Final Submittal

MCGUIRE FEB 2005 EXAM
50-369 & 370/2005-301

FEBRUARY 7 - 15, 2005
FEBRUARY 18, 2005 (written)

1. Senior Operator Written Examination

Bank Question: 1165 ***Answer: C***

1 Pt(s) Given the following conditions on Unit 1:

- Mode 4
- Cold Leg Accumulators are isolated
- In process of cooling down and depressurizing the NC System
- 1NC-1 (Pressurizer Code Safety Valve) begins to leak
- NC Pressure is slowly going down
- PRT level and pressure are going up
- Containment Pressure is .15 psig and stable

Which one of the following describes the proper procedures to mitigate the above?

A. Enter AP1/A/5500/035 (ECCS Actuation during Plant Shutdown) and then go to EP/1/A/5000/E-0 (Reactor Trip or Safety Injection).

B. Enter AP1/A/5500/10 (NC System Leakage within the capacity of both NV pumps) and then go to AP/35.

C. Enter AP1/A/5500/10 and then go to AP1/A/5500/34 (Shutdown LOCA).

D. Enter AP1/A/5500/34 and then go to EP/1/A/5000/E-0.

Distracter Analysis:

A. **Incorrect**: No Safety Injection signal present, therefore you do not go to AP/35 and E-0.
Plausible:

B. **Incorrect**: AP/10 will not direct the crew to AP/35
Plausible:

C. **Correct**:

D. **Incorrect**: AP/34 is correct but due to initial plant conditions E-0 will not be implemented
Plausible:

LEVEL: SRO Only. SRO determines procedure flow paths based on current plant conditions and symptoms observed.

KA: 00008 G 2.4.5 (2.9/3.6)

SOURCE: NEW

LEVEL OF KNOWLEDGE: ANALYSIS

AUTHOR: CWS

LESSON: - AP/1/5500/34 Background Document

OBJECTIVES: OP-MC-AP-34 Obj. 2

REFERENCES: AP/1/5500/34 Background Document pages 7

Bank Question: 1166 ***Answer: A***

1 Pt. Unit 1 is operating at 100% power when the following indications are noted in the control room:

- Pzr Level is 53% and going down 0.5%/min
- CHARGING LINE ABNORMAL FLOW alarm
- NC PUMP SEAL INJ LOW FLOW alarm
- REGEN HX LETDN HI TEMP alarm
- LETDOWN HX OUTLET HI TEMP alarm
- 1EMF-4, Aux Bldg 716 Corridor alarm

Which one of the following identifies the event that caused these indications and an operational concern associated with the required mitigating strategy?

A. **Charging Header leak immediately downstream of 1NV-241 (Seal Inj Flow Control)**
Reactor coolant system activity and chemistry concerns

B. **Letdown Header leak immediately downstream of the Letdown HX**
Reactor coolant system activity and chemistry concerns

C. **Charging Header leak immediately downstream of 1NV-241 (Seal Inj Flow Control)**
Overheating of Reactor Coolant Pumps seals

D. **Letdown Header leak immediately downstream of the Letdown HX**
Unfiltered water supplied to the Reactor Coolant Pump seals

Distracter Analysis: This question requires the student to understand that when charging is isolated, letdown will also be isolated. Excess letdown will be placed in service and excess letdown is not filtered via the demineralizer as normal letdown.

A. **Correct**: per the AP/10 guidance due to excess letdown not being filtered or demineralized

B. **Incorrect**: : if the student thinks that symptoms are due to loss of letdown.
Plausible loss of letdown will result in Reactor Coolant System activity and chemistry concerns.

C. **Incorrect**: No loss of charging event should result in loss of seal cooling as long as thermal barrier is available.
Plausible: if student thinks Reactor Coolant Pump seals lose coolant due to loss of charging.

D. **Incorrect**: : if the student thinks that symptoms are due to loss of letdown. Seal injection filters would still filter seal supply.
Plausible: loss of letdown requires excess letdown which does supply the VCT with unfiltered water.

Level: SRO Only

KA: APE 000022 AA2.01 (3.2/3.8)

Lesson Plan Objective: OP-MC-PS-NV Obj. 5
OP-MC-AP-10 Obj 2

Source: NEW

Level of knowledge: Comprehension

References:

1. OP-MC-PS-NV pages 41 and 119
2. AP/10 Basis Document pages 46 and 47
3. AP/1/A/5500/10 pages 46 and 47
4. EP/1/A/5000/G-1 Enclosure 2 page 4

Bank Question: 1167 ***Answer: D***

1 Pt. Given the following events and conditions:

- Unit 1 is at 100% normal power operation
- At 16:00 on 2/5/05 the 1A NS pump was been declared INOPERABLE
- At 21:00 on 2/5/05 I&E informs Control Room that instrument 1NSLP 5510 is INOPERABLE

What is the implication on continued plant operation?

Reference Provided
Tech Spec 3.3.2
Tech Spec 3.6.6
Tech Spec Ref Manual Section 2

A. By 16:00 on 2/8/05 restore 1A NS Pump to OPERABLE.

B. By 0300 on 2/6/05 restore either 1A NS Pump or 1NSLP 5510 to OPERABLE or be in MODE 3 by 0900 on 2/6/05.

C. Be in MODE 3 by 03:00 on 2/6/05.

D. Initiate plant shutdown within 1 hour and be in MODE 3 by 04:00 on 2/6/05.

Distracter Analysis: Hinges on realizing 1NSLP5510 is the CPCS interlocking channel for 1B NS Pump, rendering it incapable of it's design function. This would results in making both trains NS INOPERABLE, and since the conditions of the NS Tech Spec don't accommodate both trains out, Tech Spec 3.0.3 applies.

A. **Incorrect**: both trains INOPERABLE require quicker response.
Plausible: If the candidate doesn't realize 1NSLP 5510 makes 1B NS INOPERABLE

B **Incorrect**: Action is required within 1 hour per T.S. 3.0.3
Plausible: If the candidate applies conditions per ESF Inst T.S. 3.3.2 requiring restoration within 6 or MODE 3 in 12 hours.

