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RECEIVED  
REGION 1

'04 DEC 27 P2 :17

December 23, 2004  
TDL 04-014  
BVY 04-137

Regional Administrator, Region 1  
ATTN: Mr. John Caruso  
United States Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406-1415

References: (a) License No. DPR-28 (Docket No. 50-271)

Subject: Senior Reactor Operator Licensing Examination, Vermont Yankee, February 2005

Enclosed for your review are the examination materials to support the Vermont Yankee NRC Examination scheduled for the week of February 1, 2005.

Per ES-201, Attachment 1, regarding examination security, I would request that the enclosed materials be withheld from public disclosure until after the examinations have been completed.

This examination has been developed in accordance with NUREG-1021 Revision 9. The written examination sample plan has changed. The JPM selections and scenarios have been modified based on discussions between yourself and Mr. Kevin Murphy during the preparation week.

For any additional assistance, please call Frank Fagan at (802) 258-4256 or myself at (802) 258-4161.

Sincerely,

Entergy Nuclear Northeast - Vermont Yankee

Michael E. Gosekamp  
Operations Training Superintendent

- c: USNRC Resident Inspector – VYNPS (Attachments Withheld from Public Disclosure)
- USNRC Project Manager – VYNPS (Attachments Withheld from Public Disclosure)
- Document Control Desk – (Attachments Withheld from Public Disclosure)
- VT Department of Public Service (Attachments Withheld from Public Disclosure)

Facility: <u>Vermont Yankee</u>		Date of Examination: <u>Jan 31, 2005</u>
Examination Level (circle one): <u>SRO</u>		Operating Test Number: <u>1</u>
Administrative Topic (see Note)	Type Code*	Describe activity to be performed
Conduct of Operations	N, S	A.1 Respond to a Code Red Event (Note 1) 2.1.13 SRO 2.9
Conduct of Operations	M, D	A.2 (29902) Evaluate CRO logs for readings out of specification and determine required action 2.1.18 SRO 3.0
Equipment Control	D	A.3 (23411) Respond to lowering spent fuel pool level during refueling 2.2.28 SRO 3.3
Radiation Control	D, P	A.4 (29903) Locate and determine radiological conditions for valve inspection 2.3.4 SRO 3.1
Emergency Plan	D, S	A.5 (20036) Offsite Protective Action Recommendation Using ODPS (Note 1) 2.4.44 SRO 4.0
NOTE: All items (5 total) are required for SROs. RO applicants require only 4 items unless they are retaking only the administrative topics, when all 5 are required.		
* Type Codes & Criteria: (C)ontrol room (D)irect from bank ( $\leq 3$ for ROs; $\leq 4$ for SROs & RO retakes) (N)ew or (M)odified from bank ( $\geq 1$ ) (P)revious 2 exams ( $\leq 1$ ; randomly selected) (S)imulator		

Note 1: Changed from initial outline.

## Narrative Summary

A.1 The Security Shift Supervisor declares a Code Red event. The applicant enters the Security Event procedure and implements the Code Red section. The actions include sending a licensed operator out of the control room, notifying plant personnel not to move, classifying the event and initiating the paging system with a Code Red event code.

A.2 The on shift Control Room Supervisor will review the CRO log of a CRO trainee on shift. The applicant will determine if all readings are in spec and take any required action for out of spec readings.

A.3 The applicant is the Refueling SRO and is in the process of moving fuel. Fuel pool level starts to decrease and the applicant is to direct fuel movement stop, the bundle lowered and all personnel evacuate the refuel floor. The SRO will then be directed to fill the fuel pool with the local fill valve.

A.4 The applicant will utilize a radiological survey to determine the area of highest dose, lowest contamination and allowable stay time.

A.5 Fuel damage has occurred and a release is underway. A previous initial PAR, based upon plant conditions, had been made the recommended shelter for certain towns. A PAR based upon radiological conditions is to be made using ODPS (a computer system). The computer system will show that EPA guidelines have been exceeded and that evacuation of towns 5 miles downwind are required.

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Evaluate CRO Logs for Readings Out of Specification and Determine Required Actions  
Failure Mode: N/A  
Reference: OP 0150, "Conduct of Operations and Operator Rounds"  
Task Number: 2990090301

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

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

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation \_\_\_ Performance X Discuss

Setting: Classroom X Simulator \_\_\_ Plant \_\_\_

Performance Expected Completion Time: 20 minutes

**Evaluation Results:**

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: Frank Fagan 11/30/04  
Operations Training Instructor Date

Reviewed by: Frank Fagan for T. Schultz 11/30/04  
SRO Licensed/Certified Reviewer per Telewin Date

Approved by: [Signature] 12/1/04  
Operations Training Superintendent Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have. This JPM will be performed in the **Classroom** and you are to **perform** all actions. You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

The plant is at 100% power. The following equipment was taken out of service on the last shift:

- "A" Rx Bldg Supply Fan for lubrication
- "B" RHRSW pump for impeller replacement

There is one active 30 day LCO for the RHRSW pump per Tech Specs 3.5.c.2. The plant is in summer time operations with circ water in closed cycle operation.

**Initiating Cues:**

The Shift Manager has requested you to review a CRO trainee's practice set of log entries, pages 24-27. You are to ensure the entries are appropriately entered, per OP 0150, and to ensure all readings are in spec.

**Task Standards:**

It is determined that the current cooling tower basin temperature requires all 4 RHRSW pumps operable and, with one pump inoperable, Alternate Cooling is inoperable and a 7 day LCO is entered.

