

TEMPORARY CHANGE TO PROCEDURE FORM

TCP No. 12007-C-14-90-1 Expiration Date 3-26-90
 Page 1 of 21 Required Final Approval Date 3-26-90

PROCEDURE NO. 12007-C REVISION NO. 14

PROCEDURE TITLE REFUELING ENTRY

RESPONSIBLE DEPARTMENT CPS

CHANGE IS RECOMMENDED TO BE MADE PERMANENT: YES NO

REASON FOR CHANGE: Clarify operations interpretation of Service Range Act requirements of the suspension of Gun Allow.

BRIEF DESCRIPTION: See page 23 for change

FOR INFORMATION ONLY

ORIGINATOR [Signature] DATE 3/12/90

INTERIM APPROVAL ONLY IF NO CHANGE OF INTENT IS INVOLVED

COGNIZANT SUPV.: APPROVE DISAPPROVE [Signature] 3/12/90

OSOS APPROVE DISAPPROVE [Signature] 3/12/90

FINAL APPROVAL - - PRB REVIEW REQUIRED YES NO

CHANGE IS TO BE MADE PERMANENT AND PROCEDURE WRITER ASSIGNED: YES NO

RESP. DEPT. HEAD: APPROVE DISAPPROVE [Signature] 3-13-90

PRE RECOMMEND APPROVE DISAPPROVE

W F Kitchens 90-37 3/11
 PRB CHAIRMAN MTG NO. DATE

GENERAL MANAGER: APPROVE DISAPPROVE W F Kitchens 3/11/90

ROUTING OF TCP

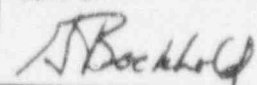
1. ORIGINATOR - Prepares TCP, mark-up procedure in BLACK.
2. COGNIZANT SUPV. - Reviews TCP, if approves, forwards to OSOS.
3. OSOS - Reviews for Change of Intent. If approved, forwards to Shift Clerk.
4. SHIFT CLERK - Assigns TCP #, makes log entries, makes copy for user, forwards original to cognizant supervisor.
5. COGNIZANT SUPERVISOR - Makes working copy for use, send copy of interim approved TCP to Document Control, forwards original to responsible department manager/superintendent.
6. DEPT. MGR/SUPT. - Reviews and approves. If permanent change, assigns responsibility to revise procedure. If PRB not required, makes copy for department file and forwards original to Document Control. If PRB required, forwards to PRB secretary.
7. PRB - Reviews and recommends approval. Forwards to GMNP.
8. GMNP - Reviews and approves, forwarding to the responsible department manager..
9. Dept. Manager/Superintendent - Retains copy and forwards the original to Document Control.
10. Document Control - Removes interim copy and files final copy.

DISTRIBUTION

1. Working copy for originator *1- copy*
2. Document Control
3. U1 Control Room *1- copy*
4. U2 Control Room *1- copy*
5. U1 Swine Shack *1- copy*

FIGURE 1a

Approval


Vogtle Electric Generating Plant
 NUCLEAR OPERATIONS

 Procedure No.
 12007-C

Date

3/8/90

Unit COMMON
 Revision No.
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UNIT NO. _____

TCP# 12007-C-14-90-1

DO NOT USE AFTER 3/26/90 DATE _____

_____/_____/_____

REFUELING ENTRY

(MODE 5 TO MODE 6)

 MANUAL SET
 NO. 50
1.0 PURPOSE

This procedure provides instructions for taking the unit from a cold shutdown (Mode 5) with Reactor Coolant temperature between 80 and 130 degrees, to refueling condition (Mode 6), and initiating core alterations.

2.0 PRECAUTIONS AND LIMITATIONS2.1 PRECAUTIONS

- 2.1.1 If this procedure is terminated prior to completion, the Unit Shift Supervisor (USS) should note the reason for the termination in the comments section.
- 2.1.2 Notify Health Physics prior to performing operations evolutions which may significantly alter radiation levels.
- 2.1.3 Notify Chemistry prior to installing or removing the Containment Equipment Hatch that containment ventilation flow will be changed during this evolution.
- 2.1.4 During periods of operation with the Reactor Coolant System (RCS) level below the Reactor Vessel Flange elevation (194 feet elevation), ongoing work activities should be closely scrutinized and any work activity limited that has the potential for reducing RHRS capability.
- 2.1.5 Inadvertent Containment Ventilation Isolation (CVI) may occur during the movement of the Reactor Vessel Head from the cavity to the head stand. Ensure Health Physics initiates compensatory actions to prevent inadvertent actuations.

