

Facility: Palisades

Task No: PL-343 126 03 03

Task Title: Implement the Requirements of  
GOP-11, Refueling Operations and  
Fuel HandlingJob Performance Measure No: 2017 Remediation  
Admin 1B

K/A Reference: 2.1.40: Knowledge of refueling administrative requirements

Examinee: \_\_\_\_\_

NRC Examiner: \_\_\_\_\_

Facility Evaluator: \_\_\_\_\_

Date: \_\_\_\_\_

Method of testing:

Simulated Performance \_\_\_\_\_

Actual Performance X \_\_\_\_\_

Classroom \_\_\_\_\_

Simulator X \_\_\_\_\_

Plant \_\_\_\_\_

**Read to the examinee:**

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.

**Initial Conditions:**

1. SFP boron concentration is 2620 ppm per Chemistry sample at 0700 this morning.
2. RP has verified the Spent Fuel Pool CAMs in service and no alarms.
3. No fuel will be moved in the six by seven restricted area.
4. No new fuel will be moved.
5. Fuel elevator will not be used.

**Task Standard:** Candidate completes appropriate sections of GOP-11, Attachment 2 per GOP-11, "Refueling Operations and Fuel Handling".

**Required Materials:** Simulator in IC-17  
Magnetic signs for radiation monitors that are not modeled in the simulator  
Copy of GOP-11, Attachment 2 – GCL 11.2  
Completed GOP-11, Attachment 3 – GCL 11.3  
Completed GOP-11, Attachment 4 – GCL 11.4

Note: When student has shown ability to determine and know where to find the correct procedure for this JPM, the examiner may provide the student handout as appropriate.

**General References:** GOP-11, "Refueling Operations and Fuel Handling".

**Initiating Cue:** Shift Manager directs you to complete GOP-11, Attachment 2 in preparation for movement of irradiated fuel in the spent fuel pool.

**Time Critical Task:** No

**Validation Time:** 15 minutes

**Performance Information*****Denote critical steps with a check mark***

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<u>✓</u>	Performance step: 1
Standard:	Key GCL 11.2 Step 1
Comment:	Candidate reads RIA-2313 and RIA-5709 (radiation monitors in control room simulator), logs readings on Attachment 2 under STATUS, and initials under MEETS SPEC.

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<u>      </u>	Performance step: 2
Standard:	Key GCL 11.2 Step 2
Comment:	Candidate places N/A in both STATUS and MEETS SPEC blocks for: RIA-2316 RIA-2317 Step 2a, 2b and 2c

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<u>      </u>	Performance step: 3
Standard:	Key GCL 11.2 Step 3
Comment:	Candidate notes initials under MEETS SPEC for Attachment 3 have been completed by the performer.

NOTE: If asked, cue candidate that GCL 11.3 is completed satisfactorily and within the required time.

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**Performance Information**

***Denote critical steps with a check mark***

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\_\_\_\_\_ Performance step: 4

Standard: Key GCL 11.2 Step 4

Comment: Candidate places N/A in all STATUS and MEETS SPEC blocks for Step 4.

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\_\_\_\_\_ Performance step: 5

Standard: Key GCL 11.2 Step 5

Comment: Candidate notes initials under MEETS SPEC for Attachment 4 have been completed by the performer.

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✓ Performance step: 6

Standard: Key GCL 11.2 Step 6

Comment: Candidate initials under MEETS SPEC for Step 6, SFP. Candidate places N/A in STATUS and MEETS SPEC block for Step 6, Containment.

NOTE: Step 6 is verified from Initial Conditions. **Only “Step 6, SFP” is critical.**

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**Performance Information*****Denote critical steps with a check mark***

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☒

Performance step: 7

Standard: Key GCL 11.2 Step 7

Comment: Candidate verifies alarm EK-1309 is clear and initials Step 7 under MEETS SPEC.

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☒

Performance step: 8

Standard: Key GCL 11.2 Step 8

Comment: Candidate verifies SFP level via camera and initials under MEETS SPEC for Step 8, SFP Level. Candidate places N/A in MEETS SPEC block for Step 8, Refueling Cavity Level.

NOTE: **Only “Step 8, SFP Level” is critical.**

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☐

Performance step: 9

Standard: Key GCL 11.2 Step 9

Comment: Candidate places N/A in both STATUS and MEETS SPEC blocks for Step 9 per initial conditions of six by seven restricted area.

