Bruce Moody
Union Electric - Callaway Plant
P.O. Box 620
Fulton, Mo. 65251

June 9, 1997

Mr. Howard Bundy
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, Tex. 76011-8064

Dear Howard:

This letter confirms the information you have received concerning the RO License Retake Exam scheduled for June 27 at the Callaway Plant.

The following material was delivered to your office on May 28:

a. 100 question written exam (RO level)
b. Callaway Plant Individual Plant Evaluation (IPE)/Probabilistic Risk Assessment (PRA) question breakdown
c. Question breakdown concerning question origin
d. Copy of exam security form, Form ES-201-3
e. Written examination quality assurance checklist, Form ES-401-6

Additionally, enclosed with this letter are copies of the 12 exam questions identified as being from the plant exam bank which were modified. Both the modified exam question and the original question from the exam bank are included.

If you have any questions concerning this material, or if you need any additional information, please call me at 573-676-8194.

Sincerely,

Bruce Moody

Bruce Moody

QUESTION #1

A Safety Injection has occurred due to a Steam Generator Tube Rupture. The crew has just completed verifying that both NB01 and NB02 are energized per Step 3 of E-0, Reactor Trip or Safety Injection. Which one of the following describes the HVAC flowpath for the Fuel Building at this time?

A. Fuel Building supply and normal exhaust stops; emergency exhaust dampers align to the Aux Building.

B. Fuel Building supply and normal exhaust stops; emergency exhaust dampers align to Fuel and Aux Building.

C. Fuel Building supply keeps running or starts; normal and emergency Fuel Building exhaust isolates.

D. Fuel Building supply and exhaust keeps running or starts; emergency exhaust dampers align to the Fuel Building.

ANSWER:

A. Fuel Building supply and normal exhaust stops; emergency exhaust dampers align to the Aux Building.

K/A #:	103K113 2.8/3.1
KA DESCRIPTION:	FB Ventilation on SIS

OBJECTIVE #: 011039OD
REFERENCES: T61.0110.6 LP 39, Page 40

AUTHOR: RBM
SOURCE: BANK Modified Y - L

DISTRACTER EXPLANATION:
Response B is incorrect because the emergency exhaust does not align to the Fuel Bldg. Response C is incorrect because the Fuel Bldg supply does not keep running. Response D is incorrect because the Fuel Bldg supply and exhaust does not keep running and the dampers do not align to the Fuel Bldg.

RO Outline #32

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110390D02A

What is the ventilation flowpath for the Fuel Building after a Safety Injection? (Assume no operator action.)

A. Fuel Building supply stops; both normal and emergency Fuel Building exhaust isolates.

B. Fuel Building supply and normal exhaust stops; emergency exhaust aligns to Fuel and Aux Building.

C. Fuel Building supply keeps running or starts; normal and emergency Fuel Building exhaust isolates.

D. Fuel Building supply and exhaust keeps running or starts; emergency exhaust dampers isolates.

ANSWER:

A. Fuel Building supply stops; both normal and emergency Fuel Building exhaust isolates.

QUESTION #7

The following plant conditions exist at 0400:

- T avg 557°F
- PZR Press 2235 psig
- Source Range Channel 31 indicates 19 cps
- Source Range Channel 32 indicates 20 cps

The following plant conditions exist at 0409:

- Tavg 556°F
- PZR Press 2240 psig
- Source Range Channel 31 indicates 39 cps
- Source Range Channel 32 indicates 46 cps

Which ONE of the following includes a plant response to the above conditions?