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2.2 LIMITATIONS

- 2.2.1 The RCS pressure and temperature shall not exceed 425 psig and 350 degrees when open to the Residual Heat Removal (RHR) System.
- 2.2.2 In Mode 5, shutdown margin shall be greater than or equal to the limit specified in Technical Specification 3.1.1.2, Figure 3.1-2.
- 2.2.3 While in Mode 6 (whenever fuel is in the Reactor Vessel with the Reactor Vessel Head Closure Bolts less than fully tensioned or with the head removed) Keff shall be maintained at 0.95 or less, or the boron concentration shall be maintained greater than or equal to 2000 ppm, whichever is more restrictive. Additionally, valves 1208-U4-175, 1208-U4-177, 1208-U4-183 and 1208-U4-176 shall be closed and secured in position (by mechanical stops), except 1208-U4-176 and 1208-U4-177 may be opened for short periods of time for chemistry control, provided the Hi Flux at Shutdown Alarm is operable with a setpoint of less than or equal to 2.30 times background. (Technical Specification 3.9.1)
- 2.2.4 When in Mode 5, with loops filled, at least one RHR Train shall be operable and in operation, and either:
- One additional RHR train shall be operable, or
 - The secondary side water level of at least two Steam Generators shall be greater than 17% of wide range level. (Technical Specification 3.4.1.4.1)
- 2.2.5 While in Mode 5 with the RCS loops not filled, two RHR trains shall be operable and at least one RHR train shall be in operation. Reactor Makeup Water Valves 1208-U4-175, 1208-U4-176, 1208-U4-177, and 1208-U4-183 shall be closed and secured in position (by mechanical stops), except 1208-U4-176 and 1208-U4-177 may be opened for short periods of time for chemistry control provided the Hi Flux at Shutdown Alarm is operable with a setpoint of less than or equal to 2.30 times background. (Technical Specification 3.4.1.4.2)
- 2.2.6 When in Mode 6, with the water level greater than or equal to 23 feet above the Reactor Vessel Flange, at least one RHR train shall be operable and in operation. (Technical Specification 3.9.8.1)
- 2.2.7 When in Mode 6, with the water level less than 23 feet above the Reactor Vessel Flange, two RHR trains shall be operable and at least one RHR train in operation. (Technical Specification 3.9.8.2)

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- 2.2.8 While in Modes 4, 5, and 6 with the Reactor Vessel Head on, at least one of the following Cold Overpressure Protection Systems (COPS) shall be operable:
- a. Two Power Operated Relief Valves (PORV) with lift settings which do not exceed the limits established in Technical Specification Figure 3.4.4, or
 - b. Two RHR Suction Relief Valves each with a setpoint of 450 psig $\pm 3\%$, or
 - c. The RCS depressurized with an RCS vent capable of relieving at least 670 gpm water flow at 470 psig. (Technical Specification 3.4.9.3)
- 2.2.9 While in Modes 5 and 6, at least one of the following Boron Injection Flow Paths shall be operable.
- a. A flow path from the Boric Acid Storage Tank via a Boric Acid Transfer Pump and a Charging Pump to the Reactor Coolant System if the Boric Acid Storage Tank is operable, or
 - b. The flow path from the Refueling Water Storage Tank (RWST) via a Charging Pump to the Reactor Coolant System if the Refueling Water Storage Tank is operable. (Technical Specification 3.1.2.1)
- 2.2.10 The temperature of both the primary and secondary coolant in the Steam Generators shall be greater than 70 degrees when the pressure of either coolant in the Steam Generator is greater than 200 psig. (Technical Specification 3.7.2)
- 2.2.11 While in Mode 5 at least one channel of Sour Range Nuclear Instrumentation should be selected to Recorder NR-45 and the CONTROL ROOM HI FLUX LEVEL AT SHUTDOWN alarm operable.
- 2.2.12 While in Mode 6 both Source Range Neutron Flux Monitors shall be operable with continuous visual indication in the Control Room and one with audible indication in the Containment and Control Room. (Technical Specification 3.9.2)
- 2.2.13 The reactor shall have been subcritical for at least 100 hours prior to moving irradiated fuel in the Reactor Pressure Vessel. (Technical Specification 3.9.3)
- 2.2.14 During Core Alterations, direct communications shall be maintained between the Control Room and personnel at the Refueling Station. (Technical Specification 3.9.5)

