

Question 1

Bank # 2392

Given the following conditions:

- RCS pressure is currently 1020 psia and is remaining stable
- Core Exit Thermocouple (CET) Temperature is 532°F
- RCS Temperature is lowering at a rate of 60°F per hour
- Steam Generators are at the 60% NR and stable with no Main or Auxiliary Feedwater flow.
- All ECCS equipment is operating as designed

ASSUME RCS Pressure Remains stable and no other operator actions are occurring.

The RCS is currently (1) and the RCS cooldown is being controlled by (2) .

- A. (1) Saturated, (2) combination of break cooling and steaming the Steam Generators
- B. (1) Subcooled, (2) combination of break cooling and steaming the Steam Generators
- C. (1) Saturated, (2) break cooling only
- D. (1) Subcooled, (2) break cooling only

Answer: D Subcooled, break cooling only

Question 2

Bank # 37

Given the following:

- Unit 1 is operating at 100% power
- Annunciator, RCP 1A NO 1 SEAL LKF FLOW HI/LO, alarms.
- Seal leakoff flow for RCP 1A indicates 0.8 gpm on CP-004.

Which of the following is the probable cause for the seal leakoff flow being low?

- A. High seal water injection temperature
- B. Loss of seal injection flow
- C. Excessive #2 seal leakage
- D. Low VCT Pressure

Answer: C Excessive #2 seal leakage.

Question 3

Bank # 2395

The Unit is in Mode 5 mid-Loop Operation with RCS level at +9 inches.

- RHR Pump 1A is in service with a flow rate of 3000 gpm.
- At 10:00 AM the MAB RPO reports to the Control Room that RHR 1A is making a loud oscillating “swishing” noise when he was in the area.
- The Primary RO then notices that RHR 1A amps are swinging more than normal, and RCS hot leg level is indication (+1.5) inches
- The Unit Supervisor has announced entry into the Loss of Residual Heat Removal Off normal Procedure, OPOP04-RH-0001, Loss Of Residual Heat Removal

The NEXT operator action that the control room operators should take is to _____.

- A. Reduce RHR 1A pump flow to 1000 to 1500 gpm
- B. Lower RCS temperature until the noise and amperage oscillations stop
- C. Stop RHR 1A and Start RHR 1B
- D. Reduce RHR 1A pump flow to < 1000 gpm

Answer: A Reduce RHR 1A pump flow to 1000 to 1500 gpm

Question 4

Bank # 2393

Given the following conditions:

- Rx Power is at 100% Rated Thermal Power
- CCW Surge tank level 63%
- Annunciator CCW SURGE TANK LEVEL LO in
- A train CCW pump in operation
- B train CCW pump in Standby

Based on the above conditions the entry conditions for _____ (1) _____ are met and results in _____ (2) _____.

- A. (1) 0POP04-CC-0001, Component Cooling Water System Leak
(2) AUTOMATIC closure "RCDT HX 1A(2A) INL MOV-0392" (CCW to RCDT Hx isolation)
- B. (1) 0POP04-CC-0001, Component Cooling Water System Leak, and 0POP04-CV-0004, Loss of Normal Letdown
(2) AUTOMATIC closure "LETDN ORIF HDR ISOL FV-011" (Letdown Orifice Isolation Valve)
- C. (1) 0POP04-CC-0001, Component Cooling Water System Leak
(2) AUTOMATIC closure of "SUPPLY ISOL MOV 0768" (CCW Train A isol to charging pump header)
- D. (1) 0POP04-CC-0001, Component Cooling Water System Leak, and 0POP04-CV-0004, Loss of Normal Letdown
(2) Loss of the A train charging header.

Answer: A (1) 0POP04-CC-0001, Component Cooling Water Leak (2) AUTOMATIC closure "RCDT HX 1A(2A) INL MOV-0392" (CCW to RCDT Hx isolation)

Question 5

Bank # 2394

Given the following conditions on Unit 1

Initial Plant conditions:

- 100% reactor Power, normal plant operation
- RCS Pressure is 2205 psig
- Backup Heaters have been manually energized

With no further operator actions, what is the expected plant response?

- A. RCS Pressure will rise until the PORV cycles to lower RCS pressure; PZR Level will be lower after the PORV cycles.
- B. Backup heaters will turn off when one of the spray valves open and cycle; PZR will remain within its normal level band.
- C. Backup heaters will automatically cycle off prior to the spray valves opening; the PZR level will rise slightly.
- D. Backup Heaters will remain on and the RCS pressure will be controlled at 2235 psig.

Answer: D Backup Heaters will remain on and the RCS pressure will be controlled at 2235 psig.

Question 6

Bank # 1577

An operator action of 0POP05-EO-FRS1, Response to Nuclear Power Generation – ATWS, is to “Ensure 480V LC 1K1 (2K1) and 1L1 (2L1) feeder breakers open”.

This step will de-energize power to the Rod Drive MG Set...

- A. motors. Opening only one of the breakers should be sufficient to cause a reactor trip.
- B. motors. Both breakers must be opened to cause a reactor trip.
- C. by opening Load Center breaker to Rod Drive Motor-Generator #1 and #2. Opening only ONE of the breakers should be sufficient to cause a reactor trip.
- D. by opening Load Center breaker to Rod Drive Motor-Generator #1 and #2. BOTH breakers must be opened to cause a reactor trip.

Answer: B motors, Both breakers must be opened to cause a reactor trip.

Question 7

Bank # 2396

The control room operators are responding to the symptom of a SGTR and Control Board indications show that the 1D SG is the affected SG.

Step 3 of 0POP05-EO-EO30, Steam Generator Tube Rupture, states: ADJUST ruptured Steam Generator (SG) PORV controller setpoint to BETWEEN 1260 PSIG AND 1265 PSIG.

1D SG PORV setpoint is now reading 1260 psig

The SG PORV setpoint is raised to between 1260 and 1265 psig on the affected SG to ...

- A. stabilize the ruptured SG pressure and level to prevent an uncontrolled cooldown of the RCS.
- B. prevent steam generator overpressure due to overfilling of the ruptured steam generator.
- C. prevent an unmonitored release by keeping the SG PORV from lifting.
- D. minimize atmospheric releases.

Answer: D minimize atmospheric releases

Consider a Main Steam Line Break and its associated cooldown.

Which of the following sets of initial plant conditions would result in the GREATEST challenge to Shutdown Margin?

	Rx PWR (%)	Tavg (°F)	Burnup (MWD/MTU)
A.	100	592	18,500
B.	0	567	18,500
C.	100	592	150
D.	0	567	150

Answer: B 0; 567; 18,500

Question 9

Bank # 2397

Given the following plant Conditions:

- Rx Startup in progress
- Rx Power 4%
- The Crew has just completed Addendum 10, Transferring Feed from AFW to MFW, of OPOP03-ZG-0005, Plant Startup to 100%
- SU SGFP 14 is the only SGFP operating at this time

Subsequently:

- SU SGFP 14 trips for an unknown reason

What is the INITIAL status of the AFW system?

- A. AFW pumps running due to a AMSAC actuation signal
- B. AFW pump running due to an immediate automatic Reactor Trip signal
- C. AFW pumps are in standby and will start when the second Steam Generator meets the 2 of 4 logic for 20% level.
- D. AFW pumps are in standby and will start when the first Steam Generator meets the 2 of 4 logic for 20% level

Answer: D AFW pumps are in standby and will start when the first Steam Generator meets the 2 of 4 logic for 20% level

Unit 2 has experienced a Reactor Trip.

The Primary RO is performing the Immediate Actions of 0POP05-EO-EO00, Reactor Trip or Safety Injection. Steps 1 and 2 have been performed SAT and the following conditions exist for Step 3:

- 4.16KV ESF busses are NOT energized
- 480V ESF LC's are NOT energized
- 480V ESF MCC's are NOT energized
- No Emergency Diesel Generators are running

Which of the following is the next correct action for the Primary RO to perform of the Immediate actions of 0POP05-EO-EO00, Reactor Trip or Safety Injection?

- A. RESTORE power to all AC ESF busses prior to continuing in 0POP05-EO-EO00, REACTOR TRIP OR SAFETY INJECTION
- B. Immediately go to 0POP05-EO-EC01, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, This procedure will establish natural circulation and attempt to recover the AC ESF busses.
- C. RESTORE power to at least one AC ESF bus by EMERGENCY STARTING STBY DG then continue with remaining Immediate actions of 0POP05-EO-EO00.
- D. Immediately go to 0POP05-EO-EC00, LOSS OF ALL AC POWER This procedure will attempt to restore power to the AC ESF busses.

Answer: C RESTORE power to at least one AC ESF bus by EMERGENCY STARTING STBY DG then continue with remaining Immediate actions of 0POP05-EO-EO00.

Question 11

Bank # 2399

Given the following plant conditions:

- The plant was at full power when a loss of offsite power occurs
- Pressurizer pressure is 1850 psig
- Containment Pressure is 8 psig
- Offsite power has not been restored
- Emergency Diesels have just received their start signal

For the above conditions, which one of the following actions will automatically occur?

HHSI Pumps start...

- A. 11 seconds after the Emergency Diesels have received their start signal.
- B. 7 seconds after ESF Busses are energized.
- C. 17 seconds after the ESF busses are re-energized.
- D. 6 seconds after the Emergency Diesel generators receive their start signal.

Answer: B 7 seconds after ESF Busses are energized.

Question 12

Bank # 28

Given the following:

- Unit 1 is performing a Mode 3 cooldown
- RCS is at 520 °F and 1800 psig
- A loss of power occurs on 120 VAC vital distribution panel DP-1201
- The crew enters 0POP04-VA-0001, Loss of 120 VAC Class Vital Distribution
- A Plant Operator is directed to locally open the 1A SG PORV for temperature control

0POP04-VA-0001, cautions the Plant Operator to NOT open the SG PORV more than 50%.

Which ONE of the following is the reason for this caution?

- A. Prevent excessive cooldown with limited RCS instrumentation available.
- B. Minimize the mass loss out of the 1A SG with limited AFW capability.
- C. Ensure the ability to reclose the 1A SG PORV following opening.
- D. Limit the amount of positive reactivity due to cooldown.

Answer: C Ensure the ability to reclose the 1A SG PORV following opening.

An electrical fault has occurred on Unit 1 that de-energized Train A Class 1E 125 VDC Power. OPOP04-DJ-0001, Loss of Class 1E 125 VDC Power, Addendum 1, Loss of Train A Class 1E 125 VDC Power, is in progress. Step 7 reads as follows:

7.0 PLACE The Following Control Switches To The Required Positions:

DEVICE	POSITION REQUIRED	LOCATION	CHECK
[SG 1A(2A)] "MSIB FV-7412"	CLOSED	CP006	<input type="checkbox"/>
[SG 1A(2A)] "LOW PWR FV-7151"	MAN/0%	CP006	<input type="checkbox"/>
[SG 1A(2A)] "PREHTR BYPASS FV-7189"	CLOSED	CP006	<input type="checkbox"/>
[SG 1A(2A)] "BLWDN ISOL FV-4153"	CLOSED	CP006	<input type="checkbox"/>
[SG 1B(2B)] "MSIB FV-7422"	CLOSED	CP006	<input type="checkbox"/>
[SG 1B(2B)] "LOW PWR FV-7152"	MAN/0%	CP006	<input type="checkbox"/>
[SG 1B(2B)] PREHTR BYPASS FV-7190"	CLOSED	CP006	<input type="checkbox"/>

What is the reason for placing the control switches in the required positions?

- A. This action immediately re-positions the components to their normal shutdown position after they repositioned due to the loss of the bus.
- B. This action re-positions the components to their normal operating alignment when power is restored.
- C. This action will ensure the components will not inadvertently reposition when power is restored.
- D. This action will ensure that the components will reposition to their normal shutdown alignment when power is restored.

Answer: C This action will ensure the components will not inadvertently reposition when power is restored.

Question 14

Bank # 1

Unit 1 is operating at 100% power when a leak develops in the Component Cooling Water System. 0POP04-CC-0001, Loss of Component Cooling Water, is entered.

- Level in the CCW surge tank is 63% and lowering slowly.

Which of the following components is a potential source of the leak?

- A. Letdown Heat Exchanger (Hx)
- B. Reactor Coolant Pump 1C motor air cooler
- C. Reactor Coolant Drain Tank Hx
- D. Excess Letdown Hx

Answer: B Reactor Coolant Pump 1C motor air cooler

Question 15

Bank # 2401

Given the following:

- Unit 1 is in Mode 3
- RCS pressure 800 psig
- Pressurizer level is lowering rapidly
- Containment sump levels are NOT rising

The Unit Supervisor has entered 0POP04-RC-0006, Shutdown LOCA. One major action accomplished by this procedure is to ____ (1) ____ in order to ____ (2) ____.

- A. (1) isolate letdown
(2) protect the Reactor Core.
- B. (1) maintain Pressurizer level
(2) minimize the amount of contaminated water generated.
- C. (1) secure RCP's
(2) prevent damaging the RCP motors.
- D. (1) stabilize RCS temperature and pressure
(2) prepare for an orderly cooldown in accordance with the normal operating procedures.

Answer: A Isolate letdown, protect the Reactor Core.

A large break loss of coolant has occurred in Unit 2.

The following conditions exist:

- RWST level is 32,500 gallons (6%) and lowering.
- HHSI pumps have power available
- LHSI pumps have power available
- HHSI mini flow valves have power indication
- LHSI mini flow valves have power indication
- RWST to SI suction header has power indication
- Cold leg injection valves have power available
- Containment sump to SI suction header valves have no light indication
- Attempts made to regain power to the Containment Sump SI suction Header valves have NOT been successful

Per Procedure 0POP05-E0-EC11 Loss of Emergency Coolant Recirculation what actions should be taken?

- A. The HHSI and LHSI pumps should be throttled and makeup to the RWST should be initiated.
- B. Secure all but HHSI and LHSI pump and continue to use the remaining volume of the RWST.
- C. The HHSI and LHSI pumps are required to be secured until RWST level is restored to > 32,500 gallons (6%) then restarted.
- D. The HHSI and LHSI pumps are to be placed in pull to lock and makeup from the VCT via a CCP should be used for inventory makeup until recirculation can be established or directed by TSC.

Answer: D The HHSI and LHSI pumps are to be placed in pull to lock and makeup from the VCT via a CCP should be used for inventory makeup until recirculation can be established or directed by TSC

Question 17

Bank # 787

The following plant conditions exist:

- Unit 1 reactor trip and SI have occurred.
- ALL SG levels are BELOW the narrow range.
- 1B AFW pump is OOS.
- Due to other AFW malfunctions, total AFW flow AVAILABLE is 350 gpm.

Which of the following statements describes the basis for stopping the RCPs under these conditions?

- A. Reduces reactor coolant inventory loss by reducing seal leak off.
- B. Minimizes the possibility of a tube rupture as cooler AFW is injecting into the SGs.
- C. Conserves SG secondary inventory by reducing heat input to the RCS.
- D. Minimizes the time for the PORV to open and establish Feed and Bleed Cooling.

Answer: C Conserves SG secondary inventory by reducing heat input to the RCS.

Question 18

Bank # 2403

A major power outage has occurred in South Texas.

Several power plants have tripped off line and switchyard voltage has lowered due to the ongoing Electric Grid Disturbance.

Load Tap Changers have failed to bring voltage back to normal in the Unit.

Subsequently:

- Unit 1 experiences a Reactor Trip due to a Large Break Loss of Coolant Accident.
- All required ECCS components started as designed.
- The Emergency Diesels are not connected to any bus.

Compared to starting at normal grid voltage the current used by ECCS pumps is ___(1)___ and the potential for Pump Motor damages is more likely due to ___(2)___.

- A. (1) lower
(2) slower start times resulting in bearing damage.
- B. (1) lower
(2) higher temperatures in the motor windings.
- C. (1) higher
(2) faster start times resulting in bearing damage.
- D. (1) higher
(2) higher temperatures in motor windings.

Answer: D (1) higher (2) higher Temperatures in motor windings.

Question 19

Bank # 2404

A reactor startup is in progress and power is being escalated to place the turbine on line.

Reactor Power is indicating 0% when NI-35 fails low off scale.

With NI-35 failed low off scale the power escalation should be _____.

- A. stopped below 10% power until NI-35 is restored to perform a channel check between the IR and the PR Nuclear instruments.
- B. stopped and the reactor should be shut down until NI-35 is returned to operable status.
- C. continued as the PR instruments are on scale and you have good indication of reactor power.
- D. continued until reactor power is at 15% and then perform a channel check with the remaining intermediate range NI.

Answer: A Stopped below 10% power until NI-35 is restored to perform a channel check between the IR and the PR Nuclear instruments.

Do NOT use question without revising stem. See LOT 20 NRC Exam Analysis.

Unit 2 is performing a core reload at the end of a refueling outage when a malfunction of the Refuel Machine occurs allowing a fuel bundle to drop on top of several previously installed fuel assemblies.

The Refuel Machine operator notices a large quantity of bubbles coming up from the area where the fuel assembly has landed. The Refuel Machine radiation monitor is in alarm and the Refuel Machine Operators have notified the control room.

The following radiation monitors are in HIGH alarm:

RT-8011	RCB Atmosphere
RT-8012	RCB Purge Ventilation Monitor
RT-8013	RCB Purge Ventilation Monitor
RT-8099	Refueling Machine Area Monitor

As a control room operator the containment evacuation alarm will (1) and the containment purge system (2).

- A. (1) automatically sound due to RT-8011 in HIGH alarm
(2) should have isolated based on a Containment Ventilation Isolation signal from RT-8099 and either RT-8012 or RT-8013.
- B. (1) need to be manually actuated due to RT-8011 in high alarm
(2) should have isolated based on a Containment Ventilation Isolation signal from RT-8012 and RT-8013.
- C. (1) automatically sound due to RT-8099 in high alarm
(2) will remain running as the purge system is needed to mitigate the alarming condition.
- D. (1) need to be manually actuated due to RT-8012 and RT-8013 in HIGH alarm
(2) will need to be manually secured in response to alarming Radiation monitors RT-8012 and RT-8013.

Answer: B (1) need to be manually actuated due to RT-8011 in high alarm (2) should have isolated based on a Containment Ventilation Isolation signal from RT-8012 and RT-8013.

The control room has the following indication at 100% power:

- RT-8130B, Primary to Secondary Leak Rate Monitor, indicates a leak rate of 2000 gpd

The actions for a steam generator tube leak have been completed and the plant has been shut down for 1 hour and is cooling down on the intact steam generators preparing to transition to RHR.

Based on the above plant conditions what should the reading for RT-8130B, Primary to Secondary Leak Rate Monitor be?

- A. Higher, with the unit off line the steam is not flowing as fast past the monitors radiation is exposed to the monitor for a longer period of time making the indications read higher.
- B. Lower, with the unit off line there is not as many radioactive particles in the steam and the monitor will be reading lower.
- C. Higher, as time has passed the contamination in the main steam line has risen making the monitor read higher.
- D. Lower, with the reactor shutdown the production of N-16 has stopped and the monitor will read lower.

Answer: D Lower, with the reactor shutdown the production of N-16 has stopped and the monitor will read lower.

Question 22

Bank # 2407

Unit 1 Coming out of a refueling outage.

The Generator output breaker is closed and reactor power is currently at 25% holding power while I&C trouble shoots a problem with the condenser vacuum instrumentation.

During the troubleshooting actual condenser vacuum drops to 20.5 inches HG and stabilizes.

What is the expected plant response?

Assume all automatic actions occur as designed with no operator action.

- A. The Turbine will Trip, The Reactor will Trip and MFW pumps will trip due to the Reactor Trip.
- B. The Turbine will Trip, The Reactor will not Trip and MFW pumps will remain running.
- C. The Turbine will not Trip, The Reactor will Trip and MFW pumps will trip.
- D. The Turbine will not Trip, The Reactor will not Trip and MFW pumps will remain running.

Answer: B The Turbine will Trip, The Reactor not Trip and MFW pumps will remain running.

Question 23

Bank # 470

Plant Operators are performing a transfer of the Floor Drain Tank to a Waste Monitor Tank per OPOP02-WL-0003, Floor Drain Tank Operation.

In accordance with OPOP02-WL-0003, Floor Drain Tank Operation, which of the following is a condition that could occur if procedural steps are performed improperly?

- A. Contamination of non-contaminated systems
- B. Exceeding STP airborne limits
- C. Contamination of personnel
- D. Exceeding STP personnel dose limits

Answer: A Contamination of non-contaminated systems

Question 24

Bank # 2408

An accidental leak in the waste gas system has occurred. Two operators are required to enter an area of the plant to isolate the waste gas leak. RP has determined that the area the team will be in is considered a high airborne area with an airborne concentration of 1 DAC/HR. The general area that the team will be in is 50 mrem/hr.

It will take the team 2 hours to complete the necessary valve alignments to properly isolate the leak. What is the CEDE that the two workers will receive for the task and what is the likely biological effects of this entry?

- A. 210 mrem CEDE, some small increase in the probability in biological both Stochastic and Non-Stochastic effects.
- B. 204 mrem CEDE, some small increase in the probability in biological both Stochastic and Non-Stochastic effects.
- C. 210 mrem CEDE, significant increase in the probability in biological both Stochastic and Non-Stochastic effects
- D. 204 mrem CEDE, significant increase in the probability in biological both Stochastic and Non-Stochastic effects

Answer: A 210 mrem CEDE, some small increase in the probability in biological both Stochastic and Non-Stochastic effects.

Question 25

Bank # 1685

Each detector in the Area Radiation Monitoring (ARM) System has an RM-80 Microprocessor Unit associated with it that is located in the vicinity of its associated detector.

Which one of the below correctly lists functions of the RM-80 Microprocessor?

1. Allow the detector to be source checked.
 2. Provide ALERT/HIGH alarm signals to the Rad Monitoring Console (RM-11) in the Control Room.
 3. Automatically actuate plant equipment (e.g. fans, valves, etc.) on an ALERT or HIGH alarm condition.
 4. Indicate local radiation levels from the detector.
- A. 1, 2, 3
- B. 1, 2, 4
- C. 1, 3, 4
- D. 2, 3, 4

Answer: B 1, 2, 4

Question 26

Bank # 2369

In which of the following procedures is RCS pressure included in the SI termination criteria?

