U.S. NUCLEAR REGULATORY COMMISSION
REGION I

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LICENSEE	Niagara Mohawk Power Corporation 301 Plainfield Road Syracuse, NY 13212
FACILITY	Nine Mile Point, Unit 2
EXAMINATION DATES	May 11-21, 1992
EXAMINERS	R. Conte, Chief, BWR Section A. Burritt, Operations Engineer R. Miller, Examiner, Sonalyst M. Daniels, Examiner, Sonalyst

CHIEF EXAMINER

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APPROVED BY

7/7/92

Richard J. Conte, Chief — Date
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EXAMINATION SUMMARY

Initial examinations were administered to four reactor operator, seven senior reactor operator, and three limited senior reactor operator candidates. Twelve of the candidates passed all portions of the examinations, while two reactor operator candidates failed the written portion of the exam.

One individual was reexamined on the walk-through portion of a requalification examination during the first exam week. He passed his reexamination.

The reference material initially provided to the NRC for examinations preparation was incomplete. It was supplemented by five additional mailings. In some cases, the learning objectives in the lesson plans did not relate to job tasks.

Eligibility requirements for reactor operator candidates were confused. The facility used NUREG-1021 as a guide and was not fully aware of the requirements specified in the technical specifications.

An examination preparation week was used to validate JPMs, simulator scenarios, and review the written exams. It was helpful in making the examination run smoother.

Control room communication was not very effective because of chain of command problems when the crew became busy dealing with simulator scenario events. This chain of command also places the CSO (an RO) at risk of directing the licensed activities of other ROs.

A number of procedure deficiencies were noted during the examination process. These were discussed with the facility; and, in many cases, efforts were already underway to correct the deficiencies.

DETAILS

1.0 INTRODUCTION

Initial NRC examinations were given to fourteen operator candidates (4 ROs, 7 SROIs, and 3 LSROs). The examinations were administered in accordance with NUREG-1021, Examiner Standards, Revision 6. The examiners travelled to the site two weeks before the exam to allow facility review of the written exams and to validate the JPMs and simulator scenarios. The results of the examination are summarized below:

	RO Pass/Fail	SRO Pass/Fail	LSRO Pass/Fail
Written	2/2	7/0	3/0
Operating	4/0	7/0	3/0
Overall	2/2	7/0	3/0

Also, a reactor operator was administered a requalification retake examination for the walkthrough (Job Performance Measure) portion only. He passed the retake exam.

2.0 EXAMINATION-RELATED FINDINGS AND CONCLUSIONS

2.1 Preexamination Activities

During the process of application review and after discussions with the facility, it became clear that eligibility requirements for reactor and senior reactor operator candidates were not defined by the facility. Facility criteria are given in NTP-TQS-101, "Training of Licensed Operator Candidates," Revision 00, dated 3/19/92, which specify that candidates shall comply with 10 CFR 55 and should comply with Section ES-202 of NUREG-1021. No mention is made of requirements described in the FSAR or Technical Specifications. Section 6.3 of the NMP-2 Technical Specifications requires SRO applicants to have one year RO experience as specified in the H.R. Denton letter of March 28, 1980. An apparent conflict exists between the NRC staff position as reflected in NUREG-1021 and the facility's Technical Specifications. Region I requested and received guidance from NRC Headquarters on the eligibility requirements. NRC Headquarters concluded that NUREG-0737 clarified the Denton letter requirements and allowed facility licensees to substitute other experience and education for the one year of RO experience. Niagara Mohawk had reached a similar conclusion when eligibility was challenged by the examiner.

The reference material originally sent to NRC for examination preparation was missing much material. Important lesson plans, procedures, and figures were missing. Niagara Mohawk Corporation letters of February 17, 27, and March 6, 17, and 25 provided most of the missing information.

Even with the missing reference material supplied, the examiners still had a difficult time generating operationally oriented exam questions because of the lack of detail in the reference material. Also, in a number of cases, there appeared to be no relationship between the job task and learning objective. There were two sets of different learning objectives (LOs) for lesson plans for the Transversing In-core Probe System, High Pressure Core Spray System, Low Pressure Core Spray System, Control Rod Drive Hydraulic System, and Residual Heat Removal System. In addition, Operations Technology Chapters had different learning objectives. Many learning objectives did not have standards of performance the trainee should achieve, as noted for learning objectives for: Control Rod Hydraulic System Terminal Objectives (TO-18) and Automatic Depressurization System (TO-4).

In addition, there were learning objectives associated with "immediate operator actions," but no procedural guidance.

Overall, the reference materials were deficient in providing information to allow analysis or prediction of system response to equipment malfunctions.

A week was spent on site making final preparations for the examination. Three written exams were reviewed by the facility. Their comments were incorporated into the exams. After the review, it was agreed that the exams were both challenging and fair. JPMs were walked down and validated. The simulator scenarios were validated. At the end of the week, the examiners met with the candidates to discuss the exam process and answer the candidates' questions.

2.2 Written Examination

Based upon an analysis of written exam results, there is a general weakness in the ability of the candidates to predict plant or system response to equipment failures. Section 2.1 addresses a weakness in training materials in this area. This weakness was stronger among the reactor operator candidates. Thirteen questions dealing with system response were missed by 50% or more of the ROs. No one system was identified as the cause of this weakness.

2.3 Walk-through Examination (JPM)

No generic strengths or weaknesses were noted. However, poor human factored procedures caused some problems which are discussed in more detail in Section 2.2.5.

2.4 Simulator Examination

Strengths

- The SSS was good at giving plant status reports
- RO knowledge and use of technical specifications was strong
- Crew members (RO/SRO) demonstrated a questioning attitude and provided help to each other in a constructive manner
- Control board awareness was excellent

Weaknesses

- The crew (SSS/CSO) failed to call the STA to the control room to aid in handling events or emergencies
- The CSO (an RO) directed the licensed activities of the E operator (also an RO) on several occasions without guidance from the SSS. On one occasion, a scram was directed; and, in another case, a control rod insertion was directed.
- The flow of information from the SSS through the CSO to the E operator is awkward, at best, during normal operation, and becomes more ineffective as you proceed from normal to abnormal operation. The possibility of making an error in communication is greater when more people are involved and the environment gets busy and noisy.

Additional comments are included in the Simulator Fidelity Report attached to this report.

2.5 Procedure Deficiencies

The examiners noted that some procedures did not cover normally expected events or actions. For example, instructions for placing a failed trip channel in the tripped position or actions to take when a half-scram does not function were not given. This led to inconsistent performance during the exam and could lead to someone missing an important action.

The examiners determined that, for a certain sequence of events, RHR pump runout could occur. There is no interlock or procedural requirement which prevents simultaneous drywell spray and LPCI injection on the same loop of RHR if drywell spray is initiated prior to the injection valve receiving the DP permissive to open. The licensee initiated actions to provide procedural guidance to correct this potential problem while the examiners were on site.

In the simulator at Panel 603, the Alarm Response Procedure notebook contained a procedure for responding to an LPRM upscale alarm (603205) which was out-of-date. The notebook contained a procedure from N2-OP-92 dated August 1992 and referred to N2-PM-@07; whereas, the current revision of OP-92 was dated December 1992 and referred to NMS-@005.

Event based abnormal/emergency procedures lack attributes specified in Regulatory Guide 1.33 (2/78) as committed to in FSAR Chapter 17 and Technical Specifications 6.8. Symptoms and automatic actions are not listed in the procedures. There is no distinction between immediate and subsequent operator actions. This issue was also addressed in NUREG-1455, Transformer Failure and Common-Mode Loss of Instrument Power at Nine Mile Point Unit 2 on August 13, 1991, and is considered unresolved (410/92-06-01). Also, some events that are normally addressed by procedure are not covered. For example:

Station blackout (licensee pursuing)
Loss of jet pump

The alarm response procedure ADS/SRV leaking (601537) alarm setpoint of 334°F is too high.

2.6 Requalification Examination Retake

The requalification retake examination used JPMs from the facility JPM bank. No problems were noted during this exam.

2.7 Summary

- Fourteen candidates were given initial NRC exams. Twelve candidates passed all portions of the exam, while two candidates failed the written portion of the exam.

- Eligibility requirements for reactor operator candidates were confused. The facility used NUREG-1021 as a guide and was not fully aware of the requirements specified in the Technical Specification (section 2.1).

- The reference material provided to the NRC for examinations preparation was incomplete. It also lacked the detail required for generation of an operationally oriented exam (section 2.1).

- The training materials had a number of weaknesses. The material was not all included in the initial submittal. It lacked detail and learning objectives did not always match job tasks. Also, many learning objectives did not have standards of performance stated in them (section 2.1).

- Candidates' inability to predict plant or system response to failures was a weakness noted from an analysis of the written exam. This could be related to the weakness noted in the lack of detail in the training material. The RO candidates were weaker than the SROs and in this area (section 2.2).

- The simulator examination uncovered a weakness in the control room organization. Communications were ineffective at times of high activity, and the CSO (RO) was placed at risk of directing other RO licensed activities (section 2.4).

- A number of procedural deficiencies were noted by the examiners (section 2.5).

3.0 EXIT MEETING

An exit meeting was conducted in May 21, 1992. Generic findings regarding the candidates' performance on the operating portion of the exam was discussed. Attendees at this meeting are listed in Attachment 5.

Attachment 1 SRA

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Operator Licensing
Examination

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date of examination.

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: ______________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: 92/05/11

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%	
~~100.00~~ 97.00	______	___ %	TOTALS
	FINAL GRADE		

All work done on this examination is my own. I have neither given nor received aid.

____
Candidate's Signature

QUESTION: 001 (1.00)

Assuming a selected, coupled rod is initially at position 48, which ONE of the following describes the response of CRD drive flow and rod position indication when performing a control rod drive coupling check?

a. Drive flow drops from normal flow to stall flow; the position "48" and FULL OUT light go out, then reappear.

b. Drive flow increases from normal flow to stall flow; the position "48" and FULL OUT light remain illuminated.

c. Drive flow drops from normal flow to stall flow: the CRD OVERTRAVEL alarm illuminates, then clears.

d. Drive flow decreases from normal flow to no flow (0 gpm); the FULL OUT light remains lit and the position "48" goes blank then reappears.

QUESTION: 002 (1.00)

A plant startup is in progress, the mode switch is in startup with Rx power in the source range. This is the first startup following a Refueling outage and the RPS shorting links are removed. Select the condition below that will <u>NOT</u> result in a full reactor scram

a. Loss of the "B" RPS bus

b. SRM channel "A" reading 1.5 x 10E5 cps

c. Less than 12 LPRM inputs to the "A" APRM

d. Loss of 24/48 VDC panel 2BWS-PNL300A

QUESTION: 003 (1.00)

A plant startup is in progress SRM /IRM overlap checks have recently been completed satisfactorily. The RO withdraws A and B IRMs for 10 seconds while attempting to withdraw SRMs. All IRM ranges and the instrument indications are as follows:

SRM "A"	2.7 x 10E4	SRM "B"	9.5 x 10E3
SRM "C"	9.2 x 10E1	SRM "D"	8.7 x 10E1
IRM "A"	45 (range 4)	IRM "B"	34 (range 3)
IRM "C"	75 (range 4)	IRM "D"	Bypassed
IRM "E"	Bypassed	IRM "F"	98 (range 4)
IRM "G"	65 (range 4)	IRM "H"	57 (range 4)

Select the expected system response for the conditions described above.

a. No automatic actions occur

b. Rod block, initiated from IRMs only

c. Rod block, initiated from SRMs only

d. Rod block, initiated from both SRMs and IRMs

QUESTION: 004 (1.00)

The reactor is operating at 100%.

The value of the A recirculation flow signal is 99%
The value of the B recirculation flow signal is 100%
Recirculation flow unit C bypassed on control room panel P603.
The value of the D recirculation flow signal is 101%

A component in recirculation flow unit B fails resulting in a recirculation B flow signal of 110%. SELECT the expected system response.

a. Upscale trip of the B flow unit and comparator trips of the A and B flow unit. No effect on the D flow unit. No scram signals generated.

b. Comparator trips of the A and B flow units, no flow unit upscale trip. No scram signals generated

c. Upscale trip of the B flow unit and a comparator of the D flow unit. Upscale thermal trip of APRMs B, D, & F; RPS B half scram.

d. Upscale trip of the B flow unit and comparator trips of the B flow unit. No effect on the A and D flow units. No scram signals generated.

QUESTION: 005 (1.00)

A loss of high pressure feed systems has resulted in the following conditions:

All rods are inserted
MSIVs are shut
RPV pressure 1149 to 1048 psig (2 SRVs cycling)
RPV level minus 14" decreasing
Loss of all Division 1 Emergency 125 VDC
(no Div 1 ECCS pumps operating)
C RHR pump out of service for maintenance
B RHR pump aligned for injection running at minimum flow
B condensate pump is running aligned for injection
ADS logic inhibit switches are in the ON position

Select the action listed below which will <u>NOT</u> result in an ADS valve opening

a. Place the ADS logic inhibit switches to OFF and the 105 second timer times out

b. Place the ADS valve key lock switches at P628 and P631 in the open position

c. Place the SRV key lock switches at P601 for the ADS valves in the open position

d. Arm and depress the ADS manual initiation pushbuttons

QUESTION: 006 (1.00)

The plant is operating at 100% power, Reactor Recirculation Flow Control system is in Flux Auto (Master Manual) control with the flux estimator bypass switch in operate. Which ONE of the following statements describes system response and the reason if the C APRM fails downscale?

a. FCV starts to open, limited by the 102.5% drive flow limiter

b. FCV remains as is, APRM input automatically switches to E APRM

c. FCV starts to open, limited by the 20% error limiter.

d. FCV remains as is, Flux controller shifts to manual.

QUESTION: 007 (1.00)

A RPV level transient occurred resulting in a Rx scram. HPCS automatically initiated to maintain RPV level. The HPCS initiation logic was subsequently reset and RPV water level continues to increase to 205". Select the HPCS system response?

a. HPCS pump will continue to run and inject.

b. HPCS pump will trip and the injection valve MOV107 will close.

c. HPCS pump will trip and the injection valve MOV107 remains open.

d. HPCS pump will continue to run and the injection valve MOV107 will close.

QUESTION: 008 (1.00)

The Rx is operating at 100% power when a condensate booster pump minimum flow valve fails open. The transient causes a RPV low level alarm and feed pump suction pressure to decrease to 180 psig for one minute. Select the system response that will <u>NOT</u> occur

a. Auto start of the standby condensate booster pump

b. Feedwater flow limiter logic engaged

c. Recirc flow control valve runback

d. Operating feed pumps trip

QUESTION: 009 (1.00)

The Rx operating at 100% power with Feed Water Control (FWC) in automatic, 3-element control. If the selected FWC level input channel fails downscale, which ONE of the following describes the expected plant response?

a. RPV water level will decrease, and the reactor will scram on low water level.

b. RPV water level will increase to the high level trip setpoint for the main turbine and the Rx will scram due to the turbine trip.

c. The instrument failure will generate a 1/2 scram signal, RPV level will increase resulting in a trip of all operating feed pumps and subsequent RPV low level full scram.

d. Reactor water level will increase and stabilize when equilibrium is reached between sensed level error and flow error signals.

QUESTION: 010 (1.00)

Which of the following describe a potential effect of placing the Rx recirc flow control valves below minimum position when shifting Rx recirc pumps to fast speed?

a. Flow control valve cavitation

b. Rx recirc pump trip

c. Rx recirc pump overheating

d. FLow control valve hydraulic lock

QUESTION: 011 (1.00)

An ATWS event was initiated 9 minutes ago, RRCS automatically initiated on high Rx pressure causing both SLC pumps to start and inject into the RPV. Subsequently all rods have been inserted and the SSS directs the Operator to secure SLC. Select the statement that describes the ability to terminate SLC injection.

a. SLC can not be secured following automatic initiation, the SLC pumps will trip on low boron storage tank level

b. Reset the RRCS logic and both SLC pumps will automatically shutdown

c. SLC pumps can not secured until the RRCS reset timer times out.

d. Place each pumps key lock control switch on P601 in the stop position and the pumps will stop.

QUESTION: 012 (1.00)

A fire in the control room required the control room to be abandoned. The Rx is shutdown, all control room evacuation actions are complete and control is established at the remote shutdown panel. Conditions are as follows:

All remote transfer switches are in the emergency position
All Appendix R disconnect switches activated
RHR initiated prior to switches being repositioned
RPV level 17" decreasing slowly (no systems injecting)
RPV pressure 905 psig and increasing slowly

Select the affect on Rx pressure and the automatic system response if no further operator actions are taken.

a. Rx pressure will decrease rapidly following an ADS automatic blowdown.

b. Rx pressure will increase until 935 psig when the bypass valves open.

c. Rx pressure will increase to 1148 psig when two SRVs open.

d. Rx pressure will increase until 1076 psig when two SRVs open.

QUESTION: 013 (1.00)

All RHR system remote transfer switches are in the emergency position and all Appendix R disconnect switches activated. Select the automatic response of the RHR injection valve MOV24A following a LOCA initiation signal.

a. The valve will not open

b. The valve will open when D/P is less than 130 psid

c. The valve will open immediately regardless of D/P

d. The valve will open following manual start of the RHR pump when D/P is less than 130 psid

QUESTION: 014 (1.00)

The plant is operating at 80% Rx power when the EHC pressure regulator fails high (pressure indicator upscale). Select the expected plant response.

a. EHC shifts to the standby regulator and will control Rx pressure 10 psi higher

b. Main Turbine control and bypass valves will shut resulting in a high pressure Rx scram

c. Recirc pumps will shift to slow on low steam dome/pump suction interlock and a lower steady state power will be established

d. Turbine Bypass valves will open and reduce Rx pressure resulting in an MSIV isolation

QUESTION: 015 (1.00)

The SGTS trains automatically initiated following a plant transient that resulted in RPV level of 100". The "A" SGTS train was shutdown with the control switch returned to auto, RPV level is 52" and increasing. Which of the following will cause a "A" SGTS to automatically restart.

a. Any additional SGTS auto start signal

b. "A" SGTS charcoal adsorber temperature HI/HI

c. Rx Bldg negative differential pressure low (-0.2" WG)

d. "B" SGTS low flow (time delayed)

QUESTION: 016 (1.00)

The plant is operating at 89% Rx power when the "LPCS LINE BREAK" annunciator alarms. SELECT the condition that could have caused this alarm.

a. LPCS line break inside the core shroud prior to the spray sparger

b. "A" LPCI line break between the RPV and the core shroud

c. "A" LPCI line break inside the core shroud

d. Any line break between LPCS and "A" LPCI outside the containment

QUESTION: 017 (1.00)

SELECT the signal which will trip the Division 3 Emergency Diesel Generator following a LOCA automatic initiation.

a. Low lube oil pressure

b. Generator overcurrent

c. Generator reverse power

d. Engine overcrank

QUESTION: 018 (1.00)

The Division 3 HPCS Diesel Generator (DG) is running in parallel with offsite power for surveillance testing, when a loss of offsite power occurs. Select the expected DG response.

a. The offsite feeder breakers trip, the DG voltage regulator shifts to isochronous mode and all trips remain in affect.

b. The DG output breaker and the offsite feeder breakers trip and then DG output breaker re-closes. The DG voltage regulator remains in droop and only the emergency mode trips are in affect

c. The offsite feeder breakers trip, the DG voltage regulator remains in droop and all trips remain in affect.

d. The offsite feeder breakers trip, the DG voltage regulator remains in droop mode, and only the DG emergency mode trips are in affect.

QUESTION: 019 (1.00)

A small steam leak has resulted in an automatic RCIC initiation on low RPV level. Drywell pressure is 3.0 psig increasing, SELECT the RCIC trip or isolation that allows RCIC restart from the control room when the trip or isolation is cleared.

a. High turbine exhaust pressure

b. Low pump suction pressure

c. High reactor vessel level

d. Steam line high flow

QUESTION: 020 (1.00)

At 85% Rx power the APRM calibration section of the OD-3 Printout provided the following results:

APRM	1	2	3	4	5	6
READING	84.7	83.8	85.0	85.0	85.3	84.7
AGAF	1.015	1.206	1.001	0.985	0.970	1.019

WHICH ONE the following identifies ALL the APRMs that require adjustment?

a. APRM 4 and APRM 5

b. APRM 2 and APRM 5 and APRM 6

c. APRM 2 and APRM 5

d. APRM 1 and APRM 2 and APRM 3 and APRM 6

QUESTION: 021 (1.00)

Given the following conditions:

- Drywell bulk temperature readings are 360 degrees F
- Reactor pressure is 160 psig
- RPV water level indication is 155 inches.
- No Secondary Containment Control entry conditions

Using the attached Caution and Figure RPV-1 (figure 2), WHICH ONE of the following states the instrument(s), if any, that can be used to determine RPV water level?

a. Narrow range, and Fuel Zone

b. Wide range and Fuel zone

c. Narrow range and wide range

d. No instruments can be used to determine RPV water level

QUESTION: 022 (1.00)

The plant is operating with the following initial conditions:

- Reactor Power = 23%
- Generator Output = 23%
- Reactor Pressure = 944 psig
- Pressure Setpoint = 935 psig
- Turbine RPM = 1800
- Load Limit = 100%
- Maximum Combined Flow = 115%

A complete loss of generator load occurs. SELECT the correct plant response from the following (Assume no switchyard malfunctions):

a. No turbine trip and no reactor scram

b. No turbine trip but reactor scram

c. Turbine trip but no reactor scram

d. Turbine trip and reactor scram

QUESTION: 023 (1.00)

The plant has scrammed due to high drywell pressure. "A" RHR pump is aligned for suppression pool spray and drywell spray. Select the response of the "A" RHR system when reactor pressure drops from 600 psig to 300 psig. (Assume DW pressure remains higher than the scram setpoint and MOV24A has not been overridden.)

a. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A CLOSE.
   - LPCI injection valve MOV24A OPENS.

b. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A remains OPEN
   - LPCI injection valve MOV24A OPENS.

c. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A remain OPEN
   - LPCI injection valve MOV24A remains CLOSED.

d. - Suppression pool spray valve MOV33A remains OPEN.
   - Drywell spray valves MOV15A and MOV25A CLOSE.
   - LPCI injection valve MOV24A OPENS.

QUESTION: 024 (1.00)

The plant is operating at 100% reactor power. A single control rod scram occurs for control rod #30-31. Select the response indicated on the full core display.

a. - The blue scram light is illuminated.
 - The amber HCU accumulator trouble light is illuminated.
 - The red rod drift light is illuminated.

b. - The blue scram light is illuminated.
 - The red HCU accumulator trouble light is illuminated.
 - The amber rod drift light is illuminated.

c. - The amber scram light is illuminated.
 - The green full-in light is illuminated.
 - The red rod drift light is illuminated.

d. - The red scram light is illuminated.
 - The amber HCU accumulator trouble light is illuminated.
 - The green full-in light is illuminated.

QUESTION: 025 (1.00)

The plant is at 100% reactor power when a complete loss of Division 2 Emergency 125 VDC occurs. Which one of the following correctly describes a resultant effect on the unit.

a. Division 2 EOC-RPT trip resulting in loss of the "B" Recirc pump.

b. Division 2 ARI valves fail open resulting in a Rx scram

c. "A" and "B" Rx recirc pumps trip.

d. RCIC automatic initiation is inoperable but RCIC can still be manually started from the control room.

