Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 3430040103

Task Title: Determine minimum staffing requirement and determine from Operations schedule which personnel can/cannot be called in

K/A Reference: GKA2.1.5 (2.3/3.4) Job Performance Measure No: RO-1

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance X Actual Performance _____

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

I will explain the initial conditions, which steps to simulate or discuss, and provide initiating cues. When you complete the task successfully, the objective for this job performance measure will be satisfied.
Initial Conditions: Today is August 12. Ken Garnache called in sick. Frank Spagnuolo has become ill and is being sent home.

Task Standard: All of the ROs on the schedule have been evaluated and a determination made regarding who can be called in without violating requirements.

Required Materials: IP-SMM-OP-103, Overtime Scheduling Guidelines
Ops Schedule handout

General References: IP-SMM-OP-103, Overtime Scheduling Guidelines

Initiating Cue: Review the attached schedule and determine who can or cannot be called in for replacing the leaving RO without waiving overtime requirements.

Time Critical Task: NO

Validation Time: 15 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Reviews the Ops Schedule and IP-SMM-OP-103 requirements.

Standard: Schedule and procedure reviewed.

Comment:

√ **2. Performance Step:** Determines the following personnel can work the entire shift without any violations:

Standard: Cosentino, Gorman, Gaspar identified as able to work the entire shift without any violations.

Comment:

√ **3. Performance Step**: Determines the following personnel would result in a violation if called in for the entire shift.

Standard: Rowland (any hours worked before 1900 on 8/12 would exceed required hours)
Campbell (worked the midnight shift and went home. Needs an 8 hour break between shifts)
Owen (Scheduled to work the oncoming night shift. Any hours before 1500 today would exceed the 16/24 limit.)

NOTE: The reason (in parenthesis) above is not required.

Comment:

Terminating Cue: Personnel available to call in identified.

VERIFICATION OF COMPLETION

Job Performance Measure No. RO-1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIATING CUES:

1. Today is August 12.
2. Ken Garnache called in sick.
3. Frank Spagnuolo has become ill and is being sent home.
4. Review the attached schedule and determine who can or cannot be called in for replacing the leaving RO without waiving overtime requirements.
5. Who can work the entire shift?

TASK STANDARD:

Personnel who can and cannot work the entire shift identified and reasons why stated.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

			AUG								AUG								AUG							
			1	2	3	4	5	6	7	Remarks	8	9	10	11	12	13	14	Remarks	15	16	17	18	19	20	21
2B	Cosentino, Mike	RO	27	27	27	0	0	0	26		26	26	26	0	0	0	0								
2B	Gorman, Jim	RO									26	26	26	0	0	0	0		26	0	0	26	26	26	26
2B	Rowland, Roy	RO	27	27	27	0	0	26	26		26	26	26	26	0	0	0		0	0	0	26	26	26	0
2C	Campbell, Pete	RO	0	T	T	T	T	T	0		27	27	27	0	26	0	26		26	26	26	26	0	0	0
2C	Gaspar, Joe	RO	0	T	T	T	T	T	0		27	27	27	0	0	0									
2C	Owen, Dave	RO	0	T	T	T	T	T	0		27	27	27	0	0	26	26								
2E	Garnach, Ken	RO	0	27	0	26	26	26	0		26	0	0	27	27	27	27		0	0	27	27	27	0	0
2E	Rohla, Ross	RO									0	0	0	27	27	27	27		27	27	0	0	27	27	0
2E	Spagnuolo, Frank	RO	27	0	0	26	26	26	26		0	0	0	27	27	27	27		0	26	26	0	26	26	0

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 0100010401

Task Title: Application of Technical Specifications, determine that tripping bistables will cause a reactor trip.

K/A Reference: GKA2.1.12 (2.9/4.0) Job Performance Measure No: RO-2

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: Pressurizer Pressure Channel 1 failed low. Applicable actions of AOP-INST-1 complete. Subsequently, the Loop 2 NR Tcold instrument has failed low. Loop 2 Tave and Loop 2 Delta-T have been defeated and Rod Control and Charging Pump speed controls have been returned to Automatic per AOP-INST-1.

Task Standard: Identify all applicable LCOs, Conditions, required actions, and completion times and trip bistables.

Required Materials: 2-AOP-INST-1
Technical Specifications

General References: 2-AOP-INST-1
Technical Specifications

Initiating Cue: CRS has directed you to evaluate Technical Specifications to determine required actions and place the associated bistables to trip.

Time Critical Task:

Validation Time: 25 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Reviews AOP-INST-1 actions for failed temperature channel

Standard: AOP-INST-1 actions reviewed.