- A. 0POP05-EO-EO20, Faulted Steam Generator Isolation
- B. 0POP05-EO-EC11, Loss of Emergency Coolant Recirculation
- C. 0POP05-EO-EC33, SGTR Without Pressurizer Pressure Control
- D. 0POP05-EO-FRP1, Response to Imminent Pressurized Thermal Shock Condition

Answer: A 0POP05-EO-EO20, Faulted Steam Generator Isolation

Question 27

Bank # 1913

Given the following:

- Unit 1 is operating at 100% power.
- RCS Tavg is 592 °F.
- RCS ΔT is 60 °F.

If RCS Tavg is allowed to rise above 602 °F, which one of the following will occur?

- A. The reactor will trip on high pressurizer pressure.
- B. RCS Subcooling will lower and go below 35 °F.
- C. The Steam Dumps will automatically open.
- D. Steam Generator PORVs will automatically open.

Answer: D Steam Generator PORVs will automatically open.

Question 28

Bank # 2370

According to procedure 0POP04-RC-0002, "Reactor Coolant Pump Off Normal," which of the following valid conditions would require tripping the reactor and stopping the affected reactor coolant pump?

- A. Motor Upper or Lower Radial Bearing Temp Equal to 175°F
- B. Lower Seal Water Bearing Temp Equal to 220°F
- C. Motor Stator Winding Temp equal to 320°F
- D. Number 1 Seal DP equal to 250 PSID

Answer: C Motor Stator Winding Temp equal to 320°F

Question 29

Bank # 2409

Conditions have occurred while responding to a Reactor Trip which requires Emergency Boration be initiated. While attempting to open MOV 218, ALT BORATION ISOL, the valve indicated intermediate and then all indication was lost.

Per 0POP04-CV-0003, Emergency Boration, for the given conditions, what is the Emergency Boration flow path that will be established?

- A. GO TO Addendum 1 of 0POP04-CV-0003 Emergency Boration from RWST and align the system by ensuring OCIV-MOV-0025 is Open; Charging is aligned to inject via normal or alternate path; Charging Pump Running and RWST Isolation MOV-112C is open.
- B. Preferred Emergency Boration Flowpath by ensuring OCIV-MOV-0025 is Open; Charging is aligned to inject via normal or alternate path; Charging Pump Running and starting a Boric Acid Transfer Pump.
- C. GO TO Normal Boration through FCV 0110 A, per 0POP04-CV-0003 Emergency Boration; Utilize Form 1 of 0POP02-CV-0001; Makeup to the Reactor Coolant System to continually add Boron to the RCS.
- D. Preferred Emergency Boration through "1(2)-CV-0226 BORIC ACID TANK 1A CHARGING PUMP SUCTION BORATION VALVE and 1(2)-CV-0333 BORIC ACID TANK 1A CHARGING PUMP SUCTION ISOLATION VALVE ".

Answer: D Preferred Emergency Boration through "1(2)-CV-0226 BORIC ACID TANK 1A CHARGING PUMP SUCTION BORATION VALVE and 1(2)-CV-0333 BORIC ACID TANK 1A CHARGING PUMP SUCTION ISOLATION VALVE ".

Question 30

Bank # 1739

Given the following plant conditions:

- The plant is in Mode 4 cooling down to Mode 5
- All six RHR Pump suction MOVs have been energized
- The crew is preparing to place RHR in service
- Sensing line blockage has caused RCS wide range pressure transmitter PT-405 to stabilize at 700 psig
- RCS pressure has been verified to be 330 psig

Which of the following correctly describes the effect of the blockage on the listed RHR suction MOVs?

- A. Both RH-MOV-0060A and RH-MOV-0060C will open normally
AND
Both RH-MOV-0061A and RH-MOV-0061C will have to be open from the ASP.
- B. Both RH-MOV-0060A and RH-MOV-0060C will have to be open from the ASP
AND
Both RH-MOV-0061A and RH-MOV-0061C will open normally.
- C. Both RH-MOV-0061A and RH-MOV-0060C will open normally
AND
Both RH-MOV-0060A and RH-MOV-0061C will have to be open from the ASP.
- D. Both RH-MOV-0061A and RH-MOV-0060C will have to be open from the ASP
AND
Both RH-MOV-0060A and RH-MOV-0061C will open normally.

Answer: C Both RH-MOV-0061A and RH-MOV-0060C will open normally
AND
Both RH-MOV-0060A and RH-MOV-0061C will have to be open from the ASP.

Given the following:

- A Large Break Loss of Coolant Accident has occurred.
- The ECCS is operating in the Cold Leg Recirculation mode.

Based on standard heat transfer relationships, which of the following describes the INITIAL effects of INCREASED CCW temperature to the RHR Heat Exchanger during these plant conditions?

ΔT across the RHR Heat Exchanger tubes will...

- A. RISE resulting in LOWER heat transfer rate in the RHR Heat Exchanger.
- B. LOWER resulting in LOWER heat transfer rate in the RHR Heat Exchanger.
- C. RISE resulting in HIGHER heat transfer rate in the RHR Heat Exchanger.
- D. LOWER resulting in HIGHER heat transfer rate in the RHR Heat Exchanger.

Answer: B LOWER resulting in LOWER heat transfer rate in the RHR Heat Exchanger.

Question 32

Bank # 160

The following Unit 2 conditions exist:

- A faulted steam generator (outside containment) resulted in a reactor trip and safety injection
- Operators have isolated the faulted steam generator
- RCS pressure is currently 1800 psig and RISING
- PRT PRESS HI alarm illuminates
- PRT level and pressure are RISING slowly

Which of the following is the cause of the PRT level and pressure increase?

- A. Reactor Coolant Pump seal leakoff flow is returning to the PRT.
- B. A Pressurizer Power Operated Relief Valve is open.
- C. Normal letdown flow is diverted to the PRT.
- D. Loss of instrument air to containment fails open the Reactor Make Up Water valve to the PRT, "SPRAY ISOL FV-3650".

Answer: A Reactor Coolant Pump seal leakoff flow is returning to the PRT.

Question 33

Bank # 2371

With the plant operating at 100%, the Component Cooling Water Surge Tank Level is indicating 63.5%.

Which of the following components would see a reduction in Component Cooling Water flow?

- A. Spent Fuel Pool Heat Exchangers
- B. Reactor Coolant Pump Motor Air and Oil Coolers
- C. Letdown Heat Exchanger
- D. Centrifugal Charging Pump Oil Coolers

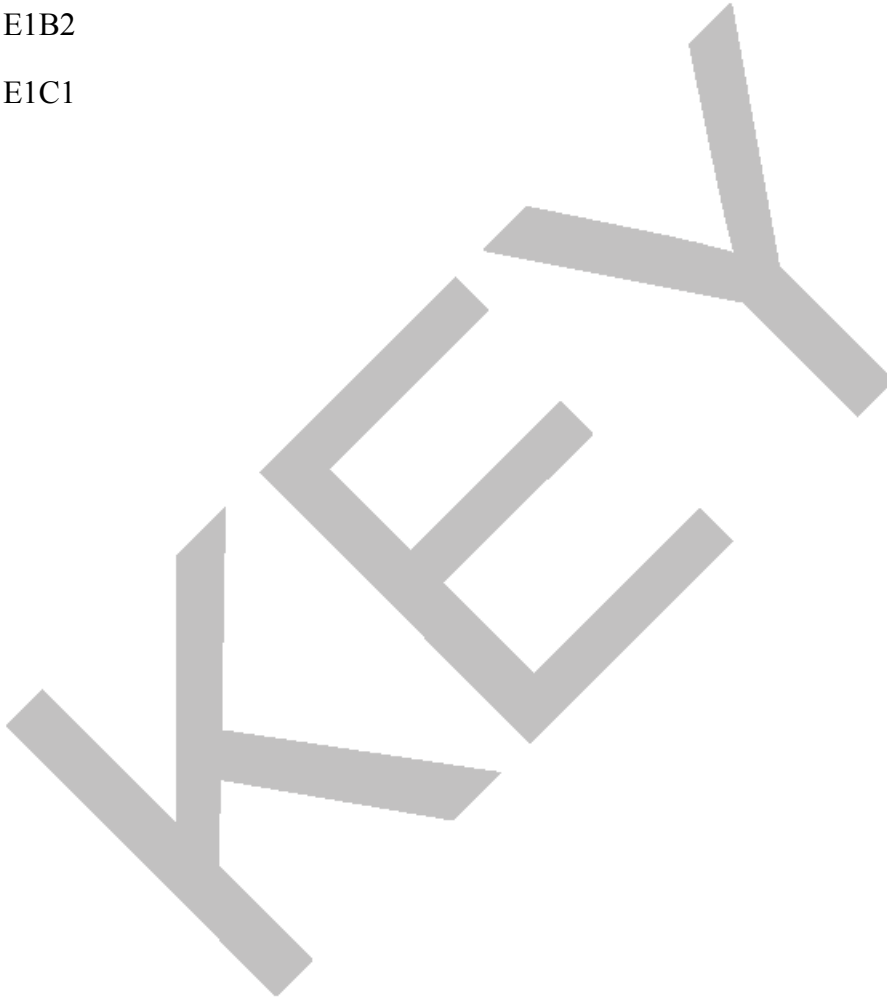
Answer: C Letdown Heat Exchanger

Question 34

Bank # 2372

Which of the following Load Centers provide power for the Pressurizer Backup Heater Group B?

- A. E1A1
- B. E1B1
- C. E1B2
- D. E1C1



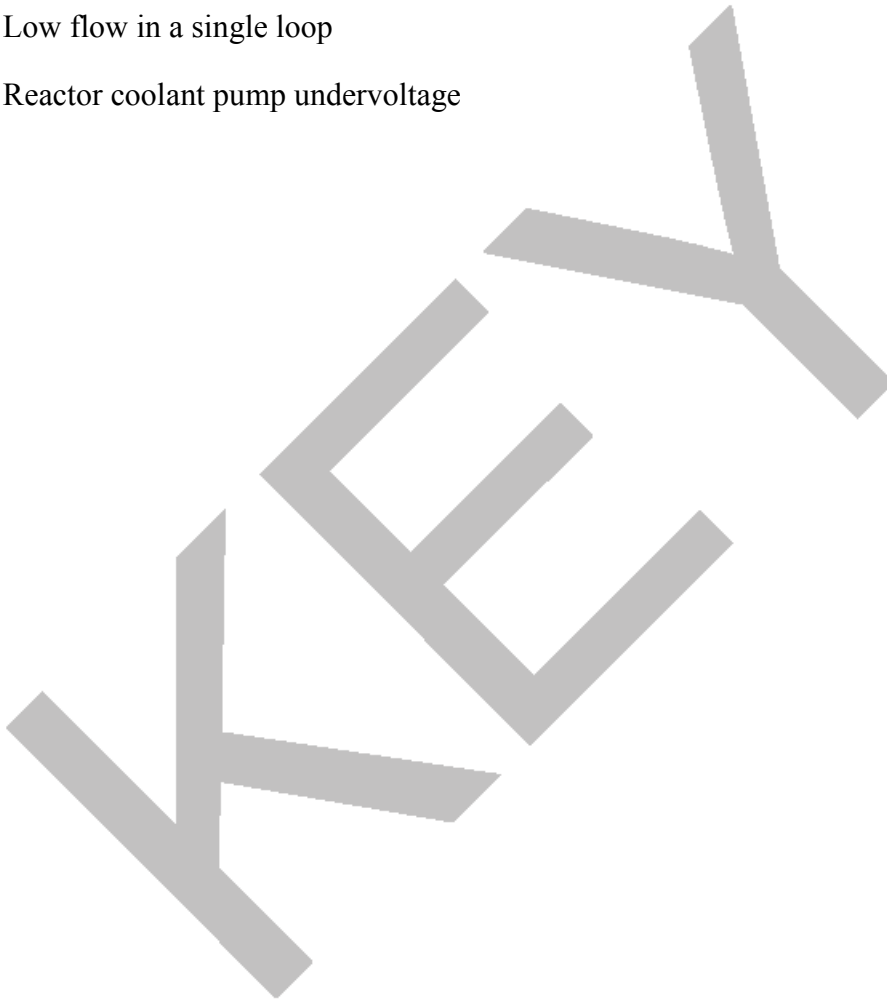
Answer: D E1C1

Question 35

Bank # 2373

Which of the following trip signals is blocked with reactor power at 15%?

- A. Pressurizer low pressure
- B. Pressurizer high level
- C. Low flow in a single loop
- D. Reactor coolant pump undervoltage



Answer: C Low flow in a single loop

Question 36

Bank # 1359

Ten minutes after LOCA, containment pressure indicates the following:

- PT-934 = 9.5 psig
- PT-935 = 9.6 psig
- PT-936 = 9.3 psig
- PT-937 = 9.4 psig

Which of the following describes the response of the Containment Spray System 10 seconds after containment pressure reaches the listed values, assuming bistables actuate at their exact setpoint and no ESF systems have been reset?

Containment Spray has automatically actuated; ...

- A. but only the pumps have started.
- B. the pumps have started and their discharge valves have opened.
- C. but only the pump discharge valves have opened.
- D. but the pumps have NOT started and the discharge valves have NOT opened.

Answer: B the pumps have started and their discharge valves have opened.

Question 37

Bank # 2429

Given the following containment history:

Time	Ctmt Press	Ctmt Radiation	Ctmt Integrated dose
0815	2 psig	9.0 E4 R/Hr	9.0 E3 Rad
0830	4 psig	1.0 E5 R/Hr	2.7 E4 Rad
0845	6 psig	9.6 E6 R/Hr	2.7 E5 Rad
0900	8 psig	2.0 E7 R/Hr	7.7 E6 Rad

Which of the following describes the EARLIEST time at which adverse containment should have been declared?

- A. 0815
- B. 0830
- C. 0845
- D. 0900

Answer: B 0830

Question 38

Bank # 123

Given the following:

- Unit 2 experienced a LOCA and the crew has just transitioned to 0POP05-EO-ES13, Transfer To Cold Leg Recirculation.
- The Reactor Operator notes and reports that Train A DID NOT automatically swap suction to the containment sump.

Which of the following conditions would cause the failure? (Consider each condition separately)

- A. RWST LO-LO Alarm - ON
- B. STATUS LAMPBOX 5M2-3: AUTO RECIRC NOT RESET TRAIN A - OFF
- C. Train A, STATUS MONITORING PANEL 1M25: BYP/INOP RWST OUTL MOV-0001A – ON
- D. Train A, HHSI Pump 1A MIN FLOW ISOL MOV-0011A – OPEN; MOV-0012A – CLOSED

Answer: B STATUS LAMPBOX 5M2-3: AUTO RECIRC NOT RESET TRAIN A - OFF

Given the following:

- Unit 1 is in Mode 3
- Steam Dumps are in Steam Pressure Mode controlling at 1185 psig.
- All RCP's are running
- All Steam Dump Valves fail open causing the RCS to cool at >100 °F/hr.

Which of the following correctly describes the MINIMUM operator action/s that would ensure all Steam Dumps are closed and the reason cooldown limits are established?

- A. Place EITHER Steam Dump Interlock Selector Switch to 'BYPASS INTERLOCK'. Excessive cooldown can result in non-ductile failure of the Reactor Vessel.
- B. Place BOTH Steam Dump Interlock Selector Switches to 'BYPASS INTERLOCK'. Excessive cooldown can result in ductile failure of the Reactor Vessel.
- C. Place EITHER Steam Dump Interlock Selector Switch to 'OFF/RESET'. Excessive cooldown can result in non-ductile failure of the Reactor Vessel.
- D. Place BOTH Steam Dump Interlock Selector Switches to 'OFF/RESET'. Excessive cooldown can result in ductile failure of the Reactor Vessel.

Answer: C Place EITHER Steam Dump Interlock Selector Switch to 'OFF/RESET'. Excessive cooldown can result in non-ductile failure of the Reactor Vessel.

Question 40

Bank # 1668

Given the following:

- Unit 1 is operating at 100% power.
- SGFPT #13 is to be removed from service for pump maintenance.
- The crew has decided to run the Startup Feedpump (SUFP) during this time to remain at 100% power.

In accordance with OPOP02-FW-0002, S.G.F.P. Turbine, what additional action should be taken to account for SGFPT # 13 being removed from service?

- A. A third FW Booster Pump must be started to reduce the load on the remaining two SGFPTs.
- B. A third FW Booster Pump must be started to ensure SUFP flow matches the flow from the secured SGFPT.
- C. The SGFP Master Speed Controller must be placed in Manual to help keep the remaining two SGFPTs below 5400 rpm.
- D. The SGFP Master Speed Controller must be placed in Manual to match each of the remaining SGFPT flows with the SUFP flow.

Answer: A A third FW Booster Pump must be started to reduce the load on the remaining two SGFPTs.

Question 41

Bank # 2410

Unit 1 has tripped from 100% power due to a complete loss of IA.

- All systems have responded as designed.
- The Turbine Driven Auxiliary Pump (AFW PUMP 14) initially started and then tripped for unknown reason.
- Attempts to reset AFW Pump 14 have been unsuccessful.
- The other AFW pumps are operating as designed.

In order to reestablish AFW flow to the Steam Generator 1D, the control room operator must _____.

- A. use control switches located on CP006 to open Cross connect valve for the Turbine Driven Auxiliary Pump (AFW Pump 14) and one additional Cross Connect Valve form an additional AFW Pump.
- B. use control switches located on CP006 to open Cross connect valve for the Turbine Driven Auxiliary Pump (AFW Pump 14) ONLY.
- C. dispatch an operator to manually open Cross Connect for the Turbine Driven Auxiliary Pump (AFW Pump 14) ONLY.
- D. dispatch an operator to manually open Cross Connect for the Turbine Driven Auxiliary Pump (AFW Pump 14) and one additional Cross Connect Valve from an additional AFW Pump.

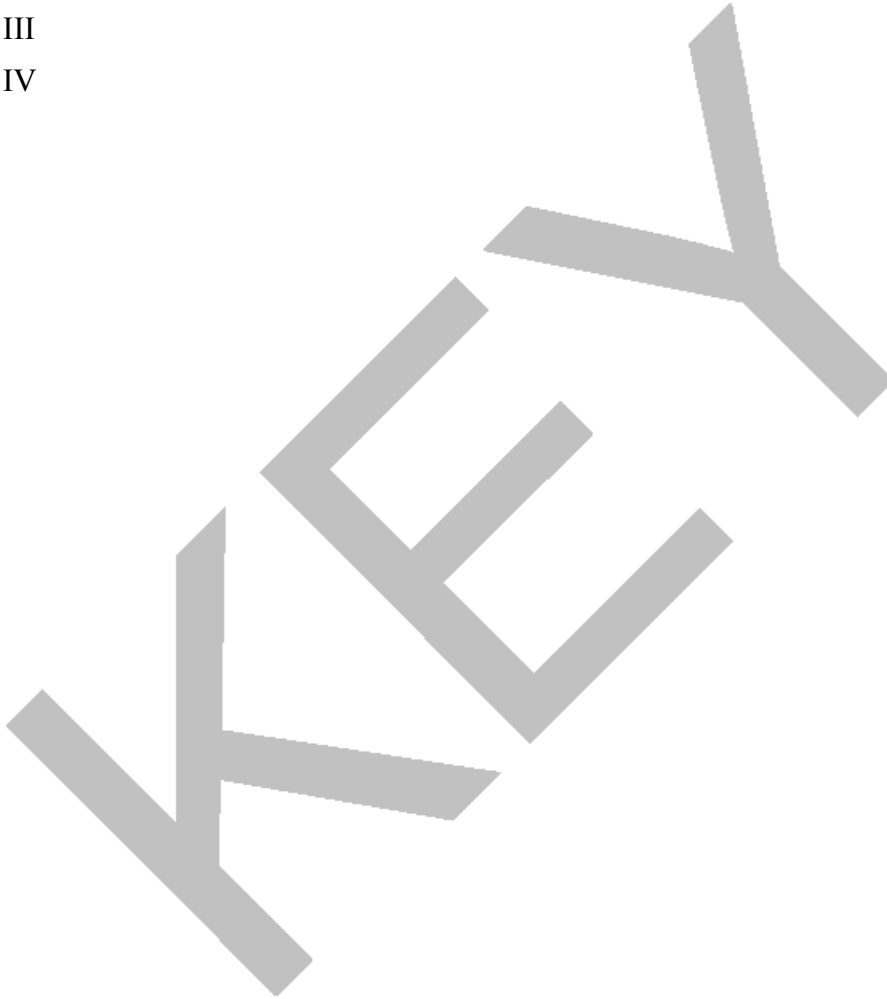
Answer: D Dispatch an operator to manually open Cross Connect for the Turbine Driven Auxiliary Pump (AFW Pump 14) and one additional Cross Connect Valve from an additional AFW Pump.

Question 42

Bank # 2435

A loss of which Class 1E vital 120 VAC power distribution channel will result in a loss of train C accident monitoring described in TRM 3.3.3.6?

- A. I
- B. II
- C. III
- D. IV



Answer: D IV

Question 43

Bank # 2436

The plant is in Mode 3.

Both battery chargers for Channel I are inoperable. Both battery chargers for Channel II are also inoperable.

Per Technical Specification 3.8.2.1, within one hour restore, at a minimum, (1) to operable status on (2) .

- A. (1) ONE battery charger
(2) EITHER Channel I OR Channel II.
- B. (1) ONE battery charger
(2) BOTH Channel I AND Channel II.
- C. (1) BOTH battery chargers
(2) EITHER Channel I OR Channel II.
- D. (1) BOTH battery chargers
(2) BOTH Channel I AND Channel II.

Answer: A (1) ONE battery charger (2) EITHER Channel I OR Channel II.

Question 44

Bank # 2374

With an ESF DG in a standby condition, which of the following would cause a “DG TROUBLE” alarm?

- A. One DG Starting Air Receiver pressure 180 psig, the other DG Starting Air Receiver pressure 200 psig
- B. DG Fuel Oil Storage Tank level 60,000 gallons
- C. DG Jacket Water temperature 125°F
- D. DG Lube Oil temperature 125°F

Answer: B DG Fuel Oil Storage Tank level 60,000 gallons

Question 45

Bank # 1327

Which of the following is a control function of only the Reactor Containment Building Ventilation System effluent radiation monitors, RT-8012 & 8013?

Sends a signal to...