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2.2.15 While in Modes 5 and 6, with the RCS level below Reactor Vessel Flange elevation (194 feet elevation), the RWST will be operable with a minimum volume of 99,404 gallons (9% of instrument span) of water at a boron concentration between 2400 and 2600 ppm.

3.0 INITIAL CONDITIONS

3.1 The RHR System is in operation at a minimum flow of 3000 gpm and RHR letdown is in service.

3.2 Sufficient Carbon Dioxide and Nitrogen is on hand or ordered to support plant operations.

3.3 If required, there is sufficient volume available in the RWST at a minimum boron concentration of 2400 ppm to support refueling operations.

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INITIALS4.0 INSTRUCTIONS

4.1 MODE 5 AND 6 OPERATIONS

NOTE

Asterisk (*) steps beside INITIALS spaces indicates steps that generate additional documents.

4.1.1 While operating with the RCS level below 17% pressurizer level (approximately 207 feet elevation) the following controls should be in effect:

a. Tygon tube watch is required any time the RCS level is being changed while the RCS level is below 17% (approximately 207 feet elevation) pressurizer level,

- (1) Periodic comparison checks should be made every 4 hours between the Control Room Temporary RCS Level Monitors and the Tygon tube,
- (2) The Control Room Monitors should agree within 7 percent of scale with the Tygon tube,
- (3) Two out of three Level Monitors must agree before draining RCS below the top of the hot leg (188 feet 3 inches),
- (4) If neither Control Room RCS Level Monitor is available, then a continuous Tygon tube watch should be established while RCS level is below 17% pressurizer level.

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- b. If it is intended to drain down to less than 3 feet below the Reactor Vessel Flange (191 ft. el.) then the following additional controls shall be placed in effect:
- (1) DETERMINE closure status of Containment Equipment Hatch and ENSURE hatch is capable of being closed within 57 minutes or ENSURE hatch is closed prior to reducing RCS level below three feet below the Reactor Vessel Flange (191 ft. el.),
 - (2) A review of all Containment penetrations addressed in 14210, "Containment Building Penetrations - Refueling" should be accomplished to determine those which have been opened by manual means and an info LCO generated for those identified,
 - (3) A minimum of two incore thermocouples shall be available during periods where the Reactor Head is installed,
 - (4) REQUEST I&C reset the designated ERF incore thermocouples alarm setpoint to alarm at 10°F above desired temperature per 00410-C, "Computer Software Control",
 - (5) If SG Nozzle Dams are to be installed and no cold leg opening is to be established, a vent path is required from the Reactor Vessel upper plenum.

This vent path can be satisfied by:

- (a) Removing a pressurizer manway, or
- (b) Removing a Steam Generator manway on a hot leg that will not be dammed, or
- (c) Removing three pressurizer code safeties.

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- (6) If SG Nozzle Dams are to be installed and a cold leg opening is to be established, a vent path is required from the Reactor Vessel Upper Plenum by removing an SG manway. HL level will not be dammed.
- (7) If it is required to operate at one foot above mid-nozzle level, the preferred RHR configuration is one train operating with a flow of 3000 gpm.
- (8) While operating with SG Nozzle Dams installed, ENSURE one Safety Injection Pump is capable of being racked in and operated in the hot leg injection mode if needed.
- (9) While level is in the region of the hot legs, TREND RHR Pump parameters on ERF for early detection of possible RHR Pump degradation due to vortexing.
- (10) Minimum RCS level is one foot above mid-nozzle (188 feet 0 inches elevation) except for Steam Generator burping during initial drain down. For effective SG tube draining, RCS level should be lowered to 187 feet 6 inches. Upon completion of SG burping, RAISE RCS level to 188 feet - 0 inches and MAINTAIN at this level thereafter.
- (11) A minimum of 4 Containment Cooling Units will be operable and capable of being started if required while RCS level is below 191 feet elevation.