Comment:

√ **2. Performance Step:** Reviews Technical Specification 3.3.1, RPS Instrumentation

Reviews Table 3.3.1-1 and determines that Function 5 and Function 6 each have one inoperable channel.

Determines 3.3.1 Condition E applies requiring placing the channel in trip within 72 hours, or be in Mode 3 within 78 hours.

Standard: Function 5 and Function 6 identified. Condition E applicability identified. 72 hour LCO identified.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **3. Performance Step:** Reviews Technical Specification 3.3.2, ESFAS Instrumentation

Reviews Table 3.3.2-1 and determines that Function 1.f and Function 4.d each have one inoperable channel.

Determines 3.3.2 Condition D applies requiring placing the channel in trip within 72 hours, or be in Mode 3 within 78 hours.

Standard: Function 1.f and Function 4.d identified. Condition D applicability identified. 72 hour LCO identified.

Comment:

CUE: CRS has directed you to trip the Loop 2 Overpwr Trip and Loop 2 Lo Tavg bistables per AOP INST-1 Attachment 9.

√ **4. Performance Step: Reviews 2-AOP-INST-1 Attachment 9**

In the White A-12 Foxboro rack, places the bistable trip switches for Loop 2 Overpwr Trip and Loop 2 Lo Tavg to TRIP

Standard: Loop 2 Overpwr Trip and Loop 2 Lo Tavg bistables placed in TRIP. Loop 2 Overtemp Trip bistable NOT placed in TRIP.

Comment:

Terminating Cue: Technical Specifications reviewed and two of three bistables placed to trip.

VERIFICATION OF COMPLETION

Job Performance Measure No. RO-2, Application of Technical Specifications, determine that tripping bistables will cause a reactor trip

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

Simulator Setup

Reset simulator to IC-129

Actions of INST-1 completed for failed PRZ CH-1 low, and Loop2 Tcold failed low with Loop 2 tave and delta-T defeated, rods in auto and Chg in auto.

INITIATING CUES:

1. Pressurizer Pressure Channel 1 failed low.
2. Applicable actions of AOP-INST-1 complete.
3. Subsequently, the Loop 2 NR Tcold instrument has failed low.
4. Loop 2 Tave and Loop 2 Delta-T have been defeated and Rod Control and Charging Pump speed controls have been returned to Automatic per AOP-INST-1. Step 4.141 is in progress.
5. CRS has directed you to evaluate Technical Specifications to determine required actions and place the associated bistables to trip

TASK STANDARD:

Identify all applicable LCOs, Conditions, required actions, and completion times, and required bistables placed in trip.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 2000360101

Task Title: Conduct an emergency tagout removal

K/A Reference: GKA 2.2.13 (3.6/3.8) Job Performance Measure No: RO-3

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance X Actual Performance _____

Classroom _____ Simulator X Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: 25 Fan Cooler Unit was tagged out for vibration survey. Subsequently, 21 Containment Spray Pump was determined to be inoperable. The SM has determined that an emergency removal of the 25 FCU tagout is required.

Task Standard: Conduct an Emergency Tagout Removal in accordance with OAP-022 Section 4.8.6

Required Materials: Tagout, Copy of OAP-022

General References: OAP-022 Protective Tagging

Initiating Cue: Perform an emergency removal of the tagout on 25 Fan Cooler Unit

Time Critical Task: No

Validation Time: 20 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Obtain copy of tagout tag removal sheet

Standard: Tagout in hand

Comment: CRS gives examinee the tagout

√ **2. Performance Step:** Remove tag from 25 FCU Control Switch

Standard: Tag removed.

Comment:

√ **3. Performance Step:** 25 FCU Control Switch placed in AUTO

Standard: Switch in AUTO

Comment: If necessary, inform candidate that the CRS has directed the BOP RO to start 25 FCU after the tagout removal is complete.

√ **4. Performance Step:** 25 FCU Normal Outlet Control Switch Caution Tag Removed

Standard: Tag removed.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **5. Performance Step:** 25 CRF LOCAL/REMOTE Switch tag removed.

NOTE: This switch is located in the plant (the others are all in the CCR/Simulator. The candidate will display his ability to utilize the tagging procedure with the first two tags, so the third tag is not required.

CUE: Direct candidate to state the location of the switch. Then inform the candidate that the tag is removed.

Standard: Location of switch is known. Candidate states that the switch is in the 480V room (on the west wall)

Comment: Tag is now removed.

√ **6. Performance Step:** Document as left position on tagout sheet.