**Required Materials:**

OP 0150, "Conduct of Operations and Operator Rounds" (latest revision), including sheets 24-27 and completed with appropriate data  
OP 2181 "Service Water/Alternate Cooling Operating Procedure  
Tech Specs

**Simulator Setup: N/A**

**Evaluation**

**Performance Steps**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain Procedure OP 0150, Operator Rounds, and review procedure.**

Standard: OP 0150 obtained and reviewed.

---

Interim Cue: Provide log sheets (VYOPF 0150.03 Sheets 24-27) with appropriate data filled in.

---

Note: If the candidate questions the accuracy of a log entry, inform him the readings are accurate.

---

SAT/UNSAT

**Step 2: Review log readings.**

Standard: Compare log entry to log's Required Condition

SAT/UNSAT

**Step 3: Determines inappropriate "lineout" of reading**

Standard: Indicates that the Torus Water Volume reading should have initials next to the lineout.

SAT/UNSAT

**Step 4: Reviews OP 2181**

Standard: Reviews OP 2181 admin for required RHRSW pumps

SAT/UNSAT

**\*Step 5: Determine basin temperature and RHRSW requirements.**

Standard: Determines 4 RHRSW pumps required.

SAT/UNSAT

**Step 6: Notify Shift Manager.**

Standard: Candidate informs Shift Manager that the plant has less than the required 4 RHRSW pumps.

---

Interim Cue: Shift Manager requests that you determine what actions are required.

---

Note: The candidate may determine Tech Spec required actions before informing the Shift Manager.

---

**Evaluation**

**Performance Steps**

SAT/UNSAT

**\*Step 7: Determine LCO**

Standard: Candidate determines that the Alternate Cooling System is inoperable and the plant is in a 7 day LCO

SAT/UNSAT

**Step 8: Notify Shift Manager.**

Standard: Candidate informs Shift Manager that the Alternate Cooling System is inoperable and the plant is in a 7 day LCO.

SAT/UNSAT

**Step 9: Complete review of logs**

Standard: Candidate continues to review logs.

---

Interim Cue: The Shift Manager will complete the review of the logs.

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** It is determined that the current cooling tower basin temperature requires all 4 RHRSW pumps operable and, with one pump inoperable, Alternate Cooling is inoperable and a 7 day LCO is entered.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System: K/A's:**

**System Generic K/A's:** 2.1.18 SRO 3.0

## EXAMINEE HANDOUT

### Initial Conditions:

The plant is at 100% power. The following equipment was taken out of service on the last shift:

- "A" Rx Bldg Supply Fan for lubrication
- "B" RHRSW pump for impeller replacement

There is one active 30 day LCO for the RHRSW pump per Tech Specs 3.5.c.2. The plant is in summer time operations with circ water in closed cycle operation.

### Initiating Cues:

The Shift Manager has requested you to review a CRO trainee's practice set of log entries, pages 24-27. ~~You are to ensure the entries are appropriately entered, per OP 0150, and to ensure all readings are in spec.~~

*Why practiced logs  
Why not actual  
Set of logs?*

*Too lengthy*



## EXAMINEE HANDOUT

### Initial Conditions:

The plant is at 100% power. The following equipment was taken out of service on the last shift:

“A” Rx Bldg Supply Fan for lubrication

“B” RHRSW pump for impeller replacement

There is one active 30 day LCO for the RHRSW pump per Tech Specs 3.5.c.2. The plant is in summer time operations with circ water in closed cycle operation.

### Initiating Cues:

The Shift Manager has requested you to review a CRO trainee's practice set of log entries, pages 24-27. You are to ensure the entries are appropriately entered, per OP 0150, and to ensure all readings are in spec.

CRO ROUND SHEET (Continued)

Date \_\_\_\_\_

	TS [TRM] (ODCM)	REQUIRED CONDITION	00-06	06-12	12-18	18-24
H <sub>2</sub> AN-OG 2921 (A/B) (SR 91-75)	3.8.3.1 4.8.J.1 (4.3.4) (T.4.1.2)	1. <100% of Full Scale (100%=4%H <sub>2</sub> ) 2. Agrees w/in 10% Full Scale of H <sub>2</sub> AN-OG 2922 (A/B)	0.0	0.0		
			SAT-B	SAT-B		
H <sub>2</sub> AN-OG 2922 (A/B)		1. <100% of Full Scale (100%=4%H <sub>2</sub> ) 2. Agrees w/in 10% Full Scale of H <sub>2</sub> AN-OG 2921 (A/B)	0.0	0.0		
			SAT-B	SAT-B		
Rad Monitor 3127/3128 (SR 90-20) (SR 91-75)	(4.3.4) (T.4.1.2)		708	686		
				303	281	
Rad Monitor 3127/3128 Instrument Check		Agree w/in 1 decade	SAT	SAT		
HVAC Fans (AC, AH, & EXH)		Train A or B Running (Note a combination of A and B fans running is an indication that a standby unit may have auto-started)		B		

CRP 9-23

Bearing Metal Temps (TR-110-5/R-1) (ER950525_02)		<ul style="list-style-type: none"> <li>• Thrust Bearing (Front &amp; Rear Plate Metal) ≤225°F.</li> <li>• All bearings ≤225°F.</li> </ul>	SAT	SAT		
			SAT	SAT		
Hotwell Conductivity A/B (CR 109-21/23)		Highest Channels <0.2 μmho/cm		0.04		
				0.06		
Outside Gai-Tronics		Normally off 1800-0600 weekdays and all day weekends/holidays		ON		

CRO ROUND SHEET (Continued)