**Performance Information**

***Denote critical steps with a check mark***

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✓ Performance step: 10

Standard: Key GCL 11.2 Step 10

Comment: Candidate enters 2620 ppm under STATUS and initials MEETS SPEC for Step 6, SFP Boron. Candidate places N/A in STATUS and MEETS SPEC block for Step 10, PCS Boron.

NOTE: SOP-27, Fuel Pool System requires SFP boron >2550 ppm and TS 3.7.15 requires SFP boron > 1720 ppm.

Step 10 is verified from Initial Conditions. **Only “Step 10, SFP Boron” is critical.**

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\_\_\_\_\_ Performance step: 11

Standard: Key GCL 11.2 Step 11 through 14

Comment: Candidate places N/A in both STATUS and MEETS SPEC blocks (as applicable) for:

Step 11  
Step 12  
Step 13  
Step 14

NOTE: Step 15 is left blank

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**Terminating cue: GOP-11, Attachment 2 is completed by the candidate and given to the Examiner.**

**Verification of Completion**Job Performance Measure No. ADMIN JPM 1b

Examinee's Name:

Examiner's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to Complete:

Question Documentation:

Question: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Response: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Result: Satisfactory/Unsatisfactory

Examiner's signature and date: \_\_\_\_\_

**CANDIDATE CUE SHEET**

(TO BE RETURNED TO EXAMINER TO UPON COMPLETION OF TASK)

Initial Conditions:

1. SFP boron concentration is 2620 ppm per Chemistry sample at 0700 this morning.
2. RP has verified the Spent Fuel Pool CAMs in service and no alarms.
3. No fuel will be moved in the six by seven restricted area.
4. No new fuel will be moved.
5. Fuel elevator will not be used.

Initiating Cue:

Shift Manager directs you to complete GOP-11, Attachment 2 in preparation for movement of irradiated fuel in the spent fuel pool.



# STUDENT HANDOUT

## GCL 11.2

### REFUELING/FUEL HANDLING OPERATION SHIFT CHECKLIST

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- 1.0 **PERFORM** shiftly checks provided below as follows:
- Once each shift during Refueling Operations.
  - Prior to fuel handling, if Refueling Operations or fuel handling in SFP has been suspended for greater than 8 hours.
  - Items denoted by a "S-" are the only checks required when performing fuel handling in the SFP only. Refer to the table on Pages 4 and 5.
- 1.1 **DOCUMENT** shiftly checks as follows:
- a. IF a check is satisfactory, THEN RECORD applicable readings or conditions in the "STATUS" block AND INITIAL in the "MEETS SPEC" block.
  - b. WHEN a check is not required because of Plant conditions, THEN RECORD "N/A" in the "STATUS" and "MEETS SPEC" blocks.
  - c. IF a check is unsatisfactory, THEN INDICATE why it is unsatisfactory in the Comments Section.
- 1.1.1 Radiation Monitor Checks
- a. **CHECK** RIA-2316 updating with time AND ENTER reading. Refer to Technical Specifications LCO 3.3.6.
    - **ENSURE** cut out switch is in "IN" position (Key 54).
  - b. **CHECK** RIA-2317 updating with time AND ENTER reading. Refer to Technical Specifications LCO 3.3.6.
    - **ENSURE** cut out switch is in "IN" position (Key 55).
  - c. **CHECK** RIA-2313 updating with time AND ENTER reading.
  - d. **CHECK** RIA-5709 updating with time AND ENTER reading.
- 1.1.2 Source Range Nuclear Channels Checks
- a. **VERIFY** NI-1 operable with operable visual in the Control Room. Refer to Technical Specifications LCO 3.9.2.
  - b. **VERIFY** NI-2 operable with operable visual in the Control Room. Refer to Technical Specifications LCO 3.9.2.