QUESTION: 026 (1.00)

SELECT the rod sequence control system enforced restrictions while withdrawing control rods to 50% rod density.

a. RSCS Group 1 must be the first group of control rods to be withdrawn to position 48. Continuous notch withdrawal to position 48 is permitted.

b. With RSCS Group 1 fully withdrawn to position 48, the second group to be moved must be RSCS Group 2. Notch withdrawal is enforced between notch positions 00 and 12.

c. With RSCS Groups 1 and 2 fully withdrawn to position 48, RSCS Group 4 can be withdrawn to position 48. Continuous notch withdrawal to position 48 is permitted.

d. With RSCS Groups 1 and 2 and 3 fully withdrawn to position 48, RSCS Group 4 control rods must be banked to notch position 04, with notch withdrawal enforced, prior to continuing with control rod movement.

QUESTION: 027 (1.00)

The plant is operating at 100% Rx power when the CRD flow control valve failed open resulting in multiple rods drifting. The problem was corrected and all rods have settled into a valid position. Select the correct statement concerning identification of the drifting rods using the RWM.

a. The RWM will automatically shift screens and list the number of rods drifting and all the identities.

b. The Rod Drift soft key must be depressed to determine how many rods are drifting and only the identity of the first rod to drift can be determined.

c. The Rod Drift soft key must be used to determine the number of rods drifting and by pressing the List Rods button a dynamic update of all rods drifting is displayed

d. The RWM will automatically shift screens and list the number of rods drifting, pressing the List Rods button will display all drifting rod identities

QUESTION: 028 (1.00)

Procedure N2-OP-29 "Reactor Recirculation system" requires that the operating loop flow rate to be less than 50% of rated jet pump flow prior to starting an idle Rx Recirc pump. SELECT the basis for this precaution

a. Prevent excessive core internals vibration when starting the idle Rx Recirc pump

b. Prevent jet pump cavitation when starting the idle Rx Recirc pump

c. Prevent a cold water induced power excursion from causing core instabilities when starting the idle Rx Recirc pump

d. Prevent undue thermal stress on vessel nozzles when starting the idle Rx Recirc pump

QUESTION: 029 (1.00)

A steam leak results in a Rx Bldg Radioactive Pipe Chase temperature of 180 F. Select the one statement that includes ALL appropriate system responses.

a. RWCU isolates

b. RWCU, RCIC and RHR shutdown cooling isolation

c. RCIC and RHR shutdown cooling isolation

d. RCIC isolation

QUESTION: 030 (1.00)

During a radioactive waste discharge, "EFFLUENT LIQUID RAD MON ACTIVATED" alarms and the Waste Discharge valve 2LWS-AOV142 isolates. Select the process rad monitor that caused this response.

a. SWP DISCHARGE DIV 2 (2SWP-RE146B)

b. CWS BLOWDOWN LINE (2CWS-RE157)

c. LIQ. RADWASTE EFFL. (2LWS-RE206)

d. RHS HX SWP DIV 1 (2SWP-RE23A)

QUESTION: 031 (1.00)

During surveillance testing of the Radiation Monitoring system the division 1 control room intake radiation elements (RE18A and RE18C) were inadvertently denergized. Select the expected control building ventilation system response.

a. Special filter train 2HVC*FN2A starts and special filter bypass valve 2HCV*MOV1A isolates

b. Special filter train 2HVC*FN2A fails to start and 2HVC*FN2B starts on low flow (time delayed). Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

c. Special filter train 2HVC*FN2A and 2HVC*FN2B start. Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

d. Special filter train 2HVC*FN2A starts. Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

QUESTION: 032 (1.00)

The plant was operating at 35% Rx power when a RPV low level scram occurred due to a loss of the only operating Feedwater pump. WHICH ONE of the following describes the automatic actions that result from the subsequent Main Generator reverse power trip?

a. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses are denergized and locked out, Main Generator cooling system trips, Main transformer deluge receives a fire protection permissive.

b. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses fast transfer is blocked and a slow transfer to the reserve source is initiated, Main Generator and Exciter field breakers trip,

c. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses fast transfer to the reserve power source, Exciter field breaker trips, and the Main Transformer cooling system trips,

d. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses remain powered from the Normal Station Service Transformer, Main Generator field breaker trips, Main transformer deluge receives a fire protection permissive.

QUESTION: 033 (1.00)

The Residual Heat Removal system is in Shutdown Cooling (SDC) mode with pump B in service. Reactor water level begins decreasing and reaches 159 inches.

WHICH ONE of the following valves DOES <u>NOT</u> go closed:

a. SDC suction valve (MOV2B)

b. SDC isolation valve (MOV112)

c. SDC return bypass valve (MOV67B)

d. SDC return valve (MOV40B)

QUESTION: 034 (1.00)

In response to a steam leak in the drywell the "B" loop of RHR was placed in Drywell and suppression chamber spray simultaneously. Select the AUTOMATIC system response if any, when the high drywell pressure initiation subsequently clears.

a. Drywell spray isolates and suppression chamber spray continues

b. Drywell spray continues and suppression chamber spray isolates

c. Drywell and suppression chamber sprays isolate

d. Drywell and suppression chamber sprays continue

QUESTION: 035 (1.00)

SELECT the response of the Transversing Incore Probe (TIP) to a reactor scram in which RPV level decreases to 100 inches when one TIP detector is in the core. ASSUME the detector is being operated in the manual mode at the TIP control panel.

a. The TIP detector is automatically withdrawn from the core and when the detector has reached the "in-shield" position, the ball valve must be manually closed.

b. The TIP detector is automatically withdrawn from the core and when the detector has reached the "in-shield" position, the ball valve will automatically close.

c. The TIP detector will remain in the core and the shear valve will automatically operate.

d. The TIP detector remains in the manual mode and must be manually withdrawn from the core and isolated with the ball valve.

QUESTION: 036 (1.00)

During a refueling SELECT the SRMs that must be operable to perform core alterations for fuel assembly 30-41. See attached Figure 3.

a. SRM A and SRM C

b. SRM B and SRM D

c. SRM A and SRM D

d. ARM A and SRM B

QUESTION: 037 (1.00)

SELECT the Refueling Platform Interlock Status Display light that will <u>NOT</u> be illuminated for the following conditions:

- The mode switch is in the Refuel position
- The refueling platform is over the reactor
- A fuel bundle is on the main hoist
- A control rod is withdrawn

See attached figure 4

a. Rod Block Interlock No. 1

b. Fuel Hoist Interlock

c. Fault Lockout

d. Bridge Reverse Stop No. 1

QUESTION: 038 (1.00)

The plant is in a Refueling outage, "B" loop of RHR is in Shutdown cooling and most of the core off loaded for vessel internals work. A loss of off site power occurs and results in a "SPENT FUEL POOL WATER TEMP HIGH" alarm. Select the required actions to restore Spent Fuel Pool Cooling (SFPC) to clear the alarm. (Off site power will not be available for unknown amount of time)

a. Immediately start a SFPC pump, wait 60 seconds and start a RBCLCW pump.

b. Wait at least 60 seconds and start the SFPC pump, and then start a RBCLCW pump.

c. Wait at least 60 seconds and start the SFPC pump, align service water to the SFPC heat exchanger.

d. Place the "A" loop of RHR that is not in Shutdown cooling in the Fuel pool cooling mode of operation.

QUESTION: 039 (1.00)

Which ONE of the following is the technical specification basis for the IRM scram signal?

a. Limits potential of fission product release.

b. Minimizes possibility of fuel damage and reduces amount of energy being added to the coolant.

c. Protects against local control rod errors and continuous in sequence control rod withdrawal.

d. Insures adequate thermal margin between the setpoint and safety limits.

QUESTION: 040 (1.00)

An inadvertent reactivity addition occurs due to loss of feedwater heating. Select the thermal limit that is of concern during this event.

a. Minimum Critical Power Ratio (MCPR)

b. Linear Heat Generation Rate (LHGR)

c. Average Planar Linear Heat Generation Rate (APLHGR)

d. Maximum Average Planar Ratio (MAPRAT)

QUESTION: 041 (1.00)

A LOCA has occurred. Select the following condition that would NOT meet the criteria of providing "Adequate Core Cooling"?

a. RPV level -40" with no injection source

b. RPV level -48" with HPCS injecting

c. RPV pressure above the minimum alternate RPV flooding pressure when RPV level is unknown

d. RPV pressure above the minimum alternate RPV flooding pressure when the Rx is NOT shutdown

QUESTION: 042 (1.00)

Reactor pressure has been reduced to 470 psig and has been held at that pressure for 1 hour. DETERMINE the LOWEST reactor pressure that the reactor can be reduced to over the next 1 hour without exceeding the maximum technical specification allowable cooldown rate.

__________________ psig (FILL ANSWER ON ANSWER SHEET)

QUESTION: 043 (1.00)

The plant is operating at 60% power steady state when an inadvertent HPCS initiation occurs. Which of the following is a steady state indication of this transient.

a. APRM indications decrease

b. Core flow increases

c. Generator load (Megawatts) increase

d. Turbine inlet steam pressure decreases

QUESTION: 044 (1.00)

In accordance with N2-EOP-PC "Primary Containment Control," drywell sprays have been initiated at a suppression chamber pressure of 11 psig and a drywell temperature of 330°F. SELECT the condition and reason when drywell sprays are required to be terminated.

a. When drywell pressure decreases to the safe region of the of the Drywell Spray Initiation Curve (PC-2) terminate drywell sprays to restore the RHR pumps for adequate core cooling.

b. When suppression chamber pressure decreases to less than 10 psig (suppression chamber spray initiation pressure limit) to preclude cyclic condensation of steam at the downcomer openings of the drywell vents.

c. When drywell pressure decreases to less than the high drywell pressure entry condition terminate drywell sprays to prevent exceeding the negative design pressure of the primary containment.

d. When suppression pool level exceeds 217" to prevent exceeding Drywell to suppression chamber differential pressure limits

QUESTION: 045 (1.00)

The plant was operating at 100% power when a MSL high flow signal initiated an MSIV isolation and RX scram. Conditions are as follows:

RPV pressure cycling 1076 psig to 978 psig
RPV level 154"
Rx bldg pipe chase temperature 145 F
Main steam line pipe tunnel temperature 155 F

Which of the following systems are available for RPV pressure control?

1 SRVs

2 RHR in steam condensing

3 RCIC operating with suction from the CST

4 Main Steam line drains

a. 1

b. 1 and 2

c. 1 and 3

d. 1 and 4

QUESTION: 046 (1.00)

The plant is operating at 70% Rx power and a stator cooling high temperature condition occurs. Assume the high temperature condition does not clear and the only operator response is to reduce Recirc to 45% of rated core flow. Select the expected plant response.

a. A scram occurs on due to the resultant pressure transient.

b. The main generator runs back to 7006 stator amps and the turbine bypass valves open to maintain Rx pressure.

c. A scram occurs on TSV position more than 5% closed.

d. A scram occurs on low ETS pressure due to TCV fast acting solenoids energizing.

QUESTION: 047 (1.00)

A plant startup is in progress with Rx power at 19%. Select the condition(s) that require(s) a manual trip of the main turbine

a. Turbine vibration exceeding 8 mils and increasing

b. Condenser vacuum 25"

c. Differential condenser vacuum between an two condensers 1.5"

d. Loss of seal oil pressure and machine gas pressure of 25 psig

QUESTION: 048 (1.00)

Following a LOCA, the containment has been flooded to 299.5 feet. Which of the following concerns requires lowering this level?

a. Exceeding the containment design pressure due to the height of water in the containment

b. Exceeding the drywell floor design pressure due to the height of water in then drywell

c. The loss of a vent path to minimize and control radioactive releases

d. The loss of a vent path to control containment pressure

QUESTION: 049 (1.00)

A failure to scram has occurred and N2-EOP-RPV "RPV Control" is being performed. If SLC injection is required select the method of boron mixing in the core that will assure SLC can bring the Rx subcritical

a. Recirc pumps operating at minimum

b. Natural circulation

c. RCIC injection will establish a turbulent flow in the in-core region

d. CRD flow is maximized to prevent boron from settling in the bottom head region

QUESTION: 050 (1.00)

The plant was operating at 100% power when a turbine trip with a failure to scram resulted in a RRCS initiation and subsequent SLC injection. Select the conditions that will allow terminating and preventing further SLC injection.

a. All but one rod inserted to the maximum subcritical position

b. The Rx analyst determines that the Rx will remain shutdown under all conditions above 190 F coolant temperature

c. SLC tank level indicating 0 gallons with SLC pumps running

d. Boron hot shutdown weight injected and suppression pool level less than 110 F

QUESTION: 051 (1.00)

Procedure N2-EOP-RPV "RPV Control" requires pressure reduction to 960 psig if an SRV is cycling. Select the statement that is <u>NOT</u> a reason for this action

a. Reduce fluctuations in RPV level

b. Reduce Rx pressure below the bypass valve full open setpoint

c. Reduces dynamic loading on the containment

d. Minimize the possibility of a stuck open SRV or failure to open

QUESTION: 052 (1.00)

The plant is operating at 100 % power, when the operator notices that APRM C upscale trip alarm comes in and all the white scram solenoid lights are on. The operator confirms that APRM A has failed high and all other APRM channels are indicating 100% power. SELECT the ONE statement below that describes the required ACTIONS and WHY.

a. Bypass the A APRM, no further action required since C and E APRMs are operable.

b. Manually insert a full scram by placing the mode switch to shutdown because this indicates an ATWS situation.

c. Manually initiate one channel of ARI because ARI channels can function as a backup to the RPS channels.

d. Manually insert a half scram to determine if the RPS "A" channel is functioning.

QUESTION: 053 (1.00)

A steam leak in the drywell has resulted in rapidly rising drywell temperature and pressure. The SRO has directed the initiation of drywell sprays. Which ONE(1) of the following would be the effect if drywell sprays were initiated when plant conditions were in the prohibited region of the DRYWELL SPRAY INITIATION LIMIT graph?

a. Thermal shock and potential failure of the drywell spray header piping.

b. Rapid containment pressurization due to drywell spray flashing to steam.

c. Diversion of RHR required for vessel flooding due to loss of RPV level indication.

d. Rapid depressurization of the primary containment below the high drywell pressure scram setpoint.

QUESTION: 054 (1.00)

Procedure N2-EOP-PC "Primary Containment Control" requires that suppression pool level be maintained below 217 inches. SELECT the basis for this level limit.

a. The level at which the suppression chamber to drywell vacuum breakers are submerged.

b. The level that prevents exceeding the heat capacity level limit.

c. The level that ensures adequate vent capability to prevent exceeding the primary containment pressure limit.

d. The maximum level that is accurately measured and displayed.

QUESTION: 055 (1.00)

Procedure N2-EOP-RR "Radioactivity Release Control" directs that if the turbine building ventilation system is shutdown then restart
the turbine building ventilation system. SELECT the basis for this action.

a. Results in a positive pressure inside the turbine building to limit the intrusion of radioactivity into the turbine building.

b. Results in recirculation of the turbine building ventilation and reduction in the amount of radioactivity released.

c. Results in the radioactivity being discharged as a ground release to limit the dispersion of radioactivity.

d. Results in the radioactivity being discharged in a monitored release.

QUESTION: 056 (1.00)

The plant is operating at 100% when a pin hole leak in a fuel rod develops, resulting in the following alarms:

MSL RADIATION HIGH (1.5 x normal)
PROCESS GAS RADN MON ACTIVATED
OFF GAS RADIATION HIGH (DRMS red alarm condition)

Select the automatic plant response to these alarm conditions.

a. Offgas Recombiner inlet and outlet valves close

b. Offgas exhaust to Stack isolation valve closes

c. Rx Recirc sample valves close

d. Condenser air removal pump trip signal

QUESTION: 057 (1.00)

Given the following conditions:

Rx Recirc pump B inservice
Rx Recirc pump A tripped
Rx Recirc pump A trip condition identified and corrected
Total core flow indicates 46 Mlbm/hr
Operation above the 100% rodline sign posted

Refer to the attached Plant Operating Control Maps (figures 5,6 & 7) and select the required actions for these conditions

a. Immediately place the mode switch in the Shutdown position

b. Insert the cram array until core thermal power is less than 36% (1195 MWT)

c. Restart Recirc pump A to exit the instability region

d. Raise core flow using the flow control valve to greater than 45%

QUESTION: 058 (1.00)

A sudden unplanned core flow reduction occurs resulting in unstable neutron flux oscillations. Select the statement that describes the major safety concern with operation in this mode?

a. LPRMs are unable to display the actual power level due to the slow response time of the instrument

b. Thermal limit calculations done by the Process computer are erroneous due to the out of phase LPRM power inputs masking actual local core power

c. APRM High thermal flux scram is ineffective since the oscillations are 2-3 seconds in duration and the thermal time constant is set for 6-7 seconds

d. APRMs high flux scram may not protect against exceeding fuel design or safety limits if out of phase oscillations occur.

QUESTION: 059 (1.00)

Heavy smoke has permeated the control room and requires evacuation of the control room crew. Select the action that would <u>NOT</u> be appropriate upon exiting the control room.

a. Close the MSIVs using the primary containment isolation manual initiation pushbuttons

b. Place the mode switch in shutdown

c. Verify all rods inserted on the full core display

d. Place service water in a one pump per loop configuration

QUESTION: 060 (1.00)

During single loop operation technical specifications require setpoint and limit adjustments to be made within 4 hours of entering single loop operations. SELECT the adjustment listed below that is <u>NOT</u> required for single loop operation.

a. Reduce RBM trip setpoints

b. Reduce APRM rod block and scram setpoints

c. Increase Minimum Critical Power Ratio (MCPR) limit.

d. Increase Max Average Planar Linear Heat Generation Rate (MAPLHGR) limit.

QUESTION: 061 (1.00)

A reactor startup is in progress with conditions as follows:

Mode switch in startup
Rx is critical
Source/intermediate range overlap checks in progress
Rx coolant temperature 190 F
RPV level 183" and stable

A Rx bldg instrument air pipe break occurs resulting in a rapid loss of all instrument air to Rx bldg loads. Select the statement that describes the affect on RPV level

a. RPV level will increase due to the Rx scram and the loss of RWCU

b. RPV level will decrease due to condensate system minimum flow valves failing open

c. RPV level will decrease due to CRD flow control valves failing to minimum

d. RPV level will remain constant

QUESTION: 062 (1.00)

The reactor is operating at 20% power when condenser vacuum begins to steadily decrease at a rate of 1 inch Hg absolute per minute. SELECT the sequence of actions that will occur if condenser vacuum continues to steadily decrease with no operator actions.

a. - Reactor scram
- Main turbine trip
- MSIVs close

b. - Main turbine trip
- Reactor scram
- MSIVs close

c. - MSIVs close
- Reactor scram
- Main turbine trip

d. - Main turbine trip
- MSIVs close
- Reactor scram

QUESTION: 063 (1.00)

The plant is operating at 100% Rx power when a loss of instrument air occurs. Select the conditions that require the operator to initiate a manual Rx scram.

a. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with one drifting rod, confirmed using the 4 rod display.

b. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with scram air header pressure reading 60 psig.

c. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with the scram inlet and outlet valves open for one accumulator (Determined using full core display).

d. "INST AIR RCVR TK PR LO" alarm with two rod drift lights on the full core display illuminated.

QUESTION: 064 (1.00)

The plant is operating at 100% Rx power when inadvertent group 8 primary containment isolation occurs due to I&C testing. Which of the following is an expected plant response.

a. Drywell cooling fans trip.

b. Suppression chamber to Drywell vacuum breakers fail open

c. Rx sample valves isolate

d. Rx Recirc pump seal purge isolates

QUESTION: 065 (1.00)

The plant is operating at 100% Rx power when a total loss of TBCLCW occurs. WHICH ONE of the following is <u>NOT</u> a required immediate action once it is determined TBCLCW CAN NOT be restored?

a. Reduce Rx Recirc flow to minimum

b. Open the condenser Vacuum Breakers

c. Trip the Turbine Generator

d. Transfer station electrical load to the Reserve transformers

QUESTION: 066 (1.00)

WHICH ONE of the following describes the effect on the Condenser Air Removal/OffGas system if TBCLCW were lost to the system during full power operations?

a. Isolation of the inservice Offgas recombiner on recombiner outlet temperature high.

b. Isolation of the Offgas discharge isolation valve (AOV103) Offgas condenser outlet temperature high.

c. Lowering main condenser vacuum due to loss of cooling to the inter and after air ejector condensers.

d. Increased Offgas moisture content due to loss of TBCLCW cooling to the Offgas dryers

QUESTION: 067 (1.00)

A Rx scram has occurred with a failure of all rods to insert. The scram condition is still present with one CRD pump operating. Which ONE of the following actions is REQUIRED to manually insert (drive) control rods?

a. Install jumpers to defeat RPS interlocks and reset the scram

b. Install jumpers to defeat RWM rod blocks

c. Close the charging header isolation valve 2RDS-V28

d. Maximize drive water D/P by closing the pressure control valve 2RDS-PV101

QUESTION: 068 (1.00)

A high drywell pressure, LOCA initiation isolated RBCLCW to the drywell coolers. Select the actions required to restore drywell cooling.

a. Place the Drywell Unit Cooler Cooling and the Drywell Unit Cooler Fans GR 1/2 LOCA override switches in "OVERRIDE", manually open the RBCLCW isolation valves to the Drywell coolers and restart the fans.

b. Place the Drywell Unit Cooler Cooling LOCA override switches in "OVERRIDE", the manually open RBCLCW isolation valves to the Drywell coolers and the fans will auto restart.

c. Place the Drywell Unit Cooler Cooling and the Drywell Unit Cooler Fans GR 1/2 LOCA override switches in "OVERRIDE", manually open the RBCLCW isolation valves to the Drywell coolers and fans auto restart.

d. Place the Drywell Unit Cooler Fans GR 1/2 LOCA override switches to "OVERRIDE", manually restart the fans.

QUESTION: 069 (1.00)

The plant is operating at 100% Rx power when a bus fault occurs on SWGR 101 and results in the "BKR 101-10 BKR 101-13 ELEC FAULT PRI PROT TRIP" alarm. Which of the following describe the expected response to this condition.

a. The normal and alternate feed breakers trip and/or lock out. The diesel generator is blocked from auto starting on undervoltage.

b. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker will not close in either automatically or manually.

c. The normal feeder breaker trips and locks out. The diesel generator will auto start, the diesel output or the alternate feeder breakers can be closed in manually.

d. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker can only be closed in manually.

deleted

QUESTION: 070 (1.00)

A plant startup is in progress with Rx power 1% and Rx pressure 150 psig when a loss of both CRD pumps occurs. Select the condition that requires a manual Rx scram to be initiated.

a. More than one accumulator trouble alarm

b. More than one control rod high temperature alarm

c. Any control rod verified drifting inward

d. Charging header pressure less than 600 psig

QUESTION: 071 (1.00)

The plant is operating at 100% Rx power when a loss of off-site power occurs. Concerning bus 4KV emergency bus 103, SELECT the following that is <u>NOT</u> an expected automatic response to this condition

a. Manual bus loading is blocked for approx. 1 minute

b. All load breakers open

c. The diesel generator starts, the output breaker closes and load sequence selection commences

d. Category 2 service water separates from Category 1 service water

QUESTION: 072 (1.00)

A ground was isolated to the 125 VDC control power division 2 bus "A" (4 KV breaker control power). Which of the following will occur if this breaker is opened?

a. Breaker protection trips will operate normally and all breakers remain closed.

b. Breaker protection trips will not operate and breakers that are closed will trip open.

c. Breaker protection trips will not operate and breakers can not be manually tripped from the control room.

d. Breaker protection trips will not operate but breakers can be manually tripped from the control room.