Date \_\_\_\_\_

	TS [TRM] (ODCM)	REQUIRED CONDITION	00-06	06-12	12-18	18-24
<b>OTHER</b>						
Control Room Fire Detection Panel (CP-115-3)	[3.13.A.1]	Power Available/No Alarms		SAT		
Turbine Bearing Oil Temps Check (ERFIS TBD Screen) (ER950525_02)		≤35°F ΔT rise across bearings	SAT	SAT		
Turbine Bearing Vibration (ERFIS TBD Screen)		If any Turbine Bearing Vibration exceeds 6 mils, notify Mechanical Maintenance Manager via e-mail		SAT		
Compensated Torus Water Volume (C029 or LI-16-19-46A/B and OP 2115 Fig. 1)	3.7.A.1.e 3.7.A.1.f 4.7.A.1	<ul style="list-style-type: none"> <li>• 68,255-69,745 cubic feet</li> <li>• If Torus water level is not w/in the Acceptable Range/Region, notify the Operations Manager and enter Tech. Spec. LCO 3.7.A.8.</li> </ul>		69190 <del>69189</del>		
Core Thermal Power C047		≤1593 MWt	1591.6			
Compensated Torus Water Temperature (C207) or Average Torus Water Temperature from TI-16-19-33A/C	3.7.A.1 4.7.A.1	Average Temperature 50 - 87.3°F. See Note (4).		79.8		
SJAE Steam Flow T032			10989			
Circ Water Inlet (C053) and Condenser Backpressure (C033) During Cold Weather Operations		Circ water inlet (C053) ≥33°F and Condenser backpressure (C033) between 1.0 and 1.6 inHg with 2 circ water pumps running. (ER970019)(OP 2180)		NA		
				NA		
ACS Operability, CT-2-1 Deep Basin Temperature. Use computer point F074. Record Value.	3.5.D.1	Using Deep Basin temperature indicated by F074 verify Deep Basin temperature and number of RHRSW pumps operable satisfies OP 2181 Admin. Limits		95		

CRO ROUND SHEET (Continued)

Date \_\_\_\_\_

	TS [TRM] (ODCM)	REQUIRED CONDITION	00-06	06-12	12-18	18-24
Outside Air Temperature (Primary Met Tower 33' Elev. - C182)		At -15°F initiate OP 3127 extreme cold weather actions.		92		
SW Supply Temperature (F060)		If F060 ≥82°F, refer to OP 2181 Admin. Limits	80	80		
M036/M037 River Temperature Upstream/Downstream		If either point is out of service, refer to OP 2180, Section O.	79.5	79.5		
			80.6	80.5		
Record Operable APRM GAFs from REO Screen (LER9717_02)		Compare per Note 2. Any GAF >Scale Factor shall be corrected within 6 hours.	(A) .986	(A) .987	(A)	(A)
			(C) .994	(C) .994	(C)	(C)
			(E) .991	(E) .993	(E)	(E)
			(B) .991	(B) .993	(B)	(B)
			(D) .993	(D) .994	(D)	(D)
			(F) .993	(F) .993	(F)	(F)
Review the following computer displays: a) General Alarm List b) Suspended Alarm List c) Bad Point Summary List d) Heat Balance Inputs Screen		If any Heat Balance points failed or removed from scan as referenced in OP 5399 Appendix A, or if a SPDS safety parameter became inoperable during shift, notify R/CE.		SAT		
Review the PVO Display		All parameters consistent with plant status	SAT	SAT		
3D Monicore Case Print/Error Messages		Case printed out and checked for normal limits/no unexplained error messages on LA3	SAT	SAT		
			SAT	SAT		
Drywell Sump Surveillance	3.6.C	VYOPF 4152.05	SAT	SAT		
	4.6.C					
Jet Pump Surveillance	4.6.F.1	VYOPF 4110.04				
	4.6.F.2					

CRO ROUND SHEET (Continued)

Date \_\_\_\_\_

	TS [TRM] (ODCM)	REQUIRED CONDITION	00-06	06-12	12-18	18-24
Core Parameters	4.11.A 4.11.B 4.11.C	VYOPF 4401.01	SAT			
Control Room Recorders Timed/Trend Dated		All recorders in service or refer to Note 1	SAT			
Input Data into "Runtanks" for CST and DST Levels						
Perform Daily Operations Department Control Room Panel Walkdown Checklist VYOPF 0150.10			SAT			
Recorded By		Initials	KM	KM		

GENERAL NOTES:

- (1) When recorders that monitor Tech. Spec./[TRM] items are out of service, perform the following:
  - a. If the parameter is required to be continuously recorded, log the parameter hourly in the Comments section.
  - b. If the parameter is not required to be continuously recorded, log the parameter once a shift in the Comments section.
- (2) Compare the operable APRM GAFs from ERFIS REO screen from one shift to another at steady state conditions (no power changes greater than 5% in the last 24 hours or no rod pattern adjustment within the last 24 hours).
  - a. If all the operable APRM GAFs change by greater than 0.010 (equivalent to 15.93 MWth) and this change cannot be attributed to APRM GAF adjustment by I&C or some other known reason.
    - 2) Then request Reactor Engineering validate heat balance inputs.
  - b. If all the operable APRM GAFs change by more than 0.010
    - 1) Then maintain actual RTP less than or equal 100% APRM power indication.
- (3) Notify SM if increase >0.03 ft. (4 gpm in-leakage) from previous 6 hour reading. The Shift Supv. shall have previous week's readings trended to determine normal volume increase. If Torus volume increases 4 gpm higher than normal, action shall be taken to determine the cause.
- (4) (If the 87.3°F limit is exceeded refer to OP 2115 Appendix G for additional margin based upon instrument and computer point availability)

CRO ROUND SHEET TURNOVER SHEET

Date \_\_\_\_\_

TS [TRM] (ODCM)	REQUIRED CONDITION	00-06	06-12	12-18	18-24
--------------------	--------------------	-------	-------	-------	-------