C. **Incorrect**: Action is required within 1 hour per T.S. 3.0.3
Plausible: If the candidate applies NS T.S. 3.6.6 condition B because condition A can't be met..

D. **Correct**:

Level: SRO Only. The SRO is responsible for using references to make Tech Spec OPERABLITLY determinations. The SRO will have to

evaluate the effect of this one instrument on the ESF T.S. 3.3.2 concerning CPCS interlock channels. Since the T.S. list 4 channels/2 trains as required, it is not obvious this ONE channel makes the whole Train B INOPERABLE.

KA: APE 000026 A2.04 (3.9/4.2)

Lesson Plan Objective: OP-MC-ECC-NS, Obj. 6 & 13

Source: NEW

Level of knowledge: Analysis

References:

1. Tech Spec 3.6.6, Containment Spray System
2. Tech Spec 3.3.2, ESF Instrumentations
3. OP-MC-ECC-NS Lesson Plan, pg's 27 & 29

Bank Question: 1168 ***Answer: D***

---

1 Pt. Given the following events and conditions on Unit 1:

- A loss of offsite and onsite power has occurred and power will not be restored for two hours
- ETA and ETB are still de-energized
- NC Subcooling is -32 degrees and going down
- Core Exit Thermocouples are 702 degrees and increasing
- Lower Range RVLIS is 50% and going down
- Standby Makeup pump is dissassembled for maintenance

Based on the above conditions how would the event be classified?

Reference Provided
RP/0/A/5700/000

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Distracter Analysis:

A. **Incorrect**:
Plausible:

B. **Incorrect**:
Plausible: This classification is possible if the student does not consider the loss of power and only the orange path on core cooling.

C. **Incorrect**:
Plausible: This classification is possible if the fission product barrier continuing degradation is not considered. At that point a Site Area Emergency would be correct.

D. **Correct**:

Level: SRO Only. SROs are responsible for making emergency classifications.

KA: APE 000056 G2.4.41 (2.3/4.1)

Lesson Plan Objective:

Source: NEW

Level of knowledge: Comprehension

References:
1. RP/0/A/5700/000 Classification of Emergency

Bank Question: 1169 ***Answer: D***

1 Pt. Unit 1 is operating at 100 % power.

- A loss of offsite power occurs on Unit 1 due to a ground fault in the switchyard
- 1ETA Bus has a fault resulting in a 86N lockout
- '1B' Diesel Generator is out of service for governor repair
- Unit 1 is implementing EP/1/A/5000/ECA-0.0, Loss of All AC Power
- Unit 2 is operating at 100% power

As control room SRO which one of the following strategies would you implement to supply power to an essential bus?

A. Locally reset the 86N lockout, depress Emergency Stop Reset, and locally start the '1A' D/G

B. Restore offsite power by closing PCB 8 and PCB 9

C. Energize Unit 1 through SATA

D. Energize Unit 1 through SATB

Distracter Analysis: The 86N lockout will not allow the normal, standby or D/G breakers to close. Therefore, it will not be possible to re-power ETA. An SRO must understand the conditions of the event and be able to determine his most likely success path. This is why this is an SRO only question. ROs are not responsible for these types decisions.

A. **Incorrect**:
Plausible: If the student does not understand that the 86 lockout will prevent any supply breaker closure.

B. **Incorrect**:
Plausible: Until ground fault is cleared the bus can not be reenergized.

C. **Incorrect**:
Plausible: ETA not available due to lockout.

D. **Correct**:

Level: SRO Only

KA: APE 000056 G2.4.23 (2.8/3.8)

Lesson Plan Objective: OP-MC-EP-ECA-0 Obj. 4

Source: NEW

Level of knowledge: Analysis

References:
1. OP-MC-EP-ECA-0 pages 39 and 65
2. OP-MC-DG-DG page 53
3. EP/1/A/5000/ECA-0.0 page 12

Bank Question: 1170 ***Answer: A***

1 Pt. Given the following conditions on Unit 1:

- Unit 1 100% power with all systems in normal alignment
- EVDB Distribution Center Bus Breaker opens due to breaker fault
- Row 2 Status Lights in the control room for Unit 1 illuminate

Which one of the following is the correct strategy for system alignment and indication used to verify that strategy has been successful?

A. **Implement AP/1/A/5500/015, Loss of Vital or Aux Control Power**
Align Regulated power source 1KRP to 1EKVB
Cross tie EVDB and EVDD
Pressurizer Pressure Channel 2 indicating "normal"

B. **Implement OP/1/A/6350/001A, 125VDC/120VAC Vital I&C Power System**
Cross tie 1EKVB to1EKVD
Align Standby Charger to EVDB
"OFF" indication lit on 1B ND Pump control switch

C. **Implement OP/1/A/6350/001A**
1EKVB powered from inverter 1EVIB
Cross tie EVDB to EVDC
Pressurizer Pressure Channel 2 indicating "normal"

D. **Implement AP/1/A/5500/015**
IEKVB auto swaps to alternate source to load
EVDB remained energized via battery EVCB
"OFF" indication lit on 1B ND Pump control switch

Distracter Analysis:

A. **Correct**:

B. **Incorrect**:
Plausible: The OP assumes power is still available and the standby charger would be the normal power source. Due to the failure, the AP is the correct flow path. The AC portion of vital I&C cannot be cross tied. Control power to 1B ND is supplied from Channel D so indication was never lost.

C. **Incorrect**:
Plausible: Same and cross tying Channel B and C is not permitted.

D. **Incorrect**
Plausible: The failure is downstream of the batteries. No auto swap will occur. Control power to 1B ND is supplied from Channel D so indication was never lost.