A. The "B" CCP suction valve from the RWST, BNLCV112E, opens.

B. The Containment Evacuation Alarm sounds.

C. The High Flux at Shutdown Alarm sounds.

D. The reactor trip breakers open on high source range counts.

ANSWER:

A. The "B" CCP suction valve from the RWST, BNLCV112E, opens.

K/A #:	004K107 2.6/2.9
KA DESCRIPTION:	Plant Response to Flux Doubling

OBJECTIVE #:	011028OA
REFERENCES:	T61.0110.6 LP 28

AUTHOR:	RBM
SOURCE:	BANK Modified Y - HO

DISTRACTER EXPLANATION:
All 4 responses are associated with actions associated with the NIS source range instruments. Responses B and C have a setpoint of 5 times background and D has a setpoint of 10E5 cps.

RO Outline #3

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110280A01A

The plant is operating in Mode 3. Initial source range counts are 20 cps on each channel. The Reactor Operator then dilutes the RCS Boron Concentration surficient for the count rates to increase to 46 cps in 9 minutes.

Select the statement below that best describes plant response?

A. BN-LCV-112D & E open, then BG-LCV-112B & C close.

B. The containment evacuation alarm sounds.

C. The Rx trip BKRS open on Hi Source Range Rate.

D. The Hi Flux at Shutdown Alarm sounds.

ANSWER:
A. BN-LCV-112D & E open, then BG-LCV-112B & C close.

QUESTION #19

The electric fire pump has started due to a rupture in the main fire header going into the Radwaste Building. When can the pump be secured and returned to standby?

A. Anytime from Panel KC008 in the main control room.

B. Anytime from the local control panel.

C. From Panel KC008 in the main control room after system pressure has been restored.

D. From the local control panel after system pressure has been restored.

ANSWER:

D. From the local control panel after system pressure has been restored.

K/A #:	086A201 2.9/3.1
KA DESCRIPTION:	Fire Protection System - Manual S/D of Firepumps

OBJECTIVE #: 011035OO
REFERENCES: T61.0110.6 LP 35, Page 78

AUTHOR: RBM
SOURCE: BANK Modified Y - L

DISTRACTER EXPLANATION:
Responses A and C are incorrect because the fire system pumps cannot be secured from the main control room anytime. In order for the system to be restored to normal (standby), system pressure must be restored to normal, thus Response D is the only correct choice.

RO Outline #36

COURSE:

QUESTION NO: 1 POINTS: 1.00

01103500018

After an automatic actuation of the electric fire pump (due to low pressure), when can the pump be secured?

A. Anytime from the main control room

B. From the main control room only after system pressure has been restored

C. Anytime locally

D. Locally - only after system pressure has been restored

ANSWER:

D. Locally - only after system pressure has been restored

QUESTION #20

Callaway Plant is in Mode 4. "B" RHR is in service. A plant cooldown is in progress. The Reactor Operator is directed to stop the cooldown. EGHV102, "B" CCW to "B" RHR heat exchanger is CLOSED.

Which ONE of the following events occur?

A. "B" CCW flashes in the "B" RHR heat exchanger causing the "B" CCW surge tank level to increase.

B. "B" ESW flashes in the "B" CCW heat exchanger causing water hammer in the "B" ESW.

C. "B" RHR flashes in the "B" RHR heat exchanger causing the "B" RHR suction relief to lift.

D. Service Water flashes in the "B" CCW heat exchanger causing water hammer in the Service Water system.

ANSWER:

A. "B" CCW flashes in the "B" RHR heat exchanger causing the "B" CCW surge tank level to increase.

K/A #: 005A103 2.5/2.6 KA DESCRIPTION: Flashing in RHR HX
OBJECTIVE #: 011010OE REFERENCES: SOS 86-0054
AUTHOR: PJM SOURCE: BANK Modified Y - HO
DISTRACTER EXPLANATION: A. When CCW flow was stopped in the plant to the RHR heat exchanger, CCW flashed to steam in the RHR heat exchanger upon heating up. B. ESW cools CCW. ESW is at a higher pressure so should not flash. C. B RHR is pressurized so should not flash. D. Service water cools CCW. Service water is at a higher pressure so should not flash.