Standard: Complete tagout sheet documentation.

Comment:

---

7. Performance Step: Notify CCR that tagout has been removed.

Standard: Calls CCR

Comment: Acknowledge as CCR that tagout has been removed.

Terminating Cue: Emergency Tagout removal is completed.

VERIFICATION OF COMPLETION

Job Performance Measure No. RO-3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIATING CUES:

- 25 Fan Cooler Unit was tagged out for vibration survey.
- Subsequently, 21 Containment Spray Pump was determined to be inoperable.
- The SM has determined that an emergency removal of the 25 FCU tagout is required

TASK STANDARD: Perform an emergency removal of the tagout on 25 Fan Cooler Unit

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 0680010101

Task Title: Calculate and Record a Liquid Radioactive Release for #14 Liquid Waste Distillate Storage Tank

K/A Reference: _____ Job Performance Measure No: RO-4

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: The Unit is operating at 100% power. All radiation monitors are operable. Liquid Waste Distillate Storage Tank #14 is to be discharged, tank level, as reported by the NPO, is 71 inches. LWDST has been isolated and on recirc for the past 4 hours. R-54 is aligned to #14 WDST. R-54 High Alarm setpoint is 4e-4 uci/cc

Task Standard: Radioactive liquid waste release calculation completed, release permit (Attachment 1 to SOP-5.1.5) filled out, and ready for start of release.

Required Materials: 2-SOP-5.1.5, Calculation and Recording of Radioactive Liquid Releases
Waste Distillate of Frac Truck Activity data sheet.

General References: 2-SOP-5.1.5

Initiating Cue: You have been directed by the Shift Manager to calculate and approve a radioactive liquid waste release using the manual method.

Time Critical Task: NO

Validation Time: 35 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: DETERMINE the required recirculation time for the tank to be released

Standard: Determine minimum recirc time to be 208 minutes from Table 1

Comment:

2. Performance Step: Ensure tank isolated and recirculated two tank volumes before sampling; Checks recirculation rate, dates and times on Permit

Cue: Tank was isolated and placed on recirc 4 hours ago at 150 gpm recirc rate

Standard: Two tank volumes recirculation verified; rate, dates and times entered on Permit

Comment:

3. Performance Step: Calls and obtains Watch Chemist sample information

Cue: Sample Number 4906; Time 15 minutes ago; Activity for Sample 1: 4E-5 μCi/cc

Cue: If requested, R-54 activity is 2.4E-5 μCi/cc

Cue: If requested, iodine activity is less than minimum detectable activity.

Standard: Enters Watch Chemist information on Permit

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

4. Performance Step: DETERMINE the total dilution flow rate (T), by summing the flow of the pumps in service using Table 2

CUE: 6 CWPs in fast speed, 3 SWPs and 1 RWP are in operation.

Standard: Determine canal flow rate based on current pump combinations to be 871,000 gpm

Comment:

5. Performance Step: ASSIGN the permit number. The permit number is the next sequential number listed in the Liquid Waste Release Book located in the Central Control Room (CCR)

CUE: Inform operator next Permit number is 2004-008

Standard: Obtains next permit number

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

6. Performance Step: RECORD the following data on the Liquid Waste Release Permit:

- Permit Number (2004-008)
- Tank to be released (14 WDST)
- Volume contained in the tank to be released (16,351 gal)
- Recirculation rate, dates and times of start and completion (150 gpm, 4 hours)
- Sample data (4906, 4e-5, ~15 minutes ago)
- Partition factor
- Total dilution flow rate and Units contributing flow credit (871,000, Unit 2)

Standard: Information recorded on the permit

Comment:

√ **7. Performance Step:** CALCULATE the Curie content (C) of the tank to be released

Standard: Curie content determined to be 2.475E-3 Ci and recorded on Permit

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **8. Performance Step:** CALCULATE the allowable Release Rate (R), in gallons per minute

Standard: Release Rate determined to be 69,680 gpm

Comment:

9. Performance Step: SIGN the release permit authorizing the liquid waste release

CUE: CRS has also reviewed and signed permit. Continue...

Standard: Permit signed

Comment:

10. Performance Step: INFORM the Operator of the calculated release rate (R)

CUE: NPO acknowledges release rate.

Standard: NPO notified.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

11. Performance Step: VERIFY that the applicable operable radiation monitor is source checked

CUE: R-54 has been source checked.

Standard: R-54 source check status verified and recorded on permit.

Comment:

12. Performance Step: VERIFY the discharge flow meter and recorder are operable, and RECORD on the release permit

CUE: Discharge flow meter and recorder are operable

Standard: Operability checked and recorded on permit.

