ARKANSAS NUCLEAR ONE, UNIT 1

INITIAL EXAMINATIONS DECEMBER 13-19, 1999

DRAFT OPERATING

Question No. 1 **QID: 0058**

A startup is in progress. The reactor is critical and the CBOR is commencing power escalation to <2% reactor power. The following indications are observed:

NI-3 1 x 10-8 amps
NI-4 8 x 10-9 amps
NI-5 0.8%
NI-6 1.1%
NI-7 1.3%
NI-8 1.2%

What conclusion should you deduce from the above indications?

a. Power Range channel 5 requires calibration.

b. The Intermediate Range channels are overcompensated.

c. The POAH has not yet been reached.

d. The Intermediate Range channels are undercompensated.

Question No. 2 **QID: 0158**

The plant is at 100% power.
The outside door of the personnel lock was opened to replace a seal gasket 24 hours ago.

How long does operations have to perform an LLRT on the personnel lock before a loss of containment integrity will exist?

a. 1 hour

b. 12 hours

c. 6 days

d. 13 days

Question No. 3 **QID: 0204**

The #2 EDG monthly surveillance is in progress with the EDG on-line and fully loaded.

EDG 2 Non-critical Trouble (K01-D4) is in alarm.
EDG 2 Critical Trouble (K01-C4) comes into alarm.
The Outside AO reports that EDG 2 Fuel Oil Transfer Pump P-16B is tripped and will NOT start.
The Inside AO reports that the T-30B day tank level is ~180 gallons and going down slowly.
T-57B level is >168 inches.

Which of the following is correct with regard to #2 EDG status?

a. EDG 2 is operable because fuel oil can be supplied from EDG 1 transfer pump P-16A.

b. EDG 2 is inoperable because the level in T-30A being is <190 gallons.

c. EDG 2 is operable because Emergency Fuel Storage Tank T-57B is full.

d. EDG 2 is inoperable because EDG 2 Fuel Oil Transfer Pump P-16B is inoperable.

Question No. 4 **QID: 0217**

During HPI Cooldown, pump suctions are shifted from the Borated Water Storage Tank to the reactor building sump when the Borated Water Storage Tank level is:

a. 4 feet

b. 6 feet

c. 8 feet

d. 10 feet

Question No. 5 **QID: 0240**

Given:

Plant is at 100% power
All CETs indicate 602 °F

ICC train "B" Core Exit Thermocouple TE-1152 fails to 900 °F.

What is the effect of this failure?

a. Core Exit Thermocouple TE-1152 will be removed from the average.

b. ICC Core Exit Thermocouple indication will go to ~627 °F.

c. "TRAIN B SUBCLG MARG LO" annunciator will alarm.

d. "B" SPDS will switch from ATOG to the ICC display.

Question No. 6 **QID: 0241**

Reactor Building Service Water Coolers are in service.

Reactor Building Cooling Coils VCC-2A and VCC-2B should be isolated if:

a. Service Water Loop 1 and Discharge Flume process radiation monitors alarm.

b. Service Water Loop 1 and Service Water Loop 2 process radiation monitors alarm.

c. Service Water Loop 2 process radiation monitor alarms and Reactor Building Sump level is rising.

d. Service Water Loop 2 process radiation monitor alarms and Service Water Loop 2 flow is low.

Question No. 7 **QID: 0242**

What instruments are marked with a green dot?

a. Instruments designated for use during an alternate shutdown.

b. Instruments that should be reliable during accident conditions.

c. Instruments the Shift Engineer uses after a reactor trip.

d. Instruments designated for use during a loss of NNI-Y power.

Question No. 8 **QID: 0243**

Given:

Large break LOCA has occurred.
CV-1405, Train B RB Sump Outlet valve, failed to open during transfer to RB sump recirculation.
P-34A, LPI pump operation is degrading.

The OSC is dispatching a Repair Team to attempt repair of CV-1405.

What is the maximum dose each member of the team is allowed to receive?

a. Planned dose shall not exceed 2 Rem TEDE.

b. Planned dose shall not exceed 5 Rem TEDE.

c. Planned dose shall not exceed 10 Rem TEDE.

d. Planned dose shall not exceed 25 Rem TEDE.

Question No. 9 **QID: 0244**

Only operations personnel are authorized to manipulate plant equipment. 1015.001, Conduct of Operations, specifies exceptions to this guidance. Which of the following would NOT satisfy those exceptions?

a. Chemistry personnel operating sample valves per chemistry procedures.

b. Entergy employee opening a service air connection isolation.

c. Operation of equipment under the direct supervision of the Auxiliary Operator.

d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. 10 **QID: 0245**

The feedwater/condensate system startup is in progress. A main feedwater isolation valve had been closed by operation of the manual handwheel to isolate the system.

Prior to declaring this valve operable what action must be taken?

a. The valve must be fully opened using the local handwheel.

b. Electricians must check the torque switch adjustment.

c. The torque required to remove valve from seat must be below the limit.

d. The valve must be stroked electrically to confirm proper clutch engagement.

Question No. 11 **QID: 0246**

How is the oncoming operator supposed to verify the correct number of keys are on his key ring during turnover?

a. Check current key lists in the keybox.

b. Check the number specified in the key log procedure.

c. Check against the number on the brass tag on the key ring.

d. Check the number listed on the shift turnover log from last shift.

Question No. 12 **QID: 0247**

A tagout is required on the "A" makeup pump. Which shift personnel are qualified to perform the tagout boundary verification, if the tagout was prepared by a non-licensed operator?

a. Control Board Operator or Auxiliary Operator.

b. Auxiliary Operator or Shift Engineer.

c. Control Room Supervisor or Waste Control Operator.

d. Control Board Operator or Shift Superintendent.

Question No. 13 **QID: 0248**

Given:

The plant is at 100 % power
Decay Heat Pump P-34A is out of service
Service Water Pumps P-4A and P-4B are operating.

Which event would make Decay Heat Pump P-34B inoperable?

a. Lockout relay trip deenergizes A-2

b. Emergency Diesel Generator 1 start time is 16.2 seconds.

c. Service Water Pump P-4C motor fails.

d. LPI Room Cooler VUC-1C is declared inoperable.

Question No. 14 **QID: 0249**

A fuel handling accident involving a spent fuel assembly has caused elevated dose rates in the Spent Fuel Pool area.

What Administrative Dose Control Limit (ADCL) would be of the greatest concern to the RP staff during planning for recovery actions from this accident?

a. 5 Rem/year to the skin

b. 12 Rem/year to the lens of the eye

c. 40 Rem/year to the skin

d. 50 Rem/year to the lens of the eye

Question No. 15 **QID: 0250**

Movement of a fuel assembly that does NOT follow the sequence in the approved fuel shuffle procedure requires prior approval of:

a. SRO in Charge of Fuel Handling and Shift Operations Superintendent

b. Shift Operations Superintendent and Reactor Engineer

c. Reactor Engineer and SRO in Charge of Fuel Handling

d. SRO in Charge of Fuel Handling and Reactor Building Coordinator

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Question No. 16 **QID: 0252**

A normal plant startup is in progress. Critical data is being obtained.

Which condition, if not corrected within 15 minutes, would require a plant shutdown within the following 15 minutes?

a. One pressurizer code safety valve is declared inoperable.

b. Reactor coolant temperature is below 525 °F.

c. Reactor coolant system Hot Leg high point vents inoperable.

d. Pressurizer level stable at 100 inches.

Question No. 17 **QID: 0253**

ICS is in full automatic and the CBOR is verifying proper plant response to a main feedwater pump trip from 75% power.

Which of the following should the CBOR expect to occur?

a. The operating main feedwater pump demand has a 30% bias added.

b. The pressurizer spray valve opens immediately and closes when RCS pressure reaches 2030 psig.

c. The control rods insert immediately due to a bias subtracted from the demand.

d. The main feedwater block valves close immediately in fast speed.

Question No. 18 **QID: 0254**

Given:

EFW started 10 minutes ago
EFW pump P-7A speed is 900 RPM

Which of the following would cause these indications?

a. EFW Pump P-7A governor valve has lost power.

b. EFW Pump P-7A trip/throttle valve does not indicate full open.

c. EFW steam admission valve CV-2613 is closed.

d. EFW Pump P-7A governor valve has an oil leak.

Question No. 19 **QID: 0255**

Given:

Plant startup is in progress.
The plant is at 35% power
"A" Main Feedwater Pump is in service
"B" Main Feedwater Pump is at minimum speed
"B" Main Feedwater Pump Anticipatory Reactor Trip is NOT reset

A malfunction of the "A" Main Feedwater Pump control oil system causes "A" Main Feedwater Pump auto stop oil pressure to go rapidly to 0 (zero) psig.

What effect does this failure have on the plant?

a. ATWS Mitigation Actuation and Control will trip the plant and start Emergency Feedwater.

b. Both OTSG levels will go less than 14.5 inches and start Emergency Feedwater.

c. RPS will trip the plant and start Emergency Feedwater on loss of both Main Feedwater Pumps.

d. High Reactor Coolant System pressure will trip the plant and start Emergency Feedwater.

Question No. 20 **QID: 0256**

Why are Decay Heat Cooler Outlet Valves SW-22A and SW-22B throttled during normal operation?

a. Service water flow to the Auxiliary Cooling Water System is raised during normal operation.

b. Maintains adequate service water flow to the Reactor Building Coolers when ES actuates.

c. Reactor coolant to service water differential temperature is reduced when ES actuates.

d. Decay heat coolers are maintained full and reduces the chance of water hammer.

Question No. 21 **QID: 0257**

Given:

Reactor startup is in progress
Group 6 is 50% withdrawn.
NI-1 source range indicates .1 cps
NI-2 source range indicates 30 CPS

Which of the following would cause these indications?

a. Source range NI-2 discriminator voltage is set too high.

b. Inverter Y-28 failed resulting in a loss of power.

c. Inverter Y-11 failed resulting in a loss of power.

d. Source range NI-1 discriminator voltage is set too low.

Question No. 22 **QID: 0258**

Given:

"A" HPI pump is operating.
Makeup tank level is 80 inches.
Makeup tank pressure is 12 psig.
RCS sampling is in progress.

With no operator action, what will occur if the Makeup Tank Inlet Valve MU-12 was accidentally closed by chemistry personnel?

a. "A" HPI pump will be damaged due to loss of suction.

b. The makeup tank relief valve will open on low pressure.

c. The RCP seals will be damaged due to low seal injection flow.

d. The makeup tank outlet valve will close on low level.

Question No. 23 **QID: 0259**

What is the function of the temperature interlock associated with RCS letdown?

a. Prevents letdown fluid from flashing to steam when pressure is reduced by closing CV-1221 (letdown isolation).

b. Prevents exceeding letdown piping thermal limits by shutting CV-1213 & 1215 (letdown cooler inlet MOV).

c. Prevents degrading T36A/B resin by shutting CV-1221 (letdown isolation).

d. Prevents exceeding letdown cooler capacity by shutting CV-1213 & 1215 (letdown cooler inlet MOV).

Question No. 24 **QID: 0260**

With CV1207 RCP seal injection control valve in hand, which one of the following events would cause seal injection flow to go up?

a. Low pressurizer level.

b. Instrument air line to the Lower North Piping Room ruptures.

c. Opening of CV-1228 (HPI block valve to P32A discharge).

d. Operator raises letdown flow.

Question No. 25 **QID: 0261**

Given:

The plant is at 30 % power.
Main Feedwater Pump P-1A is in service.
Main Feedwater Pump P-1B is shutdown.
Condensate pumps P-2A and P-2C are in service.

Explain the response of "B" condensate pump, if "C" condensate pump trips.

a. Condensate pump low discharge pressure will auto-start condensate pump P-2B.

b. Condensate pump P-2C tripping will auto-start condensate pump P-2B.

c. Condensate pump P-2B will remain off since the plant is operating at a power level less than 40%.

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Question No. 26 **QID: 0262**

Given:

The plant is at 100 %.
CRDs are at the normal rod index.
The EHC controller is in manual.
RCS boron concentration is 812 ppm.
1 ppm RCS boration requires 7.8 gallons of Boric Acid.

The CBOR is making a RCS addition with no concentration change and adds 92 gallons of boric acid and 8 gallons of DI water.

What effect will this have, without any further operator action?

a. Rods go full out, Tave stays the same, power goes down.

b. Rods go in ~10%, Tave stays the same, power goes down.

c. Rods go in ~10%, Tave goes down, power stays the same.

d. Rods go full out, Tave goes down, power stays the same.

Question No. 27 **QID: 0263**

Given:

All RCPs are operating.
The plant is at 40 % power.
Time in core life is 325 EFPD.

What is the lowest allowed control rod position for continuous plant operation?

a. Group 6 at 26 %

b. Group 6 at 56 %

c. Group 5 at 71%

d. Group 6 at 36%

Question No. 28 **QID: 0265**

Given:

Reactor tripped 1 minute ago due to low RCS pressure.
ESAS has actuated due to high Reactor Building pressure.
RCS pressure is 1600 psig.
Core Exit Thermocouple temperature is 475 °F.

Which of the following actions should be taken for these conditions?

a. Restore RCP services.

b. Leave one RCP running in each loop.

c. Isolate RCP seal bleedoff.

d. Trip all running RCPs.

Question No. 29 **QID: 0266**

Given:

All controls are in automatic

RCS pressure 1255 psig, slowly dropping

Reactor Building pressure is 49 psia

"A" and "B" OTSG levels at 390 inches

Which pair of pumps should be pumping fluid as designed (not recircing)?

a. EFW pumps and LPI pumps

b. RB spray pumps and LPI pumps

c. RB spray pumps and EFW pumps

d. HPI pumps and RB spray pumps

Question No. 30 **QID: 0267**

The CBOR observes a change in seal injection flow rates and notes the following values:

"A" RCP	6.5 gpm
"B" RCP	15.0 gpm
"C" RCP	5.0 gpm
"D" RCP	6.0 gpm

Which of the following explains the seal injection flow indications?

a. Reactor Coolant Pump P-32B trip due to a motor fault.

b. Seal injection line break in the Upper North Piping Penetration Room .

c. "B" Reactor Coolant Pump seal cooler leak.

d. "B" seal injection flow transmitter failure.

Question No. 31 **QID: 0268**

Given:

Both Main Feedwater Loop Demands and "A" MFW Pump are in Hand.
All other ICS stations which may be in Auto are in Auto.
The operator is performing a controlled plant shutdown.
When the "A" Main Feedwater Block Valve starts to go shut, the operator continues to lower "A" MFW Pump speed.

What will this result in?

a. Cross limits increasing Reactor power.

b. Delta Tc opening the "B" Low Load Control Valve to compensate.

c. The "A" Main Feedwater Block Valve stopping its movement.

d. The Turbine rejecting to "Operator Auto."

Question No. 32 **QID: 0269**

The assured water source to the Emergency Feedwater System is:

a. Main Feedwater

b. Condensate Storage Tank

c. Circulating Water System

d. Service Water System

Question No. 33 **QID: 0270**

Given a SG pressure of 925 psig, determine the proper OTSG fill rate by EFIC for the EFW system:

a. ~3"/min

b. ~4"/min

c. ~5"/min

d. ~6"/min

Question No. 34 **QID: 0271**

Which of the following must be performed to release T-16A contents with the Liquid Radwaste Process Monitor (RI-4642) inoperable?

a. Chemistry personnel must estimate radiation level every four hours during the release.

b. A Waste Control Operator must independently verify release path alignment prior to release.

c. The release flow rate must be estimated at least once every three hours during the release.

d. Discharge Flume process monitor RI-3618 must be checked for operability.

Question No. 35 **QID: 0272**

When a high radiation condition occurs in the Waste Gas Discharge Header, the radiation monitor will cause what combination of automatic action(s) to occur?

1. Nitrogen is added for dilution.
2. The Aux. Building Vent Header diverts to the Waste Gas Surge Tank.
3. The Waste Gas Decay Tank effluent control valve (CV-4820) shuts.
4. The Aux. Building Vent Header diverts to the Waste Gas Decay Tank in service.

a. 1 and 2

b. 2 and 3

c. 3 and 4

d. 1 and 4

Question No. 36 **QID: 0273**

The in-service Unit 1 Control Room Supply Vent Radiation Detector, 2RITS-8001A, detects a high radiation condition.

Which of the following will occur?

a. Control Room Air Supply Fan (VSF-8A or 8B) starts.

b. Control Room Chiller Unit (VCH-2A or 2B) trips.

c. Normal ventilation ducts are isolated automatically.

d. 2VSF-9 (CR Emerg. A/C Fan) starts.

Question No. 37 **QID: 0274**

What would be the consequences if the Reactor Building Cooler Chilled Water Bypass Dampers remained latched after an ESAS actuation?

a. Damage to RB ventilation plenum from excessive pressure

b. Excessive heat load on the Chilled Water System

c. Inadequate air flow through the Service Water Cooling Coils

d. Excessive current on the cooling fan motors

Question No. 38 **QID: 0275**

Due to plant conditions an RCP is to be bumped per EOP Repetitive Task 11.

What operator action is required by RT-11 to prevent breakers A-309 and A-409 from tripping?

a. Place bus B5 & B6 UV protection switches in BYPASS.

b. Open test switches on A3 & A4 to bypass UV relays.

c. None, B5 & B6 UV protection relays are auto bypassed on RCP starts.

d. Align B5 or B6 to the train opposite that with the RCP to be bumped.

Question No. 39 **QID: 0276**

Given:

A loss of offsite power has occurred.

Annunciator K01-B1, "EDG 1 BRKR AUTO CLOSE FAILURE", is in alarm.

What action will close EDG #1 output breaker (A-308)?

a. Place EDG #1 output breaker in PULL-TO-LOCK and release.

b. Depress EDG #1 start push-button.

c. Reset A1 Lockout relay.

d. Place EDG #1 output breaker handswitch on C-10 in the CLOSE position.

Question No. 40 **QID: 0277**

What transient is represented by the atttached ATOG trace?

a. Steam line break

b. RCS cold leg break

c. Loss of off-site power

d. Loss of both Main FW pumps

Question No. 41 **QID: 0279**

Given:

The plant is in a blackout condition.
Startup transformer #1 primary voltage is 19 KV.
Unit 2 vital and non-vital buses are aligned to startup transformer #2.
Startup transformer #2 voltage is 155 KV.

How should off-site power be restored to the plant?

a. Verify 1202.008, Att. 1, "Blackout Breaker Alignment UV Defeat", complete then close feeder breakers from startup transformer #1.

b. Check acceptable loading on startup transformer #2 then close the feeder breakers from startup transformer #2.

c. Verify 1202.008, Att. 2, "Recovery from Blackout Breaker Alignment and UV Defeat", complete then close feeder breakers from startup transformer #1.

d. Check the autotransformer is aligned to startup transformer #2, then close the feeder breakers from startup transformer #2.

Question No. 42 **QID: 0280**

The plant is operating at 70% when the following indications are observed:

Loop "A" RC Flow is 35 mlb/hr
Loop "B" RC Flow is 70 mlb/hr
FW RERATIO ON LOSS OF RC-FLOW ENABLED is in alarm

What is the cause of these indications?

a. Reactor Coolant Pump P-32C trip.

b. Reactor Coolant Pump P-32A trip.

c. Reactor Coolant Pump P-32C sheared shaft.

d. Reactor Coolant Pump P-32A sheared shaft.

Question No. 43 **QID: 0281**

Service Water Pumps P-4A, P-4B (supplied from A-4), and P-4C are running. An ES actuation coincident with a loss of off-site power occurs.

Which service water pumps will autostart when A-3 and A-4 are re-energized?

a. P-4A, P-4B and P-4C

b. P-4A and P-4B

c. P-4B and P-4C

d. P-4A and P-4C

Question No. 44 **QID: 0282**

Given:

Unit 1 is at 100% power.
ICW pumps P-33A and P-33B are in service.

Subsequently the ICW pump supplying the Non-Nuclear ICW loop trips. Which of the following actions should you verify as the proper system response to the above conditions?

a. P-33B and P-33C running
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves closed

b. P-33A and P-33C running
P-33A to P-33B suction and discharge crosstie valves closed
P-33B to P-33C suction and discharge crosstie valves open

c. P-33B and P-33C running
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves open

d. P-33A and P-33C running
P-33A to P-33B suction and discharge crosstie valves closed
P-33B to P-33C suction and discharge crosstie valves closed

Question No. 45 **QID: 0283**

The plant is operating at 100% power.
Group 7 CRAs can not be moved on the normal or auxiliary power supply.

What operator action is required?

a. Declare Group 7 INOPERABLE and borate the plant to Hot Shutdown.

b. Declare Group 7 INOPERABLE and shutdown using remaining rod groups.

c. Exercise all other rods, verify 1.5% SDM, and continue operation.

d. Initiate Emergency Boration and trip the reactor.

Question No. 46 **QID: 0284**

Insufficient Pressurizer spray valve bypass spray flow can result in low spray line temperatures. What is the Tech Spec limit on spray fluid to Pressurizer differential temperature?

a. 450 degrees F

b. 430 degrees F

c. 350 degrees F

d. 100 degrees F

Question No. 47 **QID: 0285**

Following a turbine and reactor trip, an overcooling transient is occurring due to a stuck open safety.

The affected SG pressure is 825 psig and falling.

What actions are taken to seat the MSSV per the Overcooling procedure?

a. Actuate Main Steam Line Isolation for the SG with the lowest pressure.

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

c. Trip both Main Feedwater pumps, actuate EFW, and perform RT-5.

d. Shut the Main Feedwater Isolation Valve for the affected Steam Generator.

Question No. 48 **QID: 0286**

Identify the HIGHEST RCS Tcold temperature below which entry into the Overcooling EOP is required:

a. 560 °F

b. 550 °F

c. 540 °F

d. 530 °F

Question No. 49 **QID: 0287**

Why is the Main Turbine tripped when condenser vacuum is less than 26.5 inches and turbine load is less than 270 megawatts?

a. Prevent Main Turbine blade damage due to excessive heating.

b. Prevent condenser tube bundle damage due to excessive heating.

c. Prevent personnel hazard due to blowing out of condenser rupture discs.

d. Prevent damage to the main condenser flexible boot due to overpressure.

Question No. 50 **QID: 0288**

Given:

Following a Reactor Trip all NNI-X power is lost.
RCS pressure is at 1800 psig and trending down slowly.

Which of the following explains the RCS pressure trend?

a. Pressurizer automatic heater control is inoperable.

b. Pressurizer spray valve has failed to 40% open.

c. ERV has shifted to the LTOP pressure setpoint.

d. Loss of AC power to RCS pressure instruments.

Question No. 51 **QID: 0289**

For reflux boiling to be effective, the primary steam bubble must extend:

a. below the high point of the Tcold.

b. above the secondary side water level.

c. below the secondary side water level.

d. above the upper tube sheet.

Question No. 52 **QID: 0290**

During a large break LOCA, RCP's have been secured due to loss of Subcooling Margin. Which one of the following indicates that the reactor core is covered?

a. SPDS automatically switches from the ATOG display to the ICC display.

b. The A Hot Leg temperature indicator indicates superheated conditions.

c. The RCS is saturated as indicated by Core Exit Thermocouples.

d. ICCMDS display indicates voids in the Reactor Vessel head and hot legs.

Question No. 53 **QID: 0291**

The SS & CRS are performing Alternate Shutdown, Delayed Control Room Evacuation, followup actions. Followup actions direct that the P7A EFW Flow Control valves (CV-2645 and CV-2647) are to be placed in HAND and throttled full open while throttling closed on the EFW Isolations (CV-2627 & CV-2620), to maintain proper EFW flow.

The reason for this step is:

a. The EFW Isolation valves tend to stick if kept in the full open position.

b. The EFW Control Valves will fail in the closed position if the valves are not locally pinned open. This sets the proper position to pin the valves.

c. This will leave the isolation valves in the proper position when instrument air is removed locally by RO #1.

d. To allow for removal of DC power from the EFW Flow Control valves and to prevent overcooling.

Question No. 54 **QID: 0292**

Reactor trip occurred.
ICCMDS indicates Subcooling Margin is 10°F.

Which of the following actions should be taken?

a. If less than two minutes has elapsed, then trip all RCPs.

b. If more than two minutes has elapsed, then trip all RCPs.

c. If less than two minutes has elapsed, then trip one RCP in each loop.

d. If more than two minutes has elapsed, then trip all but one RCP.

Question No. 55 **QID: 0293**

Given:

Plant is in Cold Shutdown

"B" Decay Heat pump is running

Which of the following would cause a loss of Decay Heat Removal?

a. A-1 voltage of 3300 volts

b. A-2 voltage of 3300 volts

c. B-5 voltage of 415 volts

d. B-6 voltage of 415 volts

Question No. 56 **QID: 0294**

Why is a minimum water level maintained in the Quench Tank?

a. Ensure adequate NPSH for the transfer pump.

b. Provide sufficient cooling-quench water during pressurizer operations.

c. Maintain a reference water level for level indication.

d. Maintain a loop seal on the relief lines.

Question No. 57 **QID: 0295**

Given:

80% power

P33C (ICW Pump) out of service

With no operator action, what affect would a loss of instrument air pressure have?

a. ICW pump runout

b. Low RCP motor cooling flow

c. High main feed pump oil temperature

d. Loss of ICW flow to RCP seals

Question No. 58 **QID: 0296**

Given:

Startup is in progress.
Turbine-Generator is in Integrated Control.
Generator load is 175 megawatts.
Turbine header pressure is 895 psig (at setpoint).

At what pressure will the Turbine Bypass Valves open and close?

a. Turbine Bypass Valves open at 905 psig and close when header pressure is less than 895 psig.

b. Turbine Bypass Valves open at 945 psig and close when header pressure is less than 945 psig.

c. Turbine Bypass Valves open at 995 psig and close when header pressure is less than 905 psig.

d. Turbine Bypass Valves open at 945 psig and close when header pressure is less than 895 psig.

Question No. 59 **QID: 0297**

Placing the OPC test switch in the OPC test position will:

a. Block the actuation of the Overspeed Protection Controller.

b. Simulate an electronic overspeed trip signal.

c. Actuate the Overspeed Protection Controller.

d. Block the actuation of the electronic overspeed trip signal.

Question No. 60 **QID: 0298**

Why does service water pressure drop during an inadvertent actuation of ES channel 5 ?

a. The SW valves to the RB Cooler on that channel will open.

b. There are more flow demands on the SW Systems during ES actuation.

c. The SW valves will automatically realign to Emergency Pond suction.

d. The SW Loop One and Loop Two cross ties will close.

Question No. 61 **QID: 0299**

The plant is at 80% power. The NI SASS mismatch alarm is bypassed due to a mismatch. What would be the predicted plant response if NI-6 failed to 125%?

a. Control rods move inward, feedwater flows go up.

b. Control rods move inward, feedwater flows do down.

c. Control rods move outward, feedwater flows go up.

d. Control rods move outward, feedwater flow go down.

Question No. 62 **QID: 0300**

Given:

The plant is at 25% power.
ICS Unit Load Demand (ULD) and "B" Main Feed Pump (MFP) stations are in Hand.
"A" MFP is in automatic.
The Feedwater Pumps Discharge Crosstie valve is open.

The automatic control of "A" MFP is being provided by:

a. High auctioneered delta-P across the main block valve

b. Low auctioneered startup flow and delta-P across the startup control valves

c. "A" Loop feedwater demand and feedwater flow error

d. "A" Loop feedwater demand and Low Auctioneered delta-P across the main blocks

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Question No. 63 **QID: 0301**

How is it determined which pressurizer relief valve is in alarm?

a. The relief valve position indicator light on C-486 shows which PSV is open.

b. The K09 control room annunciator identifies which relief valve is open.

c. Red light on relief monitor on C-486 will flash on the relief that is open.

d. By checking the analog position indication and Hi-alarm lights on panel C-486.

Question No. 64 **QID: 0302**

Given:

The reactor tripped due to a small break LOCA.
Pressure has stabilized at 800 psig.
RCS temperature is 500 °F and slowly rising.

Which of the following is appropriate?

a. Start Reactor Coolant Pumps and establish forced flow cooling.

b. Take actions to establish primary to secondary heat transfer cooling.

c. Continue cooling with the existing break flow.

d. Commence High Pressure Injection cooldown.

Question No. 65 **QID: 0303**

Which of the following occurs when HPI is automatically actuated on low RCS pressure?

a. RCP Seal INJ Block Valve CV-1206 receives an open signal.

b. Makeup Tank Outlet Valve automatically closes.

c. Decay Heat Cooler Outlet to HPI pump suction CV-1276 automatically opens.

d. RCS Makeup Block Valve CV-1234 receives a close signal.

Question No. 66 **QID: 0304**

Given:

A degraded power condition is present.
Diesel Generator #1 failed to start.
No other failures are present.

Which component would be automatically actuated to its ES position/status if RCS pressure subsequently dropped below 1590 psig?

a. EFW pump P-7B would restart.

b. Penetration room ventilation fan VEF-38A would start.

c. HPI pump P-36B would start.

d. Letdown coolers outlet CV-1221 would close.

Question No. 67 **QID: 0305**

The following conditions exist:

Unit 1 is operating at 100% power when the Pressurizer Spray Control valve (CV-1008) fails open.
Pressurizer Spray Isolation valve (CV-1009) will NOT close because of high torque on the motor.

Which one of the following methods should be used to override the CV-1009 torque switch to operate the valve in the CLOSED direction?

a. Open RC-4 (Spray Line Minimum Flow Valve) to reduce delta pressure.

b. Close the valve using breaker control switches.

c. HOLD the handswitch in the CLOSED position.

d. Place the handswitch in the OPEN position then the CLOSED position.

Question No. 68 **QID: 0306**

Which of the following conditions would result in the Reactor Protection System initiating a reactor trip designed to protect the fuel clad from DNB?

a. Ejected rod accident during startup

b. Loss of both Main Feedwater Pumps at 100 % power

c. Boron dilution accident while operating at 100% power

d. Reactor Coolant Pump trip at 95% power

Question No. 69 **QID: 0307**

Given:

Plant is at 100% power.
"B" Reactor Protection System channel is inoperable due to NI-6 failed high.
A surveillance test on "D" Reactor Protection System channel is in progress.

What is the Reactor Protection System trip logic under these conditions?

a. One out-of-two

b. One out-of-three

c. Two out-of-two

d. Two out-of-four

Question No. 70 **QID: 0308**

Given:

Plant is at 100% power.
ICS is in full automatic.

Subsequently, annunciator K07-B3 "ASYM ROD RUNBACK IN EFFECT" alarms.
A check of the PI panel shows that Rod 6 in Group 5 has dropped.

Which of the following alarms or indications would you expect to see on the diamond panel?

a. Sequence Inhibit lamp ON

b. Out Inhibit lamp ON

c. Auto Inhibit lamp ON

d. Group 5 Out Limit lamp OFF

Question No. 71 **QID: 0309**

Given:

The plant is operating at 100% power.
Loop "A" T-cold Narrow Range Temperature instrument fails HIGH.

If this instrument was hard selected by the SASS selector switch, what ICS HAND/AUTO stations should be placed in HAND?

a. Reactor Demand and both Feedwater Loop Demands.

b. SG/Rx Master and Reactor Demand.

c. SG/Rx Master and both Feedwater Loop Demands.

d. Both MFW Pumps and Turbine (EHC).