LEVEL: SRO Only

KA: APE 000057 AA2.14 (3.2/3.6)

SOURCE: NEW

LEVEL OF KNOWLEDGE: Comprehensive

AUTHOR: CWS

LESSON: OP-MC-EL-EPL

OBJECTIVES: OP-MC-EL-EPL Ojbs 7 and 15

REFERENCES: -
OP-MC-EP-EPL pages 19 and 27
AP/1/A/5500/15 Page 13 and enclosures 3 and 11

Bank Question: 1171 ***Answer: A***

1 Pt.

Unit 2 is operating at 100 % power. Given the following events and conditions:

- "B" essential train components are in service

The Test Group Supervisor comes to you the Control Room SRO and wants to perform valve stoke testing.

Which one of the following valves would you ***NOT*** allow testing?

A. 1RN-1 (LLI Supply to RN)

B. 2RN-40A (Train A to Non- Ess Hdr Isol)

C. 0RN-7A (Train 1A & 2A SNSWP Supply)

D. 2RN-64A (AB Non-Ess Return Isol)

Distracter Analysis: The only valve that will cause an operational concern would be closing 1RN-1. This would isolate the suction to the running RN pump.

A. **Correct**:
B. **Incorrect**: 'B" train components would still be supplied if this valve was closed.
Plausible:
C. **Incorrect**: This is a suction valve from the SNSWP pond and opening and closing would not be an operational problem.
Plausible:
D. **Incorrect**: This is a normally closed valve so opening and reclosing is not an issue.
Plausible:

Level: SRO Only

KA: APE 000062 AA2.02 (2.9/3.6)

Lesson Plan Objective: PSS-RN Obj 8

Source: McGuire Bank NRC Exam 2003

Level of knowledge: Comprehension

References:
1. OP-MC-PSS-RN pages 27, 39, 61, 75

Bank Question: 1172 ***Answer: C***

1 Pt.

Unit 1 has experienced a loss of control room habitability and control has been established at the Auxiliary Shutdown Panel with normal operating No-Load temperature and pressure.

After control has been established a loss of Unit 1 offsite power occurs. The following trends are noted:

- reactor coolant temperature is 557 degrees and increasing
- reactor coolant system pressure is 2255 psig and increasing
- pressurizer level is 35% and increasing

As SRO at the Auxiliary Shutdown Panel which of the following actions would you take to control the reactor coolant system pressure increase?

A. Use normal sprays to restore pressure to 2235 psig in accordance with AP/1/A/5500/011, Pressurize Pressure Anomalies.

B. Dispatch an operator to open the breakers for 'C' and 'D' Pressurizer heater groups in accordance with AP/1/A/5500/011, Pressurize Pressure Anomalies.

C. Use NV auxiliary spray to restore pressure to 2235 psig in accordance with AP/1/A/5500/017, Loss of Control Room.

D. Dispatch an operator to open the breakers for 'A' and 'B' Pressurizer heater groups in accordance with AP/1/A/5500/017, Loss of Control Room.

Distracter Analysis: The pressurizer high level function of energizing PZR heaters at +5% pressurizer level is disabled in "local control" when at the auxiliary shutdown panel.

A. **Incorrect**: the loss of offsite power will secure the NC pumps and normal spray will not be available
Plausible. Normal sprays are the usual way of lowering pressure

B. **Incorrect**: C' and 'D' pressurizer heater groups will be de-energized on a loss of offsite power
Plausible: the students may think 'C' and 'D' heaters are energized by the high level deviation

C. **Correct**:

D. **Incorrect**: the operator has local control of the 'A' and 'B' heater groups at the auxiliary shutdown panel. 'A' and 'B' heaters would not be on due to the 5% level deviation since the automatic function is disabled at the auxiliary shutdown panel.

Plausible: If the student thought the high level deviation was overriding the local control

Level: SRO Only. The alignment and operation of the Auxiliary Shutdown Panel is an SRO only function.

KA: APE 000068 AA2.06 (4.1/4.3)

Lesson Plan Objective: OP-MC-CP-ASP Obj. 2
OP-MC-CP-SS Obj. 6

Source: NEW

Level of knowledge: Analysis

References:
1. OP-MC-CP-ASP pages 11 and25
2. OP-MC-CP-SS page 17

Bank Question: 1173 ***Answer: B***

---

1 Pt(s) Unit 1 was operating at 100% power. Given the following events and conditions:

- 1EMF-48 (Reactor Coolant Hi Rad) trip 2 alarm
- 1EMF-18 (Reactor Coolant Filter 1A) trip 2 alarm
- Chemistry has determined that the high activity in the Reactor Coolant System is due to failed fuel

Which one of the following actions is required to reduce coolant activity due to failed fuel in the NC system?

A. Implement AP/1/A/5500/46, Abnormal Primary or Secondary Chemistry and purge the VCT with nitrogen

B. Implement AP/1/A/5500/18, High Activity in Reactor Coolant and evaluate placing cation bed demineralizer in service

C. Implement AP/1/A/5500/18, High Activity in Reactor Coolant and increase letdown flow to 120 gpm

D. Implement AP/1/A/5500/46, Abnormal Primary or Secondary Chemistry and add hydrogen to the reactor coolant

---

Distracter Analysis:

A. **Incorrect**: Will not correct a high NC activity from a crud burst
Plausible: One of the subsequent actions in AP/18 is to purge the VCT to the waste gas system with Hydrogen. In addition, Nitrogen is used to purge the VCT for shutdown. It is likely that a candidate could mix up these purges. AP/46 is not the correct AP

B. **Correct**:

C. **Incorrect**: High activity is not corrected by increasing letdown flow the mixed med demineralizers.

D. **Incorrect**: Will not remove crud burst particulate activity
Plausible: Used to scavenge Oxygen from the NC coolant and thus reduce the corrosion rates and crud production in the RCS. However, this does not affect crud burst particulates that are already in the NC system coolant. AP/46 is not the correct AP.

Level: SRO Only. 10CFR55.43 (5) The decision to implement a specific AP is an SRO function. ROs would know symptoms of high reactor coolant activity but it is not their responsibility to determine which AP to implement.