Comment:

Terminating Cue: Radioactive liquid waste release calculation completed, release permit (Attachment 1 to SOP-5.1.5) filled out, and ready for start of release.

VERIFICATION OF COMPLETION

Job Performance Measure No. RO-4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____
Reset simulator to IC-,

Insert malfunction:

INITIATING CUES:

1. The Unit is operating at 100% power. 6 Circulators in fast speed, 3 service water pumps, and 1 River Water pump are operating on Unit 2
2. All radiation monitors are operable.
3. Liquid Waste Distillate Storage Tank #14 is to be discharged. NPO reports tank level is 71 inches.
4. LWDST has been isolated and has been on recirc for the past 4 hours. The recirc started at 0800 and concluded at 1215.
5. R-54 has been source checked and is aligned to #14 WDST. R-54 High Alarm setpoint is 4e-4 uci/cc. R-54 was reading 4.2 e-5 uci/cc while on recirc.
6. R-49 activity is 1e-7 uci/cc. R-49 Hi Alarm setpoint is 1e-4 uci/cc.
7. You have been directed by the Shift Manager to calculate and approve a radioactive liquid waste release using the **manual method**.

TASK STANDARD:

Radioactive liquid waste release calculation completed, release permit (Attachment 1 to SOP-5.1.5) filled out, and ready for start of release.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 3430040103

Task Title: Determine minimum staffing requirement and determine from Operations schedule which personnel can/cannot be called in

K/A Reference: GKA2.1.5 (2.3/3.4) Job Performance Measure No: SROI-1

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance X Actual Performance _____

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: Today is August 12. Ken Garnache called in sick. Frank Spagnuolo has become ill and is being sent home.

Task Standard: All of the ROs on the schedule have been evaluated and a determination made regarding who can be called in without violating requirements. 4 of 6 possible answers correct; and at least 1 of the three people allowed to come in correct.

Required Materials: IP-SMM-OP-103, Overtime Scheduling Guidelines
Ops Schedule handout

General References: IP-SMM-OP-103, Overtime Scheduling Guidelines

Initiating Cue: Review the attached schedule and determine who can or cannot be called in for replacing the leaving RO without waiving overtime requirements:

- Can work entire shift
- Cannot be called in w/o exceeding a requirement and explain why not.

Time Critical Task: NO

Validation Time: 15 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Reviews the Ops Schedule and IP-SMM-OP-103 requirements.

Standard: Schedule and procedure reviewed.

Comment:

√ **2. Performance Step:** Determines the following personnel can work the entire shift without any violations:

Standard: Cosentino, Gorman, Gaspar identified as able to work the entire shift without any violations.

Comment:

√ **3. Performance Step**: Determines the following personnel would result in a violation if called in for the entire shift.

Standard: Rowland (any hours worked before 1900 on 8/12 would exceed required hours)
Campbell (worked the midnight shift and went home. Needs an 8 hour break between shifts)
Owen (Scheduled to work the oncoming night shift. Any hours before 1500 today would exceed the 16/24 limit.)

Comment:

Terminating Cue: Personnel available to call in identified.

VERIFICATION OF COMPLETION

Job Performance Measure No. SROI-1

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIATING CUES:

1. Today is August 12.
2. Ken Garnache called in sick.
3. Frank Spagnuolo has become ill and is being sent home.
4. Review the attached schedule and determine who can or cannot be called in for replacing the leaving RO without waiving overtime requirements.
5. Who can work the entire shift?

TASK STANDARD:

Personnel who can and cannot work the entire shift identified and reasons why stated.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

			AUG								AUG								AUG							
			1	2	3	4	5	6	7	Remarks	8	9	10	11	12	13	14	Remarks	15	16	17	18	19	20	21
2B	Cosentino, Mike	RO	27	27	27	0	0	0	26		26	26	26	0	0	0	0								
2B	Gorman, Jim	RO									26	26	26	0	0	0	0		26	0	0	26	26	26	26
2B	Rowland, Roy	RO	27	27	27	0	0	26	26		26	26	26	26	0	0	0		0	0	0	26	26	26	0
2C	Campbell, Pete	RO	0	T	T	T	T	T	0		27	27	27	0	26	0	26		26	26	26	26	0	0	0
2C	Gaspar, Joe	RO	0	T	T	T	T	T	0		27	27	27	0	0	0									
2C	Owen, Dave	RO	0	T	T	T	T	T	0		27	27	27	0	0	26	26								
2E	Garnach, Ken	RO	0	27	0	26	26	26	0		26	0	0	27	27	27	27		0	0	27	27	27	0	0
2E	Rohla, Ross	RO									0	0	0	27	27	27	27		27	27	0	0	27	27	0
2E	Spagnuolo, Frank	RO	27	0	0	26	26	26	26		0	0	0	27	27	27	27		0	26	26	0	26	26	0

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 0100010401

Task Title: Application of Technical Specifications, determine that tripping bistables will cause a reactor trip.