- A. the Gaseous Waste Processing System shutdown circuitry to close the intake and exhaust valves.
- B. the Solid State Protection System for Containment Ventilation Isolation
- C. initiate Control Room/Electrical Auxiliary Building emergency ventilation.
- D. initiate Fuel Handling Building exhaust filtration.

Answer: B the Solid State Protection System for Containment Ventilation Isolation

Unit 1 is at 15% power and commencing to raise turbine load at 10%/hr.

Which of the following describes how the temperature of the components cooled by the Closed Loop Auxiliary Cooling Water (CL-ACW) System will be controlled?

- A. The Open Loop Auxiliary Cooling Water (OL-ACW) System TCV (Temperature Control Valve) on the outlet of the SW/FW Heat Exchanger will modulate open to maintain CL-ACW temperature.
- B. The Closed Loop Auxiliary Cooling Water (CL-ACW) System TCV on the outlet of the SW/FW Heat Exchanger will modulate open to maintain CL-ACW temperature.
- C. The individual component TCVs will modulate open to maintain component temperature.
- D. The TGB Watch will manually throttle CL-ACW from the SW/FW Heat Exchanger to maintain CL-ACW temperature.

Answer: C The individual component TCVs will modulate open to maintain component temperature.

Question 47

Bank # 2411

Unit 2 is in Mode 5 maintaining 160 to 180 degrees in the RCS on the "A" RHR System.

The containment instrument air isolation valve malfunctions and goes shut.

What are the plant affects based on this failure?

- A. The RHR temperature control valves and Bypass Valve Close and a plant heat up will occur.
- B. The RHR Temperature Control Valves Close and the Bypass Valve Opens and a plant heat up will occur.
- C. The RHR Temperature Control Valves and Bypass Valves Remain in the current position and no changes in RCS temperature occur.
- D. The RHR Temperature Control Valves Open and the Bypass Valve close and a plant cool down occurs.

Answer: D The RHR Temperature Control Valves Open and the Bypass Valve close and a plant cool down occurs

Question 48

Bank # 2375

A main steam line break inside containment has occurred causing the containment pressure to rise to 7.5 psig.

Which of the following valves should be open?

- A. FV-4493 CCW TO RCPs CONT. ISOL. VALVE
- B. FV-3936 RWST TO SFPCCS ISOLATION VALVE
- C. FV-0011 LETDOWN ORIFICE HEADER ISOLATION VALVE
- D. FV-9776 RCB SUPPLEMENTARY PURGE CONT. ISOL. VALVE

Answer: A FV-4493 CCW TO RCPs CONT. ISOL. VALVE

Question 49

Bank # 1503

With Unit 1 at 100% power, a 0.5 gpm leak occurs in the RCP 1A Thermal Barrier Heat Exchanger.

Later the CCW SURGE TK LVL LO annunciator is received due to CCW leakage at the RCDT heat exchanger and CCW surge tank levels continue to lower.

At this point, which procedure should be entered and why?

- A. 0POP04-RC-0002, Reactor Coolant Pump Off Normal, to shutdown the failed reactor coolant pump.
- B. 0POP04-CC-0001, Component Cooling Water System Leak, to isolate/ensure isolation of CCW to the RCP Thermal Barrier Heat Exchanger.
- C. 0POP04-CC-0001, Component Cooling Water System Leak, to isolate/ensure isolation of CCW to the RCDT Heat Exchanger.
- D. 0POP05-EO-EO00, Reactor Trip or Safety Injection, to respond to a reactor trip due to manually tripping the reactor in response to loss of CCW surge tank level.

Answer: C 0POP04-CC-0001, Component Cooling Water System Leak, to isolate/ensure isolation of CCW to the RCDT Heat Exchanger.

Question 50

Bank # 2412

Unit 2 was operating at 100% power when a Unit Trip occurs due to a large break loss of coolant accident inside containment. Containment pressure has exceeded 15 psig. All of the ECCS equipment has operated as designed.

Subsequently:

- RWST level has lowered to 75,000 gallons (14%).
- Auto swap over initiated.
- ALL valves repositioned as expected with the exception of the Mini flow recirculation valves on Train A HHSI and LHSI pumps.
- Operators closed ALL the RWST suction valves per OPOP05-EO-ES13, Transfer to Cold Leg Recirculation.

What is the plant response to this configuration?

Containment water levels will...

- A. continue to rise as the remaining water in the RWST drains into the sump due to the Train A Mini Flow Recirculation valve position.
- B. lower due to the recirculation of the water back into the RCS and the RWST will remain at a constant level.
- C. remain constant and the RWST level will lower as water is being removed from the tank due to the Train A HHSI and LHSI pumps still removing water via the Train A Mini Flow Recirculation valves.
- D. lower slowly and the RWST level will rise due to Train A Mini Flow Recirculation valve position.

Answer: D lower slowly and the RWST level will rise due to Train A Mini Flow Recirculation valve position.

Question 51

Bank # 1677

Given the following:

- Maintenance is being performed on E1C11 battery
- The battery breaker is open to allow maintenance to jumper out a cell.
- An overcurrent lockout causes 4 KV ESF Bus E1C to de-energize.

Based on these conditions, Class 1E 120 VAC Distribution Panel DP-1204 will remain:

- A. Energized through its associated Inverter/Rectifier.
- B. Energized through its associated Voltage Regulating Transformer.
- C. De-energized until the E1C11 battery breaker is closed locally.
- D. De-energized until ESF Diesel Generator #13 output breaker automatically closes.

Answer: C De-energized until the E1C11 battery breaker is closed locally.

Given the following conditions:

- Emergency Diesel Generator (EDG) 12 is being paralleled to Train B Bus.
- Emergency Diesel Generator output breaker is closed with EDG voltage less than the Train B Bus.

Which of the following:

- (1) Identifies the impact on the Emergency Diesel if EDG voltage remains less than the Train B Bus?
 - (2) What action should be taken?
- A. (1) EDG VAR meter will move in the negative (-) VAR (LEAD-IN) direction.
(2) Place the Generator Voltage Adjust Switch in the RAISE position to ensure a slightly positive VAR load.
- B. (1) EDG VAR meter will move in the positive (+) VAR (LAG-OUT) direction.
(2) Place the Generator Voltage Adjust Switch in the LOWER position to ensure a slightly positive VAR load.
- C. (1) EDG VAR meter will move in the negative (-) VAR (LEAD-IN) direction.
(2) Place the Generator Voltage Adjust Switch in the LOWER position to ensure a slightly positive VAR load.
- D. (1) EDG VAR meter will move in the positive (+) VAR (LAG-OUT) direction.
(2) Place the Generator Voltage Adjust Switch in the RAISE position to ensure a slightly positive VAR load.

Answer: A (1) EDG VAR meter will move in the negative (-) VAR (LEAD-IN) direction.
(2) Place the Generator Voltage Adjust Switch in the RAISE position to ensure a slightly positive VAR load.

Question 53

Bank # 1329

With the plant in Mode 1 and a Train of Essential Cooling Water (ECW) Pump switches in the following positions:

- Controlroom Handswitch – AUTO
- Transfer Switch – CONT RM
- ECW/CCW Train Selector Switch – STANDBY

Which of the following is NOT a DIRECT auto start signal for an ECW Pump?

- A. Auto start of the same-train ESF DG.
- B. Sequencer Mode 1.
- C. ECW pressure in the other two ECW Trains 25 psig.
- D. CCW header pressure 75 psig.

Answer: A Auto start of the same-train ESF DG.

The Unit 1 Instrument Air (IA) Compressors are in remote control from the Master Control (MC) Computer.

The Instrument Air Compressors are aligned as follows:

- IA Compressor 11 is the first compressor
- IA Compressor 12 is the second compressor
- IA Compressor 13 is the third compressor

Current system pressure is at approximately 120 psi with all three compressors IDLING.

Subsequently Service Air usage causes air pressure at the outlet of the air dryers to drop to 114 psi, then slowly rise back and stabilize at 122 psi.

Assuming the Service Air usage lasted less than 30 minutes and the IA Compressors LOAD and IDLE at their exact setpoints, which describes the condition of the IA Compressors after pressure stabilized at 122 psi?

	IA Compressor 11	IA Compressor 12	IA Compressor 13
A.	LOADED	LOADED	LOADED
B.	LOADED	LOADED	IDLE
C.	LOADED	IDLE	IDLE
D.	IDLE	IDLE	IDLE

Answer: B LOADED, LOADED, IDLE

Question 55

Bank # 2379

Which of the following describes the power supplies for the RHR Pumps:

- A. RHR Pump 1A – Load Center E1A1
RHR Pump 1B – Load Center E1B1
RHR Pump 1C – Load Center E1C1
- B. RHR Pump 1A – Load Center E1A2
RHR Pump 1B – Load Center E1B2
RHR Pump 1C – Load Center E1C2
- C. RHR Pump 1A – Load Center E1A1
RHR Pump 1B – Load Center E1B1
RHR Pump 1C – Load Center E1C2
- D. RHR Pump 1A – Load Center E1A2
RHR Pump 1B – Load Center E1B2
RHR Pump 1C – Load Center E1C1

Answer: D RHR Pump 1A - Load Center E1A2
RHR Pump 1B - Load Center E1B2
RHR Pump 1C - Load Center E1C1

Which of the following describes the power supplies for the Unit 2 Centrifugal Charging Pumps (CCPs)?

	CCP 2A	CCP 2B
A.	Class 1E 4.16KV E2A	Class 1E 4.16KV E2B
B.	Class 1E 4.16KV E2A	Class 1E 4.16KV E2C
C.	Class 1E 4.16KV E2C	Class 1E 4.16KV E2B
D.	Class 1E 4.16KV E2C	Class 1E 4.16KV E2A

Answer: D Class 1E 4.16KV E2C - Class 1E 4.16KV E2A

Question 57

Bank # 2381

Which of the following is correct regarding the P-6 Bistable?

Both Intermediate Range NIs must go...

- A. above 10^{-10} amps to automatically block Source Range NIs.
- B. above 10^{-10} amps to allow a manual block of the Intermediate Range trip.
- C. below 10^{-10} amps to automatically unblock Source Range NIs
- D. below 10^{-10} amps to allow a manual unblock of the Intermediate Range trip.

Answer: C below 10^{-10} amps to automatically unblock Source Range NIs

Given the following:

- Plant is at 100% power steady state operation.
- Preparations for performing a containment purge are in progress.
- Noble gas concentration inside the RCB is $5.3E-04 \mu\text{Ci/cc}$.

Which ONE of the following identifies the procedure that should be used for the purge AND the actions that should be taken to prevent the actuation of an ESF Containment Ventilation Isolation (CVI) during the containment purge?

- A. 0POP02-HC-0002, "NORMAL CONTAINMENT PURGE"; Raise the High alarm setpoint of RT-8012 & 8013 (RCB Purge Monitors).
- B. 0POP02-HC-0002, "NORMAL CONTAINMENT PURGE"; Raise the High alarm setpoint on RT-8011 (Containment atmosphere radiation monitor).
- C. 0POP02-HC-0003, "SUPPLEMENTARY CONTAINMENT PURGE"; Raise the High alarm setpoint of RT-8012 & 8013 (RCB Purge Monitors).
- D. 0POP02-HC-0003, "SUPPLEMENTARY CONTAINMENT PURGE"; Raise the High alarm setpoint on RT-8011 (Containment atmosphere radiation monitor).

Answer: C 0POP02-HC-0003, "SUPPLEMENTARY CONTAINMENT PURGE"; Raise the High alarm setpoint of RT-8012 & 8013 (RCB Purge Monitors).

Question 59

Bank # 2413

Spent Fuel Pool Cooling Pump 'A' is in service providing cooling to the Spent Fuel Pool (SFP).

- A large leak in the spent fuel cooling system piping occurs.
- SFP level is 63 feet and lowering

For the above conditions in the Spent Fuel Cooling system what engineering design feature helps to ensure that adequate level is maintained in the Spent Fuel Pool?

- A. The SFP Cooling Pumps automatically trip < 63 feet
- B. The suction lines of the SFP Cooling Pumps are equipped with a vacuum breaker
- C. The return line into the SFP from the SFP Cooling System contains a hole (siphon breaker) in the pipe located approximately 6" below normal level
- D. The discharge lines of the SFP cooling pumps are physically located above the minimum required level in the SFP

Answer: C The return line into the SFP from the SFP Cooling System contains a hole (siphon breaker) in the pipe located approximately 6" below normal level.

Question 60

Bank # 2382

Unit 1 is at 100% power when the controlling level channel for C Steam Generator fails to 0%.

Which of the following correctly describes the plant response assuming no operator action?

Feedwater flow to 'C' Steam Generator will...

- A. rise until a feedwater isolation will occur.
- B. lower until the reactor trips on Lo-Lo Steam Generator Level.
- C. initially rise, then will lower resulting in a steam generator level stabilizing higher than before.
- D. initially lower, then will rise resulting in a steam generator level stabilizing lower than before.

Answer: A rise until a feedwater isolation will occur

Question 61

Bank # 92

A normal cooldown is being performed on Unit 2 with the following conditions:

- RCS temperature is 555°F and lowering at 50°F/hr
- RCS pressure is 2000 psig and lowering
- Cooldown is being performed using the Steam Dumps in AUTO
- All RCPs are in operation

Which of the following would explain a rise in main steam pressure?

- A. Steam header Pressure PT-557 failed low
- B. Steam header Pressure PT-557 failed high
- C. Turbine Impulse Pressure PT-505 failed low
- D. Turbine Impulse Pressure PT-505 failed high

Answer: A Steam Header Pressure PT-557 failed low

Question 62

Bank # 2414

Given the following:

- Unit 1 is operating at 48% power
- An electrical malfunction causes the Generator Field Breaker (41M) to trip

Which of the following correctly describes the effect on the plant?

- A. The Main Generator Output Breaker will open; the Turbine will continue to operate with no load. The Reactor will continue to operate.
- B. The Main Generator Output Breaker will remain closed, a Turbine trip will occur, resulting in a reactor trip.
- C. The Main Generator Output Breaker will open, a Turbine trip will occur. The Reactor will continue to operate.
- D. The Main Generator Output Breaker will remain closed; the Turbine will continue to operate with no load. The Reactor will remain on line.

Answer: C The Main Generator Output Breakers will open, a Turbine trip will occur. The Reactor will continue to operate.

Question 63

Bank # 484

Which of the following actions automatically occur if both Feedwater Deaerator Storage Tank levels are at 92%?

- A. Trip of the running Condensate Pumps
- B. Trip of the running Feed Water Booster Pumps
- C. Closing of the Deaerator Vent Condenser Temperature Control Valve (TV-7413)
- D. Closing of the Condensate Block Valves to deaerator (MOV-574 and 575)

Answer: D Closing of the Condensate Block Valves to deaerator (MOV-574 and 575)

Question 64

Bank # 2383

Given the following:

- Unit 1 is operating at 100% power.
- Circulating Water Pumps (CWP) 11, 12, and 13 are operating.
- CWP 14 is tagged out of service for maintenance.

Subsequently:

- CWP 11 trips due to an unknown reason.

Following the pump trip, the following parameters are noted:

- Condenser Vacuum – 22 inches Hg
- CWP 13 Motor Stator Temperature – 185 °F
- CWP 13 Motor Bearing Temperature – 185 °F

In accordance with 0POP04-CW-0001, Loss of Circulating Water Flow, which of the following would be the first expected action?

- A. Start all available Condenser Air Removal Pumps
- B. Secure CWP 13
- C. Initiate a Main Turbine Load Reduction Per Addendum 2, Turbine Load Reduction, to restore Main Condenser Vacuum
- D. Trip the reactor, trip the turbine, and go to 0POP05-EO-EO00, Reactor Trip or Safety Injection.

Answer: A Start all available Condenser Air Removal Pumps

Question 65

Bank # 2384

All three Diesel Fire Pump controller switches are in AUTO.

A transient in the Fire Water System occurs and fire water pressure lowers to 100 psi for approximately 10 seconds before rising to 128 psi 13 seconds after the transient started.

Assuming the jockey pump is running in auto, which of the following describes the condition of the fire pumps:

- A. No Fire Pumps are running
- B. Only Fire Pump #1 is running
- C. Only Fire Pumps #1 and #2 are running
- D. Fire Pumps #1, #2 and #3 are running

Answer: B Only Fire Pump #1 is running

Question 66

Bank # 2385

In accordance with Conduct of Operations Chapter 4, Reports and Notifications, which of the following plant events require notification to the NRC resident inspector?

- A. Taking the reactor critical
- B. Turbine Trip below P-9
- C. ESF Actuation
- D. Event having adverse effect beyond the site boundary

Answer: D Event having adverse effect beyond the site boundary

Question 67

Bank # 2415

With Regard to an evolution that is expected to continue for several days, a procedure is labeled continual use.

What is the Maximum amount of time that can elapse before an in progress procedure must be Verified/Validated to be current per the requirements of OPGP03-ZA-0010, Performing and Verifying Station Activities?

- A. Each shift
- B. Every 7 days
- C. Every 14 days
- D. Only prior to start of the Job

Answer: A Each shift

Question 68

Bank # 2386

As the primary operator, according to procedure OPOP01-ZQ-0022, "Plant Operations Shift Routines," which of the following activities **MUST** be performed prior to assuming the shift?

- A. Safety Function Checklist
- B. Operator Burden Report
- C. Surveillance Schedule
- D. Radiation Monitoring Status

Answer: C Surveillance Schedule

Question 69

Bank # 2387

Which of the following is correct regarding breaker racking tags in accordance with Procedure 0PGP03-ZO-ECO1A, "Equipment Clearance Order Instructions?"

- A. A breaker racking tag may not be placed over a danger, test or caution tag.
- B. While a breaker racking tag is attached to a control room handswitch the operation of that switch is permitted.
- C. The name of the person in the field controlling the evolution shall be written on the tag.
- D. An Operator may go to the breaker, inspect the area and remove the breaker racking tag. The Operator will then report the status to the Shift Manager/Unit Supervisor.

Answer: C The name of the person in the field controlling the evolution shall be written on the tag

Question 70

Bank # 2388

With fuel burnup of 50,000 MWD/MTU, what is the Technical Specification requirement for MAXIMUM peak fuel centerline temperature?

- A. < 5080 °F
- B. < 5022 °F
- C. < 4964 °F
- D. < 4790 °F

Answer: D < 4790 °F

The following Unit 2 conditions exist:

- During normal plant operations you are directed to perform a valve alignment on CCP A. When you reach the door for CCP A you notice a radiation sign on the door.
- The radiation sign on the door reads “DANGER - HIGH RADIATION AREA”.

Which of the following sets of requirements are required for entry into the area in accordance with OPGP03-ZR-0051, Radiological Access Controls/Standards?

1. Be assigned to an RWP that permits entry.
 2. Be assigned an individual monitoring device (TLD).
 3. Be issued an Electronic Personal Dosimeter (EPD).
 4. Be made knowledgeable of the radiological conditions in the area(s) to be accessed.
 5. Be aware of additional Radiation Protection controls established by the RWP or RP instructions.
 6. Obtain Key or be allowed access by the RP continually guarding the access point.
 7. Obtain continuous RP Coverage.
 8. ALARA Review Committee SHALL approve the entry, before entry is made.
- A. 1,2,3,4,5 ONLY
- B. 1,2,3,4,5,6
- C. 1,2,3,4,5,7
- D. 1,2,3,4,5,8

Answer: A 1,2,3,4,5 ONLY

Area Radiation Monitor RE-8052 in the In-Core Instrumentation Room is alarming HIGH at 1000 mrem/hr. Local surveys have confirmed that this radiation level is accurate.

John, due to his expertise, will need to enter the area to conduct repairs.

- He was a contractor until he was hired by STP a few months ago.
- He is 52 years old with a lifetime TEDE of 40 rem.
- He has accumulated 3.6 rem TEDE this year, of which 360 mrem was received at STP.

The federal exposure limits imposed by 10CFR Part 20 require that John's stay time for the job must NOT exceed _____ without authorization for a Planned Special Exposure.

- A. 0 minutes
- B. 1 hour and 38.4 minutes
- C. 1 hour and 2.4 minutes
- D. 1 hour and 24 minutes

Answer: D 1 hour and 24 minutes

Question 73

Bank # 2417

Place the following operations procedures in order of hierarchy.

1. Normal Operating Procedures (OP)
 2. Off Normal Operating Procedures (ONP)
 3. Annunciator Response Procedure (ARP)
 4. Emergency Response Procedure (EOP)
-
- A. 3, 4, 2, 1
 - B. 4, 2, 1, 3
 - C. 4, 2, 3, 1
 - D. 2, 4, 3, 1

Answer: C 4, 2, 3, 1

A small steam generator tube leak (15 gpm) has occurred on the A SG. The unit is reducing power to take the unit off line. During the power reduction an unexpected Unit trip has occurred. The following conditions are noted immediately following the reactor trip.

- Reactor Power is less than 3.5 E-6 Amps and lowering
- SUR is negative
- RCS Sub-Cooling is 37° F
- All SGs are at 12% and slowly lowering with “A” SG NR level lowering at a slower rate than the other SG’s
- Containment temperatures and pressures are normal
- Containment Radiation is 2 E+2 R/Hr
- Pressurizer level is 75%
- RVWL indicates 100% on plenum
- Main Feed Pumps have tripped
- No AFW is running
- SI has not initiated

What Critical safety Function(s) are currently not met (1) .

During the performance of 0POP05-EO-EO00 Reactor Trip and Safety Injection the Unit Supervisor directs you to monitor critical safety functions and announces that he is transitioning to (2) .

- | | | | |
|----|-------------------------|--|---|
| | (1) | | (2) |
| A. | Heat Sink | | 0POP05-EO-FRH1 Loss of Heat Sink |
| B. | Core Cooling, Heat Sink | | 0POP05-EO-E030 Steam Generator Tube Rupture |
| C. | Heat Sink, | | 0POP05-EO-E030 Steam Generator Tube Rupture |
| D. | Core Cooling, Heat Sink | | 0POP05-EO-FRH1 Loss of Heat Sink |

Answer: A (1) Heat Sink; (2) EO FRH1 Loss of Heat Sink

Abnormal Operating Procedures (AOPs), and Emergency Operating Procedures (EOPs) will give direction to "GO TO" and directs the operator to a later step in the same procedure OR to a different procedure.

