TITLE: Movement of the Dummy Fuel Bundle in the Spent Fuel Pool

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

NOTE: When used as an exam item for initial LSRO candidates, two qualified LSROs or DAs are required on the bridge to ensure correct Double Verification. Initial LSRO candidates will be acting as platform operator; a position that normally utilizes a spotter for procedure reading, referencing, and performing the first check. This exam exercise will require the candidate to perform the first check as the RPO, with the qualified Fuel Handling Director performing the second check. In addition, the second qualified operator will perform a double verification.

Pre-brief the qualified FHD that he or she is the accountable individual who is responsible for equipment safety, personal safety, and reactivity controls during operation by the candidate. The FHD is expected to maintain constant attention on bridge and mast operation such that intervention is possible prior to any misoperation or contact with obstructions. As a minimum, this includes (1) immediately stopping the bridge if a CCTAS error is committed or if unsafe bridge operation is taking place (2) restoring to starting conditions between each JPM, (3) collecting and returning the CCTAS signed final copies, and (4) shutting down the refueling platform after the exams. The qualified FHD will have as little interaction as possible with the candidate other than performing the DV.

The qualified Operator should perform startup and checkout of the refueling platform and have on-hand the marked up copies of the procedures for review by the candidates. The actual CCTAS and bridge operating procedure in-use will be on the refuel platform.

The support of and coordination with the following is necessary to permit the conduct of the JPM:

1. NMD to schedule bridge availability and provide qualified operators
2. Operations for Refuel Floor Secondary Containment Integrity if required
3. Reactor Engineering for CCTAS generation
4. Health Physics for Refuel Floor and RWP support. The grappling and movement of components may require use of the refuel floor RWP in lieu of the work group standing RWP. Ensure a HP briefing is received prior to the exam.

EVALUATION METHOD :

PERFORM

EVALUATION LOCATION:

Refuel Platform

APPROXIMATE COMPLETION TIME:

Completion Time: 60 minutes

IMPORTANCE RATING(S):

3.5

SYSTEM NUMBER(S):

2.2.28 Generic

REFERENCES:

1. FH-106, **Rev 24,** CORE COMPONENT AND IRRADIATED ITEM MOVEMENT – NO CORE TRANSFER
2. S97.0.M, **Rev 12,** OPERATION OF THE REFUELING PLATFORM
3. S97.1.A **REV 12**, ELECTRICAL, MECHANICAL, AND PNEUMATIC ALIGNMENT/CHECKOUT OF REFUELING PLATFORM, BRIDGE, TROLLEY, AND MAIN HOIST FOR OPERATION
4. RE-C-40, **Rev 9,** CORE COMPONENT TRANSFER AUTHORIZATION SHEET GENERATION AND ADMINISTRATION

TASK STANDARD(S):

Dummy fuel bundle transferred IAW the attached CCTAS and associated procedures

TASK CONDITIONS:

1. Secondary containment integrity is established
2. The Unit ___ refuel platform is ready for operation per S97.0.M and S97.1.A
3. FH-106 prerequisites are complete
4. Reactor Engineering has required a CCTAS for the movement of the dummy fuel bundle. The CCTAS has been provided to you.
5. Shift supervision permission has been obtained to operate the refueling platform

INITIATING CUES:

You are directed by shift supervision to transfer the dummy fuel bundle in the Unit ___spent fuel pool per the attached CCTAS. You are expected to perform the actions of the Platform Operator and to perform actual operation of the equipment, rather than a simulation.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

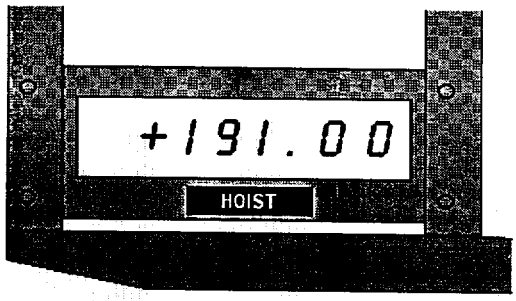
The qualified LSRO will have completed portions of the following procedures to allow actual use of the refuel platform. These copies will be signed off and should remain on or near the refuel platform. The candidate may wish to review the signoffs.

1. FH-106, CORE COMPONENT AND IRRADIATED ITEM MOVEMENT – NO CORE TRANSFER
2. S97.1.A , ELECTRICAL, MECHANICAL, AND PNEUMATIC ALIGNMENT/CHECKOUT OF REFUELING PLATFORM, BRIDGE, TROLLEY, AND MAIN HOIST FOR OPERATION

Ensure a blank copy of the approved CCTAS is on the FHD desk. Ensure S97.0.M is available in the binders located at the FHD desk.

STEP		STANDARD	SAT/UNSAT
Bundle Pickup per S97.0.M			
1.	*Position Refuel Platform Mast over the desired core component in accordance with the CCTAS	Bridge, and Trolley controls manipulated until the mast is positioned over the dummy bundle (Evaluator Note: Small adjustments in position may be required once the grapple is near the bundle)	
2.	Lower grapple until grapple is 6 to 12 inches above bail	Grapple 6 to 12 inches above DUMMY bundle bail handle. Hoist encoder reads between following values: Unit 1-178" and 186 Unit 2- 182" and 190" *Critical value is at least 174, or grapple will not open in the next step	
3.	Ensure grapple is open	Grapple is open as indicated by lack of green backlighting on grapple control rocker switch (green=closed; out=open)	
4.	Rotate grapple as necessary to achieve grapple to bail alignment	Grapple is aligned with bail. Verify using mast camera.	

STEP	STANDARD	SAT/UNSAT
5. *Slowly lower grapple until SLACK CABLE light is lit	Grapple is lowered until red SLACK CABLE lamp is lit with grapple being seated on the dummy bundle bail handle	
6. Verify proper core component location and orientation Although this step is important, it is non-critical for this JPM because the bundle will already be aligned correctly. It would have been critical if this were an alternate path JPM with the bundle found rotated at this point.	Grapple is on the dummy bundle in the correct fuel pool location. The bundle channel fastener is oriented per the CCTAS (use mast video image and compass rose painted on refuel bridge deckplates. The mast image is of the corner of the bundle CLOSEST to the operator. (If you cannot see the channel fastener, then the bundle is oriented in the same compass direction as the operator is facing when holding the mast handles)	
7. Verify the following then notify the FHD of grapple position:	N/A	N/A
a. Grapple is centered over the bail handle	Grapple is landed and centered on the DUMMY bundle bail handle. Video image will be similar to the image below. When properly landed, only the corner of the bundle is visible, with a symmetric, even appearance.  **Image is looking almost straight down toward top of bundle. The shiny portion is the grapple and the dark portion is the bundle** FHD is notified that grapple is centered on the bundle	

STEP	STANDARD	SAT/UNSAT
b. Hoist position agrees with values listed in Attachment 2 for item seated in the Fuel Storage Pool Rack	Hoist encoder (bottom LED display in front of RPO console) reads: Unit 1: 190" to 192" Unit 2 : 194" to 196"  FHD is notified that the hoist position is correct	
c. Grapple appears seated on bail handle using underwater camera for component seated in the cask	N/A (Not in the cask)	N/A
8. *When directed by the FHD, then engage the grapple and verify grapple engaged light is lit CUE: "The Fuel Handling Director has directed you to engage the grapple"	Grapple control switch actuated to ENGAGE Green backlighting on grapple switch lit	
9. *When directed by the FHD, then slowly raise load while ensuring HOIST LOADED light is lit CUE: "The Fuel Handling Director has directed you to raise the bundle"	RAISE actuated on grapple console Red HOIST Loaded lamp lit on hoist console	
10. *Continue raising until grapple is fully raised then verify NORMAL UP lamp is lit	Green NORMAL UP lamp received on hoist console	

STEP	STANDARD	SAT/UNSAT
11. Go to appropriate "Release Location" section of this procedure as directed by the FHD	Move to Section 4.5, "Release Location-Fuel Pool Storage Rack or Cask Pit"	
Bundle Drop-off Attempted per S97.0.M		
12. *Position core component over desired location in accordance with the Core Component Transfer Authorization Sheet (CCTAS) **CUE: (After the bridge is driven to the drop-off location):** **"The fuel rack target location is obstructed by some plastic packing material and does not appear to allow bundle insertion"**	Operate bridge and trolley controls to position the mast over the target location on the CCTAS Stop component transfer when obstruction is cued	
Alternate Path – CCTAS Step Cannot be Completed (FH-106 and RE-C-40)		

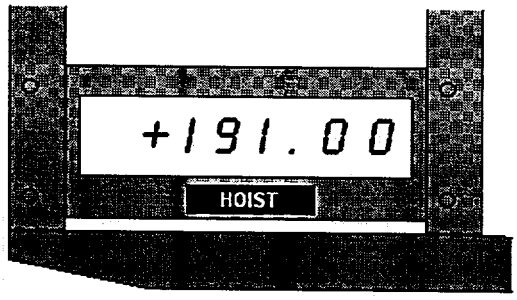
Examiner Note:

There are two ways to pass the next two steps dealing with a CCTAS step that cannot be performed: Place in the approved safe setdown location or place in the original location. Either method is pre-approved by the RE per Item 2 on the CCTAS cover sheet. Regardless of the method chosen, the candidate must contact the RE. The sequence is not critical. The bundle may be safely stowed first because the locations are approved. If the candidate chooses to contact the RE first, then you will provide a cue to return to the original location. Otherwise, the candidate may place in the approved alternate location, with the qualified FHD returning the bundle to the starting location after the JPM.

Step 13 is only grading the decision, with the actual move graded later.

STEP	STANDARD	SAT/UNSAT
13. *Contact Reactor Engineering and Perform one of the following per RE-C-40 and CCTAS instructions • Return the bundle to the original location • Place the bundle in the approved alternate location on the CCATS cover sheet • Request an alternate location CUE if RE contacted prior to move: "Reactor engineering has directed you to initiate CCTAS pen and ink change to return to the original location".	Contact Reactor Engineering AND Make decision to return to original location OR Make decision to return to place in the alternate location listed OR Request RE provide location	
14. The pen and ink change should follow the following format: i. Single line through item to be changed ii. Date and Initial of both Fuel Handling Director and Reactor Enginering group member CUE: "Reactor Engineering has approved the change to the CCTAS and concurs with continuation of CCTAS execution" "The Reactor Engineer's initials are ABC"	Pen and ink change made to CCTAS per RE-C-40 by lining out the "MOVE TO" and "ORIENT" information on Move #1 and entering the new information as follows: MOVE TO and ORIENT: Same as MOVE FROM (_____) or the approved alternate from the cover sheet (_____) Change is initialed by Fuel Handling Director and includes initials from RE.	
Resumption of Component Transfers in S97.0.M		
15. *Position core component over desired location in accordance with the Core Component Transfer Authorization Sheet (CCTAS)	Operate bridge and trolley controls to position the mast over the target location on the CCTAS	

STEP	STANDARD	SAT/UNSAT
16. *Rotate core component as necessary to achieve proper orientation	Mast rotated to orient the bundle in the direction called for in the CCTAS. The bundle channel fastener is oriented per the CCTAS (use mast video image and compass rose painted on refuel bridge deckplates. The mast image is of the corner of the bundle CLOSEST to the operator. (If you cannot see the channel fastener, then the bundle is oriented in the same compass direction as the operator is facing when holding the mast handles)	
17. Perform double verification to ensure proper core component location and orientation	Double verification performed	
18. *When directed by the FHD, then lower the hoist until core component is seated and SLACK CABLE is lit CUE: "The Fuel Handling Director has directed you to lower the hoist"	Bundle lowered until red SLACK CABLE lamp is lit on hoist control console.	
19. Verify the following...	N/A	N/A
a. Component elevation appears equivalent to other stored components in the rack Not critical because next step covers same thing	Elevation of the handle for the still-grappled dummy bundle is the same as the other bundles	

STEP	STANDARD	SAT/UNSAT
b. *Hoist position agrees with the value listed in Attachment 2 for item seated in Fuel Storage Rack	Hoist encoder (bottom LED display in front of RPO console) reads: Unit 1: 190" to 192" Unit 2 : 194" to 196" 	
20. ...then notify the FHD of grapple position	FHD notified of grapple position	
21. *When directed by the FHD, then release grapple CUE: " The Fuel Handling Director has directed you to release the grapple"	Grapple switch taken to RELEASE	
22. Verify grapple is open	Green backlighting out on the grapple control switch	
23. *Slowly raise grapple while verifying HOIST LOADED remains out and grapple remains free of bail handle	Grapple control taken to RAISE HOIST LOADED yellow lamp on left side of hoist control console remains out	
24. Record completion of component transfer in CCTAS	CCTAS updated with date, time, and RPO initials	
CUE: You have reached the termination point for this JPM. You may stop here.	N/A	N/A

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. Secondary containment integrity is established
2. The Unit ___ refuel platform is ready for operation per S97.0.M and S97.1.A
3. FH-106 prerequisites are complete
4. Reactor Engineering has required a CCTAS for the movement of the dummy fuel bundle. The CCTAS has been provided to you.
5. Shift supervision permission has been obtained to operate the refueling platform

INITIATING CUES:

You are directed by shift supervision to transfer the dummy fuel bundle in the Unit ___spent fuel pool per the attached CCTAS. You are expected to perform the actions of the Platform Operator and to perform actual operation of the equipment, rather than a simulation.

CANDIDATE

TITLE: LPRM Removal

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

There is a mockup of a small portion of top guide and core plate on the refuel floor; usually near the East end of the Unit 2 fuel pool. It contains a LPRM mockup. Examiners may wish to allow the candidate to demonstrate the process of LPRM removal using the mockup and included pictures of the tool.

EVALUATION METHOD :

SIMULATE

EVALUATION LOCATION:

REFUEL PLATFORM

APPROXIMATE COMPLETION TIME:

Completion Time: 30 min

IMPORTANCE RATING(S):	SYSTEM NUMBER(S):
3.5	2.2.27

REFERENCES:

M-C-774-010, LPRM/SRM, IRM, WRNM DRY TUBE REPLACEMENT

TASK STANDARD(S):

LPRM removed and transported per the CCTAS and M-C-774-010

:

TASK CONDITIONS:

1. LPRM Replacement per M-C-774-010 is in progress
2. A copy of M-C-774-010 with section 5.4 ready to execute has been provided
3. A CCTAS has been provided
4. The 4 bundles around the LPRM are removed
5. The instrument handling tool is installed on the monorail aux hoist
6. Undervessel personnel have installed and tested the seal tube and flush fixture to LPRM 24-25

INITIATING CUES:

Shift supervision has directed you to execute the CCTAS for removal of LPRM 24-25 per M-C-774-010 Section 5.4

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Verify the four core locations surrounding each instrument to be replaced are vacant	Bundles verified removed	
2. Ensure the proper operation of the instrument handling tool by actuating tool and observing that both the upper roller stop and lower slide move feely CUE: While actuating the tool, it responds per the figures provided (**Provide attached photos of the tool for JPM Step 2)**	Recognize tool is cycling correctly. Both the lower slide and the upper roller are extending and retracting	
3. *Press ENGAGE on hoist pendant to place tool roller stop in the extended position CUE: ENGAGE has been depressed and the roller stop has extended	ENGAGE depressed	
4. Ensure refuel platform hoist mechanical stop (jam block) is set such that the tool lower slide is at least 5 feet 6 inches below the surface of the water. Record on Attachment 6 CUE: "You set the jam blocks earlier to 5 feet six and one half inches"	Jam block setting verified	
5. *Per CCTAS, verify proper core location, then lower tool onto top guide with tool oriented such that the roller stop and slide point toward instrument to be removed CUE: The tool is lowered and is resting on the top guide.	Tool lowered onto top guide and pointing toward 24-25	

STEP	STANDARD	SAT/UNSAT
6. Request undervessel personnel perform Step 5.4.6 CUE: Step 5.4.6 has been performed	Undervessel personnel requested to perform Step 5.4.6 to install and test the flush fixture	
7. Using camera, ensure the tool is seated on the top guide and the slide in oriented toward instrument CUE: The tool appears as per the picture provided. **(Provide camera view photo for JPM Step 7)**	Recognize correct seating and continue	
8. *Ensure hoist cable is taut by bumping hoist up to remove all slack or by performing safety bend CUE: Cable is taut using (hoist / safety bend)	Bump hoist up OR use safety bend on cable	
9. *Press RELEASE on hoist pendant CUE: RELEASE is depressed	Depress RELEASE on hoist pendant	
10. Using camera, verify tool slide has extended and straddles instrument plunger CUE: The tool slide has extended and straddles the instrument plunger	Ensure tool slide straddles instrument plunger	
11. *Lower tool using hoist or by releasing safety bend CUE: Tool has been lowered	Lower tool by lowering hoist or releasing safety bend	
12. Using camera, verify tool has depressed plunger out from top guide socket CUE: The plunger has come down with the tool and is free of the top guide socket	Plunger verified to be free of the top guide socket	
13. *Press ENGAGE on hoist pendant and verify tool slide retracts instrument plunger into tool CUE: Engage is depressed and the tool slide has retracted the plunger into the tool	ENGAGE depressed. Tool slide verified to retract plunger into tool	

STEP	STANDARD	SAT/UNSAT
14. *Ensure access to upper elevations of drywell have been restricted as required by Health Physics prior to removing irradiated instruments CUE: Health Physics drywell control point reports that access to the upper elevations of the drywell is restricted	Contact drywell control point and notify that irradiated component movement is about to commence.	
15. Request undervessel personnel to backflush instrument housing per Step 5.4.16 CUE: Backflush of LPRM 24-25 has commenced	Request undervessel crew commence backflush Step 5.4.16	
16. WARNING: Health Physics shall monitor dose rates during raising, bending, and transport of the instrument. Raising of the instrument shall stop if radiation levels exceed 30 mr/hr at water surface with instrument 1 foot below water CUE: Health Physics is monitoring dose rates (if requested for updates later, simulate monitoring by providing slowly rising dose rates corresponding to raising the LPRM. Do not exceed 15 mr/hr)	Ensure Health Physics Technician is monitoring dose rates	
17. *When notified that flush has commenced, Raise instrument from core until it clears the core top guide	RAISE depressed on pendant controller	
18. CUE: The LPRM is clear of the core top guide	Stop raising the LPRM	
19. CUE: You have reached the termination point of the JPM. You may stop here.		