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4.1.2 MAINTAIN RCS temperature in range of 80 to 130 degrees and a total flow of 3000 gpm by adjusting the RHR System as necessary per 13011, "Residual Heat Removal System".

4.1.3 During RCP seal package maintenance or SG primary side inspections, MAINTAIN RCS level at 188 feet - 0 inches (one foot above mid-nozzle elevation).

NOTE

Maintain RCP seal injection in operation while RCS level is greater than 190 feet - 0 inches elevation.

4.1.4 During preparation for Reactor Vessel head removal, MAINTAIN RCS level less than or equal to 192 feet (two feet below Vessel Flange elevation).

4.1.5 If the outage is for refueling, then ENSURE that the RCS has been borated to refueling concentration per 13009, "CVCS Reactor Makeup Control System".

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4.2

PREPARATIONS FOR REFUELING

4.2.1

Twelve hours prior to transferring water from the RWST to the Reactor Cavity or the Reactor Vessel, INITIATE RWST recirculation in preparation for RWST chemistry sample.

4.2.2

VERIFY that the Fuel Pool To Transfer Canal Gate is closed.

4.2.3

PREPARE the Refueling Cavity lower level for refueling operations and Fuel Transfer System checkouts by performing the following:

NOTE

This step may be deferred to just prior to head lift. Intent is to provide early lead time to fill the transfer tube to establish a containment penetration water seal in preparation for head lift and provide water lubrication for Fuel Transfer System checkouts.

a. PERFORM the following prefill alignment:

(1) CLOSE and TAG Cavity Drain Isolation on the applicable unit:

UNIT 1: 1-1901-U6-260,

IV

UNIT 2: 2-1901-U6-260,

IV

(2) ENSURE Maintenance has installed the 2 Blind Flanges on the 12 inch drain lines in the Refueling Cavity,

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INITIALS

- (3) ENSURE Maintenance has completed Reactor Cavity Sealing per 93240-C, "Reactor Vessel Assembly/Disassembly Instructions", _____
- (4) ENSURE Maintenance has removed the Transfer Tube Blind Flange per 93240-C, "Reactor Vessel Assembly/Disassembly Instructions", _____
- (5) If the Transfer Canal level has been lowered to below the Transfer Tube elevation, then UNLOCK and OPEN the Transfer Tube Gate Valve, _____
- (6) After the RWST has recirculated for a minimum of 6 hours, CONTACT Chemistry to take a sample from the RWST to verify total suspended solids concentration is within specifications. _____

If total suspended solids concentration is out of specifications, INITIATE RWST Cleanup per 13719, "Spent Fuel Pool Cooling And Purification System". _____

NOTE

If the Transfer Canal is flooded above the Transfer Tube elevation with the Transfer Tube Gate Valve closed, then Step 4.2.3b may be N/A'd.

- b. FILL the lower Reactor Cavity from the RWST via the SFP Cooling System to an elevation of at least 188 feet - 0 inches (approximately 2 feet above the Fuel Transfer Tube centerline) per 13719, "Spent Fuel Pool Cooling And Purification System". _____

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INITIALS

- c. If the lower reactor cavity was filled, then NOTIFY Chemistry to initiate daily plant vent Tritium grab samples (Technical Specifications Table 4.11-2 Note 4).

Person Contacted _____ Date _____ Time _____

4.2.4 PERFORM the following refueling preparation valve alignment on the applicable unit:

- a. ENSURE CLOSED RCS RV SEAL LKOFF INNER GASKET ISO. (OSS EL - 172 feet)

UNIT 1: 1-1201-U4-087

IV

UNIT 2: 2-1201-U4-087

IV

- b. CLOSE RCS RV SEAL LKOFF OUTER GASKET ISO. (OSS EL - 172 feet)

UNIT 1: 1-1201-U4-088

IV

UNIT 2: 2-1201-U4-088

IV

- c. CLOSE RV LEAKOFF ISO HV-A032.