**TURNOVER - PRIOR TO SHIFT RELIEF**

Receipt/Review of Rounds		OATC/BOP both initial	VM / FF	/
SM, STA Key Rings, 1A, 2A, 3A, 4A Key Rings Signed Out or In Locker	6.5.B	All key rings intact with two MEDECO keys on each	VM	
Review CRS Turnover checklist		OATC/BOP both initial	VM / FF	/
Review T.S./T.R.M. Components Inoperable checklist		OATC/BOP both initial	VM / FF	/
Review Operations Logs		OATC/BOP both initial	VM / FF	/
Conduct panel walk down		OATC/BOP both initial	VM / FF	/
Review Reactivity Management		Reactivity Control (Circle at least one)		
<ul style="list-style-type: none"> <li>Anticipated reactivity changes for the shift</li> <li>Nuclear Instrumentation operable/inoperable</li> <li>3D Monicore - Thermal Limits</li> <li>Equipment Status related to reactivity</li> <li>Reactivity related scheduled work</li> </ul>		<ul style="list-style-type: none"> <li>Recirc Flow Control - Master</li> <li>Recirc Flow Control - Individual</li> <li>Recirc Flow Control - <u>Bias A/B</u></li> <li>Rods - Rapid S/D/Normal seq.</li> </ul>	VM	
Review Disabled Equipment/Annunciators		OATC/BOP both initial	VM / FF	/

#	DAYS Time/ Initial	NIGHTS Time/ Initial	Equipment/Component/Annunciator	Reason Inoperable or Degraded	WR/WO Number
A1					
A2					
A3					
A4					
A5					
A6					
A7					

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Respond to Lowering Spent Fuel Pool Level During Refueling

Reference: OP 1101

Task Number: 2337140401, 34102903, 34404203

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO \_\_\_ SRO Only X

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Operator Performing Task: \_\_\_\_\_

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

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation X Performance \_\_\_ Discuss

Setting: Classroom \_\_\_ Simulator \_\_\_ Plant X

Performance Expected Completion Time: 15 minutes

**Evaluation Results:**

Performance: PASS \_\_\_ FAIL \_\_\_

Time Required: \_\_\_\_\_

Prepared by: Frank Fagn  
Operations Training Instructor

11/30/04  
Date

Reviewed by: Thomas Sato  
SRO Licensed/Certified Reviewer

11/30/04  
Date

Approved by: [Signature]  
Operations Training Superintendent

11/30/04  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Plant** and you are to **simulate** all actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

**Initial Conditions:**

Refueling is in progress and you are the SRO on the refueling bridge. An AO and spotter are on the bridge with you moving fuel. A new fuel bundle has been grappled and is being raised from location R-41 in the Spent Fuel Pool. It has not yet cleared the rack.

**Initiating Cues:**

You notice an unexpected drop in fuel pool level, lowering at about 1 inch per minute. There are no radiation alarms. You are to take any required actions.

**Task Standards:**

Respond in accordance with OP 1101, precaution 4, evacuate the refuel floor and initiate makeup to the fuel pool.

**Required Materials:**

OP 1101

**General References:**

None



**Evaluation**

**Performance Steps**

TIME START: \_\_\_\_\_

SAT/UNSAT

**\*Step 1: Direct Refuel Platform Operator to Stop Raising the New Fuel Bundle**

Standard: Direction given to platform operator to stop.

---

Interim Cue: Grapple raise motion is stopped.

---

SAT/UNSAT

**\*Step 2: Direct Refuel Platform Operator to Lower the New Fuel Bundle to Full Down**

Standard: Direction given to lower the bundle full down in SFP R-41 or any empty fuel pool location.

---

Interim Cue: The bundle has been lowered to the full down position.

---

**Note:** The candidate may direct that the main grapple be opened; however this is not required.

---

SAT/UNSAT

**\*Step 3: Direct All Refuel Floor Personnel to Evacuate the Refuel Floor**

Standard: Direction given to all refuel floor personnel to evacuate.

---

Interim Cue: Refuel floor personnel have commenced evacuation. **The Shift Manager directs you to initiate makeup to the spent fuel pool, *prior to you evacuating*, by opening DW-111, and report back on level.**

---

**Evaluation**

**Performance Steps**

SAT/UNSAT

**\*Step 4: Open DW-111**

Standard: Candidate rotates DW-111 handwheel counter clock-wise until resistance is felt.

---

Interim Cue: DW-111 handwheel rotates smoothly CCW until resistance is felt. Fuel pool level is now rising.

---

SAT/UNSAT

**Step 5: Report to Control Room that DW-111 is OPEN**

Standard: Make report to control room that DW-111 is open and level is rising.

---

Interim Cue: **NO FURTHER ACTIONS ARE REQUIRED FOR THIS JPM.**

---

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** New fuel bundle returned to full down , refuel floor being evacuated, DW-111 open providing SFP makeup.

**Evaluators Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

K/A's: 2.2.28 SRO 3.3

## EXAMINEE HANDOUT

### **Initial Conditions:**

Refueling is in progress and you are the SRO on the refueling bridge. An AO and spotter are on the bridge with you moving fuel. A new fuel bundle has been grappled and is being raised from location R-41 in the Spent Fuel Pool. It has not yet cleared the rack.

### **Initiating Cues:**

You notice an unexpected drop in fuel pool level, lowering at about 1 inch per minute. There are no radiation alarms. You are to take any required actions.