K/A Reference: GKA2.1.12 (2.9/4.0) Job Performance Measure No: SROI-2

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: Pressurizer Pressure Channel 1 failed low. Applicable actions of AOP-INST-1 complete. Subsequently, the Loop 2 NR Tcold instrument has failed low. Loop 2 Tave and Loop 2 Delta-T have been defeated and Rod Control and Charging Pump speed controls have been returned to Automatic per AOP-INST-1.

Task Standard: Identify all applicable LCOs, Conditions, required actions, and completion times.

Required Materials: 2-AOP-INST-1
Technical Specifications

General References: 2-AOP-INST-1
Technical Specifications

Initiating Cue: CRS has directed you to evaluate Technical Specifications to determine required actions and place the associated bistables to trip.

Time Critical Task: No.

Validation Time: 25 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Reviews AOP-INST-1 actions for failed temperature channel

Standard: AOP-INST-1 actions reviewed.

Comment:

√ **2. Performance Step:** Reviews Technical Specification 3.3.1, RPS Instrumentation

Reviews Table 3.3.1-1 and determines that Function 5 and Function 6 each have one inoperable channel.

Determines 3.3.1 Condition E applies requiring placing the channel in trip within 72 hours, or be in Mode 3 within 78 hours.

Standard: Function 5 and Function 6 identified. Condition E applicability identified. 72 hour LCO identified.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **3. Performance Step:** Reviews Technical Specification 3.3.2, ESFAS Instrumentation

Reviews Table 3.3.2-1 and determines that Function 1.f and Function 4.d each have one inoperable channel.

Determines 3.3.2 Condition D applies requiring placing the channel in trip within 72 hours, or be in Mode 3 within 78 hours.

Standard: Function 1.f and Function 4.d identified. Condition D applicability identified. 72 hour LCO identified.

Comment:

CUE: You have been directed to determine which bistables to trip and then trip them.

√ **4. Performance Step:** Reviews 2-AOP-INST-1 Attachment 9

Determines that tripping the (Loop 2) Overtemp Trip bistable will actuate a reactor trip.

Standard: Determines that tripping the (Loop 2) Overtemp Trip bistable will actuate a reactor trip.

CUE: SM directs you to leave the (Loop 2) Overtemp Trip bistable untripped.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **5. Performance Step:** Places the (Loop 1) Overpwer Trip and (Loop1) Lo TAVG bistables to TRIP

Standard: ONLY the two bistables placed in TRIP. Reactor trip does NOT occur.

CUE: If necessary, cue the candidate that SM directs him to review Technical Specification applicability with the untripped (Loop 1) Overtemp Trip bistable.

Comment:

√ **6. Performance Step:** Reviews Table 3.3.1-1 and Table 3.3.2-1 and determines that now with two channels of OT-Delta-T inoperable, there is no specification, therefore LCO 3.0.3 applies.

Standard: Determines that LCO 3.0.3 applies.

Comment:

Terminating Cue: Technical Specifications reviewed and LCO entry identified due to inability to trip all required bistables.

VERIFICATION OF COMPLETION

Job Performance Measure No. SROI-2

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT *or* UNSAT

Examiner's signature and date: _____ _____

Simulator Setup

Reset simulator to IC-129

Insert malfunction:

Actions of INST-1 completed for failed PRZ CH-1 low, and Loop2 Tcold failed low with Loop 2 tave and delta-T defeated, rods in auto and Chg in auto.

INITIATING CUES:

1. Pressurizer Pressure Channel 1 failed low.
2. Applicable actions of AOP-INST-1 complete.
3. Subsequently, the Loop 2 NR Tcold instrument has failed low.
4. Loop 2 Tave and Loop 2 Delta-T have been defeated and Rod Control and Charging Pump speed controls have been returned to Automatic per AOP-INST-1. Step 4.141 is in progress.

TASK STANDARD:

CRS has directed you to evaluate Technical Specifications to determine required actions and place the associated bistables to trip. Identify all applicable LCOs, Conditions, required actions, and completion times.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 2000100202

Task Title: Conduct an emergency tagout removal

K/A Reference: GKA 2.2.13 (3.6/3.8) Job Performance Measure No: SROI-3

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance XX

Classroom XX Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: 25 Fan Cooler Unit was tagged out for vibration monitoring. Subsequently, 21 Containment Spray Pump was determined to be inoperable. The SM has determined that an emergency removal of the 25 FCU tagout is required.