# STUDENT HANDOUT

## GCL 11.2

### REFUELING/FUEL HANDLING OPERATION SHIFT CHECKLIST

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- c. **VERIFY** operable audible source range indication in Control Room and available in-service audible indication in Containment.
  - 1. **IF** the Control Room audible indication is inoperable, **THEN DECLARE** both source range channels inoperable. Refer to Technical Specification B3.9.2.
- 1.1.3 **COMPLETE** Attachment 3, "GCL 11.3, Refueling/Fuel Handling Communications Checklist" to verify Communications between the Control Room and Spent Fuel Pool, Refueling Machine, and Refueling Cavity maintained.
- 1.1.4 **VERIFY** Shutdown Cooling System operating with at least one Shutdown Cooling Pump and Heat Exchanger in operation. Refer to Technical Specifications LCO 3.9.4 and LCO 3.9.6.
- 1.1.5 **COMPLETE** Attachment 4, "GCL 11.4, Refueling/Fuel Handling/Shutdown Cooling Ventilation Checklist." Refer to Technical Specifications LCO 3.7.10, LCO 3.7.11, LCO 3.7.12, LCO 3.9.3a, and LCO 3.9.3b.
- 1.1.6 **VERIFY** Continuous Air Monitor (CAM) units positioned in refueling areas are operating with no high radiation alarms in. If operational CAMs are not available, refer to General Operating Procedure GOP-11, "Refueling Operations and Fuel Handling," Step 5.6.3.
- 1.1.7 **WHEN** Door-950, South Spent Fuel Pool Door is removed, **THEN VERIFY** Spent Fuel Pool HI/LO level alarm, EK-1309 (LS-0924), operable as follows:
  - a. **VERIFY** no outstanding work orders indicating LS-0924, Spent Fuel Pool Level Switch is inoperable.
  - b. With SFP level at normal level, **VERIFY** EK-1309 not alarming.
  - c. **VERIFY** locally no physical damage to LS-0924 (located NW corner of SFP).
- 1.1.8 **VERIFY** levels in the Spent Fuel Pool and Refueling Cavity maintained. Minimum allowable level is greater than or equal to 647 feet. Refer to Technical Specifications LCO 3.7.14 and LCO 3.9.6.
- 1.1.9 **VERIFY** SFP South Tilt Pit level greater than or equal to 647 feet when moving fuel in the six by seven restricted area adjacent to the SFP South Tilt Pit. Refer to SOP-28, Attachment 2, "Spent Fuel Pool Storage Details and Limitations."

# STUDENT HANDOUT

## GCL 11.2

### REFUELING/FUEL HANDLING OPERATION SHIFT CHECKLIST

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- 1.1.10 **VERIFY** boron concentration and surveillance requirements met as follows:
- Refueling: Spent Fuel Pool and Primary Coolant System at Refueling Boron Concentration plus 25 ppm for sample uncertainty. Refer to Technical Specifications LCO 3.9.1 and SR 3.9.1.1, which requires that the boron concentration is at REFUELING BORON CONCENTRATION every 72 hours. The SFP boron concentration is required to be verified every 7 days per SR 3.7.15.1; however, it is typical for Chemistry to sample SFP every 72 hours to ensure the 7 day interval is not exceeded.
  - Fuel Shuffle (in SFP only, MODE 5 and above): SFP boron concentration verified every 7 days. Refer to System Operating Procedure SOP-27, "Fuel Pool System." Refer to Technical Specifications LCO 3.7.15 and SR 3.7.15.1 and SR 3.7.15.1.
- 1.1.11 **ENSURE** containment closure requirements met. Review General Operating Procedure GOP-14, "Shutdown Cooling Operations," Attachment 12, "Penetrations Affecting Containment Closure." One door of the Emergency Air Lock shall be properly closed and sealed. During CORE ALTERATIONS or movement of irradiated fuel in containment, both doors of the Personnel Air Lock may be open at the same time if the equipment door is open and Attachment 4, "GCL 11.4, Refueling/Fuel Handling/Shutdown Cooling Ventilation Checklist," is completed. Refer to Technical Specifications LCO 3.9.3.
- 1.1.12 **ENSURE** the appropriate sections of System Operating Procedure SOP-28, "Fuel Handling System," Attachment 6 or approved vendor procedure completed prior to using the Spent Fuel Elevator. The Upper Inspection Limit Switch Test is required once per day and prior to the use of the elevator if the Upper Inspection Limit Switch Test has not been performed in the last 36 hours.
- 1.1.13 **CHECK** oil level on the Tilt Machine Hydraulic Pump unit of both Tilt Machines once per day prior to use of the Tilt Machines.
- 1.1.14 **CHECK** all required electrical power supplies operable as required by Technical Specifications LCO 3.8.2, LCO 3.8.3, LCO 3.8.5, LCO 3.8.6, LCO 3.8.8, and LCO 3.8.10. Refer to Section 5.5 of this procedure.
- 1.1.15 **REVIEW** data sheet for completion of applicable items AND **ENSURE** proper disposition of off-normal items. For Refueling Operations and Fuel Handling Operations lasting more than 1 day, the Day Shift, Shift Manager should also review Attachment 1, "GCL 11.1, Refueling/Fuel Handling Prerequisite Master Checksheet," to ensure applicable items are still current. This is documented by initialing Shift Manager Review Block.