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Locate and Determine Radiological Conditions for Valve Inspection  
Failure Mode: N/A  
Reference: AP 0506, "Personnel Monitoring"  
Task Number: 2990100301

**Task Performance:** AO/RO/SRO \_\_\_ RO/SRO Only X SE Only \_\_\_

Sequence Critical: Yes \_\_\_ No X

Time Critical: Yes \_\_\_ No X

Individual Performing Task: \_\_\_\_\_

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

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation \_\_\_ Performance X Discuss \_\_\_

Setting: Classroom X Simulator \_\_\_ Plant \_\_\_

Performance Expected Completion Time: 15 minutes

**Evaluation Results:**

Performance: PASS \_\_\_ FAIL \_\_\_ Time Required: \_\_\_\_\_

Prepared by: Frank Fayer  
Operations Training Instructor

11/30/04  
Date

Reviewed by: Frank Fayer per T. Schultz  
SRO Licensed/Certified Reviewer per Telecon

11/30/04  
Date

Approved by: [Signature]  
Operations Training Superintendent

12/1/04  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the individual has failed the Job Performance Measure.

After providing the initiating cue, ask the individual "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Classroom** and you are to **perform** all actions.

You are requested to **"talk-through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

You have requested that an AO verify the RCU Pump "A" suction, CU-19A, is open and to observe the pump run. The AO currently has an accumulated dose (TEDE) of 1800 mr for the year and is the only one available for the job. He is a new AO and has no accumulated dose for previous years. As part of preparation for a pre-job brief you are to review the survey map to determine the radiological conditions.

**Initiating Cues:**

Determine the following information for the brief:

- Area with the lowest dose
- Area with the lowest contamination levels
- Maximum stay time if:
  - AO stands next to ladder to observe valve and pump and he does not exceed VY "Routine Annual Administrative Guidelines" for dose
- In the event a dose extension is necessary, determine who's approval is necessary to extend the dose to VY's "Maximum Annual Administrative Guidelines" for dose

**Task Standards:**

Areas with the lowest dose and contamination levels are determined. The correct stay time is calculated. The proper authorities for a dose extension are named.

**Required Materials:**

AP 0506, Personnel Monitoring  
Radiological Survey Map for 280E RWCU A Pump Room

**Simulator Setup:**

N/A

**Evaluation**

**Performance Steps**

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain and review survey map.**

Standard: Survey map obtained and information reviewed.

---

Interim Cue: Provide survey map.

---

SAT/UNSAT

**\*Step 2: Determine area with lowest dose.**

Standard: Area in front of step off pad identified.

SAT/UNSAT

**\*Step 3: Determine area with lowest contamination levels.**

Standard: Area in front of step off pad identified.

SAT/UNSAT

**\*Step 4: Calculate maximum stay time.**

Standard: Calculates a maximum stay time of 2 hours.

---

Note: Calculation based on 200 mr remaining on a routine admin limit of 2000 mr. The general area dose near ladder is 100 mr/hr.

---

SAT/UNSAT

**\*Step 5: Identify authorities required for dose extension to Maximum Admin Limits.**

Standard: The RP Superintendent and General Manager identified as approval authorities for extension.

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:** Low contamination/dose areas identified, stay time calculated and extension authorities identified.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System:**      **K/A's:**