Question No. 72 **QID: 0310**

Why is the screen mesh installed on the reactor building sump suction lines?

a. Prevent damage from post-accident debris to the decay heat and reactor building spray pump seals.

b. Prevent vortex formation and subsequent loss of suction to the decay heat and reactor building spray pumps.

c. Prevent debris after an accident from clogging the level transmitters for the reactor building sump.

d. Prevent post-accident debris from clogging the reactor building spray header nozzles.

Question No. 73 **QID: 0311**

Plant is in cold shutdown.
Reactor Building pressure is 15.7 psia.

What action should be taken to initiate RB purge?

a. The reactor building purge inlets should be opened first.

b. The reactor building purge inlets and outlets should be opened simultaneously.

c. The reactor building purge outlets should be opened first.

d. The reactor building should be vented to the waste gas system.

Question No. 74 **QID: 0312**

The WCO reports the Spent Fuel Pool level is -1.9 ft.

What problem could this level pose for Spent Fuel Pool operations or fuel handling in the SFP?

a. SFP water temperature limits will be exceeded.

b. Boron addition to the SFP is required.

c. Area dose rates will rise.

d. SFP cooling pump will lose suction.

Question No. 75 **QID: 0313**

Given:

RCS pressure is 1800 psig,
RCS temperature is 545 degrees F,
"A" OTSG pressure is 650 psig,
"B" OTSG pressure is 970 psig,
Reactor Building Pressure is 6 psig.

Actions required to stop this transient are found in the:

a. ESAS procedure.

b. Overcooling procedure.

c. Forced Flow Cooldown procedure.

d. Loss of Subcooling Margin procedure.

Question No. 76 **QID: 0314**

Given:

A loss of offsite power
No failures exist other than those which caused the loss of offsite power condition
EDG's supplying vital buses

Ten (10) minutes into this event at what pressure will the OTSG's be controlled?

a. 895 psig

b. 995 psig

c. 1020 psig

d. 1050 psig

Question No. 77 **QID: 0315**

A loss of Condenser vacuum is in progress.
Condenser vacuum is currently 20 in Hg.

How will this affect plant operations?

a. One MFW pump needs to be tripped.

b. ADV's will be controlling SG pressures.

c. Condenser Vacuum Pumps go to Holding mode.

d. Reactor trip and EFW actuation are required.

Question No. 78 **QID: 0316**

Which of the following would explain why a loss of bus A1 will cause CV-1206 (RC Pump Seal Injection Block Valve) to close?

(Assume plant is at 100% power)

a. P36A (HPI) pump was the in-service pump.

b. Loss of instrument air to Seal Injection Control Valve, CV-1207.

c. P36C (HPI) pump was the in-service pump.

d. Loss of instrument air to Pressurizer Level Control valve CV-1235.

Question No. 79 **QID: 0317**

Unit One is at 100% power and experiences a loss of 125V DC Bus D02.

Which of the following D02 loads will cause the reactor to trip?

a. MCC D25

b. Panel RA2

c. Inverter Y22

d. Inverter Y28

Question No. 80 **QID: 0318**

You are on watch in the Control Room when the following annunciators go into alarm:

K12-A1, "FIRE"

K12-A2, "FIRE WATER FLOW"

K12-B2, "FIRE PUMP AUTO START"

Then you notice the running Fire Water Pump trips.

Which of the following actions should you take to ensure the Fire Water System can respond to the event in a timely manner?

a. Verify the Electric Fire Pump P-6A starts.

b. Verify the Diesel Fire Pump P-6B starts.

c. Dispatch an operator to place the Temporary Fire Pump in service.

d. Verify the Jockey Fire Water Pump P-11 starts.

Question No. 81 **QID: 0319**

Given:

100% power
Total RCS leakage is .5 gpm
Seal injection flow to each RCP is 9 gpm
Controlled bleedoff flow from each RCP is 1.5 gpm
Letdown flow is maximum for one demineralizer
Pressurizer level is 220"

Approximately how much flow is being added to the RCS via the makeup line?

a. 70-79 gpm

b. 80-89 gpm

c. 90-99 gpm

d. 100-109 gpm

Question No. 82 **QID: 0320**

A dropped rod event has occurred (one CRA in Group 7) and the following conditions exist:

Reactor power = 30% and decreasing.
Turbine output = 320 MWe and decreasing.
Annunciator (K07-C3) HIGH LOAD LIMIT is in fast flash.
Turbine runback is in progress.

What operator action is required?

a. Allow the runback to terminate normally.

b. Take manual control of the turbine and raise load.

c. Take manual control of SG/RX master.

d. Trip the reactor.

Question No. 83 **QID: 0321**

Given:

100% Reactor Power
Seal Injection Flow 40 gpm
Seal Bleedoff Flow 1.5 gpm for each RCP
Letdown flow 100 gpm

A Pressurizer Level Instrument failure causes Makeup Flow to rise to 200 gpm. Pressurizer Level is 230 inches and rising.

Assuming constant flow rates and no operator action, how long will it take to reach a condition requiring a manual reactor trip?

a. between 1 and 3.9 minutes

b. between 4 and 6.9 minutes

c. between 7 and 9.9 minutes

d. between 10 and 13 minutes

Question No. 84 **QID: 0322**

A reactor coolant pump trip has caused a plant runback.

What ensures ICS maintains power steady (does not return to its previous load demand) when the runback is complete?

a. The Unit Master H/A station input tracks the Rate and Load Limited Megawatt demand signal.

b. The ICS runback demand signal is fed directly into the input of the Unit Master H/A station.

c. The input to the Unit Master H/A station is driven by cross limits to match the runback back demand signal.

d. The ICS runback signal will clear only when the Unit Master H/A station output equals actual generated megawatts.

Question No. 85 **QID: 0323**

A plant power escalation is in progress at 28% power.
The following conditions are observed:

Rapid rise in RCS temperature
Rapid rise in RCS pressure
Rapid rise in PZR level
Rapid rise in Main Steam pressure
Megawatt output = zero (0)

What procedure contains the required mitigating operator actions?

a. 1203.001, "ICS Abnormal Operating"

b. 1203.018, "Turbine Trip below 43% Power"

c. 1203.020, "Load Rejection"

d. 1202.001, "Reactor Trip"

Question No. 86 **QID: 0324**

Given:

Reactor tripped on low pressure.
RCS Tave 545 °F and stable
Pressurizer level off-scale high
RCS pressure 1850 psig and rising rapidly
RB sump level 55% and rising

During this transient, which of the following methods will be used to limit the RCS pressure rise, in accordance with RT-14?

a. Cycle ERV as required

b. Secure steaming OTSGs

c. Raise makeup flow

d. Lower letdown flow

Question No. 87 **QID: 0325**

Following a reactor trip, what pressurizer level value (dropping) requires initiation of HPI per RT-2?

a. 110 inches

b. 90 inches

c. 55 inches

d. 30 inches

Question No. 88 **QID: 0326**

Reactor Coolant Pump (P32A) has a 2.6 gallon seal bleedoff flow.

What will happen to seal bleedoff temperature if seal injection is subsequently lost?

a. Rise due to loss of flow to the seal cooler.

b. Rise due to bleedoff in excess of seal cooler capacity.

c. Remain the same due to seal bleedoff cooling flow.

d. Remain the same due to seal recirc flow impeller circulation.

Question No. 89 **QID: 0327**

The RCS pressure setpoints at which the Decay Heat suction isolation valves close are _____ for CV-1050 and _____ for CV-1410.

a. 290 psig, 320 psig

b. 340 psig, 400 psig

c. 320 psig, 385 psig

d. 340 psig, 385 psig

Question No. 90 **QID: 0328**

You are the CBOR and you observe the following indications:

"A" and "B" Main Feedwater Pumps are tripped
CRD groups 1, 2, 3, and 4 are at the out limit.
CRD groups 5, 6, and 7 are at the in limit.
NI-3 indicates 1 E-8 and lowering.

What action should be performed FIRST?

a. Depress the CRD Power Supply Breaker Trip Pushbuttons.

b. Dispatch an operator to open the CRD AC Power Supply Breakers.

c. Commence Emergency Boration per RT-12.

d. Manually insert CRD groups 1, 2, 3, and 4.

Question No. 91 **QID: 0329**

Given:

Plant startup in progress
NI501 at 9 x E4 cps
NI502 at 1 x E5 cps
NR502 is operable and at 5 x E-2% power
NI3 at 2 x E-11 amps
NI4 at 5 x E-11 amps
NI5 thru 8 at 0%

What action should be taken by control room operators?

a. Maintain flux level in the source range

b. Trip the reactor

c. Continue with startup

d. Stabilize power at 1 x E-8 amps

Question No. 92 **QID: 0330**

Which of the following satisfy entry conditions for the Tube Rupture procedure, 1202.006?

a. "A" OTSG tube leak of 0.1 gpm with turbine trip.

b. "B" OTSG tube leak of 5 gpm with condenser vacuum pump radiation alarm.

c. "A" OTSG tube leak of 3 gpm and "B" OTSG tube leak of 4 gpm with main feedwater pump "A" trip.

d. "B" OTSG tube leak of 2 gpm with reactor trip.

Question No. 93 **QID: 0332**

What EOP action is designed to reduce the rate of leakage into a ruptured OTSG?

a. Controlling reactor coolant system pressure low within the limits of Figure 3.

b. Concurrently performing 1203.014, Control of Secondary System Contamination.

c. Isolation of the OTSG with the ruptured tube.

d. Cooling down the reactor coolant system to less than 500 °F.

Question No. 94 **QID: 0333**

After a reactor trip, which of the following would indicate a ruptured tube in the "A" Steam Generator?

a. "A" EFIC level is 31 stable
"B" EFIC level is 35 rising
"A" MFW Flow is .3 mlb/hr
"B" MFW Flow is .2 mlb/hr

b. "A" EFIC level is 31 stable
"B" EFIC level is 29 rising
"A" MFW Flow is .3 mlb/hr
"B" MFW Flow is .4 mlb/hr

c. "A" EFIC level is 28 rising
"B" EFIC level is 31 stable
"A" MFW Flow is .5 mlb/hr
"B" MFW Flow is .3 mlb/hr

d. "A" EFIC level is 35 rising
"B" EFIC level is 31 stable
"A" MFW Flow is .1 mlb/hr
"B" MFW Flow is .3 mlb/hr

Question No. 95 **QID: 0334**

Prior to any automatic or operator actions, which set of parameters would indicate a Main Feedwater Line Break inside of the reactor building?

a. OTSG level dropping
Feedwater flow dropping
RB pressure rising

b. OTSG level rising
Feedwater flow dropping
RB pressure rising

c. OTSG level rising
Feedwater flow rising
RB pressure dropping

d. OTSG level dropping
Feedwater flow rising
RB pressure rising

Question No. 96 **QID: 0335**

Given:

Loss of all Feedwater
HPI core cooling started

What indicates adequate HPI core cooling?

a. CET temperatures stable after 100 minutes.

b. T-cold tracking associated SG T-sat.

c. T-hot tracking CET temperatures.

d. T-hot/T-cold differential temperature dropping.

Question No. 97 **QID: 0336**

Given:

Turbine Lockout Relay DC Failure Alarm (K04-B5),
D01 Undervoltage (K01-A7),
D01 Trouble (K01-D7),
Loss of Breaker Position Indicator Lights for Plant Buses on left side of C10.

Which action should be performed?

a. Start both Diesel Generators from C-10.

b. Trip the Generator Output Breakers.

c. Transfer D11 to its Emergency Power Supply.

d. Line up Battery Charger D03A or D03B to the D01 Bus.

Question No. 98 **QID: 0360**

Given:

Emergency Boration is required following a reactor trip.
Both boric acid pumps are inoperable.

Which of the following would NOT be a contingency action?

a. Open the BWST outlet valve for the operating HPI pump.

b. Set the batch controller to the maximum batch size.

c. Raise letdown flow to maximum allowed.

d. Start the ES standby HPI pump.

Question No. 99 **QID: 0361**

During a Small Break LOCA cooldown, with the RCS in a solid condition, what would be the expected change in RCS pressure for a 2 °F change in RCS temperature?

a. 100 psig

b. 200 psig

c. 300 psig

d. 400 psig

Question No. 100 **QID: 0362**

When is the Aux. Building Equipment Hatch on 404' NOT allowed to be opened?

a. Nuclear Engineers are moving Irradiated Fuel in the SF area.

b. The spent fuel Crane is being used to move a pump in the SF area.

c. Operators are moving new fuel in the new fuel storage pit.

d. Spent Fuel pool level is being raised.

Question No. 1 **QID: 0058** **Point Value: 1**
Answer:
b. The Intermediate Range channels are overcompensated.

Question No. 2 **QID: 0158** **Point Value: 1**
Answer:
c. 6 days

Question No. 3 **QID: 0204** **Point Value: 1**
Answer:
d. EDG 2 is inoperable because EDG 2 Fuel Oil Transfer Pump P-16B is inoperable.

Question No. 4 **QID: 0217** **Point Value: 1**
Answer:
b. 6 feet

Question No. 5 **QID: 0240** **Point Value: 1**
Answer:
a. Core Exit Thermocouple TE-1152 will be removed from the average.

Question No. 6 **QID: 0241** **Point Value: 1**
Answer:
a. Service Water Loop 1 and Discharge Flume process radiation monitors alarm.

Question No. 7 **QID: 0242** **Point Value: 1**
Answer:
b. Instruments that should be reliable during accident conditions.

Question No. 8 **QID: 0243** **Point Value: 1**
Answer:
c. Planned dose shall not exceed 10 Rem TEDE.

Question No. 9 **QID: 0244** **Point Value: 1**
Answer:
d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. 10 **QID: 0245** **Point Value: 1**
Answer:
d. The valve must be stroked electrically.

Question No. 11 **QID: 0246** **Point Value: 1**
Answer:
c. Check against the number on the brass tag on the key ring.

Question No. 12 **QID: 0247** **Point Value: 1**
Answer:
d. Control Board Operator or Shift Superintendent.

Question No. 13 **QID: 0248** **Point Value: 1**
Answer:
a. Lockout relay trip deenergizes A-2.

Question No. 14 **QID: 0249** **Point Value: 1**
Answer:
c. 40 Rem/year to the skin

Question No. 15 **QID: 0250** **Point Value: 1**
Answer:
c. Reactor Engineer and SRO in Charge of Fuel Handling

Question No. 16 **QID: 0252** **Point Value: 1**
Answer:
b. Reactor coolant temperature goes below 525 °F.

Question No. 17 **QID: 0253** **Point Value: 0**

Answer:

d. The main feedwater block valves close immediately in fast speed.

Question No. 18 **QID: 0254** **Point Value: 1**

Answer:

b. EFW Pump P-7A trip/throttle valve does not indicate full open.

Question No. 19 **QID: 0255** **Point Value: 1**

Answer:

c. RPS will trip the plant and start Emergency Feedwater on loss of both Main Feedwater Pumps.

Question No. 20 **QID: 0256** **Point Value: 1**

Answer:

b. Maintains adequate service water flow to the Reactor Building Coolers when ES actuates.

Question No. 21 **QID: 0257** **Point Value: 1**

Answer:

c. Inverter Y-11 failed resulting in a loss of power.

Question No. 22 **QID: 0258** **Point Value: 1**

Answer:

a. "A" HPI pump will be damaged due to loss of suction.

Question No. 23 **QID: 0259** **Point Value: 1**

Answer:

c. Prevents degrading T36A/B resin by shutting CV-1221 (letdown isolation).

Question No. 24 **QID: 0260** **Point Value: 1**
Answer:
b. Instrument air line to the Lower North Piping Room ruptures.

Question No. 25 **QID: 0261** **Point Value: 1**
Answer:
d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Question No. 26 **QID: 0262** **Point Value: 1**
Answer:
d. Rods go full out, Tave goes down, power stays the same.

Question No. 27 **QID: 0263** **Point Value: 1**
Answer:
b. Group 6 at 56 %

Question No. 28 **QID: 0265** **Point Value: 1**
Answer:
d. Trip all running RCPs.

Question No. 29 **QID: 0266** **Point Value: 1**
Answer:
d. HPI pumps and RB spray pumps

Question No. 30 **QID: 0267** **Point Value: 1**
Answer:
c. "B" Reactor Coolant Pump seal cooler leak.

Question No. 31 **QID: 0268** **Point Value: 1**
Answer:
c. The "A" Main Feedwater Block Valve stopping its movement.

Question No. 32 **QID: 0269** **Point Value: 1**
Answer:
d. Service Water System

Question No. 33 **QID: 0270** **Point Value: 1**
Answer:
c. ~5"/min

Question No. 34 **QID: 0271** **Point Value: 1**
Answer:
b. A Waste Control Operator must independently verify release path alignment prior to release.

Question No. 35 **QID: 0272** **Point Value: 1**
Answer:
b. 2 and 3

Question No. 36 **QID: 0273** **Point Value: 1**
Answer:
c. Normal ventilation ducts are isolated automatically.

Question No. 37 **QID: 0274** **Point Value: 1**
Answer:
c. Inadequate air flow through the Service Water Cooling Coils

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Question No. 38 **QID: 0275** **Point Value: 1**
Answer:
a. Place bus B5 & B6 UV protection switches in BYPASS.

Question No. 39 **QID: 0276** **Point Value: 1**
Answer:
a. Place EDG #1 output breaker in PULL-TO-LOCK and release.

Question No. 40 **QID: 0277** **Point Value: 1**

Answer:

c. Loss of off-site power

Question No. 41 **QID: 0279** **Point Value: 1**

Answer:

a. Verify 1202.008, Att. 1, "Blackout Breaker Alignment UV Defeat", complete then close feeder breakers from startup transformer #1.

Question No. 42 **QID: 0280** **Point Value: 1**

Answer:

a. Reactor Coolant Pump P-32C trip.

Question No. 43 **QID: 0281** **Point Value: 1**

Answer:

d. P-4A and P-4C

Question No. 44 **QID: 0282** **Point Value: 1**

Answer:

a. P-33B and P-33C started
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves closed

Question No. 45 **QID: 0283** **Point Value: 1**

Answer:

a. Declare Group 7 INOPERABLE and borate the plant to Hot Shutdown.

Question No. 46 **QID: 0284** **Point Value: 1**

Answer:

b. 430 degrees F

Question No. 47 **QID: 0285** **Point Value: 1**
Answer:
b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

Question No. 48 **QID: 0286** **Point Value: 1**
Answer:
c. 540 °F

Question No. 49 **QID: 0287** **Point Value: 1**
Answer:
a. Prevent Main Turbine blade damage due to excessive heating.

Question No. 50 **QID: 0288** **Point Value: 1**
Answer:
a. Pressurizer automatic heater control is inoperable.

Question No. 51 **QID: 0289** **Point Value: 1**
Answer:
c. below the secondary side water level.

Question No. 52 **QID: 0290** **Point Value: 1**
Answer:
c. The RCS is saturated as indicated by Core Exit Thermocouples.

Question No. 53 **QID: 0291** **Point Value: 1**
Answer:
d. To allow for removal of DC power from the EFW flow control valves and to prevent overcooling.

Question No. 54 **QID: 0292** **Point Value: 1**
Answer:
a. If less than two minutes has elapsed, then trip all RCPs.

Question No. 55 **QID: 0293** **Point Value: 1**
Answer:
d. B-6 voltage of 415 volts

Question No. 56 **QID: 0294** **Point Value: 1**
Answer:
b. Provide sufficient cooling-quench water during pressurizer operations.

Question No. 57 **QID: 0295** **Point Value: 1**
Answer:
d. Loss of ICW flow to RCP seals

Question No. 58 **QID: 0296** **Point Value: 1**
Answer:
b. Turbine Bypass Valves open at 945 psig and close when header pressure is less than 945 psig.

Question No. 59 **QID: 0297** **Point Value: 1**
Answer:
c. Actuate the Overspeed Protection Controller.

Question No. 60 **QID: 0298** **Point Value: 1**
Answer:
a. The SW valves to the RB Cooler on that channel will open.

Question No. 61 **QID: 0299** **Point Value: 1**
Answer:
a. Control rods move inward, feedwater flows go up.

Question No. 62 **QID: 0300** **Point Value: 1**
Answer:
d. "A" Loop feedwater demand and Low Auctioneered delta-P across the main blocks

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Question No. 63 **QID: 0301** **Point Value: 1**
Answer:
d. By checking the analog position ind. and Hi-alarm lights on panel C-486.

Question No. 64 **QID: 0302** **Point Value: 1**
Answer:
b. Take actions to establish primary to secondary heat transfer cooling.

Question No. 65 **QID: 0303** **Point Value: 1**
Answer:
d. RCS Makeup Block Valve CV-1234 receives a close signal.

Question No. 66 **QID: 0304** **Point Value: 1**
Answer:
d. Letdown coolers outlet CV-1221 would close.

Question No. 67 **QID: 0305** **Point Value: 1**
Answer:
c. HOLD the handswitch in the CLOSED position.

Question No. 68 **QID: 0306** **Point Value: 1**
Answer:
d. Reactor Coolant Pump trip at 95% power.

Question No. 69 **QID: 0307** **Point Value: 1**
Answer:
a. One out-of-two

Question No. 70 **QID: 0308** **Point Value: 1**
Answer:
b. Out Inhibit lamp ON

Question No. 71 **QID: 0309** **Point Value: 1**
Answer:
a. Reactor Demand and both Feedwater Loop Demands.

Question No. 72 **QID: 0310** **Point Value: 1**
Answer:
d. Prevent post-accident debris from clogging the reactor building spray header nozzles.

Question No. 73 **QID: 0311** **Point Value: 1**
Answer:
c. The reactor building purge outlets should be opened first.

Question No. 74 **QID: 0312** **Point Value: 1**
Answer:
c. Area dose rates will rise.

Question No. 75 **QID: 0313** **Point Value: 1**
Answer:
b. Overcooling procedure.

Question No. 76 **QID: 0314** **Point Value: 1**
Answer:
c. 1020 psig

Question No. 77 **QID: 0315** **Point Value: 1**
Answer:
b. ADV's will be controlling SG pressures.

Question No. 78 **QID: 0316** **Point Value: 1**
Answer:
a. P36A (HPI) pump was the in-service pump.

Question No. 79 **QID: 0317** **Point Value: 1**
Answer:
b. Panel RA2

Question No. 80 **QID: 0318** **Point Value: 1**
Answer:
b. Verify the Diesel Fire Pump P-6B starts.

Question No. 81 **QID: 0319** **Point Value: 1**
Answer:
c. 90-99 gpm

Question No. 82 **QID: 0320** **Point Value: 1**
Answer:
c. Take manual control of SG/RX master.

Question No. 83 **QID: 0321** **Point Value: 1**
Answer:
b. between 4 and 6.9 minutes

Question No. 84 **QID: 0322** **Point Value: 1**
Answer:
a. The Unit Master H/A station input tracks the Rate and Load Limited Megawatt demand signal.

Question No. 85 **QID: 0323** **Point Value: 1**
Answer:
b. 1203.018, "Turbine Trip below 43% Power"

Question No. 86 **QID: 0324** **Point Value: 1**
Answer:
a. Cycle ERV as required

Question No. 87 **QID: 0325** **Point Value: 1**
Answer:
d. 30 inches

Question No. 88 **QID: 0326** **Point Value: 1**
Answer:
b. Increase due to bleedoff in excess of seal cooler capacity.

Question No. 89 **QID: 0327** **Point Value: 1**
Answer:
c. 320 psig, 385 psig

Question No. 90 **QID: 0328** **Point Value: 1**
Answer:
a. Depress the CRD Power Supply Breaker Trip Pushbuttons.

Question No. 91 **QID: 0329** **Point Value: 1**
Answer:
a. Maintain flux level in the source range

Question No. 92 **QID: 0330** **Point Value: 1**
Answer:
d. "B" OTSG tube leak of 2 gpm with reactor trip.

Question No. 93 **QID: 0332** **Point Value: 1**
Answer:
a. Controlling reactor coolant system pressure low within the limits of Figure 3.

Question No. 94 **QID: 0333** **Point Value: 1**
Answer:
d. "A" EFIC level is 35 rising "A" MFW Flow is .1 mlb/hr
"B" EFIC level is 31 stable "B" MFW Flow is .3 mlb/hr

Question No. 95 **QID: 0334** **Point Value: 1**

Answer:

d. OTSG level dropping
Feedwater flow rising
RB pressure rising

Question No. 96 **QID: 0335** **Point Value: 1**

Answer:

a. CET temperatures stable after 100 minutes.

Question No. 97 **QID: 0336** **Point Value: 1**

Answer:

c. Transfer D11 to its Emergency Power Supply.

Question No. 98 **QID: 0360** **Point Value: 1**

Answer:

b. Set the batch controller to the maximum batch size.

Question No. 99 **QID: 0361** **Point Value: 1**

Answer:

b. 200 psig

Question No. 100 **QID: 0362** **Point Value: 1**

Answer:

a. Nuclear Engineers are moving Irradiated Fuel in the SF area.

Question No. 1 **QID: 0058**

A startup is in progress. The reactor is critical and the CBOR is commencing power escalation to <2% reactor power. The following indications are observed:

NI-3 1 x 10-8 amps
NI-4 8 x 10-9 amps
NI-5 0.8%
NI-6 1.1%
NI-7 1.3%
NI-8 1.2%

What conclusion should you deduce from the above indications?

a. Power Range channel 5 requires calibration.

b. The Intermediate Range channels are overcompensated.

c. The POAH has not yet been reached.

d. The Intermediate Range channels are undercompensated.

Question No. 2 **QID: 0158**

The plant is at 100% power.
The outside door of the personnel lock was opened to replace a seal gasket 24 hours ago.

How long does operations have to perform an LLRT on the personnel lock before a loss of containment integrity will exist?

a. 1 hour

b. 12 hours

c. 6 days

d. 13 days

Question No. 3 **QID: 0204**

The #2 EDG monthly surveillance is in progress with the EDG on-line and fully loaded.

EDG 2 Non-critical Trouble (K01-D4) is in alarm.
EDG 2 Critical Trouble (K01-C4) comes into alarm.
The Outside AO reports that EDG 2 Fuel Oil Transfer Pump P-16B is tripped and will NOT start.
The Inside AO reports that the T-30B day tank level is ~180 gallons and going down slowly.
T-57B level is >168 inches.

Which of the following is correct with regard to #2 EDG status?

a. EDG 2 is operable because fuel oil can be supplied from EDG 1 transfer pump P-16A.

b. EDG 2 is inoperable because the level in T-30A being is <190 gallons.

c. EDG 2 is operable because Emergency Fuel Storage Tank T-57B is full.

d. EDG 2 is inoperable because EDG 2 Fuel Oil Transfer Pump P-16B is inoperable.

Question No. 4 **QID: 0217**

During HPI Cooldown, pump suctions are shifted from the Borated Water Storage Tank to the reactor building sump when the Borated Water Storage Tank level is:

a. 4 feet

b. 6 feet

c. 8 feet

d. 10 feet

Question No. 5 **QID: 0240**

Given:

Plant is at 100% power
All CETs indicate 602 °F

ICC train "B" Core Exit Thermocouple TE-1152 fails to 900 °F.

What is the effect of this failure?

a. Core Exit Thermocouple TE-1152 will be removed from the average.

b. ICC Core Exit Thermocouple indication will go to ~627 °F.

c. "TRAIN B SUBCLG MARG LO" annunciator will alarm.

d. "B" SPDS will switch from ATOG to the ICC display.

Question No. 6 **QID: 0241**

Reactor Building Service Water Coolers are in service.

Reactor Building Cooling Coils VCC-2A and VCC-2B should be isolated if:

a. Service Water Loop 1 and Discharge Flume process radiation monitors alarm.

b. Service Water Loop 1 and Service Water Loop 2 process radiation monitors alarm.

c. Service Water Loop 2 process radiation monitor alarms and Reactor Building Sump level is rising.

d. Service Water Loop 2 process radiation monitor alarms and Service Water Loop 2 flow is low.

Question No. 7 **QID: 0243**

Given:

Large break LOCA has occurred.
CV-1405, Train B RB Sump Outlet valve, failed to open during transfer to RB sump recirculation.
P-34A, LPI pump operation is degrading.

The OSC is dispatching a Repair Team to attempt repair of CV-1405.

What is the maximum dose each member of the team is allowed to receive?

a. Planned dose shall not exceed 2 Rem TEDE.

b. Planned dose shall not exceed 5 Rem TEDE.

c. Planned dose shall not exceed 10 Rem TEDE.

d. Planned dose shall not exceed 25 Rem TEDE.

Question No. 8 **QID: 0244**

Only operations personnel are authorized to manipulate plant equipment. 1015.001, Conduct of Operations, specifies exceptions to this guidance. Which of the following would NOT satisfy those exceptions?

a. Chemistry personnel operating sample valves per chemistry procedures.

b. Entergy employee opening a service air connection isolation.

c. Operation of equipment under the direct supervision of the Auxiliary Operator.

d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. 9 **QID: 0245**

The feedwater/condensate system startup is in progress. A main feedwater isolation valve had been closed by operation of the manual handwheel to isolate the system.

Prior to declaring this valve operable what action must be taken?

a. The valve must be fully opened using the local handwheel.

b. Electricians must check the torque switch adjustment.

c. The torque required to remove valve from seat must be below the limit.

d. The valve must be stroked electrically to confirm proper clutch engagement.

Question No. 10 **QID: 0246**

How is the oncoming operator supposed to verify the correct number of keys are on his key ring during turnover?

a. Check current key lists in the keybox.

b. Check the number specified in the key log procedure.

c. Check against the number on the brass tag on the key ring.

d. Check the number listed on the shift turnover log from last shift.

Question No. 11 **QID: 0247**

A tagout is required on the "A" makeup pump. Which shift personnel are qualified to perform the tagout boundary verification, if the tagout was prepared by a non-licensed operator?

a. Control Board Operator or Auxiliary Operator.

b. Auxiliary Operator or Shift Engineer.

c. Control Room Supervisor or Waste Control Operator.

d. Control Board Operator or Shift Superintendent.

Question No. 12 **QID: 0248**

Given:

The plant is at 100 % power
Decay Heat Pump P-34A is out of service
Service Water Pumps P-4A and P-4B are operating.

Which event would make Decay Heat Pump P-34B inoperable?

a. Lockout relay trip deenergizes A-2

b. Emergency Diesel Generator 1 start time is 16.2 seconds.

c. Service Water Pump P-4C motor fails.

d. LPI Room Cooler VUC-1C is declared inoperable.

Question No. 13 **QID: 0249**

A fuel handling accident involving a spent fuel assembly has caused elevated dose rates in the Spent Fuel Pool area.

What Administrative Dose Control Limit (ADCL) would be of the greatest concern to the RP staff during planning for recovery actions from this accident?

a. 5 Rem/year to the skin

b. 12 Rem/year to the lens of the eye

c. 40 Rem/year to the skin

d. 50 Rem/year to the lens of the eye

Question No. 14 **QID: 0252**

A normal plant startup is in progress. Critical data is being obtained.

Which condition, if not corrected within 15 minutes, would require a plant shutdown within the following 15 minutes?

a. One pressurizer code safety valve is declared inoperable.

b. Reactor coolant temperature is below 525 °F.

c. Reactor coolant system Hot Leg high point vents inoperable.

d. Pressurizer level stable at 100 inches.

Question No. 15 **QID: 0253**

ICS is in full automatic and the CBOR is verifying proper plant response to a main feedwater pump trip from 75% power.