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

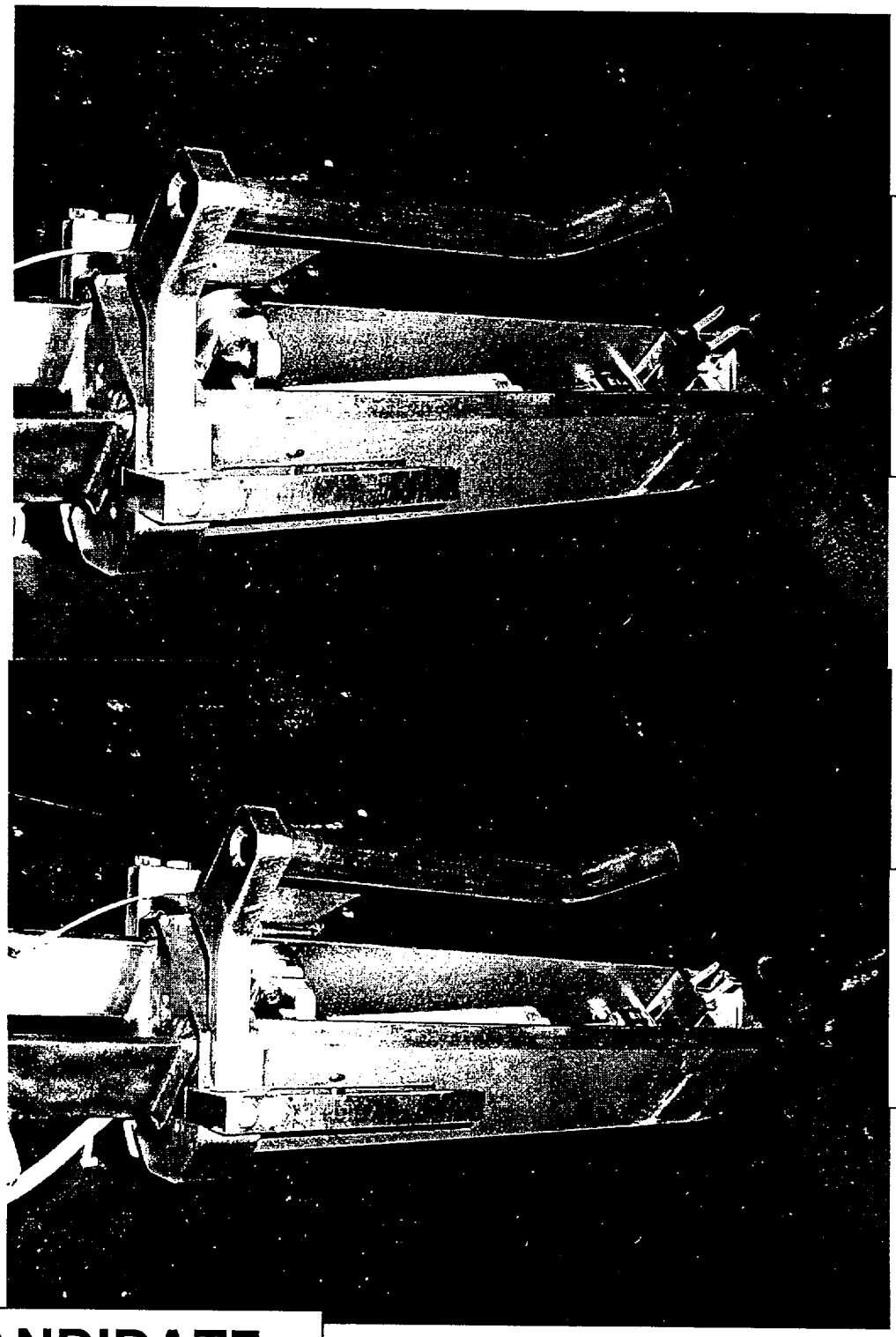
1. LPRM Replacement per M-C-774-010 is in progress
2. A copy of M-C-774-010 with section 5.4 ready to execute has been provided
3. A CCTAS has been provided
4. The 4 bundles around the LPRM are removed
5. The instrument handling tool is installed on the monorail aux hoist
6. Undervessel personnel have installed and tested the seal tube and flush fixture to LPRM 24-25

INITIATING CUES:

Shift supervision has directed you to execute the CCTAS for removal of LPRM 24-25 per M-C-774-010 Section 5.4

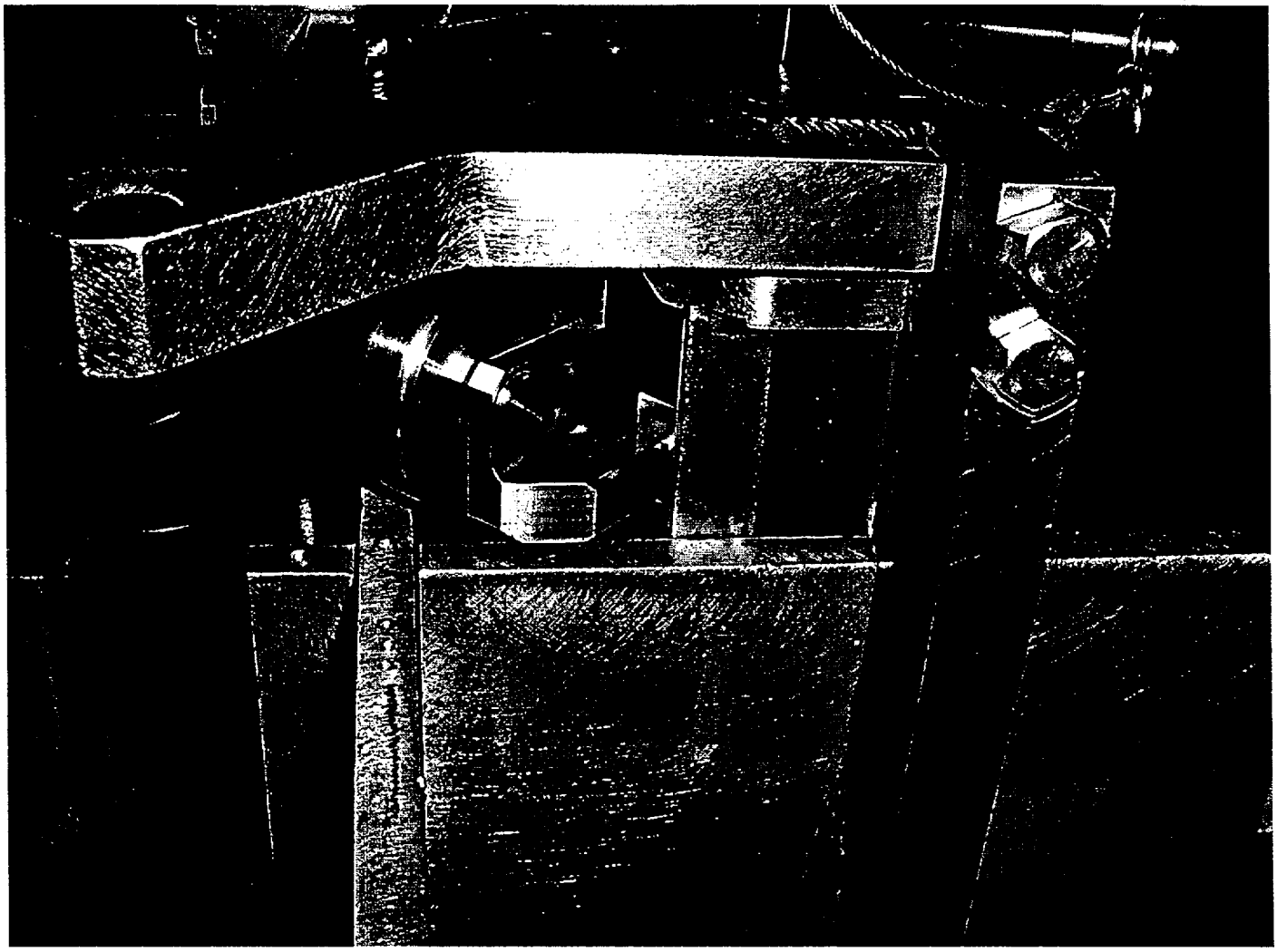
CANDIDATE

Instrument Handling Tool While Actuating Tool
JPM Step 2



CANDIDATE

Camera View for Step 5.4.7 JPM Step 7



CANDIDATE

TRANSFE, ,UTHORIZATION FOR FH-106
M-219966 Rev. 1/89
DOCTYPE 113

SRM ONLY

Written By: *TRAINING USE ONLY*

Unit LIMERICK GENERATING STATION Date 6/3/02

Reviewed By: *TRAINING USE ONLY*

Title TRAINING CCTAS

Authorized By: *TRAINING USE ONLY*

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	SRM COUNTRATE				DATE	TIME
									A	B	C	D		
118	LPRM L,123,XYZ	24-25	NONE	BENDER	NONE				NA	NA	NA	NA		
119	LPRM L,123,XYZ	BENDER	NONE	UNIT 1 SPENT FUEL POOL WALL	NONE				NA	NA	NA	NA		
	Above LPRM hung on Tag#_____													
120	LPRM L,OU812	FUEL FLOOR	NONE	24-25	NONE				NA	NA	NA	NA		

JPM 2 CCTAS for Unit 1

CANDIDATE

TRANSFE. .UTHORIZATION FOR FH-106
M-219966 Rev. 1/89
DOCTYPE 113

SRM ONLY

Written By: *TRAINING USE ONLY*

Unit LIMERICK GENERATING STATION Date 6/3/02

Reviewed By: *TRAINING USE ONLY*

Title TRAINING CCTAS

Authorized By: *TRAINING USE ONLY*

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	SRM COUNTRATE				DATE	TIME
									A	B	C	D		
118	LPRM L,123,XYZ	24-25	NONE	BENDER	NONE				NA	NA	NA	NA		
119	LPRM L,123,XYZ	BENDER	NONE	UNIT 2 SPENT FUEL POOL WALL	NONE				NA	NA	NA	NA		
	Above LPRM hung on Tag#_____													
120	LPRM L,OU812	FUEL FLOOR	NONE	24-25	NONE				NA	NA	NA	NA		

JPM 2 CCTAS for Unit 2

CANDIDATE

TITLE: Movement of fuel from the fuel prep machine (Alternate Path)

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

SIMULATE

EVALUATION LOCATION:

REFUELING PLATFORM

APPROXIMATE COMPLETION TIME:

Completion Time: 30 min

IMPORTANCE RATING(S):	SYSTEM NUMBER(S):
3.5	2.2.28

REFERENCES:

FH-106, CORE COMPONENT AND IRRADIATED ITEM MOVEMENT – NO CORE TRANSFER
S97.0.M, REFUELING PLATFORM OPERATION

TASK STANDARD(S):

Fuel moved to target location per CCTAS, with response to unexpected slack cable warning per S97.0.M

TASK CONDITIONS:

1. A fuel bundle is ready for pickup in the Unit ___North fuel prep machine and release in the spent fuel pool
2. All prerequisites are complete, with FH-106 and S97.0.M in progress
3. The refueling platform is in operation and positioned over the spent fuel pool

INITIATING CUES:

You are directed to perform the fuel transfer listed in the attached CCTAS

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Section 4 of S97.0.M, Pickup Location- Fuel Prep Machine		
1. Verify fuel prep machine is fully lowered CUE: The fuel prep machine is fully lowered	Verify fuel prep machine is fully lowered *(Note: Normally performed by NMD, not the LSRO)*	
Caution: Use extreme care to avoid entanglement of main mast or grappled fuel bundle with fuel inspection and test equipment located in the vicinity of the fuel prep machines	N/A	N/A
2. *Carefully position the refuel platform mast over the fuel prep machine in accordance with the CCTAS CUE:The bridge is positioned over the fuel prep machine.	Bridge and trolley controls operated to position the bridge over the fuel prep machine	
3. *Lower grapple until the grapple is 6 to 12 inches above the bail CUE: The grapple encoder reads 157 inches	Hoist lowered until the grapple is 6 to 12 inches above the bail handle	
4. *Depress the GRAPPLE LOCKOUT BYPASS pushbutton CUE: GRAPPLE LOCKOUT BYPASS pushbutton is depressed and held	GRAPPLE LOCKOUT BYPASS pushbutton depresse	
5. Ensure the grapple is open CUE: The grapple switch is in RELEASE with no backlight	Ensure the grapple is open	
6. *Rotate grapple as necessary to achieve grapple to bail alignment CUE: The grapple head is aligned the same as the bail handle	Rotate grapple until the grapple end is oriented the same as the bail handle	

STEP	STANDARD	SAT/UNSAT
7. *Slowly lower grapple until SLACK CABLE light is lit CUE: The red SLACK CABLE lamp is lit	Grapple controls taken to LOWER until SLACK CABLE is lit	
Steps 4.3.8 through 4.3.13 shall be double verified by the Fuel Handling Director and the Refuel Platform Operator or Spotter CUE: The Fuel Handling Director is performing double verification		
8. Verify proper core component location and orientation CUE: Bundle is in the fuel prep machine and the channel fastener is northeast	Bundle location and orientation verified	
9. Verify the following then notify FHD of grapple position	N/A	N/A
a. Grapple is centered over bail handle CUE: Grapple is centered over the bail handle	Grapple verified to be centered over the bail handle	
b. Hoist position indication agrees with value listed in Attachment 2 for item seated in the fuel prep machine CUE: Hoist position indicates 165 inches	Hoist position verified	
10. *When directed by FHD, then engage the grapple and release the grapple lockout pushbutton CUE: Grapple control switch is in ENGAGE position. GRAPPLE LOCKOUT BYPASS is released	Grapple control switch taken to ENGAGE GRAPPLE LOCKOUT BYPASS pushbutton released	
11. Verify GRAPPLE ENGAGED light is lit CUE: The grapple control switch is now backlit green	Grapple control switch verified to have green backlight lit	