KA: APE 000076 AA 2.02 (2.8/3.4)

Source: Bank Modified NRC Exam 2000

Level of Knowledge: Memory

Lesson Plan: OP-MC-CH-PC
AP/18 Background Document

Lesson Plan Objectives: OP-MC-CH-PC Obj. 7
AP/18 Background Document Obj. 2

References:
1. OP-MC-CH-PC page 39
2. AP/18 Background Document page 4
3. AP/1/A/5500/18 High Activity in the Reactor Coolant page 3

Bank Question: 1174 ***Answer: D***

1 Pt(s)

Unit 1 is in the process of shutting down due to both trains of Hydrogen Igniters not functional as the result of a common mode failure. A LOCA occurs on Unit 1. EP/1/A/5000/FR-Z.1, Response to High Containment Pressure has been implemented.

During the LOCA the following conditions were noted:

- ECCS was only partially successful
- Significant core uncovery had occurred
- H_2 Analyzers have been placed in service
- Containment H_2 concentration is 6.7%

Which one of the following is the appropriate strategy for addressing the high Containment H_2 and why is this strategy preferred over other potential strategies?

A. Place the H_2 Recombiners in service
Does not cause an offsite release

B. Place the H_2 Recombiners in service
As the Steam/H_2 ratio increases, "quenching" will occur

C. Place the H_2 Purge System in service when directed by TSC
Does not cause an offsite release

D. Place the H_2 Purge System in service when directed by TSC
Does not cause an uncontrolled H_2 burn pressure spike

Distracter Analysis: The H_2 concentration is in excess of flame propagation/explosion limits so the H_2 Recombiners (ignition source) would be inappropriate. After off-site dose evaluated by the TSC, the H_2 eventually would have to be reduced to < 6.0% by purge, before the Recombiners are allowed to be used.

A. **Incorrect:** The procedure does not allow this because of the concern with a pressure spike caused by a H_2 burn. Also, Recombiner damage is likely.
Plausible: The recombiners do have the advantage of not resulting in an off-site release.

B. **Incorrect:** The procedure does not allow this because of the concern with a pressure spike caused by a H_2 burn.
Plausible: The Recombiners would reduce the H_2 concentration but the concern with a H_2 burn is over-ridding.

C. **Incorrect:** This strategy would result in an off-site release.
Plausible: This is the correct strategy, but not for the reason listed.

D. **Correct:**

Level: SRO Only There is no clear procedure guidance on the correct strategy. The incorrect strategy (recombiners) is purposely avoided by the procedure if H_2 is > 6%. At this point the procedure asks for station management guidance. An SRO would be expected to know why the H_2 Purge strategy is the one and only viable option in this scenario, even though it could result in significant off-site doses.

KA: 000028 A2.03 (3.4/4.0)

Lesson Plan Objective: OP-MC-EP-FRZ, obj 4
OP-MC-CNT-VE, obj 11

Source: NEW

Level of knowledge: Analysis

References:
1. Lesson Plan OP-MC-EP-FRZ, pg 31
OP-MC-CNT-VE, pg 19
2. EP/1/A/5000FR-Z.1, page 11

Bank Question: 1175 ***Answer: B***

1 Pt. Given the following events and conditions:

- Unit 1 is in Mode 1
- 1EMF-36L (Unit 1 Vent Gas) was declared INOPERABLE two days ago
- All Technical Specification ACTIONS are being performed as a result of 1EMF-36L being INOPERABLE
- RP has just determined that 1EMF-39L (Unit 1 Containment Gas) is now INOPERABLE
- Operations has declared 1EMF-39L INOPERABLE
- A VQ release is in progress

Which one of the following describes the Selected Licensee Commitment **Required Action** as a result of 1EMF-39L being INOPERABLE?

Reference Provided
SLC 16.11.7
Table 16.11.7 Table 1

A. **Inform RP they must perform grab sample every 12 hours, and suspend VQ release until grab sample is obtained.**

B. **Continue VQ release and inform RP they must obtain, and analyze grab samples every 12 hours.**

C. **Continue VQ release since Unit Vent Totalizer and Minimum Flow Devices are OPERABLE. Grab samples do not need to be obtained.**

D. **Immediately suspend PURGING or VENTING of radioactive effluents via this pathway.**

Distracter Analysis: With only 1EMF36L being inoperable VQ releases may continue providing a grab sample is taken every 12 hours. The question here is what do you do if 1EMF39L also becomes inoperable. With one or more monitors the correct application to continue the VQ releases and take grab samples once per 12 hours.

A. **Incorrect:**
Plausible:
B. **Correct:**
C. **Incorrect:.**
Plausible:.
D. **Incorrect:**

Plausible:.

Level: SRO Only 10CFR55.43 (4)

KA: W/E16 G2.1.12 (2.9/4.0)

Lesson Plan:

Lesson Plan Objective:

Source: NEW

Level of knowledge: Analysis

References:
1. SLC 16.11.7
2. SLC 16.11.7 Table 1

Bank Question: 1176 **Answer: C**

1 Pt. Given the following conditions on Unit 1:

- EP/1/A/5000-ES-0.2, Natural Circulation Cooldown has been implemented
- Cold Leg Accumulators have been isolated
- NC Tcolds are 315 degrees
- Core Exit Thermocouples are 335 degrees
- Upper Head T/Cs are 430 degrees
- NC Wide Range Pressure is 360 psig

While depressurizing the NC system to 325 psig an abnormal pressurizer level increase is observed.

Which of the following strategies should the SRO implement to address the level increase?

Reference Provided
EP/1/A/5000/ES-0.2 Natural Circulation Cooldown
Data Book Curve 1.6a
Data Book Curve 1.10b

A. Stabilize pressure and continue cooldown

B. Raise pressure to 375 psig and continue cooldown

C. Raise pressure to 450 psig and stabilize NC Tcolds

D. Go to EP/1/A/5000/ES-0.3, Natural Circulation Cooldown with Steam Void in Vessel

---

Distracter Analysis: LTOP is placed in service at 320 degrees and at than 325 psig. The voiding occurred prior to LTOP being placed in service. Cooldown can not continue until LTOP is placed in service. The student must piece together that both trains of ICCM are inoperable requiring the use of curve 1.10b.