When directed to "GO TO" another procedure, which of the following describes this term?

- A. Complete the controlling procedure and then enter the procedure that you were directed to "GO TO".
- B. Immediately exit the controlling procedure and then enter the procedure that you were directed to "GO TO".
- C. Continue with the controlling procedure and perform the procedure that you are directed to "GO TO" in conjunction with it.
- D. Immediately enter and complete the procedure you were directed to "GO TO" then return and complete the controlling procedure.

Answer: B Immediately exit the controlling procedure and then enter the procedure that you were directed to "GO TO".

Question 76

Bank # 230

The following conditions exist in Unit 2:

- Mode 3 following a manual reactor trip and SI
- RCS pressure 1450 psig and STABLE
- Core Exit TCs are 555°F
- Pressurizer level is 48% and RISING
- Containment pressure is 6.5 psig
- SG NR levels are: 35%, 35%, 33%, 36%
- Total AFW flow is 400 gpm

The Unit Supervisor is at Step 15 of 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant, and is evaluating whether Safety Injection should be terminated.

Which of the following operator actions is procedurally required for the above conditions?

- A. SI termination criteria is met only if AFW flow is adjusted to > 576 gpm. Do NOT transition to 0POP05-EO-ES11, SI Termination, until AFW flow is adjusted.
- B. SI termination criteria is met only if the level in C Steam Generator is raised to 34%. Do NOT transition to 0POP05-EO-ES11, SI Termination, C Steam Generator level is raised to 34%.
- C. SI termination criteria is NOT met since pressurizer level is still low and further actions in 0POP05-EO-EO10 need to be performed.
- D. SI termination criteria is NOT met since RCS subcooling is less than the required value and further actions in 0POP05-EO-EO10 need to be performed.

Answer: D SI termination criteria is NOT met since RCS subcooling is less than the required value and further actions in 0POP05-EO-EO10 need to be performed.

You are the Unit Supervisor in Unit 2:

- A LOCA has occurred in Unit 2.
- RCS pressured has lowered to 1420 psig and stabilized.
- HHSI pumps are operating.
- RCP's have not yet been secured.
- You have reached step 10 of 0POP05-E0-E000, Rx Trip or Safety Injection.

___10 MONITOR If RCPs Should Be Stopped:

- | | | | |
|-------|------------------------------------|----|----------------|
| ___a. | HHSI pump - AT LEAST ONE RUNNING | a. | GO TO Step 11. |
| | | | ----- |
| ___b. | RCS pressure - LESS THAN 1430 PSIG | b. | GO TO Step 11. |
| | | | ----- |
| ___c. | STOP all RCPs | | |

What is the basis for verifying (1) that at least 1 HHSI pump is running and (2) RCS pressure below 1430 psig?

- A. (1) Securing the RCP's without at least 1 HHSI pump operating can cause an Inadequate Core Cooling condition.
(2) Below 1430 PSIG RCP operation is not required for cool down in any circumstance.
- B. (1) At least one HHSI pump is required when RCP's are secured to minimize potential thermal shock if HHSI pumps are started after RCP's are secured.
(2) 1430 psig is based on SBLOCA where a loss of the RCP later would result in core uncover.
- C. (1) Securing the RCP's without at least 1 HHSI pump operating can cause an Inadequate Core Cooling condition.
(2) 1430 psig is based on a SBLOCA where a loss of the RCP later would result in core uncover.
- D. (1) At least one HHSI pump is required when RCP's are secured to minimize potential thermal shock if HHSI pumps are started after RCP's are secured.
(2) Below 1430 PSIG RCP operation is not required for cool down in any circumstance.

Answer: C (1) Securing the RCP's without at least 1 HHSI pump operating can cause an Inadequate Core Cooling condition. (2) 1430 psig is based on a SBLOCA where a loss of the RCP later would result in core uncover.

Given the following:

- Unit 1 is at 100% power with all systems in a normal lineup.
- Current RCS Boron concentration is 500 ppm.
- Cycle Burnup is 12000 MWD/MTU.
- It has just been determined that 2 Shutdown Bank Control Rods are mechanically bound (untrippable).

Prior to beginning a Unit Shutdown the following occurs:

- Main Feedwater Reg Valve on SG 2B fails closed.
- Both Reactor Trip switches fail to make control rods drop into the core.
- The Control Room crew places Feeder Breaker Handswitches for 480V Load Centers 2K1 and 2L1 to “OPEN” and then back to “NORMAL.”
- Feeder Breaker indication for 480V Load Center 2K1 shows a red light lit.
- Feeder Breaker indication for 480V Load Center 2L1 shows a green light lit.

Based on the given conditions, in which of the following procedures would the Unit Supervisor FIRST direct that an Emergency Boration be performed AND what would be the correct amount of Emergency Boration to perform?

	FIRST procedure the US should direct an Emergency Boration be performed.	Emergency Borate the RCS ...
A	0POP05-EO-ES01, Reactor Trip Response	with 1880 gallons of boric acid
B	0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.	to 1398 ppm
C	0POP05-EO-ES01, Reactor Trip Response.	with 7200 gallons of boric acid
D	0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.	to 836 ppm

Answer: B 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS.; to 1398 ppm

Question 79

Bank # 185

Which of the following is the basis for the requirement to cooldown the plant to below 500°F within 6 hours when the specific activity of the reactor coolant exceeds Technical Specification limits?

- A. Maintains the fission product gases in solution in the reactor coolant.
- B. Increases reliability of the data collected for iodine release.
- C. Prevents the release of activity in the event of a steam generator tube rupture.
- D. Ensures on-site exposures will not exceed 10CFR20 limits.

Answer: C Prevents the release of activity in the event of a steam generator tube rupture.

While performing the steps in procedure OPOP04-EW-0001, Loss of Essential Cooling Water, a subsequent loss of Component Cooling Water limits the operation time of the Centrifugal Charging Pumps.

Which of the following is the most limiting event?

A loss of Component Cooling Water to the Centrifugal Charging Pump's...

- A. Supplementary Cooler resulting in exceeding the maximum bearing temperature limits causing pump bearing damage.
- B. Supplementary Cooler resulting in a breakdown of electrical insulation and shorting of the motor.
- C. Lube Oil Cooler resulting in exceeding the maximum bearing temperature limits causing pump bearing damage.
- D. Lube Oil Cooler resulting in a breakdown of electrical insulation and shorting of the motor.

Answer: B Supplementary Cooler resulting in a breakdown of electrical insulation and shorting of the motor.

Question 81

Bank # 2421

Unit is at 100% power when the IA header starts to lower, attempts to identify the reason for the IA leak have been unsuccessful up to this point.

IA header pressure is 60 psig and lowering slowly.

In accordance with OPOP04-IA-0001, Loss of Instrument Air, as the Unit Supervisor you should direct the board operators to _____.

- A. trip the Rx, enter OPOP05-EO-EO00, Reactor Trip or Safety Injection, and continue with the actions of OPOP04-IA-0001, Loss of Instrument Air, as resources permit.
- B. identify portion of IA system with high flow and isolate IAW OPOP04-IA-0001, Loss of Instrument Air.
- C. open Service Air Isolation Valve IA-PV-9785 to allow service air to supply IA, IAW with step 6 of OPOP04-IA-0001, Loss of Instrument Air.
- D. commence a power reduction in preparation to take the unit off line as the Loss of Instrument Air has started to affect the Feedwater control valves.

Answer: A trip the Rx, enter OPOP05-EO-EO00, Reactor Trip or Safety Injection, and continue with the actions of OPOP04-IA-0001, Loss of Instrument Air, as resources permit.

Question 82

Bank # 2389

While reviewing the core cooling critical safety function, the following conditions exist:

- The plant is in mode 3
- A small break LOCA has occurred
- Applicable actions of 0POP05-EO-EO00 have been completed
- Core exit thermocouple temperatures are 1150 °F
- RCS core exit thermocouples indicate 5°F superheat
- Reactor vessel water plenum level is 15%

Which of the following should be directed by the Unit Supervisor?

Enter Procedure...

- A. 0POP05-EO-EO10, Loss OF Reactor OR Secondary Coolant
- B. 0POP05-EO-FRC1, Response to Inadequate Core Cooling
- C. 0POP05-EO-FRC2, Response to Degraded Core Cooling
- D. 0POP05-EO-FRC3, Response to Saturated Core Cooling

Answer: C 0POP05-EO-FRC2, Response to Degraded Core Cooling

Question 83

Bank # 2422

Given the following Unit 1 conditions:

- Refueling operations in progress.
- Extended Range Flux Monitor N46 is OPERABLE.
- Extended Range Flux Monitor N45 is INOPERABLE.
- Source Range N31 is in service with its associated audible indication in the Control Room and Containment OPERABLE.
- Maintenance has just been completed on Source Range N32 and the detector is Bypassed waiting on post maintenance testing to be completed.
- Source Range N31 has just failed LOW.

The Unit Supervisor entered 0POP04-NI-0001, Nuclear Instrument Malfunction, and proceeds to Addendum 1, Source Range Nuclear Instrument Malfunction.

Step 6 of Addendum 1 states:

CHECK Nuclear Instrumentation Channels (N31, N32, N45 or N46) Meets the Following:

- One Source Range With Audible Indication
- Additional Source Range or Extended Range Operable

Based on Step 6 of addendum 1 above the Control Room supervisor should ensure which of the following actions:

- A. Immediately Restore Extended Range Flux Monitor N45 to operable status to meet the requirements of step 6.
- B. Initiate visual monitoring of the Extended Range Nuclear Instruments to meet the requirements of TS 3.9.2.
- C. Direct Chemistry to sample the RCS boron concentration at least once every 12 hours per TS 3.9.2
- D. Immediately suspend core alterations.

Answer: D Immediately suspend core alterations.

Question 84

Bank # 1099

Plant conditions are as follows:

- RWST Level = 175,000 gallons
- Containment pressure = 9.2 psig
- Containment water level = 62 inches
- Containment radiation level = 2500 R/hr

0POP05-EO-EO00, Reactor Trip or Safety Injection, and 0POP05-EO-E10, Loss of Reactor or Secondary Coolant, have already been entered. According to procedure 0POP05-EO-FO05, Containment Critical Safety Function Status Tree, which procedure is appropriate for the above conditions?

- A. Procedure 0POP05-EO-ES13, Transfer to Cold Leg Recirculation
- B. Procedure 0POP05-EO-FRZ1, Response to High Containment Pressure
- C. Procedure 0POP05-EO-FRZ2, Response to Containment Flooding
- D. Procedure 0POP05-EO-FRZ3, Response to High Containment Radiation Level

Answer: D Procedure 0POP05-EO-FRZ3, Response to High Containment Radiation Level

Question 85

Bank # 2423

Unit 1 is operating at 100%:

- RT-8039 (RM-11 CRT) CVCS Letdown Failed Fuel Monitor indications are rising rapidly and are in alarm.
- A source Check of the RT-8039 indicates that it is operating properly
- All CVCS demineralizers are operating properly
- A RCS Sample has been taken and indications are that DEI is 10 micro curries per gram

The specific activity limits in technical specification 3.4.8 are based on ensuring that the 2 hour limit at the site boundary will not exceed a small fraction of the 10CFR100 limits concurrent with ____ (1) ____ and for the given plant conditions above an emergency declaration ____ (2) ____ be entered.

- A. (1) a 150 gpd Steam generator tube rupture
(2) Should NOT.
- B. (1) a 25 gpm RCS leak outside containment
(2) Should NOT.
- C. (1) a 150 gpd Steam generator tube rupture
(2) Should.
- D. (1) a 25 gpm RCS leak outside containment
(2) Should

Answer: C a 150 gpd Steam generator tube rupture, Should.

Regarding the surveillance requirements for the Pressurizer PORV's, which of the following are requirements to satisfy Surveillance Requirement 4.0.5?

- A. Full exercise in both directions including a stroke time measured in the open direction only.
- B. Full exercise in both directions including a stroke time measured in the closed direction only.
- C. Full exercise in the open Direction only including a stroke time measured in the open direction only.
- D. Full exercise in the closed Direction only including a stroke time measured in the closed direction only.

Answer: A Full exercise in both directions including a stroke time measured in the open direction only.

Unit 1 is operating at power when the following occur in sequence:

- A Loss of Coolant Accident (LOCA) occurs.
- All ESF equipment is functioning as designed.
- Containment Phase 'A' Isolation is reset.
- ESF Load Sequencers are reset in the Control Room ONLY
- Containment Pressure increases to 9.8 psig.
- OPOP05-EO-EO00, Reactor Trip or Safety Injection, is complete including Addendum 5.
- A Reactor Operator reports that no Containment Spray Pumps are running, but their discharge valves are open.

Based on these conditions, what actions would the Unit Supervisor be required to implement?

- A. In accordance with OPOP05-EO-FRZ1, Response to High Containment Pressure, direct the Reactor Operator to manually start the Containment Spray Pumps using their individual pump control switches.
- B. In accordance with OPOP05-EO-FRZ1, Response to High Containment Pressure, direct the Reactor Operator to manually actuate Containment Spray by using the Containment Spray Manual Actuation Switches.
- C. In accordance with OPOP05-EO-EO10, Loss of Reactor or Secondary Coolant, direct the Reactor Operator to manually actuate Containment Spray by using the Containment Spray Manual Actuation Switches.
- D. In accordance with OPOP05-EO-EO10, Loss of Reactor or Secondary Coolant, direct the Reactor Operator to manually start the Containment Spray Pumps using their individual pump control switches.

Answer: A In accordance with OPOP05-EO-FRZ1, Response to High Containment Pressure, direct the Reactor Operator to manually start the Containment Spray Pumps using their individual pump control switches.

Question 88

Bank # 2391

The atmospheric steam relief valve automatic controls must be OPERABLE with a nominal setpoint of 1225 psig in Modes 1 and 2 because the safety analysis assumes automatic operation of the atmospheric steam relief valves with a nominal setpoint of 1225 psig with uncertainties for mitigation of which accident?

- A. Small break LOCA.
- B. Feedwater line break.
- C. Loss of all main feedwater pumps.
- D. Loss-of-offsite power.

Answer: A Small break LOCA.

Question 89

Bank # 1727

Given the following:

- ESF DG #11 is out of service
- A loss of offsite power (LOOP) resulted in a reactor trip
- The crew has entered 0POP05-EO-ES01, Reactor Trip Response
- AFW Pump 14 trips on overspeed
- SG NR Levels are 16-21 %

Assuming no operator actions have been taken with AFW, which one of the below correctly describes the effect on the AFW system AND the actions to be taken by the Unit Supervisor?

The loss of AFW Pumps # 11 and 14...

- A. could cause runout conditions on AFW Pumps 12 and 13. The Unit Supervisor should continue in 0POP05-EO-ES01 and throttle flow through AFW Pumps 12 and 13 to prevent runout.
- B. will have no effect on the flow of AFW Pumps 12 and 13. The Unit Supervisor should continue in 0POP05-EO-ES01 and have the operator cross-tie AFW to feed SG's 'A' and 'D'.
- C. could cause runout conditions on AFW Pumps 12 and 13. The Unit Supervisor MUST transition to 0POP05-EO-FRH1, Loss of Secondary Heat Sink, to re-establish heat sink requirements for AFW flow and SG levels.
- D. will have no effect on the flow of AFW Pumps 12 and 13. The Unit Supervisor MUST transition to 0POP05-EO-FRH5, Response to Steam Generator Low Level, to re-establish AFW to SG's 'A' and 'D'.

Answer: B B.will have no effect on the flow of AFW Pumps 12 and 13. The Unit Supervisor should continue in 0POP05-EO-ES01 and have the operator cross-tie AFW to feed SG's 'A' and 'D'.

Question 90

Bank # 1636

Given the following:

- The unit is at 100% power.
- The ECW PUMP 1B TRIP alarm is received.
- The reactor operator reports that the previously running ECW Pump 1B is now stopped.

Which of the following describes the procedural action to be taken by the Unit Supervisor?

- A. Declare ECW Pump 1B inoperable. 'B' Train ESF Diesel Generator and Essential Chiller may remain operable provided the ESSENTIAL CHILLER X-CONN valves are opened per POP02-EW-0001, Essential Cooling Water Operations.
- B. Declare 'B' Train ECW Pump and ESF Diesel Generator inoperable. 'B' Train Essential Chiller may remain operable provided the ESSENTIAL CHILLER X-CONN valves are opened per POP02-EW-0001, Essential Cooling Water Operations.
- C. Declare 'B' Train ESF Diesel Generator, Essential Chiller and ECW Pump inoperable. Place the ECW Pump in 'PULL-TO-LOCK' but leave the ESF Diesel Generator and Essential Chiller functional and available for emergency use per the annunciator response procedure.
- D. Declare 'B' Train ESF Diesel Generator, Essential Chiller and ECW Pump inoperable. Place the ESF Diesel Generator in 'PULL-TO-STOP' and the ECW Pump and Essential Chiller in 'PULL-TO-LOCK' per the annunciator response procedure.

Answer: D Declare 'B' Train ESF Diesel Generator, Essential Chiller and ECW Pump inoperable. Place the ESF Diesel Generator in 'PULL-TO-STOP' and the ECW Pump and Essential Chiller in 'PULL-TO-LOCK' per the annunciator response procedure.

Question 91

Bank # 2424

You are the Unit supervisor on Unit 2 and control rod testing is in progress when a control rod is inserted 13 steps and then will not move. All attempts to move the control rod have been unsuccessful. The system engineer has reported that the control rod is mechanically bound.

In accordance with Technical Specification 3/4.1.3 Movable Control Assemblies, Continued Power operations _____(1)_____ continue and one of the required actions to be taken is to _____(2)_____.

- A. (1) MAY
(2) declare the control Rod Inoperable within 1 hour and align all other rods in that bank within 12 steps of the misaligned control rod.
- B. (1) MAY
(2) align the remaining rods in that bank within 12 steps of the misaligned rod within 1 hour and a reevaluation of each accident analysis of Table 3.1-1 is performed within 7 days.
- C. (1) MAY NOT
(2) verify SDM within 1 hour and be in Hot Standby within 6 hours.
- D. (1) MAY NOT
(2) verify SDM within 1 hour Mode 4 within 12 hours.

Answer: C MAY NOT, Verify SDM within 1 hour and be in Hot Standby within 6 hours.

Question 92

Bank # 2434

The reactor is at full power.

- A surveillance test was completed on PT-456, showing a safety injection action signal occurs at a setpoint of 1854 psig.
- Pressurizer pressure instrument PT-455 just failed low and actions have been completed in response to the failure.

ESFAS pressurizer pressure Channel II is (1). Technical Specification 3.3.2 required action for the above condition is to (2).

- A. (1) Operable.
(2) bypass ESFAS pressurizer pressure Channel I within 72 hours.
- B. (1) Operable.
(2) place ESFAS pressurizer pressure Channel I in trip within 72 hours.
- C. (1) Inoperable.
(2) restore at least one of the inoperable ESFAS pressurizer pressure channels to OPERABLE within one hour.
- D. (1) Inoperable.
(2) enter TS. 3.0.3.

Answer: B Operable; Place ESFAS pressurizer pressure Channel I in trip within 72 hours.

Question 93

Bank # 2425

A fuel assembly SHALL not be disengaged from the refueling machine in the core until all of the following conditions are met in accordance with OPOP08-FH-0001, Refueling Machine Operating Instruction:

- A. • "SLACK CABLE" light is ON
 - Load cell indicates 435 lbs.
 - Z-Axis tape measure shows the fuel assembly to be fully down
 - Source range count rate is stable
 - Directed by Core Loading Supervisor
- B. • "SLACK CABLE" light is OFF
 - Load cell indicates 485 lbs.
 - Z-Axis tape measure shows the fuel assembly to be fully down
 - Source range count rate is stable
 - Directed by Core Loading Supervisor
- C. • "SLACK CABLE" light is ON
 - Load cell indicates 485 lbs.
 - Z-Axis tape measure shows the fuel assembly to be fully down
 - Source range count rate is stable
 - Directed by Core Loading Supervisor
- D. • "SLACK CABLE" light is OFF
 - Load cell indicates 435 lbs.
 - Z-Axis tape measure shows the fuel assembly to be fully down
 - Source range count rate is stable
 - Directed by Core Loading Supervisor

Answer: A • "SLACK CABLE" light is ON

- Load cell indicates 435 lbs.
- Z-Axis tape measure shows the fuel assembly to be fully down
- Source range count rate is stable
- Directed by Core Loading Supervisor

Question 94

Bank # 2431

Given the following:

Date / Time	Activity
9/5/2015 0000	Plant Shutdown commenced.
9/5/2015 0630	Mode 3 Entry.
9/5/2015 1320	Mode 4 Entry.
9/5/2015 2210	Mode 5 Entry.
9/7/2015 2200	First Reactor Vessel Head Stud detensioned.
9/8/2015 0900	Reactor Vessel Head removed.

Which of the following is the EARLIEST time that irradiated fuel movements may commence in accordance with OPOP08-FH-0009, Core Refueling?

- A. 9/9/2015 at 1030.
- B. 9/10/2015 at 0210.
- C. 9/12/2015 at 0200.
- D. 9/12/2015 at 1300.

Answer: A 9/9/2015 at 1030

Question 95

Bank # 2426

Load Center 1J2 Breaker 11A Fuel Handling Heating Coil has tripped open. Mechanics are working in the Fuel Handling Building and have reported that it is cold and would like permission to reset the breaker.

IAW Conduct of Operations Chapter 2, as the Unit Supervisor you _____.

- A. authorize the Mechanics to reset the breaker one time.
- B. tell Maintenance that they are not allowed to reset the breaker because there is no apparent cause for the breaker trip.
- C. determine/understand the cause of the breaker to trip and log; ensure that no additional conditions exist that would prevent closing breaker and then authorize operators to reset the breaker one time.
- D. tell the Mechanics that they are allowed to reset the breaker as there is no apparent cause and the equipment is needed for plant operation per control room supervisor discretion.

Answer: C determine/understand the cause of the breaker to trip and log; ensure that no additional conditions exist that would prevent closing breaker and then authorize operators to reset the breaker one time.

Question 96

Bank # 2432

Which of the following should be designated as the Shutdown Risk Assessment Group (SRAG) Leader, per OPGP03-ZA-0101, Shutdown Risk Assessment?