**System Generic K/A's:**      2.3.4 SRO 3.1



## **EXAMINEE HANDOUT**

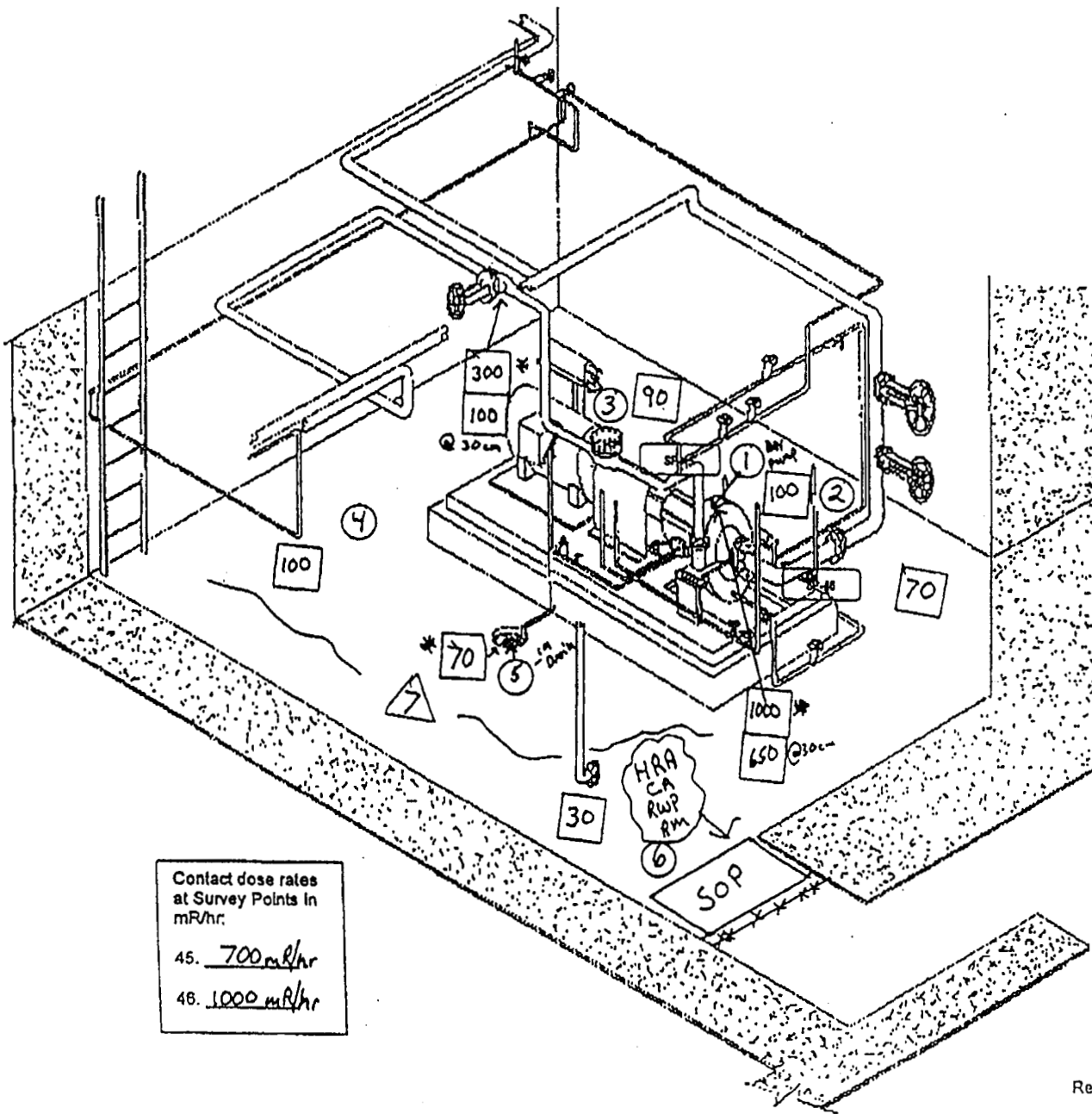
### **Initial Conditions:**

You have requested that an AO verify the RCU Pump “A” suction, CU-19A, is open and to observe the pump run. The AO currently has an accumulated dose (TEDE) of 1800 mr for the year and is the only one available for the job. He is a new AO and has no accumulated dose for previous years. As part of preparation for a pre-job brief you are to review the survey map to determine the radiological conditions.

### **Initiating Cues:**

Determine the following information for the brief:

- Area with the lowest dose
- Area with the lowest contamination levels
- Maximum stay time if:
  - AO stands next to ladder to observe valve and pump and he does not exceed VY “Routine Annual Administrative Guidelines” for dose
- In the event a dose extension is necessary, determine who’s approval is necessary to extend the dose to VY’s “Maximum Annual Administrative Guidelines” for dose



Contact dose rates  
at Survey Points in  
mR/hr:

45. 700 mR/hr

46. 1000 mR/hr

Survey Logbook # 5020050-333  
 Survey Log ID: RB 280 E RWCU A Pump Room

DATE: 1-18-05 TIME: 1400  
 Power level: 100%  
 RWP: 0500001 / 02-00010

Instrument(s)	Serial number	Cal due date
<u>RD-20</u>	<u>3059</u>	<u>7-05</u>
<u>L-1000</u>	<u>157591</u>	<u>9-05</u>
<u>L-1000</u>	<u>119248</u>	<u>11-05</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Contamination Data  
 1. DPM/100CM<sup>2</sup> unless otherwise noted  
 2. LAS in CCPM

Smear		Smear	
#	Results	#	Results
1.	<u>4.5 K</u>	13.	<u>N/A</u>
2.	<u>4.1 K</u>	14.	
3.	<u>5.8 K</u>	15.	
4.	<u>8.1 K</u>	16.	
5.	<u>5 K</u>	17.	
6.	<u>2 K</u>	18.	
7.	<u>4 K</u>	19.	
8.	<u>N/A</u>	20.	
9.		21.	
10.		22.	
11.		23.	
12.		24.	

Alpha Smears

#	Results	#	Results
1	<u>&lt; MDCB</u>		<u>N/A</u>
4	<u>&lt; MDCB</u>		<u>N/A</u>

Air sample results N/A mR/hr.

Routine  Job Coverage  
 Pro-Job  System Breach  
 Pre-decon  Post decon  
 Other (note type)

Surveyor(s):  
 Print Name: Michael D Brown / DW Aho  
 Signature: [Signature]  
 Remarks: Pump Running  
Vibration Reading

Reviewed by: [Signature]

**VERMONT YANKEE  
JOB PERFORMANCE MEASURE  
WORKSHEET**

**Task Identification:**

Title: Off-Site Protective Action Recommendations Using ODPS  
Failure Mode: N/A  
Reference: OP-3511, Off-Site Protective Action Recommendations  
OP-3513, Evaluation of Offsite Radiological Conditions  
Task Number: 2007150501

**Task Performance:**

AO/RO/SRO  RO/SRO  SRO Only

Sequence Critical: Yes  No

Time Critical: Yes  No

Operator Performing Task: \_\_\_\_\_

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

Date of Evaluation: \_\_\_\_\_

Activity Code: \_\_\_\_\_

Method of Testing: Simulation  Performance  Discuss

Setting: Classroom  Simulator  Plant

Performance Expected Completion Time: 30 minutes

**Evaluation Results:**

Performance: PASS  FAIL  Time Required: \_\_\_\_\_

Prepared by: Frank Fagan  
Operations Training Instructor

11/30/04  
Date

Reviewed by: Thomas Seto  
SRO Licensed/Certified Reviewer

11/30/04  
Date

Approved by: [Signature]  
Operations Training Manager

12/1/04  
Date

**Directions:**

Discuss the information given on this page with the operator being evaluated. Allow time for him to ask questions before beginning performance of the task. As each performance step is performed, evaluate the performance of that step by circling either "Sat" or "Unsat". Comments are required for any "Unsat" classification. If a step is preceded by an asterisk (\*), it is a critical step. If a critical step is skipped or performed unsatisfactorily, then the operator has failed the Job Performance Measure.

After providing the initiating cue, ask the operator "Do you understand the task?"

**Read to the person being evaluated:**

Before starting, I will explain the initial conditions, provide the initiating cues and answer any questions you have.