Which of the following should the CBOR expect to occur?

a. The operating main feedwater pump demand has a 30% bias added.

b. The pressurizer spray valve opens immediately and closes when RCS pressure reaches 2030 psig.

c. The control rods insert immediately due to a bias subtracted from the demand.

d. The main feedwater block valves close immediately in fast speed.

Question No. 16 **QID: 0254**

Given:

EFW started 10 minutes ago
EFW pump P-7A speed is 900 RPM

Which of the following would cause these indications?

a. EFW Pump P-7A governor valve has lost power.

b. EFW Pump P-7A trip/throttle valve does not indicate full open.

c. EFW steam admission valve CV-2613 is closed.

d. EFW Pump P-7A governor valve has an oil leak.

Question No. 17 **QID: 0255**

Given:

Plant startup is in progress.
The plant is at 35% power
"A" Main Feedwater Pump is in service
"B" Main Feedwater Pump is at minimum speed
"B" Main Feedwater Pump Anticipatory Reactor Trip is NOT reset

A malfunction of the "A" Main Feedwater Pump control oil system causes "A" Main Feedwater Pump auto stop oil pressure to go rapidly to 0 (zero) psig.

What effect does this failure have on the plant?

a. ATWS Mitigation Actuation and Control will trip the plant and start Emergency Feedwater.

b. Both OTSG levels will go less than 14.5 inches and start Emergency Feedwater.

c. RPS will trip the plant and start Emergency Feedwater on loss of both Main Feedwater Pumps.

d. High Reactor Coolant System pressure will trip the plant and start Emergency Feedwater.

Question No. 18 **QID: 0256**

Why are Decay Heat Cooler Outlet Valves SW-22A and SW-22B throttled during normal operation?

a. Service water flow to the Auxiliary Cooling Water System is raised during normal operation.

b. Maintains adequate service water flow to the Reactor Building Coolers when ES actuates.

c. Reactor coolant to service water differential temperature is reduced when ES actuates.

d. Decay heat coolers are maintained full and reduces the chance of water hammer.

Question No. 19 **QID: 0257**

Given:

Reactor startup is in progress
Group 6 is 50% withdrawn.
NI-1 source range indicates .1 cps
NI-2 source range indicates 30 CPS

Which of the following would cause these indications?

a. Source range NI-2 discriminator voltage is set too high.

b. Inverter Y-28 failed resulting in a loss of power.

c. Inverter Y-11 failed resulting in a loss of power.

d. Source range NI-1 discriminator voltage is set too low.

Question No. 20 **QID: 0259**

What is the function of the temperature interlock associated with RCS letdown?

a. Prevents letdown fluid from flashing to steam when pressure is reduced by closing CV-1221 (letdown isolation).

b. Prevents exceeding letdown piping thermal limits by shutting CV-1213 & 1215 (letdown cooler inlet MOV).

c. Prevents degrading T36A/B resin by shutting CV-1221 (letdown isolation).

d. Prevents exceeding letdown cooler capacity by shutting CV-1213 & 1215 (letdown cooler inlet MOV).

Question No. 21 **QID: 0260**

With CV1207 RCP seal injection control valve in hand, which one of the following events would cause seal injection flow to go up?

a. Low pressurizer level.

b. Instrument air line to the Lower North Piping Room ruptures.

c. Opening of CV-1228 (HPI block valve to P32A discharge).

d. Operator raises letdown flow.

Question No. 22 **QID: 0261**

Given:

The plant is at 30 % power.
Main Feedwater Pump P-1A is in service.
Main Feedwater Pump P-1B is shutdown.
Condensate pumps P-2A and P-2C are in service.

Explain the response of "B" condensate pump, if "C" condensate pump trips.

a. Condensate pump low discharge pressure will auto-start condensate pump P-2B.

b. Condensate pump P-2C tripping will auto-start condensate pump P-2B.

c. Condensate pump P-2B will remain off since the plant is operating at a power level less than 40%.

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Question No. 23 **QID: 0262**

Given:

The plant is at 100 %.
CRDs are at the normal rod index.
The EHC controller is in manual.
RCS boron concentration is 812 ppm.
1 ppm RCS boration requires 7.8 gallons of Boric Acid.

The CBOR is making a RCS addition with no concentration change and adds 92 gallons of boric acid and 8 gallons of DI water.

What effect will this have, without any further operator action?

a. Rods go full out, Tave stays the same, power goes down.

b. Rods go in ~10%, Tave stays the same, power goes down.

c. Rods go in ~10%, Tave goes down, power stays the same.

d. Rods go full out, Tave goes down, power stays the same.

Question No. 24 **QID: 0263**

Given:

All RCPs are operating.
The plant is at 40 % power.
Time in core life is 325 EFPD.

What is the lowest allowed control rod position for continuous plant operation?

a. Group 6 at 26 %

b. Group 6 at 56 %

c. Group 5 at 71%

d. Group 6 at 36%

Question No. 25 **QID: 0267**

The CBOR observes a change in seal injection flow rates and notes the following values:

"A" RCP	6.5 gpm
"B" RCP	15.0 gpm
"C" RCP	5.0 gpm
"D" RCP	6.0 gpm

Which of the following explains the seal injection flow indications?

a. Reactor Coolant Pump P-32B trip due to a motor fault.

b. Seal injection line break in the Upper North Piping Penetration Room .

c. "B" Reactor Coolant Pump seal cooler leak.

d. "B" seal injection flow transmitter failure.

Question No. 26 **QID: 0271**

Which of the following must be performed to release T-16A contents with the Liquid Radwaste Process Monitor (RI-4642) inoperable?

a. Chemistry personnel must estimate radiation level every four hours during the release.

b. A Waste Control Operator must independently verify release path alignment prior to release.

c. The release flow rate must be estimated at least once every three hours during the release.

d. Discharge Flume process monitor RI-3618 must be checked for operability.

Question No. 27 **QID: 0272**

When a high radiation condition occurs in the Waste Gas Discharge Header, the radiation monitor will cause what combination of automatic action(s) to occur?

1. Nitrogen is added for dilution.
2. The Aux. Building Vent Header diverts to the Waste Gas Surge Tank.
3. The Waste Gas Decay Tank effluent control valve (CV-4820) shuts.
4. The Aux. Building Vent Header diverts to the Waste Gas Decay Tank in service.

a. 1 and 2

b. 2 and 3

c. 3 and 4

d. 1 and 4

Question No. 28 **QID: 0273**

The in-service Unit 1 Control Room Supply Vent Radiation Detector, 2RITS-8001A, detects a high radiation condition.

Which of the following will occur?

a. Control Room Air Supply Fan (VSF-8A or 8B) starts.

b. Control Room Chiller Unit (VCH-2A or 2B) trips.

c. Normal ventilation ducts are isolated automatically.

d. 2VSF-9 (CR Emerg. A/C Fan) starts.

Question No. 29 **QID: 0278**

A Natural Circulation Cooldown is in progress. The Shift Superintendent/Control Room Supervisor are discussing entering 10CFR 50.54x for use of high pressure auxiliary spray.

Which of the following conditions would NOT allow the use of high pressure auxiliary spray?

a. Pressurizer/spray fluid differential temperature is greater than 430 °F.

b. Pressurizer spray valve, CV-1008, is failed open.

c. Pressurizer spray isolation valve, CV-1009, is failed open.

d. Borated Water Storage Tank level is less than 23 feet.

Question No. 30 **QID: 0279**

Given:

The plant is in a blackout condition.
Startup transformer #1 primary voltage is 19 KV.
Unit 2 vital and non-vital buses are aligned to startup transformer #2.
Startup transformer #2 voltage is 155 KV.

How should off-site power be restored to the plant?

a. Verify 1202.008, Att. 1, "Blackout Breaker Alignment UV Defeat", complete then close feeder breakers from startup transformer #1.

b. Check acceptable loading on startup transformer #2 then close the feeder breakers from startup transformer #2.

c. Verify 1202.008, Att. 2, "Recovery from Blackout Breaker Alignment and UV Defeat", complete then close feeder breakers from startup transformer #1.

d. Check the autotransformer is aligned to startup transformer #2, then close the feeder breakers from startup transformer #2.

Question No. 31 **QID: 0280**

The plant is operating at 70% when the following indications are observed:

Loop "A" RC Flow is 35 mlb/hr
Loop "B" RC Flow is 70 mlb/hr
FW RERATIO ON LOSS OF RC-FLOW ENABLED is in alarm

What is the cause of these indications?

a. Reactor Coolant Pump P-32C trip.

b. Reactor Coolant Pump P-32A trip.

c. Reactor Coolant Pump P-32C sheared shaft.

d. Reactor Coolant Pump P-32A sheared shaft.

Question No. 32 **QID: 0281**

Service Water Pumps P-4A, P-4B (supplied from A-4), and P-4C are running. An ES actuation coincident with a loss of off-site power occurs.

Which service water pumps will autostart when A-3 and A-4 are re-energized?

a. P-4A, P-4B and P-4C

b. P-4A and P-4B

c. P-4B and P-4C

d. P-4A and P-4C

Question No. 33 **QID: 0282**

Given:

Unit 1 is at 100% power.
ICW pumps P-33A and P-33B are in service.

Subsequently the ICW pump supplying the Non-Nuclear ICW loop trips. Which of the following actions should you verify as the proper system response to the above conditions?

a. P-33B and P-33C running
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves closed

b. P-33A and P-33C running
P-33A to P-33B suction and discharge crosstie valves closed
P-33B to P-33C suction and discharge crosstie valves open

c. P-33B and P-33C running
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves open

d. P-33A and P-33C running
P-33A to P-33B suction and discharge crosstie valves closed
P-33B to P-33C suction and discharge crosstie valves closed

Question No. 34 **QID: 0283**

The plant is operating at 100% power.
Group 7 CRAs can not be moved on the normal or auxiliary power supply.

What operator action is required?

a. Declare Group 7 INOPERABLE and borate the plant to Hot Shutdown.

b. Declare Group 7 INOPERABLE and shutdown using remaining rod groups.

c. Exercise all other rods, verify 1.5% SDM, and continue operation.

d. Initiate Emergency Boration and trip the reactor.

Question No. 35 **QID: 0285**

Following a turbine and reactor trip, an overcooling transient is occurring due to a stuck open safety.

The affected SG pressure is 825 psig and falling.

What actions are taken to seat the MSSV per the Overcooling procedure?

a. Actuate Main Steam Line Isolation for the SG with the lowest pressure.

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

c. Trip both Main Feedwater pumps, actuate EFW, and perform RT-5.

d. Shut the Main Feedwater Isolation Valve for the affected Steam Generator.

Question No. 36 **QID: 0286**

Identify the HIGHEST RCS Tcold temperature below which entry into the Overcooling EOP is required:

a. 560 °F

b. 550 °F

c. 540 °F

d. 530 °F

Question No. 37 **QID: 0287**

Why is the Main Turbine tripped when condenser vacuum is less than 26.5 inches and turbine load is less than 270 megawatts?

a. Prevent Main Turbine blade damage due to excessive heating.

b. Prevent condenser tube bundle damage due to excessive heating.

c. Prevent personnel hazard due to blowing out of condenser rupture discs.

d. Prevent damage to the main condenser flexible boot due to overpressure.

Question No. 38 **QID: 0288**

Given:

Following a Reactor Trip all NNI-X power is lost.
RCS pressure is at 1800 psig and trending down slowly.

Which of the following explains the RCS pressure trend?

a. Pressurizer automatic heater control is inoperable.

b. Pressurizer spray valve has failed to 40% open.

c. ERV has shifted to the LTOP pressure setpoint.

d. Loss of AC power to RCS pressure instruments.

Question No. 39 **QID: 0289**

For reflux boiling to be effective, the primary steam bubble must extend:

a. below the high point of the Tcold.

b. above the secondary side water level.

c. below the secondary side water level.

d. above the upper tube sheet.

Question No. 40 **QID: 0291**

The SS & CRS are performing Alternate Shutdown, Delayed Control Room Evacuation, followup actions. Followup actions direct that the P7A EFW Flow Control valves (CV-2645 and CV-2647) are to be placed in HAND and throttled full open while throttling closed on the EFW Isolations (CV-2627 & CV-2620), to maintain proper EFW flow.

The reason for this step is:

a. The EFW Isolation valves tend to stick if kept in the full open position.

b. The EFW Control Valves will fail in the closed position if the valves are not locally pinned open. This sets the proper position to pin the valves.

c. This will leave the isolation valves in the proper position when instrument air is removed locally by RO #1.

d. To allow for removal of DC power from the EFW Flow Control valves and to prevent overcooling.

Question No. 41 **QID: 0292**

Reactor trip occurred.
ICCMDS indicates Subcooling Margin is 10°F.

Which of the following actions should be taken?

a. If less than two minutes has elapsed, then trip all RCPs.

b. If more than two minutes has elapsed, then trip all RCPs.

c. If less than two minutes has elapsed, then trip one RCP in each loop.

d. If more than two minutes has elapsed, then trip all but one RCP.

Question No. 42 **QID: 0294**

Why is a minimum water level maintained in the Quench Tank?

a. Ensure adequate NPSH for the transfer pump.

b. Provide sufficient cooling-quench water during pressurizer operations.

c. Maintain a reference water level for level indication.

d. Maintain a loop seal on the relief lines.

Question No. 43 **QID: 0297**

Placing the OPC test switch in the OPC test position will:

a. Block the actuation of the Overspeed Protection Controller.

b. Simulate an electronic overspeed trip signal.

c. Actuate the Overspeed Protection Controller.

d. Block the actuation of the electronic overspeed trip signal.

Question No. 44 **QID: 0298**

Why does service water pressure drop during an inadvertent actuation of ES channel 5 ?

a. The SW valves to the RB Cooler on that channel will open.

b. There are more flow demands on the SW Systems during ES actuation.

c. The SW valves will automatically realign to Emergency Pond suction.

d. The SW Loop One and Loop Two cross ties will close.

Question No. 45 **QID: 0302**

Given:

The reactor tripped due to a small break LOCA.
Pressure has stabilized at 800 psig.
RCS temperature is 500 °F and slowly rising.

Which of the following is appropriate?

a. Start Reactor Coolant Pumps and establish forced flow cooling.

b. Take actions to establish primary to secondary heat transfer cooling.

c. Continue cooling with the existing break flow.

d. Commence High Pressure Injection cooldown.

Question No. 46 **QID: 0303**

Which of the following occurs when HPI is automatically actuated on low RCS pressure?

a. RCP Seal INJ Block Valve CV-1206 receives an open signal.

b. Makeup Tank Outlet Valve automatically closes.

c. Decay Heat Cooler Outlet to HPI pump suction CV-1276 automatically opens.

d. RCS Makeup Block Valve CV-1234 receives a close signal.

Question No. 47 **QID: 0304**

Given:

A degraded power condition is present.
Diesel Generator #1 failed to start.
No other failures are present.

Which component would be automatically actuated to its ES position/status if RCS pressure subsequently dropped below 1590 psig?

a. EFW pump P-7B would restart.

b. Penetration room ventilation fan VEF-38A would start.

c. HPI pump P-36B would start.

d. Letdown coolers outlet CV-1221 would close.

Question No. 48 **QID: 0305**

The following conditions exist:

Unit 1 is operating at 100% power when the Pressurizer Spray Control valve (CV-1008) fails open.
Pressurizer Spray Isolation valve (CV-1009) will NOT close because of high torque on the motor.

Which one of the following methods should be used to override the CV-1009 torque switch to operate the valve in the CLOSED direction?

a. Open RC-4 (Spray Line Minimum Flow Valve) to reduce delta pressure.

b. Close the valve using breaker control switches.

c. HOLD the handswitch in the CLOSED position.

d. Place the handswitch in the OPEN position then the CLOSED position.

Question No. 49 **QID: 0306**

Which of the following conditions would result in the Reactor Protection System initiating a reactor trip designed to protect the fuel clad from DNB?

a. Ejected rod accident during startup

b. Loss of both Main Feedwater Pumps at 100 % power

c. Boron dilution accident while operating at 100% power

d. Reactor Coolant Pump trip at 95% power

Question No. 50 **QID: 0308**

Given:

Plant is at 100% power.
ICS is in full automatic.

Subsequently, annunciator K07-B3 "ASYM ROD RUNBACK IN EFFECT" alarms.
A check of the PI panel shows that Rod 6 in Group 5 has dropped.

Which of the following alarms or indications would you expect to see on the diamond panel?

a. Sequence Inhibit lamp ON

b. Out Inhibit lamp ON

c. Auto Inhibit lamp ON

d. Group 5 Out Limit lamp OFF

Question No. 51 **QID: 0309**

Given:

The plant is operating at 100% power.
Loop "A" T-cold Narrow Range Temperature instrument fails HIGH.

If this instrument was hard selected by the SASS selector switch, what ICS HAND/AUTO stations should be placed in HAND?

a. Reactor Demand and both Feedwater Loop Demands.

b. SG/Rx Master and Reactor Demand.

c. SG/Rx Master and both Feedwater Loop Demands.

d. Both MFW Pumps and Turbine (EHC).

Question No. 52 **QID: 0310**

Why is the screen mesh installed on the reactor building sump suction lines?

a. Prevent damage from post-accident debris to the decay heat and reactor building spray pump seals.

b. Prevent vortex formation and subsequent loss of suction to the decay heat and reactor building spray pumps.

c. Prevent debris after an accident from clogging the level transmitters for the reactor building sump.

d. Prevent post-accident debris from clogging the reactor building spray header nozzles.

Question No. 53 **QID: 0311**

Plant is in cold shutdown.
Reactor Building pressure is 15.7 psia.

What action should be taken to initiate RB purge?

a. The reactor building purge inlets should be opened first.

b. The reactor building purge inlets and outlets should be opened simultaneously.

c. The reactor building purge outlets should be opened first.

d. The reactor building should be vented to the waste gas system.

Question No. 54 **QID: 0312**

The WCO reports the Spent Fuel Pool level is -1.9 ft.

What problem could this level pose for Spent Fuel Pool operations or fuel handling in the SFP?

a. SFP water temperature limits will be exceeded.

b. Boron addition to the SFP is required.

c. Area dose rates will rise.

d. SFP cooling pump will lose suction.

Question No. 55 **QID: 0313**

Given:

RCS pressure is 1800 psig,
RCS temperature is 545 degrees F,
"A" OTSG pressure is 650 psig,
"B" OTSG pressure is 970 psig,
Reactor Building Pressure is 6 psig.

Actions required to stop this transient are found in the:

a. ESAS procedure.

b. Overcooling procedure.

c. Forced Flow Cooldown procedure.

d. Loss of Subcooling Margin procedure.

Question No. 56 **QID: 0314**

Given:

A loss of offsite power
No failures exist other than those which caused the loss of offsite power condition
EDG's supplying vital buses

Ten (10) minutes into this event at what pressure will the OTSG's be controlled?

a. 895 psig

b. 995 psig

c. 1020 psig

d. 1050 psig

Question No. 57 **QID: 0315**

A loss of Condenser vacuum is in progress.
Condenser vacuum is currently 20 in Hg.

How will this affect plant operations?

a. One MFW pump needs to be tripped.

b. ADV's will be controlling SG pressures.

c. Condenser Vacuum Pumps go to Holding mode.

d. Reactor trip and EFW actuation are required.

Question No. 58 **QID: 0316**

Which of the following would explain why a loss of bus A1 will cause CV-1206 (RC Pump Seal Injection Block Valve) to close?

(Assume plant is at 100% power)

a. P36A (HPI) pump was the in-service pump.

b. Loss of instrument air to Seal Injection Control Valve, CV-1207.

c. P36C (HPI) pump was the in-service pump.

d. Loss of instrument air to Pressurizer Level Control valve CV-1235.

Question No. 59 **QID: 0317**

Unit One is at 100% power and experiences a loss of 125V DC Bus D02.

Which of the following D02 loads will cause the reactor to trip?

a. MCC D25

b. Panel RA2

c. Inverter Y22

d. Inverter Y28

Question No. 60 **QID: 0318**

You are on watch in the Control Room when the following annunciators go into alarm:

K12-A1, "FIRE"

K12-A2, "FIRE WATER FLOW"

K12-B2, "FIRE PUMP AUTO START"

Then you notice the running Fire Water Pump trips.

Which of the following actions should you take to ensure the Fire Water System can respond to the event in a timely manner?

a. Verify the Electric Fire Pump P-6A starts.

b. Verify the Diesel Fire Pump P-6B starts.

c. Dispatch an operator to place the Temporary Fire Pump in service.

d. Verify the Jockey Fire Water Pump P-11 starts.

Question No. 61 **QID: 0319**

Given:

100% power
Total RCS leakage is .5 gpm
Seal injection flow to each RCP is 9 gpm
Controlled bleedoff flow from each RCP is 1.5 gpm
Letdown flow is maximum for one demineralizer
Pressurizer level is 220"

Approximately how much flow is being added to the RCS via the makeup line?

a. 70-79 gpm

b. 80-89 gpm

c. 90-99 gpm

d. 100-109 gpm

Question No. 62 **QID: 0320**

A dropped rod event has occurred (one CRA in Group 7) and the following conditions exist:

Reactor power = 30% and decreasing.
Turbine output = 320 MWe and decreasing.
Annunciator (K07-C3) HIGH LOAD LIMIT is in fast flash.
Turbine runback is in progress.

What operator action is required?

a. Allow the runback to terminate normally.

b. Take manual control of the turbine and raise load.

c. Take manual control of SG/RX master.

d. Trip the reactor.

Question No. 63 **QID: 0322**

A reactor coolant pump trip has caused a plant runback.

What ensures ICS maintains power steady (does not return to its previous load demand) when the runback is complete?

a. The Unit Master H/A station input tracks the Rate and Load Limited Megawatt demand signal.

b. The ICS runback demand signal is fed directly into the input of the Unit Master H/A station.

c. The input to the Unit Master H/A station is driven by cross limits to match the runback back demand signal.

d. The ICS runback signal will clear only when the Unit Master H/A station output equals actual generated megawatts.

Question No. 64 **QID: 0323**

A plant power escalation is in progress at 28% power.
The following conditions are observed:

Rapid rise in RCS temperature
Rapid rise in RCS pressure
Rapid rise in PZR level
Rapid rise in Main Steam pressure
Megawatt output = zero (0)

What procedure contains the required mitigating operator actions?

a. 1203.001, "ICS Abnormal Operating"

b. 1203.018, "Turbine Trip below 43% Power"

c. 1203.020, "Load Rejection"

d. 1202.001, "Reactor Trip"

Question No. 65 **QID: 0324**

Given:

Reactor tripped on low pressure.
RCS Tave 545 °F and stable
Pressurizer level off-scale high
RCS pressure 1850 psig and rising rapidly
RB sump level 55% and rising

During this transient, which of the following methods will be used to limit the RCS pressure rise, in accordance with RT-14?

a. Cycle ERV as required

b. Secure steaming OTSGs

c. Raise makeup flow

d. Lower letdown flow

Question No. 66 **QID: 0325**

Following a reactor trip, what pressurizer level value (dropping) requires initiation of HPI per RT-2?

a. 110 inches

b. 90 inches

c. 55 inches

d. 30 inches

Question No. 67 **QID: 0326**

Reactor Coolant Pump (P32A) has a 2.6 gallon seal bleedoff flow.

What will happen to seal bleedoff temperature if seal injection is subsequently lost?

a. Rise due to loss of flow to the seal cooler.

b. Rise due to bleedoff in excess of seal cooler capacity.

c. Remain the same due to seal bleedoff cooling flow.

d. Remain the same due to seal recirc flow impeller circulation.

Question No. 68 **QID: 0327**

The RCS pressure setpoints at which the Decay Heat suction isolation valves close are _____ for CV-1050 and _____ for CV-1410.

a. 290 psig, 320 psig

b. 340 psig, 400 psig

c. 320 psig, 385 psig

d. 340 psig, 385 psig

Question No. 69 **QID: 0328**

You are the CBOR and you observe the following indications:

"A" and "B" Main Feedwater Pumps are tripped
CRD groups 1, 2, 3, and 4 are at the out limit.
CRD groups 5, 6, and 7 are at the in limit.
NI-3 indicates 1 E-8 and lowering.

What action should be performed FIRST?

a. Depress the CRD Power Supply Breaker Trip Pushbuttons.

b. Dispatch an operator to open the CRD AC Power Supply Breakers.

c. Commence Emergency Boration per RT-12.

d. Manually insert CRD groups 1, 2, 3, and 4.

Question No. 70 **QID: 0329**

Given:

Plant startup in progress
NI501 at 9 x E4 cps
NI502 at 1 x E5 cps
NR502 is operable and at 5 x E-2% power
NI3 at 2 x E-11 amps
NI4 at 5 x E-11 amps
NI5 thru 8 at 0%

What action should be taken by control room operators?

a. Maintain flux level in the source range

b. Trip the reactor

c. Continue with startup

d. Stabilize power at 1 x E-8 amps

Question No. 71 **QID: 0331**

Following a controlled plant shutdown per 1202.006, Tube Rupture, the following conditions exist:

RCS temperature is 460 °F
RCS pressure is 900 psig
Both OTSGs have ruptured tubes
Both OTSGs have been isolated.
BWST level drops below 23'

Which Emergency Operating Procedure should the CRS transition to?

a. Loss of Subcooling Margin

b. ESAS

c. HPI Cooldown

d. Stay in Tube Rupture

Question No. 72 **QID: 0332**

What EOP action is designed to reduce the rate of leakage into a ruptured OTSG?

a. Controlling reactor coolant system pressure low within the limits of Figure 3.

b. Concurrently performing 1203.014, Control of Secondary System Contamination.

c. Isolation of the OTSG with the ruptured tube.

d. Cooling down the reactor coolant system to less than 500 °F.

Question No. 73 **QID: 0334**

Prior to any automatic or operator actions, which set of parameters would indicate a Main Feedwater Line Break inside of the reactor building?

a. OTSG level dropping
Feedwater flow dropping
RB pressure rising

b. OTSG level rising
Feedwater flow dropping
RB pressure rising

c. OTSG level rising
Feedwater flow rising
RB pressure dropping

d. OTSG level dropping
Feedwater flow rising
RB pressure rising

Question No. 74 **QID: 0335**

Given:

Loss of all Feedwater
HPI core cooling started

What indicates adequate HPI core cooling?

a. CET temperatures stable after 100 minutes.

b. T-cold tracking associated SG T-sat.

c. T-hot tracking CET temperatures.

d. T-hot/T-cold differential temperature dropping.

Question No. 75 **QID: 0336**

Given:

Turbine Lockout Relay DC Failure Alarm (K04-B5),
D01 Undervoltage (K01-A7),
D01 Trouble (K01-D7),
Loss of Breaker Position Indicator Lights for Plant Buses on left side of C10.

Which action should be performed?

a. Start both Diesel Generators from C-10.

b. Trip the Generator Output Breakers.

c. Transfer D11 to its Emergency Power Supply.

d. Line up Battery Charger D03A or D03B to the D01 Bus.

Question No. 76 **QID: 0337**

ESAS has actuated. LPI/HPI flows for the past ten minutes have been as follows:

"A" LPI flow--2900 gpm
"B" LPI flow--2850 gpm
"A" HPI pump flow throttled to 100 gpm through CV-1220
"C" HPI pump flow throttled to 100 gpm through CV-1285

An overcurrent has resulted in an A-3 bus lockout and A-1 to A-3 tie breaker A-309 trip. The operator should:

a. restore full HPI flow on "C" HPI pump.

b. close A-308 to power A-3 from #1 EDG.

c. energize bus B-5 from bus B-6

d. start P-36B to supply 100 gpm train through CV-1220.

Question No. 77 **QID: 0338**

All DC power has been lost.
"A" Emergency Diesel Generator (EDG) has been manually started.
"A" EDG voltage is low outside of the normal band due to starting additional loads.

Which one of the following operator actions are required to adjust EDG voltage?

a. Select OFF on the auto/manual control and voltage will follow load changes proportionally.

b. Select AUTO on the auto/manual control and adjust the MANUAL voltage adjust rheostat.

c. Select MANUAL on the auto/manual control and voltage will follow load changes proportionally.

d. Select MANUAL on the auto/manual control and adjust the MANUAL voltage adjust rheostat.

Question No. 78 **QID: 0339**

Inverters are aligned with Y-25 supplying RS-4 and Y-22 supplying RS-2.
Shifting the manual output transfer switch (S-2) on the Y-25 inverter to the "System Output To Y-22" position would:

a. power RS-2 from Y-25.

b. de-energize RS-4.

c. parallel RS-2 and RS-4.

d. damage the Y-25 inverter.

Question No. 79 **QID: 0340**

What action is required upon receipt of Liquid Radwaste Process Monitor (RI-4642) high alarm?

a. Start another circ water pump to increase dilution flow.

b. Verify no release in progress at Discharge Flow to Flume.

c. The WCO must be contacted to manually stop the release.

d. Have chemistry sample discharge flume for radionuclides.

Question No. 80 **QID: 0341**

The Corridor #98 smoke detector string must be de-energized to prevent inadvertent actuations while painting in the area.

Which of the following statements accurately assesses the operability of this area's fire SUPPRESSION system?

a. Operable, greater than or equal to 50% of the detectors are operable.

b. Inoperable, less than 50% of the detectors are operable.

c. Operable, as long as the sprinkler valve is placed in a tripped condition.

d. Inoperable, sprinkler valve will not actuate automatically.

Question No. 81 **QID: 0342**

Given:

Reactor at 60% power.

Failed fuel ratio, as indicated by the WCO logs, has dropped by 40%.

Identify the value Reactor power should be reduced to.

a. 50% power

b. 40% power

c. 30% power

d. 20% power

Question No. 82 **QID: 0343**

While performing the follow-up actions of 1202.001, Reactor Trip, the CBOR reports K07-A4 "ICS/AUX SYS POWER SUPPLY TROUBLE", is in alarm, and ICS power supply lights on C-13 are NOT lit.

Which of the following actions would be taken to control feedwater flow to the OTSGs?

a. Place both Main Feedwater pump H/A stations in HAND and manually control feedwater flows.

b. Start Aux Feedwater Pump, P-75, and manually control feedwater flow through the Startup Valves.

c. Actuate EFW, verify proper actuation and control per RT-5, and trip both Main Feedwater pumps.

d. Verify that Rapid Feedwater Reduction reduces feedwater flow to establish proper OTSG levels.

Question No. 83 **QID: 0344**

In which of the following sets of post reactor trip responses is the pressurizer spray valve leaking?

a. RCS temperature is going down, RCS pressure is going down, and pressurizer level is going down.

b. RCS temperature is going up, RCS pressure is going up, and pressurizer level is going up.

c. RCS temperature is stable, RCS pressure is going down, and pressurizer level is going down.

d. RCS temperature is stable, RCS pressure is going down, and pressurizer level is stable.

Question No. 84 **QID: 0345**

Given:

"A OTSG N-16 Trouble" is in alarm.
Letdown flow is 70 gpm.
Makeup flow is 90 gpm.
Seal injection flow is 32 gpm.
Seal Bleedoff Flow is 1.5 gpm per RCP
Pressurizer level is constant.

What is the approximate primary to secondary leak rate?

a. ~6 gpm

b. ~12 gpm

c. ~46 gpm

d. ~52 gpm

Question No. 85 **QID: 0346**

What is the lowest instrument air pressure that Unit 1 and Unit 2 instrument air systems can remain crossconnected?

a. 80 psig

b. 60 psig

c. 55 psig

d. 35 psig

Question No. 86 **QID: 0347**

The main fuel bridge has a spent fuel assembly in route to the RB upender when a seal plate NI cover failure occurs.
Water level in the canal is falling at two inches per minute.