# STUDENT HANDOUT

## GCL 11.2

### REFUELING/FUEL HANDLING OPERATION SHIFT CHECKLIST

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DATE: TODAY

**NOTE:** Shiftly checks, denoted by a "☞" are the only checks required to be performed when performing fuel handling in the SFP only (refer to Step 1.0 above).

SHIFT CONDITIONS	ITEM(S)	DAY SHIFT		NIGHT SHIFT	
		STATUS	MEETS SPEC	STATUS	MEETS SPEC
1. Radiation Monitors Operable	☞ RIA-2313				
	☞ RIA-5709				
	RIA-2316				
	RIA-2317				
2a,b. Source Range Nuclear Channels Operable	NI-1				
	NI-2				
2c. Control Room AND Containment Audible Count Rate	NI-1				
	NI-2				
3. Communications (Refueling/Fuel Handling Communications attachment completed)	☞ Attachment 3		RO		
4. Shutdown Cooling (at least 1 pump and 1 Hx REFER TO Step 5.5)	P-67A				
	P-67B				
	E-60A				
	E-60B				
5. Heating and Ventilation	☞ Attachment 4		RO		
6. Continuous Air Monitor (CAMs) (No High Alarms in)	☞ SFP				
	☞ Containment				
7. SFP Low Level Alarm	☞ EK-1309 (LS-0924)				
8. SFP/Refueling Cavity Levels (1 foot below skimmers is minimum allowable level)	☞ SFP Level				
	☞ Refueling Cavity Level				

COMMENTS/EXCEPTIONS

# STUDENT HANDOUT

## GCL 11.2

### REFUELING/FUEL HANDLING OPERATION SHIFT CHECKLIST

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DATE: TODAY

**NOTE:** Shiftly checks, denoted by a "☞" are the only checks required to be performed when performing fuel handling in the SFP only (refer to Step 1.0 above).

SHIFT CONDITIONS		ITEM(S)	DAY SHIFT		NIGHT SHIFT	
			STATUS	MEETS SPEC	STATUS	MEETS SPEC
9.	SFP South Tilt Pit level greater than or equal to 647 feet when moving fuel in the six by seven restricted area.	☞ SFP South Tilt Pit Level				
10.	Boron Concentration <b>REFER TO</b> Step 1.1.10	☞ SFP Boron				
		PCS Boron				
11.	Containment Closure and Air Lock/Door Status	Containment Closure				
		Personnel Air Lock				
		Equipment Door				
		Emergency Air Lock				
12.	SFP Elevator	☞ Upper Limit Switch Test				
13.	Tilt Machine Lubrication	Fuel Pool Side				
		RX Side				
14.	Required electrical power supplies					
15.	Shift Manager Review	☞	@			

@ Review completed Attachment 1. Refer to Step 1.1.15 of this attachment.

COMMENTS/EXCEPTIONS



# STUDENT HANDOUT

## GCL 11.3

### REFUELING/FUEL HANDLING COMMUNICATIONS CHECKLIST

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#### INSTRUCTIONS

- 1.0 Direct communication between personnel in Control Room and at Refueling Machine shall be available whenever changes in core geometry are taking place to allow the Nuclear Control Operator to inform the Refueling Machine Operator of any impending unsafe condition detected from the main control board indicators during fuel movement. IF direct communication is not available, THEN immediately suspend core alterations.
- 2.0 Direct communication between personnel in Control Room and at Refueling Machine or Spent Fuel Handling Machine should be available when moving irradiated fuel. For moving irradiated fuel in the SFP area only, communications between the SFHM and any fuel handling communicator should also be available.
- 3.0 IF the Telex Intercom is unavailable, THEN hand-held radios or Plant telephones may be used. Use of Plant telephones require an open line be maintained between the Control Room and the RFM and/or the SFHM. The Telex is considered available if it is located at the REFUELING Logging Station (RLS) and functional.
- 4.0 WHEN the (RLS) is located outside of the Control Room, THEN, in addition to the type of communications used at the RLS, telephone communications from the Control Room to and from the Refueling Machine and Spent Fuel Handling Machine shall be verified. This does not require an open line.
- 5.0 A satisfactory check is indicated by initialing the appropriate block. When a verification is not required, fill in the applicable block with "N/A."

