step 11.	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

7. **CHECK** RHR pump B-B RUNNING.

GO TO Step 11.

8. **ALIGN** RHR Train B for hot leg recirculation:

   a. **CLOSE** FCV-63-94, RHR Train B cold leg isolation valve.

   b. **ENSURE** RHR Train A discharge crosstie valve FCV-74-33 CLOSED.

   c. **OPEN** RHR Train B discharge crosstie valve FCV-74-35.

   d. **OPEN** FCV-63-172, RHR hot leg injection valve.

PERFORM the following:

1) **ENSURE** FCV-63-172, RHR hot leg injection valve CLOSED.

2) **ENSURE** RHR Train B discharge crosstie valve FCV-74-35 CLOSED.

3) **ENSURE** RHR Train B cold leg isolation valve FCV-63-94 OPEN.

4) **GO TO** Step 11.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	**VERIFY** RHR hot leg injection flow on FI-63-173.	**IF** RCS pressure is less than 300 psig **AND** NO RHR flow to hot legs is indicated, **THEN** **PERFORM** the following: a. **VERIFY** valves aligned as specified in Step 8. b. **EVALUATE** MCR indications: • RHR pump B-B amps • FCV-74-24 RHR Pump B-B miniflow valve position. c. **NOTIFY** TSC to investigate cause WHILE continuing in this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	**ENSURE** RHR Train A cold leg isolation valve FCV-63-93 CLOSED.	**IF** FCV-63-93 CANNOT be closed from MCR, **THEN** **PERFORM** the following: a. **VERIFY** RHR pump B-B RUNNING and aligned for hot leg recirculation as specified in Step 8. b. **VERIFY** the following valves OPEN: • FCV-63-11, RHR discharge to SI pump suction • FCV-63-6 or FCV-63-7, RHR pump discharge to SI pump suction. c. **IF** substeps a and b are met, **THEN** **PERFORM** the following: 1) **ENSURE** only one CCP RUNNING. (Train B preferred) 2) **ENSURE** idle CCP placed in PULL TO LOCK. 3) **ENSURE** only one SI pump RUNNING. (Train B preferred) 4) **ENSURE** idle SI pump placed in PULL TO LOCK. 5) **ENSURE** RHR pump A-A STOPPED and **PLACE** in PULL TO LOCK.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

11. **CHECK** SI pump A-A RUNNING .

GO TO Step 14.

12. **ALIGN** SI pump A-A for hot leg recirculation:

    a. **ENSURE** SI pump A-A STOPPED.

    b. **CLOSE** SI Train A crosstie FCV-63-152.

    c. **WHEN** FCV-63-152 closed,
    THEN
    PERFORM the following:

    1) **OPEN** SI Train A hot leg injection FCV-63-156.

    2) **START** SI pump A-A.

IF SI pump A-A CANNOT be aligned for hot leg recirc,
THEN
PERFORM the following:

1) **ENSURE** SI pump A-A STOPPED.

2) **ENSURE** SI Train A hot leg injection FCV-63-156 CLOSED.

3) **ENSURE** SI Train A crosstie FCV-63-152 OPEN.

4) **START** SI pump A-A.

5) **IF** any of the following conditions met:

   - SI pump B-B RUNNING

     OR

   - SI pump B-B is stopped
     AND is available for hot leg recirc

   THEN
   GO TO Step 15.

6) **IF** SI pump B-B is NOT available,
THEN
GO TO Step 18.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	**VERIFY** SI Train A discharge flow on FI-63-151.	**PERFORM** the following: a. **VERIFY** valves aligned as specified in Step 12. b. **EVALUATE** SI pump A-A amps. c. **NOTIFY** TSC to investigate cause WHILE continuing in this procedure.
14.	**CHECK** SI pump B-B RUNNING.	**GO TO** Step 18.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

15. **ALIGN** SI pump B-B for hot leg recirculation:

    a. **STOP** SI pump B-B.

    b. **CLOSE** SI Train B crosstie FCV-63-153.

    c. **WHEN** FCV-63-153 closed,
    THEN
    PERFORM the following:

    1) **OPEN** SI Train B hot leg injection FCV-63-157.

    2) **START** SI pump B-B.

IF SI pump B-B CANNOT be aligned for hot leg recirc,
THEN
PERFORM the following:

1) **ENSURE** SI pump B-B STOPPED.

2) **ENSURE** SI Train B hot leg injection FCV-63-157 CLOSED.

3) **ENSURE** SI Train B crosstie FCV-63-153 OPEN.

4) **IF** NO SI pump is running,
THEN
START SI pump B-B.

5) **IF** SI pump A-A is stopped
AND is available for hot leg recirc,
THEN
GO TO Step 12.

6) **IF** NO SI pump can be aligned for hot leg recirc,
THEN
GO TO Step 18.

7) **GO TO** Step 17.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16.	**VERIFY** SI Train B discharge flow on FI-63-20.	**PERFORM** the following: a. **VERIFY** valves aligned as specified in Step 15. b. **EVALUATE** SI pump B-B amps. c. **NOTIFY** TSC to investigate cause WHILE continuing in this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17.	**ISOLATE** SI pump flow to cold legs:	
	a. **CHECK** BOTH SI pumps ALIGNED for hot leg recirculation.	a. **PERFORM** the following: 1) **IF** one SI pump is aligned for hot leg recirculation, **THEN** **ENSURE** SI pump aligned to cold legs STOPPED. 2) **GO TO** Step 18.
	b. **CHECK** power AVAILABLE to SI pump cold leg injection valve FCV-63-22.	b. **DISPATCH** personnel to restore power to SI pump cold leg injection valve FCV-63-22, **USING** EA-201-1, 480 V Board Room Breaker Alignments. **WHEN** power available to FCV-63-22, **THEN** **CLOSE** SI pump cold leg injection valve FCV-63-22. **RETURN TO** procedure and step in effect.
	c. **CLOSE** SI pump cold leg injection valve FCV-63-22.	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

18. **RETURN TO** procedure and step in effect.

END

SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE

B.1.e JPM 36

RETURN PRESSURIZER RELIEF TANK TO NORMAL

Original Signatures on File

PREPARED/ REVISED BY: _____ Date/ _____

VALIDATED BY: * _____ Date/ _____

APPROVED BY: _____ Date/ _____
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
4	Transfer from WP. Procedure change to Rev. 4. Made a perform JPM, not a simulate JPM.	N	8/17/94	All	HJ Birch
pen/ink	Added dates to cover sheep.	N	10/26/95	1	HJ Birch
pen/ink	SO-68-5 Rev chg. Minor rewording of step 13. Add step to monitor RCDT level.	N	9/25/96	4,8	HJ Birch
pen/ink	Chgd initiating cues to direct prt drain first. To help flow thru procedures. Deleted step to reset Pri Wtr alarm. It no longer comes in.	N	1/9/97	4	HJ Birch
	SO-68-5 Rev chg	N	11/17/97	4	HJ Birch
pen/ink	SO-68-5 Rev chg. Added transition step to sect 8.2. Several step enhancements.	N	5/12/98	4-9	HJ Birch
5	Revised steps 17 and 18, added step 19 as a result of revisions to SO-68-5. Changes did not affect the flow of the JPM. Revised JA/TA task numbers. Revised K/A ratings. Reformatted critical steps.	N	9/18/98	All	JP Kearney
pen/ink	SO-68-5 Rev chg. Correct typo in Direction to trainee	N	8/21/00	4	SR Taylor
pen/ink	SO-68-5 Rev chg only no effect	N	12/13/00	4	W. R. Ramsey
6	Incorporated pen/ink changes	N	8/22/02	4	J P Kearney
Pen/ink	Updated references & IC#	N	11/17/03	2,4	T. E. Pitchford
7	Updated references. Minor format changes. Resnapped IC to allow operator to use actual simulator values.	N	3/22/07	All	R. H. Evans

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:
Pzr Vapor Space Accident (Return PRT to Normal)

JA/TA task # : 0070040101 0070050101 0680990101 (**RO**)
0070010102 (**SRO**)

K/A Ratings:
008AA1.08 (3.8/3.8) 007K4.01 (2.6/2.9)
007A2.01 (3.9/4.2) 007A2.02 (2.6/3.2)

Task Standard:
Pressurizer Relief Tank (PRT) parameters have been returned to within normal ranges; temperature ($\leq$ 155^{o}F), pressure (1.5 - 6.5 psi), and level (~70%).

Evaluation Method : Simulator ___X_____ In-Plant _____

==========

Performer: _____
NAME Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____ Finish Time _____

==========

Evaluator: _____/_____
SIGNATURE DATE

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Acknowledge any associated alarms.
4. Initialize the simulator in **IC-96**.
5. NOTE: This JPM has been pre-shot in **IC # 96.** Should **IC # 96** be erased or fail to perform as expected then use the following set-up instructions:
   - Initialize Simulator in IC: #16. **ACTIVATE** MF RC05 at 5% to cause PCV-68-334 to leak through.
   - Allow PORV Tailpipe temperature to increase and bring in the alarm, then close FCV-68-333. **ACTIVATE** RF RCR04 to remove power from valve.
   - Open FCV-68-303 to fill the PRT to ≈ 84% then close the valve. Ensure PRT temperature ≈135°F.
   - **(These will be deleted during the performance)**
   - Ensure FCV-81-12 is open.
6. Due to time restraints CUEs for PRT level and temperature will be given at appropriate times.

Validation Time: CR. 17 mins **Local** _____

Tools/Equipment/Procedures Needed:
1-SO-68-5 Section 8.2 & 8.4.

References:

	Reference	Title	Rev No.
1.	1-SO-68-5	Reactor Coolant System	**17**

==========

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is at 100% power, steady state. Pressurizer pressure controls in automatic.
Pressurizer sprays in automatic.
PORV PCV-68-334 is partially opened but the block valve has been closed and de-energized.
1A Rx Coolant Drain Tank pump is inoperable.
You are the Operator At the Controls

INITIATING CUES:

The Unit Supervisor has directed you to restore the PRT to normal per the appropriate SO.