STEP	STANDARD	SAT/UNSAT
12. *When directed by FHD, then raise load and verify HOIST LOADED light is lit (fuel/dummy bundle only) or for skeleton fuel bundle visually verify component movement CUE: HOIST LOADED light is lit and bundle is coming up	Hoist controls taken to RAISE HOIST LOADED lamp verified to be lit	
13. *Continue raising until grapple is fully raised then verify NORMAL UP lamp is lit CUE: (Wait about 10 seconds, then "The NORMAL UP" lamp is lit"	Raise bundle until NORMAL UP lamp is lit, then release controls	
14. Go to appropriate RELEASE LOCATION section of this procedure as directed by FHD	N/A	N/A
Section 4.5 of S97.0.M Release Location in Spent Fuel Pool		
15. *Position core component over desired location in accordance with the Core Component Transfer Authorization Sheet (CCTAS) CUE: The mast is over the fuel rack location in the CCTAS	Operate bridge and trolley controls to position the mast over the target location on the CCTAS	
16. *Rotate core component as necessary to achieve proper orientation CUE: The channel fastener is southwest	Verify CCTAS orientation and rotate mast to properly orient the bundle	
17. Perform double verification to ensure proper core component location and orientation CUE: "The Fuel Handling Director and Spotter have double verified location and orientation"	Verify bundle location and orientation	

STEP	STANDARD	SAT/UNSAT
18. *When directed by the FHD, then lower the hoist until core component is seated and SLACK CABLE is lit CUE: The Fuel Handling Director has directed you to lower the bundle into the rack ...wait 10 seconds **CUE: "The slack cable lamp is lit with the hoist position 20 inches. The bundle is pivoting on the nosepiece and leaning over**	Bundle lowered until red SLACK CABLE lamp is lit on hoist control console. Recognize SLACK CABLE is being received early and the bundle is not seated (seated is 195")	
Response to Unexpected Slack Cable Warning (Precaution 3.10)		
19. If HOIST LOADED light goes out prematurely or load starts to lean	N/A	
a. Hoist lowering shall be stopped immediately CUE: Hoist motion has stopped	Stop lowering	
b. Grapple switch shall be verified to be in ENGAGED position CUE: Grapple switch shows ENGAGED	Grapple verified engaged	
c. Grapple engagement shall be verified CUE: Mast camera still shows the bundle t be grappled	Grapple engagement verified	
d. GRAPPLE ENGAGED light shall be verified lit CUE: The grapple control switch is backlit green	Green backlighting verified on grapple control switch	
e. *Hoist shall be raised slowly to regain the weight CUE: The hoist indicates 30 inches and HOIST LOADED lamp is lit	Hoist raised to regain the weight	

STEP	STANDARD	SAT/UNSAT
f. Fuel Handling Director shall be notified CUE: Fuel Handling Director has been notified.	FHD notified	
20. CUE: You have reached the termination point for this JPM. You may stop here.	N/A	

For 2002 LSRO exam, the JPM can end here without seating the bundle. Those skills are being tested in the dummy bundle actual movement JPM.

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. A fuel bundle is ready for pickup in the Unit ___North fuel prep machine and release in the spent fuel pool
2. All prerequisites are complete, with FH-106 and S97.0.M in progress
3. The refueling platform is in operation and positioned over the spent fuel pool

INITIATING CUES:

You are directed to perform the fuel transfer listed in the attached CCTAS

CANDIDATE

TRANSFER AUTHORIZATION FOR FH-106
M-219966 Rev. 1/89
DOCTYPE 113

Written By: *TRAINING USE ONLY*

Unit LIMERICK GENERATING STATION Date 6/3/02

Reviewed By: *TRAINING USE ONLY*

Title TRAINING CCTAS

Authorized By: *TRAINING USE ONLY*

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	DATE	TIME
7	LYN521	NFPM	NE	L1SPENT C-21	SW					

JPM 3 CCTAS for Unit 1

CANDIDATE

TRANSFER AUTHORIZATION FOR FH-106
M-219966 Rev. 1/89
DOCTYPE 113

Written By: *TRAINING USE ONLY*

Unit LIMERICK GENERATING STATION Date 6/3/02

Reviewed By: *TRAINING USE ONLY*

Title TRAINING CCTAS

Authorized By: *TRAINING USE ONLY*

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	DATE	TIME
7	LYN521	NFPM	NE	L2SPENT C-21	SW					

JPM 3 CCTAS for Unit 2

CANDIDATE

TITLE: Response to Loss of Air to Cavity Seals

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

Simulate

EVALUATION LOCATION:

Refuel Floor

APPROXIMATE COMPLETION TIME:

20 min.

IMPORTANCE RATING(S): SYSTEM NUMBER(S):

3.2 233000A2.11

REFERENCES:

ON-120, FUEL HANDLING PROBLEMS
S53.0.A, NORMAL MAKEUP/RESPONSE TO LOW LEVEL IN FUEL STORAGE POOL OR REACTOR WELL
ARC-BOP-*0C222, BALANCE OF PLANT PANEL *0C222 ANNUNCIATOR RESPONSE CARDS
S15.3.C, RESPONSE TO LOSS OF SERVICE AIR TO REFUEL FLOOR INFLATABLE SEALS

TASK STANDARD(S):

Backup bottle aligned to spent fuel pool seals per S15.3.C

TASK CONDITIONS:

1. Fuel movement in the spent fuel pool is in progress
2. The reactor cavity gates are installed and the reactor well is drained
3. A loss of service air on Unit ___ has occurred
4. Alarm D-1 has been received on __0C222

INITIATING CUES:

You have been directed by the CRS to respond to __0C222 alarms and backup refuel floor inflatable seals using backup bottles. Additional operators are being dispatched to the refuel floor.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
ARC Response D-1 *0C222		
1. Reference ARC for *0C222 D-1	ARC D-1 referenced	
2. Verify integrity of Seal No. 10 CUE: Seal 10 pressure is 46 psig and slowly dropping.	Verify Seal 10 pressure	
3. Refer to S15.3.C	S15.3.C obtained and referenced	
4. If Seal 7 is functioning as secondary containment then refer to Technical Specifications section 3.6.5	N/A With the shield plugs removed, the seals are not part of secondary containment	
5. Investigate and contain any leakage per S53.0.A CUE: No leakage is detected yet	N/A	
S15.3.C Assessment Actions		
6. Check *0C222 for any annunciators indicating low seal air pressure CUE: D-1 is still in alarm	N/A – Task condition	
7. If service air is still available as evidenced by observing pressure gauge PI-015-*44(A-K) then adjust service air pressure to the seal per S15.3.E CUE: PI-015-*44A through K indicate 45 psig and dropping slowly. The control room reports that the service air compressor and backup service air compressor are both tripped	N/A – Regulator adjustment will not work with the air supply failing	

STEP	STANDARD	SAT/UNSAT
8. If service air pressure is dropping noticeably or gone evidenced by observing pressure gauge PI-015-*44(A-K), then proceed to step 4.2 and attach secondary backup bottles CUE: PI-015-*44A through K indicate 43 psig and dropping slowly	Proceed to Section 4.2 for backup bottle attachment	
Backup Air Bottle Installation to Seal 7		
9. Obtain cart containing two backup bottles with regulators, hose, and appropriate quick disconnect fittings CUE (after locating): You have the backup bottle and equipment	Locate backup bottle equipment	
10. *Position cart near seal station and connect one bottle to quick disconnect attached to calibration port of PI-015-*49A (B-K), Seal Supply Press Indicator and... CUE: Bottle cart is positioned and quick disconnect fitting is attached to calibration port of PI-015-__49G	Indicate location of Seal Station "G" where bottle would be placed Indicate location of quick disconnect fitting	
11. *Close 15-*411A(B-K) "Supply Valve" and "Root Valve" for PI-015-*49A(B-K).(Both valves located in pit next to manifold) CUE: The supply valve and the root valve are closed	Close supply valve and root valve for PI-015-*49G	
12. <u>UNIT 2 ONLY</u> Ensure "Plug Valve" for PI-015-249A(B-K) closed. Plug valve located on manifold CUE if performing on Unit 2 only: "Plug valve is closed"	Unit 2: Plug valve closed Unit 1: N/A	

<table>
<tr><th>STEP</th><th>STANDARD</th><th>SAT/UNSAT</th></tr>
<tr><td>13. *Open bottle valve and adjust regulator for pressure setting on applicable seal as follows:
<table>
<tr><th>SEAL</th><th>PREFERRED REGULATOR SETTING (psig)</th><th>ACCEPTABLE REGULATOR PRESSURE RANGE (psig)</th></tr>
<tr><td>A,B,G,K</td><td>47</td><td>42 to 48</td></tr>
<tr><td>C,D</td><td>56.5</td><td>52.5 to 57.5</td></tr>
<tr><td>E,F,H,J</td><td>41.5</td><td>37 to 42.5</td></tr>
</table>
CUE: Bottle valve is open and regulator is adjusted to the pressure you specified</td><td>Open bottle valve and adjust regulator to between 42 and 48 psig</td><td></td></tr>
<tr><td>14. <u>*UNIT 2 ONLY</u>
Open "Plug Valve" for PI-015-249A(B-K)
CUE if performing on Unit 2 only: "Plug valve is open"</td><td>Unit 2: Plug valve is open
Unit 1: N/A</td><td></td></tr>
<tr><td>15. *Open root valve for PI-015-*49A(B-K) and ensure it indicates accordingly
CUE: Root valve is open. Seal pressure indicates 47 psig</td><td>Root valve for PI-015-*49G opened</td><td></td></tr>
<tr><td>16. CUE: You have reached the termination point for the JPM. You may stop here</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. Fuel movement in the spent fuel pool is in progress
2. The reactor cavity gates are installed and the reactor well is drained
3. A loss of service air on Unit ___ has occurred
4. Alarm D-1 has been received on __0C222

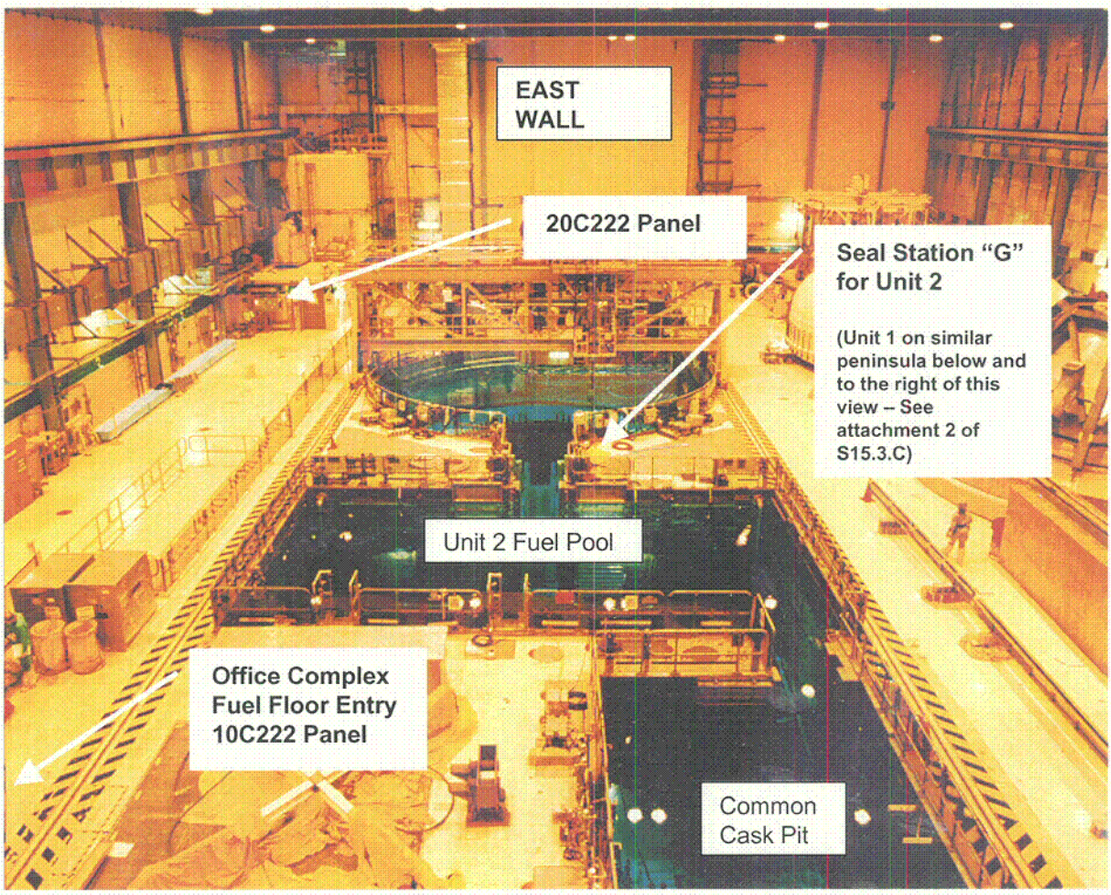
INITIATING CUES:

You have been directed by the CRS to respond to __0C222 alarms and backup refuel floor inflatable seals using backup bottles. Additional operators are being dispatched to the refuel floor.

CANDIDATE

Guest Examiner Familiarization Guide for JPM 4

This view is from a position above Unit 1 Spent Fuel Pool and is Looking East toward Unit 2. You will enter the Fuel Floor from the HP Office Complex below and to your left
(See Attachment 2 of S15.3.C for overall map)



TITLE: Defeat Unit 1 and Unit 2 Refuel Floor HVAC High Rad Isolation Signals

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

N/A

EVALUATION METHOD :

Simulate

EVALUATION LOCATION:

Plant

APPROXIMATE COMPLETION TIME:

20 min.

IMPORTANCE RATING(S): 3.7 SYSTEM NUMBER(S): 234000A3.02

REFERENCES:

1. M-041-200 Rev. 14; Reactor Pressure Vessel Disassembly

TASK STANDARD(S):

1. Jumpers installed per M-041-200 Attachment 2

TASK CONDITIONS:

- Defeat of the Hi Rad Isolations from Refuel Floor HVAC is required to support Steam Dryer/Separator movement on Unit 1
- The CRS and Unit 1 RO have given permission to perform the procedure
- Core alterations and OPDRVs are suspended

INITIATING CUES:

You have been directed to defeat the Unit 1 and Unit 2 Refuel Floor HVAC Hi Rad isolation signals, and Unit 1 Primary Containment Isolation signals per M-041-200, Attachment 2.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Equipment Status Tags		
1. CUE: You have been provided with an equipment status tag. Please fill out the tag as if it is to be installed with the first jumper. The second tag on the sheet is a spare blank copy Provide the candidate with the EST sheet After the candidate has completed filling out one tag: "You are in possession of tags filled out in the same manner for the remaining steps"	Equipment Status tag filled in. Use the attachment as an evaluation guide. MINIMUM information to pass this step includes: 1. Procedure and Step# M-041-200 Attachment 2 Step 2.1	
Jumper Installation		
2. PERFORM installation of the following jumpers, with Blue Equipment Status Tag(s) referencing this procedure AND applicable steps	N/A	N/A
3. * INSTALL a jumper from EEE6-2 to EEE6-3 AND Blue Equipment Status Tag(s) at panel 10C606 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from EEE6-2 to EEE6-3 in panel 10C606 Bay A	
4. * INSTALL a jumper from FFF8-3 to FFF8-4 AND Blue Equipment Status Tag(s) at panel 10C606 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from FFF8-3 to FFF8-4 in panel 10C606 Bay	
5. * INSTALL a jumper from EEE6-2 to EEE6-3 AND Blue Equipment Status Tag(s) at panel 20C606 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from EEE6-2 to EEE6-3 in panel 20C606 Bay A.	