A. **Incorrect**: this course of actions will not collapse the void
Plausible: if the student thinks that cooling down the NCS will collapse the void.
B. **Incorrect**: this will not collapse the void in the head
Plausible: this is the maximum pressure allowed in LTOP
C. **Correct**:
D. **Incorrect:** ES-0.3 is only entered if depressurization must be continued

Plausible: if the student thinks that voiding is criteria for transferring to ES-0.3.

LEVEL: SRO Only 10CFR55.43b (5)

KA: EPE W/E09 EA2.2 (3.4/3.8)

SOURCE: NEW

LEVEL OF KNOWLEDGE: Analysis

AUTHOR: CWS

LESSON: OP-MC-EP-E0

LESSON PLAN OBJECTIVE: OP-MC-EP-E0 Obj. 6

REFERENCES:
1. EP/ES-0.2 Natural Circulation Cooldown pages 12, 16 and 17
2. Data Book Curve 1.6a
3. Data Book Curve 1.10b
4. EP-MC-EP-E0 page 155 and 156

Bank Question: 1177 **Answer: D**

1 Pt. Unit 1 is operating at 100 % power. Given the following events and conditions:

IAE informs the Control Room SRO that the manufacturer has notified McGuire that none of the reactor coolant pumps underfrequency detectors will perform their designed reactor trip function within the allowable values.

Which one of the following would be required by Technical Specifications?

Reference Provided
Tech Spec 3.3.1
Tech Spec Table 3.3.1-1

A. **Place channel(s) in trip within 6 hours OR Reduce thermal power to < P-7 in 12 hours**

B. **Restore channel(s) or train(s) to OPERABLE in 48 hours OR Open reactor trip breakers in 49 hours**

C. **Restore train(s) to OPERABLE status in 6 hours OR Be in Mode 3 in 12 hours**

D. **Initiate actions within 1 hour to place the unit in Mode 3 within 7 hours.**

Distracter Analysis: This question depends on the student realizing that all channels of underfrequency being inoperable relates to two trains of trip functions being inoperable.

A. **Incorrect**:
Plausible: The student could think that it was permissible to get power below P-7 where the trip function does not apply

B. **Incorrect**:
Plausible: this is a Mode 3,4 or 5 action

C. **Incorrect**:
Plausible: the Tech Spec action for an inoperable train is to restore the train in 48 hours

D. **Correct**:

Level: SRO Only 10CFR55.43 (2)

KA: 003 G2.1.11 (3.0/3.8)

Lesson Plan:

Lesson Plan Objective:

Source: NEW

Level of knowledge: Analysis

References:
1. Technical Specification 3.3.1
2. Technical Specification Table 3.3.1-1

Bank Question: 1178 ***Answer: D***

1 Pt. The following conditions exist on Unit 1

- 1B ND train is in shutdown cooling alignment
- 1B KC/RN trains operating in support of 1B ND train

Which one of the following plant conditions will result in the requirement to notify plant personnel of the activation of the TSC/OSC and EOF?

Reference Provided
RP/0/A/5700/000

A. NC temperature rise from 185 degrees to 195 degrees as a result of the loss of the operating train of ND.

B. NC temperature rise from 205 degrees to 215 degrees as a result of the loss of the operating train of KC and RN.

C. NC temperature rise from 210 degrees to 230 degrees as a result of the loss of both trains of ND.

D. NC temperature rise from 175 degrees to 185 degrees as a result of the loss of both trains of KC.

Distracter Analysis: Student must consider using EALs for classification. Must be in an at least an ALERT to activate TSC, etc. Student must realize these are potential loss of shutdown coolant events. This is an SRO task to be able to use RP/000.

A. Incorrect
Plausible: This distracter results in the highest temperature if the student thinks that losing one ND will satisfy the EAL.

B. Incorrect:
Plausible: Not credible because in Mode 4

C. Incorrect:
Plausible: Same as above

D. Correct:

Level: SRO Only 10CFR55.43 (5)

KA: SYS 005 G2.1.14 (3.2/3.8)

Lesson Plan Objective: OP-MC-AP-19 Obj. 2

Source: NEW

Level of knowledge: Comprehension

References:

1. RP/1/A/5700/000 Enclosure 4.3 Loss of Shutdown Function
2. AP/19 Background Document page 7

Bank Question: 1179 ***Answer: C***

1 Pt. Unit 2 is operating at 100 % power. Given the following events and conditions:

- As a result of trouble shooting activities VI and nitrogen are isolated to 2SA-48ABC (SM FRM S/G 2C to TD CA Pump Isol)

Which one of the following actions is correct in accordance with plant procedures?

A. Implement AP/2/A/5500/001, Steam Leak
Pull rods to return Tave to normal
Close TD CA Flow Control valves

B. Implement OP/2/A/6250/002, Auxiliary Feedwater System
Reduce load to get power less than 100% RTP
Close 2SA-1 (SM 2C to TD CA pump Manual Isol)

C. Implement AP/2/A/5500/001, Steam Leak
Reduce load to get power less than 100% RTP
Close TD CA Flow Control valves

D. Implement OP/2/A/6250/002, Auxiliary Feedwater System
Pull rods to return Tave to normal
Close 2SA-1 (SM 2C to TD CA pump Manual Isol)

Distracter Analysis: There are two decisions that must be made in this question. One, which procedure to use and the other the correct way to stop the steam leak. The OP does not give guidance for closing SA-1. This action can be taken due to OMP 4-3 Conduct of Operations guidance on isolating a known leak.

A. Incorrect:
Plausible: Do not pull rods to get Tave back to normal this is done by reducing load. Also it is not necessary to depress the modulating valve resets to gain control of the CA valves.

B. Incorrect:
Plausible: You would not use the operating procedure for a steam leak.

C. Correct:.

D. Incorrect:
Plausible: You would not use the operating procedure for a steam leak.

Level: SRO Only. The decision as to which procedure to implement is an SRO function.