Task Standard: Conduct an Emergency Tagout Removal in accordance with OAP-022 Section 4.8.6

Required Materials: Tagout, Copy of OAP-022

General References: OAP-022 Protective Tagging

Initiating Cue: Perform an emergency removal of the tagout on 25 Fan Cooler Unit

Time Critical Task: No

Validation Time: 20 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: Obtain copy of tagout

Standard: Tagout in hand

Comment: Give examinee the tagout

2. Performance Step: Obtain copy of OAP-022

Standard: Examinee locates section 4.8.6 of OAP-022

Comment:

√ **3. Performance Step: Evaluate whether the tagout can be safely released.**

Standard: Examinee determines no work has actually started and system is available.

Comment: No physical work has started and system is intact.

√ **4. Performance Step: Sign off all tagout holders and work order holders.**

Standard: Examinee signs off all indicated tagout holders and work order holders.

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

5. Performance Step: Document reason for emergency release on tagout.

Standard: Write reason for release on tagout.

Comment:

√ **6. Performance Step: Notify all tagout and work order holders of the tagout removal**

Standard: All holders notified.

Comment: Acknowledge candidates statements that all tag and work order holders are notified.

Terminating Cue: Emergency Tagout removal is completed.

VERIFICATION OF COMPLETION

Job Performance Measure No. SRO-3

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIATING CUES:

- 25 Fan Cooler Unit was tagged out for vibration survey.
- Subsequently, 21 Containment Spray Pump was determined to be inoperable.
- The SM has determined that an emergency removal of the 25 FCU tagout is required

TASK STANDARD: Perform an emergency removal of the tagout on 25 Fan Cooler Unit

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 0680010102

Task Title: Review and Approve a Liquid Radioactive Release

K/A Reference: _____ Job Performance Measure No: SROI-4

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance X

Classroom X Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: The Unit is operating at 100% power. R-54 is OOS. Liquid Waste Distillate Storage Tank #14 is to be discharged, tank level, as reported by the NPO, is 71 inches. LWDST has been isolated and on recirc for the past 4 hours. .

Task Standard: Radioactive liquid waste release calculation completed, release permit ready to begin release.

Required Materials: 2-SOP-5.1.5, Calculation and Recording of Radioactive Liquid Releases
Completed Attachment 1 ready for review
SRO Chemistry Data Sheet "Waste Distillate of Frac Truck Activity"
Attachment 3 handout with R-54 OOS

General References: 2-SOP-5.1.5

Initiating Cue: You have been requested by the RO to review and approve a radioactive liquid waste release using the manual method.

Time Critical Task: NO

Validation Time: 35 minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

1. Performance Step: DETERMINE the required recirculation time for the tank to be released

Standard: Verifies minimum recirc time to be 208 minutes from Table 1

Comment:

2. Performance Step: Ensure tank isolated and recirculated two tank volumes before sampling; Checks recirculation rate, dates and times on Permit

Cue: If necessary, cue that Tank was isolated and placed on recirc 4.5 hours ago at 150 gpm recirc rate

Standard: Verifies Two tank volumes recirculation verified; rate, dates and times entered on Permit

Comment:

3. Performance Step: Calls and obtains Watch Chemist sample information

Cue: If requested, R-54 activity is 2.4E-5 μCi/cc

Cue: If requested, iodine activity is less than minimum detectable activity.

Standard: Verifies Watch Chemist information on Permit

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **4. Performance Step:** DETERMINE the total dilution flow rate (T), by summing the flow of the pumps in service using Table 2

CUE: 6 CWPs in fast speed, 3 SWPs and 1 RWP are in operation.

Standard: Verifies canal flow rate based on current pump combinations to be 871,000 gpm
Determines that an error has been made and T should be 871,000 instead of 886,000 as recorded.