Notify the Unit Supervisor when conditions in the PRT are normal.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
STEP 1.:	Obtain correct procedure to return PRT parameter(s) to normal.	___ SAT ___ UNSAT Start Time____
STANDARD:	Operator obtains a copy of 1-SO-68-5 Sections 8.2 & 8.4.	
COMMENTS:		
NOTE:	**The operator may choose to pump the PRT level down first, start at step 6 of the JPM in that case.**	
NOTE:	**This portion is performed using Section 8.4 of the SO.**	___ SAT ___ UNSAT
STEP 2.: **[1]**	**ENSURE [FCV-81-12] OPEN.**	
STANDARD:	Operator verifies that FCV-81-12 is open by red light on.	
COMMENTS:		
STEP 3.: **[2]**	**OPEN [1-FCV-68-303]** by placing **[1-HS-68-303A]** to **OPEN** position.	___ SAT ___ UNSAT
STANDARD:	Operator takes hand switch HS-68-303A on M-5 to OPEN. Handswitch indicates valve is open by red light "ON". **This step is critical to add primary water to the PRT for cooling.**	**Critical Step**
COMMENTS:		

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 4.: **[3]** **IF** PRT level increases to ≥ 88% or PRT temperature decreases to ≤ 120°F **THEN** **CLOSE [1-FCV-68-303]** STANDARD: Operator monitors PRT level on LI-68-300 and temperature on TI-68-309, then places FCV-68-303 in the closed position and verifies green light ON. **This step is critical to prevent overfilling the PRT.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 5.: **[4]** **IF** PRT level is ≥ 88% **THEN** **GO TO** section 8.2 or 8.3 of this instruction, AND **RETURN** to step **[1]** of this section if further temperature reduction is needed. STANDARD: Operator goes to section 8.2 (1A RCDT pump is inop) COMMENTS: **If operator has already performed section 8.2 then inform him that the JPM is complete by stating "ANOTHER OPERATOR WILL TAKE OVER THE OPERATION AT THIS POINT, THIS END THE JPM".**	___ SAT ___ UNSAT
EVALUATOR NOTE The following steps evaluate section 8.2 of this procedure. Operator will return back to section 8.4 after draining the PRT to further cool the PRT.	
STEP 6.: **[1]** **VERIFY** RCDT pumps aligned for service in accordance with valve check list 1-77-1.02. ***Cue:*** ***When AUO is contacted, state that 1B RCDT is aligned per checklist 1-77-1.02.*** STANDARD: Operator checks status log to ensure no deviations exist. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 7.: [2] **STATION** AUO at panel 0-L-2. ***Cue:*** ***Role play the Rad Waste AUO. State that you are at 0-L-2 panel and will stay here and wait on your instructions.*** STANDARD Operator ensures an AUO is stationed at 0-L-2 panel. COMMENTS:	___ SAT ___ UNSAT
STEP 8.: [3] **IF** RCDT level >20%, **THEN** **PUMP** down RCDT level in accordance with Appendix C of this Instruction. ***Cue:*** ***Role play the Rad Waste AUO. State that you are at 0-L-2 panel and the level in Unit 1 RCDT is 18%.*** STANDARD: Operator checks with an AUO at 0-L-2 panel and ensures level is < 20% COMMENTS:	___ SAT ___ UNSAT
STEP 9.: [4] **ENSURE** [1- FCV-77-9] and [1-FCV-77-10] are **OPEN**. STANDARD: Operator verifies FCV-77-9 and FCV-77-10 open on panel M-15 (red lights on handswitches ON) COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 10.: [5] **ENSURE [1-HS-77-6A]** for RCDT Pump B is in the **PULL-P-AUTO** position. ***Cue:*** ***Rad waste Operator informs UO that RCDT Pump "B" is in PULL P-AUTO.*** ***If asked, state that the level in the Unit 1 RCDT is still 18%.*** STANDARD: Operator contacts Rad Waste Operator and verifies HS-77-6A for RCDT Pump B is in P-AUTO. COMMENTS:	___ SAT ___ UNSAT
STEP 11.: [6] **OPEN [1- FCV-68-305]** Nitrogen Supply to PRT. STANDARD: Operator verifies FCV-68-305 open on panel 1 M-5 (red lights on handswitches ON). **This step is critical to align Nitrogen to the PRT.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 12.: [7] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND** **VERIFY [1-FCV-68-310] OPENS** ***Cue:*** ***If operator contacts the Rad Waste operator, then state to the operator the B RCDT pump has started.*** STANDARD: Operator ensures FCV-68-310 open on panel 1-M-5, red light. **This step is critical to drain the PRT to normal level.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 13.: **[8] ENSURE** RCDT Pump B **STARTS**. ***Cue:*** ***RCDT pump B is running.*** STANDARD: Operator checks with Rad Waste AUO to ensure RCDT pump B starts. COMMENTS:	___ SAT ___ UNSAT
STEP 14.: **[9] IF** PRT pressure drops < 1.5 psig, **THEN**... STANDARD: Operator monitors PRT pressure with PI-68-301 on 1-M-5 and closes FCV-68-310A if pressure drops to <1.5 psig. COMMENTS:	___ SAT ___ UNSAT
STEP 15.: **[10] IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**.. ***Cue:*** ***When AUO contacted, State: I will monitor RCDT level, Stop RCDT pump and notify you to close FCV-68-310 if RCDT approaches 50%.*** STANDARD: Operator notifies AUO of this step. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 16.: **[11] IF** returning from Appendix C, **THEN** STANDARD: Operator N/A's step. COMMENTS:	___ SAT ___ UNSAT
STEP 17.: **[12] WHEN** PRT level reaches desired level, **THEN** **STOP** "B" RCDT. ***Cue:*** ***When the operator begins to monitor level on LI-68-300, tell the operator that "PRT level has decreased to 70%".*** ***Cue:*** ***When operator requests AUO to stop RCDT pump 1B, Tell him "RCDT pump 1B is stopped and HS is in Pull-P-Auto".*** STANDARD: Operator verifies level, and has the Rad Waste Operator STOP RCDT Pump 1B and place HS in Pull-P-Auto. **This step is critical to prevent pumping down PRT to below normal level of 70%. (maintained between 55 and 88%).** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 18.: **[13] CLOSE [1-FCV-68-310]**. STANDARD: Operator closes with HS-68-310A and verifies closed on panel 1-M-5 (green lights on handswitches ON). **This step is critical to return system to normal alignment.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 19.: **[14] PLACE [1-HS-77-6A]** RCDT pump B in **PULL-P-AUTO** position at 0-L-2 panel. ***CUE:*** ***When operator requests AUO to place the HS for RCDT pump 1B, Tell him "RCDT pump 1B HS is in Pull-P-Auto".*** STANDARD: Operator has the Rad Waste Operator place HS in Pull-P-Auto. COMMENTS:	___ SAT ___ UNSAT
STEP 20.: **[15] CLOSE [1-FCV-68-305].** STANDARD: Operator closes with HS-68-305A and verifies closed on panel 1-M-5 (green lights on handswitches ON). COMMENTS: **NOTE:** **If operator performed section 8.2 first, then return to step 1 of the JPM to evaluate section 8.4 to cool the PRT.** **If operator has already performed section 8.4 then inform him that the JPM is complete by stating "ANOTHER OPERATOR WILL TAKE OVER THE OPERATION AT THIS POINT, THIS END THE JPM".**	___ SAT ___ UNSAT

End of JPM

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is at 100% power, steady state. Pressurizer pressure controls in automatic.

Pressurizer sprays in automatic.

PORV PCV-68-334 is partially opened but the block valve has been closed and de-energized.

1A Rx Coolant Drain Tank pump is inoperable.

You are the Operator At the Controls

INITIATING CUES:

The Unit Supervisor has directed you to restore the PRT to normal per the appropriate SO.

Notify the Unit Supervisor when conditions in the PRT are normal.

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SYSTEM OPERATING INSTRUCTION

1-SO-68-5

PRESSURIZER RELIEF TANK

Revision **17**

QUALITY RELATED

PREPARED/PROOFREAD BY: JUDY VARNER

RESPONSIBLE ORGANIZATION: OPERATIONS

APPROVED BY: D. A. PORTER

EFFECTIVE DATE: 05/09/2006

LEVEL OF USE: **CONTINUOUS USE**

REVISION

DESCRIPTION: Revised to incorporate PCF 007. Added steps in section 8.9 to allow purging PRT with either Hydrogen or Nitrogen on VCT.

TABLE OF CONTENTS

Page 1 of 2

TABLE OF CONTENTS

Page 2 of 2

1.0 INTRODUCTION

1.1 Purpose

To provide instructions for the operation of the Pressurizer Relief Tank (PRT).

1.2 Scope

A. Placing the PRT in service.

B. Increasing the PRT level.

C. Decreasing the PRT level.

D. Reducing the temperature of the PRT.

E. Increasing the pressure of the PRT.

F. Reducing the pressure of the PRT.

G. Gravity draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS).

H. Reducing the O_2 Concentration in the PRT in Mode 5 or 6.

I. Purging the PRT in Modes 1 thru 4.

2.0 REFERENCES

2.1 Performance References

None

2.2 Developmental References

A. SOI-68.1, *Reactor Coolant System*

B. 0-MI-MXX-068-006.0, *Venting of Pressurizer, Pressurizer Relief Tank, and Reactor Head*

C. SPP-10.3, *Verification Program*

D. TVA Drawing
   1. 47W813-1
   2. 47W819-1
   3. 47W830-1
   4. 47W830-6

E. FSAR
   1. Section 5.5

3.0 PRECAUTIONS AND LIMITATIONS

A. During normal operation, PRT water temperature should not exceed 120°F.

B. Maintaining 3 to 6 psig N_2 gas blanket on the PRT will prevent the formation of explosive hydrogen-oxygen mixtures.

C. The PRT concentration of oxygen shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

D. Over filling the PRT to solid water condition during oxygen reduction per Section 8.8 may result in failure of the PRT rupture disc.

E. The PRT pressure should be maintained < 7.5 psig during normal operation. (Except during the performance of section 8.9).

F. The PRT rupture discs are rated at 85 psig.

G. The level in the PRT should be maintained at 70%. If the level increases to 88%, then decreasing level to 70% is necessary. If the level decreases to 55%, then increasing level to 70% is needed when the PRT is required to be operable.

H. Completely draining the PRT may result in gas binding the RCDT pumps.

I. Water intrusion into the waste gas vent header is possible during PRT venting operations with PRT level high. This could affect RCP seal leakoff flows and the vent capability of tanks which vent to waste gas vent header.

J. PRT level indications or alarms are not available in the Aux Control Room, thus PRT level manipulations and feed & bleed processes are unavailable.

Date_____

4.0 PREREQUISITE ACTIONS

NOTE Throughout this Instruction, where an **IF/THEN** statement exists, the step should be **N/A** if condition does not exist.

[1] **ENSURE** Instruction to be used is a copy of the effective version. _____

[2] **ENSURE** Precautions and Limitations, Section 3.0 have been reviewed. _____

[3] **ENSURE** Attachment 1, Power Checklist 1-68-5.01 is complete. _____

[4] **ENSURE** Attachment 2, Valve Checklist 1-68-5.02 is complete. _____

[5] **VERIFY** primary water is available to fill and cool the PRT (N/A if primary water will not be used). _____

[6] **VERIFY** Waste Disposal System is available to receive liquid from PRT. _____

[7] **VERIFY** vent header in service to receive gases from the PRT (N/A if PRT will not be vented to vent header). _____

[8] **VERIFY** low pressure N_2 system is in service (N/A if nitrogen will not be used). _____

[9] **ENSURE** each performer documents their name and initials:

Print Name	Initials

[10] **INDICATE** below which performance section of this Instruction will be used and the reason for this performance:

☐ 5.0 STARTUP/STANDBY READINESS

☐ 8.0 INFREQUENT OPERATION

REASON: _____

Date_____

5.0 STARTUP/STANDBY READINESS

[1] **VERIFY** PRT has normal operating level of ~ 70%. _____

[2] **IF** PRT level needs adjusting, **THEN**

REFER TO Section 8.1, 8.2, or 8.3, **AND**

ADJUST level as necessary. _____

[3] **IF** PRT pressure needs adjusting, **THEN**

REFER TO Section 8.5 or 8.6, **AND**

ADJUST pressure as necessary. _____

END OF TEXT

6.0 NORMAL OPERATION

None.

7.0 SHUTDOWN

None.

Date_____

8.0 INFREQUENT OPERATION

8.1 Increasing PRT Level

[1] **ENSURE** a primary water pump is running. _____

[2] **ENSURE** [1-FCV-81-12] primary water containment isolation valve is **OPEN**. _____

[3] **OPEN** [1-FCV-68-303] PRT makeup valve. _____

[4] **MAINTAIN** PRT pressure between 3 and 6 psig by operating [1-PCV-301] PRT vent valve. _____

NOTE Normal PRT level is approximately 70%.

[5] **WHEN** PRT level increases to desired level (not to exceed 88%), **THEN**

CLOSE [1-FCV-68-303]. _____ 1st _____ IV

[6] **ENSURE** [1-PCV-68-301] PRT vent valve **CLOSED**. _____ 1st _____ IV

END OF TEXT

Date_____

8.2 Reducing PRT Level Using B RCDT Pump

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1B will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT pump B will Auto start when 1-FCV-68-310, PRT drain to RCDT opens.