This JPM will be performed in the **Simulator** and you are to **perform** the actions.

You are requested to **"talk through"** the procedure, stating the parameters you are verifying or checking and the steps you are performing.

Inform me upon completion of this task.

**Initial Conditions:**

The following plant conditions exist:

- A reactor transient has occurred that caused fuel damage
- Reactor is shutdown
- Elevated release is in progress
- NO ground release has occurred
- Release began two hours ago
- General Emergency EAL has just been declared
- Chemistry technician is taking a silver zeolite air sample from the stack
- Site Boundary Team dispatched
- PAR based on plant conditions has been completed per OP 3511, section I.

**Initiating Cues:**

The PED has requested that you determine off-site protective action recommendations based on Radiological Dose information using ODPS per OP 3511, section II.

**Task Standards:**

Operator makes appropriate off-site PAR determination per OP 3511.

**Required Materials:**

OP 3511, Off-Site Protective Action Recommendations (latest revision)  
VYOPF 3511.01, Protective Action Recommendation Worksheet completed for initial PAR on plant conditions  
OP 3513, Evaluation of Offsite Radiological Conditions (latest revision)  
Initial plant PAR completed on form 3511.01 (attached)  
ERFIS Source Term Data printout (attached)  
ERFIS PAR printout (attached)

**Simulator Setup:**

Any full power IC with ERFIS available. Insert malfunction RMO1F at 0.4%, stack Hi-Range monitor.

Evaluation

Performance Steps

TIME START: \_\_\_\_\_

SAT/UNSAT

**Step 1: Obtain Procedure OP 3511, Section II and review precautions**

Standard: Operator obtains and reviews procedure

SAT/UNSAT

**Step 2: Obtain Procedure OP 3513, Section I and review precautions**

Standard: Operator obtains procedure and reviews precautions

SAT/UNSAT

**Step 3: Obtain current off-site dose projection results and meteorological data (wind direction and stability class) from OP 3513.**

Standard: Operator Goes to OP 3513 as directed by OP 3511, step II.A.1.

SAT/UNSAT

**Step 4: If ODPS is operable, then implement Appendix G to access off-site dose projection information from ODPS.**

Standard: Operator Goes to OP 3513, Appendix G as directed by OP 3513, step I.A.4.

SAT/UNSAT

**Step 5: Press the "ODPS" ERFIS terminal key to access the "ODPS Menu" screen**

Standard: Operator presses the white "ODPS" key on an ERFIS keyboard or enters ODPS by clicking through screen menus

SAT/UNSAT

**\*Step 6: Click on the "SOURCE TERM DATA" box to display screen**

Standard: Operator clicks on the "Source Term Data" box.

SAT/UNSAT

**Step 7: Click on the PRINTER icon to obtain record of stack release projection information (Reactor Trip Status and Stack).**

Standard: Clicks on the PRINT icon on the ERFIS screen

---

Interim Cue: Provide the candidate with the attached ERFIS Source Term Data printout. If asked, the printout has the current date and time.

---

SAT/UNSAT      **Step 8:**      **Press the "ODPS" ERFIS terminal key to return to the "ODPS Menu" screen**

Standard:      Operator presses white "ODPS" key.

SAT/UNSAT      **\*Step 9:**      **Click on the "PROTECTIVE ACTION RECOMMENDATIONS LIVE STACK MR/HR" box to display screen**

Standard:      Operator clicks on the Protective Action box to generate the PAR

SAT/UNSAT      **Step 10:**      **When "PROTECTIVE ACTION RECOMMENDATION" screen is displayed, click on the PRINTER icon to obtain stack release off-site dose projection information.**

Standard:      Operator clicks on the PRINT icon.

---

Interim Cue: Provide the candidate with the attached ERFIS PAR printout. If asked, the printout has the current date and time.

---

SAT/UNSAT      **Step 11:**      **Press the "ODPS" ERFIS terminal key to return to the "ODPS Menu" screen**

Standard:      Operator presses white "ODPS" key

SAT/UNSAT      **Step 12:**      **If only one release point exists (stack or ground), then continue with the following actions:**

**Implement OP 3511 Section II, Step A.2 to formulate Protective Action Recommendations for State authorities**

Standard:      References OP 3511, Section 2 Step A.2.

SAT/UNSAT      **Step 13:**      **Compare the calculated dose projection results with EPA Protective Action Guidelines delineated below to determine whether EPA Protective Action Guidelines have been exceeded**

Standard:      Notes that Total Effective Dose is >1.

SAT/UNSAT      **\*Step 14: Determine appropriate table to use.**

Standard:      Selects Table 5.

SAT/UNSAT      **\*Step 15: Choose towns affected by the PAR**

Standard:      Selects "Sector A" for wind direction and stability class.

SAT/UNSAT      **\*Step 16: Record appropriate PAR information in Section II of VYOPF 3511.01**

Standard:      Operator records PAR data on OP 3511.01 with evacuation recommended for Vernon, Hinsdale, Bernardston and Northfield.

SAT/UNSAT      **Step 17: Forward completed VYOPF 3511.01 to the Site Recovery Manager or senior manager in charge.**

Standard:      Provides copy of Protective Action Recommendation to the PED.

---

Interim Cue: No further actions are required for this JPM.

---

\* Critical Step

TIME FINISH: \_\_\_\_\_

**Terminating Cue:**      Operator completes 3511.01 with appropriate offsite protective action recommendations.

**Evaluator Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**System Generic K/A's:**      2.4.44 SRO 4.4



## EXAMINEE HANDOUT

### **Initial Conditions:**

The following plant conditions exist:

- A reactor transient has occurred that caused fuel damage
- Reactor is shutdown
- Elevated release is in progress
- NO ground release has occurred
- Release began two hours ago
- General Emergency EAL has just been declared
- Chemistry technician is taking a silver zeolite air sample from the stack
- Site Boundary Team dispatched
- PAR based on plant conditions has been completed per OP 3511, section I.