# STUDENT HANDOUT

GCL 11.3

## REFUELING/FUEL HANDLING COMMUNICATIONS CHECKLIST

Proc No GOP-11

Attachment 3

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	<u>DAY SHIFT</u>		<u>NIGHT SHIFT</u>	
	INTERCOM OR RADIO OR TELEPHONE		INTERCOM OR RADIO OR TELEPHONE	
	SEND	RECEIVE	SEND	RECEIVE
Control Room to and from Spent Fuel Handling Machine	NK	NK		
Control Room to and from Refueling Machine	N/A	N/A		
RLS to and from Refueling Machine	N/A	N/A		
RLS to and from Spent Fuel Handling Machine	N/A	N/A		
Spent Fuel Handling Machine to and from Fuel Handling Communicator (Applicable when handling fuel in SFP Only)	NK	NK		

Completed By:

N.C. Operator / ADP  
Nuclear Control Operator  
Today 10800  
Date Time

\_\_\_\_\_  
Nuclear Control Operator  
1  
Date Time

Reviewed By:

SRO / ADP  
SRO  
Today 10805  
Date Time

\_\_\_\_\_  
SRO  
1  
Date Time

# STUDENT HANDOUT

## GCL 11.4

### REFUELING/FUEL HANDLING/SHUTDOWN COOLING VENTILATION CHECKLIST

Proc No GOP-11  
Attachment 4  
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#### INSTRUCTIONS

- 1.0 The following list of ventilation components contains the required and normal status of the applicable equipment for any of the listed Plant conditions stated in Table Section 1.0 and 2.0. Items without a required status may be stopped depending on Plant status. Exceptions and requirements are stated in the Additional Information column. If equipment is not operating, then enter a brief explanation in the Comments section indicating the reason (such as red tagged components). Circle the Current Status for the ventilation equipment and initial at the bottom of the shift column. Initialing signifies that the operator has read and understands the requirements and exceptions and that the equipment is aligned as required for the expected Plant conditions.
- 1.1 Each individual performing the checklist shall sign and date in the space provided at the end of the checklist.
- 1.2 Normal operation of this equipment is controlled by System Operating Procedure SOP-24, "Ventilation And Air Conditioning System." Refer to the SOP-24 Section, "Ventilation Systems Special Alignments," for additional information as necessary.
- 2.0 **Purpose**
- The purpose of this checklist is to ensure the ventilation equipment status meets the minimum requirements to support the following:
- a. Refueling/Fuel handling activities with the equipment hatch open or closed.
  - b. Shutdown Cooling operations with the equipment hatch open.
  - c. Dry Fuel Storage activities.
  - d. Reactor Vessel Head lifts.



# STUDENT HANDOUT

## GCL 11.4

### REFUELING/FUEL HANDLING/SHUTDOWN COOLING VENTILATION CHECKLIST

Proc No GOP-11  
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Equipment	Description	Required Status	Current Status		Applicability	Additional Information
			Days	Nights		
V-10	Radwaste Area Supply Fan		ON/OFF	ON/OFF	(1) (2) (3)	If V-14A or V-14B is stopped, then V-10 shall be OFF. Normally Operating.
V-14A	Radwaste Area Exhaust Fan	At least one V-14 fan shall be operating.	ON/OFF	ON/OFF	(1) (2) (3)	Normally operating.
V-14B			ON/OFF	ON/OFF		
V-7	Fuel Handling Area Supply Fan		ON/OFF	ON/OFF	(1) (2) (3)	If only one V-8A or V-8B is operating, then V-7 shall be OFF. Normally operating.
V-8A	Fuel Handling Exhaust Fan	At least one V-8 fan shall be operating.	ON/OFF	ON/OFF	(1) (2) (3)	With fuel that has less than 30 days decay, only one V-8 I/S allowed. (CAP 047528)
V-8B			ON/OFF	ON/OFF		
V-67	Radwaste Addition Supply Fan		ON/OFF	ON/OFF	(1) (2) (3)	If V-68A or V-68B is stopped, then V-67 shall be OFF. Normally operating.
V-68A	Radwaste Addition Exhaust Fan	At least one V-68 fan shall be operating.	ON/OFF	ON/OFF	(1) (2) (3)	Normally operating.
V-68B			ON/OFF	ON/OFF		
V-69	Fuel Handling Supply Fan		ON/OFF	ON/OFF	(1) (2) (3)	No fans operating with fuel that has less than 30 days decay. (CAP 047528)
V-70A	Fuel Handling Exhaust Fan		ON/OFF	ON/OFF	(1) (2) (3)	
V-70B			ON/OFF	ON/OFF		

