REFUELING CANAL LEVEL LOWERING

1.0 ENTRY CONDITIONS

IF unexpected lowering of refueling canal level occurs.

THEN use this procedure.

2.0 IMMEDIATE ACTIONS

NOTE

There are no immediate actions for this procedure.

Approved by MNPO [signature] for I. Wilson Date 11/19/98
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3.0 FOLLOW-UP ACTIONS

ACTIONS	DETAILS
3.1 ___ Notify personnel of plant conditions.	• ___ STA • ___ Plant Operators • ___ Health Physics • ___ NSM (evaluate plant conditions for potential entry into the Emergency Plan) • ___ Refueling Area Supervisor
3.2 ___ IF refueling activities are NOT in progress, THEN GO TO step 3.7 in this procedure.	
3.3 ___ IF refueling canal level or SF pool level is lowering faster than fuel or components can be placed in a safe position, THEN immediately evacuate the area.	
3.4 ___ Ensure fuel attached to the Main Fuel Handling Bridge is placed in a safe position.	• ___ IF irradiated fuel is suspended from Main Fuel Handling Bridge, THEN notify bridge operator to place fuel in Rx vessel. • ___ IF irradiated fuel can NOT be placed in the Rx vessel, THEN notify bridge operator to place the fuel in an available upender and lower.

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ACTIONS	DETAILS
3.5 ___ Ensure components attached to the SF handling bridge are placed in a safe position.	• ___ IF irradiated fuel is suspended from SF handling bridge, THEN notify bridge operator to return the fuel to the SF rack location it came from. • ___ IF irradiated fuel can NOT be returned to original location, THEN notify bridge operator to place the fuel in an available upender and lower.
3.6 ___ Ensure components attached to the crane are placed in safe position.	• ___ IF irradiated components are suspended from crane, AND in the canal, THEN notify crane operator to place component in deep end. • ___ IF component can NOT be placed in the deep end, THEN notify crane operator to suspend component inside Rx vessel above fuel.

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ACTIONS	DETAILS

NOTE

RB pressure can affect fuel transfer canal level when fuel transfer tubes are open.

3.7	___ Review plant parameters to determine source of leak.	• Observe all of the following levels: ___ AB sump ___ RB sump ___ Refueling canal ___ BWST ___ SF pool ___ RCS ___ SW surge tank ___ DC surge tank ___ DH pit sumps
3.8	___ Determine if any recent activities may have caused the leak.	• Evaluate all of the following causes: ___ Valve stroking ___ System venting or draining ___ Changes in system alignment
3.9	___ Perform an inspection of possible leak sources in RB and AB.	• Notify PPO to PERFORM Enclosure 1, Potential Refueling Canal Leak Sources.

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ACTIONS	DETAILS

CAUTION

Fuel transfer tube valves cannot be fully closed when fuel transfer carriage cables are connected. Damage to fuel transfer tube valves and carriage cables may result from over tightening.

3.10 ___ IF fuel transfer canal level is lowering, THEN notify PPO to close fuel transfer tube valves as far as possible.

- ___ SFV-119 "Fuel Transfer Tube Iso" (162 ft AB west end of SF pool)
- ___ SFV-120 "Fuel Transfer Tube Iso" (162 ft AB west end of SF pool)

3.11 ___ IF RCS, OR DHR is suspected of being the leak source, THEN GO TO AP-520, Loss of RCS Coolant or Pressure, beginning with Step 3.1

3.12 ___ IF leak is NOT in the RB, THEN GO TO Step 3.21 in this procedure.

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ACTIONS | DETAILS

STATUS

The leak has been determined to be in the RB.

3.13 ___ Evacuate nonessential personnel from the RB if required.

1 ___ Depress "RB EVACUATION" push button.

2 ___ Notify plant personnel over PA.

3 ___ Repeat PA announcement.

3.14 ___ IF at any time a DHP is cavitating,
THEN stop the DHP,
and GO TO AP-404, Loss of Decay Heat Removal, beginning with Step 3.1

3.15 ___ IF refueling canal level is lowering,
THEN consider initiating makeup to refueling canal.

- Use any of the following sources:
  - ___ BWST
  - ___ RCBTs
  - ___ SF Pools
  - ___ BASTs

Applicable carry-over steps:
3.14 IF a DHP is cavitating, THEN stop the DHP and GO TO AP-404...

ACTIONS	DETAILS
3.16 ___ Place RB sump pumps in "PULL TO LOCK".	___ WDP-2A ___ WDP-2B

3.17 ___ IF RB equipment hatch is closed,
THEN stop the RB purge.

1 Notify SPO to ensure purge heaters are de-energized (Unit 480V SWGR Room):

___ 480V HEATING AUX BUS 3-3A "AHHE-16A, A RB Purge Heating Coil"

___ 480V HEATING AUX BUS 3-4A "AHHE-16B, B RB Purge Heating Coil"

2 Ensure all main purge valves are closed:

___ AHV-1C

___ AHV-1B

___ AHV-1D

___ AHV-1A

3 Ensure both RB purge supply fans are off:

___ AHF-6A

___ AHF-6B

4 Ensure both RB purge exhaust fans are off:

___ AHF-7A

___ AHF-7B

5 ___ Notify Health Physics Supervisor that purge ventilation flow has been lost.