IV

- d. ENSURE CLOSED REACTOR CAVITY SEAL SUPPORT DRAIN

UNIT 1: 1-1213-U4-088

IV

UNIT 2: 2-1213-U4-088

IV

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- 4.2.5 If desired, reset the FHB HVAC pre-heating Coil Thermostat from 70°F to 80°F by placing local handswitches HS-12470 and HS-12471 to the ON position. _____
- 4.2.6 NOTIFY Health Physics to establish a locked or posted access on the concrete plugs for the Fuel Transfer Tube Bellows in the Fuel Handling Building and Containment Building. _____
- 4.3 MODE 6 ENTRY
- 4.3.1 Prior to Maintenance Department detensioning the first Reactor Head Bolt (Mode 6 entry), PERFORM the following:

NOTE

If the target time for entry into Mode 6 has slipped due to delays or holds, then review the Pre-refueling Checklist and reperform those applicable surveillances required to be performed within the specified time frames prior to entry into Mode 6.

- a. INITIATE Mode 6 Entry Checklist 1, completing those applicable steps within the specified time frames prior to entry into Mode 5, _____
- b. OBTAIN from the Control Room Mode Change Binder or OBTAIN from the Surveillance Tracking Coordinator: all deferred (not performed) surveillance tests required for Mode 6 entry. _____

SCHEDULE and COMPLETE those applicable test procedures prior to Mode 6 entry.

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c. REVIEW the following for impact on entering Mode 6.

- (1) Jumper and Lifted Wire Log,
- (2) Temporary Modification Log,
- (3) Equipment Clearance Log,
- (4) LCO Book,
- (5) Outstanding Work Orders.

NOTE

Two RCS Core Exit Thermocouples shall be maintained when RCS level is less than 191 ft. el.

d. COORDINATE with the Outage Area Supervisor to ensure that the following Reactor Vessel Head disassembly activities have been completed per 93240-C, "Reactor Vessel Assembly/Disassembly Instructions".

- (1) Seismic Tie Rods moved,
- (2) Cables disconnected,
- (3) Head Insulation removal,
- (4) Head Vent piping disconnect,
- (5) RVLIS Head connection disconnected,
- (6) Instrument port Conoseal disassembly complete.

4.3.2 OBTAIN On-Shift Operations Supervisor's approval to change status from Mode 5 to Mode 6.

OSOS Signature / / /
Date Time

4.3.3 When notified by Maintenance Department that the Reactor Vessel Head detensioning has commenced, LOG Mode 6 entry into the Unit Control Logbook and INITIATE Mode 6 Log Sheet readings.

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4.4 MODE 6 OPERATIONS

4.4.1 In addition to the scheduled Mode 6 surveillances, NOTIFY Chemistry Department to initiate Boron analysis of the RCS and, if applicable, the Refueling Cavity at least once per 72 hours. (Technical Specification 4.9.1.1)

Person Contacted _____ Date _____ Time _____

4.4.2 COMPLETE the following to prepare for Reactor Vessel Head lift:

NOTE

As a precaution, Containment Building Penetrations Technical Specification 3.9.4 will be established during periods of Reactor Vessel Head movement.

- a. NOTIFY Chemistry that closure of the Containment Equipment Hatch will change containment ventilation flow. _____
- b. NOTIFY Maintenance to reset the Containment Personnel Lock Interlock System, _____
- c. PERFORM 14210, "Containment Building Penetrations Verification - Refueling", _____ *
- d. ENSURE one train of RHR is aligned for Refueling Cavity fill per 13011, "Residual Heat Removal System", _____

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CAUTION

Inadvertent Containment Ventilation Isolation (CVI) may occur during the movement of the Reactor Vessel Head from the cavity to the head stand. Ensure Health Physics initiates compensatory actions to prevent inadvertent actuations.

e. COORDINATE with the Outage Area Supervisor to ensure that the following activities have been completed per 93240-C, "Reactor Vessel Assembly/Disassembly Instructions".