- A. Operations Manager or designee
- B. Supervisor Engineering Risk Management or designee
- C. Licensing Manager or designee
- D. Outage Manager or designee

Answer: A Operations Manager or designee

Question 97

Bank # 2427

Your Crew has been assigned a schedule task to perform a valve lineup on a cooling water system in preparation for startup after a refueling outage. A Modification has occurred during the outage that replaced a check valve on a heat exchanger outlet with an isolation valve. While performing the valve line up the building operator that you assigned to the task asks you a question as to the position of the newly installed isolation valve.

NLO: "The position for the new isolation valve is installed but it does not indicate an open or closed position. In the past there would have been a flow path through the system when the lineup is complete. There is a procedure change that is approved but not issued that has the valve open. The approved change is scheduled to be issued in 48 hours. How do you want me to disposition this component?"

In order to complete the valve lineup you...

- A. direct the building operator to sign off the procedure as complete as the valve is installed as the approved procedure states.
- B. have the building operator verify the valve is open, and then sign off the procedure because the valve is installed.
- C. have the building operator use the new procedure and complete the alignment.
- D. direct the building operator, with assistance from the Procedure Group, perform a Field Change to the procedure and change the position to open then complete the procedure.

Answer: D direct the building operator, with assistance from the Procedure Group, perform a Field Change to the procedure and change the position to open then complete the procedure.

Question 98

Bank # 2433

Which of the following is correct regarding the initial containment inspection, per OPSP03-XC-0002, Initial Containment Inspection to Establish Integrity?

- A. The Test Coordinator need NOT be “XC2 Initial Cleanup and Closure” Certified.
- B. Covered and non-covered personnel ARE ALLOWED to operate the Personnel Access Door.
- C. Personnel initialing or signing surveillance Form 9 SHALL be “XC2 Initial Cleanup and Closure” Certified.
- D. Plant Operators performing Lineups 1 and 2 ARE exempted from “XC2 Initial Cleanup and Closure” XC2INCLSR certification.

Answer: D Plant Operators performing Lineups 1 and 2 ARE exempted from XC2 Initial Cleanup and Closure XC2INCLSR certification.

Question 99

Bank # 2428

While performing outage preps a scaffold builder inadvertently trips open the normal supply breaker to the Class 1E 4160 volt bus, Train A.

The Emergency Diesel Generator automatically starts and ties in to re-energize the bus.

- All systems actuated and responded as designed.
- In the control room all required support systems have been restored and the Unit is stable at 100% power.

Based on the above conditions about the event, what is the maximum time allowed to make a notification to the NRC.

- A. 1 hour
- B. 4 hours
- C. 8 hours
- D. 24 hours

Answer: C 8 hours

You are the Shift Manager acting as the Emergency Director.

Which of the following Emergency Director responsibilities and authorities may you delegate?

- A. Approving required communications with the NRC.
- B. Approving required notifications to the State and County.
- C. Approving radiological exposures in excess of 10CFR20 limits.
- D. Approving departure from license conditions per 10CFR50.54(x).

Answer: A Approving required communications with the NRC.

LOT 20 NRC Exam

SRO

Reference

Package

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
___4	VERIFY CONTROL Rods Fully Inserted o All rod bottom lights - LIT	PERFORM the following: a. <u>IF</u> two <u>OR</u> more CONTROL rod bottom lights <u>NOT</u> lit, <u>THEN</u> : 1) Emergency BORATE 940 GALLONS of boric acid (60 ppm) for each CONTROL rod 18 steps OR LESS. $\text{_____ X 940 gals} = \text{_____ gals}$ # of rods 2) Emergency BORATE 3600 GALLONS of boric acid (228 ppm) for each CONTROL rod GREATER THAN 18 steps. $\text{_____ X 3600 gals} = \text{_____ gals}$ # of rods <p style="text-align: center;"><u>OR</u></p> 3) Emergency BORATE until RCS Cb GREATER THAN 2800 PPM ppm. b. <u>IF</u> DRPI has failed, <u>THEN</u> : 1) INITIATE emergency boration. 2) <u>WHEN</u> DRPI has been restored <u>OR</u> RCS Cb GREATER THAN 2800 PPM ppm, <u>THEN</u> SECURE emergency boration.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

WHEN using RWST for emergency boration flow, THEN pressurizer level should be closely monitored to prevent water solid conditions in the RCS.

NOTE

BAT(s) are the preferred emergency boration suction source to limit RCS inventory concerns.

___ 4 INITIATE Emergency Boration Of RCS:

___ a. OPEN alternate boration isolation valve

a. PERFORM one of the following:

- 1) IF VCT outlet valves are open THEN COMMENCE boration using the normal boration flowpath.
 - 2) ALIGN charging pump suction to RWST:
 - a) OPEN charging pump suction valves from RWST.
 - b) CLOSE VCT outlet valves.
-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 4 continued from previous page.

___ b. CCPs - AT LEAST ONE RUNNING

b. PERFORM the following:

- 1) CLOSE seal injection isolation valves.
 - o "SEAL INJ ISOL MOV-0033A"
 - o "SEAL INJ ISOL MOV-0033B"
 - o "SEAL INJ ISOL MOV-0033C"
 - o "SEAL INJ ISOL MOV-0033D"
- 2) CLOSE the CCP discharge valve for the CCP to be started.
- 3) CLOSE the charging flow control valve.
- 4) IF charging flow control valve will NOT close, THEN PERFORM the following:
 - a) ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL
 - b) GO TO Step 4.d.
- 5) OPEN the recirculation valve for the CCP to be started.
- 6) START one CCP.
- 7) OPEN the CCP discharge valve for the pump that was started.

Step 4 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 4 continued from previous page.

___c. Charging flow - ESTABLISHED

c. PERFORM the following:

- 1) ENSURE Containment Isolation Phase A RESET.
- 2) ENSURE charging flow control valve CLOSED.
- 3) IF charging flow control valve will NOT close, THEN PERFORM the following:
 - a) ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL
 - b) GO TO Step 4.d.
- 4) ENSURE running CCP discharge valves open.
- 5) ENSURE normal or alternate charging isolation valve open.
- 6) ENSURE charging OCIV open.
- 7) IF charging OCIV will NOT open, THEN DISPATCH operator to open charging OCIV:

(29 ft MAB RM 108C)

"1(2)-CV-MOV-0025"
"CVCS CHARGING"
"ORC CONTAINMENT ISOLATION"
"MOV OPERATOR"

Step 4 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 4 continued from previous page.

___ d. CHECK boration source aligned to the Boric Acid Tanks

o Emergency Boration flowpath

OR

o Normal Boration flowpath

d. CONTROL charging flow GREATER THAN 190 GPM.

"CHG FLOW"

"FI-0205A"

1) CONTINUE efforts to align Boric Acid Tanks for emergency boration per ADDENDUM 1, EMERGENCY BORATION USING ALTERNATE AND GRAVITY FEED METHODS.

2) IF charging flow control valve will NOT control flow, THEN ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL.

3) GO TO Step 4.h.

___ e. CONTROL charging to MAINTAIN GREATER THAN 50 GPM charging flow on "CHG FLOW FI-0205A"

e. IF charging flow control valve will NOT control flow, THEN ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL.

___ f. ENSURE at least one boric acid pump RUNNING

Step 4 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 4 continued from previous page.

___g. CHECK emergency boration flowpath in service

- o MAINTAIN emergency boration flowrate - GREATER THAN 50 GPM "ALT BORATE FLOW" "FI-0120A"
- o IF charging flow control valve will NOT control flow, THEN ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL.

g. IF normal boration flowpath is in service, THEN CONTROL charging to MAINTAIN GREATER THAN 50 GPM charging flow on "CHG FLOW FI-0205A"

- o IF charging flow control valve will NOT control flow, THEN ESTABLISH charging flow per ADDENDUM 5, ESTABLISHING FRS1 ALTERNATE CHARGING FLOW CONTROL.
-

Step 4 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 4 continued from previous page.

NOTE

Establishing letdown flow will provide sufficient inventory control to obtain shutdown margin when borating from the RWST.

___ h. CONTINUE boration to obtain RCS
Cb GREATER THAN OR EQUAL TO
shutdown margin limit per PLANT
CURVE BOOK, FIGURE 5.5, 68°F CURVE

___ 1) ENSURE normal letdown
established per ADDENDUM 6,
ESTABLISHING NORMAL LETDOWN

1) IF letdown can NOT be placed
in service, THEN PERFORM the
following:

a) PLACE excess letdown in
service per ADDENDUM 7,
ESTABLISHING EXCESS LETDOWN.

b) IF RWST is the source for
emergency boration, THEN
TRY to establish flowpath
from the BATs while
continuing with this
procedure.

o REFER TO ADDENDUM 1,
EMERGENCY BORATION USING
ALTERNATE AND GRAVITY
FEED METHODS.

c) IF Boric Acid Tank(s) is
the source for emergency
boration, THEN CONTINUE
with this procedure.

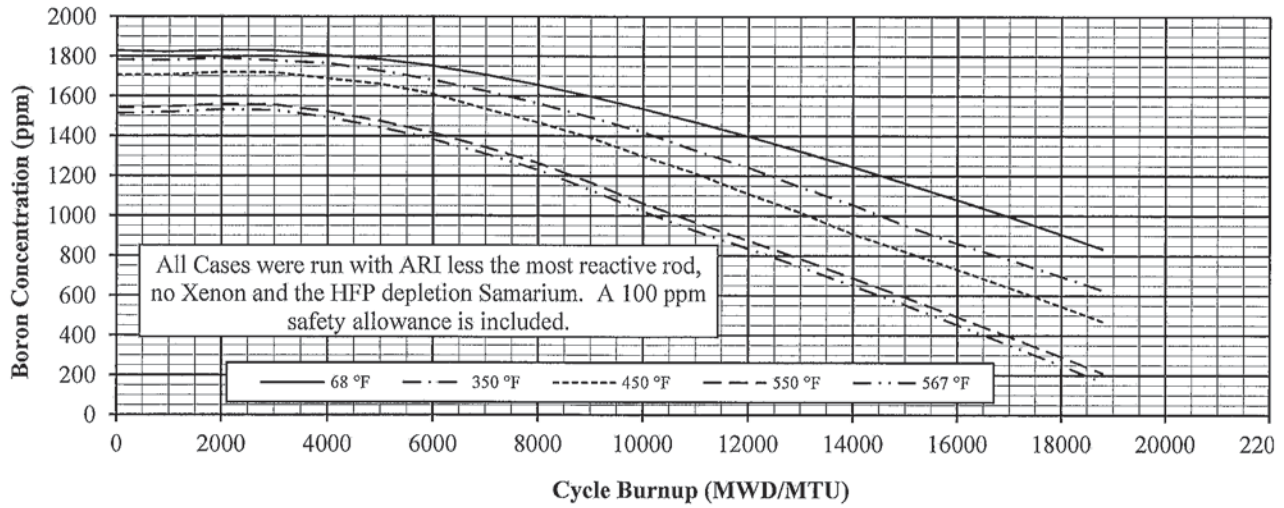
___ 2) CONTROL pressurizer level
between - 22% and 85%

___ 3) MAINTAIN boration flowrate as
directed by this procedure

Step 4 continued on next page.

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Figure 5.5
SHUTDOWN MARGIN LIMIT CURVE
Unit 1 Cycle 19 (Modes 3, 4, and 5)
(Source: A41009--00611-AUB)



Burnup (MWD/MTU)	Boron Concentration (ppm)										
	68 °F	140 °F	200 °F	250 °F	300 °F	350 °F	400 °F	450 °F	500 °F	550 °F	567 °F
0	1829	1829	1829	1814	1798	1783	1745	1706	1624	1542	1514
1000	1823	1823	1823	1809	1795	1781	1744	1707	1627	1547	1520
2000	1832	1832	1832	1818	1805	1792	1756	1720	1640	1560	1533
3000	1830	1830	1830	1813	1795	1778	1748	1718	1637	1557	1529
4000	1806	1805	1805	1792	1778	1765	1727	1689	1605	1522	1494
5000	1785	1785	1785	1766	1746	1727	1694	1661	1568	1475	1443
6000	1752	1746	1746	1724	1702	1681	1645	1610	1512	1415	1382
7000	1707	1699	1699	1674	1650	1625	1580	1535	1439	1343	1310
8000	1656	1645	1645	1617	1590	1563	1515	1467	1366	1264	1230
9000	1599	1585	1585	1555	1524	1494	1443	1392	1279	1167	1129
10000	1536	1520	1520	1486	1452	1419	1358	1298	1180	1062	1022
11000	1469	1450	1450	1409	1368	1327	1270	1212	1089	966	924
12000	1398	1369	1365	1324	1284	1243	1176	1110	993	876	836
13000	1323	1292	1287	1240	1192	1144	1080	1016	900	784	745
14000	1245	1213	1207	1156	1105	1054	981	908	798	688	650
15000	1164	1131	1113	1060	1007	953	887	821	706	592	553
16000	1080	1046	1027	972	917	862	797	731	612	494	453
17000	995	959	939	886	833	780	710	639	517	394	352
18000	907	870	840	792	744	696	621	546	419	293	250
18796	834	801	775	725	676	627	549	470	341	211	167
19400	792	760	732	682	633	583	501	420	289	157	112

Hot Rod Test C _B , ARO, 400°F to 567°F, K ≤ 0.98: 2379 ppm	Mode 5 C _B , ARO, 68°F to 200°F, K ≤ 0.95: 2707 ppm	Refueling C _B , ARO, 68°F to 140°F, K ≤ 0.95: 2682 ppm
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Prepared By: Kenneth W. Ingua, Jr. Date: 04/07/14

Reviewed By: Jay Echenlaub Date: 4/7/14

Approved By: Dan Hays Date: 4/7/14

Reactor & Fuel Engineering Supervisor

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Emergency Classification Tables			

**RECOGNITION CATEGORY F
FISSION PRODUCT BARRIER DEGRADATION
INITIATING CONDITION MATRIX**

Determine which combination of the three barriers are lost or have a potential loss and use the following matrix to classify the event. Also, an event (or multiple events) could occur which result in the conclusion that the loss or potential loss is IMMINENT (within 1 to 2 hours). In this IMMINENT loss situation use judgment and classify as if the thresholds are exceeded.

UNUSUAL EVENT (1-2)	ALERT (3-4)	SITE AREA EMERGENCY (5-8)	GENERAL EMERGENCY (9-10)
FU1 ANY Loss or ANY Potential Loss of Containment FU2 Fuel Clad Degradation See SU6 FU3 RCS Leakage - See SU7	FA1 ANY Loss or ANY Potential Loss of Fuel Clad or RCS	FS1 Loss of BOTH Fuel Clad and RCS OR Potential Loss of BOTH Fuel Clad and RCS OR Potential Loss of EITHER Fuel Clad or RCS AND Loss of ANY Additional Barrier	FG1 Loss of ANY Two Barriers AND Potential Loss or Loss of Third Barrier

Operating Modes 1 through 4

- Note:
1. At the Site Area Emergency level, there must be some ability to dynamically assess how far present conditions are from General Emergency.
 2. The ability to escalate to higher emergency classes as an event degrades must be maintained. RCS leakage steadily increasing would represent an increasing risk to public health and safety.

Determination of Emergency Classification Level

Select values from the top of the columns on the next page, which describe specific Fission Product Barrier degradation. Select the higher value that applies from each barrier. Add the values to arrive at the total challenge to the Fission Product Barriers. The emergency classification is determined from the range of values shown in parentheses in the table above.

Emergency Classification

Addendum 1

Emergency Classification Tables

**RECOGNITION CATEGORY F
FISSION PRODUCT BARRIER DEGRADATION
INITIATING CONDITION MATRIX**

EAL	FUEL CLAD		RCS		CONTAINMENT	
	POTENTIAL LOSS (3)	LOSS (4)	POTENTIAL LOSS (3)	LOSS (4)	POTENTIAL LOSS (1)	LOSS (2)
1	CSF Core Cooling - Orange OR Heat Sink - Red ²	CSF Core Cooling - Red	CSF RCS Integrity - Red OR Heat Sink - Red ²	CSF Core Cooling - Yellow with subcooling < 0 °F	CSF Containment - Red OR Core Cooling - Orange > 15 min.	—
2	RCS Activity Failed Fuel Monitor, RT-8039, equal to or greater than 870 µCi/ml	RCS Activity Dose Equivalent Iodine greater than 300 µCi/gm	RCS Leak Rate Unisolable leak exceeding the capacity of one centrifugal charging pump in the normal charging mode.	RCS Leak Rate Leak rate greater than CVCS System's ability to maintain RCS inventory as indicated by loss of RCS subcooling.	Containment Pressure Greater than 6% hydrogen concentration in containment OR Containment pressure greater than 9.5 psig with neither containment spray nor RCFC running.	Containment Pressure Initial increase followed by rapid unexplained decrease OR Containment pressure or sump level not increasing as expected with LOCA conditions.
3	Core Exit Thermocouple ≥ 708°F	Core Exit Thermocouple 1200°F	SG Tube Rupture SG Tube has ruptured and the primary to secondary leak rate is greater than the capacity of one centrifugal charging pump.	SG Tube Rupture SG Tube is ruptured and has a non-isolable secondary steam release	—	SG Tube Leak Primary to secondary leakage greater than 150 gpd through any one steam generator with direct secondary side leakage to atmosphere
4	Reactor Vessel Water Level Plenum level less than 20%	—	—	—	Containment Bypass VALID increase in reading on area or ventilation monitors in areas adjacent to the containment boundary with a known LOCA inside containment.	Containment Isolation Containment isolation signal AND Valves not closed AND A pathway to the environment exists.
5	—	RCB Rad Monitor RT-8050 or RT-8051 greater than 100 R/hr OR Hatch Monitor greater than 222 mR/hr	—	RCB Rad Monitor RT-8050 or RT-8051 greater than 100 R/hr OR Hatch Monitor greater than 222 mR/hr	RCB Rad Monitor RT-8050 or RT-8051 greater than 1,000 R/hr OR Hatch Monitor greater than 2,222 mR/hr	—

Note: 1. The Fuel Clad barrier and the RCS barrier are weighted more heavily than the Containment Barrier. Unusual Event Initiating Conditions (ICs) associated with RCS and Fuel Clad barriers are addressed under SU6 and SU7.

2. CSF indicators must be valid; outside the immediate control of the operator.

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**RECOGNITION CATEGORY S
SYSTEMS
INITIATING CONDITION MATRIX
FISSION PRODUCT BARRIER - THRESHOLD LEVELS**

INITIATING CONDITION	EMERGENCY ACTION LEVEL	CLASS
SA6 Fuel Clad Degradation. Modes: 1-6	<u>EAL-1</u> Failed Fuel Monitor, RT-8039, indicates greater than or equal to 870 $\mu\text{Ci/ml}$ and this reading is not the result of a crud burst as confirmed by a grab sample. <u>EAL-2</u> Dose Equivalent Iodine (DEI) sample greater than 300 $\mu\text{Ci/gm}$.	ALERT
SU6 Fuel Clad Degradation. Modes: 1-6	<u>EAL-1</u> Failed Fuel Monitor, RT-8039, indicates greater than or equal to 300 $\mu\text{Ci/ml}$ and this reading is not the result of a crud burst as confirmed by a grab sample. <u>EAL-2</u> Dose Equivalent Iodine (DEI) sample greater than Technical Specification limitations.	UE
SU7 RCS Leakage. Modes: 1-4	<u>EAL-1</u> Unidentified or pressure boundary leakage greater than 10 gpm. <u>EAL-2</u> Identified leakage greater than 25 gpm.	UE

PART IV - QUICK REFERENCE TABLES

IV-A –Reporting Requirements

Reporting requirements are classified within this table into four groups, as follows:

- 000-199 series ([10 CFR 50.72](#) and [50.73](#) reporting requirements)
- 200-299 series (security/safeguards-related reporting requirements)
- 300-599 series (other federal reporting requirements)
- 600-999 series (station specific reporting requirements)

Within each group, the reporting requirements are ordered (sorted) first by a prompt telephonic time, then by the written follow-up time.

The station specific series includes Technical Specification (TS) or Technical Requirements Manual (TRM) reporting requirements required by the NRC, but specific to the particular station in their document. Other station specific reporting requirements include (but are not limited to) state, county or local notification requirements. An asterisk (*) is often used when a prompt notification, other than ENS, is required. The asterisk is also used for "unusual" reports. Refer to the SPECIFIC NOTIFICATION column for meaning of each specific asterisk.

To best utilize these tables, hyperlinks are inserted to link to relevant subjects. The cursor will change to a hand when the mouse is placed over the hyperlink. Then simply "left-click" the mouse to jump to the linked subject.