RO Outline #27

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110100E02A

Which ONE of the following describes the effects on the Component Cooling Water (CCW) System of isolating CCW to the Residual Heat Removal (RHR) System while the RHR system is in service during an RCS heatup?

A. CCW flashing would occur in the RHR heat exchanger, which would cause CCW surge tank level to increase.

B. CCW flashing would occur in the RHR heat exchanger, which would cause CCW surge tank level to decrease.

C. CCW system pressure would increase, resulting in a reduction in NPSH to the CCW pumps.

D. CCW system pressure would increase, resulting in lifting of the CCW surge tank relief valve.

ANSWER:

A. CCW flashing would occur in the RHR heat exchanger, which would cause CCW surge tank level to increase.

QUESTION #24

Which ONE of the following electrical lineups is a normal lineup for the Switchyard?

A. ESF XFMR XNB01 energized by Safeguards XFMR "B" via ring bus breaker 52-3.

B. MTGY-CAL-7 transmission line energized by the main step-up XFMR's via switchyard breaker V53.

C. CAL-BLAN-1 transmission line energized by 345 KV SWYD Bus "A" via switchyard breaker V41.

D. 200 series site load XFMR's energized by Safeguards XFMR "A" via ring bus breaker 52-4.

ANSWER:

A. ESF XFMR XNB01 energized by Safeguards XFMR "B" via ring bus breaker 52-3.

K/A #:	062K104 3.7/4.2
KA DESCRIPTION:	Offsite AC Power Sources
OBJECTIVE #:	011001OB
REFERENCES:	8618-X-94080
AUTHOR:	PJM
SOURCE:	BANK Modified Y - L

DISTRACTER EXPLANATION:
A. The only physical lineup which can be made in the switchyard is supplying the ESF transformer with ring bus breaker 52-3 from the B Safeguards transformer.
B. MTGY-CAL-7 goes through V85.
C. CAL-BLAN-1 goes through V43 and V41 to get to A bus.
D. 200 series from XFMR A through 52-2.

RO Outline #15

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110010B02A

Which of the following statements concerning the Switchyard Distribution System is correct?

A. Site loads (200 series) can be supplied by Safeguards XFMR 'A' via Ring Bus breaker 52-4.

B. MTGY-CAL-7 transmission line can be supplied by the main step-up XFMR's via switchyard breaker V53.

C. ESF XFMR XNB01 can be supplied by Safeguards XFMR 'B' via Ring Bus breaker 52-3.

D. CAL-BLAN-1 transmission line can supply 345 KV SWYD Bus 'A' via switchyard breaker V41.

ANSWER:

C. ESF XFMR XNB01 can be supplied by Safeguards XFMR 'B' via Ring Bus breaker 52-3.

QUESTION #26

The plant has experienced a loss of offsite power. All equipment functioned as designed. Five minutes later, NB0111, "A" D/G output breaker, trips open. Which ONE of the following caused NB0111 to open?

A. High lube oil temperature

B. Overcurrent

C. Low jacket water pressure

D. Overspeed

ANSWER:

D. Overspeed

K/A #:	064K402 3.9/4.2
KA DESCRIPTION:	D/G Output Breaker Trips

OBJECTIVE #:	011003OH
REFERENCES:	T61.0110.6 LP 3, Pages 59 & 65

AUTHOR:	PJM
SOURCE:	BANK Modified Y - HO

DISTRACTER EXPLANATION:
A. High lube oil temperature does not cause an Engine Shutdown Relay trip.
B. Overcurrent trips the D/G output breaker on a normal start but is blocked on an emergency start.
C. Low jacket water pressure does not cause an Engine Shutdown Relay trip.
D. Overspeed causes and Engine Shutdown Relay actuation. This trips the D/G breaker open on any type of start.

RO Outline #16

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110030H01C

Which ONE of the following has the capability to automatically trip the Standby Diesel Generator Output Breaker after an emergency start?