- (1) Power and Signal Cables removed, _____
- (2) Flux Thimbles withdrawn, _____
- (3) Tools removed from refueling cavity. _____

4.4.3 After the head lift, COORDINATE with Outage Area Supervisor and INITIATE filling the Refueling Cavity to 218 feet - 6 inches (2 feet below operating deck) per 13011, "Residual Heat Removal System".

During the process of filling the Refueling Cavity, PERFORM 14895, "ECCS Check Valve Refueling Inservice Test". _____ *

4.4.4 If the Lower Reactor Cavity was not previously filled, then NOTIFY Chemistry to initiate daily plant vent Tritium grab samples. (Technical Specification Table 4.11-2 Note 4)

Person Contacted _____ Date _____ Time _____

4.4.5 During the remainder of refueling preparations and core alterations, MAINTAIN Refueling Cavity level at 218 feet - 6 inches plus 0 inches minus 3 inches. _____

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- 4.4.6 PLACE the Refueling Cavity Filtration System in service per 13719, "Spent Fuel Pool Cooling And Purification System".

NOTE

Removal of the Upper Internals Assembly and withdrawal of any RCCA assembly in excess of three feet from its fully inserted position within the Reactor Vessel should be considered as Core Alterations.

- 4.4.7 Prior to moving the Upper Internals Assembly, COMPLETE the applicable steps of Core Alterations Checklist 2.
- 4.4.8 After the Upper Internal Assembly has been set in the storage location and the Refueling Cavity level has been stable at 218 feet - 6 inches, VERIFY that the fuel pool level is approximately equal to the transfer pool level.
- a. If the Transfer Gate Valve was not opened per Step 4.2.3a(5), then UNLOCK and OPEN the Transfer Tube Gate Valve,
 - b. OPEN the Fuel Pool To Transfer Canal Gate.
- 4.4.9 NOTIFY Chemistry to reset PERMS Containment Low Range Area Monitors RE-0002 and 0003 to the low setpoint.

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4.4.10 Prior to transporting fuel or other loads within or over the Spent Fuel Pool with spent fuel in the pool and the Normal FHB HVAC in service, UNBLOCK the Low Negative Differential Pressure FHBI actuation channels at the BOP Actuation Cabinet QESF by performing the following:

- a. VERIFY the FHB negative pressure is above the actuation setpoint by observing white lights A-ZI-12567 and A-ZI-12568 at handswitch A-HS-2533C OUT,
- b. PLACE handswitch A-HS-2533C to the OFF position.

 IV

4.4.11 Prior to commencing fuel shuffle COMPLETE Core Alterations Checklist 2.

LOG the date and time that Core Alterations are started in the Unit Control Logbook.

4.4.12 During Core Alterations, if Core Alterations cease for greater than 1 hour, then prior to commencing core alterations, REFER to Checklist 2 and REPERFORM those applicable surveillances required to be performed within the specified time frames prior to initiating core alterations.

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INITIALS

4.5 POST-REFUELING OPERATIONS

CAUTION

Monitor Fuel Pool level frequently to verify gate is sealing.

4.5.1 Upon completion of Core Alterations and post refueling verification, CLOSE and SEAL the Fuel Pool To Transfer Canal Gate. _____

4.5.2 VERIFY that the Fuel Transfer System is in the stored position, then CLOSE and LOCK the Transfer Tube Gate Valve. _____

4.5.3 SHUT DOWN the Refueling Cavity Filtration System per 13719, "Spent Fuel Cooling And Purification System". _____

4.5.4 TERMINATE the use of this instruction and PROCEED to 12000-C, "Refueling Recovery (Mode 6 to Mode 5)". _____

COMPLETED: _____
Signature Date / Time

REVIEWED: _____
Signature Date / Time

COMMENTS: _____

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5.0

REFERENCES

5.1

"Preparations For Refueling", Westinghouse
Refueling Guidelines.