#### Applicability

- (1) Equipment Hatch Open
- (2) Core Alterations, or Irradiated Fuel Movement with fuel that has < 30 days decay
- (3) Core Alterations, or Irradiated Fuel Movement with fuel that has  $\geq$  30 days decay

# STUDENT HANDOUT

## GCL 11.4

### REFUELING/FUEL HANDLING/SHUTDOWN COOLING VENTILATION CHECKLIST

Proc No GOP-11  
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Equipment	Description	Required Status	Current Status		Applicability	Additional Information
			Days	Nights		
CR HVAC Filtration	A Train	Operable	YES/NO	YES/NO	(2) (3)	Reactor Vessel Head transport requires one train of Control Room HVAC operable and in EMERGENCY MODE.
	B Train	Operable	YES/NO	YES/NO		
CR HVAC Cooling	A Train	Operable	YES/NO	YES/NO	(2) (3)	
	B Train	Operable	YES/NO	YES/NO		
VF-66	Fuel Handling Area Charcoal Filter	Operable	YES/NO	YES/NO	N/A (2)	
HS-1894	Fuel Handling Area Damper Control	REFUEL	YES/NO	YES/NO	N/A (2)	Caution Tagged Stating, "Leave HS-1894 in REFUEL per GOP-11." (CAP047528)
HS-1893	Fuel Handling Ventilation Emergency Trip	Emergency Trip	TRIP/ NORM	TRIP/ NORM	N/A (2)	
Door 280	SFP HVAC and MCC room	Closed (Not blocked open)	YES/NO	YES/NO	N/A (2)	
Door 933	SFP roof hatch	Closed	YES/NO	YES/NO	N/A (2)	
Track Alley Hatch Covers		Installed	YES/NO	YES/NO	N/A (2)	Not required if roll up door is closed and all Track Alley doors are closed (not blocked open).
Roll up Door		Closed	YES/NO	YES/NO	N/A (2)	
Track Alley Doors		Closed (Not blocked open)	YES/NO	YES/NO	N/A (2)	Not required if Track Alley hatch covers are installed.

Days

Nights

Applicability

- (2) Core Alterations, or Irradiated Fuel Movement with fuel that has < 30 days decay
- (3) Core Alterations, or Irradiated Fuel Movement with fuel that has  $\geq$  30 days decay

Completed by: N.C. Operator / N.C. Operator  
Nuclear Control Operator

Nuclear Control Operator

Today 1 0900  
Date Time

1  
Date Time

Reviewed by: SROp / SRO  
SRO

SRO

Today 1 0210  
Date Time

1  
Date Time

## KEY

GCL 11.2REFUELING/FUEL HANDLING OPERATION  
SHIFT CHECKLISTProc No GOP-11  
Attachment 2  
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Page 1 of 51.0 **PERFORM** shiftly checks provided below as follows:

- Once each shift during Refueling Operations.
- Prior to fuel handling, if Refueling Operations or fuel handling in SFP has been suspended for greater than 8 hours.
- Items denoted by a "P" are the only checks required when performing fuel handling in the SFP only. Refer to the table on Pages 4 and 5.

1.1 **DOCUMENT** shiftly checks as follows:

- a. IF a check is satisfactory, **THEN RECORD** applicable readings or conditions in the "STATUS" block **AND INITIAL** in the "MEETS SPEC" block.
- b. WHEN a check is not required because of Plant conditions, **THEN RECORD** "N/A" in the "STATUS" and "MEETS SPEC" blocks.
- c. IF a check is unsatisfactory, **THEN INDICATE** why it is unsatisfactory in the Comments Section.

1.1.1 Radiation Monitor Checks

- a. **CHECK** RIA-2316 updating with time **AND ENTER** reading. Refer to Technical Specifications LCO 3.3.6.
  - **ENSURE** cut out switch is in "IN" position (Key 54).
- b. **CHECK** RIA-2317 updating with time **AND ENTER** reading Refer to Technical Specifications LCO 3.3.6.
  - **ENSURE** cut out switch is in "IN" position (Key 55).
- c. **CHECK** RIA-2313 updating with time **AND ENTER** reading.
- d. **CHECK** RIA-5709 updating with time **AND ENTER** reading.