The main fuel bridge operator should:

a. Continue to the upender and insert the assembly for transport to the SFP.

b. Leave the fuel assembly in the mast and evacuate the area.

c. Place the assembly in the fuel rack in the deep end of the canal.

d. Return the assembly to any available location in the reactor vessel.

Question No. 87 **QID: 0348**

A LOCA has occurred with ES actuation of channels 1 through 4. The "ES" HPI pump has failed. Flow from the "OP" HPI pump is as follows:

300 gpm to "A" HPI line.
65 gpm to "B" HPI line.
85 gpm to "C" HPI line.
95 gpm to "D" HPI line.

RCS pressure is 950 psig. All valves are in ES actuated position.

What operator action is required?

a. No action is required.

b. Close the isolation for the line with the highest flow.

c. Throttle the "A" HPI valve until "A" line flow is within 20 gpm of "B" line flow.

d. Throttle the "A" HPI valve until "A" line flow is within 20 gpm of "D" line flow.

Question No. 88 **QID: 0349**

Diesel Generator #1 is running for a surveillance test.
Low reactor coolant system pressure causes a reactor trip and ESAS actuation.

What will the ES Electrical response be?

a. A-3 and A-4 powered from SU #1, both diesel generators running unloaded.

b. A-3 and A-4 powered from SU #1, Diesel Generator # 1 tripped, Diesel Generator # 2 running unloaded.

c. A-3 powered from Diesel Generator #1, A-4 powered from SU #1, Diesel Generator # 2 running unloaded.

d. A-3 powered from Diesel Generator #1, and A-4 powered from Diesel Generator #2.

Question No. 89 **QID: 0350**

Given:

Plant heatup is in progress.
Reactor Coolant System temperature is 445 °F.
Reactor Coolant System pressure is 1550 psig.

ESAS Analog 2 RC pressure transmitter fails LOW.

With no operator action, what effect will this failure have when the plant reaches hot shutdown conditions?

a. Wide range pressure indicator, PI-1040, on C03 is NOT available.

b. Automatic operation of the ERV is NOT available.

c. ESAS is in a 2 of 2 coincidence logic.

d. ESAS is in a 1 of 2 coincidence logic.

Question No. 90 **QID: 0351**

The plant is operating at 75% power.

With no operator action, what effect will a trip of the "A" Reactor Coolant Pump have on the reactor coolant system?

a. "A" loop differential temperature stays constant
"B" loop differential temperature goes up

b. "A" loop differential temperature goes up
"B" loop differential temperature stays constant

c. "A" loop differential temperature stays constant
"B" loop differential temperature stays constant

d. "A" loop differential temperature goes up
"B" loop differential temperature goes up

Question No. 91 **QID: 0352**

With the plant at ~15% power, an uncontrolled rod withdrawal begins.

If no operator action is taken, the MOST LIKELY RPS trip to actuate FIRST will be:

a. High Pressure.

b. High Temperature

c. High Power.

d. Flux/Flow/Imbalance.

Question No. 92 **QID: 0353**

In the event of a double-ended break of the RCS cold leg pipe, the minimum equipment required to limit peak cladding temperature to less than 2200 °F is:

a. Two high pressure injection pumps, two low pressure injection pumps, and both core flood tanks.

b. Two high pressure injection pumps, one low pressure injection pump, and both core flood tanks.

c. One high pressure injection pump, two low pressure injection pumps, and both core flood tanks.

d. One high pressure injection pump, one low pressure injection pump, and both core flood tanks.

Question No. 93 **QID: 0354**

After insertion of a fuel assembly into the core, when will the SRO in Charge of Fuel Handling give the Bridge Operator permission to disengage from the fuel assembly?

a. after stable neutron flux readings have been observed

b. after the Reactor Engineer has verified the Low load limit setpoint

c. after the Reactor Engineer has verified trolley and bridge location

d. after radiation levels on the bridge have been observed

Question No. 94 **QID: 0355**

A procedure change must go through the standard review process instead of interim approval if:

a. The procedure change affects both units.

b. A 50.59 reviewer determines a 50.59 evaluation is required.

c. The procedure change is for a system addressed in the SAR.

d. The procedure being changed is safety related.

Question No. 95 **QID: 0356**

Which of the following is NOT a requirement for a RB Purge Release?

a. Reactor in cold shutdown.

b. SPING 2 operable.

c. No other gaseous releases in progress.

d. RB purge filter unit integrity established.

Question No. 96 **QID: 0357**

During a declared Alert emergency, the TSC Director may NOT assume responsibility for Emergency Direction and Control until:

a. the next shift's Shift Superintendent arrives for shift relief and receives a turnover.

b. the Operations Manager arrives in the Control Room and passes on responsibility for EDC.

c. the TSC Director receives a turnover from the S/S and assumes responsibility for EDC.

d. the emergency is terminated by mutual agreement of the appropriate on and off site agencies.

Question No. 97 **QID: 0358**

If an emergency has been declared and you have Emergency Direction and Control, which responsibilities listed below can NOT be delegated?

1. Initial Accountability of on-site personnel
2. The decision to notify offsite authorities
3. Dispatching Emergency Response Teams
4. Recommending protective actions to the Arkansas Department of Health.

a. 1, 2 and 3 are correct.

b. 1, 2, and 4 are correct.

c. 2 and 4 are correct.

d. 1 and 3 are correct.

Question No. 98 **QID: 0359**

Which of the following event would require a PAR to be issued with the notification of the event?

a. Loss of ALL Vital DC buses

b. OTSG Tube Rupture >50 gpm with stuck MSSV

c. Station Blackout

d. CETs indicate superheat conditions within Region 4

Question No. 99 **QID: 0361**

During a Small Break LOCA cooldown, with the RCS in a solid condition, what would be the expected change in RCS pressure for a 2 °F change in RCS temperature?

a. 100 psig

b. 200 psig

c. 300 psig

d. 400 psig

Question No. 100 **QID: 0362**

When is the Aux. Building Equipment Hatch on 404' NOT allowed to be opened?

a. Nuclear Engineers are moving Irradiated Fuel in the SF area.

b. The spent fuel Crane is being used to move a pump in the SF area.

c. Operators are moving new fuel in the new fuel storage pit.

d. Spent Fuel pool level is being raised.

ANO Unit 1 - 1999 Senior Reactor Operator License Exam Key *11/30/99*

Question No. 1 **QID: 0058** **Point Value: 1**

Answer:

b. The Intermediate Range channels are overcompensated.

Question No. 2 **QID: 0158** **Point Value: 1**

Answer:

c. 6 days

Question No. 3 **QID: 0204** **Point Value: 1**

Answer:

d. EDG 2 is inoperable because EDG 2 Fuel Oil Transfer Pump P-16B is inoperable.

Question No. 4 **QID: 0217** **Point Value: 1**

Answer:

b. 6 feet

Question No. 5 **QID: 0240** **Point Value: 1**

Answer:

a. Core Exit Thermocouple TE-1152 will be removed from the average.

Question No. 6 **QID: 0241** **Point Value: 1**

Answer:

a. Service Water Loop 1 and Discharge Flume process radiation monitors alarm.

Question No. 7 **QID: 0243** **Point Value: 1**

Answer:

c. Planned dose shall not exceed 10 Rem TEDE.

Question No. 8 **QID: 0244** **Point Value: 1**

Answer:

d. System engineer closes a valve while troubleshooting a water hammer concern.

Question No. 9 **QID: 0245** **Point Value: 1**

Answer:

d. The valve must be stroked electrically.

Question No. 10 **QID: 0246** **Point Value: 1**

Answer:

c. Check against the number on the brass tag on the key ring.

Question No. 11 **QID: 0247** **Point Value: 1**

Answer:

d. Control Board Operator or Shift Superintendent.

Question No. 12 **QID: 0248** **Point Value: 1**

Answer:

a. Lockout relay trip deenergizes A-2.

Question No. 13 **QID: 0249** **Point Value: 1**

Answer:

c. 40 Rem/year to the skin

Question No. 14 **QID: 0252** **Point Value: 1**

Answer:

b. Reactor coolant temperature goes below 525 °F.

Question No. 15 **QID: 0253** **Point Value: 0**

Answer:

d. The main feedwater block valves close immediately in fast speed.

Question No. 16 **QID: 0254** **Point Value: 1**

Answer:

b. EFW Pump P-7A trip/throttle valve does not indicate full open.

Question No. 17 **QID: 0255** **Point Value: 1**

Answer:

c. RPS will trip the plant and start Emergency Feedwater on loss of both Main Feedwater Pumps.

Question No. 18 **QID: 0256** **Point Value: 1**

Answer:

b. Maintains adequate service water flow to the Reactor Building Coolers when ES actuates.

Question No. 19 **QID: 0257** **Point Value: 1**

Answer:

c. Inverter Y-11 failed resulting in a loss of power.

Question No. 20 **QID: 0259** **Point Value: 1**

Answer:

c. Prevents degrading T36A/B resin by shutting CV-1221 (letdown isolation).

Question No. 21 **QID: 0260** **Point Value: 1**

Answer:

b. Instrument air line to the Lower North Piping Room ruptures.

Question No. 22 **QID: 0261** **Point Value: 1**

Answer:

d. Condensate pump P-2B will remain off since Main Feedwater Pump P-1B is not latched.

Question No. 23 **QID: 0262** **Point Value: 1**

Answer:

d. Rods go full out, Tave goes down, power stays the same.

Question No. 24 **QID: 0263** **Point Value: 1**

Answer:

b. Group 6 at 56 %

Question No. 25 **QID: 0267** **Point Value: 1**

Answer:

c. "B" Reactor Coolant Pump seal cooler leak.

Question No. 26 **QID: 0271** **Point Value: 1**

Answer:

b. A Waste Control Operator must independently verify release path alignment prior to release.

Question No. 27 **QID: 0272** **Point Value: 1**

Answer:

b. 2 and 3

Question No. 28 **QID: 0273** **Point Value: 1**

Answer:

c. Normal ventilation ducts are isolated automatically.

Question No. 29 **QID: 0278** **Point Value: 1**

Answer:

c. Pressurizer spray isolation valve, CV-1009, is failed open.

Question No. 30 **QID: 0279** **Point Value: 1**

Answer:

a. Verify 1202.008, Att. 1, "Blackout Breaker Alignment UV Defeat", complete then close feeder breakers from startup transformer #1.

Question No. 31 **QID: 0280** **Point Value: 1**

Answer:

a. Reactor Coolant Pump P-32C trip.

Question No. 32 **QID: 0281** **Point Value: 1**

Answer:

d. P-4A and P-4C

Question No. 25 **QID: 0267** **Point Value: 1**

Answer:

c. "B" Reactor Coolant Pump seal cooler leak.

Question No. 26 **QID: 0271** **Point Value: 1**

Answer:

b. A Waste Control Operator must independently verify release path alignment prior to release.

Question No. 27 **QID: 0272** **Point Value: 1**

Answer:

b. 2 and 3

Question No. 28 **QID: 0273** **Point Value: 1**

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Answer:

a. Verify 1202.008, Att. 1, "Blackout Breaker Alignment UV Defeat", complete then close feeder breakers from startup transformer #1.

Question No. 31 **QID: 0280** **Point Value: 1**

Answer:

a. Reactor Coolant Pump P-32C trip.

Question No. 32 **QID: 0281** **Point Value: 1**

Answer:

d. P-4A and P-4C

Question No. 33 **QID: 0282** **Point Value: 1**

Answer:

a. P-33B and P-33C started
P-33A to P-33B suction and discharge crosstie valves open
P-33B to P-33C suction and discharge crosstie valves closed

Question No. 34 **QID: 0283** **Point Value: 1**

Answer:

a. Declare Group 7 INOPERABLE and borate the plant to Hot Shutdown.

Question No. 35 **QID: 0285** **Point Value: 1**

Answer:

b. Quickly reduce the lowest SG pressure to 700 psig or the MSSV open alarm is clear.

Question No. 36 **QID: 0286** **Point Value: 1**

Answer:

c. 540 °F

Question No. 37 **QID: 0287** **Point Value: 1**

Answer:

a. Prevent Main Turbine blade damage due to excessive heating.

Question No. 38 **QID: 0288** **Point Value: 1**

Answer:

a. Pressurizer automatic heater control is inoperable.

Question No. 39 **QID: 0289** **Point Value: 1**

Answer:

c. below the secondary side water level.

Question No. 40 **QID: 0291** **Point Value: 1**

Answer:

d. To allow for removal of DC power from the EFW flow control valves and to prevent overcooling.

Question No. 41 **QID: 0292** **Point Value: 1**

Answer:
a. If less than two minutes has elapsed, then trip all RCPs.

Question No. 42 **QID: 0294** **Point Value: 1**

Answer:
b. Provide sufficient cooling-quench water during pressurizer operations.

Question No. 43 **QID: 0297** **Point Value: 1**

Answer:
c. Actuate the Overspeed Protection Controller.

Question No. 44 **QID: 0298** **Point Value: 1**

Answer:
a. The SW valves to the RB Cooler on that channel will open.

Question No. 45 **QID: 0302** **Point Value: 1**

Answer:
b. Take actions to establish primary to secondary heat transfer cooling.

Question No. 46 **QID: 0303** **Point Value: 1**

Answer:
d. RCS Makeup Block Valve CV-1234 receives a close signal.

Question No. 47 **QID: 0304** **Point Value: 1**

Answer:
d. Letdown coolers outlet CV-1221 would close.

Question No. 48 **QID: 0305** **Point Value: 1**

Answer:
c. HOLD the handswitch in the CLOSED position.

Question No. 49 **QID: 0306** **Point Value: 1**

Answer:

d. Reactor Coolant Pump trip at 95% power.

Question No. 50 **QID: 0308** **Point Value: 1**

Answer:

b. Out Inhibit lamp ON

Question No. 51 **QID: 0309** **Point Value: 1**

Answer:

a. Reactor Demand and both Feedwater Loop Demands.

Question No. 52 **QID: 0310** **Point Value: 1**

Answer:

d. Prevent post-accident debris from clogging the reactor building spray header nozzles.

Question No. 53 **QID: 0311** **Point Value: 1**

Answer:

c. The reactor building purge outlets should be opened first.

Question No. 54 **QID: 0312** **Point Value: 1**

Answer:

c. Area dose rates will rise.

Question No. 55 **QID: 0313** **Point Value: 1**

Answer:

b. Overcooling procedure.

Question No. 56 **QID: 0314** **Point Value: 1**

Answer:

c. 1020 psig

Question No. 57 **QID: 0315** **Point Value: 1**

Answer:
b. ADV's will be controlling SG pressures.

Question No. 58 **QID: 0316** **Point Value: 1**

Answer:
a. P36A (HPI) pump was the in-service pump.

Question No. 59 **QID: 0317** **Point Value: 1**

Answer:
b. Panel RA2

Question No. 60 **QID: 0318** **Point Value: 1**

Answer:
b. Verify the Diesel Fire Pump P-6B starts.

Question No. 61 **QID: 0319** **Point Value: 1**

Answer:
c. 90-99 gpm

Question No. 62 **QID: 0320** **Point Value: 1**

Answer:
c. Take manual control of SG/RX master.

Question No. 63 **QID: 0322** **Point Value: 1**

Answer:
a. The Unit Master H/A station input tracks the Rate and Load Limited Megawatt demand signal.

Question No. 64 **QID: 0323** **Point Value: 1**

Answer:
b. 1203.018, "Turbine Trip below 43% Power"

Question No. 65 **QID: 0324** **Point Value: 1**

Answer:
a. Cycle ERV as required

Question No. 66 **QID: 0325** **Point Value: 1**

Answer:
d. 30 inches

Question No. 67 **QID: 0326** **Point Value: 1**

Answer:
b. Increase due to bleedoff in excess of seal cooler capacity.

Question No. 68 **QID: 0327** **Point Value: 1**

Answer:
c. 320 psig, 385 psig

Question No. 69 **QID: 0328** **Point Value: 1**

Answer:
a. Depress the CRD Power Supply Breaker Trip Pushbuttons.

Question No. 70 **QID: 0329** **Point Value: 1**

Answer:
a. Maintain flux level in the source range

Question No. 71 **QID: 0331** **Point Value: 1**

Answer:
c. HPI Cooldown

Question No. 72 **QID: 0332** **Point Value: 1**

Answer:
a. Controlling reactor coolant system pressure low within the limits of Figure 3.

Question No. 73 **QID: 0334** **Point Value: 1**

Answer:

d. OTSG level dropping
Feedwater flow rising
RB pressure rising

Question No. 74 **QID: 0335** **Point Value: 1**

Answer:

a. CET temperatures stable after 100 minutes.

Question No. 75 **QID: 0336** **Point Value: 1**

Answer:

c. Transfer D11 to its Emergency Power Supply.

Question No. 76 **QID: 0337** **Point Value: 1**

Answer:

a. restore full HPI flow on "C" HPI pump.

Question No. 77 **QID: 0338** **Point Value: 1**

Answer:

d. Select MANUAL on the auto/manual control and adjust the MANUAL voltage adjust rheostat.

Question No. 78 **QID: 0339** **Point Value: 1**

Answer:

b. de-energize RS-4.

Question No. 79 **QID: 0340** **Point Value: 1**

Answer:

b. Verify no release in progress at Discharge Flow to Flume.

Question No. 80 **QID: 0341** **Point Value: 1**

Answer:

d. Inoperable, sprinkler valve will not actuate automatically.

Question No. 81 **QID: 0342** **Point Value: 1**

Answer:

c. 30% power

Question No. 82 **QID: 0343** **Point Value: 1**

Answer:

c. Actuate EFW, verify proper actuation and control per RT-5, and trip both Main Feedwater pumps.

Question No. 83 **QID: 0344** **Point Value: 1**

Answer:

d. RCS temperature is stable, RCS pressure is going down, and pressurizer level is stable.

Question No. 84 **QID: 0345** **Point Value: 1**

Answer:

c. ~46 gpm

Question No. 85 **QID: 0346** **Point Value: 1**

Answer:

b. 60 psig

Question No. 86 **QID: 0347** **Point Value: 1**

Answer:

d. Return the assembly to any available location in the reactor vessel.

Question No. 87 **QID: 0348** **Point Value: 1**

Answer:

d. Throttle the "A" HPI valve unitl "A" line flow is within 20 gpm of "D" line flow.

Question No. 88 **QID: 0349** **Point Value: 1**

Answer:

a. A-3 and A-4 powered from SU #1, both diesel generators running unloaded.

Question No. 89 **QID: 0350** **Point Value: 1**

Answer:

c. ESAS is in a 2 of 2 coincidence logic.

Question No. 90 **QID: 0351** **Point Value: 1**

Answer:

d. "A" loop differential temperature goes up
"B" loop differential temperature goes up

Question No. 91 **QID: 0352** **Point Value: 1**

Answer:

a. High Pressure

Question No. 92 **QID: 0353** **Point Value: 1**

Answer:

d. One high pressure injection pump, one low pressure injection pump, and both core flood tanks.

Question No. 93 **QID: 0354** **Point Value: 1**

Answer:

a. after stable neutron flux readings have been observed

Question No. 94 **QID: 0355** **Point Value: 1**

Answer:

b. The 50.59 review indicates an evaluation is required.

Question No. 95 **QID: 0356** **Point Value: 1**

Answer:

b. SPING 2 operable.

Question No. 96 **QID: 0357** **Point Value: 1**

Answer:

c. the TSC Director receives a turnover from the S/S and assumes responsibility for EDC.

Question No. 97 **QID: 0358** **Point Value: 1**

Answer:
c. 2 and 4 are correct.

Question No. 98 **QID: 0359** **Point Value: 1**

Answer:
d. CETs indicate superheat conditions within Region 4

Question No. 99 **QID: 0361** **Point Value: 1**

Answer:
b. 200 psig

Question No. 100 **QID: 0362** **Point Value: 1**

Answer:
a. Nuclear Engineers are moving Irradiated Fuel in the SF area.

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 5 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-DHR03

SYSTEM/DUTY AREA: DECAY HEAT REMOVAL

TASK: ESTABLISH DECAY HEAT REMOVAL USING P-34A.

JTA#: 10055230101

KA VALUE RO: 3.6 SRO: 3.4 KA REFERENCE: 005 A4.01

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 15 MINUTES

REFERENCE(S): 1104.004 REV. 65-04-0

_____

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-DHR03

INITIAL CONDITIONS:

Plant shutdown and cooldown per 1102.010 is complete to step 14.5. Decay heat removal with P34A is to be established per 1104.004. The initial conditions have been completed and the Decay Heat Removal System is filled and vented. Breakers B-5255/B-6255/B-5651 are closed.

INITIATING CUE:

The SS/CRS directs that P34A be placed in service with DHR flow at 2800 gpm.

TUOI NUMBER: ANO-1-JPM-RO-DHR03

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant shutdown and cooldown per 1102.010 is complete to step 14.5. Decay heat removal with P34A is to be established per 1104.004. The initial conditions have been completed and the Decay Heat Removal System is filled and vented. Breakers B-5255/B-6255/B-5651 are closed.

TASK STANDARD: P-34A decay heat pump started and then secured due to SW cooling supply valve CV-3840 failure to open. ***This is an Alternate Success Path JPM.***

TASK PERFORMANCE AIDS: 1104.004, section 7.2

SIMULATOR SETUP:

Before the JPM begins: insert component malfunction SV3840_a;0 to prevent CV-3840 (LPI/Decay Heat Pump Brg CLR E-50A Inlet) from opening.

When pump is started fail pump bearing temperature to 200°F in one minute using override AO TR6500P_T. Bring in to alarm annunciator K09-E8 (DH Pump/MTR Temp Hi) within one minute.

TUOI NUMBER: ANO-1-JPM-RO-DHR03

INITIATING CUE:

The SS/CRS directs that P34A be placed in service with DHR flow at 2800 gpm.

INSTRUCTOR NOTE: Ensure B-5255, B-6255, and B-5651 are closed.

CRITICAL ELEMENTS (C): 1, 2, 5, 7, 9, 10, 11, 12, 13, 17

C	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
C	1. Close Decay Heat P-34A Suction from BWST (CV-1436). POSITIVE CUE: CV-1436 red light off, green light on.	Closed CV-1436.	____	____	____
C	2. Open Decay Heat P-34A Suction form RCS (CV-1434). POSITIVE CUE: CV-1434 red light on, green light off.	Opened CV-1434.	____	____	____
	3. Open E-35A and E-35B Sample Valves (SS-41A and SS-41B. POSITIVE CUE: WCO reports that SS-41A and SS-41B are open.	Directed the WCO to open SS-41A and SS-41B.	____	____	____
NOTE:	INFORM EXAMINEE THAT STROKE TESTING OF CV-1410 AND CV-1050 IS NOT REQUIRED.				
	4. Verify breaker B-6255 closed AND white Open Permit light ON at CV-1410 handswitch on C16. POSITIVE CUE: B-6255 is closed and open permit light is on.	Verified breaker closed and white open permit light on.	____	____	____
C	5. Open CV-1410. POSITIVE CUE: CV-1410 red light on, green light off.	Opened DH suction valve CV-1410.	____	____	____
	6. Verify breaker B-5255 closed AND white Open Permit light ON at CV-1050 handswitch on C18. POSITIVE CUE: B-5255 is closed and open permit light is on.	Verified breaker closed and white open permit light on.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-DHR03

C	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
C	7. Open DH Suction Valve CV-1050 POSITIVE CUE: CV-1050 red light on, green light off.	Opened DH suction valve CV-1050.	___	___	___
	8. Verify CV-1404 power supply breaker B-5651 closed. POSITIVE CUE: CV-1404 green light on, and red light off.	Verified CV-1404 power supply breaker B-5651 closed.	___	___	___
C	9. Open DH Suction RB Isolation CV-1404. POSITIVE CUE: CV-1404 red light on, green light off.	Opened CV-1404.	___	___	___
C	10. Close decay heat cooler E-35A outlet valve CV-1428. POSITIVE CUE: CV-1428 closed.	Closed CV-1428.	___	___	___
C	11. Position E-35A Cooler Bypass (CV-1433) to ~ 50% as indicated on HIC-1433. POSITIVE CUE: CV-1433 ~ 50% open.	Positioned CV-1433 to ~ 50% open.	___	___	___
C	12. Open CV-1401 POSITIVE CUE: CV-1401 red light on, green light off.	Opened CV-1401.	___	___	___

NOTE TO IA OPERATOR: insert component malfunction SV3840_a;0 to prevent CV-3840 (LPI/Decay Heat Pump Brg CLR E-50A Inlet) from opening.

When pump is started fail pump bearing temperature to 200°F in one minute using override AO TR6500P_T. Bring in to alarm annunciator K09-E8 (DH Pump/MTR Temp Hi) within one minute.

C	13. Start P-34A. POSITIVE CUE: P34A started, red light ON. NEGATIVE CUE: P34A did not start, green light ON and no flow indicated.	Started P-34A.	___	___	___

"UOI NUMBER: ANO-1-JPM-RO-DHR03

C	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	14. Verify LPI/Decay Heat Pump Brg CLR E-50A Inlet (CV-3840) and Decay HT CLR Service Water E-35A Inlet (CV-3822) open. POSITIVE CUE: CV-3822 red light is on, green light off. NEGATIVE CUE: CV-3840 green light ON, red light OFF.	On C-18, verified CV-3840 and CV-3822 open. Identified that CV-3840 did NOT open.	____	____	____
	15. Attempt to open CV-3840 locally. POSITIVE CUE: WCO has been dispatched to manually open CV-3840.	Ordered Waste Control Operator to open CV-3840 locally.	____	____	____
	16. Monitor P-34A bearing temperatures. Faulted Cue: P-34A bearing temperature is 190°F.	Monitored P-34A temperature at recorder TR6500 on C13 or on the plant computer.	____	____	____
(C)	17. Stop P-34A. POSITIVE CUE: Green light ON, red light OFF for P-34A. NEGATIVE CUE: P-34A bearing temperatures at 199°F and rising.	Stopped P-34A by taking HS-1417 on C18 to the stop position.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 3 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EOP09

SYSTEM/DUTY AREA: EMERGENCY AND ABNORMAL OPERATION

TASK: ENERGIZE BUS A2 FROM BUS A4 IN A DEGRADED POWER CONDITION.

JTA#: 13035030601

KA VALUE RO: 3.7 SRO: 3.8 KA REFERENCE: 056 AA2.37

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1202.007 REV. 05-01-0

EXAMINEE'S NAME: _____ SSN ___-___-____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP09

JPM INITIAL TASK CONDITIONS:

Off-site power is NOT available. 1202.007, Attachment 1 has been completed. The AAC Generator is off. Degraded power procedure complete to step 98. Both Emergency Diesel Generators are operating properly.

INITIATING CUE:

The SS/CRS directs you to energize A2 from A4.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP09

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Off-site power is NOT available. 1202.007, Attachment 1 has been completed. The AAC Generator is off. Degraded power procedure complete to step 98. Both Emergency Diesel Generators are operating properly.

TASK STANDARD: Trip breaker A-409 after determining excessive loading on EDG2.

This is an Alternate Success Path JPM.

TASK PERFORMANCE AIDS: 1202.007 Step 98

SIMULATOR SETUP: Degraded power condition with both EDGs in operation, the crew would have completed steps 1-20, 74, 97, 98, 99 → open B-112 and close B-142, place Bank 4 PZR heaters in OFF, then go to step 101 where this JPM is to start at.

NOTE TO EXAMINER: To perform this JPM and expect the correct results, it must be assumed that Attachment 1 has been completed; however, do NOT perform any of the actions of Attachment 1 in order for an overload condition to occur when breaker A-409 is closed.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP09

INITIATING CUE:

The SS/CRS directs you to energize A2 from A4.

NOTE: THIS IS AN ALTERNATE SUCCESS PATH JPM THAT INCLUDES A FAULT WHICH WILL CAUSE DG2 TO BE LOADED >2750 KW.

CRITICAL ELEMENTS (C): 1, 2, 4

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	1. Turn SYNC switch ON for breaker A-409 on panel C10. POSITIVE CUE: SYNC switch for A-409 is ON.	On panel C10, A-409 breaker SYNC switch placed in the ON position.	____	____	____
(C)	2. On panel C10, close breaker A-409. POSITIVE CUE: red status light above breaker handswitch is ON. NEGATIVE CUE: green status light above breaker handswitch is ON.	Closed breaker A-409.	____	____	____
	3. Check loading on DG2 ≤2750 KW on panel C10. FAULTED CUE: DG2 load is at 3100 KW.	On panel C10, overload (any load >2750 KW) identified on DG2 KW meter.	____	____	____
(C)	4. Trip breaker A-409. POSITIVE CUE: A-409 is tripped.	Tripped breaker A-409 on panel C10.	____	____	____

NOTE: The procedure now instructs the operator to investigate cause of excessive load and correct the problem, ~~JPM step 4 is the end of this JPM.~~

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-QT002

SYSTEM/DUTY AREA: QUENCH TANK

TASK: VENT QUENCH TANK TO RB VENT HEADER

JTA#: 10075100101

KA VALUE RO: 2.6 SRO: 3.2 KA REFERENCE: 007 A2.02

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1103.005 REV. 27-04-0, SECTION 10.1

EXAMINEE'S NAME: _____ SSN ___ - ___ - ____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-QT002

JPM INITIAL TASK CONDITIONS:

The plant is at steady state operations. Quench Tank pressure is 35 psig and needs to be reduced. The waste gas system is aligned to receive high activity gas from RBVH per 1104.022.

INITIATING CUE:

The SS/CRS directs you to vent the Quench Tank to the waste gas system to lower the pressure to ~5 psig per 1103.005.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-QT002

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at steady state operations. Quench Tank pressure is 35 psig and needs to be reduced. The waste gas system is aligned to receive high activity gas from RBVH per 1104.022.

TASK STANDARD: Quench tank pressure lowered to ~5 psig.

TASK PERFORMANCE AIDS: 1103.005 Section 10.1.1.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-QT002

INITIATING CUE:

The SS/CRS directs you to vent the Quench Tank to the waste gas system to lower the pressure to ~5 psig per 1103.005.