[1] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE – An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[2] **STATION** an AUO at panel 0-L-2. _____

[3] **IF** RCDT level > 20%, **THEN**

PUMP down RCDT level in accordance with Appendix C of this Instruction. _____

[4] **ENSURE [1-FCV-77-9]** and **[1-FCV-77-10]** RCDT pump outlet isolation valves are **OPEN**. _____

[5] **ENSURE [1-HS-77-6A]** for RCDT pump B is in the **PULL-P-AUTO** position. _____

[6] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[7] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] OPENS. _____

[8] **ENSURE** RCDT pump B **STARTS**. _____

Date_____

8.2 Reducing PRT Level Using B RCDT Pump (Continued)

[11] **IF** returning from Appendix C, **THEN**

PERFORM the following:

[a] **PLACE [1-HS-77-6A]** RCDT pump B in **PULL-P-AUTO** position. _____

[b] **OPEN [1-FCV-68-310]**. _____

[12] **WHEN** PRT reaches desired level, **THEN**

STOP 'B' RCDT pump. _____

[13] **CLOSE [1-FCV-68-310]**. _____ 1st _____ IV

[14] **PLACE [1-HS-77-6A]** RCDT pump 'B' in **PULL-P-AUTO** position at 0-L-2 panel. _____ 1st _____ IV

[15] **CLOSE [1-FCV-68-305]** Nitrogen Supply to PRT. _____ 1st _____ IV

END OF TEXT

Date_____

8.3 Reducing PRT Level Using A RCDT Pump

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT pump A operates automatically with 1-LCV-77-415 from the RCDT only.

[1] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

[2] **IF** RCDT level > 20%, **THEN**

PUMP down RCDT level in accordance with Appendix C of this Instruction. _____

NOTE Communications will have to be established between MCR, Radwaste (0-L-2), and switchgear for "A" RCDT pump.

[3] **STATION** an AUO at panel 0-L-2. _____

[4] **STATION** an AUO at Switchgear for "A" RCDT pump. _____

[5] **ENSURE [1-FCV-77-9]** and **[1-FCV-77-10]** RCDT pump outlet isolation valves are OPEN. _____

[6] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[7] **PLACE [1-HS-77-6A]** RCDT Pump B in **PULL-TO-LOCK**. _____

[8] **PLACE** transfer switch XS-77-4 on 1A-A Reactor Vent Board compartment 2C to **AUX** position. _____

[9] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] OPENS. _____

Date_____

8.3 Reducing PRT Level Using A RCDT Pump (Continued)

[10] **PLACE [1-HS-77-4D]** RCDT Pump A, in the **START** position (at switchgear). _____

[11] **IF** PRT pressure drops < 1.5 psig, **THEN**

STOP RCDT pump A. _____

[12] **WHEN** PRT pressure returns to normal, **THEN**

PLACE [1-HS-77-4D] RCDT pump A to the **START** position (at switchgear). _____

CAUTION **The RCDT level is to be maintained < 50% while 1-FCV-68-310 is open to prevent inadvertent opening of 1-LCV-77-415 which could cause overfilling of RCDT from PRT.**

[13] **IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**

PERFORM the following before continuing the PRT level reduction:

[a] **PLACE [1-HS-77-4D]** RCDT pump A in the **STOP** position. _____

[b] **CLOSE [1-FCV-68-310]**. _____

[c] **OPEN [1-LCV-77-415]**. _____

[d] **START** RCDT pump "A" with 1-HS-77-4D, _____

AND

REDUCE RCDT level to approximately 20%. _____

[e] **WHEN** RCDT level is approximately 20%,

THEN

STOP RCDT pump "A" with 1-HS-77-4D. _____

[f] **ENSURE [1-LCV-77-415]** closed. _____

Date_____

8.3 Reducing PRT Level Using A RCDT Pump (Continued)

[14] **IF** resuming PRT level reduction, **THEN**

PERFORM the following:

[a] **OPEN [1-FCV-68-310]**. _____

[b] **PLACE [1-HS-77-4D]** RCDT pump A in **START**. _____

[15] **WHEN** PRT reaches desired level, **THEN**

[a] **STOP** RCDT pump A _____

[b] – **PLACE** in **PULL-P-AUTO** _____ 1st _____ IV

[16] **CLOSE [1-FCV-68-310]**. _____ 1st _____ IV

[17] **PLACE** transfer switch XS-77-4 to **NORMAL** position, _____ 1st _____ IV

AND

VERIFY wire seal reinstalled. _____ 1st _____ IV

[18] **IF** desired, **THEN**

PLACE [1-HS-77-6A] RCDT Pump B in **PULL-P-AUTO**. _____ 1st _____ IV

[19] **CLOSE [1-FCV-68-305]** Nitrogen Supply to PRT. _____ 1st _____ IV

END OF TEXT

Date_____

NOTE May need an extra copy of this Instruction.

8.4 Reducing the Temperature of the PRT

[1] **ENSURE [1-FCV-81-12] OPEN.** _____

[2] **OPEN [1-FCV-68-303]** by placing **[1-HS-68-303A]** to **OPEN** position. _____

[3] **IF** PRT level increases to ≥ 88% or PRT temperature decreases ≤ 120°F, **THEN**

CLOSE [1-FCV-68-303] . _____ _____
1st IV

[4] **IF** PRT level is ≥ 88%, **THEN**

GO TO section 8.2 or 8.3 of this Instruction, **AND**

RETURN to step **[1]** of this section if further temperature reduction is needed. _____

END OF TEXT

Date_____

8.5 Increasing the Pressure of the PRT

[1] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[2] **WHEN [1-PI-68-301]** is between 3 to 6 psig, **THEN**

CLOSE [1-FCV-68-305] Nitrogen Supply to PRT. _____ _____
1st IV

END OF TEXT

Date_____

8.6 Reducing the Pressure of the PRT

[1] **STATION** AUO at panel 0-L-2 to monitor vent header pressure and start Waste Gas Compressor (WGC) if necessary. _____

[2] **OPEN [1-PCV-68-301]**. _____

[3] **WHEN [1-PI-68-301]** is between 3 to 6 psig, **THEN**

CLOSE [1-PCV-68-301]. _____ _____
1st IV

NOTE: Step **[4]** may be repeated if it is suspected that water remains in waste gas vent header and additional venting is necessary.

[4] **IF** the PRT pressure will not drop while venting or water is suspected to be in waste gas vent header, **THEN**

PERFORM the following:

[a] **NOTIFY** U-1 and U-2 SRO that vent header is about to be vented and to monitor AB area radiation monitors and 0-RM-90-101, AB vent monitor. ☐

[b] **OPEN [0-LCV-77-403],** Loop Dr LCV (653' U1 pipe chase), for 15 seconds, **THEN CLOSE**. _____

[c] **OPEN [0-LCV-77-404],** Loop Dr LCV (653' U1 pipe chase), for 15 seconds, **THEN CLOSE**. _____

[d] **OPEN [0-LCV-77-405]**, Loop Dr LCV (669' U2 pipe chase) for 15 seconds, **THEN CLOSE**. _____

END OF TEXT

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS)

CAUTION **Completely draining PRT may result in gas binding RCDT pumps.**

[1] **OBTAIN** permission from US to drain PRT to RBF & EDS. _____

[2] **ENSURE** the following RCDT control switches in the **PULL-TO-LOCK** position:

A. **[1-HS-77-4A]** RCDT PUMP 1A. _____

B. **[1-HS-77-6A]** RCDT PUMP 1B. _____

[3] **PLACE [1-HS-77-415]** RCDT pump suction in the **CLOSE** position **AND**

ENSURE [1-LCV-77-415] remains **CLOSED**.
(switch is spring return to auto) _____

[4] **IF** both of the following conditions exist:

- Pressurizer PORVs OPEN,
- RCS is vented to atmosphere,

THEN
MARK Steps **[5]** and **[6]** as N/A. _____

NOTE: If Step **[4]** is N/A, then either Step **[5]** or Step **[6]** must be performed to prevent drawing a vacuum in PRT while draining.

[5] **IF** all of the following conditions exist:

- Pressurizer PORVs are CLOSED,
- PRT is NOT vented to atmosphere,
- It is desired to use Nitrogen as cover gas,

THEN
OPEN [1-FCV-68-305] Nitrogen Supply to PRT. _____

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS) (Continued)

[6] **IF** all of the following conditions exist:

- PRT has been purged and vented to atmosphere,
- PRT manual vent to be used as a vent path,
- 1-68-573 flange is removed,

THEN
ENSURE [1-68-573] PRT Manual Vent OPEN. _____

[7] **OPEN [1-FCV-68-310]** PRT to RCDT suction header. _____

[8] **OPEN [1-FCV-77-3]** RCDT to RBF & EDS. _____

[9] **IF** high level alarm Illuminates on RCDT during this operation, **THEN**

[a] **CLOSE [1-FCV-68-310]** _____

AND

DRAIN RCDT to ~20% level. _____

[b] **WHEN** RCDT level is in the normal range, **THEN**
ENSURE [1-LCV-77-415] is **CLOSED** _____
AND
OPEN [1-FCV-68-310] to resume PRT draining. _____

[10] **WHEN** it is no longer desired to transfer PRT to RBF & EDS, **THEN**

CLOSE [1-FCV-77-3]. _____ _____
1st IV

[11] **CLOSE [1-FCV-68-310]**. _____ _____
1st IV

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS) (Continued)

[12] **ENSURE [1-FCV-68-305]** Nitrogen Supply to PRT is **CLOSED**.

_____ 1st _____ IV

[13] **IF** manual vent used as vent path is step **[6]**, **THEN**

ENSURE [1-68-573] PRT Manual Vent **CLOSED**.

_____ 1st _____ IV

NOTE – RCDT suction piping may be gas bound if PRT was drained completely.

[14] **IF** PRT was drained completely, **THEN**

EVALUATE need to prime the RCDT pumps using 1-SO-77-1, *Reactor Coolant Drain Tank*.

_____

[15] **ENSURE [1-HS-77-415]** RCDT pump suction in **AUTO**.

_____ 1st _____ IV

[16] **PLACE** the following control switches to the **PULL-P-AUTO** position.

A. **[1-HS-77-4A]** RCDT pump 1A.

_____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B.

_____ 1st _____ IV

END OF TEXT

Date_____

8.8 Reducing the O_2 Concentration in the PRT in Mode 5 or 6

NOTE 1 Local AUO assistance will be needed to perform this Instruction.

NOTE 2 Several copies of Appendices A and B may be needed to complete this Instruction.

NOTE 3 This Instruction can only be performed in modes 5 and 6.

NOTE 4 Step [1] may be NA'd if flange has been previously removed and hose installed.

[1] **REQUEST** Mechanical Maintenance to REMOVE blind flange from **[1-68-573]** and to INSTALL a temporary hose. _____

[2] **IF** reducing PRT oxygen concentration utilizing RCDT pump "B", **THEN**

PERFORM Appendix A to reduce the PRT O_2 concentration. _____

[3] **IF** reducing PRT oxygen concentration utilizing RCDT pump "A", **THEN**

PERFORM Appendix B to reduce the PRT O_2 concentration. _____

[4] **ENSURE [1-PCV-68-304]** PRT N2 pressure regulator maintains ~ 6.5 psig. _____

[5] **CLOSE [1-FCV-68-305]** nitrogen inlet isolation valve. _____ 1st _____ IV

[6] **ENSURE [1- FCV-68-308]** gas analyzer FCV **CLOSED**. _____ 1st _____ IV

[7] **ENSURE [1-68-573]** PRT vent is **CLOSED**. _____

[8] **REQUEST** Mechanical Maintenance to remove hose from **[1-68-573]**, **AND**

INSTALL blind flange. _____

[9] **ENSURE [1- 68-573]** PRT vent to atmosphere **CLOSED** AND Blind Flange **INSTALLED.** _____ 1st _____ IV

END OF TEXT

Date_____

8.9 Purging the PRT

CAUTION **If PRT temperature is >130°F (1-TI-68-309), this procedure can NOT be performed.**

NOTE 1 This section purges the PRT by increasing pressure to ~ 15 psig then decreasing pressure to ~ 5 psig. Number of times pressure will be increased and decreased will be determined by Chem Lab.