A. Neutral Ground Overcurrent

B. Engine Shutdown Relay

C. Underfrequency

D. Voltage Restrained Overcurrent

ANSWER:
B. Engine Shutdown Relay

QUESTION #43

The following conditions exist:

- Reactor Power is 60%
- 'A' RCP #1 Seal ΔP is 170 psid and decreasing 1 psid per minute
- 'A' RCP #1 Seal Leak-off flow is 3 gpm
- 'A' RCP Frame Vibration is 3 mils and increasing 1 mil/hr

Which one of the following is the proper operator action per OTO-BB-00002, Reactor Coolant Pump Off-Normal?

A. Reduce power to <48% and trip the affected RCP.

B. Trip the reactor and turbine, then trip the affected RCP.

C. Trip the affected RCP and be in Mode 3 within the next 6 hours.

D. Continue to monitor vibration on 'A' RCP.

ANSWER:

A. Reduce power to <48% and trip the affected RCP.

K/A #:	015/17AA1.23 3.1/3.2
KA DESCRIPTION:	Respond to High RCP Vibration

OBJECTIVE #:	003B15OB
REFERENCES:	OTO-BB-00002 SOS 96-1775

AUTHOR:	RBM
SOURCE:	BANK Modified Y - HO

DISTRACTER EXPLANATION:
B would be true if vibration was at 5 mils.
C is plausible in that you would have 6 hrs to shut down the plant after securing an RCP except in this case the reactor would trip if the pump was secured due to P-8.
D is plausible if vibrations were steady.

RO Outline #56

COURSE:

QUESTION NO: 1 POINTS: 1.00

003B150B01B

The reactor power is at 80% and the following conditions exist:

1. A loss of CCW to Containment for 5 minutes

2. A RCP frame vibration is 3 mils and increasing at a rate of 1 mil/hr

3. A RCP seal ΔP 300 psid

Per OTO-BB-00002, RCP Off-Normal, which one of the following is the appropriate Operator Action to be taken?

A. Reduce power <48% and trip the affected RCP

B. Trip the reactor and turbine and the affected RCP

C. Close the #1 Seal Leakoff Isolation Valve within 5 minutes

D. Proceed with an orderly plant shutdown and trip the affected RCP within 30 minutes

ANSWER:

A. Reduce power <48% and trip the affected RCP

QUESTION #51

Plant conditions are as follows:

- Mode 1
- 100% Reactor Power
- Tavg 588.4°F
- NCP is running with BGFCV124 in Auto
- Letdown flow is 125 gpm
- PZR level controller, BBLK459 is in Auto
- BBLT459 is the selected channel

BBLT459 fails HIGH. NO operator action is taken.

Which ONE of the following occurs in the plant due to BBLT459 failing?

A. The Reactor will immediately trip on PZR high level.

B. The Reactor will, after a period of time, trip on high PZR level.

C. The Reactor will, after a period of time, trip on low PZR level.

D. The Reactor does not trip due to PZR level.

ANSWER:

B. The Reactor will, after a period of time, trip on high PZR level.

K/A #:	011A210 3.4/3.6
KA DESCRIPTION:	PZR Level Channel Failure

OBJECTIVE #:	011030OL
REFERENCES:	8756D37 Sheet 11 and 27

AUTHOR:	PJM
SOURCE:	BANK Modified Y - HO

DISTRACTER EXPLANATION

A. Rx Trip is 2/3 coincidence.

B. When BBLT459 fails high, the NCP flow control valve will close down to minimum flow, about 40 gpm, to reduce PZR level while letdown is still 125 gpm. When PZR level gets to 17%, BBLT460 will isolate letdown with BGLCV460. With no letdown while still charging, the PZR level will increase until a high level Rx Trip occurs at 92% 2/3 coincidence.