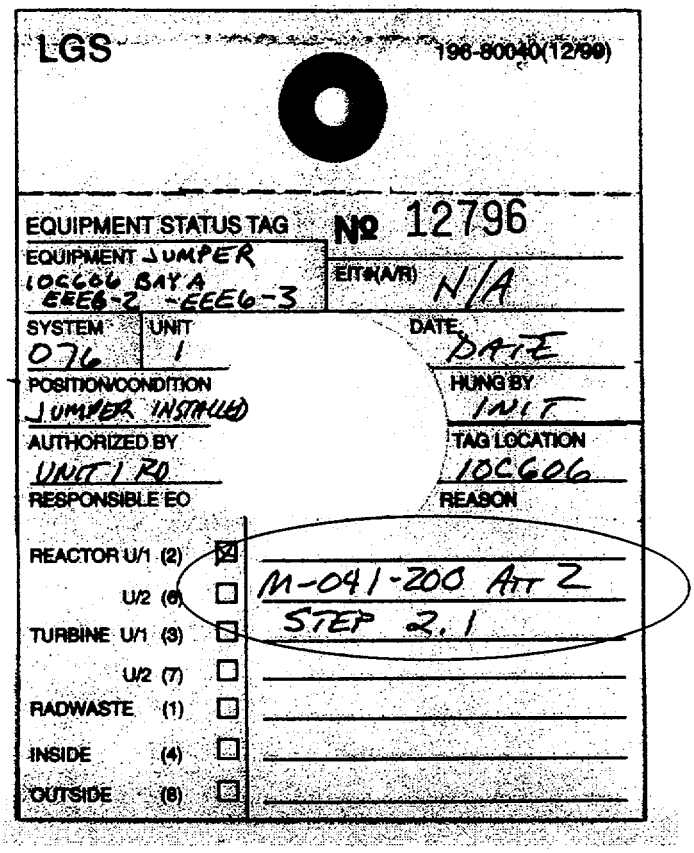
STEP	STANDARD	SAT/UNSAT
6. * INSTALL a jumper from FFF8-3 to FFF8-4 AND Blue Equipment Status Tag(s) at panel 20C606 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from FFF8-3 to FFF8-4 in panel 20C606 Bay A.	
7. PERFORM installation of the following jumpers, with Blue Equipment Status Tag(s) referencing this procedure AND applicable steps.	N/A	N/A
8. * INSTALL a jumper from C51A-Z2A TB7-10 to C51A-Z2A TB7-11 AND Blue Equipment Status Tag(s) at panel 10C606 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from C51A-Z2A TB7-10 to C51A-Z2A TB7-11 in panel 20C606 Bay A.	
9. * INSTALL a jumper from C51A-Z2C TB7-10 to C51A-Z2C TB7-11 AND Blue Equipment Status Tag(s) at panel 10C606 (Bay B) CUE: Jumper and tag are installed	Jumper and EST installed from C51A-Z2C TB7-10 to C51A-Z2C TB7-11 in panel 20C606 Bay B	
10. * INSTALL a jumper from C51A-Z2B TB7-10 to C51A-Z2B TB7-11 AND Blue Equipment Status Tag(s) at panel 10C633 (Bay A) CUE: Jumper and tag are installed	Jumper and EST installed from C51A-Z2B TB7-10 to C51A-Z2B TB7-11 in panel 20C633 Bay A	
11. * INSTALL a jumper from C51A-Z2D TB7-10 to C51A-Z2D TB7-11 AND Blue Equipment Status Tag(s) at panel 10C633 (Bay B) CUE: Jumper and tag are installed	Jumper and EST installed from C51A-Z2D TB7-10 to C51A-Z2D TB7-11 in panel 20C633 Bay B	
CUE: You have reached the termination point for the JPM. You may stop here	N/A	

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

Attachment Equipment Status Tag Grading Guide


LGS 196-80040(12/99)

EQUIPMENT STATUS TAG № 12796

EQUIPMENT JUMPER
10CC06 BAY A
EEE6-2 -EEE6-3

EIT#(A/R) N/A

SYSTEM 076

UNIT 1

DATE DATE

POSITION/CONDITION
JUMPER INSTALLED

HUNG BY INIT

AUTHORIZED BY
UNIT 1 RO

TAG LOCATION 10CC06

RESPONSIBLE EO

REASON

REACTOR U/1 (2)	☒	
U/2 (6)	☐	M-041-200 ATT 2
TURBINE U/1 (3)	☐	STEP 2.1
U/2 (7)	☐	
RADWASTE (1)	☐	
INSIDE (4)	☐	
OUTSIDE (8)	☐	

Minimum Entries are circled

ANSWER KEY

TASK CONDITIONS:

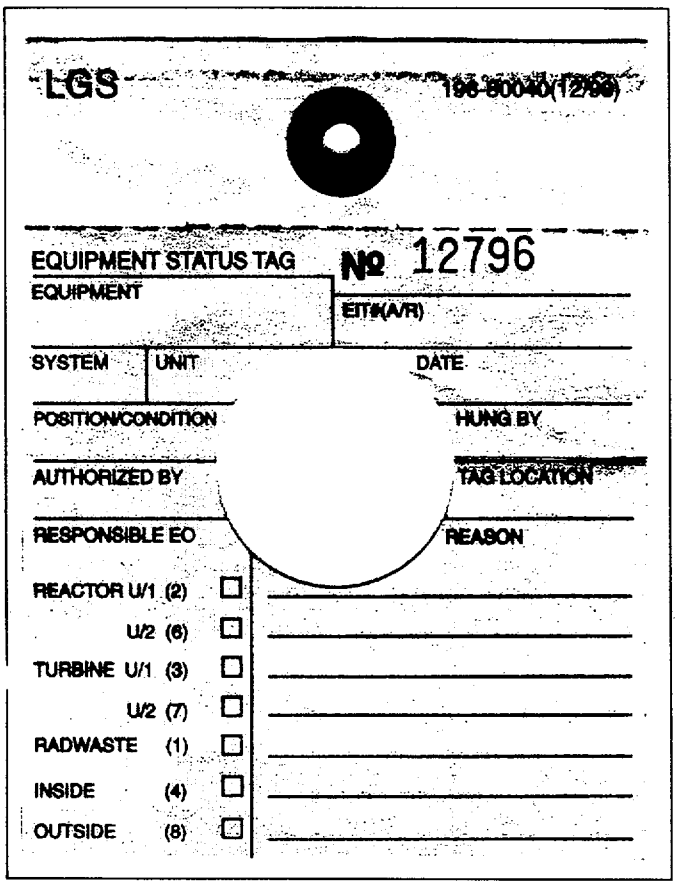
- Defeat of the Hi Rad Isolations from Refuel Floor HVAC is required to support Steam Dryer/Separator movement on Unit 1
- The CRS and Unit 1 RO have given permission to perform the procedure
- Core alterations and OPDRVs are suspended

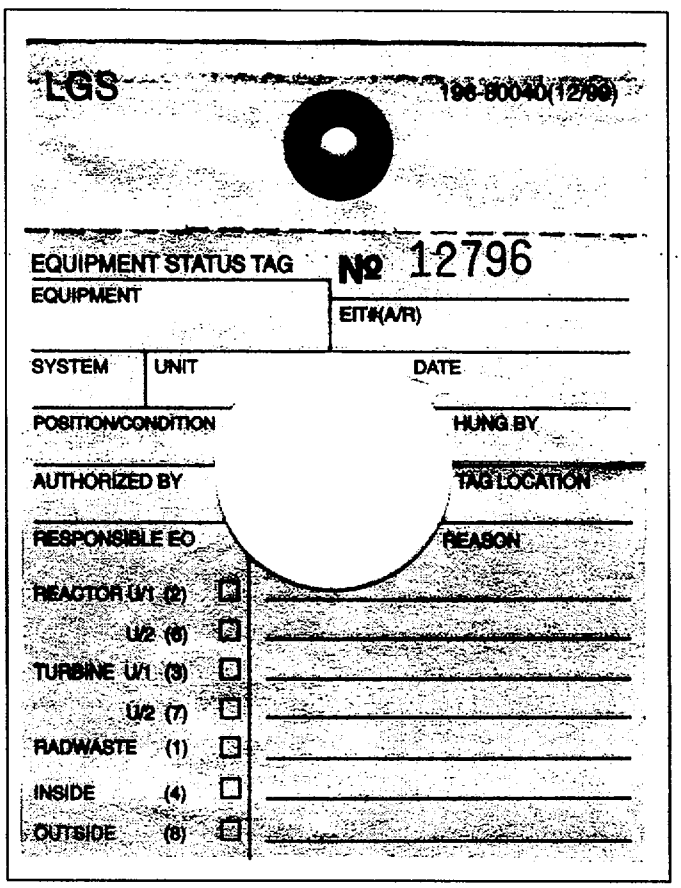
INITIATING CUES:

You have been directed to defeat the Unit 1 and Unit 2 Refuel Floor HVAC Hi Rad isolation signals, and Unit 1 Primary Containment Isolation signals per M-041-200, Attachment 2.

CANDIDATE

Equipment Status Tag





Spare Sample Tag

CANDIDATE

TITLE: Log on to refuel platform and set up for semi-automatic motion

TASK PERFORMED BY: _____ EVALUATOR: _____.

EVALUATOR SIGNATURE: _____ DATE: _____.

DIRECTIONS TO EVALUATOR:

Set up the bridge computer prior to the JPM by logging on as FHD, setting the encoders to "1" or "2", then logging off. This step must be repeated prior to examining additional trainees.

EVALUATION METHOD :

PERFORM

EVALUATION LOCATION:

PLANT

APPROXIMATE COMPLETION TIME:

15 MINUTES

IMPORTANCE RATING(S): 3.7 SYSTEM NUMBER(S): 234000A3.02

REFERENCES:

1. **SO 18.1.A-2(3) Rev. 11(12); Operation of Refueling Platform**

TASK STANDARD(S):

1. **FHD is logged on to the refueling platform computer, with encoders set for "0" on all three axes.**

TASK CONDITIONS:

1. There are NO irradiated components grappled to any refueling platform hoist.
2. SO 18.1.C-2(3) has been completed for alignment and checkout of the Refueling Platform.
3. The refueling gates are installed.

INITIATING CUES:

You are directed to log on to the refueling platform computer and set encoders to support **semi-automatic** motion with the gates installed.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Logging on to the Bridge Computer and Setting Gate Status		
1. * Touch "LOG ON" AND enter name.	"LOG ON" touch screen button actuated and name is entered.	
2. IF incorrect name was entered, THEN touch "CHANGE NAME" AND enter name.	Name is corrected if required.	
3. * Touch "ENTER PASSWORD" AND enter password.	"ENTER PASSWORD" touch screen button actuated and password is entered.	
NOTE Answering "YES" to the question "IS THE REFUELING GATE INSTALLED" modifies the Secure Travel Zone boundary to NOT allow entrance into the Transfer Canal.		
4. * At screen prompt "IS THE REFUELING GATE INSTALLED?", answer "YES" if either gate is installed OR "NO" if both gates are removed.	"YES" is entered in response to refueling gate prompt.	
5. * Verify proper access level is displayed.	FUEL HANDLING DIRECTOR access is verified to be displayed.	
6. Touch "PRESS FOR OPERATION" to display "MAIN" screen.	"PRESS FOR OPERATION" touch screen button is actuated to display the "MAIN" screen.	
Selection of Encoders for Bridge, Trolley, and Hoist		
7. * Touch "SHOW MENU".	"SHOW MENU" touch screen button is actuated.	
8. * Touch "UTILITIES".	"UTILITIES" touch screen button is actuated.	

STEP	STANDARD	SAT/UNSAT
NOTE TO EVALUATOR JPM steps 9 through 17 apply to the Bridge, Trolley and Hoist encoders. The encoders can be selected in any sequence.		
CAUTION Operation in Semi-Automatic OR Full Automatic modes requires both Primary AND Redundant Encoders to be selected (i.e. "0") for each axis in order to prevent collision of the mast OR handled component in the event a single encoder fails.		
9. * Touch screen button displaying current encoder selection for the axis to be set.	Bridge encoder is selected.	
10. * On the number pad enter desired encoder selection(i.e. "0", "1" OR "2").	"0" is selected	
11. Verify desired encoder selection is displayed on button.	"0" is verified to be displayed on bridge encoder button.	
12. * Touch screen button displaying current encoder selection for the axis to be set.	Trolley encoder is selected.	
13. * On the number pad enter desired encoder selection(i.e. "0", "1" OR "2").	"0" is selected	
14. Verify desired encoder selection is displayed on button.	"0" is verified to be displayed on trolley encoder button.	
15. * Touch screen button displaying current encoder selection for the axis to be set.	Hoist encoder is selected.	
16. * On the number pad enter desired encoder selection(i.e. "0", "1" OR "2").	"0" is selected	
17. Verify desired encoder selection is displayed on button.	"0" is verified to be displayed on hoist encoder button.	
18. *Touch "RETURN TO OPERATION".	RETURN TO OPERATION pressed	
19. Perform Section 4.2 "Change Person Logged ON Computer" to ensure operation at REFUELING PLATFORM OPERATOR access level. CUE: You can stop here, you have met the termination criteria for this JPM	N/A	N/A

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

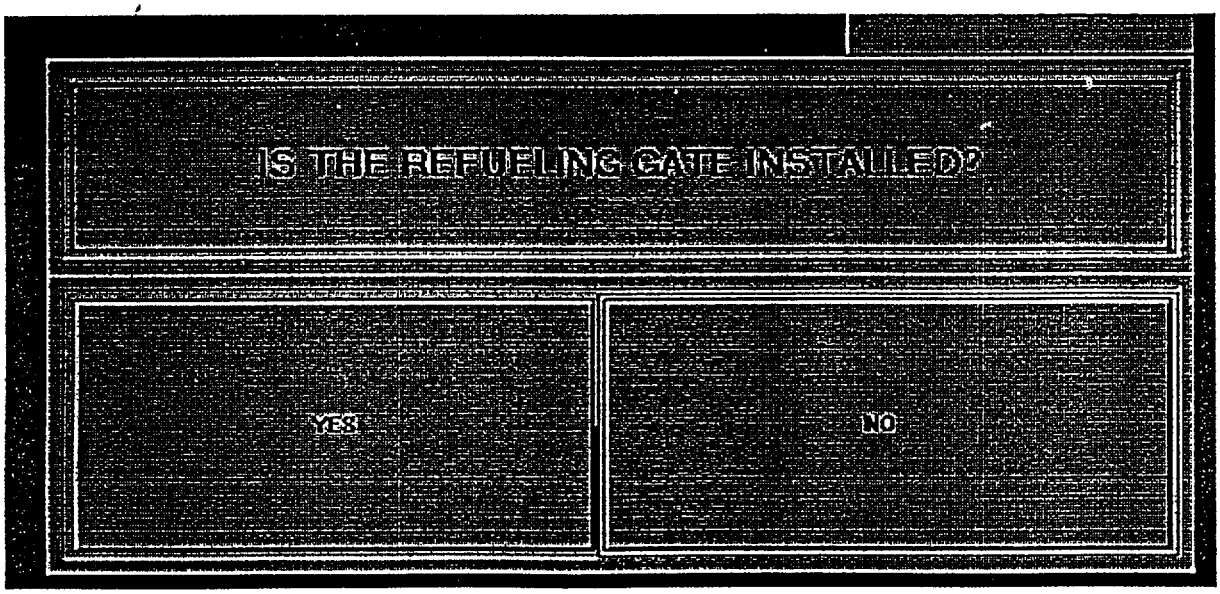
1. There are NO irradiated components grappled to any refueling platform hoist.
2. SO 18.1.C-2(3) has been completed for alignment and checkout of the Refueling Platform.
3. The refueling gates are installed.