QUESTION: 073 (1.00)

During preparation for refueling with the fuel pool at the normal level, the gate between the reactor well and fuel pool fails with the outer refueling bellows not yet installed. SELECT the fuel pool level response.

a. Fuel pool level will decrease but be maintained above the technical specification minimum fuel pool level.

b. Fuel pool level will decrease approximately 12 feet.

c. Fuel pool level will decrease to approximately 1 feet above the top of the fuel.

d. Fuel pool level will decrease to below the top of fuel with two thirds of the fuel covered.

QUESTION: 074 (1.00)

The plant has just achieved cold shutdown when a loss of shutdown cooling occurs. Assume that the inboard shutdown cooling isolation valve 2RHS*MOV112 can not be reopened. SELECT the method of decay heat removal appropriate for these conditions.

a. RWCU maximizing RBCLCW to the non-regenerative heat exchangers.

b. Recirculate the suppression pool through open SRVs and establish RPV pressure at greater than 40 psid above Rx pressure.

c. Start a Reactor Recirculation pump.

d. Raise and maintain RPV level to 227" to 243" on the shutdown range to establish natural circulation

deleted

QUESTION: 075 (1.00)

The Refueling Floor SRO has just been informed by the Control Room that criticality has occurred while inserting a fuel assembly into the core.

In accordance with N2-FHP, Refueling Manual, which ONE of the following actions should be directed by the Refuel Floor SRO?

a. Raise the fuel bundle until it is clear of the core and contact Radiation Protection for a radiation survey of the refuel floor.

b. Immediately evacuate the refueling floor, notify the Shift Supervisor, Health Physics and Engineering.

c. Stop inserting the fuel bundle and contact the Shift Supervisor for direction as to the disposition of the partially inserted fuel assembly.

d. Remove the fuel bundle, suspend core alterations, and contact the Reactor Engineer for investigation.

deleted

QUESTION: 076 (1.00)

Select the condition that requires entry into procedure N2-EOP-SC "Secondary Containment Control".

a. Rx Bldg equipment sump TK2A level high/high

b. "RX BLDG AREA RADN MON ACTIVATED" alarm with the TIP equipment area radiation monitor at the ALERT LEVEL and rising (DRMS yellow alarm)

c. Rx BLDG general Area (elevation 240') temperature 133 F

d. MSL Tunnel leads Enclosure temperature 169 F

QUESTION: 077 (1.00)

The reactor is in Mode 4. Planned, corrective maintenance is to be performed on 2RCS*MOV18A Recirculation Discharge Isolation. The maintenance requires the valve to be cycled at certain times during the work. A red markup has been applied by the work group but the second verification has not been completed. Which one of the following is completed prior to performing the work?

a. The second verification of the red markup is completed by the work group. A second, blue markup is applied to the valve to allow the work group to manually cycle the valve if necessary during the maintenance.

b. The second verification of the red markup is not completed allowing the work group to operate the valve as necessary.

c. A licensed reactor operator must perform an independent verification of the red markup and this markup must be cleared before the valve can be cycled.

d. A licensed reactor operator must perform an independent verification of the red markup allowing the work group to cycle the valve as necessary to perform the maintenance.

QUESTION: 078 (1.00)

In accordance with AP-3.3.2 "Radiation Work Permit", which one of the following is an activity which would require the prior approval of a radiation work permit (RWP)?

a. Passage through an area with known 80dpm/100cm2 fixed contamination

b. Cleaning in an area with an expected neutron exposure of 2 mrem in an 8 hour period

c. Entry into the main condenser to perform a radiation survey

d. Assignment of a radiation protection technician to monitor the offsite transport of a potentially contaminated, injured individual

QUESTION: 079 (1.00)

In accordance with Administrative Procedure AP-3.2.5 "Compressed Gas Cylinder Control", which of the following is **NOT** a requirement to be followed for the storage of compressed gas cylinders?

a. Only four cylinders or less are stored in an "in plant" tie-off area

b. Cylinders are stored in well ventilated areas

c. Valve protection caps are maintained in place

d. Cylinders are stored to prevent exposure to freezing temperatures

QUESTION: 080 (1.00)

A Special Test is being performed which leads to the following conditions:

Rx power 38%
Rx pressure 890 psig
Minimum Critical Power Ratio (MPCR) of 1.05

Which of the following actions is required?

a. Commence a reactor shutdown and be in at least HOT STANDBY within two hours

b. Take action to restore MPCR to greater than 1.07 within two hours then power operation may continue

c. Commence a reactor shutdown within two hours and put the mode switch in SHUTDOWN within the next six hours

d. Raise reactor pressure to greater than 930 psig within one hour then power operation may continue

QUESTION: 081 (1.00)

Which of the following describes the MINIMUM administrative controls for an initial, routine entry into primary containment following reactor operation?

a. Confined Space Entry Permit and Radiation Work Permit

b. Work Request and Radiation Work Permit

c. Work Request and Material Condition Inspection Form

d. Confined Space Entry Permit and Material Condition Inspection Form

QUESTION: 082 (1.00)

A deficiency is discovered that requires the temporary disabling of the following annunciator:

Division II SPENT FUEL SURGE TANK 1B LVL HIGH/LOW

Which of the following specifies one of the operators responsibilities during the disabling of the annunciator?

a. Complete a red markup and attach the tag to the affected annunciator window

b. Complete a yellow hold out tag and attach the tag to the affected annunciator window

c. Enter the work request number in the "Defeated Annunciator" log and attach a sticker to the affected annunciator window

d. Complete a deficiency tag and attach the tag to the affected annunciator window

QUESTION: 083 (1.00)

In accordance with AP-3.3.2, "Radiation Work Permit", Which of the following is NOT permitted for self-monitors using an extended RWP?

a. Entry into a 2000 mrad/hr (whole body) area for one minute

b. Entry into an area with minor leakage from a contaminated system

c. Entry into a neutron radiation area

d. Entry into a 500 mrad/hr (whole body) area for three minutes

QUESTION: 084 (1.00)

In accordance with S-EAP-3, "Emergency Personnel Action Procedures", which of the following is a responsibility of the Site Emergency Director after an emergency condition has been declared?

a. Assure damage repair team leaders maintain accountability of their team members at all times

b. Direct performance of an accounting of site personnel

c. Direct personnel to maintain a running log of plant status and emergency personnel activities

d. Authorize emergency workers to exceed normal radiation exposure limits as needed

QUESTION: 085 (1.00)

Which of the following is an example of a temporary modification which would be controlled in accordance with AP-6.1 "Control of Equipment Temporary Modifications"?

a. A disconnected electrical lead in the HPCS diesel start circuit for the purpose of establishing a markup boundary

b. Connection of a hose to a condensate system drain for the purpose of directing drain water

c. Defeating a Reactor Water Cleanup isolation interlock during the performance of N2-EOP-6 "EOP Support Procedure"

d. Use of a blower to cool components on a fire panel

QUESTION: 086 (1.00)

A reactor transient occurs during which the following conditions exist:

All rods inserted
RPV water level 150 inches
Drywell pressure 0.7 psig
RPV pressure 700 psig

N2-EOP-RPV is entered and is being executed. Five minutes later the following conditions are reported:

RPV water level 180 inches
Drywell pressure 1.9 psig
RPV pressure 600 psig
RCIC pump trip

Select the required action for the transient:

a. Re-enter N2-EOP-RPV at the beginning

b. Continue with N2-EOP-RPV with no adjustment in the execution of steps

c. Prioritize operator response by directing those steps of N2-EOP-RPV that would provide control of RPV pressure

d. Exit N2-EOP-RPV since the initiating condition has been restored

QUESTION: 087 (1.00)

In accordance with N2-OP-20, "Breathing Air", which of the following is the maximum number of personnel that can simultaneously use breathing air without exceeding the system capacity?

a. 35

b. 40

c. 45

d. 50

QUESTION: 088 (1.00)

In accordance with GAP-ALA-01 "Site ALARA Program", which one of the following would provide the ALARA evaluation of an activity with an estimated total exposure of 1.25 Man-rem

a. Station shift supervisor

b. Radiation protection technician

c. ALARA unit

d. Unit ALARA committee

QUESTION: 089 (1.00)

In accordance with the fitness for duty program during an unscheduled call out, what is the minimum alcohol abstinence time required to allow unescorted site access?

a. 7 hours

b. 6 hours

c. 5 hours

d. 4 hours

QUESTION: 090 (1.00)

Procedure N2-EOP-RPV "RPV Control" requires that the HPCS pump flow be controlled and maintained less than the vortex limit. Which ONE(1) of the following states the basis for this limit?

a. Loss of NPSH resulting in pump cavitation and pump damage.

b. Loss of NPSH resulting in pump runout and motor overheating.

c. Air entrainment resulting in pump damage.

d. ECCS injection delayed following a LOCA due to a lower discharge pressure.

QUESTION: 091 (1.00)

During a Refueling outage with the core partially off loaded SELECT the activity that requires a SRO to be present on the refueling floor.

a. When installing or removing LPRMs from the reactor core.

b. When installing or removing blade guides from the reactor core.

c. When placing new fuel bundles into the spent fuel pool.

d. When lifting loads of 1000 lbs or more over the spent fuel pool.

QUESTION: 092 (1.00)

Which of the following safety equipment or precautions is <u>NOT</u> required when removing control power fuses after racking out for a 4KV breaker.

a. Use a face shield

b. Use rubber gloves with leather protectors

c. Test gloves prior to use

d. Remove rings and watches

QUESTION: 093 (1.00)

Select the required actions if any, when one member of the required minimum fire brigade personnel is sent home due to illness 1.5 hours prior to shift change.

a. Fire Brigade complement may be one less than the minimum required for up to 4 hours, therefore no action is required.

b. Immediate action must be taken to fill the position with another qualified Fire Brigade member.

c. Action to fill the position is required after 2 hours if the oncoming person has not assumed the unmanned position.

d. One of the two RO's who was a qualified Fire Brigade member can fill the position provided a Rx startup or shutdown is not in progress

QUESTION: 094 (1.00)

While performing a routine system alignment verification a Plant Operator finds a service water valve out of position. Select the required actions to be taken by the Plant Operator

a. Reposition the valve and notify the SSS

b. Take appropriate action to prevent immediate personnel or equipment damage and inform the CSO

c. Notify the SSS and do not reposition the valve

d. Reposition the valve, annotate the lineup sheet and notify the SSS of all out of position equipment when the lineup is completed

QUESTION: 095 (1.00)

Procedure N2-OP-34 "Nuclear Boiler, Automatic Depressurization & Safety Relief Valves" requires that if a stuck open SRV can not be closed within 5 minutes the Rx mode switch shall be placed in the shutdown position. Which of the following describes the basis for this action?

a. One stuck open SRV exceeds the design heat removal capacity of both suppression pool cooling loops.

b. The Heat Capacity Temperature Limit would be exceeded if a subsequent emergency depressurization was required.

c. To prolong the availability of the suppression pool as a heat sink.

d. The Heat Capacity Level Limit would be exceeded if a subsequent emergency depressurization was required

QUESTION: 096 (1.00)

In accordance with N2-EOP-PC "Primary Containment Control", which ONE of the following methods can be used to maintain Suppression Pool conditions within the Heat Capacity Temperature Limit?

a. Decrease RPV pressure.

b. Lower Suppression Pool water level.

c. Alternate between LPCI and Suppression pool cooling modes when RHR pumps are required to maintain adequate core cooling

d. Initiate Suppression Chamber Spray with RHR pumps not required for adequate core cooling

QUESTION: 097 (1.00)

Which of the following is <u>NOT</u> an acceptable method of filling the suppression pool if water level is at elevation 199 feet.

a. HPCS running at minimum flow with suction from the CST.

b. Gravity drain with HPCS by throttling opening the test return valve with the suction aligned to the CST.

c. Gravity drain with RCIC by throttling opening the test return valve with the suction aligned to the CST.

d. Place one RHR pump in pull to lock, open the Condensate Flush Supply valve to that loop and throttle the Return to Suppression Pool valve in that loop of RHR.

QUESTION: 098 (1.00)

During an Emergency RPV Depressurization, the alternate depressurization path must be used if suppression pool water level is at, or below elevation 192 feet.

SELECT the REASON for this limitation.

a. Elevation 192 feet is the bottom of the suppression pool water level indicating range and use of SRVs could result in suppression chamber direct pressurization.

b. Elevation 192 feet is the minimum Heat Capacity Level Limit and pressure suppression capability is inadequate for depressurization to the suppression pool at this point.

c. Elevation 192 feet is the bottom of the Drywell downcomer vents and this could result in bypassing the pressure suppression function of the suppression pool.

d. Elevation 192 feet is the top of the SRV discharge tail pipe T-quenchers and use of SRVs will result in suppression chamber direct pressurization.

QUESTION: 099 (1.00)

In accordance with Station General Order 90-05 "Heat Stress", which of the following is required when assigning work in a high temperature area

a. Fluids will be staged in all work areas

b. No person shall enter areas where temperature exceeds 120 F without Plant Manager approval.

c. Completion of a Heat Stress checklist is only required when work area temperatures exceed 100 F

d. A Site safety monitor must accompany the worker(s) in the high temperature area to assure personnel safety

QUESTION: 100 (1.00)

Select the emergency classification that would be declared during an accident that resulted in loss of the fission barriers of reactor coolant, containment integrity and required offsite protective action recommendations.

a. Unusual event

b. Alert

c. Site area emergency

d. General emergency

(********** END OF EXAMINATION **********)

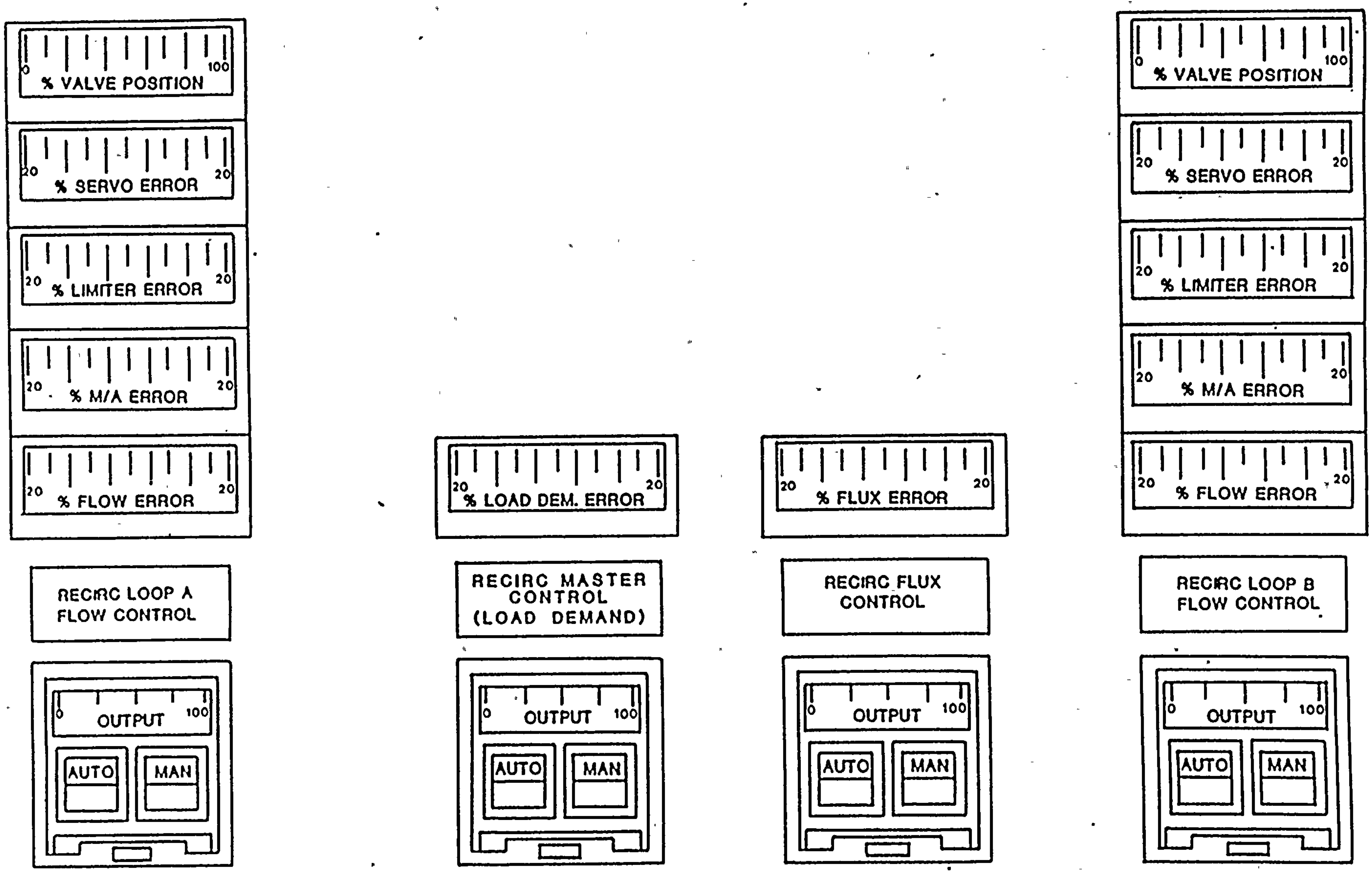


Figure 1

Title: RECIRCULATION FLOW CONTROLLERS

CAUTION: An RPV water level instrument may be used to determine RPV water level only when:

- The hottest drywell temperature is below the RPV Saturation Temperature (Figure RPV-1),

  AND
- The instrument reads above the Minimum Indicated Level

MINIMUM INDICATED LEVEL	
Instrument	Level
Shutdown Range	200 in.
Upset Range	190 in.
Wide Range	25 in.
Narrow Range	150 in.
Fuel Zone	-155 in.

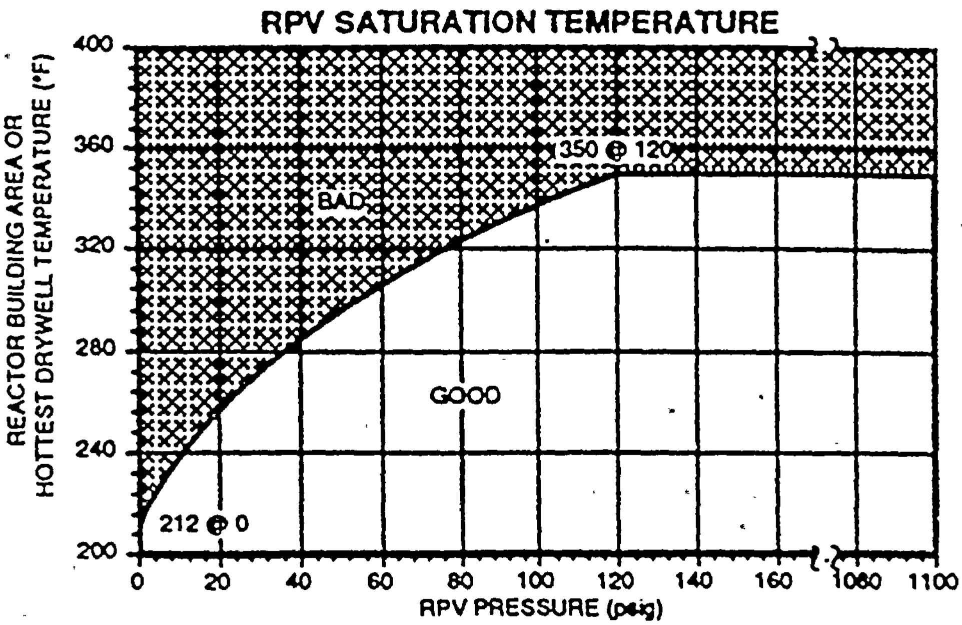
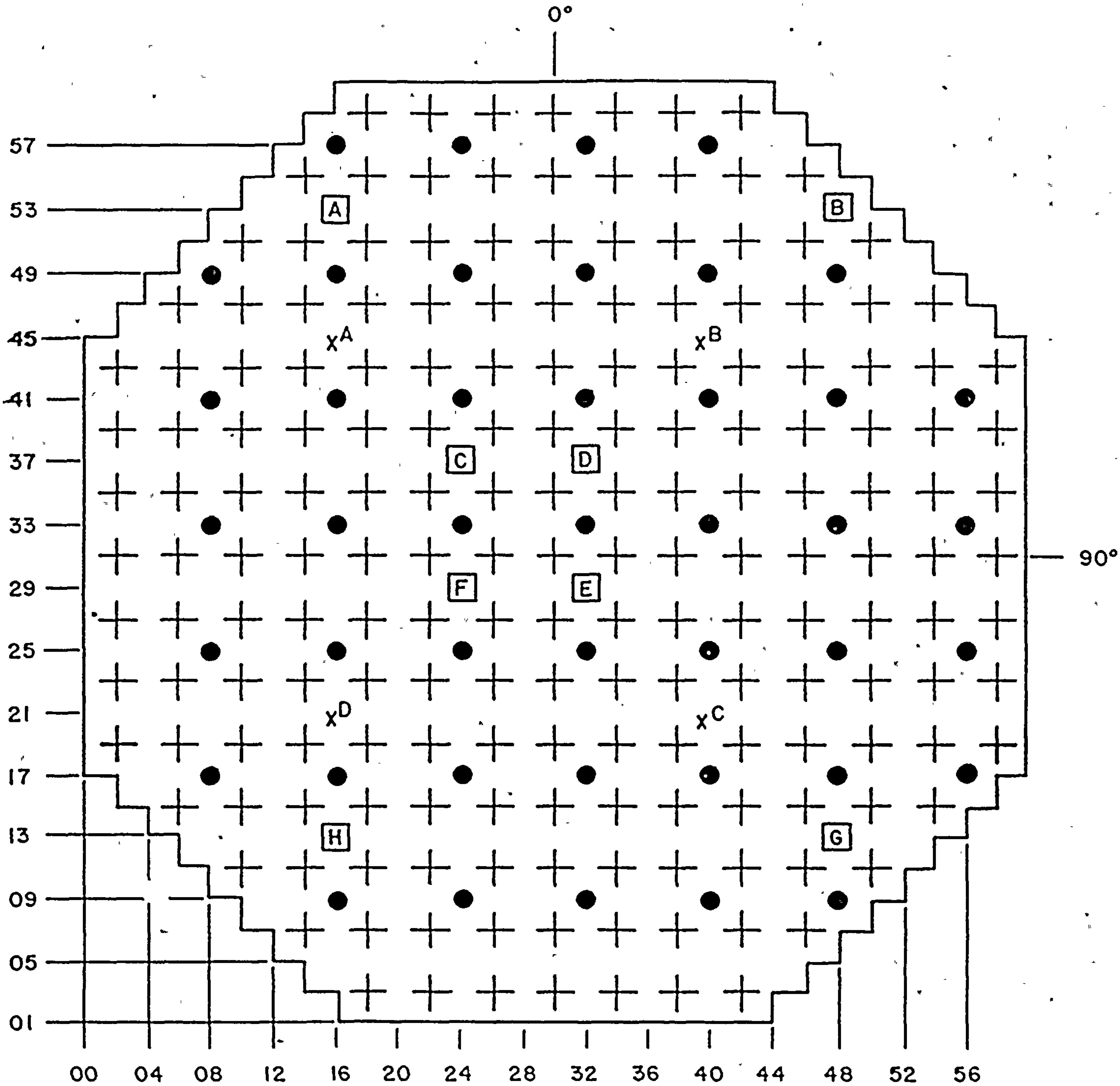