C. No Rx trips on low level.

D. Rx trips on high level.

RO Outline #29

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110300L04A

Which ONE of the following statements describes the resultant long term plant response to a failed PZR level channel WITHOUT ANY OPERATOR ACTION (Assume controlling level channel fails.)

A. HIGH failure causes the plant to trip on High PZR level and LOW failure causes the plant to trip on High PZR level.

B. HIGH failure causes the plant to trip on High PZR level and LOW failure does not cause the plant to trip.

C. LOW failure causes the plant to trip on High PZR level and HIGH failure does not cause the plant to trip.

D. HIGH failure does not cause the plant to trip and LOW failure does not cause the plant to trip.

ANSWER:

A. HIGH failure causes the plant to trip on High PZR level and LOW failure causes the plant to trip on High PZR level.

QUESTION #55

A high high shell level occurs in the 1A heater. Which ONE of the following is the response of Main Feedwater due to the high high level?

A. Main Feedwater temperature goes up.

B. Main Feedwater temperature goes down.

C. Main Feedwater flow goes up.

D. Main Feedwater flow goes down.

ANSWER:

B. Main Feedwater temperature goes down

K/A #:	056K103 2.6/2.6
KA DESCRIPTION:	Feedwater Temperature Response to LP Htr Isolation
OBJECTIVE #:	011022OG
REFERENCES:	OTS-AF-00003 Page 2
AUTHOR:	PJM
SOURCE:	BANK Modified Y - HO

DISTRACTER EXPLANATION:
A. Temperature goes down.
B. When a high high level occurs in the 1A heater, the A LP heater string will isolate. Less heat transfer area, less heating of the main feedwater, temperature goes down.
C. Flow doesn't change.
D. Flow doesn't change.

RO Outline #19

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110220G04A

What will cause the L.P. feedwater heaters train 'A' condensate inlet and outlet valves to automatically go shut?

A. High high shell level in Heater 1A.

B. High high shell level in Heater 3A.

C. 50 psid across the condensate polishers.

D. Open indication on the low pressure heater bypass valve.

ANSWER:

A. High high shell level in Heater 1A.

QUESTION #56

Callaway is in MODE 1. All systems are lined up in their normal configuration and operating properly. A component cooling water system leak has occurred.

The following conditions are noted by the Reactor Operator:

- The CCW surge tank level is 53% and DECREASING
- VCT level is 65% and INCREASING

Which ONE of the following leakage sources would result in these conditions?

A. CCW heat exchanger

B. Letdown heat exchanger

C. RHR heat exchanger

D. Seal water heat exchanger

ANSWER:

D. Seal water heat exchanger

K/A #:	008K1C4 3.3/3.3
KA DESCRIPTION:	Source of CCW Leakage

OBJECTIVE #:	011010[illegible]
REFERENCES:	T61.0110.6 LP 10 Pages 21-23

AUTHOR:	PJM
SOURCE:	BANK - Modified Y - HO

DISTRACTER EXPLANATION:
A. A leak in the CCW heat exchanger would result in a leak out of the CCW system due to service water being at a lower pressure than CCW. VCT level would be steady.
B. A leak in the letdown heat exchanger would result in a leak into the CCW system.
C. A leak in the RHR heat exchanger would result in a leak out of the CCW system due to RHR pressure being lower than CCW pressure. VCT level would be steady.
D. A leak in the seal water heat exchanger would result in a leak out of the CCW system due to the seal water return pressure being less than CCW pressure. The water leaking out of the CCW system would be leaking into the CVCS system causing an increase in VCT level.

RO Outline #10

COURSE:

QUESTION NO: 1 POINTS: 1.00

0110100H01A

The plant is in Mode 4 with both trains of RHR lined up for RCS cooldown.

Which of the following would be an indication of a leak in the Seal Water Heat Exchanger?

A. Increasing CCW surge tank level

B. RCS dilution

C. Increasing VCT makeup frequency

D. RCP seal injection temperature increasing

ANSWER:
B. RCS dilution

QUESTION #96

The plant is in MODE 2 commencing warmup of the main turbine.