1.1.2 Source Range Nuclear Channels Checks

- a. **VERIFY** NI-1 operable with operable visual in the Control Room. Refer to Technical Specifications LCO 3.9.2.
- b. **VERIFY** NI-2 operable with operable visual in the Control Room. Refer to Technical Specifications LCO 3.9.2.

## KEY

GCL 11.2REFUELING/FUEL HANDLING OPERATION  
SHIFT CHECKLISTProc No GOP-11  
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- c. **VERIFY** operable audible source range indication in Control Room and available in-service audible indication in Containment.
  - 1. IF the Control Room audible indication is inoperable, THEN DECLARE both source range channels inoperable. Refer to Technical Specification B3.9.2.
- 1.1.3 **COMPLETE** Attachment 3, "GCL 11.3, Refueling/Fuel Handling Communications Checklist" to verify Communications between the Control Room and Spent Fuel Pool, Refueling Machine, and Refueling Cavity maintained.
- 1.1.4 **VERIFY** Shutdown Cooling System operating with at least one Shutdown Cooling Pump and Heat Exchanger in operation. Refer to Technical Specifications LCO 3.9.4 and LCO 3.9.6.
- 1.1.5 **COMPLETE** Attachment 4, "GCL 11.4, Refueling/Fuel Handling/Shutdown Cooling Ventilation Checklist." Refer to Technical Specifications LCO 3.7.10, LCO 3.7.11, LCO 3.7.12, LCO 3.9.3a, and LCO 3.9.3b.
- 1.1.6 **VERIFY** Continuous Air Monitor (CAM) units positioned in refueling areas are operating with no high radiation alarms in. If operational CAMs are not available, refer to General Operating Procedure GOP-11, "Refueling Operations and Fuel Handling," Step 5.6.3.
- 1.1.7 WHEN Door-950, South Spent Fuel Pool Door is removed, THEN VERIFY Spent Fuel Pool HI/LO level alarm, EK-1309 (LS-0924), operable as follows:
  - a. **VERIFY** no outstanding work orders indicating LS-0924, Spent Fuel Pool Level Switch is inoperable.
  - b. With SFP level at normal level, **VERIFY** EK-1309 not alarming.
  - c. **VERIFY** locally no physical damage to LS-0924 (located NW corner of SFP).
- 1.1.8 **VERIFY** levels in the Spent Fuel Pool and Refueling Cavity maintained. Minimum allowable level is greater than or equal to 647 feet. Refer to Technical Specifications LCO 3.7.14 and LCO 3.9.6.
- 1.1.9 **VERIFY** SFP South Tilt Pit level greater than or equal to 647 feet when moving fuel in the six by seven restricted area adjacent to the SFP South Tilt Pit. Refer to SOP-28, Attachment 2, "Spent Fuel Pool Storage Details and Limitations."



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- 1.1.10 **VERIFY** boron concentration and surveillance requirements met as follows:
- Refueling: Spent Fuel Pool and Primary Coolant System at Refueling Boron Concentration plus 25 ppm for sample uncertainty. Refer to Technical Specifications LCO 3.9.1 and SR 3.9.1.1, which requires that the boron concentration is at REFUELING BORON CONCENTRATION every 72 hours. The SFP boron concentration is required to be verified every 7 days per SR 3.7.15.1; however, it is typical for Chemistry to sample SFP every 72 hours to ensure the 7 day interval is not exceeded.
  - Fuel Shuffle (in SFP only, MODE 5 and above): SFP boron concentration verified every 7 days. Refer to System Operating Procedure SOP-27, "Fuel Pool System." Refer to Technical Specifications LCO 3.7.15 and SR 3.7.15.1 and SR 3.7.15.1.1.
- 1.1.11 **ENSURE** containment closure requirements met. Review General Operating Procedure GOP-14, "Shutdown Cooling Operations," Attachment 12, "Penetrations Affecting Containment Closure." One door of the Emergency Air Lock shall be properly closed and sealed. During CORE ALTERATIONS or movement of irradiated fuel in containment, both doors of the Personnel Air Lock may be open at the same time if the equipment door is open and Attachment 4, "GCL 11.4, Refueling/Fuel Handling/Shutdown Cooling Ventilation Checklist," is completed. Refer to Technical Specifications LCO 3.9.3.
- 1.1.12 **ENSURE** the appropriate sections of System Operating Procedure SOP-28, "Fuel Handling System," Attachment 6 or approved vendor procedure completed prior to using the Spent Fuel Elevator. The Upper Inspection Limit Switch Test is required once per day and prior to the use of the elevator if the Upper Inspection Limit Switch Test has not been performed in the last 36 hours.
- 1.1.13 **CHECK** oil level on the Tilt Machine Hydraulic Pump unit of both Tilt Machines once per day prior to use of the Tilt Machines.
- 1.1.14 **CHECK** all required electrical power supplies operable as required by Technical Specifications LCO 3.8.2, LCO 3.8.3, LCO 3.8.5, LCO 3.8.6, LCO 3.8.8, and LCO 3.8.10. Refer to Section 5.5 of this procedure.
- 1.1.15 **REVIEW** data sheet for completion of applicable items AND ENSURE proper disposition of off-normal items. For Refueling Operations and Fuel Handling Operations lasting more than 1 day, the Day Shift, Shift Manager should also review Attachment 1, "GCL 11.1, Refueling/Fuel Handling Prerequisite Master Checksheets," to ensure applicable items are still current. This is documented by initialing Shift Manager Review Block.