KA: SYS 061 A2.02 (3/2*/3.6*)

Lesson Plan: OPO-MC-AP-1

Lesson Plan Objective: OP-MC-AP-1 Obj. 3

Source: NEW

Level of knowledge: Comprehension

References:
1. OP-MC-AP-1 Background Document 3 and 4
2. AP/1/A/5500/01 pages 2 and 5
3. OMP 4-3 page 7-

Bank Question: 1180 **Answer: C**

1 Pt(s)

Unit 1 is releasing the Ventilation Unit Condensate Drain Tank (VUCDT) using continuous release per approved station procedures. Just after the release was initiated, 1EMF-44 (Ventilation Unit Condensate Drain Tank) count rate indication fails to a reading of less than background.

Which one of the following statements correctly describes the effect on this LWR (Liquid Waste Release) **In Accordance With** OP/1/A/6500/001 A, Ventilation Unit Condensate Drain Tank Operation?

A. **Continue the release. Document 0EMF-49 (Waste Liquid Disc) both OPERABLE and monitoring release flow path**

B. **Continue the release. Request updated LWR release and OP paperwork.**

C. **Stop release. Initiate batch release with updated LWR and OP paperwork.**

D. **Stop Release. Notify IAE to restore 1EMF-44 to OPERABLE prior to any VUCDT release.**

Distracter Analysis: Continuous release not allowed with 1EMF-44 inoperable.

A. **Incorrect**: Release paperwork and the OP. were created assuming 1EMF-44 operable. Release OP does not allow using 0EMF-49.
Plausible.

B. **Incorrect**: Release must be stopped and new LWR and OP paperwork created.
Plausible:

C. **Correct:**

D. **Incorrect**: 1EMF-44 not required for all VUCDT releases as long as the paperwork reflects all Tech. Spec./SLC requirements met, or release made to Floor Drain Tank.
Plausible:

Level: SRO Only 10CFR55.43(b)5

KA: SYS 073 A2.02 (2.7/3.2)

Lesson Plan Objective:

Source: NEW

Level of knowledge: Comprehension

References:
1. OP/2/A/6500/001 A pg. 1
2. OP/1/B/6200/105 pg.1

Bank Question: 1181 ***Answer: B***

1 Pt. Given the following conditions:

- Unit 1 is at 100% power
- PZR PRESS CNTRL SELECT switch is selected to the 1-2 position
- Pressurizer Pressure Channel 1 fails LOW

The RO turns to you, the SRO, and tells you he is performing the immediate actions of AP/1/A/5500/011, Pressurizer Pressure Anomalies and recommends swapping the controlling channel to the 3-2 position.

Which one of the following best describes your response and the reason for that response?

A. **Agree; because this action will remove the faulty channel from the master controller circuitry.**

B. **Disagree; because this action will place a higher reading channel in service and could open a PZR PORV.**

C. **Agree; because this action will stabilize pressurizer pressure in a timely manner.**

D. **Disagree; because this action will cause the pressurizer spray valves to close increasing actual pressure.**

Distracter Analysis:. Although immediately swapping controlling channels would work, and restore pressure quicker, it would be a poor trade-off to risk opening a Pzr PORV needlessly. In this particular scenario, the general guidance given Operators to immediately correct malfunctioning automatic control is superceded by the concern with the PORV and the AP guidance that addresses this concern

A. **Incorrect**:
Plausible: Operators are trained to manually mitigate malfunctioning automatic control functions

B. **Correct**:

C. **Incorrect**:
Plausible:: This would restore pressure more quickly than the AP/11 guidance, and do it in automatic.

D. **Incorrect**
Plausible: If the Operator thought the failed low channel would cause the spray valves to open to reduce pressure.

LEVEL: SRO Only 10CFR55.43b(5)

KA: SYS 016 G2.1.20 (4.3/4.2)

SOURCE: NEW

LEVEL OF KNOWLEDGE: Comprehensive

AUTHOR: CWS

LESSON: OP-MC-AP-11 Pressurizer Pressure Anomalies

OBJECTIVES: OP-MC-AP-11 Obj 3

REFERENCES- OP-MC-AP-11 page 8
AP/11 Background Document page 15

Bank Question: 1182 **Answer: B**

1 Pt. Given the following conditions:

- Unit 1 is in a refueling outage
- Core unload is in progress
- The Spent Fuel Pool Level Low computer alarm has actuated
- Actual pool level is minus 2 feet and slowly going down
- Borated water makeup is discovered not available

Which one of the following statements describes the mitigating actions for this event?

A. **Implement AP/1/A/5500/41, Loss of Spent Fuel Pool Cooling and Level, and begin makeup using Demineralized Water to restore level.**

B. **Implement AP/1/A/5500/40, Loss of Refueling Cavity Level, secure the KF pump and makeup using Demineralized Water to restore level.**

C. **Implement AP/40, Loss of Refueling Cavity Level, and begin makeup using Nuclear Service Water (RN) to restore level.**

D. **Implement AP/41, Loss of Spent Fuel Pool Cooling and Level, secure the KF pump and begin makeup using RN to restore level.**

Distracter Analysis:. Although symptoms for both AP/40 and AP/41 are met, AP/40 would be the priority AP because of the higher risk associated with uncovering fuel. Also AP/40 provides guidance for both locations loss of level. Although both YM and RN would be available as unborated water, YM is higher quality.

A. **Incorrect**:
Plausible: A symptom for AP/41 is a loss of pool level

B. **Correct**:

C. **Incorrect**:
Plausible:: The correct AP, plausible if the student believed urgency needed to restore level required RN.

D. **Incorrect**
Plausible: A symptom for AP/41 and plausible if thought RN needed to quickly restore level.

LEVEL: SRO Only

K/A: 033 A2.03 (3.1/3.5)

SOURCE: NEW

LEVEL OF KNOWLEDGE: Comprehensive

REFERENCES: OP-MC-FH-FC
OMP 4-3, Use of Abnormal and Emergency Procedures
AP/40 page 7

LESSON: OP-MC-FH-FC page 21 & 25

OBJECTIVE: OP-MC-FH-FC Obj. 6

Bank Question: 1183 ***Answer: B***

1 Pt(s) An operator has been working as listed below:

02/15/2005

1900	Starts Shift Turnover in control room
1930	Assumes shift duties

02/16/2005

0730	Relieved of duties in control room
0800	Starts NRC requalification exam
1130	Completes NRC requalification exam
	Departs site for home and rest
1900	Starts shift turnover
1930	Assumes relief shift duties

02/17/2005

0730	Relieved of duties in control room
	Departs site

What action (if any) must the operator take to comply with Tech Spec 5.2.2 regarding limits on overtime hours?