CRITICAL ELEMENTS (C): 2, 3, 5, and 6

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Ensure RB Vent Header Throttle Valve (GZ-36A) is open no more than one-quarter of one turn. POSITIVE CUE: WCO reports that GZ-36A is one quarter of one turn open.	Contacted WCO and directed the WCO to verify GZ-36A no more than one quarter of one turn open.	____	____	____
(C)	2. Open Reactor Building Vent Header (RBVH) Inside Isolation Valve CV-4803. POSITIVE CUE: Red light ON, green light OFF.	On C18, opened CV-4803.	____	____	____
(C)	3. Open Reactor Building Vent Header (RBVH) Outside Isolation Valves CV-4804. POSITIVE CUE: Red light ON, green light OFF.	On C16, opened CV-4804.	____	____	____
	4. Direct the WCO to monitor and control Waste Gas Surge Tank pressure (T-17) during vent. POSITIVE CUE: WCO acknowledges monitor Waste Gas Surge Tank pressure and throttle GZ-36 A to limit the Waste Gas Surge Tank pressure <18.5 psia.	Contacted WCO and directed the WCO to monitor Waste Gas Surge Tank pressure and throttle GZ-36A to limit the Waste Gas Surge Tank pressure <18.5 psia.	____	____	____
(C)	5. Open Quench Tank Vent to RBVH CV-1055. POSITIVE CUE: Red light ON, green light OFF.	On C14, opened CV-1055.	____	____	____

JOB PERFORMANCE MEASURE

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
Note: Examiner may inform trainee that Quench Tank pressure is ~5 psig for time compression.					
(C)	6. When Quench Tank pressure ~5 psig, close CV-1055, CV-4803, and CV-4804. POSITIVE CUE: Green lights ON and red light OFF for ALL three valves.	When Quench Tank pressure ~5 psig, closed CV-1055 on C14, CV-4803 on C18, and CV-4804 on C16.	____	____	____
	7. Return waste gas system to normal operation. POSITIVE CUE: WCO reports that the Waste Gas System returned to a normal lineup.	Contacted WCO and directed him to return WGS to normal.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT 1: X REV #: 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-AOP23

SYSTEM: Emergency and Abnormal Operations

TASK: Take manual control of ADV's following Alternate Shutdown.

JTA 10395120101

KA VALUE RO: 3.3 SRO: 4.1 KA REFERENCE: 067 AK3.04

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 18 minutes

REFERENCE(S): 1203.002, 15-00-0

EXAMINEE'S NAME: _____ SSN: ___-___-___

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-AOP23

JPM INITIAL TASK CONDITIONS:

A fire in the control room threatens immediate damage to a major portion of vital controls. Therefore, there has been an immediate control room evacuation. 1203.002, Alternate Shutdown, is being completed by the normal crew. OTSG pressure is 1050 psig. Gloves, hearing protection, radio, and master key ring are in hand.

INITIATING CUE:

The SS directs you (an extra operator) to take manual control of ADVs CV-2618 and CV-2668 and control OTSG pressure at 1000 psig, in accordance with 1203.002, Exhibit A.

TUOI NUMBER: ANO-1-JPM-RO-AOP23

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: A fire in the control room threatens immediate damage to a major portion of vital controls. Therefore, there has been an immediate control room evacuation. 1203.002, Alternate Shutdown is being completed by the normal crew. OTSG pressure is 1050 psig. Gloves, hearing protection, radio, and master key ring are in hand.

TASK STANDARD: ADVs CV-2618 and CV2668 are in manual control controlling OTSG pressure at 1000 psig.

TASK PERFORMANCE AIDS: Copy of 1203.002, EXHIBIT A

TUOI NUMBER: ANO-1-JPM-RO-AOP23

INITIATING CUE:

The SS directs you (an extra operator) to take manual control of ADVs CV-2618 and CV-2668 and control OTSG pressure at 1000 psig, in accordance with 1203.002, Exhibit A.

CRITICAL ELEMENTS (C): 2 through 5 and 7 through 16

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
TRANSITION NOTE: The examinee should go the ADV operating platform.					
	1. Place CV-2618 positioner bypass valve in manual. POSITIVE CUE: Positioner bypass is in the manual position.	CV-2618 positioner bypass was pushed in and turned to the manual position.	____	____	____
(C)	2. Open the CV-2618 actuator equalizing valve (IA-2618A). POSITIVE CUE: Equalizing valve is open.	Actuator Equalizing valve (IA-2618A) was turned in open direction.	____	____	____
(C)	3. Unscrew the coupling at the top of CV-2618 actuator. POSITIVE CUE: Coupling is unscrewed and off actuator top.	Coupling on top of actuator was unscrewed.	____	____	____
(C)	4. Rotate handwheel for CV-2618 in the closed direction until the top of the actuator stem is exposed. POSITIVE CUE: Top of actuator stem is exposed.	Handwheel was rotated in closed direction until top of actuator stem was exposed.	____	____	____
(C)	5. Completely insert the coupling fork into the groove around the stem. POSITIVE CUE: Fork is completely inserted into the groove.	Coupling fork was completely inserted into the stem groove.	____	____	____
	6. Place CV-2668 positioner bypass valve in manual. POSITIVE CUE: Positioner bypass is in the manual position.	CV-2668 positioner bypass was pushed in and turned to the manual position.	____	____	____
(C)	7. Open the CV-2668 actuator equalizing valve (IA-2668A). POSITIVE CUE: Equalizing valve is open.	Actuator equalizing valve (IA-2668A) was turned in open direction.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-AOP23

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	8. Unscrew the coupling at the top of CV-2668 actuator. POSITIVE CUE: Coupling is unscrewed and off actuator top.	Coupling on top of actuator was unscrewed.	____	____	____
(C)	9. Rotate handwheel for CV-2668 in the closed direction until the top of the actuator stem is exposed. POSITIVE CUE: Top of actuator stem is exposed.	Handwheel was rotated in closed direction until top of actuator was exposed.	____	____	____
(C)	10. Completely insert the coupling fork into the groove around the stem. POSITIVE CUE: Fork is completely inserted into the groove.	Coupling fork was completely inserted into the stem groove.	____	____	____
(C)	11. Align PI-2682 by unlocking and opening N2-54, and opening N2-1016. POSITIVE CUE: PI-2682 indicates 1050 psig.	N2-54 was unlocked and opened. N2-1016 was opened.	____	____	____
(C)	12. Align PI-2683 by unlocking and opening N2-51, and opening N2-1015. POSITIVE CUE: PI-2683 indicates 1050 psig.	N2-51 was unlocked and opened. N2-1015 was opened.	____	____	____
(C)	13. Open CV-2676. POSITIVE CUE: CV-2676 indicates full open.	CV-2676 manual lever was depressed and handwheel rotated in counter clockwise direction until valve was full open.	____	____	____
(C)	14. Open CV-2619. POSITIVE CUE: CV-2676 indicates full open.	CV-2619 manual lever was depressed and handwheel rotated in counter clockwise direction until valve was full open.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-AOP23

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
(C)	15. Open CV-2668 until generator pressure is about 1000 psig. POSITIVE CUE: PI-2682 indicates 1000 PSIG. NEGATIVE CUE: PI-2682 indicates 1050 PSIG	Handwheel for CV-2668 was rotated in the counter clockwise direction while watching pressure indicator PI-2682.	____	____	____
(C)	16. Open CV-2618 until generator pressure is about 1000 psig. POSITIVE CUE: PI-2683 indicates 1000 PSIG. NEGATIVE CUE: PI-2683 indicates 1050 PSIG	Handwheel for CV-2618 was rotated in the counter clockwise direction while watching pressure indicator PI-2683.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT 1: X REV #: 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-FP003

SYSTEM: Fire Protection System

TASK: Align the reserve bank of Halon System for automatic actuation after an actuation.

JTA 10865100101

KA VALUE RO: 3.2 SRO: 3.2 KA REFERENCE: 086 A4.06

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 7 minutes

REFERENCE(S): 1104.032, Rev. 53-01-0

EXAMINEE'S NAME: _____ SSN: ___-___-___

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____ Start Time _____ Stop Time _____ Total Tim

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIF INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JPM INITIAL TASK CONDITIONS:

Plant is in outage. The Auxiliary Control Room Ceiling Halon System (System 2) was inadvertently actuated. An MAI has been submitted to fill the main bank, and a fire system impairment has been reported.

INITIATING CUE:

The SS/CRS directs that the Auxiliary Control Room Ceiling Halon System #2 be reset and shifted to the reserve bank in accordance with 1104.032.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-FP003

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is in outage. The Auxiliary Control Room Ceiling Halon System (System 2) was inadvertently actuated. An MAI has been submitted to fill the main bank, and a fire system impairment has been reported.

TASK STANDARD: Reserve bank aligned for automatic operation for the Auxiliary control room ceiling Halon System (System 2).

TASK PERFORMANCE AIDS: Copy of 1104.032, Section 9.0

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-FP003

INITIATING CUE:

The SS/CRS directs that the Auxiliary Control Room Ceiling Halon System #2 be reset and shifted to the reserve bank in accordance with 1104.032.

CRITICAL ELEMENTS (C): 3

(C)	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	1. Verify N_2 pilot bottle pressure>300#. Positive Cue: Read 800-1000psi Negative Cue: Read pressure <300#	Located Halon System #2. Verified pressure of N_2 pilot bottle pressure > 300#.	____	____	____
TRANSITION NOTE: The examinee should proceed to the Control Room. **OR** EXAMINER'S NOTE: To expedite the completion of this JPM, inform examinee that the alarms listed in step 2's standard are cleared.					
	2. Verify Halon system reset. POSITIVE CUE: Red Alarm LED, Yellow Manual Trip LED, and the Yellow Trouble LED alarms are cleared.	Verified Halon system reset by verifying the following at C-463: • Red Alarm LED on zone module (B-35 in C-463-2) cleared. • Yellow Manual Trip LED on switch module (B-37 U in C-463-2) cleared. • Yellow Trouble LED on alarm extender module (B-38 in C-463-2) cleared.	____	____	____
TRANSITION NOTE: The examinee should proceed to the Auxiliary Building behind the control room emergency ventilation unit.					
(C)	3. Shift 3 way valve to reserve. POSITIVE CUE: The 3 way valve is in reserve position. NEGATIVE CUE: 3 way valve is not in reserve position.	3 way valve (FS-5661A) shifted to reserve by removing pin and rotating to reserve position.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 3 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-CRD03

SYSTEM/DUTY AREA: CONTROL ROD DRIVE SYSTEM

TASK: TRANSFER A GROUP OF RODS TO THE AUXILIARY POWER SUPPLY.

JTA#: 10015070101

KA VALUE RO: 3.8 SRO: 4.1 KA REFERENCE: 003 AK3.04

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1105.009 REV 15-03-1, 1203.003 REV 19, 1202.001 REV 27

_____

EXAMINEE'S NAME: _____ SSN _____ - _____ - _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CRD03

JPM INITIAL TASK CONDITIONS:

Steady state power operations with the Reactor Demand, Diamond and Feedwater Loop Demands in manual.

INITIATING CUE:

You have been directed by the SS/CRS to transfer Group 4 rods to the Auxiliary Power Supply in accordance with 1105.009.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CRD03

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Steady state power operations with the Reactor Demand, Diamond and Feedwater Loop Demands in manual. **SEE NOTE BELOW.**

TASK STANDARD: ***This is an alternate success path JPM.*** Reactor is tripped and immediate actions performed.

TASK PERFORMANCE AIDS: 1105.009 Section 8.0.

NOTE:

The following sequence should be used to set up the simulator for this JPM:

1. Insert malfunctions to drop group 4 rods #3, #5 and #7. For each set the delay to 1 second to activate (RD280, RD302 and RD306).

2. The malfunctions are triggered when the examinee reaches step 8.9 (step 10 of this JPM) → Manual transfer switch depressed, group 4 "control on" white lights "ON" on the PI panel.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CRD03

INITIATING CUE:

You have been directed by the SS/CRS to transfer Group 4 rods to the Auxiliary Power Supply in accordance with 1105.009.

Critical Elements (C): 2, 3, 4, 5, 6, 8, 9, 10, 13

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Verify transfer reset lamp is ON and TR CF is OFF. POSITIVE CUE: Transfer reset lamp is ON and TR CF is OFF.	On CRD Diamond Panel, Verified the transfer reset lamp was ON and TR CF light was OFF.	____	____	____
C	2. Place Group select switch to Group 4. POSITIVE CUE: Group select switch is in Group 4 position.	On CRD Diamond Panel, Group Select Switch was placed in Group 4 position.	____	____	____
C	3. Set Single Select Switch to ALL. POSITIVE CUE: Single Select Switch is at ALL position.	On CRD Diamond Panel, Single Select Switch was selected to ALL.	____	____	____
C	4. Set Auto/Manual Switch to Manual, verify Manual Lamp is ON. POSITIVE CUE: Manual lamp is now ON..	On CRD Diamond Panel, Auto/Manual pushbutton was depressed and verified MANUAL lamp ON.	____	____	____
C	5. Set SEQ.-SEQ OR. switch to SEQ. OR. POSITIVE CUE: SEQ OR back light lamp is ON.	On CRD Diamond Panel, SEQ.-SEQ OR. switch pushbutton depressed to select SEQ. OR position.	____	____	____
C	6. Set Group/Auxiliary Switch to Auxiliary. POSITIVE CUE: Aux PB backlight is verified on.	On CRD Diamond Panel, Group/Aux. pushbutton depressed to select Auxiliary.	____	____	____
	7. Verify Control On lamp is lighted for Group 4. POSITIVE CUE: Control On lamp is lighted for Group 4.	On CRD Diamond Panel, verified Group 4 Control ON lamp lighted.	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CRD03

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
C	8. Set Speed Select Switch to "JOG", verify SY lamp ON. POSITIVE CUE: SY back light is ON.	On CRD Diamond Panel, Speed Select Switch was selected to JOG position. Verified SY lamp back light ON.	____	____	____
C	9. Set Clamp/Clamp Release Switch to CLAMP, verify CLAMP (white) lamp and CLAMP CONFIRM (amber) lamp on. POSITIVE CUE: CLAMP and CLAMP CONFIRM lamp came on.	On CRD Diamond Panel, selected Clamp/Clamp Release Switch to CLAMP. Verified CLAMP (whit lamp) and CLAMP CONFIRM (amber lamp) came on.	____	____	____
Note to Simulator Operator: **Trigger malfunctions when CRD indicating panel lights come on.**					
C	10. Press Manual Transfer Switch. POSITIVE CUE: Manual Transfer Switch is depressed.	On CRD Diamond Panel, manual transfer PB was depressed.	____	____	____
	11. Verify MAN TRANS lamp on while depressed, TR CF lamp comes on, and Group 4 Control on White lights on the CRD Position Indicating Panel on. POSITIVE CUE: TR CF lamp on, and Group 4 Control on White lights on the CRD Position Indicating Panel on.	Verified TR CF lamp comes on, and Group 4 Control on White lights on the CRD Position Indicating Panel on.	____	____	____
	12. Identify dropped rods. POSITIVE CUE: Rod bottom lights on for group 4 rods 3, 5, and 7.	Identified dropped rods by observing the rod bottom lights on C-13 PI panel.	____	____	____
C	13. Perform Rx Trip immediate action. • Depress Rx Trip Pushbutton POSITIVE CUE: Reactor is tripped and power is decreasing.	Tripped the reactor by depressing the reactor trip pushbutton. Verified power decreasing and rods inserted.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 1 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EOP16

SYSTEM/DUTY AREA: EMERGENCY AND ABNORMAL OPERATIONS

TASK: PERFORM ACTIONS REQUIRED TO CORRECT OVERCOOLING OF THE RCS (DUE TO TBVs)

JTA#: 13035070601

KA VALUE RO: 3.4 SRO: 3.7 KA REFERENCE: 039 A2.04

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1202.003 REV. 3

_____

EXAMINEE'S NAME: _____ SSN ___ - ___ - ___

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

JPM INITIAL TASK CONDITIONS:

The reactor is tripped and the plant is in an overcooling event at this time.

INITIATING CUE:

The SS/CRS directs you to check turbine bypass valves closed per step 19 of the Overcooling EOP.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The reactor is tripped and the plant is in an over-cooling event at this time.

TASK STANDARD: "B" MSIV closed.

This is an alternate success path JPM.

TASK PERFORMANCE AIDS: Step 19 from 1202.003.

SIMULATOR SETUP: 100% power, fail turbine bypass valves CV-6687 and CV-6688 100% open then trip the reactor and reduce letdown.

IA Instructor Note:
When dispatched to close CV-6687 and CV-6688 report that CV-6687 will noy close locally.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

INITIATING CUE:

The SS/CRS directs you to check turbine bypass valves closed per step 19 of the Overcooling EOP.

CRITICAL ELEMENTS (C): 4

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Check turbine bypass valves closed. FAULTED CUE: CV-6687 and CV-6688 are 100% open.	Identified that CV-6687 and CV-6688 are full open (by valve position indication on panel C03).	____	____	____
	2. Place turbine bypass valve hand/auto station for "B" OTSG in HAND and close. POSITIVE CUE: "B" turbine bypass valve controller in HAND but valves NOT responding.	On panel C03, placed turbine bypass valve hand/auto station for "B" OTSG in HAND and attempted to close CV-6687 and CV-6688.	____	____	____
	3. Dispatch an operator to close failed CV-6687 and CV-6688. POSITIVE CUE: CV-6687 will not close locally.	Called the auxiliary operator and directed the auxiliary operator to close CV-6687 and CV-6688.	____	____	____
(C)	4. Close "B" OTSG MSIV CV-2692. POSITIVE CUE: Green light ON, red light OFF for CV-2692. NEGATIVE CUE: RCS temperature is lowering.	On panel C09, closed "B" OTSG MSIV CV-2692.	____	____	____
	5. Open Feedwater Pumps Discharge Crosstie CV-2827. POSITIVE CUE: Red light ON, green light OFF for CV-2827.	On panel C03, opened CV-2827.	____	____	____
	6. Trip the "A" main feedwater pump. POSITIVE CUE: "A" MFP is tripped.	On panel C02, tripped the "A" main feedwater pump.	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EOP16

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	7. Operate ATM Dump Control System for "B" OTSG to stabilize RCS temperature. POSITIVE CUE: RCS temperature is stable.	On panel C09, opened Atmospheric Dump Isolation Valve, CV-2619, and adjusted the Atmospheric Dump Valve, CV-2618, to stabilize RCS temperature (as necessary).	____	____	____
EOP will now send examinee to step 25 since the overcooling is terminated.					

END

JOB PERFORMANCE MEASURE

Replaced

UNIT: 1 REV # 1 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-CF003

SYSTEM/DUTY AREA: CORE FLOOD SYSTEM

TASK: VENT CFT TO WITHIN TECHNICAL SPECIFICATION LIMITS

JTA#: 10065090101

KA VALUE RO: 3.3 SRO: 3.6 KA REFERENCE: 006 A1.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1203.012I(K10-A5), Rev. 038-01-0 and 1104.001, Rev. 30-00-0

EXAMINEE'S NAME: _____ SSN _____ - _____ - _____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-CF003

JPM INITIAL TASK CONDITIONS:

The plant is operating at power. The "A" Core Flood Tank Pressure Hi/Lo annunciator is in alarm. Pressure is indicating 615 psig.

INITIATING CUE:

The CRS/SS directs you to vent "A" Core Flood Tank to 600 psig.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CF003

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is operating at power. The "A" Core Flood Tank Pressure Hi/Lo annunciator is in alarm. Pressure is indicating 615 psig.

TASK STANDARD: "A" CFT vented to 600 psig.

TASK PERFORMANCE AIDS: Simulator, 1203.012I for K10-A5, 1104.001 Section 13.0

Simulator setup: use IC2 (if desired), RMF CVN2_2; 1.0 RMF CVN2_3; 1.0

when CFT "A" Hi/Lo Press annunciator comes in, close CVN2_2 and CVN2_3

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-CF003

INITIATING CUE: The CRS/SS directs you to vent "A" Core Flood Tank to 600 psig.

CRITICAL ELEMENTS (C): 1,3

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	1. Open "A" Core Flood Tank vent valve CV-2417. POSITIVE CUE: Red light on, green light off for CV-2417.	On C18, HS-2417 placed in "OPEN" position and observed the RED light ON, and the GREEN light OFF.	____	____	____
	2. Monitor the "A" CFT pressure for decrease in pressure and clearing of the annunciator alarm on K10. POSITIVE CUE: "A" CFT pressure decreasing, Hi/Lo Press annunciator clear.	Using PI-2415/PI-2416 on C18/16, observed "A" CFT pressure decreased to ~600 psig and annunciator K10-A5 cleared.	____	____	____
INSTRUCTOR NOTE: Evaluator may cue examinee that "A" CFT pressure is 600 psig after alarm clears for time compression.					
(C)	3. Close CV-2417 when "A" CFT pressure reaches ~600 psig. POSITIVE CUE: Green light on, red light off for CV-2417. NEGATIVE CUE: "A" CFT pressure at 625, K10-A5 in alarm.	On C18, HS-2417 placed in "CLOSED" position and observed CV-2417 GREEN light ON and the RED light OFF.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-R0-RBC02

SYSTEM/DUTY AREA: Containment System _____

TASK: Depressurize the Reactor Building. _____

JTA#: 107150401W4 _____

KA VALUE RO: 3.7 SRO: 4.1 KA REFERENCE: 103 A1.01 _____

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES _____

REFERENCE(S): 1104.033, Rev 57-00-0 _____

_____

EXAMINEE'S NAME: _____ SSN ___ - ___ - ____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-RBC02

JPM INITIAL TASK CONDITIONS:

Plant is operating at ~100% power. RB pressure is 16 psia. SPING 2 is in service. Reactor building atmosphere has been sampled and activity is not high. VEF 8A is in service. Gas Collection header is lined up per Gaseous Radwaste System (1104.022), Attachment A. Radiation monitor and PASS system lined up in accordance with Attachment C of this procedure.

INITIATING CUE:

The SS/CRS directs you to depressurize the reactor building to ~15 psia per 1104.033.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RBC02

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is operating at ~100% power. RB pressure is 16 psia. SPING 2 is in service. Reactor building atmosphere has been sampled and activity is not high. VEF 8A is in service. Gas Collection header is lined up per Gaseous Radwaste System (1104.022), Attachment A. Radiation monitor and PASS system lined up in accordance with Attachment C of this procedure.

TASK STANDARD: RB pressure reduced to ~15 psia.

TASK PERFORMANCE AIDS: 1104.033 section 9.0

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RBC02

INITIATING CUE:

The SS/CRS directs you to depressurize the reactor building to ~15 psia per 1104.033.

CRITICAL ELEMENTS (C): 3, 4, 5, and 6

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Ensure Radwaste Area Exhaust Fan (VEF-8A or VEF-8B) in operation. POSITIVE CUE: Radwaste Area Exhaust Fan VEF-8A and VEF-8B are operating.	Verified either VEF-8A or VEF-8B running by observing red light indication on C-19.	____	____	____
	2. Verify radiation monitor equipment in service. • SPING 2 • RB ATMOS Particulate Detector • RB ATMOS Gaseous Detector POSITIVE CUE: RB ATMOS Particulate Detector and RB ATMOS Gaseous Detector in service.	Verified radiation monitor equipment in service.	____	____	____
(C)	3. Open RB Leak Detector to Gas Collection Header (CV-7455). POSITIVE CUE: CV-7455 red light indicator is on.	Opened CV-7455 using handswitch located on C-25.	____	____	____
(C)	4. Open RB Leak Detector Exhaust to Gas Collection Header (GCH-48). POSITIVE CUE: WCO reports that GCH-48 is open.	Directed the WCO to open RB Leak Detector Exhaust to Gas Collection Header (GCH-48).	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RBC02

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
NOTE: If HS-7454 is taken to the "CLOSE BOTH" (SV-7456 and SV-7454) position vs "OPEN 7454" position K15-C2 RB ATMOS DETECTOR TROUBLE ALARMS.					
(C)	5. Close RB Leak Detector Isolation Return to RB (SV-7456) or RB Leak Detector Isolation Return to RB (SV-7479). POSITIVE CUE: SV7456 or SV7479 green light on (whichever is closed).	Closed either RB Leak Detector Isolation Return to RB (SV-7456) or RB Leak Detector Isolation Return to RB (SV-7479) using handswitch located on C-25.	____	____	____
Instructor Note: Give positive cues for the following: • No Radwaste Area SPING 2 alarms. • When valves are aligned provide cue that reactor building pressure is 14.7 psia.					
(C)	6. Then reactor building reaches ~15 psia secure depressurization: • Open SV-7456 and SV-7479 • Close CV-7455 • Close GCH-48 POSITIVE CUE: SV-7455, SV-7479 and CV-7455 are closed. WCO reports GCH-48 closed. NEGATIVE CUE: Reactor building pressure is 16.7 psia.	Closed SV-7456, SV-7479, and CV-7455 using handswitches located on C-25. Directed the WCO to close GCH-48.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV # 1 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EDG04

SYSTEM/DUTY AREA: EMERGENCY DIESEL GENERATOR (EDG) SYSTEM

TASK: LOAD EDG1

JTA#: 10645060101

KA VALUE RO: 3.4 SRO: 3.4 KA REFERENCE: 064 A4.07

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1104.036 REV. 38-04-0

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

JPM INITIAL TASK CONDITIONS:

Engineering evaluation of EDG requires running the EDG at full load. EDG1 is running with its output breaker open and its service water inlet valve (CV-3806) open.

INITIATING CUE:

The SS/CRS directs you to parallel EDG1 to the grid and load EDG1 to ~2750 KW per 1104.036 Step 7.10.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Engineering evaluation of EDG requires running the EDG at full load. EDG1 is running with its output breaker open and its service water inlet valve (CV-3806) open.

TASK STANDARD: EDG1 shutdown.

This is an Alternate Success Path JPM.

TASK PERFORMANCE AIDS: Synch switch handle, 1104.036 Section 7.0

NOTE: when the EDG1 output breaker is closed, insert override DI CS3-DG1_RO2; true and CS3-DG1_W02; false which will fail the governor handswitch in the raise position, this will cause the EDG load to rise without control.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

INITIATING CUE:

The SS/CRS directs you to parallel EDG1 to the grid and load EDG1 to ~2750 KW per 1104.036 Step 7.10.

CRITICAL ELEMENTS (C): 2, 6, 7, and 9

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Inform dispatcher that EDG1 will be loaded and inquire about weather. POSITIVE CUE: Inform examinee there are no grid disturbances or thunderstorms in the area.	Called the dispatcher, informed him/her that EDG1 is ready for loading and asked about proper weather conditions.	____	____	____
(C)	2. Turn on synchronize switch for EDG1 output breaker A-308. POSITIVE CUE: Incoming and running voltmeters indicating; synch scope rotating. NEGATIVE CUE: Synch scope off.	On C10, placed synchronize switch for A-308 to ON position.	____	____	____
	3. Verify voltage control. POSITIVE CUE: Voltage raises/lowers with voltage regulator.	Verified voltage control by raising and/or lowering voltage using the EDG1 voltage regulator control switch on C10.	____	____	____
	4. Verify frequency control. POSITIVE CUE: Frequency raises/lowers with the governor control.	Verified frequency control by raising and/or lowering frequency by using the EDG1 governor control switch on C10.	____	____	____
	5. Match running and incoming voltages. POSITIVE CUE: Running and incoming voltages are matched. NEGATIVE CUE: Voltages are NOT matched. NOTE: Voltages may be verified matched on C10 or SPDS or on plant computer.	On C10, matched running and incoming voltages by adjusting EDG1 voltage regulator.	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EDG04

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	6. Adjust EDG1 frequency. POSITIVE CUE: Frequency is at ~60 Hz and synchroscope is rotating slowly in the FAST direction. NEGATIVE CUE: Synchroscope rotating in the SLOW direction.	On C10, adjusted EDG1 governor control to achieve ~60 Hz with synchroscope rotating slowly in the FAST direction.	____	____	____
(C)	7. As synchroscope approaches 12 o'clock position (~5 min. 'til) close EDG1 output breaker A-308. POSITIVE CUE: A-308 red light ON, green light OFF.	Closed EDG1 output breaker A-308.	____	____	____
	NOTE: IA Operator → *when EDG1 is loaded to 2750 KW override K01-D2 "EDG 1 NON-CRITICAL TROUBLE" and K01-C2 "EDG 1 CRITICAL TROUBLE" to bring in the annunciator alarms.*				
	8. Dispatch an operator to check the cause of alarm. POSITIVE CUE: Auxiliary Operator acknowledges check EDG1 alarms.	Called an Auxiliary Operator by radio or telephone and dispatched to EDG-1 to check the cause of the alarm.			
	FAULTED CUE: IA instructor call as Auxiliary Operator and report the cause of the alarms are "JACKET COOLING WATER EXPANSION TANK LOW LEVEL", and JACKET COOLING WATER PRESSURE LOW". Report that there is no level on the expansion tank sightglass, and there is a leak on the discharge of the north engine cooling water pump.				
(C)	9. Shutdown EDG1. POSITIVE CUE: EDG1 green light ON. NEGATIVE CUE: EDG1 load at 2800 KW and rising.	EDG 1 was shutdown by Lowering load to ~100KW, opening EDG1 output breaker (A-308), and depressing EDG 1 stop pushbutton OR Tripping EDG-1 by depressing the stop pushbutton or placing the Normal/Lockout switch in the LOCKOUT position.	____	____	____

END

JOB PERFORMANCE MEASURE

Replaced

UNIT: 1 REV # 3 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-RPS02

SYSTEM/DUTY AREA: REACTOR PROTECTION SYSTEM

TASK: REMOVE A CHANNEL OF RPS FROM MANUAL BYPASS.

JTA#: 10125020101

KA VALUE RO: 3.6 SRO: 3.6 KA REFERENCE: 012 A4.03

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1105.001 REV. 18-00-0

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-RPS02

JPM INITIAL TASK CONDITIONS:

The plant is operating at 100% power with ICS in automatic. The "A" RPS channel is in manual bypass for maintenance. The maintenance has been completed.

INITIATING CUE:

The SS/CRS directs you to remove the "A" RPS channel from manual bypass in accordance with 1105.001.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RPS02

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is operating at 100% power with ICS in automatic. The "A" RPS channel is in manual bypass for maintenance. The maintenance has been completed.

TASK STANDARD: The "A" RPS channel is removed from manual bypass.

TASK PERFORMANCE AIDS: Manaual bypass key, 1105.001

SIMULATOR SETUP: power operations, place "A" RPS in manual bypass, select SASS Neutron Flux selector to the "Y" position.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-RPS02

INITIATING CUE:

The SS/CRS directs you to remove the "A" RPS channel from manual bypass in accordance with 1105.001.

CRITICAL ELEMENTS (C): 2

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	NOTE: Due to the uniqueness of the design in the simulator, all channel indications are located on/in one RPS cabinet. ***NOTE: The RPS cabinet in the simulator is not fully functional, therefore, for a, b, c, d, and e provide the positive cue to the examinee***				
	1. Verify "A" RPS channel is reset. POSITIVE CUE: On Test lamps are dim. POSITIVE CUE: Output State and Output Memory lamps are reset to dim. POSITIVE CUE: Both contact buffer Input State lamps are off. POSITIVE CUE: "A" Channel Reactor Trip Module is reset. POSITIVE CUE: Subsystem No. 1 lamps are all on dim.	Inside the "A" RPS cabinet in the back of the control room: a) Verified all test modules are in "operate" and the On Test lamps on dim. b) Depressed and released the Output State and Output Memory switches for all bistables with Output State and/or Output Memory lamps on bright. c) Verified the Building Pressure contact buffer is reset. d) Reset the Channel A Reactor Trip Module. e) Verified the Subsystem No. 1 lamps on dim for Reactor Trip modules and Cabinet Indicating Panels on all RPS Channels.	____	____	____
(C)	2. Turn Manual Bypass key switch out of bypass position. POSITIVE CUE: Key switch is out of manual bypass position. NEGATIVE CUE: "A" RPS channel is tripped.	Turned the key switch, located on the Reactor Trip Module in "A" RPS cabinet, out of the manual bypass position.	____	____	____
	3. Verify Manual Bypass lamps on dim. POSITIVE CUE: Manual Bypass lamps are on dim.	On the Reactor Trip module and indicating panel, verified the Manual Bypass lamps are on dim.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-RPS02

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	4. Verify annunciator K08-D3 clear. POSITIVE CUE: Annunciator K08-D3 is clear.	Verified that annunciator K08-D3 RPS CHANNEL BYPASSED is clear.	____	____	____
	5. Verify "A" EFIC channel Maintenance Bypass light on solid. POSITIVE CUE: "A" EFIC channel Maintenance Bypass light is on solid.	Verified "A" EFIC channel Maintenance Bypass light on solid on the upper right of the "A" EFIC cabinet.	____	____	____
	6. Remove Manual Bypass key from Reactor Trip module and return to Shift Supt. POSITIVE CUE: Key is removed and is in the SS's possession.	Removed Manual Bypass key from Reactor Trip module and returned to Shift Supt.	____	____	____
	7. Verify <1% difference between NI-5/NI-6 high and NI-7/NI-8 high. POSITIVE CUE: The difference is <1%.	Used panel readings on C03 or plant computer points N1I56HI and N1I78HI to determine the difference between the highest of NI5/NI6 is <1% different from the highest of NI7/NI8.	____	____	____
	8. Return the SASS Neutron Flux selector switch to SASS Enable. POSITIVE CUE: Neutron Flux selector switch is in SASS Enable position.	On C03, the SASS Neutron Flux switch is placed in the SASS Enable position.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV #: 2 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-AOP14

SYSTEM: ABNORMAL OPERATING PROCEDURE

TASK: Perform RO #1 actions for Alternate SD with immediate evacuation of Control Room.