FIGURE 2



LEGEND

- ● - LPRM DETECTOR ASM (43)
- + - CONTROL RODS (185)
- X - SRM DETECTORS (4)
- □ - IRM DETECTORS (8)

Figure 3

Title: DETECTOR & CONTROL ELEMENT ARRANGEMENT (TOP VIEW OF CORE)

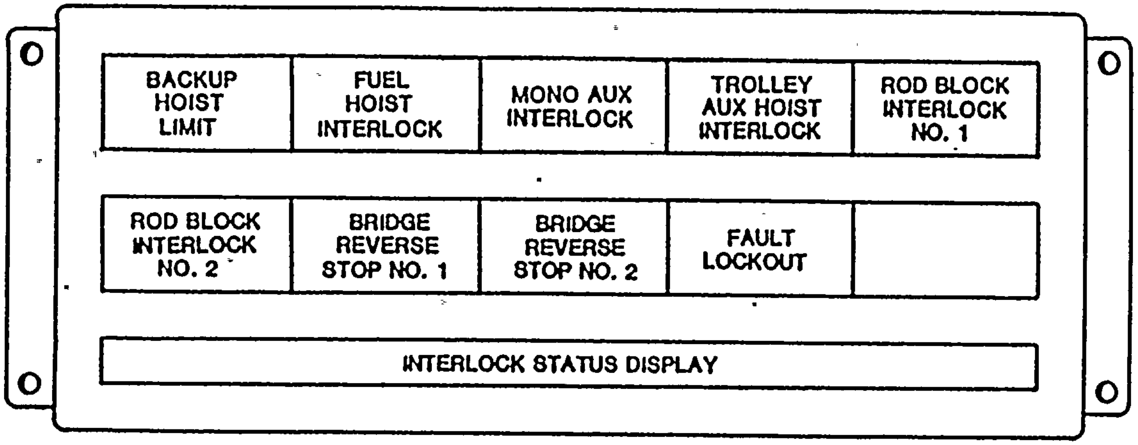
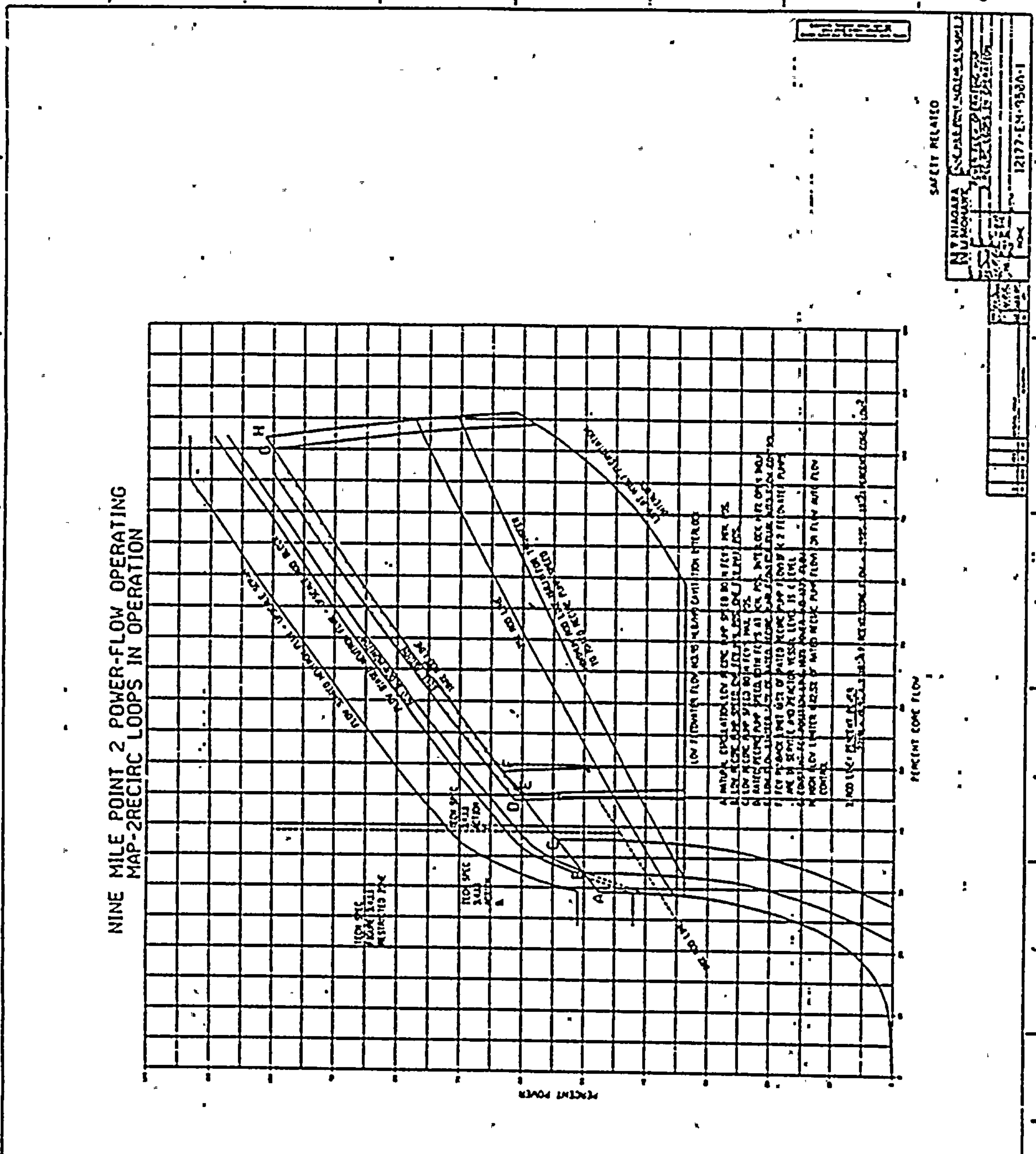


Figure 4	Rev 2

Title: INTERLOCK STATUS DISPLAY

ATTACHMENT 1

PLANT OPERATING CONTROL MAP TWO LOOP OPERATION



NOTE: This drawing has been changed, see page 17a for changes.

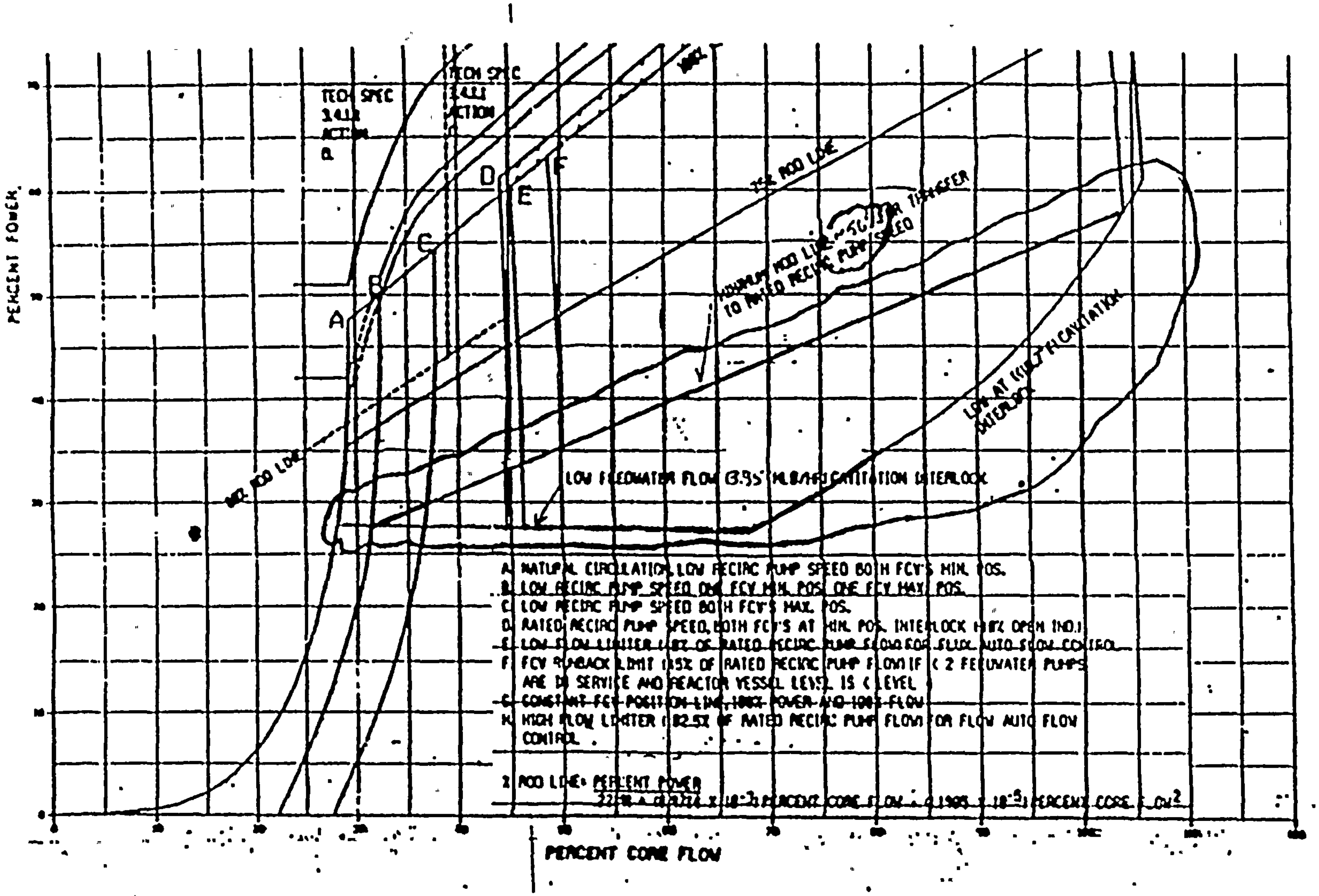
FIGURE 5

ICN-6
N2-OP-101D
Rev 01

FIGURE 6

ATTACHMENT 1

PLANT OPERATING CONTROL MAP. TWO LOOP OPERATION

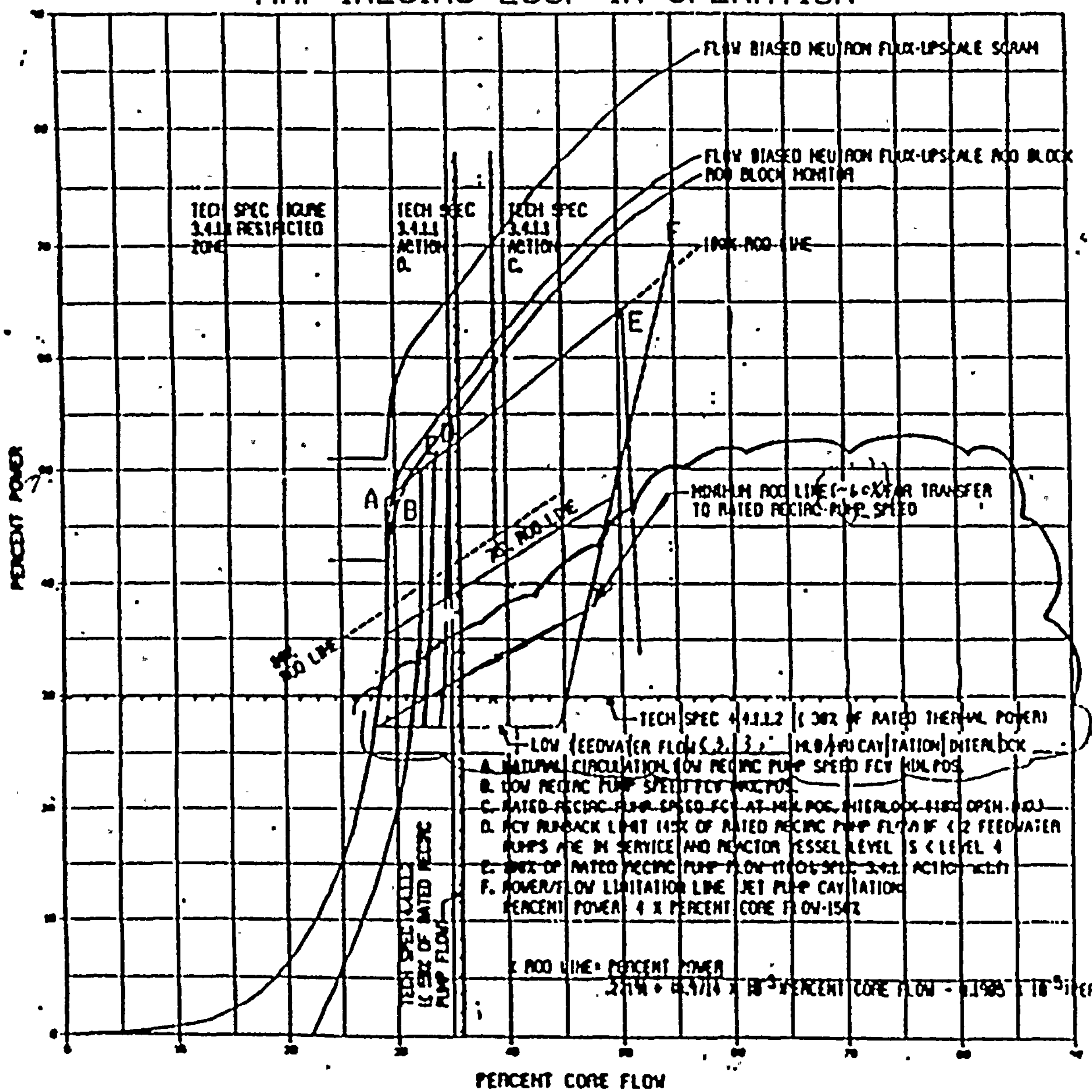


Page 17 a

TCN-6
N2-OP-101D
Rev 01

FIGURE 7

NINE MILE POINT 2 POWER-FLOW OPERATING MAP-1RECIRC LOOP IN OPERATION



ATTACHMENT 2

PLANT OPERATING CONTROL MAP SINGLE LOOP OPERATION

ANSWER: 001 (1.00)

a.

REFERENCE:

N2-OP-101A pg 11

KA 201002A102 [3.4/3.3]

201002A102 ..(KA's)

ANSWER: 002 (1.00)

b.

REFERENCE:

LOT-001-212-2-00 pg 14-23 obj 5.0

KA 212000K101 [3.7/3.9]

212000K101 ..(KA's)

ANSWER: 003 (1.00)

b.

REFERENCE:

LOT-001-201-2-02 pg 33 obj 14.0
LOT-001-215-2-03 pg 17 obj 5.0
KA 215003K401 [3.7/3.7]

215003K401 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

LOT-001-215-2-05 pg 20 obj 4.0

KA 215005A205 [3.5/3.6]

215005A205 ..(KA's)

ANSWER: 005 (1.00)

c.

REFERENCE:

LOT-001-218-2-01 pg 7, 13 to 17 obj 2.0.b, 3.0

KA 218000K201 [3.1/3.3]

218000K201 ..(KA's)

ANSWER: 006 (1.00)

a. or c.
AWB
5-22-92

REFERENCE:

LOT-001-001-202-2-02 obj 9.0

KA 202002K607 [3.6/3.7]

202002K607 ..(KA's)

ANSWER: 007 (1.00)

d.

REFERENCE:

N2-LOT-001-206-2-00 pg 32, 33 obj 5.0.f
N2-OP-33 pg 12

KA 209002K407 [3.5/3.7]

209002K407 ..(KA's)

ANSWER: 008 (1.00)

b.

REFERENCE:

LOT-001-259-2-02 pg 17 obj 7.0
LOT-001-256-2-01 pg 21 obj 7.0

KA 259001K602 [3.3/3.4]

259001K602 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

LOT-001-259-2-02 pg 16,17 obj 7.0

KA 259002K301 [3.8/3.8]

259002K301 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

LOT-001-202-2-02 pg obj

KA 202002A108 [3.4/3.4]

202002A108 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

LOT-001-211-2-00 pg 17 obj 8.0
LOT-001-294-2-08 pg 26 obj 4.0

KA 211000A402 [4.2/4.2]

211000A402 ..(KA's)

ANSWER: 012 (1.00)

c.

REFERENCE:

LOT-001-296-2-00 pg 17,18

KA 239002A302 [4.3/4.3]

239002A302 ..(KA's)

ANSWER: 013 (1.00)

a.

REFERENCE:

LOT-001-205-2-00 obj 8.0
LOT-001-296-2-00 pg 16

KA 203000K414 [3.6/3.7]

203000K414 ..(KA's)

ANSWER: 014 (1.00)

d.

REFERENCE:

Simulator cause and effect TC01

KA 241000K606 [3.8/3.9]

241000K606 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

N2-OP-61B pg 3
LOT-001-261-2-00 pg 17 obj 4.0.b

KA 261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

LOT-001-209-2-00 pg 39 obj 4.0.a

KA 209001A205 [3.3/3.6]

209001A205 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

LOT-001-264-2-02 pg 32 obj 5.0

KA 264000K402 [4.0/4.2]

264000K402 ..(KA's)

ANSWER: 018 (1.00)

c.

REFERENCE:

LOT-001-264-2-02 pg 34 obj 8.0

KA 264000K101 [3.8/4.1]

264000K101 ..(KA's)

ANSWER: 019 (1.00)

c.

REFERENCE:

LOT-0010217-2-00 pg 22 obj 5.0, 7.0
N2-OP-35 pg 6 precaution 6.0

KA 217000G010 [3.4/3.5]

217000G010 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

T/S table 4.3.1.1-1 (g)

KA 215005A107 [3.0/3.4]

215005A107 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

N2-EOP-RPV
Needs figure 2

KA 216000G010 [3.2/3.3]

216000G010 ..(KA's)

ANSWER: 022 (1.00)

a

REFERENCE:

LOT-001-248-2-00 pg 26 obj 9.0

KA 245000K409 [3.1/3.2]

245000K409 ..(KA's)

ANSWER: 023 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pgs 26,27,40,41,42 obj 5.0

KA 230000A215 [4.0/4.1]

230000A215 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

LOT -001-201-2-02 pg 11 obj 2.0.f

KA 201003A402 [3.5/3.5]

201003A402 ..(KA's)

ANSWER: 025 (1.00)

c.

REFERENCE:

LOT-001-263-2-00 obj 3.0
N2-OP-74A ATTACHMENT 3

KA 263000K303 [3.4/3.8]

263000K303 ..(KA's)

ANSWER: 026 (1.00)

d

REFERENCE:

N2-OP-95B pg 3,4

201004K101 ..(KA's)

ANSWER: 027 (1.00)

d.

REFERENCE:

N2-OP-95A 15
LOT-001-201-2-02 pg 15,16 obj 11.0

KA 201006A301 [3.2/3.1]

201006A301 ..(KA's)

ANSWER: 028 (1.00)

d.

REFERENCE:

LOT-001-202-2-01 obj 5.0 (answer not in lesson plan)
T/S 3.4.4.1 basis

KA 202001G006 [3.0/4.1]

202001G006 ..(KA's)

ANSWER: 029 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c
LOT-001-217-2-00 pg 12 obj 3.0.c, 7.0
LOT-001-204-2-00 pg 21 obj 4.0.a

KA 290001A205 [3.1/3.3]

290001A205 ..(KA's)

ANSWER: 030 (1.00)

c.

REFERENCE:

N2-OP-79 pg 53
LOT-001-272-2-01 obj 4.0

KA 272000A303 [3.1/3.5]

272000A303 ..(KA's)

ANSWER: 031 (1.00)

a.

REFERENCE:

N2-OP-53A pg 9
N2-OP-79 pg 46
LOT-001-288-2-02 obj 3.0, 4.0

KA 290003A105 [3.2/3.3]

290003A105 ..(KA's)

ANSWER: 032 (1.00)

c.

REFERENCE:

N2-OP-68 ARP 852614, 852624

KA 262001A301 [3.1/3.2]

262001A301 ..(KA's)

ANSWER: 033 (1.00)

a

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c

KA 205000K604

205000K604 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pg 26, 27 obj 5.0.d

KA 226001A218 [3.3/3.5]

226001A218 ..(KA's)

ANSWER: 035 (1.00)

b.

REFERENCE:

LOT-001-215-2-07 pg 16 obj 7.0

KA 215001K401 [3.4/3.5]

215001K401 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

T/S 3.9.2
Needs figure 3

KA 215004G005 [3.4/3.5]

215004G005 ..(KA's)

ANSWER: 037 (1.00)

c

REFERENCE:

LOT-001-234-2-00 pg 36, 37, & 38 obj 4.0

KA 234000K401 [3.3/4.1]

234000K401 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

LOT-001-233-2-00 pg 15 obj 8.0

KA 233000A209 [2.7/2.9]

233000A209 ..(KA's)

ANSWER: 039 (1.00)

c.

REFERENCE:

T/S Basis 2.2.1.1 pg B2-6

KA 295006G004 [3.3/4.2]

295006G004 ..(KA's)

ANSWER: 040 (1.00)

a.

REFERENCE:

FSAR chpt 15

KA 295014K202 [3.7/4.2]

295014K202 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

EOP Basis section C pg 8

KA 295031K101 [4.6/4.7]

295031K101 ..(KA's)

ANSWER: 042 (1.00)

146 [+ or - 5 psig]

REFERENCE:

T.S. 3.4.6.1
Steam Tables

KA 295006G007 [3.8/4.1]

295006G007 ..(KA's)

ANSWER: 043 (1.00)

a

REFERENCE:

FSAR pg 15.5-2
N2-OLP-100 obj 100-5.2
(Rx Recirc in flux manual, < 65% Rx power)

KA 295014A203 [4.0/4.3]

295014A203 ..(KA's)

ANSWER: 044 (1.00)

c.

REFERENCE:

LOT-006-344-2-04 pg 9 obj 3.0

KA 295024G012 [3.9/4.5]

295024G012 ..(KA's)

ANSWER: 045 (1.00)

a

REFERENCE:

N2-EOP-RPV

KA 295025G012 [3.9/4.5]

295025G012 ..(KA's)

ANSWER: 046 (1.00)

~~d.~~ per B

a.

REFERENCE:

LOT-001-253-2-00 pg 19, 20 obj 3.0.c

KA 295007A105 [3.7/3.8]

295007A105 ..(KA's)

ANSWER: 047 (1.00)

d.

REFERENCE:

LOT-001-247-2-00 pg 39 obj 7.0
N2-OP-22D pg 5

KA 295005G010 [3.8/3.6]

295005G010 ..(KA's)

ANSWER: 048 (1.00)

d.

REFERENCE:

LOT-001-344-2-18 pg 5 obj 3.0

KA 295010A105 [3.1/3.4]

295010A105 ..(KA's)

ANSWER: 049 (1.00)

b.

REFERENCE:

LOT-006-344-2-02 pg 13 obj 4.0

KA 295037K204 [4.4/4.5]

295037K204 ..(KA's)

ANSWER: 050 (1.00)

c.

REFERENCE:

LOT-006-344-2-02 pg 15 obj 3.0

KA 295037A203 [4.3/4.4]

295037A203 ..(KA's)

ANSWER: 051 (1.00)

b.