NOTE 2 O_2 concentration for inservice Waste Gas Decay Tank should be monitored during this process.

NOTE 3 When PRT is vented to the RCDT, pressure will increase to near PRT pressure.

NOTE 4 Two or three gas decay tanks will be required for this purge.

NOTE 5 VCT pressure must be maintained ≥ 25 psig when purging PRT.

[1] **IF** desired to raise PRT level to just below high level alarm,
THEN
PERFORM Section 8.1. _____

[2] **IF** hydrogen aligned to VCT,
THEN
ADJUST [1-PCV-62-120] VCT Hydrogen Blanket,
to maintain ≥ 25 psig. (on top of VCT room) _____

[3] **IF** Nitrogen aligned to VCT,
THEN
ADJUST [1-PCV-62-119] VCT Nitrogen Blanket,
to maintain ≥ 25 psig. (on top of VCT room) _____

[4] **ADJUST [1-PCV-68-304]** setpoint to ~ 15 psig.
(located in 690 pipe chase northeast corner) _____

NOTE 1-XA-55-5A window D1 is an expected alarm when this process increases pressure > 8 psig.

[5] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[6] **WHEN [1-PI-68-301]** is ~ 15 psig, **THEN**

CLOSE [1-FCV-68-305] Nitrogen Supply to PRT. _____

Date_____

8.9 Purging the PRT (Continued)

[7] **STATION** AUO at panel 0-L-2 to **MONITOR** Vent Header pressure ☐.

NOTE 1-XA-55-5B window A2, B2, C2, & D2 are expected alarm when PRT is vented to the vent header due to increased pressure on RCDT.

[8] **OPERATE** Waste Gas Compressor as necessary. ☐

[9] **OPEN [1-PCV-68-301]**, PRT Vent header PCV. _____

[10] **WHEN [1-PI-68-301]** is ~ 5 psig, **THEN**
CLOSE [1-PCV-68-301], PRT Vent header PCV. _____

[11] **REPEAT** steps **[5]** thru **[10]** as directed by Chem Lab. _____

[12] **VERIFY [1-PCV-68-305] CLOSED**, Nitrogen to PRT. _____ IV

[13] **VERIFY [1-PCV-68-301] CLOSED**, PRT Vent header PCV. _____ IV

[14] **RETURN [1-PCV-68-304]** setpoint to ~ 6.5 psig
(located in 690 pipe chase northeast corner) _____ 1st _____ CV

[15] **IF** using Hydrogen, **THEN**
ADJUST [1-PCV-62-120] VCT Hydrogen Blanket,
to maintain approximately 17-20 psig. (on top of VCT room) _____

[16] **IF** using Nitrogen, **THEN**
ADJUST [1-PCV-62-119] VCT Nitrogen Blanket,
to maintain approximately 17-20 psig. (on top of VCT room) _____

[17] **NOTIFY** Chem Lab that PRT purge has been completed. _____

END OF TEXT

9.0 RECORDS

Completed copies of all sections, Appendices, and attachments shall be transmitted to the Operations Superintendent's Secretary.

APPENDIX A
Page 1 of 4
Date_____

PRT O_2 CONCENTRATION REDUCTION USING RCDT PUMP B

CAUTION **Over filling the PRT to solid water condition may result in failure of the PRT rupture disc.**

[1] **ENSURE** [1-FCV-68-305] nitrogen inlet isolation valve is **CLOSED**. _____

[2] **ENSURE** [1-PCV-68-301] PRT vent valve to vent header is **CLOSED**. _____

[3] **ENSURE** [1-68-573] PRT vent to atmosphere is **OPEN**. _____

[4] **OPEN** [1-FCV-68-303] primary water supply to PRT. _____

[5] **VERIFY** [1-LI-68-300] PRT level indicator on 1-M-4 shows increase. _____

[6] **VERIFY** PRT high level alarm comes in at ~ 88%. _____

[7] **WHEN** water level reaches 98%, as indicated on [1-LI-68-300], **THEN**

CLOSE [1-FCV-68-303]. _____ 1st _____ IV

[8] **CLOSE** [1-68-573] PRT vent to atmosphere. _____

[9] **OPEN** [1-FCV-68-305] nitrogen inlet isolation valve. _____

[10] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[11] **STATION** an AUO at panel 0-L-2. _____

[12] **ENSURE** [1-FCV-77-9] and [1-FCV-77-10] RCDT pump outlet isolation valves are **OPEN**. _____

Date_____

[13] **IF** filling and venting of RCDT suction line or pumps **IS NOT** required, **THEN**

GO TO step **[20]** and N/A steps **[14]** through **[19]**. _____

[14] **PLACE** control switches in the **PULL-TO-LOCK** position:,

A. **[1-HS-77-4A]** RCDT pump 1A. _____

B. **[1-HS-77-6A]** RCDT pump 1B. _____

NOTE Steps **[15]** through **[19]** fill and vent the RCDT pump suction header. Step **[20]** starts the O_2 concentration reduction.

[15] **PLACE [1-HS-68-310A]** in the **OPEN** position,
AND

VERIFY [1-FCV-68-310] opens. _____

NOTE Opening 1-FCV-77-3 allows suction header to be vented to Cntmt Floor & Equip. Drain Sump.

[16] **OPEN [1-FCV-77-3]** RCDT to RBF&EDS isolation. _____

[17] **WHEN** a drop in PRT level is observed, **THEN**

CLOSE [1-FCV-77-3]. _____

[18] **IF** RCDT or suction line from RCDT has been drained and is ready to be filled, **THEN**

[a] **OPEN [1-LCV-77-415]** while **MONITORING** RCDT and PRT levels. _____

[b] **WHEN** a drop in PRT level is observed and/or RCDT level increases or is at desired level, **THEN**

CLOSE [1-LCV-77-415]. _____

[19] **CLOSE [1-FCV-68-310]**. _____

Date_____

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT Pump B will Auto start when 1-FCV-68-310, PRT drain to RCDT opens.

[20] **ENSURE** control switches are in the **P-AUTO** position:

A. **[1-HS-77-4A]** RCDT pump 1A. _____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B. _____ 1st _____ IV

[21] **PLACE [1-HS-68-310A]** in the **OPEN** position,
AND

VERIFY [1-FCV-68-310] opens. _____

[22] **ENSURE** RCDT Pump B **STARTS**. _____

[23] **IF** PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] **STOP** 'B' RCDT pump at 0-L-2, _____
AND

CLOSE [1-FCV-68-310]. _____

[b] **WHEN** PRT pressure returns to normal, **THEN**

OPEN [1-FCV-68-310], _____

AND

VERIFY RCDT pump B **STARTS**. _____

Date_____

[24] **WHEN** PRT reaches desired level, **THEN**

STOP RCDT Pump B. _____

[25] **CLOSE [1-FCV-68-310]**. _____ _____
1st IV

[26] **DIRECT** Chem Lab to obtain grab sample of the PRT atmosphere for oxygen concentration. _____

[27] **IF** PRT O_2 concentration is > 2% by volume, **THEN**

RETURN to step **[1]** of this Appendix. _____

[28] **IF** PRT O_2 concentration is < 2% by volume, **THEN**

RETURN to step **[4]** Section 8.8 of this Instruction. _____

END OF TEXT

APPENDIX B
Page 1 of 4

Date_____

PRT O_2 CONCENTRATION REDUCTION USING RCDT PUMP A

CAUTION **Over filling the PRT to solid water condition may result in failure of the PRT rupture disc.**

[1] **ENSURE** [1-FCV-68-305] nitrogen inlet isolation valve is **CLOSED**. _____

[2] **ENSURE** [1-PCV-68-301] PRT vent valve to vent header is **CLOSED**. _____

[3] **ENSURE** [1-68-573] PRT vent to atmosphere is **OPEN**. _____

[4] **OPEN** [1-FCV-68-303] primary water supply to PRT. _____

[5] **VERIFY** [1-LI-68-300] PRT level indicator on 1-M-4 shows increase. _____

[6] **VERIFY** PRT high level alarm comes in at ~ 88%. _____

[7] **WHEN** water level reaches 98%, as indicated on [1-LI-68-300], **THEN**

CLOSE [1-FCV-68-303]. _____ _____
1st IV

[8] **CLOSE** [1-68-573] PRT vent to atmosphere. _____

[9] **OPEN** [1-FCV-68-305] nitrogen inlet isolation valve. _____

[10] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[11] **STATION** an AUO at panel 0-L-2. _____

[12] **ENSURE** [1-FCV-77-9] and [1-FCV-77-10] RCDT pump outlet isolation valves are **OPEN**. _____

Date_____

[13] **IF** filling and venting of RCDT suction line or pumps **IS NOT** required, **THEN**

GO TO step **[20]** and N/A steps **[14]** through **[19]**. _____

[14] **PLACE** control switches in the **PULL-TO-LOCK** position:,

A. **[1-HS-77-4A]** RCDT pump 1A. _____

B. **[1-HS-77-6A]** RCDT pump 1B. _____

NOTE Steps **[15]** through **[19]** fill and vent the RCDT pump suction header. Step **[20]** starts the O_2 concentration reduction.

[15] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] opens. _____

NOTE Opening 1-FCV-77-3 allows suction header to be vented to Cntmt Floor & Equip. Drain Sump.

[16] **OPEN [1-FCV-77-3]** RCDT to RBF&EDS isolation. _____

[17] **WHEN** a drop in PRT level is observed, **THEN**

CLOSE [1-FCV-77-3]. _____

[18] **IF** RCDT or suction line from RCDT has been drained and is ready to be filled, **THEN**

[a] **OPEN [1-LCV-77-415]** while **MONITORING** RCDT and PRT levels. _____

[b] **WHEN** a drop in PRT level is observed and/or RCDT level increases or is at desired level, **THEN**

CLOSE [1-LCV-77-415]. _____

Date_____

[19] CLOSE [1-FCV-68-310]. _____

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT Pump A operates automatically with 1-FCV-77-415 from the RCDT only.