JTA: 13035210401

KA VALUE: RO: 4.3 SRO: 4.2 KA REFERENCE: A06 AA1.1

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD: (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 32

REFERENCE(S): 1203.002 15-00-0

EXAMINEES NAME: _____ SSN: _____

EVALUATORS NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-AOP14

JPM INITIAL TASK CONDITIONS:

A Control Room Fire requires immediate evacuation. Immediate and follow-up actions in control room complete. Procedure, radio and flashlight have been obtained from the alternate shutdown locker. Radio check is complete. Key ring is in your possession

INITIATING CUE:

You are directed by CRS to perform follow up actions of RO #1 in accordance with 1203.002, section 1C through step 3.13. Notify TSC upon completion.

TUOI NUMBER: ANO-1-JPM-RO-AOP14

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - "System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: A Control Room Fire requires immediate evacuation. Immediate and follow-up actions in control room are complete. Procedure, radio and flashlight have been obtained from the alternate shutdown locker. Radio check is complete. Key ring is in your possession.

TASK STANDARD: RO #1 duties performed through step 3.13 of 1203.002 section 1C.

This is an alternate success path JPM.

TASK PERFORMANCE AIDS: Copy of 1203.002 section 1C

TUOI NUMBER: ANO-1-JPM-RO-AOP14

INITIATING CUE:

You are directed by CRS to perform follow up actions of RO #1 in accordance with 1203.002, section 1C through step 3.13. Notify TSC upon completion.

CRITICAL ELEMENTS (c): 1, 6, 8, 10, 11, 13, 15, 16, 17

	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
C	1. At The MSIV's, open the instrument air vent valves for each MSIV (IA-2691B through E and IA-2692B through E). POSITIVE CUE: All 8 vent valves are open.	Opened instrument air vent valves IA-2691B through E and IA-2692B through E.	____	____	____
	2. Verify CV-2667 open. POSITIVE CUE: CV-2667 is open.	CV-2667 verified open by visually observing stem or valve position indicator.	____	____	____
	3. Verify CV-2617 open. POSITIVE CUE: CV-2617 is open.	CV-2617 verified open by visually observing stem or valve position indicator.	____	____	____
	4. Verify CV-2613, and CV-2663 open. POSITIVE CUE: CV-2613 and CV-2663 are open.	CV-2613 and CV-2663 verified open by visually observing stem or valve position indicator.	____	____	____
	5. Notify TSC of system alignments. POSITIVE CUE: TSC has been contacted and notified.	Established communication with TSC by telephone or radio, reported completion of EFW item 1.A.	____	____	____
TRANSITION NOTE: The examinee should proceed to the Auxiliary Building 354' elevation.					
NOTE: In the following step, simulate having flow noise through CV-1407 indicating that the reactor building sump outlet valves are open.					
(C)	6. Slowly open CV-1407 manually. POSITIVE CUE: Valve open.	Used manual lever and handwheel, slowly opened CV-1407.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-AOP14

	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	7. Verify no significant flow through CV-1407. FAULTED CUE: Significant flow noise is heard.	Checked for flow throttling noise as CV-1407 was opened.	____	____	____
(C)	8. Close CV-1407. POSITIVE CUE: CV-1407 is closed.	Used manual lever and handwheel, fully closed CV-1407.	____	____	____
TRANSITION NOTE: The examinee should proceed to the "A" Decay Heat Vault, 317 elevation of the Auxiliary Building.					
	9. Verify CV-1405 and CV-1406 closed. POSITIVE CUE: CV-1405 is open.	Proceeded to the Decay Heat vaults and checked the position of CV-1405 and CV-1406.	____	____	____
(C)	10. Manually close CV-1405. POSITIVE CUE: CV-1405 is closed.	Used manual lever and handwheel to fully closed CV-1405.	____	____	____
TRANSITION NOTE: The examinee should proceed to 354 elevation of the Auxiliary Building.					
(C)	11. Slowly open CV-1407 manually. POSITIVE CUE: Valve open.	Used manual lever and handwheel, slowly opened CV-1407.	____	____	____
	12. Verify no significant flow through CV-1407. POSITIVE CUE: NO significant flow noise is heard.	Checked for flow throttling noise as CV-1407 was opened.	____	____	____
TRANSITION NOTE: The examinee should proceed to the Upper North Piping Penetration Room.					
(C)	13. Open CV-1219 and CV-1220. Close CV-1206. POSITIVE CUE: CV-1219, CV-1220 open, CV-1206 closed.	Opened CV-1219, CV-1220, closed CV-1206 with manual lever and handwheel.	____	____	____
	14. Notify TSC of system alignments. POSITIVE CUE: TSC has been contacted and notified.	Established communication with TSC by telephone or radio, reported completion of HPI Item 5.A, 5.B.	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-AOP14

	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
INSTRUCTION NOTE: Inform the examinee that CV-2627 does not need to be throttled at this time.					
(C)	15. Open CV-2670, CV-1227, and CV-1228. POSITIVE CUE: CV-2670, CV-1227, and CV-1228 are open.	Opened CV-2670, CV-1227, and CV-1228 using manual lever and handwheel.	____	____	____
TRANSITION NOTE: The examinee should proceed to the 354 elevation of the Aux Building.					
(C)	16. Slowly open BWST Outlet CV-1408. Positive Cue: CV-1408 is open, no flow noise is heard.	Slowly opened BWST Outlet CV-1408 using the manual lever and handwheel.	____	____	____
TRANSITION NOTE: The examinee should proceed to the letdown filter area on 335 of the Aux. Building.					
(C)	17. Open RB Coolers VCC-2C and 2D PI-3813A ISOL(SW-3813A). POSITIVE CUE: SW-3813A is open.	Opened SW-3813A.	____	____	____
	18. Verify service water header pressure >40 psig on RB SW CLR VCC 2C&D IN PRESS (PI-3813A). POSITIVE CUE: Service water header pressure 55 psig.	Verified service water header pressure at PI-3813A > 40 psig.	____	____	____
	19. Notify TSC of system alignments. POSITIVE CUE: TSC has been notified of alignments.	Notified TSC of completion of system alignments EFW item 2.B, HPI items 6.A & 6B, and SW item 7.B.	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT: 1 REV #: 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-ED026

SYSTEM/DUTY AREA: Electrical Distribution System

TASK: Shutdown inverter Y22 with RS2 to remain in service supplied from inverter Y25 when Y25 is idle.

JTA: 106250301A4

KA VALUE RO: 3.1 SRO: 3.5 KA REFERENCE: 062 K4.10

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 20

REFERENCE(S): 1107.003 009-02-0

EXAMINEE'S NAME: _____ SSN: - -

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS: _____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-ED026

JPM INITIAL TASK CONDITIONS:

The CRS/SS directs you to shutdown inverter Y22 with RS2 to remain in service supplied from inverter Y25 per 1107.003.

INITIATING CUE:

The CRS/SS directs you to shutdown inverter Y22 with RS2 to remain in service supplied from inverter Y25.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-ED026

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: Plant is operating at 100%. Inverter Y-25 is idle. Inverter Y-22 is supplying RS2.

TASK STANDARD: RS2 is being supplied from inverter Y-25 with Y-25 inverter supplying load. Inverter Y22 is shutdown.

TASK PERFORMANCE AIDS: 1107.003, Section 11.5

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-ED026

INITIATING CUE:

The CRS/SS directs you to shutdown inverter Y22 with RS2 to remain in service supplied from inverter Y25 per 1107.003.

CRITICAL ELEMENTS (C): 1e, 3, 5, 8, 10, 13, 16, 18, 22, 23, 24

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Verify the following breaker and switch positions:				
	a. Inverter Y25 DC INPUT breaker open POSITIVE CUE: Inverter DC INPUT breaker open.	Verified inverter Y25 DC INPUT breaker open by observing breaker switch.	____	____	____
	b. Inverter Y25 INVERTER OUTPUT breaker open POSITIVE CUE: INVERTER OUTPUT breaker open.	Verified inverter Y25 INVERTER OUTPUT breaker open by observing breaker switch.	____	____	____
	c. Inverter Y25 ALTERNATE SOURCE AC INPUT breaker closed. POSITIVE CUE: Inverter ALTERNATE SOURCE AC INPUT closed.	Verified inverter Y25 ALTERNATE SOURCE AC INPUT breaker closed by observing breaker switch.	____	____	____
	d. Inverter Y25 manual selector switch, HS-1132, in ALTERNATE SOURCE TO LOAD position. POSITIVE CUE: Manual selector switch in ALTERNATE SOURCE TO LOAD position.	Verified Y25 manual selector switch, HS-1132, in ALTERNATE SOURCE TO LOAD position.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
INSTRUCTOR NOTE: The following step is critical if Y25 inverter manual output transfer switch is in the Y24 position.					
(C)	e. Verify inverter Y25 manual output transfer switch, HS-1133, in SYSTEM OUTPUT TO Y22 position. POSITIVE CUE: Inverter manual output transfer switch in SYSTEM OUTPUT TO Y22 position.	Verified inverter Y25 manual output transfer switch, HS-1133, in SYSTEM OUTPUT TO Y22 position.	____	____	____
	f. Verify Y25 supply breaker B6315 closed. POSITIVE CUE: V-3 indicates ~120 volts	Verified Y25 supply breaker B6315 closed by observing ~120 volts on V-3.	____	____	____
TRANSITION NOTE: The examinee should proceed to the D02 DC bus.					
	g. Verify DC supply feeder breaker D02-32 closed. POSITIVE CUE: Breaker D02-32 closed.	Verified DC supply feeder breaker D02-32 closed.	____	____	____
	2. Verify battery D06 manual disconnect D-14 closed. POSITIVE CUE: Disconnect D-14 closed.	Verified battery D06 manual disconnect D-14 closed.	____	____	____
TRANSITION NOTE: The examinee should proceed to the A3 switchgear room to inverter Y25.					
(C)	3. Close inverter Y25 DC input breaker on front of inverter. POSITIVE CUE: Y25 DC input breaker closed.	Closed inverter Y25 DC input breaker on front of inverter.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	4. Wait 60 seconds for inverter to stabilize and verify inverter output voltage is ~120 volts and frequency is ~60 Hertz. POSITIVE CUE: Inverter at 120 volts and 60 hertz. NEGATIVE CUE: Inverter at 0 volts' frequency 0.	Allowed 60 seconds for inverter to stabilize verified voltage indicator for inverter output at ~120 volts and frequency indicator for inverter output at ~60 hertz.	____	____	____
(C)	5. Close Y25 INVERTER OUTPUT breaker on front of inverter. POSITIVE CUE: Inverter output breaker closed.	When inverter stabilized, closed Y25 INVERTER OUTPUT.	____	____	____
	6. Verify inverter Y25 ALTERNATE SOURCE SUPPLYING LOAD light on. POSITIVE CUE: ALTERNATE SOURCE SUPPLYING LOAD light on.	Verified inverter Y25 ALTERNATE SOURCE SUPPLYING LOAD light on.	____	____	____
INSTRUCTOR NOTE: Shifting Y-22 to the alternate source places the plant into a 24 hour admin LCO time clock.					
	7. Verify Y22 UNIT IN SYNC light is on and frequency is between 59.5 and 60.5 hertz. POSITIVE CUE: Y22 is in sync and frequency is 60 hertz.	Verified Y22 UNIT IN SYNC LIGHT on and frequency between 59.5 and 60.5 hertz.	____	____	____
(C)	8. Depress Y22 ALTERNATE SOURCE TO LOAD pushbutton (PB-1107). POSITIVE CUE: Inverter Y22 ALTERNATE SOURCE TO LOAD push-button depressed.	Depressed Y22 ALTERNATE SOURCE TO LOAD push-button (PB-1107).	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	9. At inverter Y22 verify ALTERNATE SOURCE SUPPLYING LOAD light on and INVERTER SUPPLYING LOAD light out. POSITIVE CUE: Alternate source supplying load light on and inverter supplying load light out. NEGATIVE CUE: Inverter supplying load light on and alternate source supplying load light out.	Verified alternate source supplying load by observing ALTERNATE SOURCE SUPPLYING LOAD LIGHT on and INVERTER SUPPLYING LOAD light out.	____	____	____
(C)	10. Place Y22 manual selector switch, HS-1128, in the ALTERNATE SOURCE TO LOAD position. POSITIVE CUE: Y22 manual selector switch, HS-1128, is in the alternate source to load position.	Placed the Y22 manual selector switch, HS-1128) (bottom switch) to the ALTERNATE SOURCE TO LOAD position.	____	____	____
	11. At inverter Y22, place Sync Disconnect toggle switch in the ON position. POSITIVE CUE: Sync disconnect toggle switch is in the on position.	Placed the Sync Disconnect toggle switch in the ON position.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
INSTRUCTOR NOTE: If all previous steps have been accomplished provide the positive cue. If any of the following steps have not been performed provide the negative cue: step 1d, 1e, 1f, 8, 10.					
	12. At inverter Y22, verify IN SYNC WITH SWING INVERTER light on. POSITIVE CUE: IN SYNC WITH SWING INVERTER light on. NEGATIVE CUE: OUT OF SYNC WITH SWING INVERTER light on.	Verified the IN SYNC WITH SWING INVERTER light on.	____	____	____
(C)	13. At inverter Y22, place manual RS2 transfer switch, HS-1129, at top of panel in the Y25 to RS2 position. POSITIVE CUE: Manual RS2 transfer switch is in the Y25 to RS2 position.	Place the manual RS2 transfer switch,HS-1129, (upper switch on Y22) to the Y25 to RS2 position.	____	____	____
	14. At inverter Y22, place Sync Disconnect toggle switch in OFF position. POSITIVE CUE: Sync Disconnect toggle switch in OFF position.	Placed the Sync Disconnect toggle switch in the OFF position.	____	____	____
INSTRUCTOR NOTE: Cue examinee that it is desired to shift Y25 to the normal source.					
	15. Verify Y25 UNIT IN SYNC light is on. POSITIVE CUE: UNIT IN SYNC light is on.	Verified UNIT IN SYNC light on.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
(C)	16. Place inverter Y25 manual selector (HS-1132) switch in NORMAL SOURCE TO LOAD position. POSITIVE CUE: Manual selector switch is in the NORMAL SOURCE TO LOAD position.	Placed inverter Y25 manual selector switch (HS-1132) in the NORMAL SOURCE TO LOAD position.	____	____	____
	17. Verify Y25 UNIT IN SYNC light is on and frequency is between 59.5 and 60.5 hertz. POSITIVE CUE: UNIT IN SYNC light is on, frequency is 60 hertz.	Verified Y25 UNIT IN SYNC light on and frequency between 59.5 and 60.5 hertz on frequency meter, E1.	____	____	____
(C)	18. Depress Inverter Y25 INVERTER TO LOAD pushbutton (PB-1110). POSITIVE CUE: Inverter to load push-button was depressed.	Depressed the Inverter Y25 INVERTER TO LOAD pushbutton (PB-1110).	____	____	____
	19. Verify inverter Y25 INVERTER SUPPLYING LOAD light comes on and ALTERNATE SOURCE SUPPLYING LOAD light goes off. POSITIVE CUE: INVERTER SUPPLYING LOAD light on, ALTERNATE SOURCE SUPPLYING LOAD light out.	Verified supplying load by checking INVERTER SUPPLYING LOAD light on and ALTERNATE SOURCE SUPPLYING LOAD light off.	____	____	____
INSTRUCTOR NOTE: Inform examinee that the inverter high voltage alarm is clear.					
	20. Reset inverter Y25 local alarm panel. POSITIVE CUE: Inverter Y25 alarms clear. NEGATIVE CUE: Static switch transferred alarm indicator light on.	Reset inverter Y25 local alarm panel by depressing the alarm reset button.	____	____	____

TUOI NUMBER: ANO-1-JPM-RO-ED026

C	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	21. Verify RS2 INVERTER TROUBLE control room alarm cleared. POSITIVE CUE: RS2 INVERTER TROUBLE alarm cleared.	Called the control room to verify RS2 INVERTER TROUBLE alarm cleared.	____	____	____
INSTRUCTOR NOTE: Shifting Y-25 to the normal source clears the a 24 hour admin LCO time clock.					
(C)	22. Open inverter Y22 INVERTER OUTPUT breaker on front of inverter Y22. POSITIVE CUE: INVERTER OUTPUT breaker open.	Opened inverter Y22 INVERTER OUTPUT breaker (handle positioned downward).	____	____	____
(C)	23. Open inverter Y22 DC INPUT breaker on front of inverter Y22. POSITIVE CUE: Inverter DC INPUT breaker open.	Opened inverter Y22 DC INPUT breaker (handle positioned downward).	____	____	____
(C)	24. Open inverter Y22 ALTERNATE SOURCE AC INPUT breaker on front of inverter Y22. POSITIVE CUE: Inverter ALTERNATE SOURCE AC INPUT breaker open.	Opened inverter Y22 ALTERNATE SOURCE AC INPUT breaker (handle positioned downward).	____	____	____

END

JOB PERFORMANCE MEASURE

UNIT 1: X REV #: 8 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-EFW01

SYSTEM: Emergency Feedwater and EFIC

TASK: Reset the Steam Driven Emergency Feedwater pump after an overspeed trip.

JTA: (10615100401)

KA VALUE RO: 3.4 SRO: 3.8 KA REFERENCE: 061 A2.04

APPROVED FOR ADMINISTRATION TO: RO: X SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: X BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: Simulate SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: ☐ SRO: ☐

ACTUAL TESTING ENVIRONMENT: SIMULATOR: ☐ PLANT SITE: ☐ LAB: ☐

TESTING METHOD: SIMULATE: ☐ PERFORM: ☐

APPROXIMATE COMPLETION TIME IN MINUTES: 10 Minutes

REFERENCE(S): 1106.006 Rev. 59-02-0

EXAMINEE'S NAME: _____ SSN: ___ - ___ - ___

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: ☐ UNSATISFACTORY: ☐

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

TUOI NUMBER: ANO-1-JPM-RO-EFW01

JPM INITIAL TASK CONDITIONS:

P7A tripped on overspeed during an EFIC actuation per 1106.006.

INITIATING CUE:

The SS/CRS directs manually resetting P7A turbine.

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EFW01

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: P7A tripped on overspeed during an EFIC actuation.

TASK STANDARD: P7A turbine has been reset.

TASK PERFORMANCE AIDS: A copy of 1106.006 Exhibit A or section 12.0

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EFW01

INITIATING CUE:

The SS/CRS directs manually resetting P7A turbine per 1106.006.

CRITICAL ELEMENTS (C): 2, 3, 8

	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	1. Verify steam supply valves (SV-2613, SV-2663 AND CV-2613, CV-2663) closed. POSITIVE CUE: Control Room confirms SV-2613, SV-2663, CV-2613 and CV-2663 are closed.	Called control room to verify SV-2613, SV-2663, CV-2613, CV-2663 are closed.	____	____	____
(C)	2. Position the trip/throttle valve to allow reset. POSITIVE CUE: The latch lever will engage the trip hook.	Turned K3 Trip/ Throttle valve handwheel clockwise until sliding nut is in a position to allow engagement with trip hook.	____	____	____
(C)	3. Pull spring-loaded connecting rod against spring force to move head lever away from tappet and tappet nut. POSITIVE CUE: Head lever is away from tappet/tappet nut.	Pulled connecting rod to move head lever away from tappet and tappet nut.	____	____	____
INSTRUCTOR NOTE: The tappet/tappet nut should move down with the flat side of the tapped nut parallel to the shaft. The tapped nut holds the head lever in position. If the tapped nut doesn't locate in the proper position then the examinee would position the tapped nut in the correct position.					
	4. Lift and release tappet assembly. POSITIVE CUE: Tappet lifted and released, tappet nut returned to the reset position..	Lifted and released tappet assembly. Observed the tappet returned to the reset position.	____	____	____
	5. Verify tappet nut locates in the trip reset position on head bracket. POSITIVE CUE: Tappet nut located in the trip reset position.	Verified tapped nut located in the trip reset position on the head bracket.	____	____	____
	6. Verify tappet nut in the proper position. POSITIVE CUE: Flat sides aligned.	Observed Tappet nut to verify flat side aligned with long axis of pump (parallel to shaft).	____	____	____

JOB PERFORMANCE MEASURE

TUOI NUMBER: ANO-1-JPM-RO-EFW01

	PERFORMANCE CHECKLIST	STANDARDS	N/A	SAT	UNSAT
	7. Verify spring tension holds spring-loaded connecting rod in position. POSITIVE CUE: Spring tension is holding connecting rod in position.	Verified spring tension holding connecting rod in position (holding head lever against tappet nut.	____	____	____
(C)	8. Fully open the trip/throttle valve. POSITIVE CUE: Handwheel in full open position. NEGATIVE CUE: Handwheel will not open the trip/throttle valve.	Turned the trip/throttle handwheel until valve CV-6601A is fully open.	____	____	____
	9. Close trip throttle/valve (CV6601A) handwheel 3/4 turn in close direction. POSITIVE CUE: Handwheel 3/4 turn from open.	Rotated CV6601A handwheel 3/4 turn in close direction.	____	____	____
	10. Verify P7A trip alarm clear. POSITIVE CUE: K12-B5 is clear. NEGATIVE CUE: K12-B5 is in Alarm.	Verified K12-B5 clear by calling control room.	____	____	____

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TREND

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-SRO-TREND

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - CONDUCT OF OPERATIONS

TASK: QUARTERLY CHECK OF TREND DATA

JTA#: 13415280303

KA VALUE RO: 2.8 SRO: 3.1 KA REFERENCE: 2.1.25

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: PERFORM SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1015.006 Rev. 5

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- The plant is at 100% power

INITIATING CUE:

The Shift Superintendent directs you to conduct a Quarterly Review of Reactor Building Spray Pump P-35A data per 1015.006 Supplement 1.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power.

TASK STANDARD: The examinee has reviewed the attached Reactor Building Spray Pump Data, identified the abnormal differential pressure trend, and discussed corrective actions.

TASK PERFORMANCE AIDS: Reactor Building Spray Pump P-35A trend data

INITIATING CUE:

The Shift Superintendent directs you to conduct a Quarterly Review of Reactor Building Spray Pump P-35A data per 1015.006 Supplement 1.

CRITICAL ELEMENTS (C) 2, 3

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review Reactor Building Spray Pump P-35A data.	Examinee reviewed Reactor Building Spray Pump P-35A data.			
(C)	2. Identify abnormal trend in pump differential pressure.	Examinee identified the drop of Reactor Building Spray Pump P-35A differential pressure over the last 3 surveillance tests.			
Instructor Note: A discussion of corrective actions is all that is required.					
(C)	3. Take appropriate corrective action.	Examinee discussed appropriate corrective action such as (but not limited to): • Initiate a MAI • Engineering Request • Expansion of trending program to other parameters • Change in operating practice • Upgrading test frequency • Contact System Engineer			

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TALT1

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-SRO-TALT1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EQUIPMENT CONTROL

TASK: QUARTERLY CHECK OF TEMPORARY ALTERATIONS

JTA#: 13435100302

KA VALUE RO: 2.8 SRO: 3.4 KA REFERENCE: 2.2.11

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: PERFORM SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1000.028 Rev. 022-02-0

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

The plant is at 100% power. All Temporary Alterations tags are in place.

INITIATING CUE:

The Shift Superintendent directs you to conduct a Quarterly Review of Temporary Alteration 98-1-012 per 1000.028. You have in hand the complete package as found in the Control Room file. Identify at least 2 administrative errors.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power. All Temporary Alterations tags are in place.

TASK STANDARD: The examinee has reviewed the attached temporary alteration and identified at least 2 administrative errors.

TASK PERFORMANCE AIDS: Temporary Alteration with 3 errors.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-TALT1

INITIATING CUE:

The Shift Superintendent directs you to conduct a Quarterly Review of Temporary Alteration 98-1-012 per 1000.028. You have in hand the complete package as found in the Control Room file. Identify at least 2 administrative errors.

CRITICAL ELEMENTS (C) 2

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review Temporary Alteration Package 98-1-012.	Examinee reviewed Temporary Alteration Package 98-1-012.			
(C)	2. Identify administrative errors in Temporary Alteration Package 98-1-012.	Examinee identified at least 2 of 3 errors on Temporary Alteration Package 998-1-012: • Improper mode • Not approved by Plant Manager • Temporary alteration package incomplete			

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-RAD1

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-SRO-RAD1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - RADIATION CONTROL

TASK: SELECT PERSONNEL FOR TASK

JTA#: 13415280101

KA VALUE RO: 2.5 SRO: 3.1 KA REFERENCE: 2.3.4

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: PERFORM SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: X SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): HP Survey Map,

_____

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- A task in the Lower North Piping Room (LNPR) will require 2 operators for 3 hours.
- Three operators are available to perform the valve alignment and the second check.
- The operators yearly accumulated dose are:
  - Operator A---1900 mrem
  - Operator B---1870 mrem
  - Operator C---1850 mrem
- The given survey map reflects the current dose rates in the room.

INITIATING CUE:

Based on the HIGHEST general area dose rate in the Lower North Piping Room, select two operators to perform the task.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: A task in the Lower North Piping Room (LNPR) will require 2 operators for 3 hours. Three operators are available to perform the valve alignment and the second check. The operators' yearly-accumulated doses are Operator A-1900 mrem, Operator B-1870 mrem, and Operator C-1850 mrem. The given survey map reflects the current dose rates in the room.

TASK STANDARD: The examinee has selected operators "B" and "C" to perform the task.

TASK PERFORMANCE AIDS: HP survey map of LNPR.

INITIATING CUE:

Based on the HIGHEST general area dose rate in the Lower North Piping Room, select two operators to perform the task.

CRITICAL ELEMENTS (C) 3

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Determine the HIGHEST general area dose rate in the Seal Injection Filter (F2) filter cubicle from the given survey map of Lower North Piping Penetration Room (LNPPR).	Examinee has determined the HIGHEST general area dose rate in Lower North Piping Room (LNPR) from the given survey map of. (40 mrem/hr)			
	2. Calculate the expected dose each operator will receive.	Examinee has calculated expected dose each operator will receive: (40 mr/hr * 3 hours = 120 mrem)			
(C)	3. Determine the 2 operators to perform the task.	Added expected dose to each operator accumulated exposure and selected operators "B" and "C".			

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-EAL2

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-SRO-EAL2

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EMERGENCY PROCEDURES/PLAN

TASK: CLASSIFY AN EMERGENCY EVENT

JTA#: 13445110303

KA VALUE RO: 2.3 SRO: 4.1 KA REFERENCE: 2.4.41

APPROVED FOR ADMINISTRATION TO: RO: _____ SRO: X

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: N/A SRO: X

ACTUAL TESTING ENVIRONMENT: SIMULATOR: X PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1903.010 REV. 35-00-0 1903.011 REV. 24-00-0

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- An OTSG tube leak required plant shutdown at 5% per minute.
- During shutdown makeup flow indication went up from a stable indication of 65 gpm to 175 gpm.
- Unit One was shutdown and a cooldown commenced.

INITIATING CUE:

For the given plant conditions, determine the applicable EAL classification and initiate notifications through step 4 of the applicable Shift Superintendent checklist in 1903.011.

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-SRO-EAL2

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The following conditions existed during Operating test 1 Scenario 1. An OTSG tube leak required plant shutdown at 5% per minute. During shutdown makeup flow indication went up from a stable indication of 65 gpm to 175 gpm. Unit One was shutdown and a cooldown commenced.

TASK STANDARD: Examinee correctly classifies this event as a Alert per EAL 2.2 and makes notifications to plant personnel per step 4 of 1903.011M

TASK PERFORMANCE AIDS: 1903.010 Attachments 1 and 3, 1903.011 Attachment 2, and 1903.011M

INITIATING CUE:

For the given plant conditions, determine the applicable EAL classification and initiate notifications through step 4 of the applicable Shift Superintendent checklist in 1903.011.

CRITICAL ELEMENTS (C) 3, 6

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Compare event conditions with the Index of EALs, Attachment 1 of 1903.010, Emergency Action Level Classification.	Turned to Attachment 1 of 1903.010, Index of EALs.	____	____	____
	2. Turn to appropriate EAL and compare EAL criteria with event conditions.	Turned to a specific EAL in Secondary System Events, Attachment 3 of 1903.010.	____	____	____
(C)	3. Declare the emergency classification.	Declared or stated the event is an Alert (based on RCS Leakage > Normal Makeup Capacity (50 gpm)- not required to be stated) in accordance with EAL 2.2.	____	____	____
	4. Initiate immediate notifications.	Referred to 1903.011 and turned to Attachment 2.	____	____	____
NOTE: Cue the examinee that the Unit 2 Shift Engineer is performing the initial notifications per 1903.011 after the examinee has stated that Unit 2 Shift Engineer (or control room comunicator) has been requested.					
	5. Begin completion of form 1903.011M, Alert Emergency Direction and Control Checklist for Shift Superintendent.	Began completion of form 1903.011M Alert Emergency Direction and Control Checklist for Shift Superintendent. Examinee should fill in the data on items 1 and 2. Examinee should simulate (or state) direction of the SE to complete the initial notification.	____	____	____
(C)	6. (Simulate) Announce emergency on plant paging system.	Used plant-paging system to (simulate) make announcement per step 4 of form 1903.011M	____	____	____

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-SURV2

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-SURV2

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - CONDUCT OF OPERATIONS

TASK: CONDUCT SHIFT SURVEILLANCE TESTS

JTA#: 10765030201

KA VALUE RO: 2.8 SRO: 3.1 KA REFERENCE: 2.1.25

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATE SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1104.029, Rev. 052-02-0

EXAMINEE'S NAME: _____ SSN ___-___-____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- The quarterly surveillance test of Service Water Pump P-4C is in progress.
- Supplement 3 of 1104.029 is complete to step 2.8.
- The SPDS calculated suction pressure point for Bay C is inoperable.