REFERENCE:

LOT-006-344-2-01 pg 14 obj 3.0

KA 295025K208 [3.7/3.7]

295025K208 ..(KA's)

ANSWER: 052 (1.00)

d.

REFERENCE:

GAP-OPS-01 (per ops policy, J. Helker)

KA 295015A102 [4.0/4.2]

295015A102 ..(KA's)

ANSWER: 053 (1.00)

d.

REFERENCE:

EOP Basis section E pg 43

KA 295028K303 [3.6/3.9]

295028K303 ..(KA's)

ANSWER: 054 (1.00)

d OR a

RLB 5-15-92

REFERENCE:

LOT-006-344-2-05 pg 16 obj 3.0
EOP Basis section E pg 29

KA 295029G007 [3.6/3.9]

295029G007 ..(KA's)

ANSWER: 055 (1.00)

d

REFERENCE:

LOT-006-344-02-12 pg 5 obj 3.0
EOP Basis section G pg 4

KA 295038G007 [3.2/3.5]

295038G007 ..(KA's)

ANSWER: 056 (1.00)

b.

REFERENCE:

LOT-001-255-2-00 pg 25 obj 4.0.e
N2-OP-42 pg 92
N2-OP-1 pg 34

KA 295038K210 [3.2/3.4]

295038K210 ..(KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

N2-OP-101D pg 14, 15

Requires figures 5,6 & 7

KA 295001A201 [3.5/3.8]

295001A201 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

LOT-001-202-2-01 (attached SER 14-88)

KA 295001K104 [2.5/3.3]

295001K104 ..(KA's)

ANSWER: 059 (1.00)

b.

REFERENCE:

N2-OP-78 pg 6

KA 295016G007 [3.1/3.4]

295016G007 ..(KA's)

ANSWER: 060 (1.00)

d.

REFERENCE:

LOT-001-202-2-01 obj TO-20.0, 25.0
N2-OP-29 pg 34

KA 295001K103 [3.6/4.1]
295001K103 ..(KA's)

ANSWER: 061 (1.00)

a.

REFERENCE:

KA 295019K201 [3.8/3.9]

295019K201 ..(KA's)

ANSWER: 062 (1.00)

d.

REFERENCE:

N2-OP-9 pg 17

KA 295002K202 [3.1/3.2]

295002K202 ..(KA's)

ANSWER: 063 (1.00)

b.

REFERENCE:

LOT-001-279-2-00 pg 18 obj 9.0
N2-OP-19 pg 15

KA 295019G010 [3.7/3.4]

295019G010 ..(KA's)

ANSWER: 064 (1.00)

a.

REFERENCE:

LOT-001-222-2-00 pg 9 obj 3.0.a
LOT-001-223-2-02 pg 8

KA 295020K203 [3.1/3.3]

295020K203 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

LOT-001-274-2-00 obj 8.0
N2-OP-14 pg 10

KA 295018G010 [3.4/3.3]

295018G010 ..(KA's)

ANSWER: 066 (1.00)

~~a~~ d.
ALB 5-19-92

REFERENCE:

LOT-001-274-2-00 pg 12 obj 3
LOT-001-255-2-00 pg 23 obj 4.0.c

KA 295018K202 [3.4/3.6]

295018K202 ..(KA's)

ANSWER: 067 (1.00)

d.

REFERENCE:

N2-EOP-RPV
N2-EOP-6 attachment 14.0 pg 56
LOT-006-344-2-02 obj 3.0

KA 295015A101 [3.8/3.9]

295015A101 ..(KA's)

ANSWER: 068 (1.00)

a.

REFERENCE:

N2-OP-13 pg 19
LOT-001-222-00 pg 9 (figure 2) obj 3.0

KA 295012A102 [3.8/3.8]

295012A102 ..(KA's)

ANSWER: 069 (1.00)

~~d.~~ DELETE ALB 5-27-92

REFERENCE:

LOT-001-262-2-02 pg 17 obj 7.0
N2-OP-72 pg 72

KA 295003K301 [3.3/3.5]

295003K301 ..(KA's)

ANSWER: 070 (1.00)

a.

REFERENCE:

LOT-001-201-2-01 obj 18.0
N2-OP-30 pg 20

KA 295022K101 [3.3/3.4]

295022K101 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

LOT-001-262-2-02 pg 17 obj 7.0
N2-OP-72 pg 80

KA 295003A101 [3.7/3.8]

295003A101 ..(KA's)

ANSWER: 072 (1.00)

c.

REFERENCE:

N2-OP-72 pg 70

KA 295004K105 [3.3/3.4]

295004K105 ..(KA's)

ANSWER: 073 (1.00)

c

REFERENCE:

REQ-007-353-2-26 pg 15 obj 1.02

KA 295023A202 [3.4/3.7]

295023A202 ..(KA's)

~~ANSWER: 074 (1.00)~~ DELETE ALB 5-18-92

~~b~~

REFERENCE:

N2-OP-31 pg 66, 67

KA 295021K302 [3.3/3.4]

295021K302 ..(KA's)

~~ANSWER: 075 (1.00)~~ DELETE ALB 5-18-92

~~d~~

REFERENCE:

N2-FHP-3 pg 16

KA 295023K103 [3.7/4.0]

295023K103 ..(KA's)

ANSWER: 076 (1.00)

c.

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c
LOT- 006-344-2-08 pg 4 obj 2.0

KA 295032G011 [4.1/4.2]
295032G011 ..(KA's)

ANSWER: 077 (1.00)

c

REFERENCE:

GAP-OPS-02 Section 3.1.5(b)

KA 294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 078 (1.00)

c

REFERENCE:

AP-3.3.2 Section 5.1.2

KA 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 079 (1.00)

d

REFERENCE:

AP 3.2.5 Section 5.3

KA 294001K109 [3.4/3.8]

294001K109 ..(KA's)

ANSWER: 080 (1.00)

a

REFERENCE:

02-LOT-002-362-2-01 EO-7a
Technical Specification 2.1.2

KA 294001A115 [3.2/3.4]

294001A115 ..(KA's)

ANSWER: 081 (1.00)

a

REFERENCE:

AP 3.2.2 Item 1.1.2
AP 3.3.2 Item 5.1.2

KA 294001K114 [3.2/3.4]

294001K114 ..(KA's)

ANSWER: 082 (1.00)

c

REFERENCE:

AP 6.1 page 10
01-LOT-006-343-1-01 EO-8.0

KA 294001A109 [3.3/4.2]

294001A109 ..(KA's)

ANSWER: 083 (1.00)

c

REFERENCE:

AP-3.3.2 Section 5.6.2

KA 294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 084 (1.00)

d

REFERENCE:

S-EAP-3 Enclosure 1

KA 294001A116 [2.9/4.7]

294001A116 ..(KA's)

ANSWER: 085 (1.00)

d

REFERENCE:

AP-6.1 Section 1.2 and 3.8
02-LOT-006-343-2-00 EO-1.0 (g)

KA 294001A106 [3.4/3.6]

294001A106 ..(KA's)

ANSWER: 086 (1.00)

a

REFERENCE:

02-LOT-006-344-2-01 Section II.A, TO 1.0

KA 294001A102 [4.2/4.2]

294001A102 ..(KA's)

ANSWER: 087 (1.00)

a

REFERENCE:

N2-OP-20 D.3
02-LOT-001-279-2-00 EO-7.0

KA 294001K113 [3.2/3.6]

294001K113 ..(KA's)

ANSWER: 088 (1.00)

c

REFERENCE:

GAP-ALA-01 3.4.1

KA 294001K104 [3.3/3.6]

294001K104 ..(KA's)

ANSWER: 089 (1.00)

c

REFERENCE:

AP-12.1 pg 3

KA 294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 090 (1.00)

c.

REFERENCE:

LOT-006-344-2-03 obj 3.0
EOP Basis section C pg 26

KA 295030K102 [3.5/3.8]

295030K102 ..(KA's)

ANSWER: 091 (1.00)

a.

REFERENCE:

N2-FHP-3 pg 5
N2-FHP-12 pg 2
T/S pg 6-6

KA 234000G001 [3.4/3.8]

234000G001 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

N2-ODI-5.11 pg 2

KA 294001K107 [3.3/3.6]

294001K107 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

T/S 6.2.2

KA 294001K116 [3.5/3.8]

294001K116 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

LOT-006-343-2-00 obj 8.0
AP-4.0 pg 18

KA 294001A113 [4.5/4.3]

294001A113 ..(KA's)

ANSWER: 095 (1.00)

c.

REFERENCE:

LOT-001-218-2-01 obj 8.0

KA 295013K302 [3.6/3.8]

295013K302 ..(KA's)

ANSWER: 096 (1.00)

a.

REFERENCE:

LOT-006-344-2-07 pg 8, 9 obj 3.0

KA 295026G012 [3.8/4.5]

295026G012 ..(KA's)

ANSWER: 097 (1.00)

c.

REFERENCE:

N2-OP-31 pg 60, 61
N2-OP-33 pg 14, 15

KA 295030K205 [3.8/3.9]

295030K205 ..(KA's)

ANSWER: 098 (1.00)

a.

REFERENCE:

LOT-006-344-2-14 pg 5 obj 3.0

KA 295030K301 [3.8/4.1]

295030K301 ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

SGO 90-05

KA 294001K108 [3.1/3.4]

294001K108 ..(KA's)

ANSWER: 100 (1.00)

d.

REFERENCE:

S-EAP-2 pg 3

KA 294001A116 [2.9/4.7]

294001A116 ..(KA's)

(********** END OF EXAMINATION **********)

A N S W E R   K E Y

MULTIPLE CHOICE

001	a
002	b
003	b
004	d
005	c
006	a or c
	RLB 5-22-92
007	d
008	b
009	b
010	d
011	d
012	c
013	a
014	d
015	c
016	b
017	d
018	c
019	c
020	c
021	d
022	a
023	b
024	a
025	c
026	d
027	d
028	d
029	b
030	c
031	a
032	c
033	a
034	b
035	b
036	d
037	c
038	c
039	c
040	a
041	b
042	146 (+ or - 5 psig)
043	a
044	c
045	a

ANSWER KEY

046	~~d~~ a. ALB 5-8-92	~~069~~	~~d~~ DELETE ALB 5-27-92
047	d	070	a
048	d	071	b
049	b	072	c
050	c	073	c
051	b	~~074~~	~~b~~ DELETE ALB 5-15-92
052	d	~~075~~	~~d~~ DELETE ALB 5-18-92
053	d	076	c
054	d or a ALB 5-18-92	077	c
055	d	078	c
056	b	079	d
057	a	080	a
058	d	081	a
059	b	082	c
060	d	083	c
061	a	084	d
062	d	085	d
063	b	086	a
064	a	087	a
065	d	088	c
066	~~a~~ d ALB 5-17-92	089	c
067	d	090	c
068	a	091	a

A N S W E R   K E Y

092	a
093	b
094	c
095	c
096	a
097	c
098	a
099	b
100	d

(********** END OF EXAMINATION **********)

Attachment 1 - RO

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Examination

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U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: ______________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: 92/05/11

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%	
~~100.00~~ 97.00 gfw		%	TOTALS
	FINAL GRADE		

All work done on this examination is my own. I have neither given nor received aid.

____
Candidate's Signature

QUESTION: 001 (1.00)

Assuming a selected, coupled rod is initially at position 48, which ONE of the following describes the response of CRD drive flow and rod position indication when performing a control rod drive coupling check?

a. Drive flow drops from normal flow to stall flow; the position "48" and FULL OUT light go out, then reappear.

b. Drive flow increases from normal flow to stall flow; the position "48" and FULL OUT light remain illuminated.

c. Drive flow drops from normal flow to stall flow: the CRD OVERTRAVEL alarm illuminates, then clears.

d. Drive flow decreases from normal flow to no flow (0 gpm); the FULL OUT light remains lit and the position "48" goes blank then reappears.

QUESTION: 002 (1.00)

A plant startup is in progress, the mode switch is in startup with Rx power in the source range. This is the first startup following a Refueling outage and the RPS shorting links are removed. Select the condition below that will <u>NOT</u> result in a full reactor scram

a. Loss of the "B" RPS bus

b. SRM channel "A" reading 1.5 x 10E5 cps

c. Less than 12 LPRM inputs to the "A" APRM

d. Loss of 24/48 VDC panel 2BWS-PNL300A

QUESTION: 003 (1.00)

A Normal Reactor shutdown/cooldown is in progress in accordance with N2-OP-101C "Plant Shutdown". The mode switch is in Startup and all IRM channels are selected to range 6 and indicate as follows:

IRM "A"	45	IRM "B"	33
IRM "C"	Bypassed	IRM "D"	63
IRM "E"	58	IRM "F"	79
IRM "G"	65	IRM "H"	57

The reactor operator down ranges IRM channels "B" and "G" to range 5. Select the expected automatic actions, if any.

a. No automatic actions occur.

b. IRM DOWNSCALE annunciator and Rod Block

c. IRM UPSCALE/INOPERATIVE annunciator, Rod Block and RPS "A" half scram.

d. IRM UPSCALE/INOPERATIVE annunciator, Rod Block and RPS FULL scram.

QUESTION: 004 (1.00)

The reactor is operating at 100%.

The value of the A recirculation flow signal is 99%
The value of the B recirculation flow signal is 100%
Recirculation flow unit C bypassed on control room panel P603.
The value of the D recirculation flow signal is 101%

A component in recirculation flow unit B fails resulting in a recirculation B flow signal of 110%. SELECT the expected system response.

a. Upscale trip of the B flow unit and comparator trips of the A and B flow unit. No effect on the D flow unit. No scram signals generated.

b. Comparator trips of the A and B flow units, no flow unit upscale trip. No scram signals generated

c. Upscale trip of the B flow unit and a comparator of the D flow unit. Upscale thermal trip of APRMs B, D, & F; RPS B half scram.

d. Upscale trip of the B flow unit and comparator trips of the B flow unit. No effect on the A and D flow units. No scram signals generated.

QUESTION: 005 (1.00)

The Reactor is operating at 100% power when a partial loss of drywell cooling results in a drywell temperature increase. SELECT the response of the narrow range Rx water level instrument.

a. Decreased reference leg density will cause an increase in indicated level.

b. Decreased reference leg density will cause a decrease in indicated level.

c. Because both reference and variable leg densities increase, there will be no change in indicated level.

d. Because narrow range level instruments are density compensated there is no change in indicated level.

QUESTION: 006 (1.00)

A loss of high pressure feed systems has resulted in the following conditions:

All rods are inserted
MSIVs are shut
RPV pressure 1149 to 1048 psig (2 SRVs cycling)
RPV level minus 14" decreasing
Loss of all Division 1 Emergency 125 VDC
(no Div 1 ECCS pumps operating)
C RHR pump out of service for maintenance
B RHR pump aligned for injection running at minimum flow
B condensate pump is running aligned for injection
ADS logic inhibit switches are in the ON position

Select the action listed below which will <u>NOT</u> result in an ADS valve opening

a. Place the ADS logic inhibit switches to OFF and the 105 second timer times out

b. Place the ADS valve key lock switches at P628 and P631 in the open position

c. Place the SRV key lock switches at P601 for the ADS valves in the open position

d. Arm and depress the ADS manual initiation pushbuttons

QUESTION: 007 (1.00)

The Reactor Recirculation Flow Control system is operating in Loop Auto (Flux Manual) mode. A malfunction in the loop flow feedback circuit causes the signal to slowly drift toward max deviation left on the flow error meter (See Attached Figure 1, "Recirculation Flow Controllers"). Which ONE of the following describes the Flow Control Valve (FCV) response?

a. FCV starts to CLOSE.

b. FCV starts to OPEN.

c. FCV immediately LOCKS UP.

d. FCV will RUNBACK to its minimum position.

QUESTION: 008 (1.00)

The plant is operating at 100% power, Reactor Recirculation Flow Control system is in Flux Auto (Master Manual) control with the flux estimator bypass switch in operate. Which ONE of the following statements describes system response and the reason if the C APRM fails downscale?

a. FCV starts to open, limited by the 102.5% drive flow limiter

b. FCV remains as is, APRM input automatically switches to E APRM

c. FCV starts to open, limited by the 20% error limiter.

d. FCV remains as is, Flux controller shifts to manual.

QUESTION: 009 (1.00)

A caution in N2-OP-101D "Power Changes" directs the Operator not to intentionally reduce total core flow below 45% (49 Mlbm/hr) when above the 80% rod line. Which ONE of the following describes the purpose of this caution?

a. Prevent Flow Control Valve cavitation.

b. Stay out of the Instability Region.

c. Keep MCPR above Safety Limits

d. Maintain PCIOMR limits in the lower core region.

QUESTION: 010 (1.00)

A RPV level transient occurred resulting in a Rx scram. HPCS automatically initiated to maintain RPV level. The HPCS initiation logic was subsequently reset and RPV water level continues to increase to 205". Select the HPCS system response?

a. HPCS pump will continue to run and inject.

b. HPCS pump will trip and the injection valve MOV107 will close.

c. HPCS pump will trip and the injection valve MOV107 remains open.

d. HPCS pump will continue to run and the injection valve MOV107 will close.

QUESTION: 011 (1.00)

The Rx is operating at 100% power when a condensate booster pump minimum flow valve fails open.. The transient causes a RPV low level alarm and feed pump suction pressure to decrease to 180 psig for one minute. Select the system response that will <u>NOT</u> occur

a. Auto start of the standby condensate booster pump

b. Feedwater flow limiter logic engaged

c. Recirc flow control valve runback

d. Operating feed pumps trip

QUESTION: 012 (1.00)

The Rx operating at 100% power with Feed Water Control (FWC) in automatic, 3-element control. If the selected FWC level input channel fails downscale, which ONE of the following describes the expected plant response?

a. RPV water level will decrease, and the reactor will scram on low water level.

b. RPV water level will increase to the high level trip setpoint for the main turbine and the Rx will scram due to the turbine trip.

c. The instrument failure will generate a 1/2 scram signal, RPV level will increase resulting in a trip of all operating feed pumps and subsequent RPV low level full scram.

d. Reactor water level will increase and stabilize when equilibrium is reached between sensed level error and flow error signals.

QUESTION: 013 (1.00)

Which of the following describe a potential effect of placing the Rx recirc flow control valves below minimum position when shifting Rx recirc pumps to fast speed?

a. Flow control valve cavitation

b. Rx recirc pump trip

c. Rx recirc pump overheating

d. FLow control valve hydraulic lock

QUESTION: 014 (1.00)

Select the power supply and logic configuration for the Redundant Reactivity Control System (RRCS) Alternate Rod Insertion (ARI) solenoid valves.

a. - The ARI valves receive 125 VDC power.
   - Both divisions must energize to vent the scram air header.

b. - The ARI valves receive UPS 120 VAC power.
   - Both divisions must de-energize to vent the scram air header.

c. - The ARI valves receive 125 VDC power.
   - One division must energize to vent the scram air header.

d. - The ARI valves receive UPS 120 VAC power.
   - One division must de-energize to vent the scram air header.

QUESTION: 015 (1.00)

An ATWS event was initiated 9 minutes ago, RRCS automatically initiated on high Rx pressure causing both SLC pumps to start and inject into the RPV. Subsequently all rods have been inserted and the SSS directs the Operator to secure SLC. Select the statement that describes the ability to terminate SLC injection.

a. SLC can not be secured following automatic initiation, the SLC pumps will trip on low boron storage tank level

b. Reset the RRCS logic and both SLC pumps will automatically shutdown

c. SLC pumps can not secured until the RRCS reset timer times out.

d. Place each pumps key lock control switch on P601 in the stop position and the pumps will stop.

QUESTION: 016 (1.00)

Assuming proper operation of the Reactor Manual Control System and all interfacing systems, Which ONE(1) of the following rod manipulations could result in a "Rod Drift" alarm?

a. Rod insertion using the Insert pushbutton.

b. Rod insertion using the Continuous In pushbutton.

c. Rod withdrawal using the Withdraw pushbutton only.

d. Rod withdrawal using the Continuous Withdraw and Withdraw pushbuttons.

QUESTION: 017 (1.00)

A fire in the control room required the control room to be abandoned. The Rx is shutdown, all control room evacuation actions are complete and control is established at the remote shutdown panel. Conditions are as follows:

All remote transfer switches are in the emergency position
All Appendix R disconnect switches activated
RHR initiated prior to switches being repositioned
RPV level 17" decreasing slowly (no systems injecting)
RPV pressure 905 psig and increasing slowly

Select the affect on Rx pressure and the automatic system response if no further operator actions are taken.

a. Rx pressure will decrease rapidly following an ADS automatic blowdown.

b. Rx pressure will increase until 935 psig when the bypass valves open.

c. Rx pressure will increase to 1148 psig when two SRVs open.

d. Rx pressure will increase until 1076 psig when two SRVs open.

QUESTION: 018 (1.00)

All RHR system remote transfer switches are in the emergency position and all Appendix R disconnect switches activated. Select the automatic response of the RHR injection valve MOV24A following a LOCA initiation signal.

a. The valve will not open

b. The valve will open when D/P is less than 130 psid

c. The valve will open immediately regardless of D/P

d. The valve will open following manual start of the RHR pump when D/P is less than 130 psid

QUESTION: 019 (1.00)

The plant is operating at 80% Rx power when the EHC pressure regulator fails high (pressure indicator upscale). Select the expected plant response.

a. EHC shifts to the standby regulator and will control Rx pressure 10 psi higher

b. Main Turbine control and bypass valves will shut resulting in a high pressure Rx scram

c. Recirc pumps will shift to slow on low steam dome/pump suction interlock and a lower steady state power will be established

d. Turbine Bypass valves will open and reduce Rx pressure resulting in an MSIV isolation

QUESTION: 020 (1.00)

The SGTS trains automatically initiated following a plant transient that resulted in RPV level of 100". The "A" SGTS train was shutdown with the control switch returned to auto, RPV level is 52" and increasing. Which of the following will cause a "A" SGTS to automatically restart.

a. Any additional SGTS auto start signal

b. "A" SGTS charcoal adsorber temperature HI/HI

c. Rx Bldg negative differential pressure low (-0.2" WG)

d. "B" SGTS low flow (time delayed)

QUESTION: 021 (1.00)

With the plant operating at 100% Rx power when the Auxiliary Operator opens the manual bypass around the CRD pressure control station. Select the effect this will have on the CRD system.

a. Decreases rod withdrawal speed

b. Decreases cooling flow to the CRDMs

c. Reduces seal flow to the Rx Recirc Pumps

d. Increases CRD system flow

QUESTION: 022 (1.00)

The plant is operating at 89% Rx power when the "LPCS LINE BREAK" annunciator alarms. SELECT the condition that could have caused this alarm.

a. LPCS line break inside the core shroud prior to the spray sparger

b. "A" LPCI line break between the RPV and the core shroud

c. "A" LPCI line break inside the core shroud

d. Any line break between LPCS and "A" LPCI outside the containment

QUESTION: 023 (1.00)

SELECT the signal which will trip the Division 3 Emergency Diesel Generator following a LOCA automatic initiation.

a. Low lube oil pressure

b. Generator overcurrent

c. Generator reverse power

d. Engine overcrank

QUESTION: 024 (1.00)

The Division 3 HPCS Diesel Generator (DG) is running in parallel with offsite power for surveillance testing, when a loss of offsite power occurs. Select the expected DG response.

a. The offsite feeder breakers trip, the DG voltage regulator shifts to isochronous mode and all trips remain in affect.

b. The DG output breaker and the offsite feeder breakers trip and then DG output breaker re-closes. The DG voltage regulator remains in droop and only the emergency mode trips are in affect

c. The offsite feeder breakers trip, the DG voltage regulator remains in droop and all trips remain in affect.

d. The offsite feeder breakers trip, the DG voltage regulator remains in droop mode, and only the DG emergency mode trips are in affect.