[20] ENSURE [1-HS-77-6] RCDT Pump B in **PULL-TO-LOCK**. _____

[21] PLACE [1-HS-68-310A] in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] opens. _____

[22] START RCDT PUMP 'A' by placing **[1-HS-77-4A]** in the **START** position. _____

[23] IF PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] STOP 'A' RCDT Pump at 0-L-2. _____

[b] WHEN PRT pressure returns to normal, **THEN**

START RCDT PUMP 'A' by placing **[1-HS-77-4A]** in the **START** position. _____

[24] WHEN PRT reaches desired level, **THEN**

STOP RCDT Pump A. _____

[25] CLOSE [1-FCV-68-310] _____ 1st _____ IV

Date_____

[26] **DIRECT** Chem Lab to obtain sample of the PRT atmosphere for oxygen concentration. _____

[27] **ENSURE** control switches are in the **P-AUTO** position:

A. **[1-HS-77-4A]** RCDT pump 1A. _____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B. _____ 1st _____ IV

[28] **IF** PRT O_2 concentration is > 2% by volume, **THEN**

RETURN to step **[1]** of this Appendix. _____

[29] **IF** PRT O_2 concentration is < 2% by volume, **THEN**

RETURN to step **[4]** Section 8.8 of this Instruction. _____

END OF TEXT

APPENDIX C
Page 1 of 1

Date_____

REDUCING LEVEL IN RCDT

[1] **ENSURE** [1-LCV-77-415] RCDT pump suction **OPEN**. _____

[2] **START** RCDT pump A or B by placing [1-HS-77-4A] or [1-HS-77-6A] in **START**. _____

[3] **WHEN** RCDT level is approximately 20%, **THEN**

STOP the running RCDT pump. _____

[4] **ENSURE** [1-LCV-77-415] RCDT pump suction **CLOSED**. _____

END OF TEXT

SOURCE NOTES
Page 1 of 1

REQUIREMENTS STATEMENT	SOURCE DOCUMENT	IMPLEMENTING STATEMENT
Procedures that do not contain appropriate verification requirements will be revised. (This item is not annotated within the procedure since the entire procedure must meet the verification program requirements.	NCO 970071001	C.1

Date_____

8.2 Reducing PRT Level Using B RCDT Pump (Continued)

[9] **IF** PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] **STOP** 'B' RCDT pump at 0-L-2, **AND**

CLOSE [1-FCV-68-310]. _____

[b] **WHEN** PRT pressure returns to normal, **THEN**

OPEN [1-FCV-68-310], **AND**

VERIFY RCDT pump B **STARTS**. _____

CAUTION **The RCDT level is to be maintained < 50% while 1-FCV-68-310 is open to prevent inadvertent opening of 1-LCV-77-415 which could cause overfilling of RCDT from the PRT.**

[10] **IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**

PERFORM the following before continuing the PRT level reduction:

[a] **PLACE [1-HS-77-6A]** RCDT pump B in the **PULL-TO-LOCK** position. _____

[b] **CLOSE [1-FCV-68-310]**. _____

[c] **GO TO** Appendix C of this Instruction for RCDT level reduction and return to Step **[11]** of Section 8.2. _____

SEQUOYAH NUCLEAR PLANT
JOB PERFORMANCE MEASURE

B.1.e JPM 36

RETURN PRESSURIZER RELIEF TANK TO NORMAL

Original Signatures on File

PREPARED/ REVISED BY: _____ Date/ _____

VALIDATED BY: * _____ Date/ _____

APPROVED BY: _____ Date/ _____
(Operations Training Manager)

CONCURRED: ** _____ Date/ _____
(Operations Representative)

* Validation not required for minor enhancements, procedure Rev changes that do not affect the JPM, or individual step changes that do not affect the flow of the JPM.
** Operations Concurrence required for new JPMs and changes that affect the flow of the JPM (if not driven by a procedure revision).

NUCLEAR TRAINING

REVISION/USAGE LOG

REVISION NUMBER	DESCRIPTION OF REVISION	V	DATE	PAGES AFFECTED	PREPARED/ REVISED BY:
4	Transfer from WP. Procedure change to Rev. 4. Made a perform JPM, not a simulate JPM.	N	8/17/94	All	HJ Birch
pen/ink	Added dates to cover sheep.	N	10/26/95	1	HJ Birch
pen/ink	SO-68-5 Rev chg. Minor rewording of step 13. Add step to monitor RCDT level.	N	9/25/96	4,8	HJ Birch
pen/ink	Chgd initiating cues to direct prt drain first. To help flow thru procedures. Deleted step to reset Pri Wtr alarm. It no longer comes in.	N	1/9/97	4	HJ Birch
	SO-68-5 Rev chg	N	11/17/97	4	HJ Birch
pen/ink	SO-68-5 Rev chg. Added transition step to sect 8.2. Several step enhancements.	N	5/12/98	4-9	HJ Birch
5	Revised steps 17 and 18, added step 19 as a result of revisions to SO-68-5. Changes did not affect the flow of the JPM. Revised JA/TA task numbers. Revised K/A ratings. Reformatted critical steps.	N	9/18/98	All	JP Kearney
pen/ink	SO-68-5 Rev chg. Correct typo in Direction to trainee	N	8/21/00	4	SR Taylor
pen/ink	SO-68-5 Rev chg only no effect	N	12/13/00	4	W. R. Ramsey
6	Incorporated pen/ink changes	N	8/22/02	4	J P Kearney
Pen/ink	Updated references & IC#	N	11/17/03	2,4	T. E. Pitchford
7	Updated references. Minor format changes. Resnapped IC to allow operator to use actual simulator values.	N	3/22/07	All	R. H. Evans

V - Specify if the JPM change will require another Validation (Y or N).
See cover sheet for criteria.

SEQUOYAH NUCLEAR PLANT
RO/SRO
JOB PERFORMANCE MEASURE

Task:
Pzr Vapor Space Accident (Return PRT to Normal)

JA/TA task # : 0070040101 0070050101 0680990101 (**RO**)
0070010102 (**SRO**)

K/A Ratings:
008AA1.08 (3.8/3.8) 007K4.01 (2.6/2.9)
007A2.01 (3.9/4.2) 007A2.02 (2.6/3.2)

Task Standard:
Pressurizer Relief Tank (PRT) parameters have been returned to within normal ranges; temperature ($\leq$ 155^{o}F), pressure (1.5 - 6.5 psi), and level (~70%).

Evaluation Method : Simulator ___X_____ In-Plant _____

==========

Performer: _____
NAME Start Time _____

Performance Rating : SAT _____ UNSAT _____ Performance Time _____ Finish Time _____

==========

Evaluator: _____/_____
SIGNATURE DATE

COMMENTS

_____

_____

_____

_____

_____

_____

_____

_____

_____

SPECIAL INSTRUCTIONS TO EVALUATOR:

1. Sequenced steps identified by an "s"
2. Any UNSAT requires comments
3. Acknowledge any associated alarms.
4. Initialize the simulator in **IC-96**.
5. NOTE: This JPM has been pre-shot in **IC # 96.** Should **IC # 96** be erased or fail to perform as expected then use the following set-up instructions:
   - Initialize Simulator in IC: #16. **ACTIVATE** MF RC05 at 5% to cause PCV-68-334 to leak through.
   - Allow PORV Tailpipe temperature to increase and bring in the alarm, then close FCV-68-333. **ACTIVATE** RF RCR04 to remove power from valve.
   - Open FCV-68-303 to fill the PRT to ≈ 84% then close the valve. Ensure PRT temperature ≈135°F.
   - **(These will be deleted during the performance)**
   - Ensure FCV-81-12 is open.
6. Due to time restraints CUEs for PRT level and temperature will be given at appropriate times.

Validation Time: CR. 17 mins **Local** _____

Tools/Equipment/Procedures Needed:
1-SO-68-5 Section 8.2 & 8.4.

References:

	Reference	Title	Rev No.
1.	1-SO-68-5	Reactor Coolant System	**17**

==========

READ TO OPERATOR

Directions to Trainee:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM. I will provide initiating cues and reports on other actions when directed by you. When you complete the task successfully, the objective for this job performance measure will be satisfied. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is at 100% power, steady state. Pressurizer pressure controls in automatic.
Pressurizer sprays in automatic.
PORV PCV-68-334 is partially opened but the block valve has been closed and de-energized.
1A Rx Coolant Drain Tank pump is inoperable.
You are the Operator At the Controls

INITIATING CUES:

The Unit Supervisor has directed you to restore the PRT to normal per the appropriate SO.

Notify the Unit Supervisor when conditions in the PRT are normal.

Job Performance Checklist:

STEP/STANDARD		SAT/UNSAT
STEP 1.:	Obtain correct procedure to return PRT parameter(s) to normal.	___ SAT ___ UNSAT Start Time____
STANDARD:	Operator obtains a copy of 1-SO-68-5 Sections 8.2 & 8.4.	
COMMENTS:		
NOTE:	**The operator may choose to pump the PRT level down first, start at step 6 of the JPM in that case.**	
NOTE:	**This portion is performed using Section 8.4 of the SO.**	___ SAT ___ UNSAT
STEP 2.: **[1]**	**ENSURE [FCV-81-12] OPEN.**	
STANDARD:	Operator verifies that FCV-81-12 is open by red light on.	
COMMENTS:		
STEP 3.: **[2]**	**OPEN [1-FCV-68-303]** by placing **[1-HS-68-303A]** to **OPEN** position.	___ SAT ___ UNSAT
STANDARD:	Operator takes hand switch HS-68-303A on M-5 to OPEN. Handswitch indicates valve is open by red light "ON". **This step is critical to add primary water to the PRT for cooling.**	**Critical Step**
COMMENTS:		

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 4.: **[3]** **IF** PRT level increases to ≥ 88% or PRT temperature decreases to ≤ 120°F **THEN** **CLOSE [1-FCV-68-303]** STANDARD: Operator monitors PRT level on LI-68-300 and temperature on TI-68-309, then places FCV-68-303 in the closed position and verifies green light ON. **This step is critical to prevent overfilling the PRT.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 5.: **[4]** **IF** PRT level is ≥ 88% **THEN** **GO TO** section 8.2 or 8.3 of this instruction, AND **RETURN** to step **[1]** of this section if further temperature reduction is needed. STANDARD: Operator goes to section 8.2 (1A RCDT pump is inop) COMMENTS: **If operator has already performed section 8.2 then inform him that the JPM is complete by stating "ANOTHER OPERATOR WILL TAKE OVER THE OPERATION AT THIS POINT, THIS END THE JPM".**	___ SAT ___ UNSAT
EVALUATOR NOTE The following steps evaluate section 8.2 of this procedure. Operator will return back to section 8.4 after draining the PRT to further cool the PRT.	
STEP 6.: **[1]** **VERIFY** RCDT pumps aligned for service in accordance with valve check list 1-77-1.02. ***Cue:*** ***When AUO is contacted, state that 1B RCDT is aligned per checklist 1-77-1.02.*** STANDARD: Operator checks status log to ensure no deviations exist. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 7.: [2] **STATION** AUO at panel 0-L-2. ***Cue:*** ***Role play the Rad Waste AUO. State that you are at 0-L-2 panel and will stay here and wait on your instructions.*** STANDARD Operator ensures an AUO is stationed at 0-L-2 panel. COMMENTS:	___ SAT ___ UNSAT
STEP 8.: [3] **IF** RCDT level >20%, **THEN** **PUMP** down RCDT level in accordance with Appendix C of this Instruction. ***Cue:*** ***Role play the Rad Waste AUO. State that you are at 0-L-2 panel and the level in Unit 1 RCDT is 18%.*** STANDARD: Operator checks with an AUO at 0-L-2 panel and ensures level is < 20% COMMENTS:	___ SAT ___ UNSAT
STEP 9.: [4] **ENSURE** [1- FCV-77-9] and [1-FCV-77-10] are **OPEN**. STANDARD: Operator verifies FCV-77-9 and FCV-77-10 open on panel M-15 (red lights on handswitches ON) COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 10.: [5] **ENSURE [1-HS-77-6A]** for RCDT Pump B is in the **PULL-P-AUTO** position. ***Cue:*** ***Rad waste Operator informs UO that RCDT Pump "B" is in PULL P-AUTO.*** ***If asked, state that the level in the Unit 1 RCDT is still 18%.*** STANDARD: Operator contacts Rad Waste Operator and verifies HS-77-6A for RCDT Pump B is in P-AUTO. COMMENTS:	___ SAT ___ UNSAT
STEP 11.: [6] **OPEN [1- FCV-68-305]** Nitrogen Supply to PRT. STANDARD: Operator verifies FCV-68-305 open on panel 1 M-5 (red lights on handswitches ON). **This step is critical to align Nitrogen to the PRT.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 12.: [7] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND** **VERIFY [1-FCV-68-310] OPENS** ***Cue:*** ***If operator contacts the Rad Waste operator, then state to the operator the B RCDT pump has started.*** STANDARD: Operator ensures FCV-68-310 open on panel 1-M-5, red light. **This step is critical to drain the PRT to normal level.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 13.: **[8] ENSURE** RCDT Pump B **STARTS**. ***Cue:*** ***RCDT pump B is running.*** STANDARD: Operator checks with Rad Waste AUO to ensure RCDT pump B starts. COMMENTS:	___ SAT ___ UNSAT
STEP 14.: **[9] IF** PRT pressure drops < 1.5 psig, **THEN**... STANDARD: Operator monitors PRT pressure with PI-68-301 on 1-M-5 and closes FCV-68-310A if pressure drops to <1.5 psig. COMMENTS:	___ SAT ___ UNSAT
STEP 15.: **[10] IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**.. ***Cue:*** ***When AUO contacted, State: I will monitor RCDT level, Stop RCDT pump and notify you to close FCV-68-310 if RCDT approaches 50%.*** STANDARD: Operator notifies AUO of this step. COMMENTS:	___ SAT ___ UNSAT