### **Initiating Cues:**

The PED has requested that you determine off-site protective action recommendations based on Radiological Dose information using ODPS per OP 3511, section II.

PROTECTIVE ACTION RECOMMENDATION WORKSHEET

INFORMATION CURRENT AT: Friday 1/25/02 (Time/Date)

PROTECTIVE ACTION RECOMMENDATIONS

<p><b>SECTION I: PLANT CONDITIONS</b> (Fill in with appropriate letter designation for affected towns from Table 3)</p> <p>S= Shelter in Place OR E= Evacuate</p> <p><b>VERMONT TOWNS</b></p> <p>_____ Brattleboro _____ Guilford <u>S</u> _____ Vernon</p> <p><b>NEW HAMPSHIRE TOWNS</b></p> <p><u>S</u> _____ Hinsdale <u>S</u> _____ Winchester</p> <p><b>MASSACHUSETTS TOWNS</b></p> <p><u>S</u> _____ Bernardston <u>S</u> _____ Northfield</p> <p>Performed By: <u>Jack Jones</u> Verified By: <u>Ed Link</u></p>	<p><b>SECTION II: RADIOLOGICAL DOSE</b> (Fill in with letter designation for affected towns) E= Evacuate</p> <p style="text-align: center;"><b>OR</b></p> <p>(Check if appropriate) _____ NO PARs Based on Radiological Dose</p> <p><b>VERMONT TOWNS</b></p> <p>_____ Brattleboro _____ Dummerston _____ Guilford _____ Halifax _____ Vernon</p> <p><b>NEW HAMPSHIRE TOWNS</b></p> <p>_____ Chesterfield _____ Hinsdale _____ Richmond _____ Swanzey _____ Winchester</p> <p><b>MASSACHUSETTS TOWNS</b></p> <p>_____ Bernardston _____ Colrain _____ Gill _____ Greenfield _____ Leyden _____ Northfield _____ Warwick</p> <p>The following was used (Check as applicable):  <input type="checkbox"/> Nomogram   <input type="checkbox"/> ODPS   <input type="checkbox"/> METPAC   <input type="checkbox"/> Field Data</p> <p>Performed By: _____ Verified By: _____</p>
---	--

(The following information to be filled in by Senior Manager in charge or designated alternate)

Approved By: Wynne Bates (Time/date) 0600/Today

PED    TSC Coordinator    Site Recovery Manager (Check one)

Transmit approved PAR to State Authorities as delineated in OP 3540 (PED or TSC Coordinator using OP 3540.06) or OP 3546 (Site Recovery Manager using OP 3546.02)

PLANT MODE  
RUN

## PROTECTIVE ACTION RECOMMENDATIONS

SPPCS  
11/25/2004  
10:54:23

THIS STRAIGHTLINE PROJECTION USES SOURCE TERM DATA AND 15 MINUTE AVERAGES  
OF UPPER PRIMARY METEOROLOGICAL TOWER DATA FROM 10 : 45 AND THE  
STACK DOSE RATE OF 39999.5000 MR/HR.

MET WIND DIRECTION FROM: 2 DEGREES  
WIND SPEED: 2 MPH  
DATA DELTA TEMPERATURE: -3.20 F  
STABILITY CLASS: A  
PRECIPITATION: 0.50 IN/QTR HR  
SITE BOUNDARY TOTAL EFF. EQUIV: 1869 MR/HR  
ADULT THYROID: 106 MR/HR

	DIST (MI)	TOTAL EDE (REM)	ADULT THY (REM)	PAR
8				
	.35	14.949	0.845	EVAC
HOUR	1.00	2.372	0.239	EVAC
	2.00	0.912	0.034	EVAC
DOSE	3.00	0.566	0.006	EVAC
	4.00	0.423	0.001	EVAC
	5.00	0.343	0.000	EVAC
	6.00	0.291	0.000	NONE
	7.00	0.254	0.000	NONE
	8.00	0.225	0.000	NONE
	9.00	0.202	0.000	NONE
	10.00	0.184	0.000	NONE
ARRIVAL TIMES	.35 MILES AT	10 : 41	2.00 MILES AT	11 : 34
	5.00 MILES AT	13 : 4	10.00 MILES AT	15 : 34

PLANT MODE  
RUN

# VYOPF3513.01 SOURCE TERM DATA

SPPCS  
11/25/2004  
10:54:04

REACTOR ON 0/ 0/ 0 ELAPSED TIME SINCE  
TRIP STATUS NORM AT 0: 0: 0 PLANT TRIP  
0 MINUTES

---

STACK HIGH RANGE ELEVATED  
RADIATION RELEASE ON 11/ 25/ 4  
39999.5000 MR/HR > 0.1445 MR/HR YES AT 10: 34: 3

NOTE: A RELEASE IS ASSUMED TO BE IN PROGRESS IF AN  
ELEVATED STACK MR/HR VALUE IN EXCESS OF 0.1445 IS PRESENT  
FOR LONGER THAN 10 SECONDS. THIS AFFECTS THE CALCULATION  
OF PLUME ARRIVAL TIMES ONLY.

AVG STACK FLOW (FT-108-22) 135690 SCFM

---

UNMONITORED A NONZERO DOWNWIND SITE BOUNDARY DOSE RATE OF:  
0.0000 MR/HR HAS BEEN MANUALLY ENTERED  
FOR 0/ 0/ 0 AT 0: 0: 0