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
001	<p>Beginning of 000-199 series (10 CFR 50.72 and 50.73)</p> <p>Declaration of any Emergency Classification [Unusual Event (NUE), Alert, Site Emergency, General Emergency]. Notify state & local agencies within 15 minutes via NAN.</p>	15 min.	*	<p>Source Docs: §10 CFR 50, App. E, (IV)(D)(3) Link to detailed discussion PVNGS Station Specific: Notify Claims Notify Communications * 5-day written report</p>
	<p>Notify NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.</p>	01 hr.		<p>Follow up call to NRC may be required: NRRH-002 NRRH-003 NRRH-004 NRRH-005 NRRH-006 NRRH-007 NRRH-008 Source Docs: § 50.72(a)(1)(i) § 50.72(a)(3) § 72.75(a) [ISFSI] Link to detailed discussion</p>
	<p>Activate Emergency Response Data System (ERDS) as soon as possible but not later than one hour after declaring an ALERT, SITE AREA, or GENERAL EMERGENCY classification.</p>	01 hr.		<p>Activate ERDS i.a.w. Emergency Plan Implementing Procedure Source Docs § 50.72(a)(4) Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	If an event or condition that was the basis for an Emergency Class declaration meets one or more of the 10 CFR 50.73 or 10 CFR 72.75 [ISFSI] reporting criteria, an LER is required.		60 day LER	Source Docs: NUREG-1022, § 3.1.1 Link to detailed discussion
002	Immediately report any further degradation in the level of safety of the plant or other worsening plant conditions, including those that require the declaration of any of the Emergency Classes, if such a declaration has not been previously made.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(1)(i) § 72.75(f)(1) [ISFSI] Link to detailed discussion
003	Immediately report any change from one Emergency Class to another.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(1)(ii) § 72.75(f)(1) [ISFSI] Link to detailed discussion
004	Immediately report a termination of the Emergency Class.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(1)(i) § 72.75(f)(1) [ISFSI] Link to detailed discussion
005	Immediately report the results of ensuing evaluations or assessments of plant conditions.	01 hr.		Follow up call to NRC XREF: NRRH-460 when reactor is safe and stable. Source Docs: § 50.72(c)(2)(i) § 72.75(f)(2) [ISFSI] Link to detailed discussion

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
006	Immediately report the effectiveness of response or protective measures taken.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(2)(ii) § 72.75(f)(2) [ISFSI] Link to detailed discussion
007	Immediately report information related to plant behavior that is not understood.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(2)(iii) § 72.75(f)(2) [ISFSI] Link to detailed discussion
008	Maintain an open, continuous communication channel with the NRC Operations Center upon request by the NRC.	01 hr.		Follow up call to NRC Source Docs: § 50.72(c)(3) § 72.75(f)(3) [ISFSI] Link to detailed discussion
010	Any deviation from license condition or TS in an emergency if needed to protect public health & safety and no action consistent with license or TS that can provide adequate or equivalent protection is immediately apparent, pursuant to 10 CFR 50.54(x).	01 hr.		Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 XREF: NRRH-343 for deviation at ISFSI. Source Docs: § 50.54(x) § 50.72(b)(1)(i)(B) NUREG-1022, Section 3.2.3 Link to detailed discussion

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	Any deviation from license condition or TS authorized pursuant to 10 CFR 50.54(x).		60 day LER	<p>XREF: NRRH-343 for deviation at ISFSI.</p> <p>Source Docs: § 50.54(x) § 50.73(a)(2)(i)(C) NUREG-1022, Section 3.2.3 Link to detailed discussion</p>
020	<p>INITIATION of any nuclear plant shutdown required by TS [i.e., performance of any action to start reducing power to achieve an operational condition or mode that requires the reactor to be subcritical, as a result of a TS requirement (LCO, 3.0.3)].</p> <p>This includes any means of power reductions, such as control rod insertion or boron concentration changes.</p>	04 hr.		<p>XREF: NRRH-120 when Technical Specifications do not require a shutdown.</p> <p>Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008</p> <p>Source Docs: § 50.72(b)(2)(i) NUREG-1022, Section 3.2.1 Link to detailed discussion</p>
	<p>COMPLETION of any nuclear plant shutdown required by TS (i.e., point in time during a TS-required shutdown when the plant enters Mode 3).</p> <p>An LER is not required if the condition is corrected before the plant is required to be in a shutdown condition (i.e., before completion of the shutdown) and no other criteria in 50.73 apply.</p>		60 day LER	<p>XREF: NRRH-120 when Technical Specifications do not require a shutdown.</p> <p>Source Docs: § 50.73(a)(2) NUREG-1022, Section 3.2.1 Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
030	Any event that results or should have resulted in emergency core cooling system (ECCS) discharge into the reactor coolant system as a result of a valid signal except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.	04 hr.		<p>XREF: NRRH-080 for ENS notifications for any valid ESF actuation that did not result in ECCS discharge into the RCS.</p> <p>XREF: NRRH-080 for LER reporting of any valid or invalid ESF actuation that did not result in ECCS discharge into the RCS.</p> <p>Follow up call to NRC may be required:</p> <ul style="list-style-type: none"> NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 <p>Source Docs:</p> <ul style="list-style-type: none"> § 50.72(b)(2)(iv)(A) NUREG-1022, Section 3.2.6 <p>Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	<p>Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:</p> <p>(1) The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or</p> <p>(2) The actuation was invalid and;</p> <p>(i) Occurred while the system was properly removed from service; or</p> <p>(ii) Occurred after the safety function had been already completed.</p> <p>§ 50.73(a)(2)(iv)(B)(3): Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.</p> <p>§ 50.73(a)(2)(iv)(B)(4): ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.</p> <p>§ 50.73(a)(2)(iv)(B)(5): BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.</p>		60 day LER	<p>XREF: NRRH-080 for ENS notifications for any valid ESF actuation that did not result in ECCS discharge into the RCS.</p> <p>XREF: NRRH-080 for LER reporting of any valid or invalid ESF actuation that did not result in ECCS discharge into the RCS.</p> <p>Source Docs:</p> <p>§ 50.73(a)(2)(iv)(A)</p> <p>§ 50.73(a)(2)(iv)(B)(3)</p> <p>§ 50.73(a)(2)(iv)(B)(4)</p> <p>§ 50.73(a)(2)(iv)(B)(5)</p> <p>NUREG-1022, Section 3.2.6</p> <p>Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
040	Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.	04 hr.		<p>XREF: NRRH-080 for ENS notifications for any valid RPS actuation that did not occur while the reactor was critical.</p> <p>XREF: NRRH-080 for LER reporting of any valid or invalid RPS actuation that did not occur while the reactor was critical.</p> <p>Follow up call to NRC may be required:</p> <ul style="list-style-type: none"> NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 <p>Source Docs:</p> <ul style="list-style-type: none"> § 50.72(b)(2)(iv)(B) NUREG-1022, Section 3.2.6 <p>Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	<p>Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:</p> <p>(1) The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or</p> <p>(2) The actuation was invalid and;</p> <p>(i) Occurred while the system was properly removed from service; or</p> <p>(ii) Occurred after the safety function had been already completed.</p> <p>§ 50.73(a)(2)(iv)(B)(1): Reactor protection system (RPS) including: reactor scram or reactor trip.</p>		60 day LER	<p>XREF: NRRH-080 for ENS notifications for any valid RPS actuation that did not occur while the reactor was critical.</p> <p>XREF: NRRH-080 for LER reporting of any valid or invalid RPS actuation that did not occur while the reactor was critical.</p> <p>Source Docs: § 50.73(a)(2)(iv)(A) § 50.73(a)(2)(iv)(B)(1) NUREG-1022, Section 3.2.6 Link to detailed discussion</p>

STP REPORTING MANUAL

ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
050	Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials.	04 hr.		<p>XREF: NRRH-372 for Environmental Protection. Plan XREF: NRRH-611 for 1-hr report of fatality or 8-hr report of injury</p> <p>Follow up call to NRC may be required:</p> <ul style="list-style-type: none"> NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 <p>Source Docs:</p> <ul style="list-style-type: none"> § 50.72(b)(2)(xi) 10 CFR 72.75(b)(2) [ISFSI] NUREG-1022, Section 3.2.12 <p>Link to detailed discussion</p> <p>Note that there is no corresponding LER reporting requirement under § 50.73.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
060	<p>The occurrence of any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded. Includes any pressure boundary leakage. Includes entry into steam generator tube inspections Category C-3.</p>	08 hr.		<p>Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 Source Docs: § 50.72(b)(3)(ii)(A) NUREG-1022, Section 3.2.4 Note: This is a very subjective reporting requirement. Significant additional information is in this link to detailed discussion</p>
	<p>Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded. Includes any pressure boundary leakage. Includes entry into steam generator tube inspections Category C-3.</p>		60 day LER	<p>Source Docs: § 50.73(a)(2)(ii)(A) NUREG-1022, Section 3.2.4 Note: This is a very subjective reporting requirement. Significant additional information is in this link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
070	The occurrence of any event or condition that results in the nuclear power plant being in an unanalyzed condition that significantly degrades plant safety.	08 hr.		Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 Source Docs: § 50.72(b)(3)(ii)(B) NUREG-1022, Section 3.2.4 Note: This is a very subjective reporting requirement. Significant additional information is in this link to detailed discussion
	Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety.		60 day LER	Source Docs: § 50.73(a)(2)(ii)(B) NUREG-1022, Section 3.2.4 Note: This is a very subjective reporting requirement. Significant additional information is in this link to detailed discussion
080	Any event or condition that results in valid actuation of any of the systems listed in paragraph (b)(3)(iv)(B) of this section, except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. § 50.72(b)(3)(iv)(B) The systems to which the requirements of paragraph (b)(3)(iv)(A) of this section apply are:	08 hr.		XREF: NRRH-030 for any valid ESF actuation that resulted in ECCS discharge into the RCS. XREF: NRRH-040 for any RPS actuation that occurred while the reactor was critical. Follow up call to NRC may be required:

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	<p>(1) Reactor protection system (RPS) including: reactor scram and reactor trip. (Actuation of the RPS when the reactor is critical is reportable under paragraph (b)(2)(iv) of this section.)</p> <p>(2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).</p> <p>(3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.</p> <p>(4) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.</p> <p>(5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.</p> <p>(6) PWR auxiliary or emergency feedwater system.</p> <p>(7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.</p> <p>(8) Emergency ac electrical power systems, including: emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.</p> <p>Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:</p>			<p>NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008</p> <p>Source Docs: § 50.72(b)(3)(iv)(A) § 50.72(b)(3)(iv)(B) NUREG-1022, Section 3.2.6 Link to detailed discussion PVNGS Station Specific: XREF: NRRH-808 for inadvertent operation of the ESF Load Sequencer.</p>
	<p>Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:</p>		<p>60 day LER *</p>	<p>XREF: NRRH-030 for any valid ESF actuation that resulted in ECCS discharge into the RCS.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	<p>The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or</p> <p>The actuation was invalid and;</p> <p>(i) Occurred while the system was properly removed from service; or</p> <p>(ii) Occurred after the safety function had been already completed.</p> <p>§ 50.73(a)(2)(iv)(B)</p> <p>The systems to which the requirements of paragraph (a)(2)(iv)(A) of this section apply are:</p> <p>(1) Reactor protection system (RPS) including: reactor scram or reactor trip.</p> <p>(2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs).</p> <p>(3) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.</p> <p>(4) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.</p> <p>(5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.</p> <p>(6) PWR auxiliary or emergency feedwater system.</p> <p>(7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.</p>			<p>XREF: NRHH-040 for any RPS actuation that occurred while the reactor was critical.</p> <p>Source Docs:</p> <p>§ 50.73(a)(2)(iv)(A)</p> <p>§ 50.73(a)(2)(iv)(B)</p> <p>NUREG-1022, Section 3.2.6</p> <p>Link to detailed discussion</p> <p>* In the case of an invalid actuation, other than actuation of the reactor protection system (RPS) when the reactor is critical, the licensee may, at its option, provide a telephone notification to the NRC Operations Center within 60 days after discovery of the event instead of submitting a written LER.</p> <p>PVNGS Station Specific:</p> <p>XREF: NRHH-808 for inadvertent operation of the ESF Load Sequencer.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
090	<p>(8) Emergency ac electrical power systems, including: emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.</p> <p>(9) Emergency service water systems that do not normally run and that serve as ultimate heat sinks.</p> <p>Any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to:</p> <ul style="list-style-type: none"> (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident. <p>Events covered in paragraph (b)(3)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to paragraph (b)(3)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function.</p>	08 hr.		<p>XREF: NRRH-170 when affected trains or channels are in different systems.</p> <p>Follow up call to NRC may be required:</p> <ul style="list-style-type: none"> NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 <p>Source Docs:</p> <ul style="list-style-type: none"> § 50.72(b)(3)(v) § 50.72(b)(3)(vi) NUREG-1022, Section 3.2.7 <p>Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
	<p>Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to:</p> <ul style="list-style-type: none"> (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident. <p>Events covered in paragraph (a)(2)(v) of this section may include one or more procedural personnel errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to paragraph (a)(2)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function.</p>		60 day LER	<p>XREF: NRRH-170 when affected trains or channels are in different systems. Source Docs: § 50.73(a)(2)(v) § 50.73(a)(2)(vi) NUREG-1022, Section 3.2.7 Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
100	Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.	08 hr.		<p>XREF: NRRH-050 Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 Source Docs: § 50.72(b)(3)(xii) 10 CFR 72.75(c)(3) [ISFSI] NUREG-1022, Section 3.2.11 Link to detailed discussion Note that there is no corresponding LER reporting requirement under § 50.73.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
110	Any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system).	08 hr.		Follow up call to NRC may be required: NRRH-002 NRRH-005 NRRH-006 NRRH-007 NRRH-008 Source Docs: § 50.72(b)(3)(xiii) NUREG-1022, Section 3.2.13 Link to detailed discussion Note that there is no corresponding LER reporting requirement under § 50.73.
120	Any operation or condition which was prohibited by the plant's Technical Specifications except when: (1) The Technical Specification is administrative in nature; (2) The event consisted solely of a case of a late surveillance test where the oversight was corrected, the test was performed, and the equipment was found to be capable of performing its specified safety functions; or (3) The Technical Specification was revised prior to discovery of the event such that the operation or condition was no longer prohibited at the time of discovery of the event.		60 day LER	XREF: NRRH-020 when Technical Specifications require a shutdown. Source Docs: § 50.73(a)(2)(i)(B) NUREG-1022, Section 3.2.2 Link to detailed discussion Note that there is no corresponding ENS reporting requirement under § 50.72.

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
130	Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant.		60 day LER	<p>XREF: NRRH-001 for ENS call if an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-140 for internal threats.</p> <p>XREF: NRRH-110 for natural phenomena that results in a loss of assessment, response or communications capability.</p> <p>XREF: NRRH-609 for hazardous, toxic or flammable gaseous release near or onsite.</p> <p>Source Docs:</p> <ul style="list-style-type: none"> § 50.73(a)(2)(iii) NUREG-1022, Section 3.2.5 Link to detailed discussion <p>Note that there is no corresponding ENS reporting requirement under § 50.72.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
140	Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.		60 day LER	<p>XREF: NRRH-001 for ENS call if an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-130 for external threats.</p> <p>XREF: NRRH-609 for hazardous, toxic or flammable gaseous release near or onsite.</p> <p>Source Docs: § 50.73(a)(2)(x) NUREG-1022, Section 3.2.10 Link to detailed discussion</p> <p>Note that there is no corresponding ENS reporting requirement under § 50.72.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
150	<p>Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:</p> <ul style="list-style-type: none"> (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident. 		60 day LER	<p>XREF: NRRH-090 when affected trains or channels are in same system. XREF: NRRH-170 when affected trains or channels are either:</p> <ul style="list-style-type: none"> (a) Not assumed to be independent in the plant's safety analysis; or (b) Not both considered to be inoperable. <p>Source Docs: § 50.73(a)(2)(vii) NUREG-1022, Section 3.2.8 Link to detailed discussion Note that there is no corresponding ENS reporting requirement under § 50.72.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
160	<p>Any airborne radioactive release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in appendix B to part 20, table 2, column 1.</p> <p>Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.</p>		60 day LER	<p>XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made.</p> <p>XREF: NRRH-375 if § 20.2202 limits are exceeded.</p> <p>XREF: NRRH-471 if § 20.2203(a)(3)(i) license limits are exceeded.</p> <p>Source Docs: § 50.73(a)(2)(viii) NUREG-1022, Section 3.2.9 Link to detailed discussion</p> <p>Note that there is no corresponding ENS reporting requirement under § 50.72.</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
170	<p>Any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels in different systems that are needed to:</p> <ul style="list-style-type: none"> (1) Shut down the reactor and maintain it in a safe shutdown condition; (2) Remove residual heat; (3) Control the release of radioactive material; or (4) Mitigate the consequences of an accident. <p>Events covered in paragraph (ix)(A) of this section may include cases of procedural error, equipment failure, and/or discovery of a design, analysis, fabrication, construction, and/or procedural inadequacy. However, licensees are not required to report an event pursuant to paragraph (ix)(A) of this section if the event results from:</p> <ul style="list-style-type: none"> (1) A shared dependency among trains or channels that is a natural or expected consequence of the approved plant design; or (2) Normal and expected wear or degradation. 		60 day LER	<p>XREF: NRRH-090 when affected trains or channels are in same system. XREF: NRRH-150 when single cause and single system are involved. Source Docs: § 50.73(a)(2)(ix) NUREG-1022, Section 3.2.14 Link to detailed discussion Note that there is no corresponding ENS reporting requirement under § 50.72.</p>
	End of 000-199 series (10 CFR 50.72 and 50.73)			
	Beginning of 200-299 series (security/safeguards)			