Which ONE of the following could be a direct result of a loss of Vital AC Instrument Bus NN02.

A. Charging Pump Suction Swaps to the RWST.

B. Source Range Hi Flux Reactor Trip.

C. Intermediate Range High Flux Reactor Trip.

D. Idle Component Cooling Water Pump Start.

ANSWER:

C. Intermediate Range High Flux Reactor Trip.

K/A #:	057AA219 4.0/4.3
KA DESCRIPTION:	Auto Actions on Loss of NN02

OBJECTIVE #:	003B450A
REFERENCES:	OTO-NN-00001
	IPE-Flooding

AUTHOR:	FXB
SOURCE:	BANK Modified Y - L

DISTRACTER EXPLANATION:

A. NN01 or NN04

B. Source Range High Flux Trip Blocked

C. NN01 or NN04

RO Outline #57

COURSE:

QUESTION NO: 1 POINTS: 1.00

003B450A01A

Reactor power is 100% with no Technical Specification action requirements being tracked. The 'A' CCP is in service with 120 gpm letdown. The yellow train ESFAS status panel audible alarm is received, and the RO immediately recognizes that the CCP suction has shifted from the VCT to the RWST.

Which one of the following could be the cause of the CCP suction swapover to the RWST?

A. Flux doubling sensed by flux doubling circuit

B. A 20 gpm leak in the charging header downstream of FCV-121

C. Loss of power to instrument bus NN04

D. Failure of divert valve (112A) to open on high VCT level

ANSWER:

C. Loss of power to instrument bus NN04

QUESTION #99

FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, is in progress due to a steam leak which has been isolated.

Which ONE of the following conditions is acceptable using Attachment 7 for RCS Post-Soak Cooldown Limitations during recovery from the PTS condition ?

A. RCS cold legs = 200°F. RCS wide range pressure = 0 psig.

B. RCS cold legs = 250°F. RCS wide range pressure = 300 psig

C. RCS cold legs = 300°F. RCS wide range pressure = 400 psig.

D. RCS cold legs = 400°F. RCS wide range pressure = 300 psig.

ANSWER:

C. RCS cold legs = 300°F. RCS wide range pressure = 400 psig.

K/A #:	E08EA1.3 3.6/4.0
KA DESCRIPTION:	RCS Post-Soak C/D Limits Following PTS

OBJECTIVE #:	003D28OE
REFERENCES:	FR-P.1 Att. 7

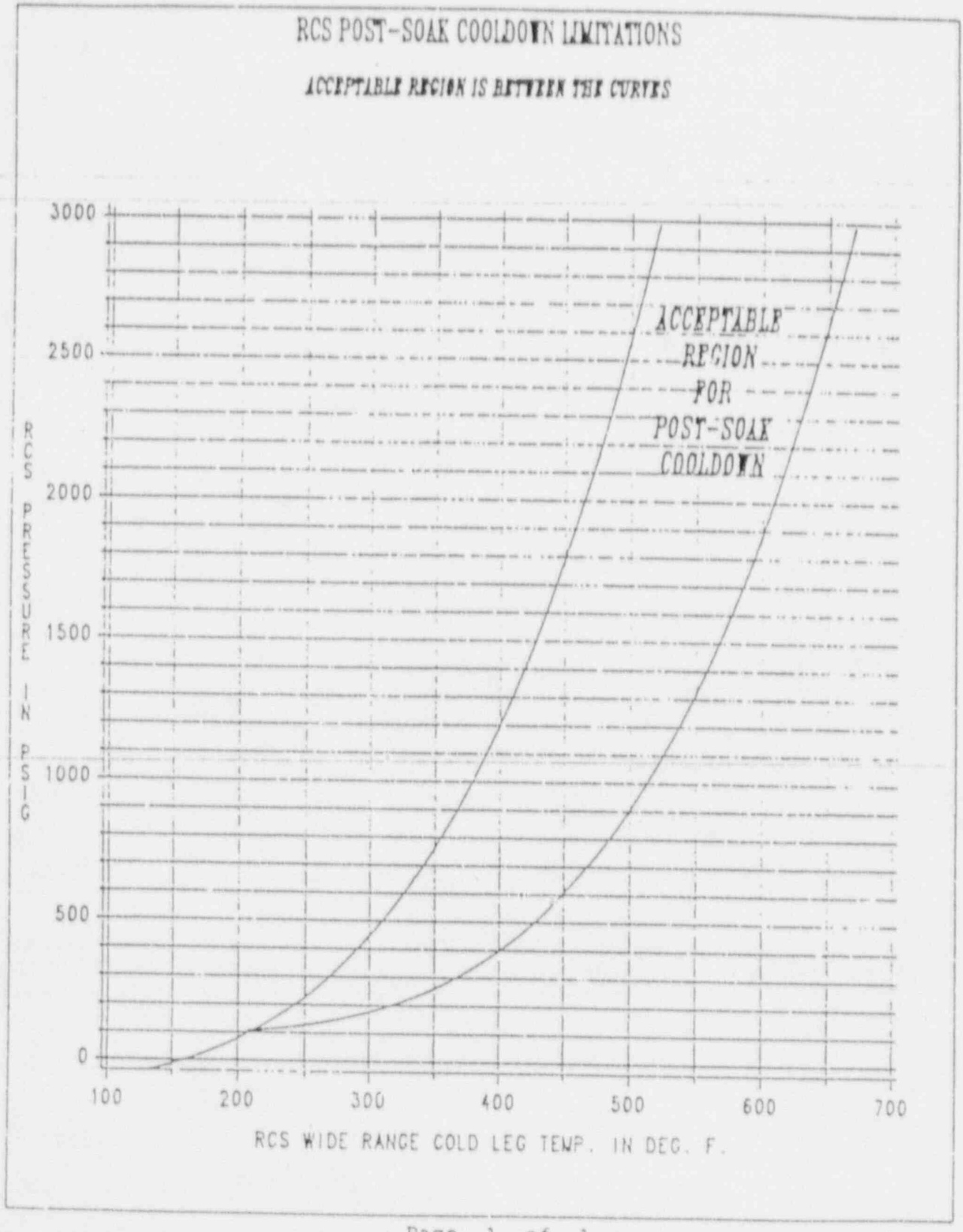
AUTHOR:	PJM
SOURCE:	BANK - Modified Y - HO

DISTRACTER EXPLANATION:

A. Outside the allowed band.
B. Outside the allowed band.
C. Correct.
D. Outside the allowed band.

RO Outline #73

RCS POST-SOAK COOLDOWN LIMITATIONS CURVE



COURSE:

QUESTION NO: 1 POINTS: 1.00

003D280E01A

The plant has experienced a small break LOCA. An orange path on the integrity status trees directs the operators to FR-P.1, Response to Imminent Pressurizer Thermal Shock Condition. All steps of FR-P.1 are completed and it is determined that a soak is required.

Which ONE of the following evolutions could be performed during the soak?

A. Lower pressurizer level

B. Raise steam generator levels by increasing feed

C. Energize pressurizer heaters

D. Start a reactor coolant pump

ANSWER:

A. Lower pressurizer level

Question Breakdown:

New	67
Exam Bank – Modified	12
Exam Bank – Not Modified	21
Higher Order	56

CHIEF EXAMINER RO WRITTEN EXAM COMMENTS - CALLAWAY 6/27/97

Question #	Comment
1	KA reference should be 013K113 vice 103K113. Resolution: Incorporated.
5	None of the choices fully answer the question correctly. Answer A does not address the status of N36. Distractor B appears implausible in that most individuals would not presume that an indicator reading on low stop is operable. The same logic also applies to distractor C. Develop a better answer and distractors or replace. Resolution: Replaced question.
6	In the stem the term upon completion of emergency procedure guidance is too vague. Distractor A is implausible in the context of the question in that it is infeasible that cold shutdown would have been reached as the result of a spurious safety injection. Justify why the applicant is required to know this from memory. Resolution: Changed distractors. Supported by facility learning objective.
10	It is not clear what distractor C is stating, i.e., movement of what? Resolution: Changed distractor.
11	Why is the applicant required to know this from memory? Resolution: Facility learning objective.
16	It should be stated in the stem that there are no other abnormal plant parameters. Resolution: Incorporated.
17	It appears that all choices are correct in that they all contain possible sources of leakage into the PRT. Reword to solicit the desired answer. Resolution: Reworded.
20.	It appears that distractors B and D are essentially the same depending on whether service water or essential service water is lined up to the CCW heat exchanger. These distractors should be unique and only the normal lineup should be assumed. Resolution: Changed distractor D.
32.	KA reference should be 2.3.1 vice 2.3.2. Resolution: Incorporated.
34.	Distractor A also appears to be a correct answer in that the instrument air compressors apparently stop on the blackout load shed. Resolution: No change. Air compressor C does not stop on blackout load shed.
66.	TS 3.1.1.4 requires action within 15 minutes to avoid violating Technical Specification, while the given answer states 1 hour. There is no correct choice. Resolution: Changed answer.
93.	Distractor C could also be considered a correct answer, i.e., 10.3 minutes is approximately 9 minutes. Redo distractors to clearly indicate one correct answer. Resolution: Reworded distractors.

CHIEF EXAMINER RO EXAM DIFFICULTY ANALYIS - CALLAWAY 6/27/97

Legend:

L - Level of knowlege required
K - Fundamental knowledge only
D - Overall difficulty of question on a scale of 1 to 5, with 5 being the most difficult
A - Knowledge at the comprehension/analysis level
C - "X" indicates a chief examiner comment exists

Question	L/D	C?	Question	L/D	C?	Question	L/D	C?
1	K/3	X	35	K/3		69	A/3	
2	A/3		36	A/3		70	A/3	
3	A/3.5		37	K/3		71	A/3	
4	K/2.5		38	A/3.5		72	K/3	
5	K/1.5	X	39	A/3		73	K/3	
6	K/3	X	40	A/3		74	A/3	
7	A/3		41	A/3		75	A/3	
8	K/3		42	A/3		76	K/3	
9	K/3		43	A/3		77	A/3	
10	K/3	X	44	A/3		78	A/3	
11	K/3	X	45	K/2.5		79	A/3	
12	A/3		46	K/2.5		80	A/3	
13	A/3.5		47	A/4		81	K/3	
14	K/3		48	K/3		82	K/3	
15	A/3		49	K/2.5		83	A/3	
16	A/4	X	50	A/3		84	A/3	
17	K/3	X	51	A/4		85	K/3	
18	K/2		52	K/3		86	K/3	
19	K/2.5		53	K/3		87	K/3	
20	A/3	X	54	A/2.5		88	A/3	
21	A/3		55	A/3		89	A/3	
22	A/3.5		56	A/3		90	K/3	
23	A/4		57	K/3		91	A/3	
24	K/4		58	A/3		92	K/3	
25	K/3		59	K/2.5		93	A/4	X
26	A/3		60	A/3		94	A/3	
27	A/3		61	A/3		95	A/4	
28	K/3		62	K/2.5		96	A/4	
29	A/3		63	A/3		97	A/3	
30	A/4		64	A/3		98	K/3	
31	K/3		65	A/3.5		99	A/2	
32	K/2	X	66	K/3	X	100	K/2	
33	K/3		67	A/3				
34	A/3	X	68	A/3.5		A = 58	D_{avg} =	3.03