Comment:

5. Performance Step: ASSIGN the permit number. The permit number is the next sequential number listed in the Liquid Waste Release Book located in the Central Control Room (CCR)

CUE: Inform operator next Permit number is 2004-008

Standard: Verifies next permit number obtained

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

6. Performance Step: RECORD the following data on the Liquid Waste Release Permit:

- Permit Number (2004-008)
- Tank to be released (14 WDST)
- Volume contained in the tank to be released (16,351 gal)
- Recirculation rate, dates and times of start and completion (150 gpm, 4 hours)
- Sample data (4906, 4e-5, ~15 minutes ago)
- Partition factor
- Total dilution flow rate and Units contributing flow credit (871,000, Unit 2)

Standard: Verifies Information recorded on the permit

Comment:

√ **7. Performance Step:** CALCULATE the Curie content (C) of the tank to be released

Standard: Verifies Curie content to be 2.475E-3 Ci and recorded on Permit

Comment:

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

√ **8. Performance Step:** CALCULATE the allowable Release Rate (R), in gallons per minute

Standard: Release Rate determined to be 69680 gpm. Value on permit determined to be in error due to incorrect Dilution Flow Rate.

Comment:

9. Performance Step: SIGN the release permit authorizing the liquid waste release

Standard: Corrections made and then permit signed.

Comment:

Terminating Cue: Permit ready for start of release.

Simulator Setup

VERIFICATION OF COMPLETION

Job Performance Measure No. SROI-4

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____
Reset simulator to IC-,

Insert malfunction:

INITIATING CUES:

1. The Unit is operating at 100% power.
2. 6 Circulators in fast speed, 3 SWPs and 1 RW pump in service on unit 2
3. Liquid Waste Distillate Storage Tank #14 is to be discharged, tank level, as reported by the NPO, is 71 inches.
4. LWDST has been isolated and on recirc for the past 4.5 hours. The recirc started at 0800 and concluded at 1215.
5. R-54 is out of service. R-49 is reading 1e-7 uci/cc. The R-49 Hi alarm is 1e-4 uci/cc.
6. You have been directed by the RO to perform a verfication of a radioactive liquid waste release using the manual method.

TASK STANDARD:

Radioactive liquid waste release calculation completed, permit ready for start of release.

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED

ATTACHMENT 1, RADIOACTIVE LIQUID RELEASE PERMIT {NRC: 5.3.1}

NOTES

- The Primary level indicator for 13 WDST is CT 976 LI and CT-977 LI for 14 WDST. the backup indcators are CT-967 LXI and CT-974 LXI respectively.
- A static condition is required when recording tank levels from CT-976 LI and CT-977 LI.
- Volume discharged =(Initial Tank Level (in gallons from Table 1-Final Tank Level (in gallons from Table 1)

PERMIT 2008-08 TANK 13 WDST INITIAL TK LEVEL 71 (Inches) INITIAL TK VOLUME (V) 16351 (gallons)

RECIRC RATE 150 (gpm) STARTED AT 5 hrs AGO (Time) TODAY (Date)

COMPLETED 1 hr AGO (Time) TODAY (Date)

SAMPLE NO. 4906 SAMPLE DATE/TIME TODAY 45 mins AGO

SAMPLE ACTIVITY(S_A) 4.0 E-5 µCi/cc SAMPLE IODINE N/A µCi/cc

PARTITION FACTOR 0.16

TOTAL DILUTION FLOW (T) 886,000 (GPM) FROM UNIT(S) Unit 2

TANK CURIE CONTENT C = $\frac{16351}{V}$ x $\frac{4 E-5}{S_A}$ x $\frac{3.785 E-3}{}$ = 2.475 E-2 Curies

RELEASE RATE (R)= ($\frac{0.16}{PF}$ x $\frac{886,000}{T}$ x $\frac{2.0 E-5}{A}$) ÷ $\frac{4 E-5}{S_A}$ = 70880 GPM

R-54 HIGH ALARM SETPOINT _____ (µCi/cc)

R-54 SOURCE CHECKED _____ R-54 OPERABLE ____YES ✓ NO (IF NO, COMPLETE ATTACHMENT 3)

DISCHARGE FLOW METER & RECORDER OPERABLE ✓ YES ____ NO (IF NO, COMPLETE ATTACHMENT 3)

RELEASE AUTHORIZED BY/DATE SRO Handout

RELEASE INITIATED _____(Time) _____ (Date)

RELEASE TERMINATED _____ (Time) _____(Date)

FINAL TK LEVEL_____ (Inches) FINAL TK VOLUME_____(gallons) TOTAL VOLUME RELEASED _____(gallons)

SRO HANDOUT

WASTE DISTILLATE OR FRAC TRUCK ACTIVITY

SAMPLE COLLECTION		CCR LOG ENTRY		WDST # OR FRAC	GAMMA ACTIVITY			CHEM TECH INITIALS	CRS INITIALS
DATE	TIME	DATE	TIME		SAMPLE NUMBER	IODINE (uCi/cc)	TOTAL* (uCi/cc)		
TODAY	1 hour ago	TODAY	½ hour ago	WDST 14	4906	< MDA	4.0e-5	[signature]	[signature]
					4907	< MDA	3.9e-5		

* NOTE: The TOTAL gamma activity EXCLUDES gaseous and natural activity.