INITIATING CUE:

The CRS directs you to complete the quarterly surveillance test of P-4C in accordance with 1104.029, Supplement 3.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The quarterly surveillance test of Service Water Pump P-4C is in progress. Supplement 3 of 1104.029 is complete to step 2.8. The SPDS calculated suction pressure point for Bay C is inoperable.

TASK STANDARD: The examinee records data correctly on Supplement 3 of 1104.029 and determines the data is outside of the band given in the acceptance criteria.

TASK PERFORMANCE AIDS: 1104.029, Supplement 3, completed to step 2.8.

INITIATING CUE:

The CRS directs you to complete the quarterly surveillance test of P-4C in accordance with 1104.029, Supplement 3.

CRITICAL ELEMENTS (C) 2.A, 2.B, 2.C

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review 1104.029, Supplement 3.	Examinee reviewed 1104.029, Supplement 3.			
(C)	2. Plot test value on P-4C pump curve in Section 3.0 using values recorded in Section 3.0. 2.A Calculate pump suction pressure in order to obtain pump differential pressure. (Instructions identified by *** at bottom of Section 3.0)	Examinee correctly calculated pump suction pressure in accordance with instructions (***) at bottom of page 11 of Supplement 3. (356.5 - 337.9) x 0.433 = 8.05 psig			
(C)	2.B Plot data point on pump curve in Section 3.0.	Examinee correctly plotted pump data on pump curve. Plotted point should intersect at 93 psid and 4050 gpm.			
(C)	2.C Evaluate data point, compare to "ACCEPTABLE NORMAL RANGE" and "LIMITING RANGE FOR OPERABILITY" curves. (Steps 3.1 and 3.2 of Section 3.0)	Examinee circled "NO" in column titled "IS DATA WITHIN LIMITING RANGE" and row for Loop II Flow and Actual Pump DP. Examinee discussed declaring pump inoperable, notifying S/S, writing Condition Report, and initiating corrective action.			
NOTE: Inform examinee that completion of remainder of surveillance is unnecessary.					

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-CLER1

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-CLER1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EQUIPMENT CONTROL

TASK: CONDUCT EQUIPMENT TAGOUTS (EQUIPMENT CLEARANCE AND SWITCHES)

JTA#: 144951101A4

KA VALUE RO: 3.6 SRO: 3.8 KA REFERENCE: 2.2.13

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: _____ OUTSIDE CR: _____ BOTH: X

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1000.027 Rev. 025-01-0; 1107.001 Rev. 056-00-0; M-207 Sh.1 Rev. 55

_____

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- A clearance has been prepared by another operator for Condensate Demineralizer Regeneration Pump P-77 seal maintenance.
- The work order has been reviewed and it has been determined the pump must be disassembled and drained.

INITIATING CUE:

The CRS tells you to review the clearance of P-77 (clearance no. A1-98-1470) so the clearance can be authorized for hanging. Identify at least 2 errors on the clearance in accordance with 1000.027, Protective Tagging Control.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: A clearance has been prepared by another operator for Condensate Demineralizer Regeneration Pump P-77 seal maintenance. The work order has been reviewed and it has been determined the pump must be disassembled and drained.

TASK STANDARD: The examinee has correctly identified 2 errors on the clearance per 1000.027.

TASK PERFORMANCE AIDS: 1000.027, PC prepared with ANO Test Tagging System, data entered to support this JPM, M-207 Sh. 1, 1107.001, Att. D.

INITIATING CUE:

The CRS tells you to review the clearance of P-77 (clearance no. A1-98-1470) so the clearance can be authorized for hanging. Identify at least 2 errors on the clearance in accordance with 1000.027, Protective Tagging Control.

CRITICAL ELEMENTS (C) 2

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
NOTE: Provide examinee with a PC with the ANO Operations menu ready. Inform examinee he is to use the ANO TEST TAGGING SYSTEM instead of the normal tagging system.					
	1. Verify either the preparer or reviewer is a licensed operator.	Examinee reviewed the clearance and noted the preparer is a CRS.			
(C)	2. Identify errors.	Examinee identified 2 of the following: 1. Clearance boundary NOT adequate - P-77 recirc valve CD-29 should be tagged closed since it routes flow upstream of the suction valve CD-28. 2. Clearance does not have a drain valve with a position of OPEN for CD-3206. 3. Clearance does not specify in the SPECIAL INSTRUCTIONS section that no vent path for draining is present and therefore the pump may not be completely drained after tagging. 4. Tagged position designator for breaker improper. 5. Sequence of tagging isolation valves improper, suction tagged prior to discharge.			

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-RBPUR

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-RBPUR

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - RADIATION CONTROL

TASK: ESTABLISH REACTOR BUILDING PURGE

JTA#: 10295020101

KA VALUE RO: 2.7 SRO: 3.2 KA REFERENCE: 2.2.12

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: _____ SIMULATOR: PERFORM LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 10 MINUTES

REFERENCE(S): 1104.033, Rev. 56

_____

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

- The plant is in cold shutdown for refueling.
- A Reactor Building Purge Permit, Att. B of 1104.033 has been completed through step 5.5.3.

INITIATING CUE:

The Shift Superintendents of both units have approved a Reactor Building Purge of Unit One to reduce Reactor Building air activity in preparation for refueling operations. The Control Room Supervisor directs you to start Reactor Building Purge in accordance with the release permit.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is in cold shutdown for refueling. A Reactor Building Purge Permit, Att. B of 1104.033 has been completed through step 5.5.3.

TASK STANDARD: The examinee properly initiates RB Purge per 1104.033, Att. B and then secures RB Purge when informed of flow rate outside of the allowable band.

TASK PERFORMANCE AIDS: Completed 1104.033, Attachment B and Preliminary Release Report from Nuclear Chemistry.

INITIATING CUE:

The Shift Superintendents of both units have approved a Reactor Building Purge of Unit One to reduce Reactor Building air activity in preparation for refueling operations. The Control Room Supervisor directs you to start Reactor Building Purge in accordance with the release permit.

CRITICAL ELEMENTS (C) 2, 3, 7, 8, 9

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Review 1104.033, Attachment B.	Examinee reviewed 1104.033, Attachment B.	___	___	___
NOTE: Inform examinee that Reactor Building and atmospheric pressures are equal.					
(C)	2. Place RB Purge Exhaust Fan in AUTO.	At C19, placed RB Purge Exhaust Fan (VEF-15) in AUTO.	___	___	___
(C)	3. Start RB Purge Supply Fan.	At C19, placed RB Purge Supply Fan (VSF-2) handswitch in START.	___	___	___
	4. Record time, date, and permit number on Recorder RR-4830.	At C25, recorded time, date, and permit number on Radiation Monitoring Effluent Recorder (RR-4830) paper.	___	___	___
NOTE: Inform examinee that SPING 1 reads 4.8 x 10^4 CFM.					
	5. Verify actual (stable) flow rate is $3.6x10^4$ to $4.4x10^4$ CFM.	On RDACS terminal, checked SPING 1, point 10, Stack Flow, is within $3.6x10^4$ to $4.4x10^4$ CFM.	___	___	___
	6. Notify S/S of termination of RB Purge Release.	Examinee returns to Control Room and notifies S/S of termination of release due to flow outside of the expected band.	___	___	___
(C)	7. Stop Purge Supply Fan	On C19, stopped Purge Supply Fan (VSF-2).	___	___	___
(C)	8. Stop Purge Exhaust Fan.	On C19, stopped Purge Exhaust Fan (VEF-15).	___	___	___
(C)	9. Close RB Purge dampers.	On C16 and C18, closed RB Purge damper CV-7403 and CV-7404.	___	___	___

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	10. Record time, date, and permit number on Recorder RR-4830.	At C25, recorded time, date, and permit number on Radiation Monitoring Effluent Recorder (RR-4830) paper.	____	____	____
	11. Take action to have fan flow adjusted to within limits.	Examinee discussed submittal of MAI to correct fan flow and restart of purge after maintenance.	____	____	____

END

ADMINISTRATIVE JOB PERFORMANCE MEASURE

TUOI: ANO-1-JPM-RO-FPS1

UNIT: 1 REV # 0 DATE: _____

TUOI NUMBER: ANO-1-JPM-RO-FPS1

SYSTEM/DUTY AREA: ADMINISTRATIVE TOPIC - EMGERGENCY PROCEDURES/PLAN

TASK: MONITOR THE FIRE PROTECTION SYSTEMS.

JTA#: 10865060101

KA VALUE RO: 3.3 SRO: 3.4 KA REFERENCE: 2.4.31

APPROVED FOR ADMINISTRATION TO: RO: X SRO: _____

TASK LOCATION: INSIDE CR: X OUTSIDE CR: _____ BOTH: _____

SUGGESTED TESTING ENVIRONMENT AND METHOD (PERFORM OR SIMULATE):

PLANT SITE: SIMULATE SIMULATOR: _____ LAB: _____

POSITION EVALUATED: RO: _____ SRO: _____

ACTUAL TESTING ENVIRONMENT: SIMULATOR: _____ PLANT SITE: _____ LAB: _____

TESTING METHOD: SIMULATE: _____ PERFORM: _____

APPROXIMATE COMPLETION TIME IN MINUTES: 5 MINUTES

REFERENCE(S): 1203.009 REV. 020-00-0

EXAMINEE'S NAME: _____ SSN _____-_____-_____

EVALUATOR'S NAME: _____

THE EXAMINEE'S PERFORMANCE WAS EVALUATED AGAINST THE STANDARDS CONTAINED IN THIS JPM AND IS DETERMINED TO BE:

SATISFACTORY: _____ UNSATISFACTORY: _____

PERFORMANCE CHECKLIST COMMENTS:

_____

_____

_____

_____ Start Time _____ Stop Time _____ Total Time

SIGNED _____ DATE: _____

SIGNATURE INDICATES THIS JPM HAS BEEN COMPARED TO ITS APPLICABLE PROCEDURE BY A QUALIFIED INDIVIDUAL (NOT THE EXAMINEE) AND IS CURRENT WITH THAT REVISION.

EXAMINEE'S COPY

JPM INITIAL TASK CONDITIONS:

The plant is at 100% power operations. The Fire Protection System Trouble annunciator is in alarm (K12-D1).

INITIATING CUE:

The CRS directs you to determine the cause of annunciator K12-D1 in accordance with 1203.009, Fire Protection System Corrective Action and determine the actions to be completed.

THE EXAMINER SHALL REVIEW THE FOLLOWING WITH THE EXAMINEE:

The examiner shall review the "Briefing Checklist - System Walkthrough" portion of OP 1064.023 Attachment 6 with the examinee.

JPM INITIAL TASK CONDITIONS: The plant is at 100% power operations. The Fire Protection System Trouble annunciator is in alarm (K12-D1).

TASK STANDARD: The examinee has located the correct portion of 1203.009 and has determined the applicable corrective action.

TASK PERFORMANCE AIDS: 1203.009

INITIATING CUE:

The CRS directs you to determine the cause of annunciator K12-D1 in accordance with 1203.009, Fire Protection System Corrective Action, and determine the actions to be completed.

CRITICAL ELEMENTS (C) 3, 5

(C)	PERFORMANCE CHECKLIST	STANDARD	N/A	SAT	UNSAT
	1. Check K125 on C19 for source of trouble alarm.	Used 1203.009, turned to K12-D1 for operator Actions and checked K125 on C19 for amber trouble LED's.	____	____	____
NOTE: If simulating this JPM, inform examinee that "C463 PANEL TROUBLE" yellow light is ON.					
	2. Determine C463 to be source of trouble.	Determined C463 to be source of yellow trouble LED from K125.	____	____	____
NOTE: If simulating this JPM, inform examinee that the following yellow trouble LED is ON - B2-8U "TROUBLE ZONE 97-R Cable Spread Room".					
(C)	3. Determine proper corrective actions for trouble LED per Attachment A.	Referred to Attachment A and went to the corrective actions for B2-8U, Cable Spread Room.	____	____	____
	4. Check condition of FS-97, Cable Spread Room Deluge UAV-5638 isolation valve.	Contacted Inside AO to check the position of FS-97.	____	____	____
NOTE: Inform examinee that Inside AO reports FS-97 fully open. ***NOTE: The following step does not require the examinee to reference actions in 1000.152.***					
(C)	5. Report fire system impairment due to open circuit in deluge valve actuation string.	Examinee discussed reporting of fire system impairment (due to open circuit in deluge valve actuation string) and discussed referring to Attachment 1 of 1000.152 for compensatory measures.	____	____	____

END

Facility: ANO-1 Scenario No: 1 Op-Test No: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Objectives:

- Evaluate Reactor Trip immediate and follow-up actions.
- Evaluate the use of EOP for Steam Generator Tube Rupture.
- Evaluate the usage of the AOP for Steam Generator Tube Leakage.
- Evaluate the performance in response to pressurizer systems failures.
- Evaluate the performance of shifting service water pump configuration.

Initial Conditions:

- 100%, MOL, equilibrium Xenon
- P4A and P4C in service
- P4B MOD aligned to A-4
- Sluice gates SG-1, SG-2, SG-4 open
- PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure
- Breaker A-113 handswitch RTN failure

Turnover:

- 100% Power, equilibrium Xenon,
- PT1021 on C04 Hard selected to "X" instrument due to a SASS module failure
- "A" service water strainer approaching 8 psid as reported by Auxiliary Operator
- Severe thunderstorm warning for Pope, Johnson, and Logan counties (All notifications/verifications have been made)

Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	N (BOT)	Shift service water pumps to "B" and "C" running to allow for maintenance to clean the discharge strainer.
2	TR458 2300 R120 D0 2155	I (BOR)	RCS controlling pressure transmitter, PT1021, slowly fails to 2300 psig.
3	IOR -DO HS1008_R False ICM CV1008_a .15	C (BOR)	PZR spray valve leaks by with closed indication.
4	FW087	C (BOT) R (BOR)	Heater Drain Pump, P8B, motor bearing heatup/trip
5	RX150	I (BOT)	Turbine EHC stops responding in ICS Auto mode
6	RC001 .008	R (BOT) C (All)	"A" OTSG small tube leak resulting In rapid plant shutdown with the turbine in the leading mode (manual).
7	RC001 .25	M (All) C (All)	"A" OTSG tube rupture
8	IOR –DI 152-113/CS_G01 False	C (BOT)	Failure of Breaker A-112 to open when Breaker A-113 is closed. (SU1 to A1 handswitch R-T-N failure)

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent (M)ajor

Simulator Instructions for Scenario #1				Page 2 of 10
Event No	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
8	T=0	IOR –DI 152-113/CS_G01	False	Failure of Breaker A-112 to open when Breaker A-113 is closed. (SU1 to A1 handswitch R-T-N failure)
1	T=1	None	None	Shift service water pumps to "B" and "C" running to allow for maintenance to clean the discharge strainer.
2	T=12	IMF TR458	2300 R120 D0 (2155)	RCS controlling pressure transmitter, PT1021, slowly fails to 2300 psig
3	T= Spray valve closed	IOR –DO HS1008_R ICM CV1008_a	False .15 R0 D0	PZR spray valve leaks by with closed indication
4	T=25	IMF FW087	N/A	Heater Drain Pump, P8B, motor bearing heatup/trip
5	T=Pwr Reduc	IMF RX150	N/A	Turbine EHC stops responding in ICS Auto mode
6	T=35	IMF RC001	.008 R60 D0	"A" OTSG small tube leak resulting In rapid plant shutdown with the turbine in the leading mode (manual).
7	T=50	MMF RC001	.25 R120 D0	"A" OTSG tube rupture

Op-Test No: 1 Scenario No: 1 Event No: 1 Page 3 of 10

Event Description: Shift service water pumps.

Time	Position	Applicants Actions or Behavior
	CRS	Direct the performance of shifting service water pumps per 1104.029
		NOTE Occasionally bring in the annunciator for P4A Strainer DP, K10C3, and clear to indicate DP at alarm setpoint until P4A is stopped. **IOR -DO K10C3 True** **DOR -DO K10C3**
	CRS	Notify Nuclear Chemistry of SW pump rotation
	CBOT	Check both breakers A-303 and A-403 open on C18 and C16 respectively
	CBOT	Align P-4B MOD to A-3 using the handswitch on C18
	CBOT	Close sluice gate SG-4
	CBOT	Open sluice gate SG-3
	CBOT	Start service water pump P-4B **NOTE: P4B may be started prior to the alignment of SG3 and SG4**
	CBOT	Stop P-4A
	CBOR	Verify normal loop pressures
	CBOT	Monitor SW Bay level, CW Bay level, and Bay differentials for proper operation of SW Bay strainers
		EVENT TERMINATION CRITERIA 1104.029, SECTION 9.0, completed with "B" and "C" service water pumps operating

Op-Test No: 1 Scenario No: 1 Event No: 2 & 3 Page 4 of 10 Event Description: Controlling RCS pressure fails and Pzr. Spray Valve leaks through		
Time	Position	Applicants Actions or Behavior
	CBOR	Identify and report a difference between RCS pressure indications.
NOTE Crew may or may not identify the PZR Spray valve simultaneous with pressure indication failure.		
	CREW	Diagnose failed RCS pressure indication using panel indications, plant computer and SPDS. **Tech. Spec. Table 3.5.1-1 (pg. 44)**
	CRS	Direct operation per 1203.015, PZR systems failure Section 4
	CBOR	Determine and report that the failed indication is controlling RCS pressure.
	CBOR	Manually close the pressurizer spray valve
	CRS	Direct the CBOR to select the alternate RCS pressure indication for control.
	CBOR	Recognize continued lowering of RCS pressure
	CRS	Reference Pressurizer Systems Failures (1203.015), Pressurizer Spray Valve (CV-1008) Failure section.
	CBOR	Place PZR Spray valve in HAND and attempt to torque closed.
	CBOR	When directed, close PZR Spray Isolation valve (CV-1009). **Tech. Spec. 3.1.2.5, pg. 18**
	CBOR	Recognize and report that RCS pressure is recovering.
EVENT TERMINATION CRITERIA Pressurizer Spray Isolation valve closed with control of RCS pressure		

Op-Test No: 1 Scenario No: 1 Event No: 4&5

Event Description: Heater Drain Pump (P8B) motor bearing heatup/trip. Turbine EHC fails to respond.

Time	Position	Applicants Actions or Behavior
	CREW	Identify and report P8A/P8B BRG TEMP HI annunciator in alarm.
	CRS	Direct crew operations in accordance with ACA 1203.012E for K06-D8
	CREW	Recognize P8B trip
	CRS	Direct operations per 1203.012E ACA for P8A/B Flow Lo & 1203.045 Rapid Plant Shutdown and order a plant power reduction to 85%
	CBOR	Commence power reduction using the ULD or SG/RX master
	CREW	Verify plant is reducing power and T40B level controls on its high level dump.
	CBOT	Recognize failure of turbine to respond
NOTE Turbine may revert to Operator Auto mode before operator takes action.		
	CBOT	Take the turbine to manual or operator auto
	CBOT	Continue power reduction in turbine leading mode
	CBOR CBOT	Verify FW pump suction pressure recovers as plant power is reduced

ROLE PLAY

As Auxiliary Operator (AO), when asked to investigate P8B trip wait ~5 minutes and then report that an overcurrent trip flag on P8B is present on the breaker cubicle.

When sent, the AO can report T40B HLD isolation is open.

If asked about PPAS information, report ICS signal to EHC good.

continued

Op-Test No: 1 Scenario No: 1 Event No: 4&5

Event Description: Heater Drain Pump (P8B) motor bearing heatup/trip. Turbine EHC fails to respond

Time	Position	Applicants Actions or Behavior
	CBOR	Stabilize power at ~85%

EVENT TERMINATION CRITERIA

Plant power stable at ~85%.

Op-Test No: 1 Scenario No: 1 Event No: 6

Event Description: "A" OTSG tube leak.

Time	Position	Applicants Actions or Behavior
	CBOR/T	Identify and report A OTSG N16 TROUBLE annunciator (K07-A5).
	CBOR	Begin leak rate determination. **Tech. Spec. 3.1.6.3.b Leakage (pg. 27)** **EAL 2.1 NUE RCS Leakage > T.S. Limits requiring a plant S/D or C/D**
	CRS	Reference Small Generator Tube Leaks Abnormal Operating procedure (1203.023).
ROLE PLAY If notified as Chemistry to determine leak rate: • using condenser off gas wait ~5 minutes (Time Compressed) • using steam generator sample wait ~8 minutes (Time Compressed) then report approximate leak rate displayed on PS1 display.		
	CRS	Reference Rapid Plant Shutdown Abnormal Operating procedure (1203.045). Direct CBOT/CBOR to commence a plant shutdown at ~5% per minute.
	CBOT	Begin plant shutdown with the turbine controls in Operator Auto or Manual mode
	CRS	Direct Auxiliary Operators to implement Control of Secondary Contamination Abnormal Operating procedure (1203.014).
	CBOT	Select ANALYZER position for "A" OTSG N_{16} detector.
	CBOR	Place SG EFW Pump Turbine (K3) Steam Supply valve (CV-2667) in MANUAL and close.
	CRS	Notify Health Physics to commence monitoring of secondary system for rising radiation levels.
EVENT TERMINATION CRITERIA This malfunction will remain in effect for the remainder of this scenario.		

Op-Test No: 1 Scenario No: 1 Event No: 7&8 Page 8 of 10

Event Description: "A" OTSG tube rupture (~100gpm). Failure of Breaker A-112 to open when Breaker A-113 is closed.

Time	Position	Applicants Actions or Behavior
	CBOR	Determine and report OTSG tube leak rate has increased. **EAL 2.2 ALERT RCS Leakage > Normal Makeup Capacity**
	CRS	Transition to OTSG Tube Rupture Emergency Operating procedure (1202.006).
	CBOT	Open BWST Outlet to OP HPI pump (CV-1407 or CV1408).
	CBOR CBOT	Reduce or isolate letdown flow NOTE Letdown is isolated at this point by closing Letdown Coolers Outlet valve (CV-1221).
CT	CBOT	Initiate HPI per RT2 as required.
	CBOT	When unit is ≤55% stop Heater Drain Pumps (P8A, B).
IA NOTE When station auxiliaries are being shifted, if the operator fails to open one of the two closed feeder breakers to the A1 bus within 30 seconds, TRIP the A1 bus by inserting IMF ED185.		
	CBOT	When unit is ≤50% transfer station auxiliaries to Start Up #1 transformer.
	CBOT	Recognize failure of Breaker A-112 to auto open after Breaker A-113 is closed and the handswitch is released.
CT	CBOT	Manually open Breaker A-112
	CBOT	Report to the CRS that the breaker had failed to open automatically and that you had to manually open the breaker.
	CBOR/T	At ~350 Mwe, open the feedwater cross-tie valve and trip the "B" MFP

CONTINUED

Op-Test No: 1 Scenario No: 1 Event No: 7&8 Continued Page 9 of 10

Event Description: "A" OTSG tube rupture (~100gpm). Failure of Breaker A-112 to open when Breaker A-113 is closed.

Time	Position	Applicants Actions or Behavior
	CBOT	When unit is ≤180 Mwe open HP Turbine Drain valves on C02.
	CBOT	When unit is ≤100 Mwe secure reheaters.
	CBOR	When both SG's are on low level limits; 1. Place both Feedwater Demand H/A Stations in HAND 2. Adjust demands to zero 3. Place Diamond Panel in MANUAL 4. Adjust rods to control reactor power at 10-12%.
	CBOT	When reactor power is <12% 1. Reduce turbine load to 20-30 Mwe 2. Check Turbine Bypass valves controlling header pressure 880-920 psig 3. Verify plant auxiliaries on SU1
	CBOT	Trip the turbine and perform the following; • Check throttle and governor valves shut. • Verify Main Generator and Exciter field breakers open. • Check Turbine Bypass valves operate to control header pressure 880-920 psig.
	CBOR	Select "A" OTSG to indicate on header pressure recorder.
	CBOR CBOT	Check PZR Level 200-220". If <200" increase HPI as required to have PZR Level rising.
	CBOR	Place both Turbine Bypass valve H/A stations in HAND.
	CBOR	Adjust header pressure setpoint to 45.
	CBOR	Trip the reactor and immediately place both Turbine Bypass valve H/A stations in AUTO.

CONTINUED

Op-Test No: 1 Scenario No: 1 Event No: 7&8 Continued Page 10 of 10

Event Description: "A" OTSG tube rupture (~100gpm). Failure of Breaker A-112 to open when Breaker A-113 is closed.

Time	Position	Applicants Actions or Behavior
	CBOR	Verify all rods inserted and reactor power dropping.
	CBOR	Check Turbine Bypass valves controlling OTSG pressure 950-990psig.
	CBOR	Operate PZR heater and spray in hand as required to maintain RCS pressure low within the limits of figure 3.
	CBOR/T	Stabilize PZR level ≥55".
	CBOT	Select "A" OTSG N_{16} to GROSS position.
CT	CBOR	Place Turbine Bypass valves for the "B" OTSG in hand and adjust to initiate and maintain a cooldown rate of ≤100°F per hour.

EVENT AND SCENARIO TERMINATION CRITERIA

RCS Cooldown in progress and controlled at ≤100°F per hour using the "B" OTSG

OR

As directed by the lead examiner

Facility: ANO-1 Scenario No: 2 Op-Test No: 1

Examiners: _____ Operators: _____

_____ _____

_____ _____

Objectives:

- Evaluate Reactor trip immediate and follow-up actions
- Evaluate usage of EOP actions for ESAS
- Evaluate usage of EOP actions for Overcooling
- Evaluate usage of AOP actions for Loss of Steam Generator feed
- Evaluate usage of AOP actions for Rapid Plant Shutdown
- Evaluate usage of AOP actions for Loss of Neutron Flux

Initial Conditions:

- 100% power
- RPS is failed and will not cause an automatic trip
- Reactor trip pushbutton is failed
- ESAS channels 5 and 6 will fail to auto actuate (Manual actuation using pushbuttons on C04 will function correctly)
- "A" MFP STBY oil pump failed and will not start automatically or manually
- Service water discharge to ECP open; return to lake closed

Turnover:

- 100% power
- Service water being returned to the ECP to makeup for low level
- Bulk diesel fuel oil is being unloaded at the fuel vault.

Event No.	Malfunction No.	Event Type*	Event Description
1	N/A	N (BOR)	Chemistry reports backup boron samples indicate pressurizer boron 55 ppm greater than RCS boron. Crew must equalize boron per normal operations procedures.
2	NI240	I (BOR) R (BOR)	Nuclear Instrumentation drifts high, resulting in power reduction
3	EG172	C (BOT)	Main Generator automatic voltage regulator fails high
4	P26A_a 0 CV2827_a .95	C (BOT)	"A" MFP trips due to a loss of lube oil pump. Main feedwater cross-tie valve fails to open completely.
5	TR051 320 R2:00	I (BOR)	Selected Pressurizer level transmitter fails high
6	MS131 .4 R4:00	M (All) R (BOR)	"A" Main steam line rupture inside containment. Requires Rapid Plant Shutdown/Rx. Trip
7	RP246 RP247 RP249 ICC0020	C (BOR)	Reactor Protection System will fail to trip when any trip setpoint is reached. Reactor Trip pushbutton on C04 fails to trip the reactor
8	ES263 ES264	C (BOR)	ES channels 5 and 6 fail to auto actuate when trip setpoint is reached

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent (M)ajor

Simulator Instructions for Scenario #2				Page 2 of 10
Event No.	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
INIT 7&8	T=0	ICM P26A_a IMF RP247 IMF RP248 IMF RP249 IOR –DI ICC0020_T IMF ES263 IMF ES264	0 R0 D0 N/A N/A N/A FALSE N/A N/A	"A" MFP Stby Oil Pump failure RPS Channel "B" failure RPS Channel "C" failure RPS Channel "D" failure Reactor Trip Pushbutton failure ESAS Channel 5 failure to auto actuate ESAS Channel 6 failure to auto actuate
1	T=3	None	None	Chemistry reports backup samples indicate pressurizer boron 55 PPM greater than RCS boron. Crew must equalize boron per normal operating procedures.
2	T=10	IMF NI240	None	Nuclear Instrumentation drifts high, resulting in power reduction.
3	T=20	IMF EG172	100 R180 D0	Main Generator automatic voltage regulator fails high
NOTE Input the failure of the cross-tie valve after the MFP trips				
4	T=25	ICM P27A_a ICM CV2827_a	0 R0 D0 .95 R0 D0	"A" MFP trips due to a loss of lube oil pump. Main feedwater cross-tie valve fails to open completely.
5	T=32	IMF TR051	320 R120 D0	Selected Pressurizer level transmitter fails high
6	T=40	IMF MS131	.4 R240 D0	"A" Main steam line rupture inside containment. Requires Rapid Plant Shutdown/Rx. Trip.

Op-Test No: 1 Scenario No: 2 Event No: 1 Page 3 of 10

Event Description: Equilize boron between the Pressurizer and the RCS.

Time	Position	Applicants Actions or Behavior
		IA NOTE Call as Chemistry and report most recent backup sample reveals boron in Pressurizer is >50 ppm more than the RCS boron
T=3	CRS	Determine the need to equilize boron between the Pressurizer and RCS based on the report from Nuclear Chemistry that the Pressurizer is >50 ppm higher than the RCS.
	CRS	Using normal operations procedure 1103.005, direct the equilization of boron by either method 1 or 2.
	CBOR	IF using method 1: • Place Pressurizer spray valve in manual and open slightly • Place some Pzr heaters in manual and throttle spray flow to hold pressure steady • Monitor RCS pressure closely.
	CBOR	IF using method 2: • Place desired Pzr heaters in manual and monitor RCS pressure closely. • Verify Pzr spray valve cycles automatically to control RCS pressure between 2205 and 2155 psig
	CRS	Announce if any upset occurs while equalizing boron, immediately return Pzr heaters to automatic
	CRS	Request chemistry sample Pzr boron.
		NOTE This evolution should continue until another events occurs
		EVENT TERMINATION CRITERIA **Pressurizer heaters and/or spray valve are returned to automatic**

Op-Test No: 1 Scenario No: 2 Event No: 2 Page 4 of 10

Event Description: NI Channel drifts high resulting in power decrease and restoration by the crew.

Time	Position	Applicants Actions or Behavior
T=10	CREW	Recognize plant transient in progress
	CBOR	Place ICS in manual to stabilize the transient
	CREW	Diagnose NI failure **Tech. Spec. 3.5.1.3 (pg. 42)**
	CRS	Direct operation per 1203.021 Loss of Neutron Flux Indication Section 1
	CREW	Recognize RPS channel "A" trip
	CBOT	Check for normal voltage on the power range detector
ROLE PLAY When the CBOT checks NI detector power inform him that "normal voltage is indicated"		
To Reset the RPS channel **after** being bypassed do the following IOR –AO NI0509L_A 1 2e2 DMF NI240		
	CBOR	Hard select the good NI signals for ICS control
	CBOT	Bypass RPS channel "A"
	CBOT	(If Directed) Place the Power range test module in test operate position and reset the tripped channel
	CBOR	Return ICS to automatic
EVENT TERMINATION CRITERIA **Plant stable**		

Op-Test No: 1 Scenario No: 2 Event No: 3

Event Description: Main Generator automatic voltage regulator fails high

Time	Position	Applicants Actions or Behavior
T=20	CBOT	Identify and report annunciator K04-A6, Voltage Regulator Trip
	CRS	Direct placing the voltage regulator in the "OFF" position and control of machine voltage by use of the Base Adjuster. Refer to ACA 1203.012C.
	CBOT	Place the AVR control switch in the "OFF" position.
	CBOT	Monitor and adjust main generator voltage, using the Base adjuster, to maintain ~22,000 volts.
	CRS	Notify the Pine Bluff Dispatcher of the condition.