INITIATING CUES:

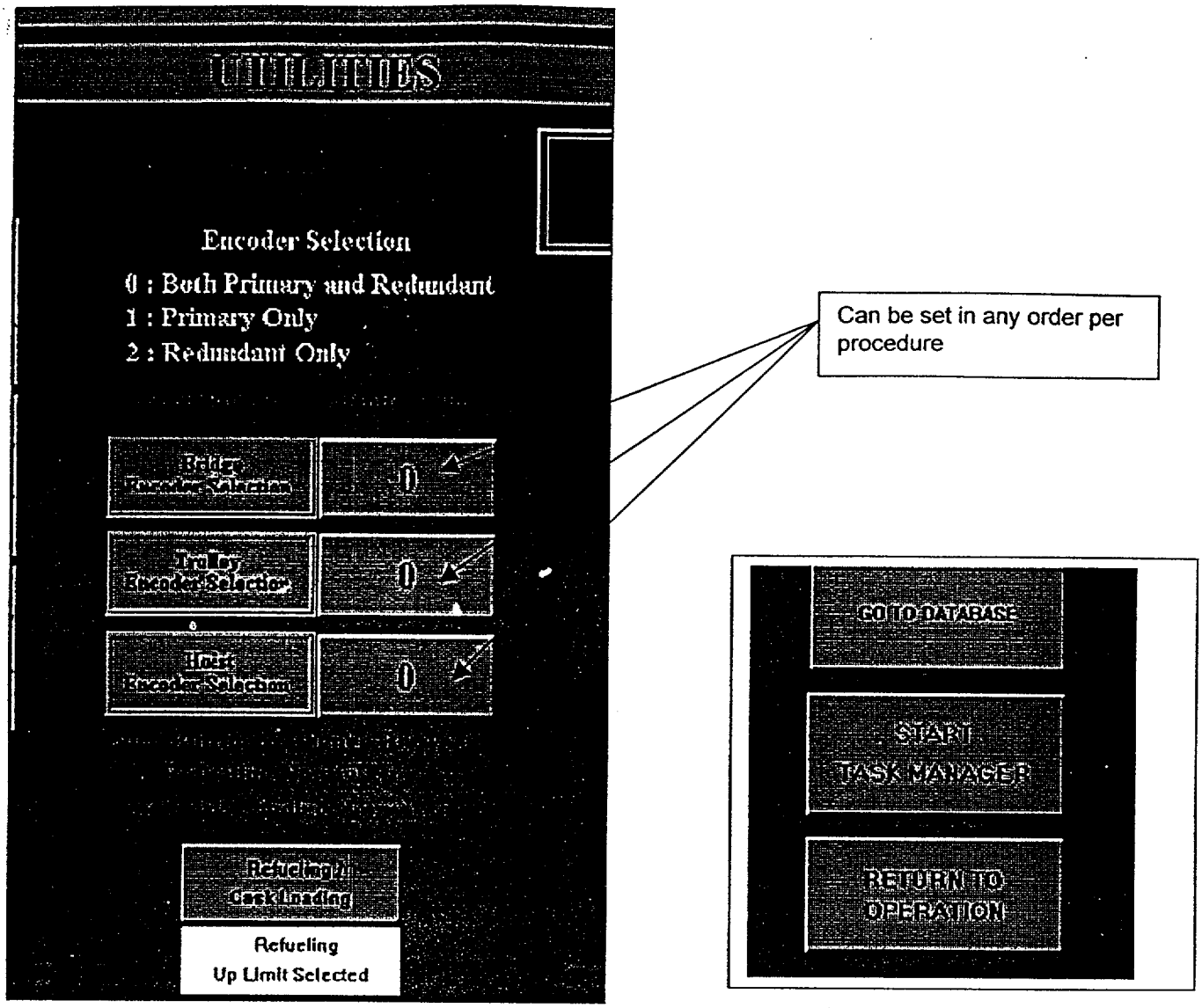
You are directed to log on to the refueling platform computer and set encoders to support **semi-automatic** motion with the gates installed

CANDIDATE

Log-on Screen



Gate Status Prompt. This is what prevents the bridge from attempting to access a blocked refueling slot



Utilities screen (Partial). This is the section of the Utilities screen that contains the encoder selection toggles.

The RETURN TO OPERATION button is on the lower right corner of the UTILITIES screen, and is the method of exiting this screen.

These screens will be reviewed on the bridge during the walk-through

TITLE: Full Automatic Fuel Transfer Within the Spent Fuel Pool (Peach Bottom)

TASK PERFORMED BY: _____ EVALUATOR: _____.

EVALUATOR SIGNATURE: _____ DATE: _____.

DIRECTIONS TO EVALUATOR:

NOTE: When used as an exam item for initial LSRO candidates, two qualified LSROs or DAs are required on the bridge to ensure correct Double Verification. Initial LSRO candidates will be acting as platform operator; a position that normally utilizes a spotter for procedure reading, referencing, and performing the first check. This exam exercise will require the candidate to perform the first check as the RPO, with the qualified Fuel Handling Director performing the second check. In addition, the second qualified operator will perform a double verification.

Pre-brief the qualified FHD that he or she is the accountable individual who is responsible for equipment safety, personal safety, and reactivity controls during operation by the candidate. The FHD is expected to maintain constant attention on bridge and mast operation such that intervention is possible prior to any misoperation or contact with obstructions. As a minimum, this includes (1) immediately stopping the bridge if a CCTAS error is committed or if unsafe bridge operation is taking place (2) restoring to starting conditions between each JPM, (3) collecting and returning the CCTAS signed final copies, and (4) shutting down the refueling platform after the exams. The qualified FHD will have as little interaction as possible with the candidate other than performing the DV.

The qualified Operator should perform startup and checkout of the refueling platform and have on-hand the marked up copies of the procedures for review by the candidates. This individual will also load the CCTAS sequence into the computer. The actual CCTAS and bridge operating procedure in-use will be on the refuel platform.

Approx 2 weeks of lead-time is needed to coordinate bridge availability with the following:

1. NMD to schedule bridge availability and provide qualified operators and bridge startup
2. Operations for Refuel Floor Secondary Containment Integrity if required
3. Reactor Engineering for CCTAS generation
4. Health Physics for Refuel Floor and RWP support. The grappling and movement of components may require use of the refuel floor RWP in lieu of the work group standing RWP. Ensure a HP briefing is received prior to the exam.

EVALUATION METHOD :

PERFORM

EVALUATION LOCATION:

PLANT

APPROXIMATE COMPLETION TIME:

45 MINUTES

IMPORTANCE RATING(S): 3.7 SYSTEM NUMBER(S): 234000A3.02

REFERENCES:

1. SO 18.1.A-2(3) Rev. 11(12); Operation of Refueling Platform
2. FH-35 Rev 29; Control Of Material Movement In The Fuel Pool
3. RE-C-40 Rev 9; Core Component Transfer Authorization Sheet Generation And Administration

TASK STANDARD(S):

1. Dummy fuel assembly is transferred in full automatic mode of Refueling Platform operation between spent fuel rack locations in the Unit 2(3) Spent Fuel Pool per the CCTAS .

TASK CONDITIONS:

1. There are NO irradiated components grappled to any refueling platform hoist.
2. Auxiliary hoists are fully raised with attached tooling clear of obstructions.
3. SO 18.1.C-2(3) has been completed for alignment and checkout of the Refueling Platform. The Main Hoist encoder indicates less than 164 inches and the mast is positioned within the Spent Fuel Pool Secure Travel Zone.
4. Main Hoist Grapple is RELEASED.
5. Primary and Redundant encoders are selected for Bridge, Trolley and Hoist travel in accordance with SO 18.1.A-2(3).
6. REFUELING normal up limit has been selected for operation in accordance with SO 18.1.A-2(3).
7. Spent Fuel Pool Gate status is set at INSTALLED per SO 18.1.A-2(3).
8. REFUELING PLATFORM OPERATOR access level user is logged on to refuel platform computer.
9. An approved CCTAS for transfer of the dummy bundle has been obtained from Reactor Engineering. The Spent fuel rack locations specified on the CCTAS are within the Secure Travel Zone.
10. The approved electronic fuel move sequence file has been obtained from Reactor Engineering and loaded into the refuel platform computer in accordance with SO 18.1.A-2(3).
11. Prerequisites for dummy bundle transfer within the Spent Fuel Pool are completed per FH-35

INITIATING CUES:

The Control Room Supervisor has directed you to perform transfer of the dummy bundle within the U/2(3) spent fuel storage racks using **XY mode full automatic refueling platform operation**, in accordance with the attached CCTAS.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Section 4.8 – Pickup Location, Fuel Pool Storage Rack		
1. Position Refuel Platform Mast over desired core component in accordance with Core Component Transfer Authorization Sheet (CCTAS).	Operator branches to section 4.7 of procedure to execute full auto positioning of platform to pickup location.	
Section 4.7, Full Automatic Operation		
NOTES The following steps are performed on the Refueling Platform lower level, at XC-8(9)0832 "U/2(3) Refueling Platform Operator Interface Console" The Refuel Platform computer does NOT recognize Fuel Pool Storage Rack locations outside the Secure Travel Zone, the Fuel Preparation Machines, Bundle Sipping Canisters OR Spent Fuel Storage Cask locations as valid locations for automatic moves. An automatic move can be terminated at any time by performing one of the following: Touching "AUTO STOP" on the MAIN OR HOIST screen Deflecting any of the master joysticks Depressing "STOP" push button on START/STOP STATION Depressing "TRAVEL OVERRIDE" on RIGHT HAND CONTROLLER		
CAUTION Operation in Full Automatic mode requires both Primary AND Redundant Encoders to be selected for each axis in order to prevent collision of the mast OR handled component in the event a single encoder fails.		
2. * Touch "SHOW MENU".	"SHOW MENU" touch screen button actuated.	
3. * Touch "XY/XY&Z MODE ACTIVE" as necessary to select the desired mode of multiple axis automatic operation.	"XY/XY&Z MODE ACTIVE" touch screen button is actuated (toggled) to select **XY mode** of operation.	

STEP	STANDARD	SAT/UNSAT
4. * Touch "PRESS FOR OPERATION".	"PRESS FOR OPERATION" touch screen button actuated.	
5. * IF in the Fuel Pool AND grapple is released, THEN verify hoist position indicates less than 164 inches.	Main Hoist position indication is verified to be less than 164 inches.	
6. IF operating in the XY&Z mode, THEN perform the following, OTHERWISE continue with step 4.7.4 of this procedure:	Operator branches to step 4.7.4 of procedure.	
7. Verify Bridge AND Trolley are within the Secure Travel Zone.	Bridge AND Trolley are verified to be within the Secure Travel Zone. (The bridge will already be in the secure travel zone)	
8. Verify Bridge AND Trolley are NOT in the Transfer Canal.	Bridge AND Trolley are verified NOT in the Transfer Canal.	
9. * Touch "SELECT AUTO" on the Main OR Hoist screens.	"SELECT AUTO" touch screen pushbutton is actuated.	
10. IF during auto move selection it is desired to return to manual operation, THEN touch "SELECT MANUAL", OTHERWISE continue with this procedure subsection.	N/A	N/A
11. * Touch "Manual Step Selection Active"/ "Auto Step Selection Active" as necessary to select "Auto Step Selection Active".	"Manual Step Selection Active" / "Auto Step Selection Active" touch screen pushbutton is actuated (toggled) to select "**Auto Step Selection Active**".	

STEP	STANDARD	SAT/UNSAT
NOTE The selected portion (PICKUP/SETDOWN) of the auto move to be performed is highlighted in green on the MOVE INFORMATION section of the screen. The requested location along with its bridge and trolley coordinates are displayed in a box on the bottom of the screen.		
12. IF it is desired to select a particular step in the move sequence, THEN touch "SELECT NEW STEP NUMBER" AND enter desired step on the keypad screen.	Operator ensures PICKUP portion of CCTAS step to be performed is highlighted on the screen, touching SELECT NEW STEP NUMBER" and entering desired step as required.	
13. IF it is desired to increment to the SETDOWN portion of a step OR the PICKUP portion of the next step in the sequence, THEN touch "INCREMENT STEP".	N/A	N/A
14. * If requested location is correct, then touch "VERIFY". Otherwise return to step 4.7.9 [JPM step 12]	"VERIFY" touch screen pushbutton is actuated.	
15. * Touch "AUTO RUN" to initiate Refueling Platform movement.	"AUTO RUN" touch screen pushbutton is actuated to initiate motion of the refueling platform. The refuel platform will move to the setdown location. The candidate will now continue procedure section 4.8	
Grappling the dummy bundle after moving the platform		
16. Lower hoist until grapple is 6 to 12 inches above bail.	The hoist is lowered using the variable speed control, located on the right hand console until the hoist position indication is between 175-183 for Unit 2 (174-182 for Unit 3).	
17. Verify grapple is open.	The GRAPPLE switch, located on the right hand console, is ensured to be in the RELEASE position and GRAPPLE ENGAGED light is off.	
18. Rotate grapple as necessary to achieve grapple to bail alignment.	The mast is rotated so that the dummy bundle bail handle is aligned with the fuel grapple.	

STEP	STANDARD	SAT/UNSAT
19. * Slowly lower hoist until "SLACK CABLE" light is lit.	The hoist is slowly lowered down over the bail of the dummy bundle. SLACK CABLE light verified lit.	
20. Verify proper core component location and orientation	DV performed. Location and orientation correct	
21. Verify the following, THEN inform FHD of grapple position:	N/A	
a. Grapple is centered over bail handle.	The grapple is verified to be centered on the bail handle.	
b. Hoist position indication agrees with Attachment 9 for item seated in Fuel Pool Storage Rack.	The hoist position indication is verified between 186.5 and 188.5 inches for Unit 2 (186.2 and 188.2 inches for Unit 3).	
c. Verify proper core component location and orientation.	The location and orientation of the dummy bundle agrees with the CCTAS (Should normally be YY-38 location. The orientation is the direction of the channel fastener)	
22. *WHEN directed by FHD, THEN engage grapple, AND verify GRAPPLE ENGAGED light is lit. CUE if Required: The Fuel Handling Director has directed you to grapple the bundle	The GRAPPLE switch is positioned to ENGAGE and the GRAPPLE ENGAGED light is verified lit.	
23. * WHEN directed by FHD, slowly raise load AND verify "HOIST LOADED" light is lit (fuel only). CUE if Required: The Fuel Handling Director has directed you to raise the bundle	The dummy bundle is slowly raised using the GRAPPLE joystick. The HOIST LOADED light is verified to be lit after the dummy bundle begins to rise.	
24. * Continue raising until grapple is fully raised, THEN verify "GRAPPLE NORMAL UP" light is lit.	Grapple is raised until NORMAL UP light becomes lit.	

STEP	STANDARD	SAT/UNSAT
25. Perform appropriate "Set Down Location" subsection of this procedure as directed by FHD.	Operator branches to section 4.13 of procedure.	
Moving Bridge to Target Fuel Pool Location		
26. * Position core component over desired location in accordance with Core Component Transfer Authorization Sheet (CCTAS).	Operator branches to section 4.7 of procedure to execute full automatic positioning of refueling platform to setdown location.	
27. * IF in the Fuel Pool AND grapple is engaged, THEN verify hoist is at Normal Up position.	Main Hoist position indication is verified to be Normal Up.	
28. IF operating in the XY&Z mode, THEN perform the following, OTHERWISE continue with step 4.7.4 of this procedure:	N/A	
29. Verify Bridge AND Trolley are within the Secure Travel Zone.	Bridge AND Trolley are verified to be within the Secure Travel Zone.	
30. Verify Bridge AND Trolley are NOT in the Transfer Canal.	Bridge AND Trolley are verified NOT in the Transfer Canal.	
31. * Touch "SELECT AUTO" on the Main OR Hoist screens.	"SELECT AUTO" touch screen pushbutton is actuated.	
32. IF during auto move selection it is desired to return to manual operation, THEN touch "SELECT MANUAL", OTHERWISE continue with this procedure subsection.	N/A	N/A
33. * Touch "Manual Step Selection Active"/ "Auto Step Selection Active" as necessary to select "Auto Step Selection Active".	"Manual Step Selection Active" / "Auto Step Selection Active" touch screen pushbutton is actuated (toggled) as necessary to select **"Auto Step Selection Active"**.	