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 16.: **[11] IF** returning from Appendix C, **THEN** STANDARD: Operator N/A's step. COMMENTS:	___ SAT ___ UNSAT
STEP 17.: **[12] WHEN** PRT level reaches desired level, **THEN** **STOP** "B" RCDT. ***Cue:*** ***When the operator begins to monitor level on LI-68-300, tell the operator that "PRT level has decreased to 70%".*** ***Cue:*** ***When operator requests AUO to stop RCDT pump 1B, Tell him "RCDT pump 1B is stopped and HS is in Pull-P-Auto".*** STANDARD: Operator verifies level, and has the Rad Waste Operator STOP RCDT Pump 1B and place HS in Pull-P-Auto. **This step is critical to prevent pumping down PRT to below normal level of 70%. (maintained between 55 and 88%).** COMMENTS:	___ SAT ___ UNSAT **Critical Step**
STEP 18.: **[13] CLOSE [1-FCV-68-310]**. STANDARD: Operator closes with HS-68-310A and verifies closed on panel 1-M-5 (green lights on handswitches ON). **This step is critical to return system to normal alignment.** COMMENTS:	___ SAT ___ UNSAT **Critical Step**

Job Performance Checklist:

STEP/STANDARD	SAT/UNSAT
STEP 19.: **[14] PLACE [1-HS-77-6A]** RCDT pump B in **PULL-P-AUTO** position at 0-L-2 panel. ***CUE:*** ***When operator requests AUO to place the HS for RCDT pump 1B, Tell him "RCDT pump 1B HS is in Pull-P-Auto".*** STANDARD: Operator has the Rad Waste Operator place HS in Pull-P-Auto. COMMENTS:	___ SAT ___ UNSAT
STEP 20.: **[15] CLOSE [1-FCV-68-305].** STANDARD: Operator closes with HS-68-305A and verifies closed on panel 1-M-5 (green lights on handswitches ON). COMMENTS: **NOTE:** **If operator performed section 8.2 first, then return to step 1 of the JPM to evaluate section 8.4 to cool the PRT.** **If operator has already performed section 8.4 then inform him that the JPM is complete by stating "ANOTHER OPERATOR WILL TAKE OVER THE OPERATION AT THIS POINT, THIS END THE JPM".**	___ SAT ___ UNSAT

End of JPM

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is at 100% power, steady state. Pressurizer pressure controls in automatic.

Pressurizer sprays in automatic.

PORV PCV-68-334 is partially opened but the block valve has been closed and de-energized.

1A Rx Coolant Drain Tank pump is inoperable.

You are the Operator At the Controls

INITIATING CUES:

The Unit Supervisor has directed you to restore the PRT to normal per the appropriate SO.

Notify the Unit Supervisor when conditions in the PRT are normal.

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

SYSTEM OPERATING INSTRUCTION

1-SO-68-5

PRESSURIZER RELIEF TANK

Revision **17**

QUALITY RELATED

PREPARED/PROOFREAD BY: JUDY VARNER

RESPONSIBLE ORGANIZATION: OPERATIONS

APPROVED BY: D. A. PORTER

EFFECTIVE DATE: 05/09/2006

LEVEL OF USE: **CONTINUOUS USE**

REVISION

DESCRIPTION: Revised to incorporate PCF 007. Added steps in section 8.9 to allow purging PRT with either Hydrogen or Nitrogen on VCT.

TABLE OF CONTENTS

Page 1 of 2

TABLE OF CONTENTS

Page 2 of 2

1.0 INTRODUCTION

1.1 Purpose

To provide instructions for the operation of the Pressurizer Relief Tank (PRT).

1.2 Scope

A. Placing the PRT in service.

B. Increasing the PRT level.

C. Decreasing the PRT level.

D. Reducing the temperature of the PRT.

E. Increasing the pressure of the PRT.

F. Reducing the pressure of the PRT.

G. Gravity draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS).

H. Reducing the O_2 Concentration in the PRT in Mode 5 or 6.

I. Purging the PRT in Modes 1 thru 4.

2.0 REFERENCES

2.1 Performance References

None

2.2 Developmental References

A. SOI-68.1, *Reactor Coolant System*

B. 0-MI-MXX-068-006.0, *Venting of Pressurizer, Pressurizer Relief Tank, and Reactor Head*

C. SPP-10.3, *Verification Program*

D. TVA Drawing
   1. 47W813-1
   2. 47W819-1
   3. 47W830-1
   4. 47W830-6

E. FSAR
   1. Section 5.5

3.0 PRECAUTIONS AND LIMITATIONS

A. During normal operation, PRT water temperature should not exceed 120°F.

B. Maintaining 3 to 6 psig N_2 gas blanket on the PRT will prevent the formation of explosive hydrogen-oxygen mixtures.

C. The PRT concentration of oxygen shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

D. Over filling the PRT to solid water condition during oxygen reduction per Section 8.8 may result in failure of the PRT rupture disc.

E. The PRT pressure should be maintained < 7.5 psig during normal operation. (Except during the performance of section 8.9).

F. The PRT rupture discs are rated at 85 psig.

G. The level in the PRT should be maintained at 70%. If the level increases to 88%, then decreasing level to 70% is necessary. If the level decreases to 55%, then increasing level to 70% is needed when the PRT is required to be operable.

H. Completely draining the PRT may result in gas binding the RCDT pumps.

I. Water intrusion into the waste gas vent header is possible during PRT venting operations with PRT level high. This could affect RCP seal leakoff flows and the vent capability of tanks which vent to waste gas vent header.

J. PRT level indications or alarms are not available in the Aux Control Room, thus PRT level manipulations and feed & bleed processes are unavailable.

Date_____

4.0 PREREQUISITE ACTIONS

NOTE Throughout this Instruction, where an **IF/THEN** statement exists, the step should be **N/A** if condition does not exist.

[1] **ENSURE** Instruction to be used is a copy of the effective version. _____

[2] **ENSURE** Precautions and Limitations, Section 3.0 have been reviewed. _____

[3] **ENSURE** Attachment 1, Power Checklist 1-68-5.01 is complete. _____

[4] **ENSURE** Attachment 2, Valve Checklist 1-68-5.02 is complete. _____

[5] **VERIFY** primary water is available to fill and cool the PRT (N/A if primary water will not be used). _____

[6] **VERIFY** Waste Disposal System is available to receive liquid from PRT. _____

[7] **VERIFY** vent header in service to receive gases from the PRT (N/A if PRT will not be vented to vent header). _____

[8] **VERIFY** low pressure N_2 system is in service (N/A if nitrogen will not be used). _____

[9] **ENSURE** each performer documents their name and initials:

Print Name	Initials

[10] **INDICATE** below which performance section of this Instruction will be used and the reason for this performance:

☐ 5.0 STARTUP/STANDBY READINESS

☐ 8.0 INFREQUENT OPERATION

REASON: _____

Date_____

5.0 STARTUP/STANDBY READINESS

[1] **VERIFY** PRT has normal operating level of ~ 70%. _____

[2] **IF** PRT level needs adjusting, **THEN**

REFER TO Section 8.1, 8.2, or 8.3, **AND**

ADJUST level as necessary. _____

[3] **IF** PRT pressure needs adjusting, **THEN**

REFER TO Section 8.5 or 8.6, **AND**

ADJUST pressure as necessary. _____

END OF TEXT

6.0 NORMAL OPERATION

None.

7.0 SHUTDOWN

None.

Date_____

8.0 INFREQUENT OPERATION

8.1 Increasing PRT Level

[1] **ENSURE** a primary water pump is running. _____

[2] **ENSURE** [1-FCV-81-12] primary water containment isolation valve is **OPEN**. _____

[3] **OPEN** [1-FCV-68-303] PRT makeup valve. _____

[4] **MAINTAIN** PRT pressure between 3 and 6 psig by operating [1-PCV-301] PRT vent valve. _____

NOTE Normal PRT level is approximately 70%.

[5] **WHEN** PRT level increases to desired level (not to exceed 88%), **THEN**

CLOSE [1-FCV-68-303]. _____ 1st _____ IV

[6] **ENSURE** [1-PCV-68-301] PRT vent valve **CLOSED**. _____ 1st _____ IV

END OF TEXT

Date_____

8.2 Reducing PRT Level Using B RCDT Pump

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1B will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT pump B will Auto start when 1-FCV-68-310, PRT drain to RCDT opens.

[1] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE – An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[2] **STATION** an AUO at panel 0-L-2. _____

[3] **IF** RCDT level > 20%, **THEN**

PUMP down RCDT level in accordance with Appendix C of this Instruction. _____

[4] **ENSURE [1-FCV-77-9]** and **[1-FCV-77-10]** RCDT pump outlet isolation valves are **OPEN**. _____

[5] **ENSURE [1-HS-77-6A]** for RCDT pump B is in the **PULL-P-AUTO** position. _____

[6] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[7] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] OPENS. _____

[8] **ENSURE** RCDT pump B **STARTS**. _____

Date_____

8.2 Reducing PRT Level Using B RCDT Pump (Continued)

[11] **IF** returning from Appendix C, **THEN**

PERFORM the following:

[a] **PLACE [1-HS-77-6A]** RCDT pump B in **PULL-P-AUTO** position. _____

[b] **OPEN [1-FCV-68-310]**. _____

[12] **WHEN** PRT reaches desired level, **THEN**

STOP 'B' RCDT pump. _____

[13] **CLOSE [1-FCV-68-310]**. _____ 1st _____ IV

[14] **PLACE [1-HS-77-6A]** RCDT pump 'B' in **PULL-P-AUTO** position at 0-L-2 panel. _____ 1st _____ IV

[15] **CLOSE [1-FCV-68-305]** Nitrogen Supply to PRT. _____ 1st _____ IV

END OF TEXT

Date_____

8.3 Reducing PRT Level Using A RCDT Pump

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT pump A operates automatically with 1-LCV-77-415 from the RCDT only.

[1] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

[2] **IF** RCDT level > 20%, **THEN**

PUMP down RCDT level in accordance with Appendix C of this Instruction. _____

NOTE Communications will have to be established between MCR, Radwaste (0-L-2), and switchgear for "A" RCDT pump.