## ANSWER KEY

KEY

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DATE: TOOAL**NOTE:**

Shiftly checks, denoted by a "☞" are the only checks required to be performed when performing fuel handling in the SFP only (refer to Step 1.0 above).

SHIFT CONDITIONS	ITEM(S)	DAY SHIFT		NIGHT SHIFT	
		STATUS	MEETS SPEC	STATUS	MEETS SPEC
1. Radiation Monitors Operable	☞ RIA-2313	READING	INITIALS		
	☞ RIA-5709	READING	INITIALS		
	RIA-2316	N/A	N/A		
	RIA-2317	N/A	N/A		
2a,b. Source Range Nuclear Channels Operable	NI-1	N/A	N/A		
	NI-2	N/A	N/A		
2c. Control Room AND Containment Audible Count Rate	NI-1				
	NI-2	N/A	N/A		
3. Communications (Refueling/Fuel Handling Communications attachment completed)	☞ Attachment 3		INITIALS		
4. Shutdown Cooling (at least 1 pump and 1 Hx REFER TO Step 5.5)	P-67A	N/A	N/A		
	P-67B	N/A	N/A		
	E-60A				
	E-60B				
5. Heating and Ventilation	☞ Attachment 4		INITIALS		
6. Continuous Air Monitor (CAMs) (No High Alarms in)	☞ SFP		INITIALS		
	Containment	N/A	N/A		
7. SFP Low Level Alarm	☞ EK-1309 (LS-0924)		INITIALS		
8. SFP/Refueling Cavity Levels (1 foot below skimmers is minimum allowable level)	☞ SFP Level	READING	INITIALS		
	Refueling Cavity Level	N/A	N/A		

COMMENTS/EXCEPTIONS

# ANSWER KEY

**KEY**  
**GCL 11.2**

## **REFUELING/FUEL HANDLING OPERATION** **SHIFT CHECKLIST**

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DATE: \_\_\_\_\_

**NOTE:** Shiftly checks, denoted by a "☞" are the only checks required to be performed when performing fuel handling in the SFP only (refer to Step 1.0 above).

SHIFT CONDITIONS	ITEM(S)	DAY SHIFT		NIGHT SHIFT	
		STATUS	MEETS SPEC	STATUS	MEETS SPEC
9. SFP South Tilt Pit level greater than or equal to 647 feet when moving fuel in the six by seven restricted area.	☞ SFP South Tilt Pit Level	N/A	N/A		
10. Boron Concentration <b>REFER TO</b> Step 1.1.10	☞ SFP Boron	2620 ppm	INITIALS		
	PCS Boron	N/A	N/A		
11. Containment Closure and Air Lock/Door Status	Containment Closure	N/A	N/A		
	Personnel Air Lock	N/A	N/A		
	Equipment Door	N/A	N/A		
	Emergency Air Lock	N/A	N/A		
12. SFP Elevator	☞ Upper Limit Switch Test	N/A	N/A		
13. Tilt Machine Lubrication	Fuel Pool Side	N/A	N/A		
	RX Side	N/A	N/A		
14. Required electrical power supplies		N/A	N/A		
15. Shift Manager Review	☞	@			

@ Review completed Attachment 1. Refer to Step 1.1.15 of this attachment.

COMMENTS/EXCEPTIONS