Reference Provided
Tech Spec 5.2.2

A. **Submit Request for Work Hours Extension Form to be approved by the Station Manager/Designee prior to 1130 on 02/16.**

B. **Submit Request for Work Hours Extension Form to be approved by the Station Manager/Designee prior to 1900 on 02/16.**

C. **Submit Request for Work Hours Extension Form to be approved by the Station Manager/Designee prior to 0630 on 02/17.**

D. **No action required by the operator**

Distracter Analysis: This question is testing three areas for potential work hours extension. The question hinges on shift turnover

time and that it does not count for hours worked, but must be excluded from hours off.

A. **Incorrect:** Does exceed a limit
B. **Incorrect**: Does not exceed 16 in 24 hours.
C. **Correct**:
D. **Incorrect**: Does not exceed 28 in 48 hours
Plausible:

Level: SRO Only 10CFR55.43(b)2

KA: 2.1.5 (2.3/3.4)

Lesson Plan Objective: OP-MC-ADM-DIR, Obj 9

Source: BANK McGuire SRO Retake Exam 2003

Level of knowledge: Memory

References:
1. Tech Spec 5.2.2, Unit Staff
2. NSD-200, Appendix A, Request for Work Hours Extension

Bank Question: 1184 ***Answer: C***

1 Pt. Given the following conditions on Unit 1:

- 45% Rated Thermal Power
- Transformer SATA is not available
- On August 1 at 0000, Main Power Transformer "1A" is tagged out for maintenance and will be unavailable for 48 hours
- On August 1 at 0800, "1A" D/G is declared inoperable due to a fire from a fuel oil leak

Which one of the following best describes the Technical Specification requirements for these conditions?

Reference Provided
T.S. 3.8.1
T.S. 3.8.9

A. **No actions are required since Main Transformer "1A" will be returned to service within 48 hours.**

B. **Be in HOT STANDBY before 2000 hours on August 1.**

C. **Be in HOT STANDBY before 0200 hours on August 2.**

D. **Apply Tech. Spec. 3.0.3 at 2000 hours on August 1 and be in HOT STANDBY before 0300 on August 2.**

Distracter Analysis:.

A. **Incorrect**:
Plausible: If student does not realize that the inoperability place them in a separate T.S. "condition"

B. **Incorrect**: Student misapplies T.S. condition "D".
Plausible:

C. **Correct**:

D. **Incorrect**
Plausible: If student incorrectly assumes T.S. 3.0.3 applies.

LEVEL: SRO ONLY 10CFR55.43b(2)

KA: G2.1.12 (2.9/4.0)

SOURCE: Modified. McGuire Requal. Exam Bank.

LEVEL OF KNOWLEDGE: Analysis

AUTHOR: CWS

LESSON: OP-MC-EL-EP

OBJECTIVES: OP-MC-EL-EP obj 39

REFERENCES: T.S.3.8.1
T.S.3.8.9

Bank Question: 1185 ***Answer: C***

1 Pt.

Unit 1 is in Mode 3. The NI system engineer has requested that the 1A NI pump be started with the discharge valve throttled to 75% open to determine starting current. The evolution is NOT described in current procedures, nor the Final Safety Analysis Report.

Which one of the following describes the correct actions of the OSM for this request?

A. Approve the test without restrictions only after providing a Level 1 Pre-job brief is performed.

B. Approve the test only after removal and restoration paperwork ensures configuration control.

C. Approve the test only after a 10CFR 50.59 Screening evaluation has been performed and approved.

D. Approve the test only if an STA with an engineering degree agrees with the test method.

Distracter Analysis:.

A. Incorrect:
Plausible:
B. Incorrect:
Plausible:
C. Incorrect:
Plausible:
D. Incorrect
Plausible:

LEVEL: SRO

KA: G2.2.10 (1.9/3.3)

SOURCE: BANK Byron 1 2001 NRC Exam

LEVEL OF KNOWLEDGE: Memory

AUTHOR: CWS

LESSON:

OBJECTIVES: OP-MC-

REFERENCES:

Bank Question: 1186 ***Answer: A***

1 Pt(s) Unit 1 has just entered Mode 5 in preparation for refueling. Given the following conditions and events:

- A lower containment entry is planned for the next shift
- The SRO directs the RO to purge the containment in preparation for the containment entry
- Currently the VP system is secured with all fans off and containment purge and exhaust valves closed

Which one of the following describes the proper alignment of the containment purge system and basis for this alignment?

A. **The *NORMAL-REFUEL SELECTOR* switch is placed in the "*NORM*" position and ratio of supply air is 2/1 (Upper/Lower Containment).**
To prevent over pressurization of upper containment and no unmonitored release path.

B. **The *NORMAL-REFUEL SELECTOR* switch is placed in the "*NORM*" position and ratio of supply air is 2/1 (Upper/Lower Containment).**
To prevent opening of the ice condenser doors and ensure air flow is routed through clean up filters.

C. **The *NORMAL-REFUEL SELECTOR* switch is placed in the "*REFUEL*" position and ratio of supply air is 4/1 (Upper/Lower Containment).**
To prevent over pressurization of upper containment and no unmonitored release path.

D. **The *NORMAL-REFUEL SELECTOR* switch is placed in the "*REFUEL*" position and ratio of supply air is 4/1 (Upper/Lower Containment).**
To prevent opening of the ice condenser doors and ensure air flow is routed through clean up filters.