STEP	STANDARD	SAT/UNSAT
NOTE The selected portion (PICKUP/SETDOWN) of the auto move to be performed is highlighted in green on the MOVE INFORMATION section of the screen. The requested location along with its bridge and trolley coordinates are displayed in a box on the bottom of the screen.		
34. IF it is desired to select a particular step in the move sequence, THEN touch "SELECT NEW STEP NUMBER" AND enter desired step on the keypad screen.	N/A Note to evaluator: Not necessary, but OK if operator directly enters step number here or increments to it in the next step	N/A
35. IF it is desired to increment to the SETDOWN portion of a step OR the PICKUP portion of the next step in the sequence, THEN touch "INCREMENT STEP".	Operator touches INCREMENT STEP button and ensures SETDOWN portion of CCTAS step is highlighted on the screen.	
36. * Touch "VERIFY".	"VERIFY" touch screen pushbutton is actuated.	
37. * Touch "AUTO RUN" to initiate Refueling Platform movement.	"AUTO RUN" touch screen pushbutton is actuated to initiate motion of the refueling platform. **Platform motion should occur here and will terminate over the target location** Operator returns to section 4.13 of procedure.	
Lowering of Bundle into Target Location following Auto Movement		
38. * Rotate core component as necessary to achieve proper orientation.	The mast is rotated so that the dummy bundle channel fastener is correctly oriented to the corner of the storage rack cell in accordance with CCTAS.	
39. Perform Double Verification to ensure proper core component location and orientation.	DV performed. Location and orientation correct	

STEP	STANDARD	SAT/UNSAT
40. * WHEN directed by FHD, THEN lower load until "SLACK CABLE" light is lit. CUE if required: The Fuel Handling Director has directed you to lower the bundle.	The dummy bundle is slowly lowered into the storage rack until the SLACK CABLE light is lit.	
41. Verify the following, THEN inform FHD of grapple position. a. Component elevation appears equivalent to other stored components in the rack.	The dummy bundle is observed to be not significantly above the top of the rack.	
b. * Hoist position indication agrees with Attachment 9 for item fully seated in Fuel Pool Storage Rack.	The hoist position indication is verified between 186.5 and 188.5 inches for Unit 2 (186.2 and 188.2 inches for Unit 3).	
42. * WHEN directed by FHD, THEN release grapple, AND verify grapple is open. CUE if needed: The Fuel Handling Director has directed you to release the grapple.	Open the grapple by placing the GRAPPLE switch to the RELEASE position. Grapple is verified open.	
43. Slowly raise hoist while verifying "HOIST LOADED" light remains off.	The hoist is slowly raised using the GRAPPLE joystick while HOIST LOADED light is verified to remain off.	
44. Record completion of component transfer on CCTAS. 45. (CUE: You can stop here. We have met the termination criteria for this JPM.)	Initials of the operator are written in the RPO column of the CCTAS. The TIME and DATE columns are filled with the current date and time.	

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. There are NO irradiated components grappled to any refueling platform hoist.
2. Auxiliary hoists are fully raised with attached tooling clear of obstructions.
3. SO 18.1.C-2(3) has been completed for alignment and checkout of the Refueling Platform. The Main Hoist encoder indicates less than 164 inches and the mast is positioned within the Spent Fuel Pool Secure Travel Zone.
4. Main Hoist Grapple is RELEASED.
5. Primary and Redundant encoders are selected for Bridge, Trolley and Hoist travel in accordance with SO 18.1.A-2(3).
6. REFUELING normal up limit has been selected for operation in accordance with SO 18.1.A-2(3).
7. Spent Fuel Pool Gate status is set at INSTALLED per SO 18.1.A-2(3).
8. REFUELING PLATFORM OPERATOR access level user is logged on to refuel platform computer.
9. An approved CCTAS for transfer of the dummy bundle has been obtained from Reactor Engineering. The Spent fuel rack locations specified on the CCTAS are within the Secure Travel Zone.
10. The approved electronic fuel move sequence file has been obtained from Reactor Engineering and loaded into the refuel platform computer in accordance with SO 18.1.A-2(3).
11. Prerequisites for dummy bundle transfer within the Spent Fuel Pool are completed per FH-35.

INITIATING CUES:

The Control Room Supervisor has directed you to perform transfer of the dummy bundle within the U/2(3) spent fuel storage racks using **XY mode full automatic refueling platform operation**, in accordance with the attached CCTAS.

CANDIDATE

RE-C-40 CCTAS
LSRO TRAINING
APRIL 2002

P2DUMMY - VERIFIED

Unit Peach Bottom - UNIT 2 DATE 03/22/2002

Title DUMMY BUNDLE MOVES FOR TRAINING (REV 0)

RE-C-40 CORE COMPONENT TRANSFER AUTHORIZATION SHEET SPECIAL INSTRUCTIONS

1. THIS CCTAS PROVIDES THE MOVES NECESSARY TO MOVE THE DUMMY BUNDLE IN THE PB 2 SPENT FUEL POOL FOR TRAINING PURPOSES.

2. CHANGES TO THIS CORE COMPONENT TRANSFER AUTHORIZATION SHEET (OTHER THAN THOSE DESCRIBED BELOW) MUST BE MADE IN ACCORDANCE WITH PROCEDURE RE-C-40. CONTACT THE REACTOR ENGINEERING MANAGER (OR DESIGNATE) IF A CCTAS CHANGE IS REQUIRED. DESIGNATES ARE JEFF HOLLEY (4553) OR MIKE HOLMES (4710).

3. ANY STEPS NOT DESIRED TO BE PERFORMED CAN BE MARKED "N/A", AND THE DESIRED "MOVE TO" LOCATION CAN BE CHANGED WITHOUT NOTIFIYING REACTOR ENGINEERING. HOWEVER, AT THE END OF TRAINING ENSURE THAT THE DUMMY BUNDLE IS RETURNED TO ITS ORIGINAL STORAGE LOCATION (YY-38 SW) BY PERFORMING STEP 2 OF THE CCTAS.

4. THIS CCTAS MUST BE USED IN CONJUNCTION WITH PROCEDURE FH-35 "CONTROL OF MATERIAL MOVEMENT IN THE FUEL POOL".

5. THIS CCTAS DOES NOT INVOLVE THE TRANSFER OF SPECIAL NUCLEAR MATERIAL (SNM).

6. RETURN COMPLETED CCTAS TO REACTOR ENGINEERING SO THATCCTAS RECORDS CAN BE UPDATED.

7. IF A SPOTTER (AS DEFINED IN FH-35) IS BEING USED TO PERFORM DOUBLE VERIFICATION OF THE CCTAS MOVES IN PLACE OF THE RPO, THEN THE SPOTTER SHALL DOCUMENT THIS DOUBLE VERIFICATION BY SIGNING THE RPO COLUMN ON THE CCTAS.

8. MULTIPLE COPIES OF THIS CCTAS CAN BE MADE TO SUPPORT TRAINING OF AS MANY TRAINEES AS THE INSTRUCTOR DEEMS NECESSARY.

WRITTEN BY: Jeffrey W Holley

AUTHORIZED BY: [signature]

REVIEWED BY: M Holmes

DISTRIBUTION LEGIBLE: Jeffrey W Holley

RE-C-40 CCTAS
LSRO TRAINING
APRIL 2002

P2DUMMY - **VERIFIED**

Written By: Jeff Holley

Unit Peach Bottom - UNIT 2 Date 03/22/2002 Reviewed By: Mike Holmes

Title DUMMY BUNDLE MOVES FOR TRAINING (REV 0) Authorized By: Steve Hesse

	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	DATE	TIME
	DUMMY	P2SPENT YY-38	SW	P2SPENT Z-56	NW				
	DUMMY	P2SPENT Z-56	NW	P2SPENT YY-38	SW				

TITLE: Control Rod Removal Using Combined Grapple - Alternate Path Due to Rod Coupled

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

EVALUATION METHOD :

SIMULATE

EVALUATION LOCATION:

REFUEL FLOOR

APPROXIMATE COMPLETION TIME:

Completion Time: 20 minutes

IMPORTANCE RATING(S):	SYSTEM NUMBER(S):
3.3	2.2.32

REFERENCES:

M-C-741-301 Rev 13, CONTROL ROD BLADE, FSP AND CONTROL ROD GUIDE TUBE REMOVAL

TASK STANDARD(S):

Aux hoist operation terminated upon notification of rod coupling per M-C-741-301

TASK CONDITIONS:

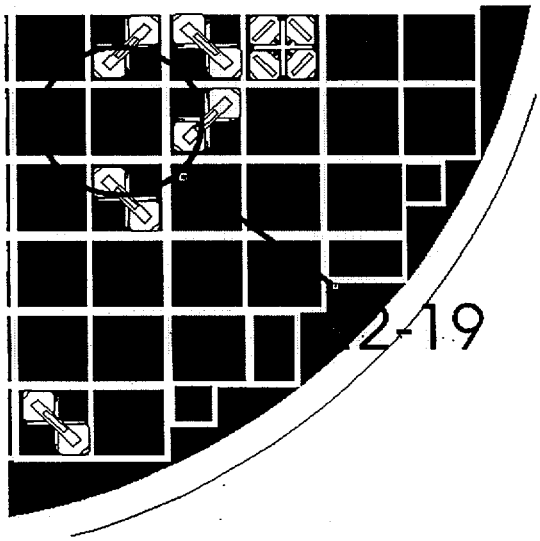
1. Unit ____ is in the maintenance configuration.
2. Control cell 42-19 is being disassembled using the NES combined grapple and the frame mounted aux hoist
3. Core configuration is shown on the attached core map
4. Attachment 12 as-posted is provided and was filled in by the previous FHD
5. The CCTAS is provided
6. All prerequisites for control rod blade exchanges are met
7. The double blade guide from 42-19 is hanging from the main hoist

INITIATING CUES:

You have been directed by the CRS to continue CRB exchanges with CCTAS Step 63 per M-C-741-301 Step 5.18.4

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
1. Verify FSP gripper and interlock flags are both HALF RED circles CUE: **Provide Grapple Status Sheet #1**	Verify grippers are half red	
2. *Per CCTAS, position grapple over CRB/FSP to be moved CUE: (Have candidate indicate location of cell for 42-19 on the attached core map.) "The grapple is positioned over core where you indicated."	Bridge and trolley moved to the area over 42-19 using console or pendant 	
3. ***Rotate hoist cable to orient grapple with two red indicating arrows pointing toward corner of top guide opening as follows:** PBAPS-Southwest CUE: Arrows are pointing Southwest	**Rotate grapple until arrows are Southwest**	
4. ***Carefully lower grapple through the top guide while checking load cell and camera monitor for indication of hang-up** CUE: The grapple is being lowered	**Grapple lowered using LOWER button on pendant control**	

STEP	STANDARD	SAT/UNSAT
5. *Continue lowering grapple until seated and the cable is slack CUE: The grapple is seated and the cable is slack	Grapple lowered through the top guide until seated and the cable is slack	
6. If performing the first of multiple CRB exchanges, then raise the empty grapple and record the indicated weight on Attachment 12, then re-seat grapple onto FSP	N/A- Already recorded	
7. Pull down and hold air hoses to verify there is no tension on the hoses CUE: The hoses are not under tension	Hoses checked for tension and held	
8. Ensure grapple is fully seated by performing the following checks:	N/A	
a. If any adjacent fuel cell is vacant, then visually check grapple is fully seated on FSP CUE: Camera is checked and it indicates the grapple is fully seated on the fuel support piece	Camera checked for correct seating	
b. Safety bend cable and verify solid stop of grapple CUE: Solid stop of grapple is verified using a safety bend	Safety bend checked	
Note: Stroke of FSP air cylinder should cause grapple frame to raise ¼ inch		
Caution **Do not manipulate hoist cable for at least 8 seconds following pendant operation. Premature manipulation of hoist cable could result in improper grappling of FSP**		
9. *Depress ENGAGE pushbutton and visually verify FSP gripper flag indicates full red circle CUE: **Provide Grapple Status Sheet #2**	ENGAGE button depressed and gripper flag verified full red	

STEP	STANDARD	SAT/UNSAT
Note: Attachment 12 may be available as reference for expected weight indication. Normal weight indication for grappled FSP only is roughly 260 lbs and normal weight indication for FSP+CRB is roughly 460 lbs.		
10. *Ensure at least 8 seconds have elapsed since pendant operation, then while monitoring weight indicationraise grapple approximately 3 inches then STOP CUE: Hoist is raised approximately 3 inches	Grapple raised approximately 3 inches then hoist motion is stopped	
11. *Verify FSP is grappled by checking the following: CUE: **Provide Grapple Status Sheet #3**	N/A	
a. Weight indication is consistent with a grappled FSP	Weight indication verified from Status Sheet #3 as correct	
b. FSP gripper interlock flag indicates full red circle	Gripper interlock verified from Status Sheet #3 as full circle	
12. If performing first of multiple CRB exchanges, then record indicated weight for FSP lift on Attachment 12	N/A	
13. *Raise hoist an additional 6 inches, then verify the following:	Hoist raised	
a. *Weight indication is consistent with a grappled FSP + CRB CUE: **Provide Grapple Status Sheet #4 and give the following cue:** **"The RO has just reported that rod 46-19 appears to be drifting IN"**	Recognize that weight is excessive and rod indicates coupled. Discontinue raising CRB.	
b. CRB Flag is full yellow	Flag verified full yellow	
CUE: You have reached the termination point for the JPM. You may stop here		

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. Unit ____ is in the maintenance configuration.
2. Control cell 42-19 is being disassembled using the NES combined grapple and the frame mounted aux hoist
3. Core configuration is shown on the attached core map
4. Attachment 12 as-posted is provided and was filled in by the previous FHD
5. The CCTAS is provided
6. All prerequisites for control rod blade exchanges are met
7. The double blade guide from 42-19 is hanging from the main hoist

INITIATING CUES:

You have been directed by the CRS to continue CRB exchanges with CCTAS Step 63 per M-C-741-301 Step 5.18.

CANDIDATE

WEIGHT INDICATIONS DURING CRB EXCHANGE
(Hoist Raising Direction)

- FSP Lift*: 260
(Mark N/A if using GE Combined Grapple)

- CRB Lift: N/A
(Mark N/A if using NES Combined Grapple)

- FSP + CRB Lift: 460
(Combined Grapple only)

- Grapple Empty: 120

* When using NES Combined Grapple, FSP only weight can only be detected within approx. the first 3 inches of grapple motion.