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
200	<p>Loss, theft or unlawful diversion of SNM under licensed possession, or any incident in which an attempt has been made or is believed to have been made to commit a theft or unlawful diversion of such material.</p> <p>Loss of any shipment of SNM or spent fuel, and within one hour of recovery of or accounting for such lost shipment.</p>	01 hr.	60 day SGE *	<p>*60 day written followup report for 73.71. 30 day report for other regulations. Source Docs 10 CFR 73 .71(a) 10 CFR 73 .67(e),(g) 10 CFR 20.2201 10 CFR 74.11 Link to detailed discussion</p>
201	<p>Any event in which there is reason to believe that a person has committed or caused, or attempted to commit or cause, or has made a credible threat to commit or cause:</p> <ol style="list-style-type: none"> 1) A theft or unlawful diversion of special nuclear material (SNM); or 2) Significant physical damage to a power reactor or any facility possessing SSNM or its equipment or carrier equipment transporting nuclear fuel or spent nuclear fuel (NF or SNF), or to the NF or SNF a facility or carrier possesses; or 3) Interruption of normal operation of a licensed power reactor through the unauthorized use of or tampering with its machinery, components, or controls including the security system. Malevolent intent has been established. <p>For example, attempted/actual usage of LDV to cause damage to facility or reactor. Malevolent intent established.</p>	01 hr.	60 day SGE *	<p>*60 day written followup report for 73.71. 30 day report for 74.11. XREF: NRRH-240 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) 10 CFR 73.71(b)(1) 10 CFR 74.11 Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
202	Credible bomb or extortion threat. Substantiated and/or responsibility is claimed by a specific organization or threat is one of a pattern of harassing threats.	01 hr.	60 day SGE	XREF: NRRH-244 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.1) (§ 2.4.13) Link to detailed discussion
203	Discovery of a criminal act involving person with unescorted access (ACAD) adversely affects rad safety (felonious act, conspiracy to bomb/disturb vital components, vandalism of vital equipment). Possible inadequate background investigation.	01 hr.	60 day SGE	XREF: NRRH-605 if unrelated to nuclear sabotage. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.2) (§ 2.2.23) GL 91-03[§ 14] Link to detailed discussion
204	Discovery of a criminal act involving person with unescorted access (ACAD) if the act has significant impact for adversely affecting public health & safety. Possible inadequate background investigation.	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.3) GL 91-03[§ 14] Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
205	Criminal acts OFFSITE involving person with unescorted access (ACAD) with the significantly affect/impact rad safety (safety-related responsibilities or media attention). If drug related, also reference FFD.	01 hr.	60 day SGE	<p>XREF: NRRH-050 for news release or other govt. agency notification. XREF: NRRH-377 if drug related (FFD) Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.3) Link to detailed discussion</p>
206	Discovery of theft or loss of CLASSIFIED documents (as opposed to safeguards information) pertaining to facility or transport safeguards. Any alleged or suspected violation of the Atomic Energy Act, Espionage Act, or other Federal statutes related to classified information (e.g., deliberate disclosure of classified information to persons not authorized to receive it, theft of classified information)	01 hr.	60 day SGE *	<p>*60 day written followup report for 73.71. 30 day report for 95.57. XREF: NRRH-246 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.4) (§ 2.2.17) 10 CFR 95.57 Link to detailed discussion</p>
207	Fire/explosion of suspicious/unknown origin within isolated zone, PA or VA. If origin of fire/explosion can be determined within 1 hr. to be non-suspicious & no significant damage, no SECURITY report or log entry is necessary.	01 hr.	60 day SGE	<p>XREF: NRRH-001 for E-Plan classifications due to fire or explosion. XREF: NRRH-140 for internal threats due to fire or explosion. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.5) Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
208	Discovery of suspicious vehicle following a licensed carrier transporting formu quantities of SSNM (U-233,U-235,PU).	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.6) (§ 2.4.12) Link to detailed discussion
209	All mechanical breakdowns of transport vehicle carrying formu quantities of SSNM (U-233,U-235,PU).	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.7) (§ 2.4.12) Link to detailed discussion
210	Complete loss of offsite communications (loss of all telephone and radio capabilities). Includes failure to receive periodic call during shipment of SNM by road or rail.	01 hr. *	60 day SGE **	**60 day written followup report for 73.71. 30 day report for 20.2006. XREF: NRRH-243 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) 10 CFR 73.26(i)(6)&(k)(4), Place the initiating call via the ENS and request the Headquarters Operations Officer set up a telephone bridge to the Regional Office. (*Also notify Law enforcement & initiate Contingency Plan) NUREG-1304 RG 5.62 (§ 2.2.8) 10 CFR 20.2006 Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
211	Mass demonstration at plant site that may pose a threat to the facility (directed nuclear-related activities and/or impact on nuclear activities).	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.9) Link to detailed discussion
212	Civil disturbance near the plant site that may pose a threat to the facility.	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.10) Link to detailed discussion
213	Confirmed tampering of suspicious origin with safety or security equipment (altering for improper purposes or in an improper manner). Malevolent intent established.	01 hr.	60 day SGE	Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.11) GL 91-03 Link to detailed discussion
214	An assault on a power reactor, facility, or transport possessing or transporting SSNM (U-233, U-235, PU) regardless of whether perimeter penetration is achieved.	01 hr.	60 day SGE	XREF: NRRH-605 if unrelated to nuclear sabotage. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.12) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
215	Discovery of intentionally falsified ACAD, access device. Malevolent intent established.	01 hr.	60 day SGE	XREF: NRRH-248 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) NUREG-1304 RG 5.62 (§ 2.2.15) GL 91-03 Link to detailed discussion
216	Compromise of safeguards info (including loss/theft) that significantly assist a person in an act of rad sabotage or theft of SNM. Used to gain unauthorized/undetected access/assist in damaging. For example, an unattended security storage container (locked file cabinet or safe) found open and contains information specified in 10 CFR 73.21(b). Significantly assist an individual in gaining unauthorized or undetected access or performing radiological sabotage. (Typically outside PA.)	01 hr.	60 day SGE *	*60 day written followup report for 73.71. 30 day report for 95.25. XREF: NRRH-246 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) 10 CFR 73. 21(d) NUREG-1304 RG 5.62 (§ 2.2.4) (§ 2.2.17.b) GL 91-03[§ 04] 10 CFR 95.25(h) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
217	<p>Failure to perform adequate background investigation (5 yr.) resulted in granting ACAD to individual who would have been denied ACAD based on information that had significant impact for adversely affecting rad safety/public health & safety.</p> <p>Similarly, failure to perform adequate background investigation (1 yr.) resulted in granting interim ACAD to individual who would have been denied ACAD based on information that had significant impact for adversely affecting rad safety/public health & safety.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-248 for loggable example. Source Docs: GL 91-03[§ 14] Link to detailed discussion</p>
218	<p>An actual entry of an unauthorized person into a PA, CAA, VA, or transport. Malevolent intent has been established. For example, intentional tailgating. Malevolent intent established.</p> <p>Clarification: Intentional tailgating can be distinguished from the inadvertent act of entering a VA improperly without realizing that the card reader is processing a preceding ACAD or walking in behind another forgetting to use ACAD.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-241 for loggable example. Source Docs: 10 CFR 73 Appendix G I(b) 10 CFR 73.71(b)(1) GL 91-03[§ 06, § 09-11] Link to detailed discussion</p>
219	<p>Any individual requiring an escort while onsite (in PA) INTENTIONALLY separates from his escort. It was not promptly recognized and rectified. Malevolent intent established.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-242 for loggable example. Source Docs: 10 CFR 73 Appendix G I(b) NUREG-1304 RG 5.62 (§ 2.2.13) GL 91-03[§ 08] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
220	<p>Uncompensated/significant failure, degradation, or discovered vulnerability in a safeguard system that could allow unauthorized/undetected access to a PA, CAA, VA or transport of SF/SSNM. Malevolent intent established. Adverse consequences resulted.</p> <p>Clarification: Design flaw or vulnerability in a safeguards barrier or failed compensatory measure (inattentive/sleeping MSF or compensatory equipment for degraded security system failed) is classed as a loggable event if no adverse consequences.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-230 for loggable example. Source Docs: 10 CFR 73 Appendix G I(c) 10 CFR 73.71(b)(1) GL 91-03 Link to detailed discussion</p>
221	<p>Uncompensated suspension of safeguards controls during either rad or non-rad emergencies that could allow undetected or unauthorized access. RG 5.65 Sec 5.3 'Controls that can be suspended during an emergency' for non-radiological emergencies.</p>	01 hr.	60 day SGE	<p>Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.14) Link to detailed discussion</p>
222	<p>Discovery of uncompensated & unaccounted for/lost/stolen ACAD, ACAD blanks, keys or any access device that was used (allowed unauthorized or undetected access to PA, CAA, VA). Malevolent intent established for use of ACAD, keys, etc.</p> <p>For example, mis-issued ACAD AND unauthorized access or undetected entry is gained. Malevolent intent has been established.</p> <p>Loss of VA keys - no longer in possession of authorized person. Unable to be compensated. (e.g., unable to preclude the use of the lost keys).</p> <p>Loggable if compensated. Reportable if used with malevolent intent.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-236 for loggable example. Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.16) (§ 2.4.6) GL 91-03[§ 10, § 11, § 12] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
223	<p>Uncompensated loss of the ability to monitor or remotely assess PA alarms thru loss of BOTH CAS and SAS (Outage of alarms, closed circuit TV, or security computers). Clarification: Loss of all security computer systems provided adequate compensatory measures can be maintained until systems are restored is a loggable event.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-231 for loggable example. Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.18) (§ 2.4.10) GL 91-03[§ 05] Link to detailed discussion</p>
224	<p>Unavailability of a minimum number of security personnel or an actual or imminent strike by security force.</p>	01 hr.	60 day SGE	<p>Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.19) Safeguards Contingency Plan (Section 4.2) Link to detailed discussion</p>
225	<p>Uncompensated loss (no standby power - UPS or Diesel) of all AC power supply to security systems that could allow unauthorized or undetected access to PA, CAA, VA. Standby power fails prior to restoration of AC power. Clarification: Loss of all AC power supply to security system provided adequate compensatory measures can be maintained until systems are restored is a loggable event.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-235 for loggable example. Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.20) (§ 2.4.7) GL 91-03[§ 05] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
226	Uncompensated loss of entire perimeter zone (intrusion detection system - IDS)	01 hr.	60 day SGE	<p>XREF: NRRH-235 for loggable example. Source Docs: 10 CFR 73 Appendix G I(c) NUREG-1304 RG 5.62 (§ 2.2.21) (§ 2.4.3) GL 91-03[§ 05] Link to detailed discussion</p>
227	Loss of alarm capability AND locking mechanism on a VA portal AND confirmed intrusion with malevolent intent established.	01 hr.	60 day SGE	<p>XREF: NRRH-238 for loggable example. Source Docs: GL 91-03[§ 13] Link to detailed discussion</p>
228	<p>The actual or attempted introduction of contraband into a PA, MAA, VA, or transport. Malevolent intent is established (Drug related events fall under FFD reporting requirements). Discovery of the actual introduction into or possession within PA, CAA, VA of contraband (unauthorized weapons, explosives or incendiary devices) that constitutes a significant or attempted threat.</p> <p>Clarification: Discovery of contraband inside the PA that does not constitute a significant threat is a loggable event.</p> <p>Loss of security weapon at the site.</p>	01 hr.	60 day SGE	<p>XREF: NRRH-245 for loggable example. Source Docs: 10 CFR 73 Appendix G I(a) 10 CFR 73 Appendix G I(d) 10 CFR 73.71(b)(1) NUREG-1304 (§ 2.2.2), (§ 2.2.5), (§ 2.2.23), (§ 2.2.24) GL 91-03[§ 03] Link to detailed discussion</p>
229	Uncompensated loss of all cameras or lighting. Evidence of sabotage.	01 hr.	60 day SGE	<p>XREF: NRRH-234 for loggable example. Source Docs: GL 91-03[§ 05] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
230	<p>Any failure, degradation, or discovered vulnerability in a safeguards system (equipment or personnel) that could have allowed unauthorized/undetected access to a PA, CAA, VA or transport if compensatory measures had not been established. For example, a failed compensatory measure (sleeping/inattentive MSF or compensatory equipment for degraded security system failure). No malevolent intent and no adverse consequences discovered.</p> <p>Another example: Design flaw or vulnerability in safeguards barrier. Breached barrier. No malevolent intent and no adverse consequences discovered.</p>		24 hr log	<p>XREF: NRRH-220 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(a) 10 CFR 73.71(c)(1) GL 91-03[§ 02] Link to detailed discussion</p>
231	<p>Loss of CAS with SAS operational or loss of SAS with CAS operational. No adverse consequences discovered. Properly compensated alarm failures.</p> <p>Loss of the capability of a single alarm station to monitor or remotely assess alarms but monitoring or assessment capability remains in other stations.</p> <p>False or nuisance alarms should be logged if a pattern of such alarms emerges or when their frequency is such that system effectiveness is degraded below that committed to in an approved security plan.</p> <p>Loss of all security computer systems provided adequate compensatory measures can be maintained until system is restored. If failure could not enable unauthorized or undetected access, no report or log entry is required (automatic switchover).</p>		24 hr log	<p>XREF: NRRH-223 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(a) 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.4.1) (§ 2.2.18, § 2.2.20-22) GL 91-03[§ 05] Link to detailed discussion</p>
232	<p>Properly compensated VA tour inadequately performed.</p>		24 hr log	<p>Source Docs: GL 91-03[§ 02] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
233	Search equipment (Nitrate Detectors) failure found during testing. If search equipment failure is discovered prior to allowing unsearched entry, no report or logged event is required.		24 hr log	Source Docs: GL 91-03[§ 07] Link to detailed discussion
234	Properly compensated closed circuit TV failure or failure/degradation of lighting. Not reportable if loss could not have allowed undetected or unauthorized access.		24 hr log	XREF: NRRH-229 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(a) NUREG-1304 RG 5.62 (§ 2.4.4,5) (§ 2.2.18, 20-22) GL 91-03[§ 05] Link to detailed discussion
235	Properly compensated loss of AC power supply for entire intrusion detection system (IDS) provided adequate compensatory measures can be maintained until system is restored. Loss of Perimeter Zone (intrusion detection system - IDS) provided adequate compensatory measures can be maintained until system is restored.		24 hr log	XREF: NRRH-225 for adverse (malevolent) example. XREF: NRRH-226 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(a) NUREG-1304 RG 5.62 (§ 2.4.7) (§ 2.2.20,21) GL 91-03[§ 05] Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
236	<p>Properly compensated loss of access device, badge, ACAD by employee. If ACAD could not be used to gain unauthorized/undetected access, no report or log entry required.</p> <p>An individual enters a VA to which he is authorized but INADVERTENTLY uses another's access device, ACAD who also is authorized. No malevolent intent established.</p> <p>Person with access to PA INADVERTENTLY receives a access device, ACAD granting VA access (If used, no malevolent intent has been established).</p> <p>Mis-issued ACAD (If used, no malevolent intent has been established).</p> <p>Compensated loss of VA keys - prevent successful use of the keys.</p>		24 hr log	<p>XREF: NRRH-222 for adverse (malevolent) example.</p> <p>Source Docs: 10 CFR 73 Appendix G II(a) 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.4.6), (§ 2.2.13.c), (§ 2.2.13.d), (§ 2.2.16), (§ 2.4.11) GL 91-03[§ 10], [§ 11] Link to detailed discussion</p>
237	<p>Loss of AC power to security system provided adequate compensatory measures can be maintained until systems are restored. Power loss that could not enable unauthorized/undetected access is not reportable or loggable event.</p>		24 hr log	<p>Source Docs: GL 91-03[§ 05] Link to detailed discussion</p>
238	<p>Card reader failure that causes VA door to unlock in the open position OR VA door locks in the closed position but with no functioning door alarm.</p> <p>Properly compensated loss of alarm or locking mechanism on a VA portal. No bolt-position alarm.</p> <p>Compensated loss of concentrators that affect VA or PA locking or alarming capability.</p>		24 hr log	<p>XREF: NRRH-227 for adverse (malevolent) example.</p> <p>Source Docs: 10 CFR 73 Appendix G II(a) NUREG-1304 RG 5.62 (§ 2.4.2) (§ 2.2.18, 20-22), (§ 2.4.8) GL 91-03[§ 13] Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
239	Any other threatened, attempted, or committed act not previously defined that could have reduced the effectiveness of the safeguards (security) system below that committed to in a licensed physical security plan or contingency plan or the actual condition of such reduction in effectiveness.		24 hr log	Source Docs: 10 CFR 73 Appendix G II(b) 10 CFR 73.71(c)(1) Link to detailed discussion
240	LDV found in an unsecured condition (keys in vehicle, no chain or padlock). Properly compensated upon discovery by taking keys or securing vehicle.		24 hr log	XREF: NRRH-201 for adverse (malevolent) example. Link to detailed discussion
241	Tailgating or inadvertent entering of VA with no malevolent intent.		24 hr log	XREF: NRRH-218 for adverse (malevolent) example. Source Docs: NUREG-1304 RG 5.62 (§ 2.4.11) (§ 2.2.13) GL 91-03[09] Link to detailed discussion
242	Visitor inadvertently becomes separated from escort but escort or another authorized person recognizes the situation and corrects it. Escort may remain outside of room with limited means of egress (e.g., bathroom with no other exit) and no log entry is required.		24 hr log	XREF: NRRH-219 for adverse (malevolent) example. Source Docs: NUREG-1304 RG 5.62 (§ 2.2.13.a) (§ 2.4.11) GL 91-03[§ 08] Link to detailed discussion
243	For shipments of formula quantities of SSNM, intra-convoy communications ability is lost, but ability to communicate with movement control center remains.		24 hr log	XREF: NRRH-210 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.4.12) (§ 2.2.6, 7) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
244	<p>Unsubstantiated bomb or extortion threat (in which no specific organization or group claims responsibility, search results are negative, no evidence other than threat itself).</p>		24 hr log	<p>XREF: NRRH-202 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.4.13) (§ 2.2.1) Link to detailed discussion</p>
245	<p>Detection of a weapon, explosives or incendiary device at an entry point to a PA and no malevolent intent is established. (For drug related events, see FFD). Contraband in parking lot outside the PA is normally not loggable. Discovery of contraband inside the PA that is not a significant threat (discovery of a few bullets).</p>		24 hr log	<p>XREF: NRRH-228 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.2.2.a) (§ 2.2.23.e) GL 91-03[§ 03] Link to detailed discussion</p>
246	<p>Compromise of safeguards information (including loss or theft) which could not significantly assist in act of sabotage or theft of SNM Unattended security storage container (locked file cabinet or safe) found open and contains information specified in 10 CFR 73.26(b). Could not significantly assist in act of radiological sabotage or theft of SNM. (Typically inside PA.) Any infractions, losses, compromises, or possible compromise of classified information or classified documents (as contrasted to safeguards information) not falling within paragraph (a) of 10 CFR 95.57.</p>		24 hr log	<p>XREF: NRRH-216 for adverse (malevolent) example. XREF: NRRH-206 for adverse (malevolent) example. Source Docs: 10 CFR 73 Appendix G II(b) 10 CFR 73.21(d) NUREG-1304 RG 5.62 (§ 2.2.17.b), (§ 2.2.17), (§ 2.2.4) GL 91-03[§ 04] 10 CFR 95.25(h) 10 CFR 95.57(b) Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
247	EAP has obligation to inform management if continued performance of individual's state constitutes a hazard to public health and safety, including fellow employees. Withdraw unescorted access.		24 hr log	Source Docs: 10 CFR 73 Appendix G II(b) NUREG-1304 RG 5.62 (§ 2.2.3.c) Link to detailed discussion
248	Incomplete pre-employment screening records (including minor falsification) or inadequate administration, control or evaluation of psychological tests. Discovery of anomaly in background investigation. No adverse consequences resulted.		24 hr log	XREF: NRRH-215 for adverse (malevolent) example. XREF: NRRH-217 for adverse (malevolent) example. Source Docs: GL 91-03[§ 14] Link to detailed discussion
260	The licensee, certificate holder, or other person must advise the NRC within 30 days of any significant events or changes that may affect its status concerning foreign ownership, control, or influence (e.g., changes in ownership; changes that affect the company's answers to original FOCI questions; indebtedness; and changes in the required form that identifies owners, officers, directors, and executive personnel).		30 days	XREF: NRRH-206 for reportable loss of control of classified information. XREF: NRRH-206 for loggable loss of control of classified information. Source Docs: 10 CFR 95.17(a)(1)
261	As soon as possible after initiating a response, the licensee shall notify the NRC's Operations Center of unauthorized entry resulting in an actual or attempted theft, sabotage, or diversion or any suspicious activity related to possible theft, sabotage or diversion involving a category 1 or category 2 quantity of radioactive material. Also, similar requirements for loss, missing, theft or diversion of shipment.	04 hr. 01 hr./04 hr. (ASAP but no later than)	30 days *	XREF: Reporting of Events *30 day follow-up report Source Docs: 10CFR 37.57 10CFR 37.81 10CFR 37.7
	End of 200-299 series (security/safeguards)			

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
300	Beginning of 300-599 series (other federal) Safety limit, limiting safety system setting, or limiting control setting is exceeded. Safety Limit Violation: TS 2.0 Safety Limit has been exceeded.	01 hr.	30 day LER	Source Docs: 10 CFR 50.36(c)(1)(i)(A) TS 2.1 & 2.2 Link to detailed discussion
301	If during operation, it is determined that the automatic safety system does not function as required (limiting safety system setting did not activate automatic protective action to correct abnormal situation before safety limit is exceeded).	01 hr.	30 day LER	Source Docs: 10 CFR 50.36(c)(1)(ii)(A) TS 2.1 & 2.2 Link to detailed discussion
302	Any case of accidental or unplanned criticality	01 hr.	30 day LER	Source Docs: 10 CFR 70.52(a) 10 CFR 72.74 10 CFR 72.75
303	Removable radioactive surface contamination exceeds the limits of 10 CFR 71.87(i) on a received package containing radioactive material.	01 hr. *		*In addition to ENS, notify final delivery carrier within 1 hour. Source Docs: 10 CFR 20.1906(d)(1) Link to detailed discussion
304	External radiation levels exceed the limits of 10 CFR 71.47 on a received package containing radioactive material.	01 hr. *		*In addition to ENS, final delivery carrier within 1 hour. Source Docs: 10 CFR 20.1906(d)(2) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
305	<p>Attempt to commit a theft or unlawful diversion of more than 10 curies of tritium at any one time or 100 curies in one calendar year.</p> <p>Attempt has been made or is believed to have been made to commit a theft or unlawful diversion of more than 15 pounds of such material at any one time or more than 150 pounds of such material in any one calendar year.</p>	01 hr. *	15 days	<p>*Additional information is reported i.a.w. source docs. Place the initiating call via the ENS and request the Headquarters Operations Officer set up a telephone bridge to the Regional Office. Link to detailed discussion Source Docs: 10 CFR 30.55(c) 10 CFR 40.64(c)</p>
306	<p>Any lost, stolen or missing licensed material in an aggregate quantity \geq 1000 times the quantity specified in Appendix C of 10 CFR 20.1001-2401 under such circumstances that it appears that an exposure could result to persons in unrestricted areas.</p>	01 hr.	30 day *	<p>XREF: NRRH-472 for 10 times the quantity. *See 10 CFR 20.2201(b)-(e) for written reporting requirements. Written report still required for smaller losses. Link to detailed discussion Source Docs: 10 CFR 20.2201(a)(i)</p>
307	<p>Any loss, other than normal operating loss, of SNM. Receipt, transfer or adjustment of inventory in any manner of source material (uranium and/or thorium). Attempt to commit a theft or unlawful diversion of certain quantities.</p>	01 hr.	30 day LER	<p>Link to detailed discussion Source Docs: 10 CFR 72.74 10 CFR 72.75 10 CFR 74.11 10 CFR 70.50(c)(2) 10 CFR 40.64(c)</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
308	Any event involving byproduct, source, or SNM that may have caused or threatens to cause exposure in excess of 25 rem TEDE, or 75 rem eye DE, or 250 rads shallow DE to the skin or extremities (OVEREXPOSURE, 5 times limits).	01 hr.	30 day LER	<p>XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made.</p> <p>XREF: NRRH-140 if dose rate hampered access.</p> <p>XREF: NRRH-374 for exceeds limits.</p> <p>Individual must also be notified at same time as NRC per § 19.13(d)</p> <p>Source Docs:</p> <ul style="list-style-type: none"> 10 CFR 20.2202(a)(1) 10 CFR 20.2203 10 CFR 19.13(d) <p>Link to detailed discussion</p> <p>PVNGS Station Specific: Notify Claims</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
309	<p>Any event involving byproduct, source, or SNM that may have caused or threatens to cause the release of rad materials such that an individual could have received an intake 5 times the occupational ALI over a 24 hour period (OVEREXPOSURE, 5 times limits).</p>	01 hr.	30 day LER	<p>XREF: NRRH-375 for one ALI. XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified. XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made. XREF: NRRH-140 if dose rate hampered access. XREF: NRRH-160 if § 50.73 limits are exceeded. XREF: NRRH-471 if § 20.2203(a)(3)(i) license limits are exceeded. Individual must also be notified at same time as NRC per § 19.13(d) Source Docs: 10 CFR 20.2202(a)(2) 10 CFR 20.2203 10 CFR 19.13(d) Link to detailed discussion PVNGS Station Specific: Notify Claims</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
310	Significant FFD event - Reasonable belief that a NRC employee may be under the influence of any substance, or otherwise unfit for duty. Access may NOT be denied, HOWEVER individual shall be escorted.	01 hr. *		*The appropriate Regional Administrator must be notified immediately by telephone. During other than normal working hours, the NRC Operations Center (ENS) must be notified. Source Docs: 10 CFR 26.27(d) Link to detailed discussion
311	ACTUAL or CLAIMED bodily injury or property damage caused by possession or use of radioactive material onsite or in transport or that results in any indemnity claim.	01 hr.		XREF: NRRH-320 DOT regulation. XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made. Immediately notify Communications Dept. and Claims Services. Promptly report the claim to Director of Nuclear Reactor Regulations (NRR) or Director of Nuclear Material Safety and Safeguards (NMSS), and USNRC Document Control Desk (DCD). Source Docs: 10 CFR 140.6 PVNGS Station Specific: Notify Claims

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
312	<p>Any release into the environment (air, ground, or water) of a hazardous substance (including mixtures or solutions) from a facility in a quantity equal to or exceeding the reportable quantity in any 24-hour period, immediately notify the National Response Center.</p> <p>Hazardous material spills under the following conditions are not considered "releases to the environment," but still need to be evaluated for reportability, potential for environmental release, and/or proper hazardous material spill cleanup:</p> <ul style="list-style-type: none"> • Chemical spills contained within a secondary containment or berm (e.g., H2SO4 spill from a storage tank that is contained in a berm) • Chemical spill on concrete surface and inside buildings. 	<p>01 hr. *</p>		<p>XREF: NRRH-050 for news release or other govt. agency notification. Notify Haz Waste Emerg Coordinator and RP</p> <p>XREF: NRRH-640 for RP evaluation of decommissioning records. Notify Communications Dept., Industrial Safety, and Claims Services.</p> <p>*If determined to be reportable: 1) [Hazardous Waste Emergency Coordinator (HWEC) will assess and determine reportability based upon (a) potential effect upon the public health; (b) potential harm to plant personnel; (c) detriment to the environment, quantity of spilled material] 2) HWEC will make appropriate notifications to National Response Center and state and local agencies (ADEQ). Link to detailed discussion Source Docs: 40 CFR 302.6</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
313	Fire, explosion, or release of hazardous waste or hazardous waste constituents.	01 hr. *		<p>XREF: NRRH-050 for news release or other govt. agency notification. XREF: NRRH-690 for NEIL. Notify Haz Waste Emerg Coordinator and RP XREF: NRRH-640 for RP evaluation of decommissioning records. Notify Communications Dept., Industrial Safety, and Claims Services. *If determined to be reportable: 1) [Hazardous Waste Emergency Coordinator (HWEC) will assess and determine reportability based upon (a) potential effect upon the public health; (b) potential harm to plant personnel; (c) detriment to the environment, quantity of spilled material] 2) HWEC will make appropriate notifications to AZ Dept. of Environmental Quality, Office of Emergency Response and Environmental Analysis and Emergency Coordination Unit. Link to detailed discussion Source Docs: 40 CFR 265.51(b)</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
314	Notification of a release into the environment (air, ground, or water) of reportable quantity of any extremely hazardous substance or CERCLA hazardous substance.	01 hr. *		<p>XREF: NRRH-050 for news release or other govt. agency notification. XREF: NRRH-640 for RP evaluation of decommisioning records. Notify Haz Waste Emerg Coordinator and RP Notify Communications Dept., Industrial Safety, and Claims Services. *If determined to be reportable: 1) [Hazardous Waste Emergency Coordinator (HWEC) will assess and determine reportability based upon (a) potential effect upon the public health; (b) potential harm to plant personnel; (c) detriment to the environment, quantity of spilled material] 2) HWEC will make appropriate notifications to AZ Dept. of Environmental Quality, Office of Emergency Response and Environmental Analysis and Emergency Coordination Unit. Link to detailed discussion Source Docs: 40 CFR 355.40</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
315	Transformer oil spills or fire-related incident.	01 hr. *		XREF: NRRH-640 for RP evaluation of decommissioning records. *Notify Haz Waste Emerg Coordinator and RP Link to detailed discussion Source Docs: 40 CFR 761.30
316	Spills of PCBs (polychlorinated byphenols)	01 hr. *		XREF: NRRH-640 for RP evaluation of decommissioning records. *Notify Haz Waste Emerg Coordinator and RP Link to detailed discussion Source Docs: 40 CFR 761.125
317	Onsite hazardous material (HazMat) transportation incidents, including incidents during loading, unloading, or temporary storage.	01 hr. *		XREF: NRRH-640 for RP evaluation of decommissioning records. *Notify Haz Waste Emerg Coordinator and RP Link to detailed discussion Source Docs: 49 CFR 171.15
318	Petroleum product spills or overflows of overfills of Underground Storage Tanks (UST) under the following condition:- in excess of 25 gallons, or;- Less than 25 gallons, but cannot be cleaned up within 24 hours.	01 hr. *		XREF: NRRH-640 for RP evaluation of decommissioning records. *Notify Haz Waste Emerg Coordinator and RP Link to detailed discussion Source Docs: 40 CFR 280.53