Applicable carry-over steps:
3.14 IF a DHP is cavitating, THEN stop the DHP and GO TO AP-404...

ACTIONS	DETAILS
3.18 ___ Ensure containment closure.	• ___ IF the equipment hatch is removed, THEN notify the NSM to install equipment hatch. • ___ Notify PPO to ensure at least one personnel air lock door or a temporary door is closed. • ___ Notify the NSM to initiate containment closure compensatory measures.
3.19 ___ IF refueling canal level is NOT lowering, THEN GO TO appropriate procedure to restore refueling canal level.	• OP-404, Decay Heat Removal System Section 4.17, Filling The Fuel Transfer Canal: "A" DH System In Service, "B" DH System Recirc Of BWST • OP-404, Decay Heat Removal System Section 4.18, Filling The Fuel Transfer Canal: "B" DH System In Service, "A" DH System Recirc Of BWST • OP-406, Spent Fuel Cooling System, applicable section(s).
3.20 ___ IF refueling canal level continues to lower, THEN GO TO step 3.28 in this procedure.	

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ACTIONS	DETAILS

STATUS

The leak has been determined to be in the AB.

3.21 ___ Evacuate non-essential personnel from the AB if required.

1 ___ Depress "AB EVACUATION" push button.

2 ___ Notify plant personnel over PA.

3 ___ Repeat PA announcement.

3.22 ___ IF at any time DHP is cavitating,
THEN stop DHP,
and **GO TO** AP-404, Loss of Decay Heat Removal, beginning with Step 3.1

3.23 ___ IF SF pool liner or transfer tube has been determined to be the source of leak,
THEN restore SF pool level.

- **GO TO** applicable section(s) of OP-406, Spent Fuel Cooling System.

3.24 ___ IF SF cooling system piping is the source of leak,
THEN stop all SF pumps.

___ SFP-1A
___ SFP-1B
___ SFP-2

Applicable carry-over steps:
3.22 IF a DHP is cavitating, THEN stop the DHP and GO TO AP-404...

ACTIONS	DETAILS
3.25 ___ Notify PPO to ensure SF supply to Cask Area is isolated and vented.	• ___ Ensure closed SFV-82 "SF Cask Area Iso" (143 ft AB) • ___ Ensure open SFV-90 "SF Cask Area Loop Seal Vent" (143 ft AB)

CAUTION

SF pool may reach 190°F in ≤ 6 hours and may require 70 gpm makeup to maintain level.

NOTE

Leakage from SF suction and discharge piping will stop at approximately 4 feet below normal level.

3.26 ___ IF SF cooling system piping leak can not be isolated. AND SF pool level is lowering. THEN consider pumping the volume above affected piping to the BWST.	• ___ IF adequate volume exists in the BWST. THEN GO TO OP-406, Spent Fuel System Cooling, Section 4.10, Lowering SF Pool Level by Diverting Purification Flow to BWST.
3.27 ___ IF SF cooling system leak is isolated. AND a SF cooling path is available. THEN establish SF cooling and SF pool level.	• GO TO applicable section(s) of OP-406, Spent Fuel Cooling System to restore: ___ SF level to normal ___ SF cooling

Applicable carry-over steps:
3.22 IF a DHP is cavitating, THEN stop the DHP and GO TO AP-404...

ACTIONS	DETAILS
3.28 ___ IF leak can NOT be isolated. OR level continues to lower. THEN contact TSC for further guidance and **EXIT** this procedure.	

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5.0 ENCLOSURE 1 POTENTIAL REFUELING CANAL LEAK SOURCES

ACTIONS	DETAILS
1.1 ___ Perform an inspection of potential refueling canal leak sources in the RB.	• ___ Visually inspect NI pull boxes (119 ft RB just inside personnel hatch). • ___ Visually inspect Fuel Transfer Canal telltale drain line (124 ft RB just outside A CFT Room). • ___ Visually inspect Fuel Transfer Canal telltale drain line (95 ft RB by RB sump). • ___ Visually inspect seal plate for rising air bubbles. • ___ Ensure Fuel Transfer Canal deep end drains are closed: ___ SFV-83 "Fuel Transfer Canal Drain" (95 ft RB by RB sump) ___ SFV-84 "Fuel Transfer Canal Drain" (95 ft RB by RB sump) • ___ Visually inspect RCS and DHR system piping for leakage. • ___ Review local cold leg nozzle dam control panel if installed.

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ACTIONS	DETAILS
1.2 ___ Perform an inspection of potential refueling canal leak sources in AB.	• ___ Visually inspect SF cooling system for leakage. • ___ Visually inspect DHR system piping for leakage. • ___ Visually inspect SF pool liner telltale drains (95 ft AB MUP cubicles). • ___ Visually inspect Transfer Tube telltale drains (119 ft AB by SFP air handlers). • ___ IF any telltale drains are flowing. THEN note each valve number, and close all telltale drain valves.