5.2

PROCEDURES

5.2.1

13011, "Residual Heat Removal System"

5.2.2

13009, "CVCS Reactor Makeup Control System"

5.2.3

13105, "Safety Injection System"

5.2.4

13005, "Reactor Coolant System Draining"

5.2.5

13615, "Condensate And Feedwater Systems"

5.2.6

13719, "Spent Fuel Pool Cooling And Purification
System"

5.2.7

14210, "Containment Building Penetrations
Verification - Refueling"

5.2.8

12000-C, "Refueling Recovery (Mode 6 to Mode 5)"

5.2.9

93240-C, "Reactor Vessel Assembly/Disassembly
Instructions"

END OF PROCEDURE TEXT

MODE 6 ENTRY CHECKLIST I

UNIT NO. _____ INITIALS _____

1.0 Prior to entering in Mode 6, VERIFY the following has been successfully completed during the specified interval and the requirements therein are met for entry into Mode 6:

1.1 Within 31 days prior to entering Mode 6:

a. 14228, "Operations Monthly Surveillance Logs".

_____ / _____ *
Date Time

b. 14514-C, "Fuel Handling Building Post-Accident Exhaust System Operability Test". (Only applicable with irradiated fuel in the FHB.)

_____ / _____ *
Date Time

1.2 Within 7 days prior to entering Mode 6:

a. 14225, "Operations Weekly Surveillance Logs".

_____ / _____ *
Date Time

b. 14423, "Source Range NIS Analog Channel Operational Test".

_____ / _____ *
Date Time

1.3 Within 72 hours prior to entering Mode 6:

ENSURE that the more restrictive of the following reactivity conditions is met:

a. 14005, "Shutdown Margin Calculations", and DETERMINE that boron concentration necessary for Keff of less than 0.95.

Calculated Value _____ ppm

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CORE ALTERATIONS CHECKLIST 2

UNIT NO. _____

INITIALS

- 1.0 Prior to establishing Core Alterations, VERIFY the following:
- 1.1 Within 7 days prior to establishing Core Alterations, VERIFY the Fuel Handling Machine load test and crane interlock/stop test has been successfully completed. (Only applicable prior to crane use.)
- _____ / _____ *
- Date Time
- 1.2 Within 100 hours prior to establishing Core Alterations VERIFY the following:
- a. The Refueling Machine Load Test has been successfully completed. (Only applicable during movement of fuel assemblies, rod control cluster assemblies, thimble plug assemblies, or control rod drive shafts within the reactor vessel.)
- _____ / _____ *
- Date Time
- b. The Load Test on each Auxiliary Hoist and associated Load Indicator used for movement of Drive Rods within the Reactor Vessel has been successfully completed. (Only applicable during movement of fuel assemblies, rod control cluster assemblies, thimble plug assemblies, or control rod drive shafts within the reactor vessel.)
- _____ / _____ *
- Date Time
- c. NOTIFY Maintenance to reset the Containment Personnel Lock Interlock System.
- _____
- d. VERIFY that 14210, "Containment Building Penetrations Verification-Refueling", has been satisfactorily completed.
- _____ / _____ *
- Date Time

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INITIALS

1.3 Within 24 hours prior to establishing Core Alterations:

NOTIFY Chemistry to perform analysis required per 35180-C, "Chemistry Control During Refueling".

Date / Time _____ *

1.4 Within 8 hours prior to establishing Core Alterations:

COMPLETE 14423, "Source Range NIS Analog Channel Operational Test".

Date / Time _____ *

1.5 Within 2 hours prior to establishing Core Alterations:

VERIFY that the Refueling Cavity water level is at least 217 feet - 0 inches elevation (23 feet above the Reactor Vessel flange). (Only applicable during fuel movement.)

Refueling Cavity Level _____ ft.

Date / Time _____

1.6 Within 1 hour prior to establishing Core Alterations:

a. VERIFY communications between the Control Room and personnel at the applicable Refueling Stations has been established using 14000, "Operations Shift And Daily Logs".

Date / Time _____

See INSERT 3/4/74

initial J. J. 3/4/74

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- b. VERIFY that the Reactor has been subcritical for at least 100 hours by recording the date and time of subcriticality. (Only applicable during movement of irradiated fuel in the reactor vessel.)

Subcritical _____ / _____
 Date Time

Completed _____ / _____
 Date Time

REVIEWED: _____ / _____
 Signature Date Time

COMMENTS: _____