[3] **STATION** an AUO at panel 0-L-2. _____

[4] **STATION** an AUO at Switchgear for "A" RCDT pump. _____

[5] **ENSURE [1-FCV-77-9]** and **[1-FCV-77-10]** RCDT pump outlet isolation valves are OPEN. _____

[6] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[7] **PLACE [1-HS-77-6A]** RCDT Pump B in **PULL-TO-LOCK**. _____

[8] **PLACE** transfer switch XS-77-4 on 1A-A Reactor Vent Board compartment 2C to **AUX** position. _____

[9] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] OPENS. _____

Date_____

8.3 Reducing PRT Level Using A RCDT Pump (Continued)

[10] **PLACE [1-HS-77-4D]** RCDT Pump A, in the **START** position (at switchgear). _____

[11] **IF** PRT pressure drops < 1.5 psig, **THEN**

STOP RCDT pump A. _____

[12] **WHEN** PRT pressure returns to normal, **THEN**

PLACE [1-HS-77-4D] RCDT pump A to the **START** position (at switchgear). _____

CAUTION **The RCDT level is to be maintained < 50% while 1-FCV-68-310 is open to prevent inadvertent opening of 1-LCV-77-415 which could cause overfilling of RCDT from PRT.**

[13] **IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**

PERFORM the following before continuing the PRT level reduction:

[a] **PLACE [1-HS-77-4D]** RCDT pump A in the **STOP** position. _____

[b] **CLOSE [1-FCV-68-310]**. _____

[c] **OPEN [1-LCV-77-415]**. _____

[d] **START** RCDT pump "A" with 1-HS-77-4D, _____

AND

REDUCE RCDT level to approximately 20%. _____

[e] **WHEN** RCDT level is approximately 20%,

THEN

STOP RCDT pump "A" with 1-HS-77-4D. _____

[f] **ENSURE [1-LCV-77-415]** closed. _____

Date_____

8.3 Reducing PRT Level Using A RCDT Pump (Continued)

[14] **IF** resuming PRT level reduction, **THEN**

PERFORM the following:

[a] **OPEN [1-FCV-68-310]**. _____

[b] **PLACE [1-HS-77-4D]** RCDT pump A in **START**. _____

[15] **WHEN** PRT reaches desired level, **THEN**

[a] **STOP** RCDT pump A _____

[b] – **PLACE** in **PULL-P-AUTO** _____ 1st _____ IV

[16] **CLOSE [1-FCV-68-310]**. _____ 1st _____ IV

[17] **PLACE** transfer switch XS-77-4 to **NORMAL** position, _____ 1st _____ IV

AND

VERIFY wire seal reinstalled. _____ 1st _____ IV

[18] **IF** desired, **THEN**

PLACE [1-HS-77-6A] RCDT Pump B in **PULL-P-AUTO**. _____ 1st _____ IV

[19] **CLOSE [1-FCV-68-305]** Nitrogen Supply to PRT. _____ 1st _____ IV

END OF TEXT

Date_____

NOTE May need an extra copy of this Instruction.

8.4 Reducing the Temperature of the PRT

[1] **ENSURE [1-FCV-81-12] OPEN.** _____

[2] **OPEN [1-FCV-68-303]** by placing **[1-HS-68-303A]** to **OPEN** position. _____

[3] **IF** PRT level increases to ≥ 88% or PRT temperature decreases ≤ 120°F, **THEN**

CLOSE [1-FCV-68-303] . _____ _____
1st IV

[4] **IF** PRT level is ≥ 88%, **THEN**

GO TO section 8.2 or 8.3 of this Instruction, **AND**

RETURN to step **[1]** of this section if further temperature reduction is needed. _____

END OF TEXT

Date_____

8.5 Increasing the Pressure of the PRT

[1] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[2] **WHEN [1-PI-68-301]** is between 3 to 6 psig, **THEN**

CLOSE [1-FCV-68-305] Nitrogen Supply to PRT. _____ _____
1st IV

END OF TEXT

Date_____

8.6 Reducing the Pressure of the PRT

[1] **STATION** AUO at panel 0-L-2 to monitor vent header pressure and start Waste Gas Compressor (WGC) if necessary. _____

[2] **OPEN [1-PCV-68-301]**. _____

[3] **WHEN [1-PI-68-301]** is between 3 to 6 psig, **THEN**

CLOSE [1-PCV-68-301]. _____ _____
1st IV

NOTE: Step **[4]** may be repeated if it is suspected that water remains in waste gas vent header and additional venting is necessary.

[4] **IF** the PRT pressure will not drop while venting or water is suspected to be in waste gas vent header, **THEN**

PERFORM the following:

[a] **NOTIFY** U-1 and U-2 SRO that vent header is about to be vented and to monitor AB area radiation monitors and 0-RM-90-101, AB vent monitor. ☐

[b] **OPEN [0-LCV-77-403],** Loop Dr LCV (653' U1 pipe chase), for 15 seconds, **THEN CLOSE**. _____

[c] **OPEN [0-LCV-77-404],** Loop Dr LCV (653' U1 pipe chase), for 15 seconds, **THEN CLOSE**. _____

[d] **OPEN [0-LCV-77-405]**, Loop Dr LCV (669' U2 pipe chase) for 15 seconds, **THEN CLOSE**. _____

END OF TEXT

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS)

CAUTION **Completely draining PRT may result in gas binding RCDT pumps.**

[1] **OBTAIN** permission from US to drain PRT to RBF & EDS. _____

[2] **ENSURE** the following RCDT control switches in the **PULL-TO-LOCK** position:

A. **[1-HS-77-4A]** RCDT PUMP 1A. _____

B. **[1-HS-77-6A]** RCDT PUMP 1B. _____

[3] **PLACE [1-HS-77-415]** RCDT pump suction in the **CLOSE** position **AND**

ENSURE [1-LCV-77-415] remains **CLOSED**.
(switch is spring return to auto) _____

[4] **IF** both of the following conditions exist:

- Pressurizer PORVs OPEN,
- RCS is vented to atmosphere,

THEN
MARK Steps **[5]** and **[6]** as N/A. _____

NOTE: If Step **[4]** is N/A, then either Step **[5]** or Step **[6]** must be performed to prevent drawing a vacuum in PRT while draining.

[5] **IF** all of the following conditions exist:

- Pressurizer PORVs are CLOSED,
- PRT is NOT vented to atmosphere,
- It is desired to use Nitrogen as cover gas,

THEN
OPEN [1-FCV-68-305] Nitrogen Supply to PRT. _____

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS) (Continued)

[6] **IF** all of the following conditions exist:

- PRT has been purged and vented to atmosphere,
- PRT manual vent to be used as a vent path,
- 1-68-573 flange is removed,

THEN
ENSURE [1-68-573] PRT Manual Vent OPEN. _____

[7] **OPEN [1-FCV-68-310]** PRT to RCDT suction header. _____

[8] **OPEN [1-FCV-77-3]** RCDT to RBF & EDS. _____

[9] **IF** high level alarm Illuminates on RCDT during this operation, **THEN**

[a] **CLOSE [1-FCV-68-310]** _____

AND

DRAIN RCDT to ~20% level. _____

[b] **WHEN** RCDT level is in the normal range, **THEN**
ENSURE [1-LCV-77-415] is **CLOSED** _____
AND
OPEN [1-FCV-68-310] to resume PRT draining. _____

[10] **WHEN** it is no longer desired to transfer PRT to RBF & EDS, **THEN**

CLOSE [1-FCV-77-3]. _____ _____
1st IV

[11] **CLOSE [1-FCV-68-310]**. _____ _____
1st IV

Date_____

8.7 Gravity Draining PRT to the Containment Floor and Equipment Drain Sump (RBF & EDS) (Continued)

[12] **ENSURE [1-FCV-68-305]** Nitrogen Supply to PRT is **CLOSED**.

_____ 1st _____ IV

[13] **IF** manual vent used as vent path is step **[6]**, **THEN**

ENSURE [1-68-573] PRT Manual Vent **CLOSED**.

_____ 1st _____ IV

NOTE – RCDT suction piping may be gas bound if PRT was drained completely.

[14] **IF** PRT was drained completely, **THEN**

EVALUATE need to prime the RCDT pumps using 1-SO-77-1, *Reactor Coolant Drain Tank*.

_____

[15] **ENSURE [1-HS-77-415]** RCDT pump suction in **AUTO**.

_____ 1st _____ IV

[16] **PLACE** the following control switches to the **PULL-P-AUTO** position.

A. **[1-HS-77-4A]** RCDT pump 1A.

_____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B.

_____ 1st _____ IV

END OF TEXT

Date_____

8.8 Reducing the O_2 Concentration in the PRT in Mode 5 or 6

NOTE 1 Local AUO assistance will be needed to perform this Instruction.

NOTE 2 Several copies of Appendices A and B may be needed to complete this Instruction.

NOTE 3 This Instruction can only be performed in modes 5 and 6.

NOTE 4 Step [1] may be NA'd if flange has been previously removed and hose installed.

[1] **REQUEST** Mechanical Maintenance to REMOVE blind flange from **[1-68-573]** and to INSTALL a temporary hose. _____

[2] **IF** reducing PRT oxygen concentration utilizing RCDT pump "B", **THEN**

PERFORM Appendix A to reduce the PRT O_2 concentration. _____

[3] **IF** reducing PRT oxygen concentration utilizing RCDT pump "A", **THEN**

PERFORM Appendix B to reduce the PRT O_2 concentration. _____

[4] **ENSURE [1-PCV-68-304]** PRT N2 pressure regulator maintains ~ 6.5 psig. _____

[5] **CLOSE [1-FCV-68-305]** nitrogen inlet isolation valve. _____ 1st _____ IV

[6] **ENSURE [1- FCV-68-308]** gas analyzer FCV **CLOSED**. _____ 1st _____ IV

[7] **ENSURE [1-68-573]** PRT vent is **CLOSED**. _____

[8] **REQUEST** Mechanical Maintenance to remove hose from **[1-68-573]**, **AND**

INSTALL blind flange. _____

[9] **ENSURE [1- 68-573]** PRT vent to atmosphere **CLOSED** AND Blind Flange **INSTALLED.** _____ 1st _____ IV

END OF TEXT

Date_____

8.9 Purging the PRT

CAUTION **If PRT temperature is >130°F (1-TI-68-309), this procedure can NOT be performed.**

NOTE 1 This section purges the PRT by increasing pressure to ~ 15 psig then decreasing pressure to ~ 5 psig. Number of times pressure will be increased and decreased will be determined by Chem Lab.

NOTE 2 O_2 concentration for inservice Waste Gas Decay Tank should be monitored during this process.

NOTE 3 When PRT is vented to the RCDT, pressure will increase to near PRT pressure.

NOTE 4 Two or three gas decay tanks will be required for this purge.

NOTE 5 VCT pressure must be maintained ≥ 25 psig when purging PRT.

[1] **IF** desired to raise PRT level to just below high level alarm,
THEN
PERFORM Section 8.1. _____

[2] **IF** hydrogen aligned to VCT,
THEN
ADJUST [1-PCV-62-120] VCT Hydrogen Blanket,
to maintain ≥ 25 psig. (on top of VCT room) _____

[3] **IF** Nitrogen aligned to VCT,
THEN
ADJUST [1-PCV-62-119] VCT Nitrogen Blanket,
to maintain ≥ 25 psig. (on top of VCT room) _____

[4] **ADJUST [1-PCV-68-304]** setpoint to ~ 15 psig.
(located in 690 pipe chase northeast corner) _____

NOTE 1-XA-55-5A window D1 is an expected alarm when this process increases pressure > 8 psig.

[5] **OPEN [1-FCV-68-305]** Nitrogen Supply to PRT. _____

[6] **WHEN [1-PI-68-301]** is ~ 15 psig, **THEN**

CLOSE [1-FCV-68-305] Nitrogen Supply to PRT. _____

Date_____

8.9 Purging the PRT (Continued)

[7] **STATION** AUO at panel 0-L-2 to **MONITOR** Vent Header pressure ☐.

NOTE 1-XA-55-5B window A2, B2, C2, & D2 are expected alarm when PRT is vented to the vent header due to increased pressure on RCDT.