QUESTION: 025 (1.00)

The Rx mode switch is in Startup when a momentary loss of the 24 VDC power to channel "A" SRM preamplifier occurs and is immediately restored. SELECT the correct statement concerning system response (and operator action required if any).

a. An UPSCALE/INOP rod block is generated, but the rod block will clear automatically when power is restored.

b. An UPSCALE/INOP rod block is generated and must be reset at panel 606 before further rod withdrawal can take place.

c. No rod block is generated, because the trip unit power supply was not affected.

d. An UPSCALE/INOP rod block was generated and must be reset at panel 603 before further rod withdrawal can take place.

QUESTION: 026 (1.00)

With the RCIC turbine operating in AUTO, the flow transmitter output fails low (downscale). SELECT the statement that describes the speed response of the RCIC turbine.

a. Speed decreases to 700 - 1000 RPM, the ramp generator minimum speed.

b. Speed decreases to the governor minimum speed setting of 1500 RPM.

c. Speed increase to the governor maximum setting of 4500 RPM (corresponds to 600 GPM at the low pressure isolation setpoint).

d. Speed increases to the overspeed trip setpoint, resulting in a turbine trip.

QUESTION: 027 (1.00)

A small steam leak has resulted in an automatic RCIC initiation on low RPV level. Drywell pressure is 3.0 psig increasing, SELECT the RCIC trip or isolation that allows RCIC restart from the control room when the trip or isolation is cleared.

a. High turbine exhaust pressure

b. Low pump suction pressure

c. High reactor vessel level

d. Steam line high flow

QUESTION: 028 (1.00)

The plant is operating with the following initial conditions:

- Reactor Power = 23%
- Generator Output = 23%
- Reactor Pressure = 944 psig
- Pressure Setpoint = 935 psig
- Turbine RPM = 1800
- Load Limit = 100%
- Maximum Combined Flow = 115%

A complete loss of generator load occurs. SELECT the correct plant response from the following (Assume no switchyard malfunctions):

a. No turbine trip and no reactor scram

b. No turbine trip but reactor scram

c. Turbine trip but no reactor scram

d. Turbine trip and reactor scram

QUESTION: 029 (1.00)

The plant has scrammed due to high drywell pressure. "A" RHR pump is aligned for suppression pool spray and drywell spray. Select the response of the "A" RHR system when reactor pressure drops from 600 psig to 300 psig. (Assume DW pressure remains higher than the scram setpoint and MOV24A has not been overridden.)

a. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A CLOSE.
   - LPCI injection valve MOV24A OPENS.

b. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A remains OPEN .
   - LPCI injection valve MOV24A OPENS.

c. - Suppression pool spray valve MOV33A CLOSES.
   - Drywell spray valves MOV15A and MOV25A remain OPEN
   - LPCI injection valve MOV24A remains CLOSED.

d. - Suppression pool spray valve MOV33A remains OPEN.
   - Drywell spray valves MOV15A and MOV25A CLOSE.
   - LPCI injection valve MOV24A OPENS.

QUESTION: 030 (1.00)

The Reactor Water Cleanup (RWCU) Inboard containment isolation valve (MOV102) stroked close. The RWCU outboard containment isolation valve MOV112 did not receive an isolation signal. Select the signal which caused the actuation.

a. A manual start of the "A" SLC pump from the control room

b. A manual start of the "B" SLC pump from the control room

c. A manual initiation of Redundant Reactivity Control System (RRCS) Division 1

d. An automatic initiation of Redundant Reactivity Control System (RRCS) Division 2

QUESTION: 031 (1.00)

The plant is operating at 100% reactor power. A single control rod scram occurs for control rod #30-31. Select the response indicated on the full core display.

a. - The blue scram light is illuminated.
- The amber HCU accumulator trouble light is illuminated.
- The red rod drift light is illuminated.

b. - The blue scram light is illuminated.
- The red HCU accumulator trouble light is illuminated.
- The amber rod drift light is illuminated.

c. - The amber scram light is illuminated.
- The green full-in light is illuminated.
- The red rod drift light is illuminated.

d. - The red scram light is illuminated.
- The amber HCU accumulator trouble light is illuminated.
- The green full-in light is illuminated.

QUESTION: 032 (1.00)

Select the statement which describes the correct operation of the Rod Block Monitor (RBM) system.

a. The "A" RBM will be automatically bypassed if APRM "A" reads LESS THAN 30% reactor power.

b. The RBM "B" reference APRM will automatically swap from APRM "D" to APRM "B" if APRM "D" is bypassed.

c. The RBM downscale trip is automatically bypassed when the reactor mode switch is in the RUN position.

d. The RBM upscale trip is bypassed when an edge control rod is selected.

QUESTION: 033 (1.00)

SELECT the rod sequence control system enforced restrictions while withdrawing control rods to 50% rod density.

a. RSCS Group 1 must be the first group of control rods to be withdrawn to position 48. Continuous notch withdrawal to position 48 is permitted.

b. With RSCS Group 1 fully withdrawn to position 48, the second group to be moved must be RSCS Group 2. Notch withdrawal is enforced between notch positions 00 and 12.

c. With RSCS Groups 1 and 2 fully withdrawn to position 48, RSCS Group 4 can be withdrawn to position 48. Continuous notch withdrawal to position 48 is permitted.

d. With RSCS Groups 1 and 2 and 3 fully withdrawn to position 48, RSCS Group 4 control rods must be banked to notch position 04, with notch withdrawal enforced, prior to continuing with control rod movement.

QUESTION: 034 (1.00)

The plant is operating at 100% Rx power when the CRD flow control valve failed open resulting in multiple rods drifting. The problem was corrected and all rods have settled into a valid position. Select the correct statement concerning identification of the drifting rods using the RWM.

a. The RWM will automatically shift screens and list the number of rods drifting and all the identities.

b. The Rod Drift soft key must be depressed to determine how many rods are drifting and only the identity of the first rod to drift can be determined.

c. The Rod Drift soft key must be used to determine the number of rods drifting and by pressing the List Rods button a dynamic update of all rods drifting is displayed

d. The RWM will automatically shift screens and list the number of rods drifting, pressing the List Rods button will display all drifting rod identities

QUESTION: 035 (1.00)

Procedure N2-OP-29 "Reactor Recirculation system" requires that the operating loop flow rate to be less than 50% of rated jet pump flow prior to starting an idle Rx Recirc pump. SELECT the basis for this precaution

a. Prevent excessive core internals vibration when starting the idle Rx Recirc pump

b. Prevent jet pump cavitation when starting the idle Rx Recirc pump

c. Prevent a cold water induced power excursion from causing core instabilities when starting the idle Rx Recirc pump

d. Prevent undue thermal stress on vessel nozzles when starting the idle Rx Recirc pump

QUESTION: 036 (1.00)

Following a Rx scram from 100% power, Rx water level drops to 120". Which of the following automatic actions will occur?

a. Rx recirc pumps downshift to slow

b. RRCS automatic initiation

c. Rx recirc flow control valve runback

d. Feedwater flow control valve runback

QUESTION: 037 (1.00)

A steam leak results in a Rx Bldg Radioactive Pipe Chase temperature of 180 F. Select the one statement that includes ALL appropriate system responses.

a. RWCU isolates

b. RWCU, RCIC and RHR shutdown cooling isolation

c. RCIC and RHR shutdown cooling isolation

d. RCIC isolation

QUESTION: 038 (1.00)

During a radioactive waste discharge, "EFFLUENT LIQUID RAD MON ACTIVATED" alarms and the Waste Discharge valve 2LWS-AOV142 isolates. Select the process rad monitor that caused this response.

a. SWP DISCHARGE DIV 2 (2SWP-RE146B)

b. CWS BLOWDOWN LINE (2CWS-RE157)

c. LIQ. RADWASTE EFFL. (2LWS-RE206)

d. RHS HX SWP DIV 1 (2SWP-RE23A)

QUESTION: 039 (1.00)

The diesel fire pump has tripped and the "TROUBLE DIESEL FIRE PUMP" alarm is on following an automatic initiation on low header pressure. Select the condition that caused the diesel fire pump trip.

a. Lube oil low pressure 6 psig

b. Engine overspeed 120%

c. Cooling water high temperature 205 F

d. Lube oil high temperature 180 F

QUESTION: 040 (1.00)

During surveillance testing of the Radiation Monitoring system the division 1 control room intake radiation elements (RE18A and RE18C) were inadvertently denergized. Select the expected control building ventilation system response.

a. Special filter train 2HVC*FN2A starts and special filter bypass valve 2HCV*MOV1A isolates

b. Special filter train 2HVC*FN2A fails to start and 2HVC*FN2B starts on low flow (time delayed). Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

c. Special filter train 2HVC*FN2A and 2HVC*FN2B start. Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

d. Special filter train 2HVC*FN2A starts. Special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

QUESTION: 041 (1.00)

A LOCA has occurred with a loss of offsite power. The emergency buses have been automatically re-energized by the standby diesel generators. Which ONE of the following loads will <u>NOT</u> automatically restart.

a. RHR pump

b. LPCS pump

c. Service water pump

d. CRD pump

QUESTION: 042 (1.00)

The plant was operating at 35% Rx power when a RPV low level scram occurred due to a loss of the only operating Feedwater pump. WHICH ONE of the following describes the automatic actions that result from the subsequent Main Generator reverse power trip?

a. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses are denergized and locked out, Main Generator cooling system trips, Main transformer deluge receives a fire protection permissive.

b. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses fast transfer is blocked and a slow transfer to the reserve source is initiated, Main Generator and Exciter field breakers trip,

c. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses fast transfer to the reserve power source, Exciter field breaker trips, and the Main Transformer cooling system trips,

d. 13.8 KV 2NPS-SWG001 and 2NPS-SWG003 buses remain powered from the Normal Station Service Transformer, Main Generator field breaker trips, Main transformer deluge receives a fire protection permissive.

QUESTION: 043 (1.00)

The Offgas system contains several components which helps reduce the release of radioactivity. SELECT the component which reduces almost 100% of the Iodine radioactivity release during normal at-power operation.

a. 75-second delay pipe

b. Vacuum pumps

c. Charcoal Beds

d. HEPA Filter

QUESTION: 044 (1.00)

The Residual Heat Removal system is in Shutdown Cooling (SDC) mode with pump B in service. Reactor water level begins decreasing and reaches 159 inches.

WHICH ONE of the following valves DOES <u>NOT</u> go closed:

a. SDC suction valve (MOV2B)

b. SDC isolation valve (MOV112)

c. SDC return bypass valve (MOV67B)

d. SDC return valve (MOV40B)

QUESTION: 045 (1.00)

In response to a steam leak in the drywell the "B" loop of RHR was placed in Drywell and suppression chamber spray simultaneously. Select the AUTOMATIC system response if any, when the high drywell pressure initiation subsequently clears.

a. Drywell spray isolates and suppression chamber spray continues

b. Drywell spray continues and suppression chamber spray isolates

c. Drywell and suppression chamber sprays isolate

d. Drywell and suppression chamber sprays continue

QUESTION: 046 (1.00)

SELECT the response of the Transversing Incore Probe (TIP) to a reactor scram in which RPV level decreases to 100 inches when one TIP detector is in the core. ASSUME the detector is being operated in the manual mode at the TIP control panel.

a. The TIP detector is automatically withdrawn from the core and when the detector has reached the "in-shield" position, the ball valve must be manually closed.

b. The TIP detector is automatically withdrawn from the core and when the detector has reached the "in-shield" position, the ball valve will automatically close.

c. The TIP detector will remain in the core and the shear valve will automatically operate.

d. The TIP detector remains in the manual mode and must be manually withdrawn from the core and isolated with the ball valve.

QUESTION: 047 (1.00)

Given the following:
Refueling in progress
Mode switch in REFUEL
Main hoist loaded with a fuel bundle

Which ONE(1) of the following conditions will generate a Rod Block?

a. A control rod is selected on P603.

b. The refuel bridge is moved over the core.

c. The Mode switch placed in STARTUP

d. Fuel Grapple control is placed in the Raise or Lower position.

QUESTION: 048 (1.00)

The plant is in a Refueling outage, "B" loop of RHR is in Shutdown cooling and most of the core off loaded for vessel internals work. A loss of off site power occurs and results in a "SPENT FUEL POOL WATER TEMP HIGH" alarm. Select the required actions to restore Spent Fuel Pool Cooling (SFPC) to clear the alarm. (Off site power will not be available for unknown amount of time)

a. Immediately start a SFPC pump, wait 60 seconds and start a RBCLCW pump.

b. Wait at least 60 seconds and start the SFPC pump, and then start a RBCLCW pump.

c. Wait at least 60 seconds and start the SFPC pump, align service water to the SFPC heat exchanger.

d. Place the "A" loop of RHR that is not in Shutdown cooling in the Fuel pool cooling mode of operation.

QUESTION: 049 (1.00)

An inadvertent reactivity addition occurs due to loss of feedwater heating. Select the thermal limit that is of concern during this event.

a. Minimum Critical Power Ratio (MCPR)

b. Linear Heat Generation Rate (LHGR)

c. Average Planar Linear Heat Generation Rate (APLHGR)

d. Maximum Average Planar Ratio (MAPRAT)

QUESTION: 050 (1.00)

A LOCA has occurred. Select the following condition that would NOT meet the criteria of providing "Adequate Core Cooling"?

a. RPV level -40" with no injection source

b. RPV level -48" with HPCS injecting

c. RPV pressure above the minimum alternate RPV flooding pressure when RPV level is unknown

d. RPV pressure above the minimum alternate RPV flooding pressure when the Rx is not shutdown

QUESTION: 051 (1.00)

Reactor pressure has been reduced to 470 psig and has been held at that pressure for 1 hour. DETERMINE the LOWEST reactor pressure that the reactor can be reduced to over the next 1 hour without exceeding the maximum technical specification allowable cooldown rate.

__________________ psig (FILL ANSWER ON ANSWER SHEET)

QUESTION: 052 (1.00)

The plant is operating at 60% power steady state when an inadvertent HPCS initiation occurs. Which of the following is a steady state indication of this transient.

a. APRM indications decrease

b. Core flow increases

c. Generator load (Megawatts) increase

d. Turbine inlet steam pressure decreases

QUESTION: 053 (1.00)

In accordance with N2-EOP-PC "Primary Containment Control," drywell sprays have been initiated at a suppression chamber pressure of 11 psig and a drywell temperature of 330°F. SELECT the condition and reason when drywell sprays are required to be terminated.

a. When drywell pressure decreases to the safe region of the of the Drywell Spray Initiation Curve (PC-2) terminate drywell sprays to restore the RHR pumps for adequate core cooling.

b. When suppression chamber pressure decreases to less than 10 psig (suppression chamber spray initiation pressure limit) to preclude cyclic condensation of steam at the downcomer openings of the drywell vents.

c. When drywell pressure decreases to less than the high drywell pressure entry condition terminate drywell sprays to prevent exceeding the negative design pressure of the primary containment.

d. When suppression pool level exceeds 217" to prevent exceeding Drywell to suppression chamber differential pressure limits

QUESTION: 054 (1.00)

The plant was operating at 100% power when a MSL high flow signal initiated an MSIV isolation and RX scram. Conditions are as follows:

RPV pressure cycling 1076 psig to 978 psig
RPV level 154"
Rx bldg pipe chase temperature 145 F
Main steam line pipe tunnel temperature 155 F

Which of the following systems are available for RPV pressure control?

1 SRVs

2 RHR in steam condensing

3 RCIC operating with suction from the CST

4 Main Steam line drains

a. 1

b. 1 and 2

c. 1 and 3

d. 1 and 4

QUESTION: 055 (1.00)

The plant is operating at 70% Rx power and a stator cooling high temperature condition occurs. Assume the high temperature condition does not clear and the only operator response is to reduce Recirc to 45% of rated core flow. Select the expected plant response.

a. A scram occurs on due to the resultant pressure transient.

b. The main generator runs back to 7006 stator amps and the turbine bypass valves open to maintain Rx pressure.

c. A scram occurs on TSV position more than 5% closed.

d. A scram occurs on low ETS pressure due to TCV fast acting solenoids energizing.

QUESTION: 056 (1.00)

A plant startup is in progress with Rx power at 19%. Select the condition(s) that require(s) a manual trip of the main turbine

a. Turbine vibration exceeding 8 mils and increasing

b. Condenser vacuum 25"

c. Differential condenser vacuum between an two condensers 1.5"

d. Loss of seal oil pressure and machine gas pressure of 25 psig

QUESTION: 057 (1.00)

Following a LOCA, the containment has been flooded to 299.5 feet. Which of the following concerns requires lowering this level?

a. Exceeding the containment design pressure due to the height of water in the containment

b. Exceeding the drywell floor design pressure due to the height of water in then drywell

c. The loss of a vent path to minimize and control radioactive releases

d. The loss of a vent path to control containment pressure

QUESTION: 058 (1.00)

A failure to scram has occurred and N2-EOP-RPV "RPV Control" is being performed. If SLC injection is required select the method of boron mixing in the core that will assure SLC can bring the Rx subcritical

a. Recirc pumps operating at minimum

b. Natural circulation

c. RCIC injection will establish a turbulent flow in the in-core region

d. CRD flow is maximized to prevent boron from settling in the bottom head region

QUESTION: 059 (1.00)

Procedure N2-EOP-RPV "RPV Control" requires pressure reduction to 960 psig if an SRV is cycling. Select the statement that is <u>**NOT**</u> a reason for this action

a. Reduce fluctuations in RPV level

b. Reduce Rx pressure below the bypass valve full open setpoint

c. Reduces dynamic loading on the containment

d. Minimize the possibility of a stuck open SRV or failure to open

QUESTION: 060 (1.00)

SELECT the statement that describes the bases for lowering reactor water level in order to reduce reactor power during an ATWS event.

a. Uncovers the top portion of the core creating a steam blanket in the upper fuel region

b. Minimizes dilution and concentrates boron in the in-core region of the RPV providing a more rapid power reduction.

c. Reduces the injection of colder water into the RPV and minimizes the subcooling affect on neutron moderation.

d. Reduces the natural circulation flow leaving only a small amount of in-core recirculation.

QUESTION: 061 (1.00)

WHICH ONE of the following contains ONLY the parameters that would be used in determining if boron injection is required during an ATWS condition?

a. RPV pressure, suppression pool temperature.

b. Reactor power, RPV level and suppression pool temperature.

c. Suppression pool level and reactor power.

d. Suppression pool temperature and reactor power.

QUESTION: 062 (1.00)

A steam leak in the drywell has resulted in rapidly rising drywell temperature and pressure. The SRO has directed the initiation of drywell sprays. Which ONE(1) of the following would be the effect if drywell sprays were initiated when plant conditions were in the prohibited region of the DRYWELL SPRAY INITIATION LIMIT graph?

a. Thermal shock and potential failure of the drywell spray header piping.

b. Rapid containment pressurization due to drywell spray flashing to steam.

c. Diversion of RHR required for vessel flooding due to loss of RPV level indication.

d. Rapid depressurization of the primary containment below the high drywell pressure scram setpoint.

QUESTION: 063 (1.00)

Procedure N2-EOP-PC "Primary Containment Control" requires that suppression pool level be maintained below 217 inches. SELECT the basis for this level limit.

a. The level at which the suppression chamber to drywell vacuum breakers are submerged.

b. The level that prevents exceeding the heat capacity level limit.

c. The level that ensures adequate vent capability to prevent exceeding the primary containment pressure limit.

d. The maximum level that is accurately measured and displayed.

QUESTION: 064 (1.00)

Procedure N2-EOP-RR "Radioactivity Release Control" directs that if the turbine building ventilation system is shutdown then restart
the turbine building ventilation system. SELECT the basis for this action.

a. Results in a positive pressure inside the turbine building to limit the intrusion of radioactivity into the turbine building.

b. Results in recirculation of the turbine building ventilation and reduction in the amount of radioactivity released.

c. Results in the radioactivity being discharged as a ground release to limit the dispersion of radioactivity.

d. Results in the radioactivity being discharged in a monitored release.

QUESTION: 065 (1.00)

The plant is operating at 100% power with main steam line radiation monitor C failed upscale. A loss of the "B" RPS bus 2VBS*PNLB100 occurs due to a faulty EPA breaker, SELECT the appropriate plant response.

a. No loss of indication on MSL rad monitors B and D but a 1/2 scram will be generated.

b. No loss of indication on MSL rad monitors B and D but a full scram will be generated.

c. Loss of indication on MSL rad monitors B and D and a 1/2 scram will be generated.

d. Loss of indication on MSL rad monitors B and D and a full scram will be generated.

QUESTION: 066 (1.00)

The plant is operating at 100% when a pin hole leak in a fuel rod develops, resulting in the following alarms:

MSL RADIATION HIGH (1.5 x normal)
PROCESS GAS RADN MON ACTIVATED
OFF GAS RADIATION HIGH (DRMS red alarm condition)

Select the automatic plant response to these alarm conditions.

a. Offgas Recombiner inlet and outlet valves close

b. Offgas exhaust to Stack isolation valve closes

c. Rx Recirc sample valves close

d. Condenser air removal pump trip signal

QUESTION: 067 (1.00)

The reactor is operating between the 80 to 100% rodline when an automatic Recirc pump down shift due to a faulty control circuit, causes a reduction in core flow to less than 45% of rated. Select the condition that does **NOT** require an immediate Rx scram.

a. APRM oscillations on panel P603 of 8%

b. LPRM oscillations of 22% on the four rod display

c. APRM oscillations on panel P608 of 12%

d. LPRM periodic upscale and downscale alarms

QUESTION: 068 (1.00)

Heavy smoke has permeated the control room and requires evacuation of the control room crew. Select the action that would **NOT** be appropriate upon exiting the control room.

a. Close the MSIVs using the primary containment isolation manual initiation pushbuttons

b. Place the mode switch in shutdown

c. Verify all rods inserted on the full core display

d. Place service water in a one pump per loop configuration

QUESTION: 069 (1.00)

SELECT the parameter change that is **NOT** a symptom of a jet pump failure (rams head separates from the riser) during steady state operation

a. Decrease in Reactor Power.

b. Decrease in indicated total core flow.

c. Increase in indicated core plate differential pressure.

d. Increase in indicated Recirculation loop drive flow.