SRO H/O

ATTACHMENT 3-EQUIPMENT OUT OF SERVICE LOG

DISCHARGE FLOW METER OR RECORDER OUT OF SERVICE (OR NOT AVAILABLE)

RELEASE RATE (GPM) = $[(V_I)-(V_F))/ T]$

WHERE:

V_I = INITIAL TANK VOLUME, IN GALLONS

V_F = FINAL TANK VOLUME, IN GALLONS

T = RELEASE TIME, IN MINUTES

The estimated flow rate data is logged every 4 hours when the discharge flow meter OR discharge flow recorder is declared inoperable (Or none is available).			
WO #:		**DATE:**	
DATE	**TIME**	**TANK VOLUME**	**RELEASE RATE**

R-54 OUT OF SERVICE

Sample No. 4906 Date TODAY Time 1/2 hr ago Activity 4e-5 µCi/cc

Sample No. 4907 Date TODAY Time 1/2 hr ago Activity 3.9e-5 µCi/cc

Release Calculations verified by Joe Run today Name/date

Release Calculations verified by _____ Name/date

Release line up verified by _____ Name/date

Release line up verified by _____ Name/date

SRO HANDOUT

Appendix C	Job Performance Measure Worksheet	Form ES-C-1

Facility: Indian Point 2 Task No: 3440030503

Task Title: Emergency Plan Classification (following scenario)

K/A Reference: GKA2.4.41 (2.3/4.1) Job Performance Measure No: SROI-A5

Examinee: _____ NRC Examiner: _____

Facility Evaluator: _____ Date: _____

Method of testing:

Simulated Performance _____ Actual Performance _____

Classroom _____ Simulator _____ Plant _____

READ TO THE EXAMINEE

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

Initial Conditions: The plant has undergone the Event that has just been presented in the preceding scenario.

Task Standard: Event correctly classified per IP-EP-120, Emergency Classification

Required Materials: IP-EP-120, Emergency Classification
IP-EP-AD13, IPEC Emergency Action Level Technical Bases

General References: IP-EP-120, Emergency Classification
IP-EP-AD13, IPEC Emergency Action Level Technical Bases

Initiating Cue: Identify the highest applicable emergency classification level (if multiple EALs are exceeded) for which an EAL has been met or exceeded.

Time Critical Task: Yes (15 minutes)

Validation Time: minutes

PERFORMANCE INFORMATION

(Denote critical steps with a check mark)

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1. Performance Step: Locate and use the IPEC Emergency Action Levels chart

Standard: Uses either of the charts located in the CCR or uses the attachment 1 to IP-EP-120

Comment: Log Start time:_____

√ **2. Performance Step:** Evaluate the event per IP-EP-120, Emergency Classification

Standard: Identifies the correct EAL within 15 minutes of start of JPM
Scenario 1: Alert EAL 3.1.2, Primary system leakage exceeding the capacity (> 75 gpm) of a single charging pump
Scenario 2: NUE EAL 6.1.1, Unplanned loss of power to all 480V busses for > 15 min.
If >15 minutes elapsed prior to start of 22EDG, then Alert EAL 6.1.2, Loss of AC power to all 480V buses for > 15 min.
Scenario 3: Alert EAL 3.1.2, Primary system leakage exceeding the capacity (> 75 gpm) of a single charging pump
Scenario 4: SAE EAL 1.1.2, RED Path in Sub-criticality AND ALL Manual attempts at tripping the reactor from the Control Room have failed to reduce power range < 5%

Comment: Log completion time:_____
Elapsed time must be less than 15 minutes.

Terminating Cue: EAL Classification complete and Part 1 form completed

VERIFICATION OF COMPLETION

Job Performance Measure No. SROI-A5, Emergency Plan Classification (following scenario)

Examinee's Name:

Date Performed:

Facility Evaluator:

Number of Attempts:

Time to complete:

Question Documentation:

Question:

Response:

Result: SAT or UNSAT

Examiner's signature and date: _____ _____

INITIATING CUES:

1. The plant has undergone the Event that has just been presented in the preceding scenario
2. Identify the highest applicable emergency classification level (if multiple EALs are exceeded) for which an EAL has been met or exceeded.

TASK STANDARD:

Event correctly classified

RETURN THIS TO EXAMINER WHEN YOU HAVE COMPLETED