[8] **OPERATE** Waste Gas Compressor as necessary. ☐

[9] **OPEN [1-PCV-68-301]**, PRT Vent header PCV. _____

[10] **WHEN [1-PI-68-301]** is ~ 5 psig, **THEN**
CLOSE [1-PCV-68-301], PRT Vent header PCV. _____

[11] **REPEAT** steps **[5]** thru **[10]** as directed by Chem Lab. _____

[12] **VERIFY [1-PCV-68-305] CLOSED**, Nitrogen to PRT. _____ IV

[13] **VERIFY [1-PCV-68-301] CLOSED**, PRT Vent header PCV. _____ IV

[14] **RETURN [1-PCV-68-304]** setpoint to ~ 6.5 psig
(located in 690 pipe chase northeast corner) _____ 1st _____ CV

[15] **IF** using Hydrogen, **THEN**
ADJUST [1-PCV-62-120] VCT Hydrogen Blanket,
to maintain approximately 17-20 psig. (on top of VCT room) _____

[16] **IF** using Nitrogen, **THEN**
ADJUST [1-PCV-62-119] VCT Nitrogen Blanket,
to maintain approximately 17-20 psig. (on top of VCT room) _____

[17] **NOTIFY** Chem Lab that PRT purge has been completed. _____

END OF TEXT

9.0 RECORDS

Completed copies of all sections, Appendices, and attachments shall be transmitted to the Operations Superintendent's Secretary.

APPENDIX A
Page 1 of 4
Date_____

PRT O_2 CONCENTRATION REDUCTION USING RCDT PUMP B

CAUTION **Over filling the PRT to solid water condition may result in failure of the PRT rupture disc.**

[1] **ENSURE** [1-FCV-68-305] nitrogen inlet isolation valve is **CLOSED**. _____

[2] **ENSURE** [1-PCV-68-301] PRT vent valve to vent header is **CLOSED**. _____

[3] **ENSURE** [1-68-573] PRT vent to atmosphere is **OPEN**. _____

[4] **OPEN** [1-FCV-68-303] primary water supply to PRT. _____

[5] **VERIFY** [1-LI-68-300] PRT level indicator on 1-M-4 shows increase. _____

[6] **VERIFY** PRT high level alarm comes in at ~ 88%. _____

[7] **WHEN** water level reaches 98%, as indicated on [1-LI-68-300], **THEN**

CLOSE [1-FCV-68-303]. _____ 1st _____ IV

[8] **CLOSE** [1-68-573] PRT vent to atmosphere. _____

[9] **OPEN** [1-FCV-68-305] nitrogen inlet isolation valve. _____

[10] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[11] **STATION** an AUO at panel 0-L-2. _____

[12] **ENSURE** [1-FCV-77-9] and [1-FCV-77-10] RCDT pump outlet isolation valves are **OPEN**. _____

Date_____

[13] **IF** filling and venting of RCDT suction line or pumps **IS NOT** required, **THEN**

GO TO step **[20]** and N/A steps **[14]** through **[19]**. _____

[14] **PLACE** control switches in the **PULL-TO-LOCK** position:,

A. **[1-HS-77-4A]** RCDT pump 1A. _____

B. **[1-HS-77-6A]** RCDT pump 1B. _____

NOTE Steps **[15]** through **[19]** fill and vent the RCDT pump suction header. Step **[20]** starts the O_2 concentration reduction.

[15] **PLACE [1-HS-68-310A]** in the **OPEN** position,
AND

VERIFY [1-FCV-68-310] opens. _____

NOTE Opening 1-FCV-77-3 allows suction header to be vented to Cntmt Floor & Equip. Drain Sump.

[16] **OPEN [1-FCV-77-3]** RCDT to RBF&EDS isolation. _____

[17] **WHEN** a drop in PRT level is observed, **THEN**

CLOSE [1-FCV-77-3]. _____

[18] **IF** RCDT or suction line from RCDT has been drained and is ready to be filled, **THEN**

[a] **OPEN [1-LCV-77-415]** while **MONITORING** RCDT and PRT levels. _____

[b] **WHEN** a drop in PRT level is observed and/or RCDT level increases or is at desired level, **THEN**

CLOSE [1-LCV-77-415]. _____

[19] **CLOSE [1-FCV-68-310]**. _____

Date_____

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT Pump B will Auto start when 1-FCV-68-310, PRT drain to RCDT opens.

[20] **ENSURE** control switches are in the **P-AUTO** position:

A. **[1-HS-77-4A]** RCDT pump 1A. _____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B. _____ 1st _____ IV

[21] **PLACE [1-HS-68-310A]** in the **OPEN** position,
AND

VERIFY [1-FCV-68-310] opens. _____

[22] **ENSURE** RCDT Pump B **STARTS**. _____

[23] **IF** PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] **STOP** 'B' RCDT pump at 0-L-2, _____
AND

CLOSE [1-FCV-68-310]. _____

[b] **WHEN** PRT pressure returns to normal, **THEN**

OPEN [1-FCV-68-310], _____

AND

VERIFY RCDT pump B **STARTS**. _____

Date_____

[24] **WHEN** PRT reaches desired level, **THEN**

STOP RCDT Pump B. _____

[25] **CLOSE [1-FCV-68-310]**. _____ _____
1st IV

[26] **DIRECT** Chem Lab to obtain grab sample of the PRT atmosphere for oxygen concentration. _____

[27] **IF** PRT O_2 concentration is > 2% by volume, **THEN**

RETURN to step **[1]** of this Appendix. _____

[28] **IF** PRT O_2 concentration is < 2% by volume, **THEN**

RETURN to step **[4]** Section 8.8 of this Instruction. _____

END OF TEXT

APPENDIX B
Page 1 of 4

Date_____

PRT O_2 CONCENTRATION REDUCTION USING RCDT PUMP A

CAUTION **Over filling the PRT to solid water condition may result in failure of the PRT rupture disc.**

[1] **ENSURE** [1-FCV-68-305] nitrogen inlet isolation valve is **CLOSED**. _____

[2] **ENSURE** [1-PCV-68-301] PRT vent valve to vent header is **CLOSED**. _____

[3] **ENSURE** [1-68-573] PRT vent to atmosphere is **OPEN**. _____

[4] **OPEN** [1-FCV-68-303] primary water supply to PRT. _____

[5] **VERIFY** [1-LI-68-300] PRT level indicator on 1-M-4 shows increase. _____

[6] **VERIFY** PRT high level alarm comes in at ~ 88%. _____

[7] **WHEN** water level reaches 98%, as indicated on [1-LI-68-300], **THEN**

CLOSE [1-FCV-68-303]. _____ _____
1st IV

[8] **CLOSE** [1-68-573] PRT vent to atmosphere. _____

[9] **OPEN** [1-FCV-68-305] nitrogen inlet isolation valve. _____

[10] **VERIFY** RCDT pumps aligned for service in accordance with Valve Checklist 1-77-1.02. _____

NOTE An AUO at panel 0-L-2 in communication with a MCR UO is needed to perform this Instruction.

[11] **STATION** an AUO at panel 0-L-2. _____

[12] **ENSURE** [1-FCV-77-9] and [1-FCV-77-10] RCDT pump outlet isolation valves are **OPEN**. _____

Date_____

[13] **IF** filling and venting of RCDT suction line or pumps **IS NOT** required, **THEN**

GO TO step **[20]** and N/A steps **[14]** through **[19]**. _____

[14] **PLACE** control switches in the **PULL-TO-LOCK** position:,

A. **[1-HS-77-4A]** RCDT pump 1A. _____

B. **[1-HS-77-6A]** RCDT pump 1B. _____

NOTE Steps **[15]** through **[19]** fill and vent the RCDT pump suction header. Step **[20]** starts the O_2 concentration reduction.

[15] **PLACE [1-HS-68-310A]** in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] opens. _____

NOTE Opening 1-FCV-77-3 allows suction header to be vented to Cntmt Floor & Equip. Drain Sump.

[16] **OPEN [1-FCV-77-3]** RCDT to RBF&EDS isolation. _____

[17] **WHEN** a drop in PRT level is observed, **THEN**

CLOSE [1-FCV-77-3]. _____

[18] **IF** RCDT or suction line from RCDT has been drained and is ready to be filled, **THEN**

[a] **OPEN [1-LCV-77-415]** while **MONITORING** RCDT and PRT levels. _____

[b] **WHEN** a drop in PRT level is observed and/or RCDT level increases or is at desired level, **THEN**

CLOSE [1-LCV-77-415]. _____

Date_____

[19] CLOSE [1-FCV-68-310]. _____

CAUTION 1 **Pump damage could occur if suction is lost while pumping water > 175°F.**

CAUTION 2 **RCDT pump 1A will NOT automatically stop on low level in PRT OR closure of FCV-68-310.**

NOTE RCDT Pump A operates automatically with 1-FCV-77-415 from the RCDT only.

[20] ENSURE [1-HS-77-6] RCDT Pump B in **PULL-TO-LOCK**. _____

[21] PLACE [1-HS-68-310A] in the **OPEN** position, **AND**

VERIFY [1-FCV-68-310] opens. _____

[22] START RCDT PUMP 'A' by placing **[1-HS-77-4A]** in the **START** position. _____

[23] IF PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] STOP 'A' RCDT Pump at 0-L-2. _____

[b] WHEN PRT pressure returns to normal, **THEN**

START RCDT PUMP 'A' by placing **[1-HS-77-4A]** in the **START** position. _____

[24] WHEN PRT reaches desired level, **THEN**

STOP RCDT Pump A. _____

[25] CLOSE [1-FCV-68-310] _____ 1st _____ IV

Date_____

[26] **DIRECT** Chem Lab to obtain sample of the PRT atmosphere for oxygen concentration. _____

[27] **ENSURE** control switches are in the **P-AUTO** position:

A. **[1-HS-77-4A]** RCDT pump 1A. _____ 1st _____ IV

B. **[1-HS-77-6A]** RCDT pump 1B. _____ 1st _____ IV

[28] **IF** PRT O_2 concentration is > 2% by volume, **THEN**

RETURN to step **[1]** of this Appendix. _____

[29] **IF** PRT O_2 concentration is < 2% by volume, **THEN**

RETURN to step **[4]** Section 8.8 of this Instruction. _____

END OF TEXT

APPENDIX C
Page 1 of 1

Date_____

REDUCING LEVEL IN RCDT

[1] **ENSURE** [1-LCV-77-415] RCDT pump suction **OPEN**. _____

[2] **START** RCDT pump A or B by placing [1-HS-77-4A] or [1-HS-77-6A] in **START**. _____

[3] **WHEN** RCDT level is approximately 20%, **THEN**

STOP the running RCDT pump. _____

[4] **ENSURE** [1-LCV-77-415] RCDT pump suction **CLOSED**. _____

END OF TEXT

SOURCE NOTES
Page 1 of 1

REQUIREMENTS STATEMENT	SOURCE DOCUMENT	IMPLEMENTING STATEMENT
Procedures that do not contain appropriate verification requirements will be revised. (This item is not annotated within the procedure since the entire procedure must meet the verification program requirements.	NCO 970071001	C.1

Date_____

8.2 Reducing PRT Level Using B RCDT Pump (Continued)

[9] **IF** PRT pressure drops < 1.5 psig, **THEN**

COMPLETE the following:

[a] **STOP** 'B' RCDT pump at 0-L-2, **AND**

CLOSE [1-FCV-68-310]. _____

[b] **WHEN** PRT pressure returns to normal, **THEN**

OPEN [1-FCV-68-310], **AND**

VERIFY RCDT pump B **STARTS**. _____

CAUTION **The RCDT level is to be maintained < 50% while 1-FCV-68-310 is open to prevent inadvertent opening of 1-LCV-77-415 which could cause overfilling of RCDT from the PRT.**

[10] **IF** at any time while pumping down the PRT the RCDT level approaches 50%, **THEN**

PERFORM the following before continuing the PRT level reduction:

[a] **PLACE [1-HS-77-6A]** RCDT pump B in the **PULL-TO-LOCK** position. _____

[b] **CLOSE [1-FCV-68-310]**. _____

[c] **GO TO** Appendix C of this Instruction for RCDT level reduction and return to Step **[11]** of Section 8.2. _____