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
319	Any aircraft obstruction light failure or malfunction that lasts more than thirty (30) minutes and affects a top light, or flashing light, regardless of its position. Failure of a steady burning side or intermediate light should be corrected as soon as possible, but notification is not required.	01 hr. *		*Notify the nearest flight service station (FSS) so a Notice to Airmen (NOTAM) can be issued. Source Docs: 14 CFR 77 FAA AC 70/7460-1K Link to detailed discussion.
320	Notification of emergency (accident or incident) involving radioactive material shipment originating from station, while in transit. Carrier/driver will contact U-1 Ops Shift Manager. Note date, time, shipment ID, location & telephone number.	01 hr.		XREF: NRRH-311 for indemnity. XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made. Contact RP i.a.w. 76AC-0RW01 Link to detailed discussion. Source Docs: 49 CFR 171.15 49 CFR 172.604
340	Deleted			
341	A defect in any spent fuel , or reactor-related GTCC waste storage structure, system, or component that is important to safety. [ISFSI]	08 hr.	60 day LER	Source Docs: 10 CFR 72.75(c)(1) 10 CFR 72.75(g) Link to detailed discussion
342	A significant reduction in the effectiveness of any spent fuel, HLW, or reactor-related GTCC waste storage confinement system during use. [ISFSI]	08 hr.	60 day LER	Source Docs: 10 CFR 72.75(c)(2) 10 CFR 72.75(g) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
343	An action taken in an emergency that departs from a condition or a technical specification contained in a license or certificate of compliance issued under this part when the action is immediately needed to protect the public health and safety and no action consistent with license or certificate of compliance conditions or technical specifications that can provide adequate or equivalent protection is immediately apparent. [ISFSI]	04 hr.	60 day LER	Source Docs: 10 CFR 72.75(b)(1) 10 CFR 72.75(g) ISFSI equivalent to 50.54(x) Link to detailed discussion
344	Deleted			
345	Deleted			
370	Deleted			
371	An event in which important to safety equipment is disabled or fails to function as designed when: (i) The equipment is required by regulation, license condition, or certificate of compliance to be available and operable to prevent releases that could exceed regulatory limits, to prevent exposures to radiation or radioactive materials that could exceed regulatory limits, or to mitigate the consequences of an accident; and (ii) No redundant equipment was available and operable to perform the required safety function. [ISFSI]	24 hr. *	60 day LER	*Licensee may delay the notification to the NRC if the end of the 24-hour period occurs outside of the NRC's normal working day (i.e., 7:30 a.m. to 5:00 p.m. Eastern time), on a weekend, or a Federal holiday. In these cases, the licensee shall notify the NRC before 8:00 a.m. Eastern time on the next working day. Source doc: 10 CFR 72.75(d)(1) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
372	Significant environmental impact causally related to plant operation. The following are examples: excessive bird mortality or onsite plant or animal disease outbreaks, the Endangered Species Act of 1973, fish kills, and an increase in nuisance organisms or conditions.	24 hr.	30 day	XREF: NRRH-050 for news release or other government notification. Link to detailed discussion Source Docs: NRC Operating License Appendix B, (Environmental Protection Plan), § 4.1 and § 5.4.2
373	Rated thermal power level exceeded (100% power, Violation of a License Condition)			Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
374	Discovery of any event involving loss of control of licensed material that may have caused or threatens to cause exposure in excess of 5 rem TEDE, or 15 rem eye DE, or 50 rem shallow DE to the skin or extremities (OVEREXPOSURE, exceeds limits).	24 hr.	30 day LER	<p>XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made.</p> <p>XREF: NRRH-140 if dose rate hampered access.</p> <p>XREF: NRRH-308 for exceeds 5 times limits.</p> <p>Individual must also be notified at same time as NRC per § 19.13(d)</p> <p>Within 24 hours of DISCOVERY, notify NRC; Notify Claims Source Docs:</p> <ul style="list-style-type: none"> 10 CFR 20.2202(b)(1) 10 CFR 20.2203 10 CFR 19.13(d) <p>Link to detailed discussion</p> <p>PVNGS Station Specific: Notify Claims</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
375	Any event involving loss of control of licensed material that may have caused or threatens to cause the release of rad materials such that an individual could have received an intake in excess of one occupational ALI over a 24 hour period.	24 hr.	30 day LER	<p>XREF: NRRH-309 for 5 times ALL. XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified. XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made. XREF: NRRH-160 if § 50.73 limits are exceeded. XREF: NRRH-471 if § 20.2203(a)(3)(i) license limits are exceeded. Individual must also be notified at same time as NRC per § 19.13(d) Source Docs: 10 CFR 20.2202(b)(2) 10 CFR 20.2203 10 CFR 19.13(d) Link to detailed discussion PVNGS Station Specific: Notify Claims</p>
376	Blind Performance Testing: False positive error on blind performance test specimen. Error is determined to be administrative (clerical, sample mix-up, etc).	24 hr.		<p>Source Docs: 10 CFR 26 Appendix A 2.8(e)(5) Link to detailed discussion</p>
377	Significant FFD event - Licensee should exercise prudent judgement on whether or not unusual situations should be reported as a significant FFD event (WITHIN PA, INVOLVING OPERATOR OR SUPERVISORY PERSONNEL).	24 hr.		<p>Source Docs: 10 CFR 26.719 (a) 10 CFR 26.719 (b) NUREG-1385 (p13) Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
378	Significant FFD events including sale, use, or possession of illegal drugs WITHIN THE PA. Possession can be inferred if no person in possession, just found.	24 hr.		Source Docs: 10 CFR 26.719(b) NUREG-1385 (p13) Link to detailed discussion
379	Significant FFD event - Licensed operator or supervisory personnel involving sale, use, or possession of a controlled substance (drug), resulting in CONFIRMED positive drug/alcohol test, involving use of alcohol within PA.	24 hr.		Source Docs: 10 CFR 26.719(b) NUREG-1385 (p13) Link to detailed discussion
380	Significant FFD event - Licensed operator or supervisory personnel resulting in a determination of unfitness for SCHEDULED work due to consumption of alcohol.	24 hr.		Source Docs: 10 CFR 26.719(b) NUREG-1385 (p13) Link to detailed discussion
381	Confirmed presence of loose parts in the reactor.	*	*	*Note: A loose part would only be reportable if the effect of the loose part resulted in another reporting criterion being met, such as a degraded principal safety barrier or loss of a safety function. XREF: NRRH-060 for significant degradation of a principal safety barrier. XREF: NRRH-090 for loss of safety function. Source Docs: RG 1.133 UFSAR PVNGS Station Specific: Notification of a loose part

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
382	<p>If any Fuel Specification or Loading Conditions of the Technical Specifications for the NAC-UMS System canisters or casks are violated, the following actions shall be completed:</p> <p>The affected fuel assemblies shall be placed in a safe condition.</p> <p>Within 24 hours, notify the NRC Operations Center.</p> <p>Within 30 days, submit a special report that describes the cause of the violation and actions taken to restore or demonstrate compliance and prevent recurrence.</p>	24 hr.	30 days	<p>Link to detailed discussion</p> <p>Source Docs: NAC-UMC Technical Specifications</p>
410	<p>Notification of information reasonably indicating a failure to comply with the Atomic Energy Act or a defect affecting operation of facility or a basic component of facility. "Defect" defined in 10 CFR 21.3(d).</p>	48 hr.	30 days	<p>Notification i.a.w. 10 CFR 21.21(c)(3)</p> <p>Link to detailed discussion</p> <p>Source Docs: 10 CFR 21.21(c)</p>
411	<p>Information having for the regulated activity a significant implication for public health and safety or common defense and security. Does not apply to information required to be provided by other reporting or updating requirements.</p>	48 hr.		<p>XREF: NRRH-050</p> <p>Source Docs: 10 CFR 50.9(b) 10 CFR 40.9(b) 10 CFR 30.9(b) 10 CFR 70.9(b) 10 CFR 71.7(b) 10 CFR 72.11(b)</p> <p>Link to detailed discussion</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
420	Any lost, stolen or missing licensed material in a quantity > 10 times the quantity specified in Appendix C of 10 CFR 20.1001-2401 that is still missing at this time. The ENS call is made within 30 days of discovery of missing licensed material.	30 day	30 day *	XREF: NRRH-306 for 1000 times the quantity. *See 10 CFR 20.2201(b)-(e) for written reporting requirements. Within 30 days after making the telephone report, make a written report Source Docs: 10 CFR 20.2201(a)(ii) Link to detailed discussion
430	Filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 by or against: the licensee, owner, or affiliate.		*	Notify NRC Region Administrator in writing immediately. (*Immediately is undefined for a written response.) Source Docs: 10 CFR 50.54(cc) 10 CFR 30.34(h)(1) 10 CFR 70.32(a)(9)(i) 10 CFR 72.44(b)(6)(i)
431	Initial usage of a D.O.T. specification and NRC approved container for use in the shipping of rad materials.		*	*Prior to first use, submit a report to NRC NMSS and DCD Source Docs: 10 CFR 71.12 10 CFR 71.5(a) 49 CFR 171.16

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
432	For Radiographic devices, any leak test results which reveals the presence of 0.005 microcurie or more of removable RM.	*	05 day	<p>XREF: NRRH-474 for additional written report.</p> <p>*Immediately suspend operation of the device</p> <p>Link to detailed discussion</p> <p>Source Docs: 10 CFR 34.27(d)</p>
440	Advanced notification of shipment of licensed nuclear material.		07 days	<p>Notify compliance/licensing of shipment 10 days prior to shipping date. Provide written notification of intended shipment to each States' Governor's Office that the shipment will travel through within 7 days prior to shipment, if notification is by the U.S. Postal Service; or 4 days prior to shipment, if a messenger is used. Also, provide written notification to Director, Division of Nuclear Security, Office of Nuclear Security and Incident Response.</p> <p>Source Docs: 10 CFR 71.97 10 CFR 20.2006</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
441	Advanced notification of shipment of formula quantities of strategic special nuclear material, special nuclear material of moderate strategic significance, or irradiated reactor fuel.		10 days	Notify compliance/licensing of shipment 15 days prior to shipping date. Provide written notification of intended shipment to Director, Division of Nuclear Security, Office of Nuclear Security and Incident Response at least 10 days prior to shipment. Source Docs: 10 CFR 73.72
450	Blind Performance Testing: Any unsatisfactory performance testing result by DHHS lab of blind samples.		30 days	Source Docs: 10 CFR 26 Appendix A 2.8(e)(4) Link to detailed discussion
460	In the event of an accident, report to NRC when the reactor is and can be maintained in a safe and stable condition so as to prevent any significant risk to the public health and safety. Submit a post-accident cleanup plan following notification that reactor can be maintained in a safe and stable condition.		30 days	XREF: NRRH-005 for reporting updates following emergency classification. Source Docs: 10 CFR 50.54(w)(4)(ii)
461	Incident involving radiographic equipment: (1) Unintentional disconnection of source from control cable, (2) Inability to retract source to its fully shielded position, (3) Failure of any component (critical to safe operation of device).		30 days *	*See 10 CFR 34.101 for reporting requirements Source Docs: 10 CFR 34.101(a)
462	Any instance in which there is a significant reduction in the effectiveness of any authorized packaging used to transport rad materials offsite during use.		30 day *	*Report to NRC NMSS and DCD Source Docs: 10 CFR 71.95 10 CFR 20.2202 Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
463	Deficiencies & mishaps to LLW forms, containers & packages prepared for disposal (failure, misuse of high-integrity containers, discrepancies in production of solid Class B or C waste form).		30 day *	*Report to NRC LLWM&D & state disposal site reg. authority Source Docs: GL 91-02 10 CFR 20.2202 10 CFR 61.56 10 CFR 61.80 Link to detailed discussion
464	Any defects with safety significance in packaging used for rad materials offsite identified following the first use of the container.		30 day *	*Report to NRC NMSS and DCD Source Docs: 10 CFR 71.95 Link to detailed discussion
465	ECCS: Any SIGNIFICANT change to or error discovered in an acceptable evaluation model or in the application of such a model that affects the peak fuel cladding temp calc (differ of +/- 50 degrees F from temp calc or sum of changes greater than 50 F).		30 day LER	XREF: NRRH-070 for unanalyzed condition. Source Docs: 10 CFR 50.46(a)(3)(ii) 10 CFR 50 Appendix K
466	Doses in excess of the occupational dose limits for adults as specified in 10 CFR 20.1201 .		30 day LER	Notify individual same time as NRC in writing; Notify Claims Source Docs: 10 CFR 20.2203(a)(2)(i) 10 CFR 20.2203(c) 10 CFR 19.13(d) Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
467	Doses in excess of any of the occupational dose limits for a minor as specified in 10 CFR 20.1207 .		30 day LER	Source Docs: 10 CFR 20.2203(a)(2)(ii) 10 CFR 20.2203(c) 10 CFR 19.13(d) Link to detailed discussion
468	Doses in excess of any of the limits for an embryo/fetus of a declared pregnant woman as specified in 10 CFR 20.1208 .		30 day LER	Source Docs: 10 CFR 20.2203(a)(2)(iii) 10 CFR 20.2203(c) 10 CFR 19.13(d) 10 CFR 50.73 Link to detailed discussion
469	Doses in excess of any of the limits for an individual member of the public as specified in 10 CFR 20.1301 .		30 day LER	Source Docs: 10 CFR 20.2203(a)(2)(iv) 10 CFR 20.2203(c) 10 CFR 19.13(d) 10 CFR 50.73 Link to detailed discussion
470	Doses in excess of any applicable limit in the license		30 day LER	Source Docs: 10 CFR 20.2203(a)(2)(v) 10 CFR 20.2203(c) 10 CFR 19.13(d) 10 CFR 50.73 Link to detailed discussion

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
471	Levels of radiation or concentrations of radioactive material in a restricted area in excess of any applicable limit in the license.		30 day LER	<p>XREF: NRRH-001 for ENS call when an Emergency Plan declaration is classified.</p> <p>XREF: NRRH-050 if a news release or notification to other government agencies has been or will be made.</p> <p>XREF: NRRH-160 if § 50.73 limits are exceeded.</p> <p>XREF: NRRH-375 if § 20.2202 limits are exceeded.</p> <p>Link to detailed discussion</p> <p>Source Docs: 10 CFR 20.2203(a)(3)(i) 10 CFR 20.2203(c) 10 CFR 19.13(d)</p>
472	Levels of radiation or concentrations of radioactive material in an unrestricted area in excess of 10 times any applicable limit set forth in 10 CFR 20 or in the license (whether or not involving exposure of individual in excess of limits in 20.1301).		30 day LER	<p>XREF: NRRH-306 for 1000 times.</p> <p>Source Docs: 10 CFR 20.2203(a)(3)(ii) 10 CFR 20.2203(c) 10 CFR 19.13(d) 10 CFR 50.73</p> <p>Link to detailed discussion</p>
473	Planned special exposure conducted in accordance with 10 CFR 20.1206 .		30 day *	<p>*Provide information required by 10 CFR 20.2105</p> <p>Link to detailed discussion</p> <p>Source Docs: 10 CFR 20.2204</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
474	For devices containing By-Prod Material, used for detecting, measuring, gauging or controlling - for failure of or damage to shielding or RM, on-off mechanism, or indicator OR detection of 0.005 microcurie or more removable RM.	*	30 day LER	<p>XREF: NRRH-432 for radiographic device leak.</p> <p>*Immediately suspend operation of the device</p> <p>Link to detailed discussion</p> <p>Source Docs:</p> <p>10 CFR 31.5(c)(5)</p> <p>10 CFR 20.2201</p> <p>10 CFR 20.2202</p>
475	Transfer or disposal of device containing By-Prod Material used for detecting, measuring, gauging or controlling. Comply with 10 CFR 20.2201 , 10 CFR 20.2202 for reporting radiation incidents, theft or loss of licensed material.		30 day *	<p>*Report to NRC NMSS and DCD</p> <p>Link to detailed discussion</p> <p>Source Docs:</p> <p>10 CFR 31.5(c)(8)</p> <p>10 CFR 20.2201</p> <p>10 CFR 20.2202</p>
476	Any PERMANENT physical or mental condition (failure to meet requirements of 10 CFR 55.21) of a licensed operator that affect performance or endanger public health & safety. RO is responsible to notify NRA and ensure that the report to NRC is issued.		30 days *	<p>*Report to NRC Regional Administrator issued by compliance/licensing.</p> <p>Link to detailed discussion</p> <p>Source Docs:</p> <p>10 CFR 55.25</p> <p>10 CFR 50.74(c)</p>
477	Notification of change in RO or SRO status. Permanent reassignment of licensed operator or SRO from a previously assigned certified position.		30 days *	<p>*Report to NRC Regional Administrator issued by NRA</p> <p>Link to detailed discussion</p> <p>Source Docs:</p> <p>10 CFR 50.74</p> <p>10 CFR 55.31(a)(3)</p>

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
478	Termination of any licensed operator or senior operator.		30 days *	*Report to NRC Regional Administrator issued by NRA Link to detailed discussion Source Docs: 10 CFR 50.74
479	Licensed operator convicted of a felony.		30 days	Link to detailed discussion Source Docs: 10 CFR 55.53(g)
480	Changes to the Emergency Plan description that do not reduce the commitments set forth in the previously approved (by NRC) E-Plan.		30 days*	*Changes to ISFSI emergency plan must be submitted within 6 months and additional copy to SFPO. Source Docs: 10 CFR 50.54(q) 10 CFR 72.44(f) (ISFSI)
481	Notify, in writing, the Regional Administrator at least 30 days before the date that respiratory protection equipment is first used under the provisions of either Sec. 20.1703 (a) or (b)		30 days	Source Docs: 10 CFR 20.1703(d)
500	Interim report to notify NRC that an evaluation of an identified deviation or failure to comply with Atomic Energy Act potentially associated with a substantial hazard cannot be completed within 60 days from date of discovery.		60 days	Link to detailed discussion Source Docs: 10 CFR 21.21(a)(2)
501	Deleted.			
502	Change to the Security Plan, Safeguards Contingency Plan and guard licensing & qualification without prior NRC approval. No changes that would decrease effectiveness of the plans are to be made without prior approval.		60 days	Source Docs: 10 CFR 50.54(p)(2) 10 CFR 50.04(b)(5) 10 CFR 70.32(d) & (g)
520	Deleted.			

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
540	ECCS: Each change to or error discovered in an acceptable evaluation model or in the application of such a model that affects the peak fuel cladding temperature calculation.		Annual	Report to NRC DCD for each change or error Source Docs: 10 CFR 50.46(a)(3)(ii) 10 CFR 50 Appendix K
541	Changes to the QA Program description that do not reduce the commitments set forth in the previously accepted (by NRC) QA Program		Annual	10 CFR 50.71 reporting requirements Source Docs: 10 CFR 50.54(a)(3)
560	Defect found in design or manufacture of a respirator.		*	*Notify Equipment Manufacturer and NIOSH. Link to detailed discussion Source Docs: IEN 83-68, Att. 2 10 CFR 20.1703
	End of 300-599 series (other federal)			
	Beginning of 600-999 series (station specific)			
600	Document all onsite groundwater sample results and a description of any significant onsite leaks/spills into groundwater for each calendar year in the Annual Radiological Environmental Operating Report (AREOR) for REMP or the Annual Radioactive Effluent Release Report (ARERR) for the RETS as contained in the appropriate Site level reporting procedure.		Annual	IIA_ENVIRONMENTAL_REPORT ING

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ID	EVENT DESCRIPTION	ENS	WRITTEN	SPECIFIC NOTIFICATION
601	<p>Submit a written 30-day report to the NRC for any water sample result for <u>onsite</u> groundwater that is or may be used as a source of drinking water that exceeds the criteria in the licensee's existing REMP/ODCM for 30-day reporting of <u>offsite</u> water sample results. Copies of the written 30-day reports for both onsite and offsite water samples will also be provided to the appropriate State/Local officials.</p>		30 days	IIB_RADIOACTIVE_RELEASES_EXPOSURES
602	<p>Make informal communication as soon as practicable to appropriate State/Local officials, with follow-up notification to the NRC, as appropriate, regarding significant onsite leaks/spills into groundwater and <u>onsite</u> or <u>offsite</u> water sample results exceeding the criteria in the REMP/ODCM.</p>	As soon as Practical		IIB_NEWS_RELEASES_GOVERNMENT_NOTIFICATI

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