EVENT TERMINATION CRITERIA

Automatic voltage regulator in "OFF" position and voltage maintained at ~22,000 volts

Op-Test No: 1 Scenario No: 2 Event No: 4 Page 6 of 10

Event Description: "A" Main Feedwater Pump trips and the feedwater cross-tie valve fails to open completely.

Time	Position	Applicants Actions or Behavior
T=25	CBOR/T	Identify and report the "A" MFP Turbine Oil Pump Trip annunciator, K06-B2, is in alarm.
	CBOT	Verify the standby oil pump, P26A, has autostarted. Determine the pump has failed to start and will not start manually.
	CBOR/T	Identify and report the "A" MFP has tripped.
	CRS	Direct operations per 1203.027
	CBOR	Verify ICS runback to <40%
	CBOT	Verify Main Generator voltage maintained at ~22,000 volts, or adjust as necessary.
	CBOR	Identify FW cross-tie valve, CV2827, has not opened fully.
ROLE PLAY		
When called as the Outside AO to check the position of the cross-tie valve, report the valve appears to be 100% open.		
	CBOR	Verify proper feedwater flow to both OTSGs.
	CBOR	Stabilize the plant
EVENT TERMINATION CRITERIA		
Plant stabilized at ~40% power		

Op-Test No: 1 Scenario No: 2 Event No: 5

Event Description: PZR level transmitter (LT1001) fails to upscale

Time	Position	Applicants Actions or Behavior
T=32	CBOR	Recognize and report that PZR level indications are mismatched
	CREW	Diagnose LT1001 failure **Tech. Spec. Table 3.5.1-1 (pg. 45d)**
	CRS	Direct operations per 1203.015 Pressurizer Systems Failure
	CRS	Direct CBOR to select valid PZR level indicator for PZR level control.
	CBOR	Select LT1002 to control PZR level control valve (CV-1235) using hand switch on upright section of C04.
	CBOR	Verify CV-1235 opens to control PZR level at setpoint.

EVENT TERMINATION CRITERIA

Pressurizer level control is selected to LT1002 and PZR level control valve is controlling level in auto.

Op-Test No: 1 Scenario No: 2 Event No: 6,7&8 Page 8 of 10

Event Description: Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.

Time	Position	Applicants Actions or Behavior
T=40	CBOR	Recognize "A" OTSG pressure dropping.
	CBOR	Monitor RB pressure and temperature.
NOTE: Due to rise in reactor building pressure and temperature, ESAS may actuate prior to the direction to trip the Reactor. Due to the failure of the Reactor Protection System to perform an automatic Reactor trip, the reactor will require manual tripping. Annunciator K12A1 will alarm due to the environmental conditions inside the Reactor Building. If panel 463 is checked for location of the alarm, instruct that module A2-5 lower, RB UNEP ZONE 32-K, in alarm.		
	CRS	Direct Rx Trip
	CBOR	Depress the Reactor Trip push-button on C03.
	CBOR	Diagnose Rx trip pushbutton failure **Tech. Spec. Table 3.5.1-1 (pg. 44)**
CT	CBOR	Depress both shunt trip pushbuttons on C04 **EAL ALERT 6.2 RPS Failure to complete an automatic trip**
	CBOT	Depress the Turbine Trip pushbutton on C01. Verify Turbine throttle and governor valves closed.
	CBOR	Reduce letdown by closing Letdown Bypass Orifice control valve, CV-1223 on C04.
	CBOR	Check RCS Subcooling Margin is adequate at >30°F.
	CRS	Direct operations per Reactor Trip Emergency Operating procedure (1202.001)
	CRS	Direct reporting of Immediate and Followup Actions.

Continued

Op-Test No: 1 Scenario No: 2 Event No: 6,7&8

Event Description: Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.

Time	Position	Applicants Actions or Behavior
	CBOR	Report the reactor is tripped.
	CBOT	Report the turbine is tripped.
	CBOR	Report letdown flow is reduced.
	CBOR	Report current RCS Subcooling Margin and adequacy. (RCS SCM is expected to be adequate at this time.)
	CBOR/T	Identify and announce ESAS has actuated on high RB Pressure.
	CBOR/T	Determine and report ES Channels 5 and 6 have met valid trip setpoints and have failed to initiate. **Tech. Spec. Table 3.5.1-1 (pg. 45)**
CT	CBOR	Depress the trip push-buttons on C04 to manually actuate ES Channels 5 and 6.
	CRS	Transition to ESAS Procedure and direct crew actions
	CRS	Direct the verification of ESAS per RT10.
	CBOT	Verify actuation of ESAS per RT 10.
	CREW	Recognize SG pressure < 900#
	CRS	Transition to Overcooling Emergency Operating procedure (1202.003).
	CBOR	Actuate MSLI using the remote trip switch matrix "A" MSLI pushbuttons on C09. (4 push-buttons) or verify automatic actuation of MSLI

Continued

Op-Test No: 1 Scenario No: 2 Event No: 6,7&8 Page 10 of 10

Event Description: Main Steam line break inside containment building. Reactor trip with RPS failure. ESAS actuation with a failure of channels 5 and 6 to auto actuate when setpoint is reached.

Time	Position	Applicants Actions or Behavior
	CBOR	Report "A" MSLI actuated. **EAL NUE 3.1 Uncontrolled OTSG Depressurization Resulting in MSLI Actuation**
	CRS	Provide RT6 to CBOR to verify proper MSLI and EFW actuation and control.
	CBOR	Verify proper MSLI and EFW actuation and control per RT6.
	CBOT	When directed by CRS open BWST Outlet valve to operating HPI pump.
	CBOR	Control RCS pressure within the limits of Figure 3 per RT14 using PZR heaters

EVENT AND SCENARIO TERMINATION CRITERIA

RCS pressure and temperature stable with the "A" OTSG isolated, channels 5 and 6 of ESAS manually actuated

OR

As determined by the lead examiner.

Facility: ANO-1 Scenario No: 3 Op-Test No: 2

Examiners: _____ Operators: _____

_____ _____

_____ _____

Objectives:

- Evaluate usage of the EOP for Rx. Trip immediate and follow-up actions
- Evaluate usage of the EOP for actions required for ESAS actuation
- Evaluate usage of the EOP for actions required for Loss of Subcooling Margin
- Evaluate usage of the AOP for actions required for a Loss of reactor coolant makeup
- Evaluate usage of the AOP for actions required for RCP pump and motor emergencies.

Initial Conditions:

- 100% Power, equilibrium xenon
- RPS is failed and will not cause an automatic trip
- ESAS channels 1 and 2 are failed and will not auto actuate at setpoint
- P36A the operating pump

Turnover:

- 100% power, steady state, equilibrium xenon
- AO washing travelling screens due to mild shad run. No apparent urgency for emergency measures.
- AAC generator OOS for planned maintenance
- Both EDGs operable as checked by the latest surveillances

Event No.	Malfunction No.	Event Type*	Event Description
1	TR589 520 R5:00	I (BOR)	"A" loop Tc instrument, TT1015, fails low slowly.
2	CV095	C (BOT) N (BOR)	"A" HPI pump (normal makeup pump) bearing heats up
3	CV018	C (BOT) R (BOR)	"D" RCP first stage seal fails
4	IOR –DI 152-24/CS_T True	C (BOT)	Loss of bus "H-2" caused by Unit Aux. Feeder Breaker trip when P32D is stopped
5	RP246 RP247 RP249	C (BOR)	Reactor Protection System fails to automatically trip when Power/Pumps trip setpoint is reached
6	RC005 .01 R0 D0	M (All)	LOCA in the "A" RCS loop (Tc).
7	ES259 ES260	C (BOR)	ESAS channels 1 and 2 fail to automatically actuate at RCS pressure setpoint

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent (M)ajor

Simulator Instructions for Scenario #3				Page 2 of 8
Event No.	Time	Malfunction No. Input Command	Value/Ramp /Delay	Event Description
5&7	T=0	IMF RP246 IMF RP247 IMF RP249 IMF ES259 IMF ES260	N/A N/A N/A N/A N/A	RPS Channel "A" failure to automatically trip RPS Channel "B" failure to automatically trip RPS Channel "D" failure to automatically trip ESAS Channel 1 failure to automatically actuate ESAS Channel 2 failure to automatically actuate
1	T=2	IMF TR589	520 R5:00 D0	"A" loop Tc Instrument fails low, slowly
2	T=12	IMF CV095	N/A	"A" HPI pump (normal operating pump) bearing heatup
3	T=22	IMF CV018	N/A	"D" RCP first stage seal fails
NOTE: The next event should occur when the operators secure the "D" RCP as part of the previous event.				
4	T= P32D secured	IOR –DI 152-24/CS_T	True R0 D0	Loss of bus "H-2 caused by Unit Aux. Feeder Breaker trip when P32D is stopped.
6	T=Rx trip + 2 minutes	IMF RC005	.007 R0 D0	LOCA in the "A" RCS loop (Tc)

Op-Test No: 2 Scenario No: 3 Event No: 1 Page 3 of 8

Event Description: Loop "A" Tcold instrument fails low.

Time	Position	Applicants Actions or Behavior
T=2	CBOR/ CBOT	Recognize plant transient in progress
	CBOT	Diagnose TC instrument failure on PMS
	CBOR	Take manual control of feedwater and RX
	CBOR	Stabilize and balance feedwater and Rx power
	CRS	Direct operations per 1105.004, 1203.012F, and 1105.006
	CBOR	Select TT1018 for Loop 'A' TC
	CBOR	Place ICS in full automatic

EVENT TERMINATION CRITERIA

Redundant operable instrument selected and ICS returned to automatic

Op-Test No: 2 Scenario No: 3 Event No: 2 Page 4 of 8

Event Description: "A" HPI pump (normal operating pump) bearing heats up.

Time	Position	Applicants Actions or Behavior
T=12	CBOR/ CBOT	Acknowledge and report HPI Pump/MTR Bearing Temp Hi annunciator
	CRS	Direct operations per ACA 1203.012I
	CBOR/ CBOT	Acknowledge and report operating HPI pump trip annunciator
	CRS	Direct operations per 1203.026
	CBOT	Isolate Letdown
	CBOT	Verify RCP seal cooling
	CBOT	Start the stand-by HPI pump
	CBOR	Re-establish normal MU & Seal injection.
	CRS	Refer to technical specifications 3.3.2.A, pg.37

EVENT TERMINATION CRITERIA

The standby HPI pump is in service and normal makeup and seal injection have been re-established.

Op-Test No: 2 Scenario No: 3 Event No: 3 Page 5 of 8

Event Description: "D" RCP Seal 1st Stage failure.

Time	Position	Applicants Actions or Behavior
T=22	CBOR	Recognize and report RCP BLEEDOFF FLOW HI annunciator (K08-B7).
	CBOT	Diagnose and report cause of alarm to be "D" RCP 1st stage seal.
	CRS	Direct operations per Reactor Coolant Pump and Motor Emergency Abnormal Operating procedure (1203.031) Section 1, Seal Degradation.
	CBOR	Verify the following valves; • RCP Seal Injection Block valve (CV-1206) open • Seal bleed-off flow (CV-1270 through CV-1274) open • RCP Total Seal Injection Flow (CV-1207) open and flow at 32-40 gpm.
	CBOR	Verify individual RCP Seal flows at 8-10 gpm.
	CBOT	Verify the following; • Peak to peak seal pressure oscillations are <800 psi. • DP across any stage <2/3 system pressure. • RCP seal temp <180°F. • RCP seal bleed off temp <40°F above 1st stage temp. NOTE Seal bleed-off temperature will rise to >40°F above 1st stage temp.
	CRS	Diagnose to need to stop the "D" RCP
	CRS	Direct power reduction using Rapid Plant Shutdown Procedure, 1203.045
	CBOR	Reduce power to <75%
	CRS	Direct the stopping of "D" RCP
	CBOT	Stop the "D" RCP

EVENT TERMINATION CRITERIA

Power reduced to allowable level and "D" RCP stopped

Op-Test No: 2 Scenario No: 3 Event No: 4 & 5 Page 6 of 8

Event Description: Loss of electrical bus H-2. Trip of second RCP at power. Reactor Protection System fails to perform an automatic trip.

Time	Position	Applicants Actions or Behavior
T= P32D secured	CREW	Recognize Loss of H-2 and the 2nd RCP >55% without an automatic Rx trip
CT	CBOR	Manually trip the reactor
	CRS	Direct operations per 1202.001
	CBOR	Verify control rods inserted and power is dropping
	CBOT	Verify the turbine is tripped by depressing the turbine trip pushbutton and observing the throttle and governor valves close.
	CBOR	Reduce letdown
	CBOR/ CRS	Recognize Alert criteria is met based upon EAL 6.2, RPS failure to complete an Automatic Trip.

EVENT TERMINATION CRITERIA

Immediate actions of the reactor trip and expected followup actions complete

Op-Test No: 2 Scenario No: 3 Event No: 6 & 7 Page 7 of 8

Event Description: LOCA in the "A" RCS loop T cold. ESAS channels 1 and 2 fail to automatically actuate upon reaching setpoint.

Time	Position	Applicants Actions or Behavior
T= Rx. Trip + 2 minutes	CBOR	Identify pressurizer and RCS pressure continuing to drop below post trip values.
	CBOT	Recognize and report RCS leakage into the Reactor Building. Tech Spec. 3.1.6 **EAL 2.4, SAE (RCS leakage >HPI capacity)**
	CRS	Direct initiation of HPI per RT 2.
NOTE The crew may manually initiate ESAS due to the imminent automatic actuation prior to reaching the setpoint and therefore may not identify the failure of channel 1 and 2 to auto actuate.		
	CREW	Recognize the actuation of ESAS on low RCS pressure.
	CBOR	Identify the failure of channels 1 and 2 of ESAS to actuate.
CT	CBOR	Manually initiate channel 1 and 2 from the pushbuttons on C04
	CRS	Transition to ESAS procedure, 1202.010, and direct crew operations
	CBOR	Check for adequate subcooling margin.
	CBOT	Verify proper ESAS actuation per RT 10.
	CBOR	Close the following valves; CV-1008, CV-1009, and CV-1000

Continued

Op-Test No: 2 Scenario No: 3 Event No: 6 & 7 Page 8 of 8

Event Description: LOCA in the "A" RCS loop Tcold. ESAS channels 1 and 2 fail to automatically actuate upon reaching setpoint.

Time	Position	Applicants Actions or Behavior
	CRS	Transition to Loss of subcooling margin procedure, 1202.002, and direct crew actions.
	CBOR	Control RCS pressure within limits of Figure 3 of EOP (RT 14)

EVENT and SCENARIO TERMINATION CRITERIA

All appropriate channels of ESAS actuated and HPI injecting water into RCS and RCS pressure stable.
OR
As directed by the lead examiner

Facility: ANO-1 Scenario No: 4 Op-Test No: 2

Examiners: _____ Operators: _____

_____ _____

_____ _____

Objectives:

- Evaluate usage of EOP for the actions required for Degraded Power condition
- Evaluate usage of EOP for Reactor Trip immediate and follow-up actions
- Evaluate usage of the AOP for actions required for Control Rod Malfunction
- Evaluate usage of the AOP for actions required for Rapid Plant Shutdown
- Evaluate the performance for ICS input failures

Initial Conditions:

- #1 EDG fails to autostart
- #1 EDG pushbutton on C10 is failed
- Group 7 Rod 3 rod motion is degraded

Turnover:

- 100% power
- AAC generator reported OOS by Unit 2. Maintenance performing required planned maintenance.
- Both Unit 1 EDGs operable as checked by reviewing latest surveillance tests.

Event No.	Malfunction No.	Event Type*	Event Description
1	TR565 620 R5:00	I (BOR)	"T_h" Instrument fails high over five minute period
2	EDB5106 Out EDB5110 Out	R (BOR) N (BOT)	EOC dispatcher requests unit to reduce power to 600MWe in the next 15 minutes due to a loss of a 500 Kv distribution line to Mablevale.
3	RD405 50	C (BOR)	Group 7 Rod 3 lags behind remainder of group rods during power reduction
4	RD293 0	C (BOR)	Group 7 Rod 3 drops into the core due to stator failure. Plant runback occurs
5	RD303 0	C (BOR)	Group 7 Rod 6 drops into the core. (Second dropped rod; requires manual reactor trip)
6	ED180	C (BOT) M (All)	Startup transformer #1 fails causing a degraded power condition.
7	IOR –DI CSI-DG1_S FALSE DG175	C (BOT)	#1 EDG fails to autostart. Manual start at C10 fails. #1 EDG can be started locally.
8	FW076	C (BOR)	P7A trips after auto-actuation

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent (M)ajor

Simulator Instructions for Scenario #4				Page 2 of 9
Event No.	Time	Malfunction No. Input Command	Value/Ramp/ Delay	Event Description
3&7	T=0	IOR –DI CSI-DG1_S IMF DG175 IMF RD405	FALSE R0 D0 N/A 50 R0 D0	Manual start at C10 fails. #1 EDG can be started locally. #1 EDG fails to autostart Group 7 Rod 3 lags behind remainder of group rods during power reduction
1	T=3	IMF TR565	620 R5:00	"T_h" Instrument fails high over five minute period
2	T=10	RMF EDB5106 RMF EDB5110	Out Out	EOC dispatcher requests unit to reduce power to 600MWe in the next 15 minutes due to a loss of a 500 Kv distribution line to Mablevale.
4	T=20	IMF RD293	0 R0 D0	Group 7 Rod 3 drops into the core due to stator failure. Plant runback occurs
5	T=25	IMF RD303	0 R0 D0	Group 7 Rod 6 drops into the core. (Second dropped rod; requires manual reactor trip)
6	T=30	IMF ED180	N/A	Startup transformer #1 fails causing a degraded power condition.
8	T=35	IMF FW076	N/A	P7A trips after auto-actuation

Op-Test No: 2 Scenario No: 4 Event No: 1 Page 3 of 9

Event Description: Thot instrument fails high over 5 minutes

Time	Position	Applicants Actions or Behavior
T=3	CBOR	Recognize plant transient in progress
	CREW	Determine a failure has occurred
	CBOR	Take manual control of RX Demand, Diamond, and Feedwater.
	CBOR	Stabilize the plant
	CREW	Diagnose T_{hot} failure
	CBOT	Verify turbine responds to ICS demand.
	CBOT	Using PMS verify alternate T_{hot} is valid
	CBOR	Select the alternate T_{hot} transmitter
	CBOR	Return ICS to automatic
	CBOR	Verify RCS pressure is being controlled by PZR heaters and spray valve.

EVENT TERMINATION CRITERIA

Plant is stable, Alternate T_{hot} Channel selected.

Op-Test No: 2 Scenario No: 4 Event No: 2&3 Page 4of 9

Event Description: EOC Dispatcher directs power reduction due to severe weather damaging transformers at Mablevale substation. Group 7 Rod 3 experiences degraded motion during power reduction.

Time	Position	Applicants Actions or Behavior
		ROLE PLAY Call control room as EOC Dispatcher and direct unit to reduce power to 650 Mwe as soon as possible due to transformer damage at the Mablevale substation. If asked by control room personnel inform them that there is serious concern over grid stability due to the severe weather and substation damage.
T=10	CRS	Direct CBOR to reduce unit load to 650 Mwe.
	CRS	Direct operations per 1203.045, Rapid Plant Shutdown.
	CBOR	Commence reduction in unit load to 650 Mwe using the ULD or SG/RX Master.
	CBOT	Verify Turbine EHC responds to ICS.
	CREW	Recognize degraded rod motion on rod 7-3
	CRS	Direct operations per 1203.003, CRD Malfunction Action
	CBOR	Continue power reduction
		EVENT TERMINATION CRITERIA **Power reduction in progress and the next event occurs**

Op-Test No: 2 Scenario No: 4 Event No: 4 Page 5 of 9

Event Description: Group 7 Rod 3 drops due to stator failure.

Time	Position	Applicants Actions or Behavior
T=15	CREW	Recognize Group 7 rod 3 drops
	CRS	Direct operations per 1203.003
	CBOR	Verify plant runback to <40%
	CBOR	Stabilize plant at ~40%

EVENT TERMINATION CRITERIA

Plant is stabilized at approximately 38-40%

Op-Test No: 2 Scenario No: 4 Event No: 5 Page 6 of 9

Event Description: Group 7 Rod 6 (second rod) drops into the core. Manual reactor trip.

Time	Position	Applicants Actions or Behavior
T=25	CREW	Recognize 2nd dropped rod
CT	CBOR	Manually trip the reactor
	CRS	Direct operations per 1202.001
	CBOR	Depress the Reactor Trip push-button. Verify all rods inserted and Reactor power dropping.
	CBOT	Depress the Turbine trip push-button. Verify Turbine throttle and governor valves closed.
	CBOR/ CBOT	Verify Adequate SCM.
	CBOR	Reduce letdown flow by closing Orifice Bypass valve (CV-1223).

EVENT TERMINATION CRITERIA

Reactor tripped and the first 6 steps of 1202.001, Reactor Trip, completed.

Op-Test No: 2 Scenario No: 4 Event No: 6 & 7 Page 7 of 9

Event Description: Degraded Power due to loss of Startup Transformer #1. #1 EDG fails to autostart.

Time	Position	Applicants Actions or Behavior
T=30	CREW	Recognize loss of SU1 and offsite power
	CRS	Transition to the Degraded Power Emergency Operating Procedure (1202.007). Direct operations per 1202.007. **Tech Spec 3.7.1 (pg. 56)**
	CBOT	Recognize the failure of #1 EDG to autostart
	CBOT	Attempt to manually start #1 EDG using push-button on C10.
	CBOT	Verify MCC B55 and B56 power selected to the operating DG.
	CRS	Dispatch AO to #1 EDG
	CRS	Communicate with Unit 2 about the availability of the AAC generator
	CBOR CBOT	Verify service water to both EDG's.
	CBOT	Close CV-3643 & CV-3644
	CBOR	Verify EFW actuated and perform RT5
	CBOR	Actuate MSLI for both OTSG's using push-buttons on C09. Verify proper actuation using RT6.
	CBOT	Isolate letdown by closing either CV1221 or Letdown Coolers Outlet valves (CV-1214 & 1216).

CONTINUED

Op-Test No: 2 Scenario No: 4 Event No: 6 & 7 Page 8 of 9

Event Description: Degraded Power due to loss of Startup Transformer #1. #1 EDG fails to autostart.		
Time	Position	Applicants Actions or Behavior
	CBOT	Place RCP Seal Bleedoff (Alternate path to Quench Tank) controls in CLOSE (SV-1270, 1271, 1272, and 1273).
	CBOT	Isolate RCP Seal Bleedoff (Normal) by closing either; CV-1274 OR CV-1271, 1272, 1273, and 1274.
EVENT TERMINATION CRITERIA This event will remain in progress for the remainder of the scenario		

Op-Test No: 2 Scenario No: 4 Event No: 8 Page 9 of 9

Event Description: P7A trip after auto actuation.

Time	Position	Applicants Actions or Behavior
T=35	CBOR	Recognize loss of P7A
	CRS	Transition to step 53 of Degraded Power
	CRS	Direct operations per 1202.007
	CRS	Dispatch operators to P7A
	CBOR	Place EFW control valves in HAND and close.
	CBOR	Close P7A steam admission valves
Role Play Start #1 EDG by deleting the autostart failure malfunction, DLM EG175, and report as the AO that local start of the EDG was successful.		
	CBOR	Restart or verify autostart of P7B when power is restored to A3.
CT	CBOR	Establish EFW feed to both SG's
	CBOR	Stabilize RCS temperature and pressure
EVENT AND SCENARIO TERMINATION CRITERIA EFW is restored to both OTSGs and RCS temperature and pressure are stabilized, steps 1-20 completed -OR- As directed by the lead examiner.		

Administrative Topics Comments & Resolutions

Test	Item	Comment	Resolution	
SRO	A.1 TREND	Needs a note prior to step 3 advising evaluator that the candidate only needs to identify technical issues and not editorial errors.	Added the requested verbiage to the note.	✓ OK
SRO	A.1 RADIO	Make minor modification to initiating cue to inform candidate as to what capacity he is acting.	Revised initiating cue to state "As SS/CRS activate the Emergency Medical Team and alert plant personnel."	✓ OK
SRO	A.2 TALT1	Add information to the standard for step 2 so the evaluator will know exactly what is missing from the Temporary Alteration Package the candidate is given.	Added a list of all of the missing components of the Temp Alt.	✓ OK
SRO	A.3 JPM RAD1	Change to two open reference questions.	Converted JPM RAD1 to an open reference question. Added a new open reference question.	OK ✓ OK
SRO	A.4 JPM EAL2/3	Provide evaluators with completed EAL documentation.	Added completed forms from 1903.011 to JPM.	✓
RO	A.1 JPM SURV2	Revise initiating cue and task conditions so the candidate will know exactly where to begin and end his task.	Moved 2nd bulleted initial task condition to 3rd bullet and revised slightly. Modified initiating cue so candidate will only complete steps 2.8 and 2.9 of the surveillance supplement.	✓
RO	A.1 JPM PMS2	Typo in standard for step 4.	Revised standard.	✓ OK
RO	A.2 JPM CLER1	Change task standard, step 2 standard and initiating cue so the candidate must find 3 errors instead of only 2.	Revised according to request.	✓ OK
RO	A.3 JPM RBPUR	Replace this JPM with two open reference questions.	Deleted JPM and inserted two new open reference questions. Q1 Q2	✓ OK ✓ OK

Test	Item	Comment	Resolution
RO	A.4 JPM FPS1	Task Standard is vague, be more specific.	Revised Task Standard so the candidate must find the procedure section for B2-8U and the candidate must also determine the valve actuation circuit to be inoperable. Modified Step 5 so the action step simply requires candidate to identify the fire impairment and not actually report the impairment.

Job Performance Measures
Comments & Resolutions

EXAM	JPM	COMMENT	RESOLUTION
SRO	EOP09	Note after step 4 does not give enough guidance to allow examiner to determine candidate's competency in this task, revise.	Revised note so the examiner is prompted to question candidate on the actions to take to determine the cause of the excessive loading and what procedures the candidate might use to do so.
SRO	QT002	Ensure JPM includes simulator setup directions to prevent Radwaste Gas Panel Trouble annunciator alarm.	Added setup instructions to IA operator to override annunciator.
SRO	FP003	Only one critical step, not enough to evaluate.	Added steps to JPM for N2 bottle changeout.
RO	EOP16	Task standard needs to state the candidate must stop the overcooling or at least stabilize the plant and not just close the MSIV.	Modified standard accordingly. Made steps 5 and 7 critical steps.
RO	CF003	There are not enough actions in this task to adequately evaluate candidate.	Replaced this JPM with CF004.
RO	RBC02	Typo in step 6.	Corrected typo.
RO	EDG04	Delete IA operator notes on page 3.	Deleted.
RO	RPS02	Too similar to an action performed during a scenario, replace.	Replaced with JPM LTOP1.
RO	AOP14	Exam team comment - shorten JPM by eliminating redundant steps.	Revised JPM to end after step 14.

Job Performance Measures

Comments & Resolutions

EXAM	JPM	COMMENT
SRO	DHR03	Deleted note prior to step 4. The latest copy of the procedure does not contain the step to stroke test CV-1050 and CV-1410.
RO	EDG04	Added step 8 for examinee to raise load to 2750 KW.
RO	RBC02	Step 6 changed standard to read "Open SV-7456, SV-7479, and closed..." to agree with performance checklist.
RO	AOP14	Moved note from in front of step 6 to step 7.
RO	ED026	Corrected JPM initial task conditions.
RO	EFW01	Moved "per 1106.006" from JPM initial task conditions to the initiating cue.

Written Exam Comments & Resolutions

QID	TEST	COMMENT	RESOLUTION
30	Both	Question used on Audit exam.	Replaced with new question, QID #361.
58	Both	The given NI-4 reading is > POAH.	Changed NI-4 reading to from 8 x10 -7 amps to 8 x 10 -9 amps.
158	Both	Plant condition for performing action not given in stem.	Added "The plant is at 100% power." to stem.
204	Both	Too difficult to conclude the correct status of the Fuel Oil Storage Tank.	Added "T-57B level is >168 inches." to stem.
241	Both	Answer "d" is not grammatically consistent with other answers.	Rewrote answer "d" to be consistent with others.
243	Both	Too easy, enhance or replace.	Revised stem to contain conditions under which an emergency repair team would be dispatched and did not ask directly for the emergency dose limit. Trainee now has to recognize this is an emergency repair and recognize the dose limit for emergency repair. Moved correct answer to "c", deleted "d" and added new answer "a".
249	Both	Too easy, enhance or replace.	Revised stem to give an accident that produces a very high skin dose. Trainee must recognize the type of dose that is a concern and what the limit is for this type of dose.
251	Both	Too easy, at GET level.	Replaced with new question direct from exambank, QID 362. Revised RO and SRO sample plans for Tier 3 by replacing 2.3.2 with 2.2.30.
259	Both	Stem of question gives cue to correct answer, CV-1221 only appears in the correct answer, "c".	Revised stem to remove CV-1221. Also replaced answer "a" to contain CV-1221 to increase the plausibility of distracter "a".
263	Both	Add information to "Notes" section that an external reference is required to answer question.	Added statement to "Notes" that Att. K of 1102.004 was necessary to answer question.
279	Both	In "Notes" section, explanation for "c" confusing.	Revised "c" to explain that Att. 2 reinstates undervoltage protection.
283	Both	Should have a higher difficulty rating.	Changed Difficulty rating to "3."
286	Both	As written, distracter "d" is also correct.	Revised question to give the conditions of an overcooling event and ask trainee to identify the correct EOP for the conditions.
288	Both	In "Notes" section, typo in "d" explanation.	Corrected typo.

QID	TEST	COMMENT	RESOLUTION
297	Both	In "Notes" section, typos in explanation.	Corrected typos.
311	Both	Stem needs plant condition.	Added "Plant is in cold shutdown." to stem.
312	Both	Revise question to remove "What is the basis for..." from stem.	Revised question to state a specific SFP level. Trainee must recognize level is low and that the dose rates will rise due to the low level.
313	Both	No difficulty rating. Wording in "Notes" for answer "b" is confusing.	Added difficulty rating of "3." Reworded explanation for answer "b."
315	Both	Too easy. Revise or replace.	Revised stem to state plant conditions and to ask for the effect on plant operations. Changed answers to possible actions (manual or automatic) that will occur due to plant conditions. Added new reference.
316	Both	Incorrect statement in "Notes" section for "d."	Corrected CV-1235 to fail as-is vs. closed.
328	Both	Improbable that plant is at 100% power with the conditions given.	Revised first statement of stem to read, "You are the CBOR and you observe the follow conditions".
336	Both	Stem conditions provide cue to correct answer, D11 only found in correct answer.	Removed D11 annunciator from stem and replaced it with two D01 annunciators.
338	SRO	Is enough information provided to allow trainee to answer question?	Added statement to conditions that "A" EDG voltage is low due to starting more loads.
339	SRO	Typos in "Notes" section.	Corrected typos.
345	SRO	Typo in "Notes" section.	Corrected typo.
346	SRO	Question can be answered without the conditions given.	Deleted the given conditions.