QUESTION: 070 (1.00)

A reactor startup is in progress with conditions as follows:

Mode switch in startup
Rx is critical
Source/intermediate range overlap checks in progress
Rx coolant temperature 190 F
RPV level 183" and stable

A Rx bldg instrument air pipe break occurs resulting in a rapid loss of all instrument air to Rx bldg loads. Select the statement that describes the affect on RPV level

a. RPV level will increase due to the Rx scram and the loss of RWCU

b. RPV level will decrease due to condensate system minimum flow valves failing open

c. RPV level will decrease due to CRD flow control valves failing to minimum

d. RPV level will remain constant

QUESTION: 071 (1.00)

The reactor is operating at 20% power when condenser vacuum begins to steadily decrease at a rate of 1 inch Hg absolute per minute. SELECT the sequence of actions that will occur if condenser vacuum continues to steadily decrease with no operator actions.

a. - Reactor scram
- Main turbine trip
- MSIVs close

b. - Main turbine trip
- Reactor scram
- MSIVs close

c. - MSIVs close
- Reactor scram
- Main turbine trip

d. - Main turbine trip
- MSIVs close
- Reactor scram

QUESTION: 072 (1.00)

The plant is operating at 100% Rx power when a loss of instrument air occurs. Select the conditions that require the operator to initiate a manual Rx scram.

a. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with one drifting rod, confirmed using the 4 rod display.

b. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with scram air header pressure reading 60 psig.

c. "CRD SCRAM AIR HEADER PRESSURE HIGH/LOW" alarm with the scram inlet and outlet valves open for one accumulator (Determined using full core display).

d. "INST AIR RCVR TK PR LO" alarm with two rod drift lights on the full core display illuminated.

QUESTION: 073 (1.00)

The plant is operating at 100% Rx power when inadvertent group 8 primary containment isolation occurs due to I&C testing. Which of the following is an expected plant response.

a. Drywell cooling fans trip.

b. Suppression chamber to Drywell vacuum breakers fail open

c. Rx sample valves isolate

d. Rx Recirc pump seal purge isolates

QUESTION: 074 (1.00)

The plant is operating at 100% Rx power when a total loss of TBCLCW occurs. WHICH ONE of the following is <u>NOT</u> a required immediate action once it is determined TBCLCW CAN NOT be restored?

a. Reduce Rx Recirc flow to minimum

b. Open the condenser Vacuum Breakers

c. Trip the Turbine Generator

d. Transfer station electrical load to the Reserve transformers

QUESTION: 075 (1.00)

WHICH ONE of the following describes the effect on the Condenser Air Removal/OffGas system if TBCLCW were lost to the system during full power operations?

a. Isolation of the inservice Offgas recombiner on recombiner outlet temperature high.

b. Isolation of the Offgas discharge isolation valve (AOV103) Offgas condenser outlet temperature high.

c. Lowering main condenser vacuum due to loss of cooling to the inter and after air ejector condensers.

d. Increased Offgas moisture content due to loss of TBCLCW cooling to the Offgas dryers

QUESTION: 076 (1.00)

A Rx scram has occurred with a failure of all rods to insert. The scram condition is still present with one CRD pump operating. Which ONE of the following actions is REQUIRED to manually insert (drive) control rods?

a. Install jumpers to defeat RPS interlocks and reset the scram

b. Install jumpers to defeat RWM rod blocks

c. Close the charging header isolation valve 2RDS-V28

d. Maximize drive water D/P by closing the pressure control valve 2RDS-PV101

QUESTION: 077 (1.00)

A high drywell pressure, LOCA initiation isolated RBCLCW to the drywell coolers. Select the actions required to restore drywell cooling.

a. Place the Drywell Unit Cooler Cooling and the Drywell Unit Cooler Fans GR 1/2 LOCA override switches in "OVERRIDE", manually open the RBCLCW isolation valves to the Drywell coolers and restart the fans.

b. Place the Drywell Unit Cooler Cooling LOCA override switches in "OVERRIDE", the manually open RBCLCW isolation valves to the Drywell coolers and the fans will auto restart.

c. Place the Drywell Unit Cooler Cooling and the Drywell Unit Cooler Fans GR 1/2 LOCA override switches in "OVERRIDE", manually open the RBCLCW isolation valves to the Drywell coolers and fans auto restart.

d. Place the Drywell Unit Cooler Fans GR 1/2 LOCA override switches to "OVERRIDE", manually restart the fans.

QUESTION: 078 (1.00)

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The plant is operating at 100% Rx power when a bus fault occurs on SWGR 101 and results in the "BKR 101-10 BKR 101-13 ELEC FAULT PRI PROT TRIP" alarm. Which of the following describe the expected response to this condition.

a. The normal and alternate feed breakers trip and/or lock out. The diesel generator is blocked from auto starting on undervoltage.

b. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker will not close in either automatically or manually.

c. The normal feeder breaker trips and locks out. The diesel generator will auto start, the diesel output or the alternate feeder breakers can be closed in manually.

d. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker can only be closed in manually.

QUESTION: 079 (1.00)

A plant startup is in progress with Rx power 1% and Rx pressure 150 psig when a loss of both CRD pumps occurs. Select the condition that requires a manual Rx scram to be initiated.

a. More than one accumulator trouble alarm

b. More than one control rod high temperature alarm

c. Any control rod verified drifting inward

d. Charging header pressure less than 600 psig

QUESTION: 080 (1.00)

The plant is operating at 100% Rx power when a loss of off-site power occurs. Concerning bus 4KV emergency bus 103, SELECT the following that is <u>NOT</u> an expected automatic response to this condition

a. Manual bus loading is blocked for approx. 1 minute

b. All load breakers open

c. The diesel generator starts, the output breaker closes and load sequence selection commences

d. Category 2 service water separates from Category 1 service water

QUESTION: 081 (1.00)

A ground was isolated to the 125 VDC control power division 2 bus "A" (4 KV breaker control power). Which of the following will occur if this breaker is opened?

a. Breaker protection trips will operate normally and all breakers remain closed.

b. Breaker protection trips will not operate and breakers that are closed will trip open.

c. Breaker protection trips will not operate and breakers can not be manually tripped from the control room.

d. Breaker protection trips will not operate but breakers can be manually tripped from the control room.

QUESTION: 082 (1.00)

During preparation for refueling with the fuel pool at the normal level, the gate between the reactor well and fuel pool fails with the outer refueling bellows not yet installed. SELECT the fuel pool level response.

a. Fuel pool level will decrease but be maintained above the technical specification minimum fuel pool level.

b. Fuel pool level will decrease approximately 12 feet.

c. Fuel pool level will decrease to approximately 1 feet above the top of the fuel.

d. Fuel pool level will decrease to below the top of fuel with two thirds of the fuel covered.

QUESTION: 083 (1.00)

The plant has just achieved cold shutdown when a loss of shutdown cooling occurs. Assume that the inboard shutdown cooling isolation valve 2RHS*MOV112 can not be reopened. SELECT the method of decay heat removal appropriate for these conditions.

a. RWCU maximizing RBCLCW to the non-regenerative heat exchangers.

b. Recirculate the suppression pool through open SRVs and establish RPV pressure at greater than 40 psid above Rx pressure.

c. Start a Reactor Recirculation pump.

d. Raise and maintain RPV level to 227" to 243" on the shutdown range to establish natural circulation

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QUESTION: 084 (1.00)

~~The Refueling Floor SRO has just been informed by the Control Room that criticality has occurred while inserting a fuel assembly into the core.~~

~~In accordance with N2-FHP, Refueling Manual, which ONE of the following actions should be directed by the Refuel Floor SRO?~~

a. ~~Raise the fuel bundle until it is clear of the core and contact Radiation Protection for a radiation survey of the refuel floor.~~

b. ~~Immediately evacuate the refueling floor, notify the Shift Supervisor, Health Physics and Engineering.~~

c. ~~Stop inserting the fuel bundle and contact the Shift Supervisor for direction as to the disposition of the partially inserted fuel assembly.~~

d. ~~Remove the fuel bundle, suspend core alterations, and contact the Reactor Engineer for investigation.~~

QUESTION: 085 (1.00)

Select the condition that requires entry into procedure N2-EOP-SC "Secondary Containment Control".

a. Rx Bldg equipment sump TK2A level high/high

b. "RX BLDG AREA RADN MON ACTIVATED" alarm with the TIP equipment area radiation monitor at the ALERT LEVEL and rising (DRMS yellow alarm)

c. Rx BLDG general Area (elevation 240') temperature 133
F

d. MSL Tunnel leads Enclosure temperature 169 F

QUESTION: 086 (1.00)

The reactor is in Mode 4. Planned, corrective maintenance is to be performed on 2RCS*MOV18A Recirculation Discharge Isolation. The maintenance requires the valve to be cycled at certain times during the work. A red markup has been applied by the work group but the second verification has not been completed. Which one of the following is completed prior to performing the work?

a. The second verification of the red markup is completed by the work group. A second, blue markup is applied to the valve to allow the work group to manually cycle the valve if necessary during the maintenance.

b. The second verification of the red markup is not completed allowing the work group to operate the valve as necessary.

c. A licensed reactor operator must perform an independent verification of the red markup and this markup must be cleared before the valve can be cycled.

d. A licensed reactor operator must perform an independent verification of the red markup allowing the work group to cycle the valve as necessary to perform the maintenance.

QUESTION: 087 (1.00)

In accordance with AP-3.3.2 "Radiation Work Permit", which one of the following is an activity which would require the prior approval of a radiation work permit (RWP)?

a. Passage through an area with known 80dpm/100cm2 fixed contamination

b. Cleaning in an area with an expected neutron exposure of 2 mrem in an 8 hour period

c. Entry into the main condenser to perform a radiation survey

d. Assignment of a radiation protection technician to monitor the offsite transport of a potentially contaminated, injured individual

QUESTION: 088 (1.00)

In accordance with Administrative Procedure AP-3.2.5 "Compressed Gas Cylinder Control", which of the following is <u>NOT</u> a requirement to be followed for the storage of compressed gas cylinders?

a. Only four cylinders or less are stored in an "in plant" tie-off area

b. Cylinders are stored in well ventilated areas

c. Valve protection caps are maintained in place

d. Cylinders are stored to prevent exposure to freezing temperatures

QUESTION: 089 (1.00)

A Special Test is being performed which leads to the following conditions:

Rx power 38%
Rx pressure 890 psig
Minimum Critical Power Ratio (MPCR) of 1.05

Which of the following actions is required?

a. Commence a reactor shutdown and be in at least HOT STANDBY within two hours

b. Take action to restore MPCR to greater than 1.07 within two hours then power operation may continue

c. Commence a reactor shutdown within two hours and put the mode switch in SHUTDOWN within the next six hours

d. Raise reactor pressure to greater than 930 psig within one hour then power operation may continue

QUESTION: 090 (1.00)

Which of the following is a station requirement regarding the completion of an "Independent Verification" of a control board switch position following manipulation by a licensed operator?

a. The "Independent Verifier" must hold a valid operators license

b. The "Independent Verifier" must have observed the switch manipulation

c. The independent verification must be signed prior to the sign off by the manipulator

d. The independent verification is signed by a second individual based on a verbal report (by the manipulator) that the action has been completed

QUESTION: 091 (1.00)

A deficiency is discovered that requires the temporary disabling of the following annunciator:

Division II SPENT FUEL SURGE TANK 1B LVL HIGH/LOW

Which of the following specifies one of the operators responsibilities during the disabling of the annunciator?

a. Complete a red markup and attach the tag to the affected annunciator window

b. Complete a yellow hold out tag and attach the tag to the affected annunciator window

c. Enter the work request number in the "Defeated Annunciator" log and attach a sticker to the affected annunciator window

d. Complete a deficiency tag and attach the tag to the affected annunciator window

QUESTION: 092 (1.00)

In accordance with AP-3.3.2, "Radiation Work Permit", Which of the following is <u>NOT</u> permitted for self-monitors using an extended RWP?

a. Entry into a 2000 mrad/hr (whole body) area for one minute

b. Entry into an area with minor leakage from a contaminated system

c. Entry into a neutron radiation area

d. Entry into a 500 mrad/hr (whole body) area for three minutes

QUESTION: 093 (1.00)

Select a responsibility of personnel performing the MANUAL positioning of a motor operated, disc valve from the full shut position to the full open position?

a. The MOV breaker is opened prior to the operation

b. Once open, the valve handwheel is positioned an additional 1/8 turn in the "open" position

c. The valve packing gland is tightened once the valve is in the final "open" position

d. A crow bar or cheater is used to quickly break the valve off of the shut seat

QUESTION: 094 (1.00)

Which of the following is an example of a temporary modification which would be controlled in accordance with AP-6.1 "Control of Equipment Temporary Modifications"?

a. A disconnected electrical lead in the HPCS diesel start circuit for the purpose of establishing a markup boundary

b. Connection of a hose to a condensate system drain for the purpose of directing drain water

c. Defeating a Reactor Water Cleanup isolation interlock during the performance of N2-EOP-6 "EOP Support Procedure"

d. Use of a blower to cool components on a fire panel

QUESTION: 095 (1.00)

A reactor transient occurs during which the following conditions exist:

All rods inserted
RPV water level 150 inches
Drywell pressure 0.7 psig
RPV pressure 700 psig

N2-EOP-RPV is entered and is being executed. Five minutes later the following conditions are reported:

RPV water level 180 inches
Drywell pressure 1.9 psig
RPV pressure 600 psig
RCIC pump trip

Select the required action for the transient:

a. Re-enter N2-EOP-RPV at the beginning

b. Continue with N2-EOP-RPV with no adjustment in the execution of steps

c. Prioritize operator response by directing those steps of N2-EOP-RPV that would provide control of RPV pressure

d. Exit N2-EOP-RPV since the initiating condition has been restored

QUESTION: 096 (1.00)

In accordance with N2-OP-20, "Breathing Air", which of the following is the maximum number of personnel that can simultaneously use breathing air without exceeding the system capacity?

a. 35

b. 40

c. 45

d. 50

QUESTION: 097 (1.00)

Which of the following safety equipment or precautions is <u>NOT</u> required when removing control power fuses after racking out for a 4KV breaker.

a. Use a face shield

b. Use rubber gloves with leather protectors

c. Test gloves prior to use

d. Remove rings and watches

QUESTION: 098 (1.00)

Select the condition below that will **NOT** directly input to the reactor recirculation flow control valve, motion inhibit interlock.

a. Hydraulic power unit failure

b. Control circuit failure

c. RPV level 105 inches

d. Drywell pressure 1.88 psig

QUESTION: 099 (1.00)

In accordance with Station General Order 90-05 "Heat Stress", which of the following is required when assigning work in a high temperature area

a. Fluids will be staged in all work areas

b. No person shall enter areas where temperature exceeds 120 F without Plant Manager approval.

c. Completion of a Heat Stress checklist is only required when work area temperatures exceed 100 F

d. A Site safety monitor must accompany the worker(s) in the high temperature area to assure personnel safety

QUESTION: 100 (1.00)

Which one of the following will cause the an "APRM UPSC OR INOP" alarm?

a. An APRM bypassed

b. Less than 2 level "C" LPRM inputs the APRM

c. APRM indication less than 4 percent

d. Less than 14 LPRM inputs to the APRM

(********** END OF EXAMINATION **********)

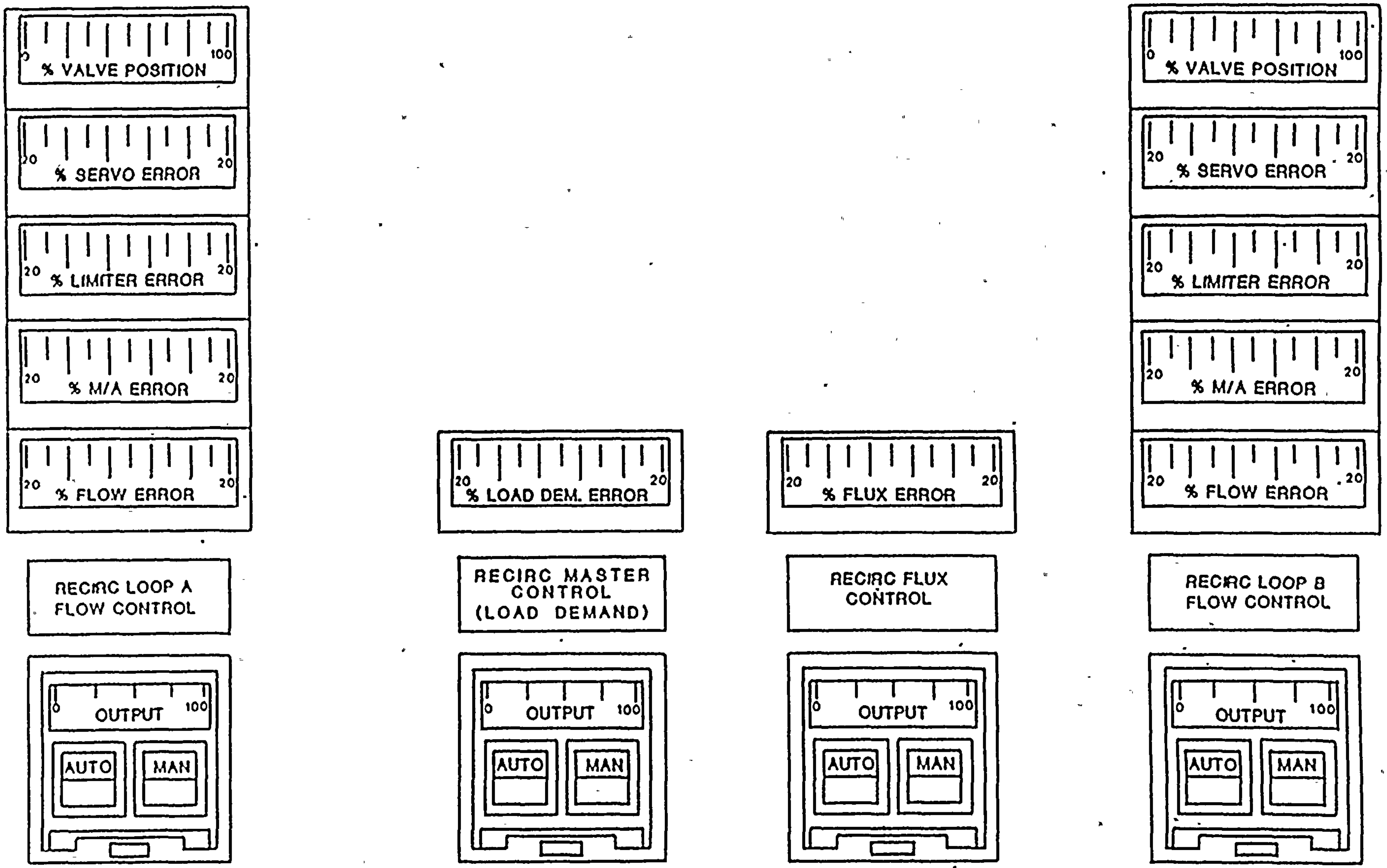


Figure 1

Title: RECIRCULATION FLOW CONTROLLERS

CAUTION: An RPV water level instrument may be used to determine RPV water level only when:

- The hottest drywell temperature is below the RPV Saturation Temperature (Figure RPV-1),

  AND

- The instrument reads above the Minimum Indicated Level

MINIMUM INDICATED LEVEL	
Instrument	Level
Shutdown Range	200 in.
Upset Range	190 in.
Wide Range	25 in.
Narrow Range	150 in.
Fuel Zone	-156 in.

RPV SATURATION TEMPERATURE

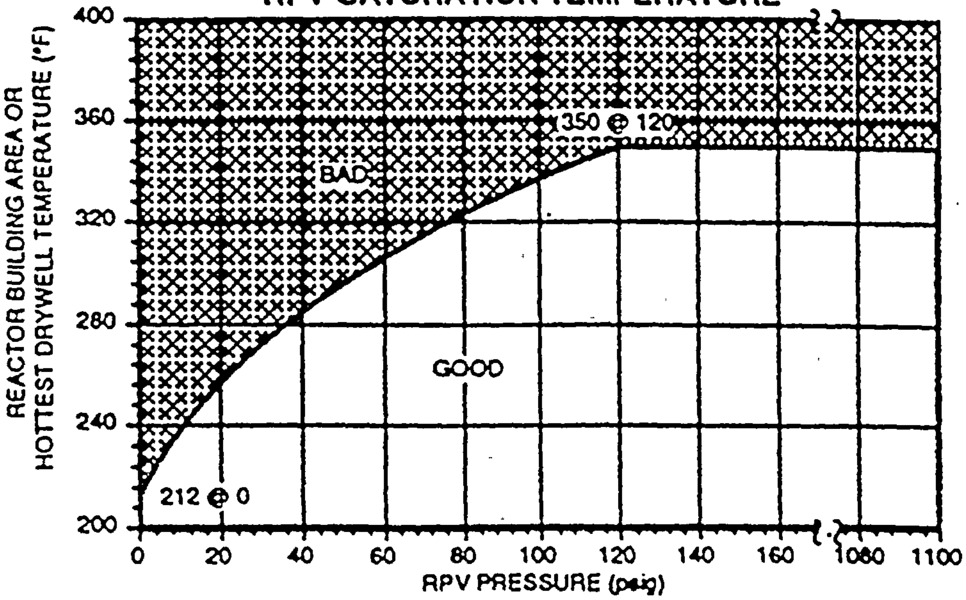
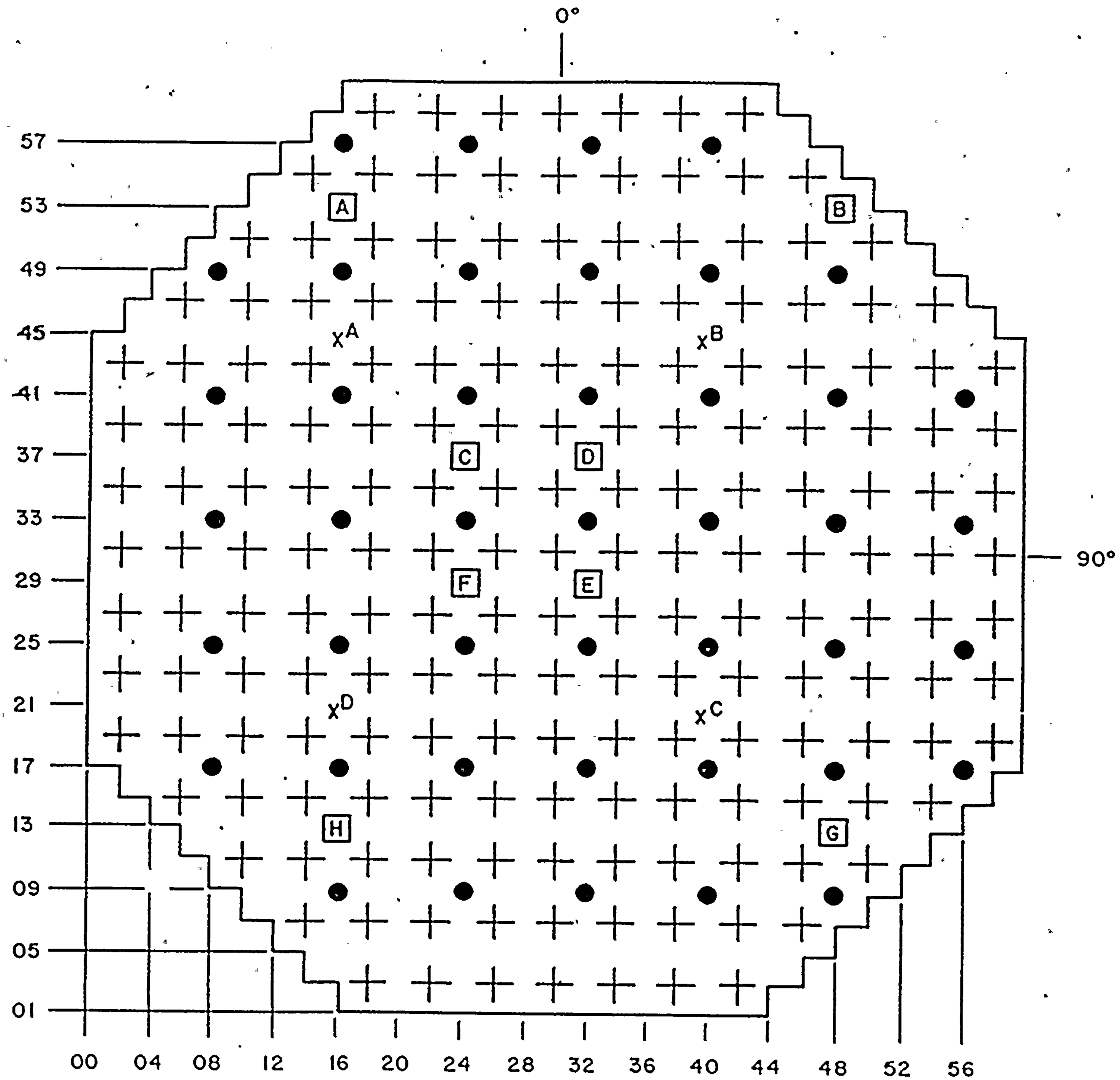