CANDIDATE

TRANSFE. .UTHORIZATION FOR M-C-741-301
M-219966 Rev. 1/89
DOCTYPE 113

WRNM ONLY

Written By: *TRAINING USE ONLY*
Reviewed By: *TRAINING USE ONLY*
Authorized By: *TRAINING USE ONLY*

Unit PEACH BOTTOM ATOMIC POWER STATION Date 6/3/02
Title TRAINING CCTAS

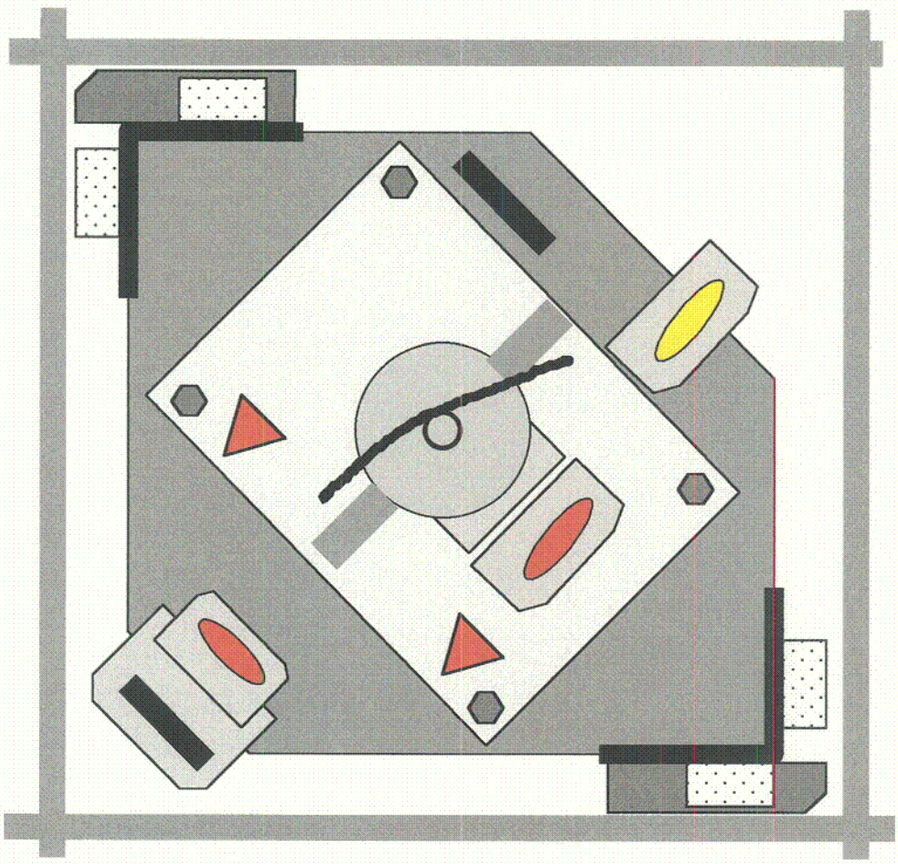
STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	WRNM COUNTRATE								DATE	TIME
									A	B	C	D	E	F	G	H		
61	VERIFY CONTROL ROD 42-19 IS UNCOUPLED						NA	jeb	NA	NA	NA	NA	NA	NA	NA	NA	Today	10 min ago
62	DBL B/G	41-20/43-18	NONE	HANG MN HOIST	NONE	gld	vap		NA	NA	NA	NA	NA	NA	NA	NA	Today	5 min ago
63	SUP PC	42-19	NW	HANG HOIST	NONE				NA	NA	NA	NA	NA	NA	NA	NA		
64	IF CRD EXCHANGE IN PROGRESS THEN PERFORM STEPS 64A, 64B, & 64C, OTHERWISE, N/A STEPS 64A, 64B, & 64C					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
64A	INFORM UNDERVESSEL TEAM OF INTENT TO REMOVE CRB					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
64B	RAISE CRB 42-19 APPROXIMATELY 12 INCHES						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
64C	RECEIVE CONFIRMATION FROM UNDERVESSEL TO CONTINUE					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
65	CRB	42-19	NONE	CBRCK 5N-1	NONE				NA	NA	NA	NA	NA	NA	NA	NA		
66	CRB H605	CBRCK 6N-4	NONE	42-19	NONE				NA	NA	NA	NA	NA	NA	NA	NA		

PB JPM 3 CCTAS

CANDIDATE

Grapple Status Sheet #1

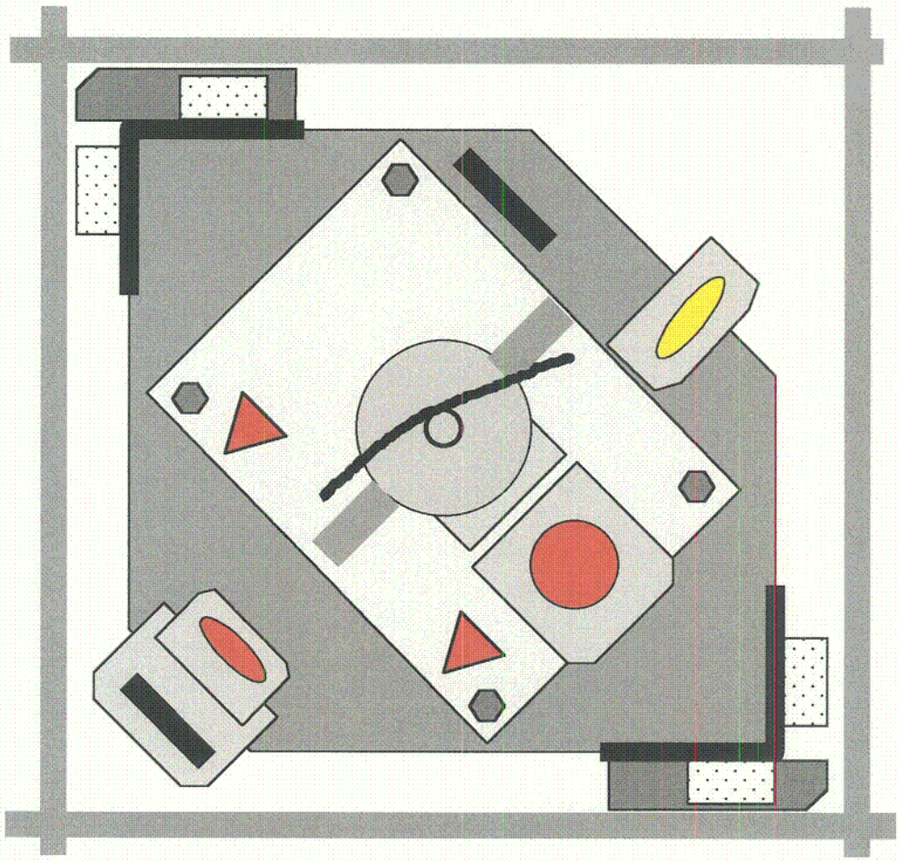
All Flags 45 degrees



CANDIDATE

PB JPM 3

Grapple Status Sheet #2

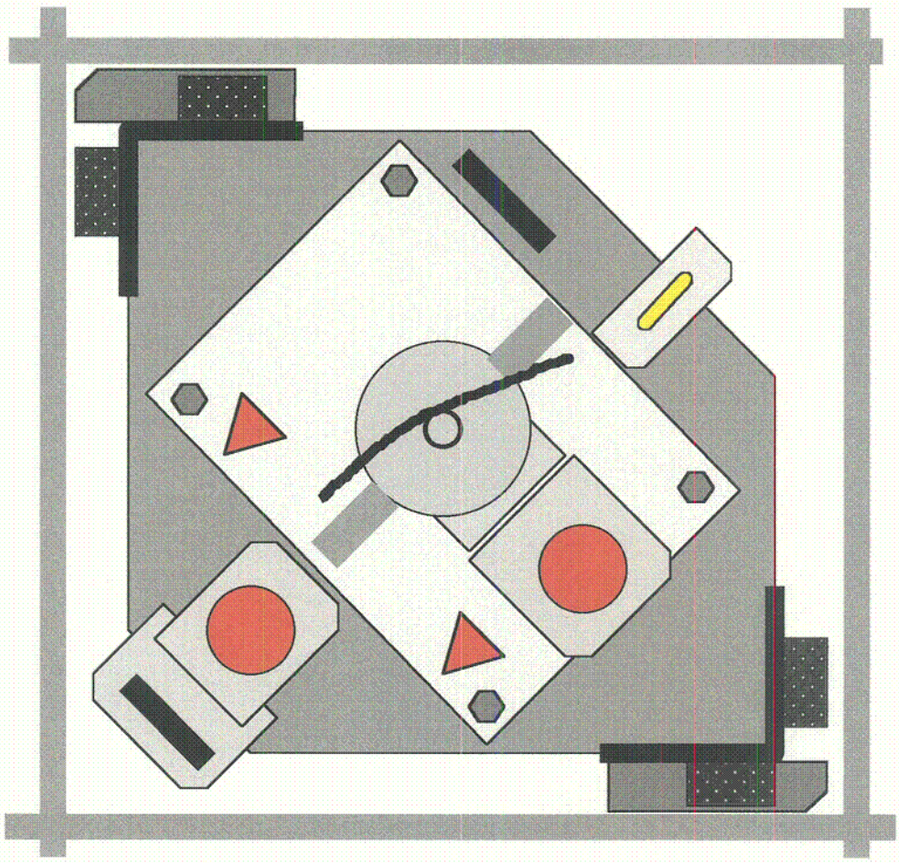


CANDIDATE

PB JPM 3

Grapple Status Sheet #3

Weight = 260 LBS

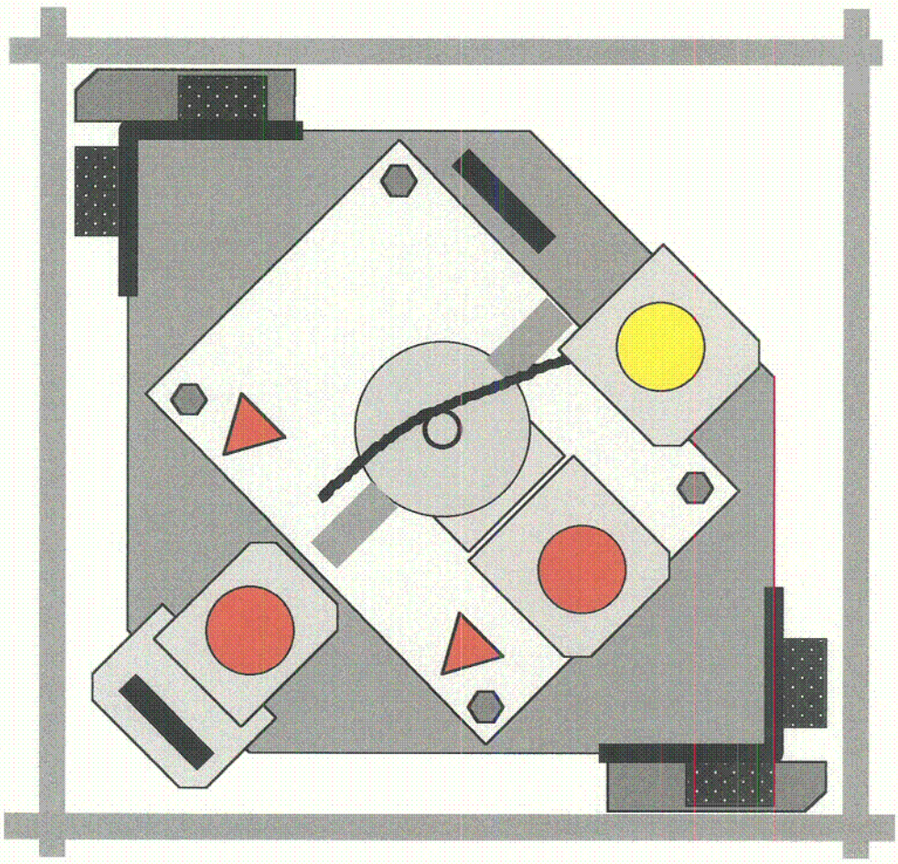


CANDIDATE

PB JPM 3

Grapple Status Sheet #4

Weight = 540 LBS after raising 6 inches



CANDIDATE

PB JPM 3

TITLE: Storage of the Tri-Nuclear Underwater Vacuum Unit

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

This JPM should be administered on the refuel floor and *outside the contaminated area* to allow access the desks containing the fuel pool FME logs.

EVALUATION METHOD :

PERFORM

EVALUATION LOCATION:

REFUEL FLOOR

APPROXIMATE COMPLETION TIME:

Completion Time 10 minutes

IMPORTANCE RATING(S):	SYSTEM NUMBER(S):
3.5	2.2.27

REFERENCES:

1. M-C-797-003 Rev 3, UNDERWATER VACUUM UNIT AND FILTER UNIT EXAMINATION, OPERATION, AND MAINTENANCE
2. A-C-132, Rev 1, SPENT FUEL POOL MATERIAL STORAGE,/INVENTORY AND HOUSEKEEPING
3. AG-CG-132, REV 0, SPENT FUEL POOL INVENTORY / INSPECTION

TASK STANDARD(S):

Permitted spent fuel pool location identified and fuel pool log updated

TASK CONDITIONS:

1. Underwater vacuuming operations are complete in the Unit 3 reactor cavity using the Tri-Nuc UFV-260 vacuum
2. The vacuum is to be stored in an authorized area of the Unit 3 spent fuel pool
3. Dose rate on-contact with the filter area of the vacuum is 7500 mRem/hr
4. A Fuel Pool Material Log is provided
5. A map of the Unit 3 spent fuel pool has been provided
6. The Spent Fuel Pool Material Coordinator has authorized the long-term storage of the vacuum in the spent fuel pool under ID No. UFV-260-1
7. Health Physics coverage is present in the work area.

INITIATING CUES:

You are directed determine the storage location for the vacuum in the Unit 3 spent fuel pool and indicate the location on the map provided, and update the fuel pool material log.

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Determining Fuel Pool Storage Location (A-C-132)		
1. Storage location limitations and radiation protection requirements		
a. *Storage of items on top of fuel is prohibited	Selected location is not on top of fuel	
b. *Items shall not be stored directly on top of or inside fuel or CRB storage racks unless specific approval from Site Engineering, Civil/Structural Branch and/or Site Reactor Engineering is obtained and documented	Selected location os not on top of CRB or Fuel Racks	
c. *Items shall not be stored in any manner which would interfere with installation or removal of pool gates	Selected location is not obstructing gates	
d. Long-term storage of irradiated items surveyed to be equal to or greater than 1000R/hr on-contact shall be stored at an elevation equal to or below the top of the fuel storage racks	N/A – not an irradiated item greater than 1000R/hr	
2. Radioactive material which has been surveyed to be equal to or greater than 1000mr/hr on contact, shall be locked by Radiation Protection when stored within the pool to prevent inadvertent removal from the fuel pool or cask pit CUE: HP will release the vacuum to the spent fuel pool		

STEP	STANDARD	SAT/UNSAT
a. Alternatively, material may be released to the Fuel Pool or Cask Pit floor (i.e. no cable remains attached to item) in a location determined acceptable by radiation protection group CUE: HP will release the vacuum to the spent fuel pool with no cable attached in the location you select	Location selected is on the fuel pool floor	
3. *Radioactive material, which has been surveyed to be equal to or greater than 1000 mr/hr on contact, shall be a minimum of 7 feet from the fuel pool gate installation location at the refuel slot. This will preclude potential for excessive radiation levels within the refuel slot during personnel occupancy of the refuel slot during outages	Location selected is not within 7 feet of the gates	
At his point, if necessary, cue the candidate to mark the fuel pool map with the location to which he or she will move the vacuum	Location indicated on map meets all restrictions	
4. CUE: The vacuum has been moved using the service platform and pump lifting tool	N/A	
Update Fuel Pool Material Log (AG-CG-132)		
5. Pool material log including map shall be updated by workers as reqired when items within the scope of A-C-132 are added to, removed, or relocated in the pools CUE: **Provide attached blank log page**	Recognize that the vacuum unit is covered under A-C-132 Step 2.1 pp. 2 as a refuel service tool and requires tracking	
6. Description of items on log should be detailed and account for each separate item when practical	Description entered should have unique ID no and describe item as vacuum UFV-260-1 Underwater vacuum	

STEP	STANDARD	SAT/UNSAT
7. Original storage date of degradable materials should be maintained on the Pool Material Log. This information, combined with inspection results will enable Spent Fuel Materials Coordinator to evaluate pool cleanout needs	Date entered	
8. For tracking purposes, each entry into log should be assigned a unique ID#	ID # UFV-260-1 entered	
9. All items except those fully released to the Fuel Pool or the Cask Pit floor or a storage rack should be tagged with the item's unique ID#	N/A – the vacuum is released to the floor	
10. An entry should be made on a pool map to indicate location of the item(s) stored. This entry should be the ID# from the log. Additional annotations should be made to enhance clarity when required	Map updated to show UFV-260-1 in the selected location	
11. CUE: You have reached the termination point for this JPM. You may stop here		