Distracter Analysis:

A. **Correct**: - this is the proper position for this operation.
B. **Incorrect**: A ratio of 2/1 is less likely to prevent opening doors than a ratio of 4/1
Plausible: -
C. **Incorrect** : - this will over-pressurize the upper containment
D. **Incorrect:** - this will over-pressurize the upper containment.

Plausible: .

Level: SRO Only

KA: G2.3.9 (2.5/3.4)

Lesson Plan Objective: CNT-VP Obj. 2 & 6

Source: BANK McGuire NRC 2002 Retake Exam

Level of knowledge: Memory

References:
1. OP-MC-CNT-VP pages 21, 23

Bank Question: 1187 ***Answer: A***

1 Pt(s) Given the following conditions on Unit 1:

- MODE 1
- Fuel shuffle is in progress
- 1EMF-17 Spent Fuel Bldg Refuel BRDG Trip 2 alarm
- 1EMF-42 Fuel Bldg Vent Hi Rad Trip 2 alarm

Which one of the following correctly describes the actions the SRO would take in accordance with procedure for the above conditions?

A. **Implement AP/1/A/5500/25, Spent Fuel Damage**
Evacuate the spent fuel pool area
Ensure VF in filter mode

B. **Implement AP/1/A/5500/25, Spent Fuel Damage**
Evacuate non-essential personnel
Initiate makeup to the spent fuel pool

C. **Implement AP/1/A/5500/41, Loss Spent Fuel Pool Cooling or Level**
Evacuate the spent fuel pool area
Place KF purification loop in service

D. **Implement AP/1/A/5500/41, Loss Spent Fuel Pool Cooling or Level**
Evacuate non-essential personnel
Place KF purification loop in service

Distracter Analysis: The question hinges on EMF-42 indication of fuel damage (release of activity). AP/41 strategies would be ineffective.

A. **Correct**:
B. **Incorrect**:doesn't address the control of gaseous activity
Plausible:. The correct AP, may believe high rad due to loss of water shielding.
C. **Incorrect**:. Wrong AP, doesn't address the control of gaseous activity
Plausible: Evacuation is a good idea, placing purification in service is a credible way to reduce activity in the pool water
D. **Incorrect**:. Wrong AP
Plausible: Placing purification in service is a credible way to reduce activity in the pool water, may believe high rad due to loss of water shielding.

Level: SRO ONLY 10CFR55.43b(4)

KA: 2.3.10 (2.9/3.3)

Lesson Plan Objective: OP-MC-AP-AP/25 obj 2

Source: NEW

Level of knowledge: Memory

References:
1. AP/25 page 4 & 5

Bank Question: 1188 ***Answer: B***

1 Pt. Given the following plant conditions on Unit 2:

- A loss of all AC Power has occurred
- The actions of EP/2/A/5000/ECA 0.0, Loss of All AC Power are in progress
- SG PORVs are being controlled locally to reduce SG pressure to less than 200 psig.
- SG pressures are currently 350 psig
- Reactor Coolant cold leg temperatures are 325 degrees
- Source range startup rate is +0.2 and steady
- The STA informs the SRO there is a Yellow path on subcriticality

Which one of the following describes the action that should taken to mitigate the above plant condition?

A. Begin an emergency boration

B. Stop depressurizing SGs

C. Continue to lower SG pressure to <200 psig

D. Go to EP/2/A/5000/FR-S.2 (Response to Loss of Core Shutdown)

Distracter Analysis:. If the SUR is above zero in ECA 0.0 the RNO requires dumping steam to heat up the RCS and establish subcriticality.

A. **Incorrect**:
Plausible: Emergency boration would be an action to mitigate the positive SUR, but can not be done without AC power.

B. **Correct**:

C. **Incorrect**:
Plausible: If SR is above zero the procedure requires local control of atmospheric dump valves to raise SG pressure

D. **Incorrect**
Plausible: While in ECA 0.0 CSFs are monitored for information only

LEVEL: SRO ONLY 10CFR55.43b(5)

KA: G2.4.16

SOURCE: BANK Farley 1 1998

LEVEL OF KNOWLEDGE: Analysis

AUTHOR: CWS

LESSON: OP-MC-EP-ECA

OBJECTIVES: OP-MC-EP-ECA obj 4

REFERENCES: OP-MC-EP-ECA, page 49

Bank Question: 1189 ***Answer: B***

1 Pt. Given the following conditions on Unit 1:

- Air in leakage to the condenser has resulted in steadily degrading condenser vacuum
- A load reduction is directed in order to maintain vacuum
- With the unit at approximately 85% power, a manual reactor trip is ordered due to the inability to maintain vacuum
- All systems function as designed

Which one of the following describes the notification requirements for this event?

A. No notifications to any outside agencies are required for this event.

B. The NRC must be notified within 4 hours due to manual actuation of the Reactor Protection System.

C. The System Operating Center must be notified within 1 hour to ensure grid stability is maintained.

D. The State/Counties must be notified within 15 minutes of the declaration of the Unusual Event.

Distracter Analysis:.

A. **Incorrect**: NRC notification required
Plausible: The plant manually trips the reactor during normal shutdowns without the 4 hour notification requirement

B. **Correct**:

C. **Incorrect**: Grid stability issues may be an immediate concern, with the SOC responding without waiting for McGuire's input
Plausible: The SOC is typically notified as soon as possible during load changes/loss of unit

D. **Incorrect** Reactor trip/loss of vacuum scenarios do not meet Emergency Plan classification criteria.
Plausible: Some manual reactor trip scenarios (i.e., manual after automatic reactor trip fails) do require E-Plan classification

LEVEL: SRO ONLY 10CFR55.43b(5)

KA: G2.4.30 (2.2/3.6)

SOURCE: BANK Point Beach 1 2003 NRC Exam

LEVEL OF KNOWLEDGE: Memory

AUTHOR: CWS

LESSON: OP-MC-ADM-DIR,

OBJECTIVES: OP-MC- ADM-DIR, obj 10

REFERENCES: RP/0/A/5700/010 NRC Immediate Notification Requirements, Enclosure 4.1 page 5-
NSD 202, page 1