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

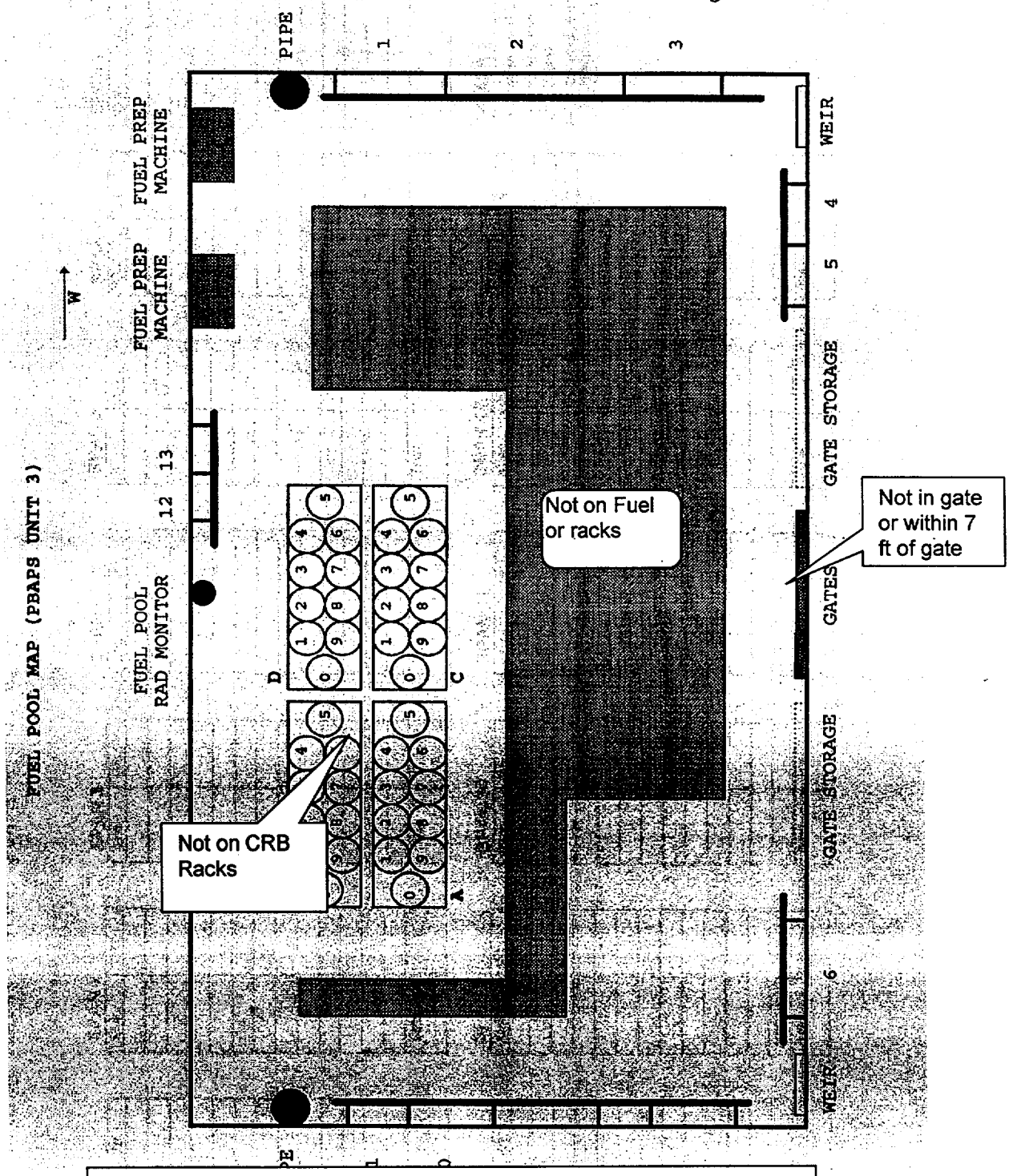
TASK CONDITIONS:

1. Unit ____ is in the maintenance configuration.
2. Control cell 42-19 is being disassembled using the NES combined grapple and the frame mounted aux hoist
3. Core configuration is shown on the attached core map
4. Attachment 12 as-posted is provided and was filled in by the previous FHD
5. The CCTAS is provided
6. All prerequisites for control rod blade exchanges are met
7. The double blade guide from 42-19 is hanging from the main hoist

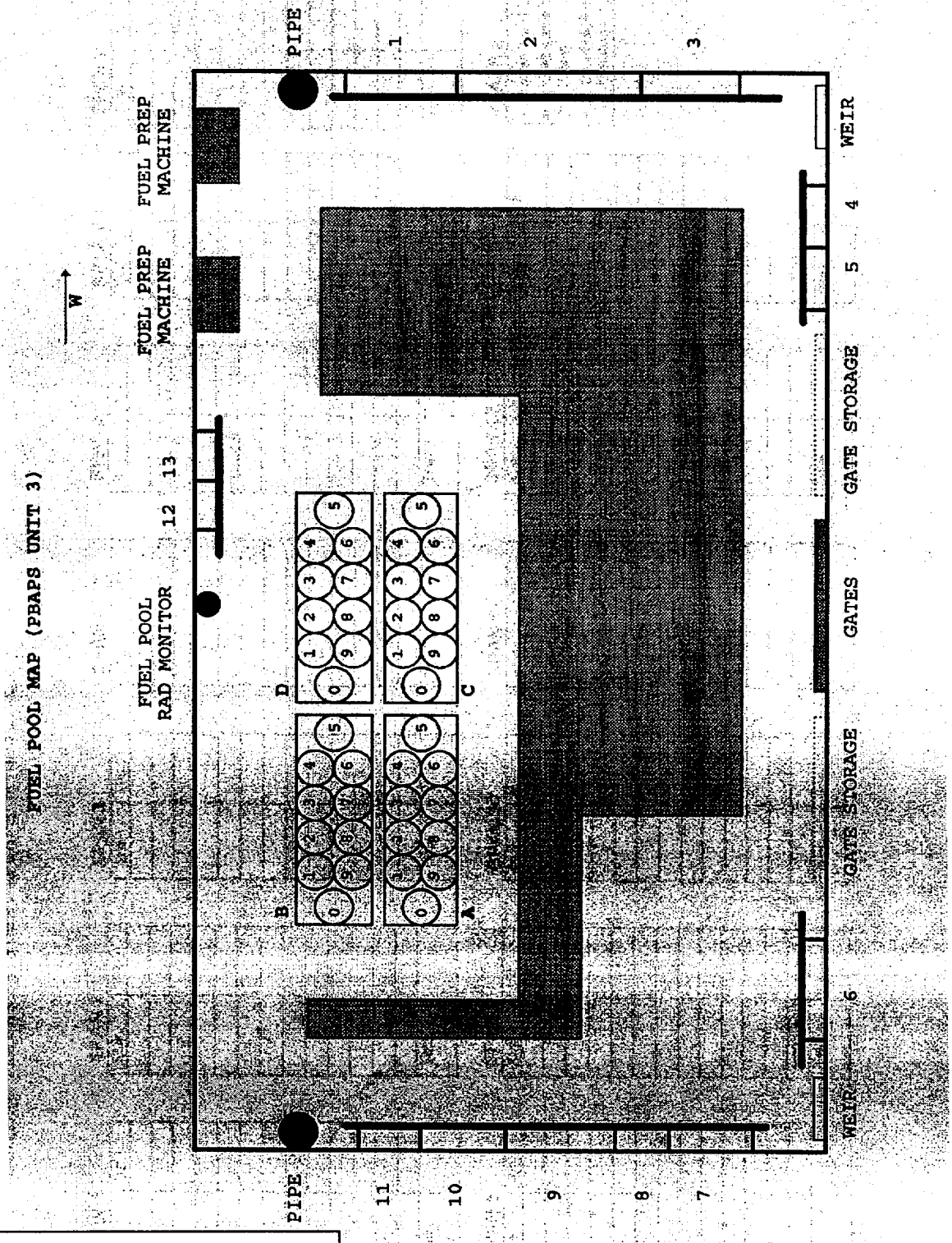
INITIATING CUES:

You have been directed by the CRS to continue CRB exchanges with CCTAS Step 63 per M-C-741-301 Step 5.18.

CANDIDATE



PB JPM 4 ANSWER KEY



CANDIDATE

PB JPM 4 Pool Map

POOL MATERIAL LOG: STATION & UNIT _PBAPS U3 Page____ of ____

NOTE: Radiological information should be entered for all items expected to exceed 1000 mr/hr on contact based on historical or current survey data.

Radiological information shall only be entered by qualified RP personnel.

ID #	Spent Fuel Pool Material Coordinator approval for relocation req'd *	DESCRIPTION Include type of nuclear instrument and core location removed from.	ORIGINAL DATE STORED	LOCKED or RELEASED to pool floor or rack (Yes or No)	RADIOLOGICAL INFORMATION

* To be filled in by Spent Fuel Pool Material Coordinator

Communicate changes to: _____ **ext.**_____ (aspen or written memo or e-mail acceptable).

CANDIDATE

POOL MATERIAL LOG: STATION & UNIT PBAPS U3 Page____ of ____

NOTE: Radiological information should be entered for all items expected to exceed 1000 mr/hr on contact based on historical or current survey data.

Radiological information shall only be entered by qualified RP personnel.

ID #	Spent Fuel Pool Material Coordinator approval for relocation req'd *	DESCRIPTION Include type of nuclear instrument and core location removed from.	ORIGINAL DATE STORED	LOCKED or RELEASED to pool floor or rack (Yes or No)	RADIOLOGICAL INFORMATION
UFV-260-1		Underwater vacuum	Today	Yes	7500 mRem/hr on contact

ANSWER KEY

* To be filled in by Spent Fuel Pool Material Coordinator

Communicate changes to: _____ **ext.**_____ (aspen or written memo or e-mail acceptable).

TITLE: Abnormal WRNM Response During Core Alterations

TASK PERFORMED BY: _____ EVALUATOR: _____

EVALUATOR SIGNATURE: _____ DATE: _____

DIRECTIONS TO EVALUATOR:

Two CCTAS sheets are provided: Unit 2 and Unit 3. Only the sheet corresponding to the unit selected for the JPM is given to the candidate.

EVALUATION METHOD :

Simulate

EVALUATION LOCATION:

Refuel Floor

APPROXIMATE COMPLETION TIME:

Completion Time: 10 minutes

IMPORTANCE RATING(S):	SYSTEM NUMBER(S):
4.1	295023AA2.04

REFERENCES:

SO18.A.2 Rev.11, OPERATION OF REFUELING PLATFORM
FH-6C, Rev. 56, CORE COMPONENT MOVEMENT-CORE TRANSFERS
ON-124 Rev 6, FUEL FLOOR AND FUEL HANDLING PROBLEMS - PROCEDURE

TASK STANDARD(S):

Core alteration halted and fuel floor evacuated per ON-124

TASK CONDITIONS:

1. Shuffle part 2 is in progress on Unit 2 (3)
2. All prerequisites are met for core alterations in FH-6C
3. CCTAS Step 331 is being executed
4. Semi-automatic motion over the core target location has just stopped per SO18.1.A.-2(3) Step 4.14.1

INITIATING CUES:

You are directed to continue core alterations with CCTAS Step 331 as the Fuel Handling Director

Critical Element(s) indicated by "*" in Performance Checklist.

PERFORMANCE CHECKLIST:

STEP	STANDARD	SAT/UNSAT
Resumption of Core Alterations in SO18.A-2(3)		
1. *Lower load until the hoist position indicates approximately 335 inches, then stop lowering CUE: Hoist position is 335 inches	Hoist lowered to approximately 335 inches, then motion stopped	
2. *Rotate core component as necessary to achieve proper orientation CUE: Mast is oriented in the direction you have indicated	Mast rotated so bundle channel fastener is oriented Southwest	
3. Perform double verification to ensure proper core component location and orientation CUE: Double verification has been performed	Double verification performed	
4. If load is a fuel bundle, then FHD shall inform unit operator of pending fuel insertion in the core CUE: RO acknowledges bundle going into the core per CCTAS step 331	Notify Unit RO that a bundle is going to be inserted into 03-42. (Also OK to notify that Step 331 bundle is going to be inserted)	
5. When directed by FHD, then lower the load until "SLACK CABLE" light is lit CUE: RPO acknowledges OK to lower load. Bundle is going in. WAIT APPROX 15 SECONDS – Report as RPO "Bundle is entering the core" *CUE: WAIT APPROX 10 SECONDS – Report as Unit RO that "Alpha" and "Charlie" Wide Range Monitor counts have doubled	**Direct the RPO to lower the load until SLACK CABLE light is lit**	

STEP	STANDARD	SAT/UNSAT
WRNM Counts Double – Stop Core Alterations		
6. *From FH-6C : Continuously observe WRNMs as applicable during core alterations and immediately notify the Fuel Handling Director and Shift Supervision to suspend component movement if any WRNM count rate has doubled between CCTAS steps CUE: Hoist is stopped	Direct hoist motion to be stopped	
7. CUE: As RO – Now ALL Wide Range Monitors are going up past three doublings. Period is about 100 seconds.	N/A	
Refueling Accident – Inadvertent Criticality		
8. *If WRNM count rate has doubled two times, then enter ON-124 immediately	Enter ON-124	
9. If WRNM count rate stabilizes at a value less than 2 doublings and no WRNM spiking or indication of WRNM inoperability exists, then component movement may resume This does not apply to the first, second, third, or fourth fuel bundles placed adjacent to a WRNM at the beginning of core re-load	N/A – Recognize that this bundle is not immediately adjacent to a WRNM	
ON-124 Actions		
10. If WRNM count rate doubled two times between CCTAS steps, then	N/A	
a. If grappled, then raise the fuel assembly from core so that it clears the upper grid (approximately 360 inches hoist poisition) CUE: As RPO – "Bundle coming up"...."Wait, I got a hoist jam lamp. The hoist is stopped at 420 inches"	Direct the bundle to be raised	
11. Notify Shift management	Notify MCR that a hoist jam exists	

STEP	STANDARD	SAT/UNSAT
12. Determine WRNM count rate CUE: As RO – "ALL Wide Range Monitors are still going up. Alpha and Charlie are going past 300 counts and still rising. Period is still 100 seconds	Ask for RO report of WRNM count rate Recognize indications are of a critical reactor	
13. *If count rate continues to raise (criticality), then evacuate the Fuel Floor to Turbine Building elevation 165' or area designated by Shift management per GP-15, "Local Evacuation" CUE:The ARMs on the walls are alarming. Now the ARM in the cab is alarming with a red rotating beacon. Dose rate is 35 mRem/hr on the meter and climbing	Abandon actions to use hoist to raise fuel. Direct the evacuation of the fuel floor and bridge crew to Turbine Building 165' elevation.	

Comments:

Note: Any grade of UNSAT requires a comment.

JPM Overall Rating: _____
SAT/UNSAT

TASK CONDITIONS:

1. Shuffle part 2 is in progress on Unit 2 (3)
2. All prerequisites are met for core alterations in FH-6C
3. CCTAS Step 331 is being executed
4. Semi-automatic motion over the core target location has just stopped per SO18.1.A.-2(3) Step 4.14.1

INITIATING CUES:

You are directed to continue core alterations with CCTAS Step 331 as the Fuel Handling Director

CANDIDATE

TRANSFER A..HORIZATION FOR FH-6C
M-21966 Rev. 1/89
DOCTYPE 113

WRNM ONLY

Written By: *TRAINING USE ONLY*
Reviewed By: *TRAINING USE ONLY*
Authorized By: *TRAINING USE ONLY*

Unit PEACH BOTTOM ATOMIC POWER STATION
Title TRAINING CCTAS

Date 06/04/02

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	WRNM COUNTRATE								DATE	TIME
									A	B	C	D	E	F	G	H		
331	PYG651	P2SPENT N-46	NW	P2CORE 03-42	SW													
332	PYN521	P2SPENT C-22	NW	P2CORE 01-44	NE													
333	PYN463	P2SPENT C-21	SW	P2CORE 01-42	NW													
334	PYG764	P2SPENT P-46	SW	P2CORE 03-44	SE													
335	PJ1447	P2SPENT C-18	SW	P2CORE 17-50	NW													

CANDIDATE

Unit 2 JPM

PB JPM 5 CCTAS

TRANSFER A. .HORIZATION FOR FH-6C
M-21966 Rev. 1/89
DOCTYPE 113

WRNM ONLY

Written By: *TRAINING USE ONLY*
Reviewed By: *TRAINING USE ONLY*
Authorized By: *TRAINING USE ONLY*

Unit PEACH BOTTOM ATOMIC POWER STATION
Title TRAINING CCTAS

Date 06/04/02

STEP NO.	COMPONENT SERIAL NO.	MOVE FROM	ORIENT	MOVE TO	ORIENT	FHD	RPO	CRO	WRNM COUNTRATE								DATE	TIME
									A	B	C	D	E	F	G	H		
331	PYG651	P3SPENT N-46	NW	P3CORE 03-42	SW													
332	PYN521	P3SPENT C-22	NW	P3CORE 01-44	NE													
333	PYN463	P3SPENT C-21	SW	P3CORE 01-42	NW													
334	PYG764	P3SPENT P-46	SW	P3CORE 03-44	SE													
335	PJ1447	P3SPENT C-18	SW	P3CORE 17-50	NW													

CANDIDATE

Unit 3 JPM

PB JPM 5 CCTAS