FIGURE 2



LEGEND

● - LPRM DETECTOR ASM (43)

+ - CONTROL RODS (185)

X - SRM DETECTORS (4)

□ - IRM DETECTORS (8)

Figure 3

Title: DETECTOR & CONTROL ELEMENT ARRANGEMENT (TOP VIEW OF CORE)

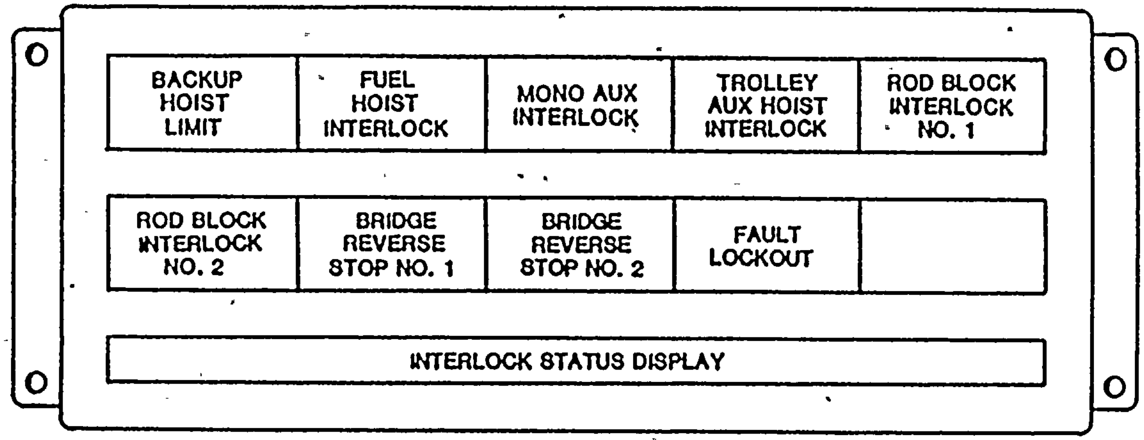
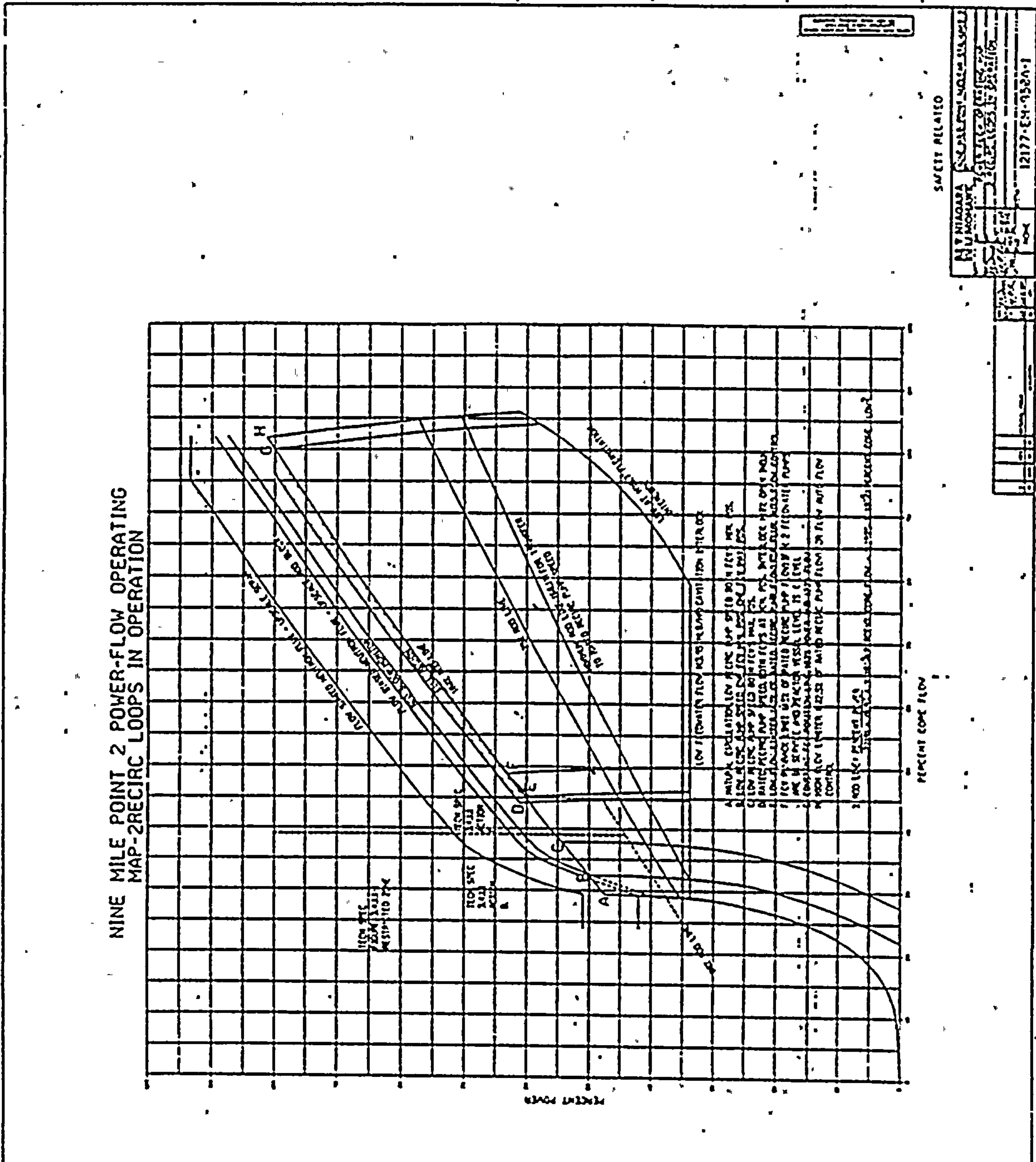


Figure 4	Rev 2

Title: INTERLOCK STATUS DISPLAY

ATTACHMENT 1

PLANT OPERATING CONTROL MAP TWO LOOP OPERATION



NOTE: This drawing has been changed, see page 17a for changes.

N-6

FIGURE 6

ATTACHMENT 1

PLANT OPERATING CONTROL MAP TWO LOOP OPERATION

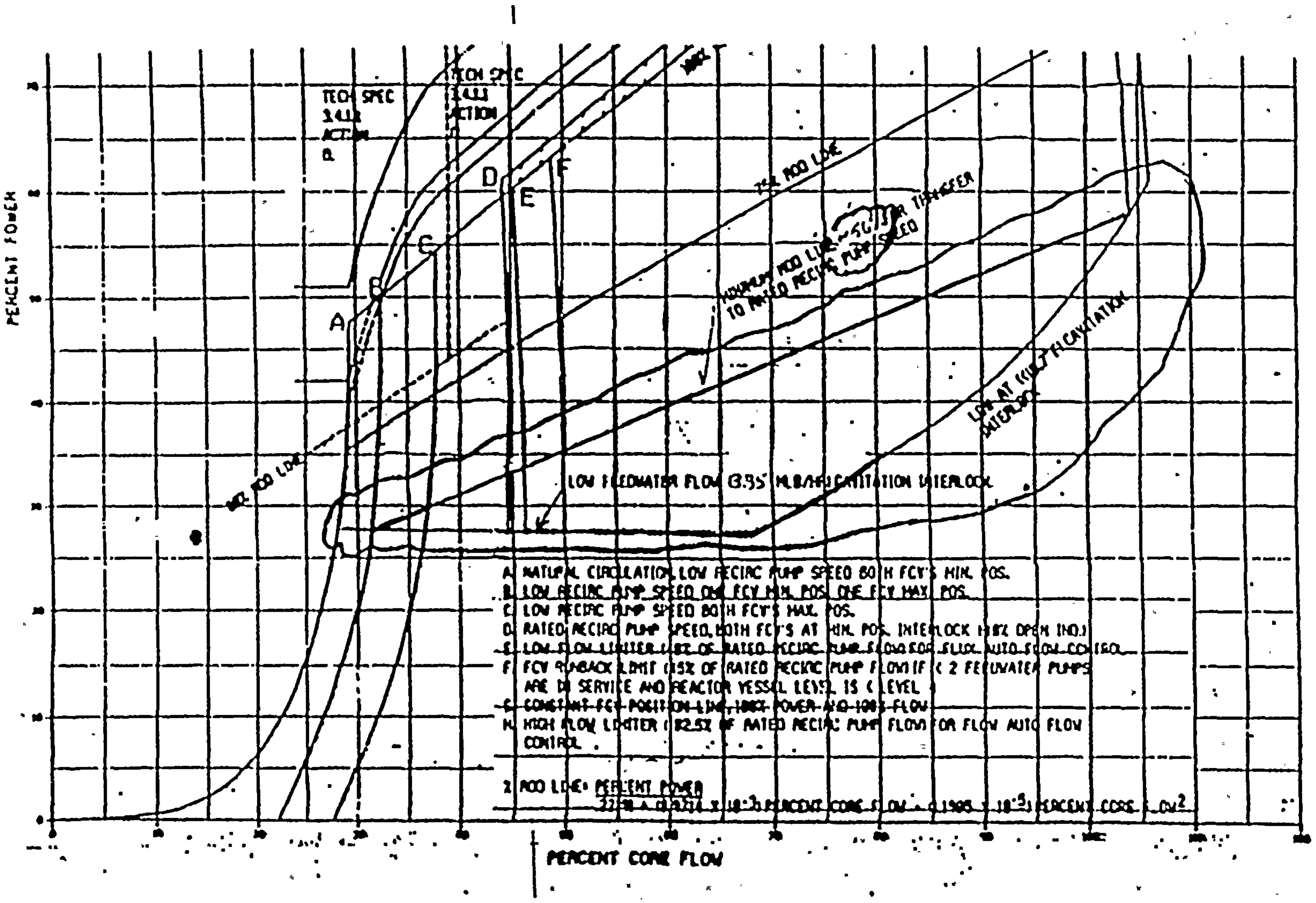
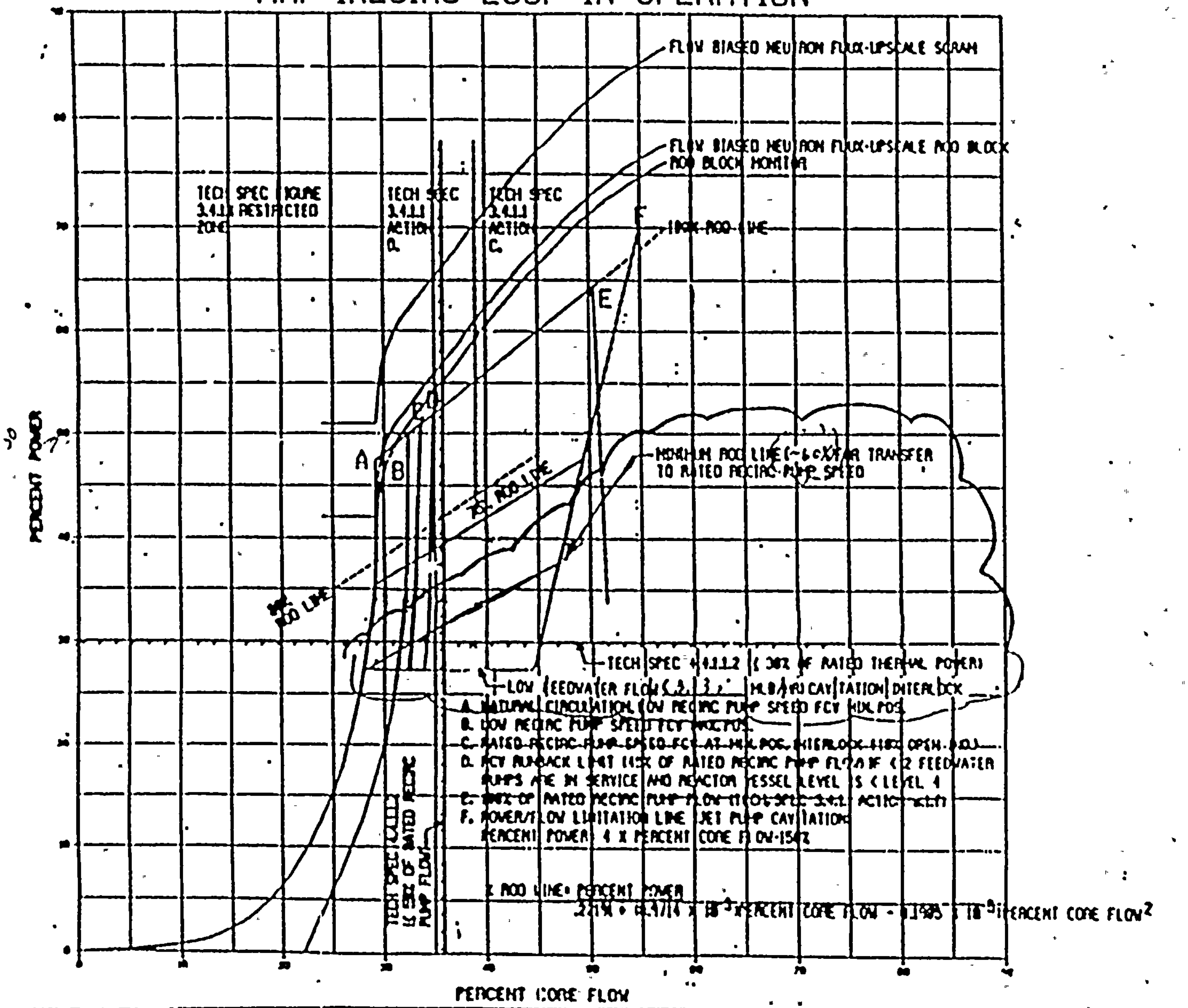


FIGURE 7

ATTACHMENT 2

PLANT OPERATING CONTROL MAP SINGLE LOOP OPERATION

NINE MILE POINT 2 POWER-FLOW OPERATING MAP-1RECIRC LOOP IN OPERATION



Page 18a

TCN-6
N2-OP-101D
Rev 01

ANSWER: 001 (1.00)

a.

REFERENCE:

N2-OP-101A pg 11

KA 201002A102 [3.4/3.3]

201002A102 ..(KA's)

ANSWER: 002 (1.00)

b.

REFERENCE:

LOT-001-212-2-00 pg 14-23 obj 5.0

KA 212000K101 [3.7/3.9]

212000K101 ..(KA's)

ANSWER: 003 (1.00)

c.

REFERENCE:

LOT-001-201-2-02 pg 33 obj 14.0
LOT-001-215-2-03 pg 18 obj 5.0
KA 215003A105 [3.9/3.9]

215003A105 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

LOT-001-215-2-05 pg 20 obj 4.0

KA 215005A205 [3.5/3.6]

215005A205 ..(KA's)

ANSWER: 005 (1.00)

a

REFERENCE:

LOT-001-216-2-01 pg 26, 27 obj 8.0.a

KA 216000A208 [3.2/3.4]

216000A208 ..(KA's)

ANSWER: 006 (1.00)

c.

REFERENCE:

LOT-001-218-2-01 pg 7, 13 to 17 obj 2.0.b, 3.0

KA 218000K201 [3.1/3.3]

218000K201 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

LOT-001-202-2-02 pg 12 obj 9.0
Needs Figure 1

KA 202002K103 [3.7/3.7]

202002K502 ..(KA's)

ANSWER: 008 (1.00)

a. OR C.
ALB 5-22-92

REFERENCE:

LOT-001-001-202-2-02 obj 9.0

KA 202002K607 [3.6/3.7]

202002K607 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

N2-OP-101D pg 13

KA 259001K312 [3.8/3.9]

259001K312 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

N2-LOT-001-206-2-00 pg 32, 33 obj 5.0.f
N2-OP-33 pg 12

KA 209002K407 [3.5/3.7]

209002K407 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

LOT-001-259-2-02 pg 17 obj 7.0
LOT-001-256-2-01 pg 21 obj 7.0

KA 259001K602 [3.3/3.4]

259001K602 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

LOT-001-259-2-02 pg 16,17 obj 7.0

KA 259002K301 [3.8/3.8]

259002K301 ..(KA's)

ANSWER: 013 (1.00)

d.

REFERENCE:

LOT-001-202-2-02 pg obj

KA 202002A108 [3.4/3.4]

202002A108 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

LOT-001-294-2-08 pg 29 obj 8.0.a

KA 201001K205 [4.5/4.5]

201001K205 ..(KA's)

ANSWER: 015 (1.00)

d.

REFERENCE:

LOT-001-211-2-00 pg 17 obj 8.0
LOT-001-294-2-08 pg 26 obj 4.0

KA 211000A402 [4.2/4.2]

211000A402 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:
KA 201002A303 [3.2/3.2]

201002A303 ..(KA's)

ANSWER: 017 (1.00)

c.

REFERENCE:

LOT-001-296-2-00 pg 17,18

KA 239002A302 [4.3/4.3]

239002A302 ..(KA's)

ANSWER: 018 (1.00)

a.

REFERENCE:

LOT-001-205-2-00 obj 8.0
LOT-001-296-2-00 pg 16

KA 203000K414 [3.6/3.7]

203000K414 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

Simulator cause and effect TC01

KA 241000K606 [3.8/3.9]

241000K606 ..(KA's)

ANSWER: 020 (1.00)

c.

REFERENCE:

N2-OP-61B pg 3
LOT-001-261-2-00 pg 17 obj 4.0.b

KA 261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

LOT-001-201-2-01 pg 12 obj 4.0

KA 201001A404 [3.1/3.0]

201001A404 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

LOT-001-209-2-00 pg 39 obj 4.0.a

KA 209001A205 [3.3/3.6]

209001A205 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

LOT-001-264-2-02 pg 32 obj 5.0

KA 264000K402 [4.0/4.2]

264000K402 ..(KA's)

ANSWER: 024 (1.00)

c.

REFERENCE:

LOT-001-264-2-02 pg 34 obj 8.0

KA 264000K101 [3.8/4.1]

264000K101 ..(KA's)

ANSWER: 025 (1.00)

a.

REFERENCE:

LOT-001-215-2-04 pg 18 obj 6.0

KA 215004K602 [3.1/3.3]

215004K602 ..(KA's)

ANSWER: 026 (1.00)

d.

REFERENCE:

LOT-001-217-2-00 pg 16 obj 7.0

KA 217000A105 [3.7/3.7]

217000A105 ..(KA's)

ANSWER: 027 (1.00)

c.

REFERENCE:

LOT-0010217-2-00 pg 22 obj 5.0, 7.0
N2-OP-35 pg 6 precaution 6.0

KA 217000G010 [3.4/3.5]

217000G010 ..(KA's)

ANSWER: 028 (1.00)

a

REFERENCE:

LOT-001-248-2-00 pg 26 obj 9.0

KA 245000K409 [3.1/3.2]

245000K409 ..(KA's)

ANSWER: 029 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pgs 26,27,40,41,42 obj 5.0

KA 230000A215 [4.0/4.1]

230000A215 ..(KA's)

ANSWER: 030 (1.00)

b.

REFERENCE:

LOT-001-294-2-08 pg 8 (RRCS)
LOT-001-204-2-00 pg 15 (SLC)
LOT-001-204-2-00 pg 19 obj 4.0.a

KA 204000K607 [3.3/3.5]

204000K607 ..(KA's)

ANSWER: 031 (1.00)

a.

REFERENCE:

LOT -001-201-2-02 pg 11 obj 2.0.f

KA 201003A402 [3.5/3.5]

201003A402 ..(KA's)

ANSWER: 032 (1.00)

d.

REFERENCE:

LOT-001-215-2-02   pg 11,12,13   obj 4.0
N2-OP-92   pg 3

KA   215002K106 [3.0/3.1]

215002K106   ..(KA's)

ANSWER: 033 (1.00)

d

REFERENCE:

N2-OP-95B   `pg 3,4

201004K101   ..(KA's)

ANSWER: 034 (1.00)

d.

REFERENCE:

N2-OP-95A   15
LOT-001-201-2-02   pg 15,16   obj 11.0

KA   201006A301 [3.2/3.1]

201006A301   ..(KA's)

ANSWER: 035 (1.00)

d.

REFERENCE:

LOT-001-202-2-01 obj 5.0 (answer not in lesson plan)
T/S 3.4.4.1 basis

KA 202001G006 [3.0/4.1]

202001G006 ..(KA's)

ANSWER: 036 (1.00)

a.

REFERENCE:

LOT-001-202-2-01 pg 20 obj 3.0.e
N2-OP-29 pg 7

KA 259002K108 [3.2/3.2]

259002K108 ..(KA's)

ANSWER: 037 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c
LOT-001-217-2-00 pg 12 obj 3.0.c, 7.0
LOT-001-204-2-00 pg 21 obj 4.0.a

KA 290001A205 [3.1/3.3]

290001A205 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

N2-OP-79 pg 53
LOT-001-272-2-01 obj 4.0

KA 272000A303 [3.1/3.5]

272000A303 ..(KA's).

ANSWER: 039 (1.00)

b.

REFERENCE:

N2-OP-43
LOT-001-286-2-00 obj 5.0

KA 286000K407 [3.3/3.3]

286000K407 ..(KA's)

ANSWER: 040 (1.00)

a.

REFERENCE:

N2-OP-53A pg 9
N2-OP-79 pg 46
LOT-001-288-2-02 obj 3.0, 4.0

KA 290003A105 [3.2/3.3]

290003A105 ..(KA's)

ANSWER: 041 (1.00)

d.

REFERENCE:

LOT-001-262-2-01 obj 4.0

KA 262001K602 [3.6/3.9]

262001K602 ..(KA's)

ANSWER: 042 (1.00)

c.

REFERENCE:

N2-OP-68 ARP 852614, 852624

KA 262001A301 [3.1/3.2]

262001A301 ..(KA's)

ANSWER: 043 (1.00)

c

REFERENCE:

LOT-001-252-2-00 obj 2.0
N2-OP-42 pg 1,2

KA 271000G004 [3.4/3.5]

271000G004 ..(KA's)

ANSWER: 044 (1.00)

a

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c

KA 205000K604

205000K604 ..(KA's)

ANSWER: 045 (1.00)

b.

REFERENCE:

LOT-001-205-2-00 pg 26, 27 obj 5.0.d

KA 226001A218 [3.3/3.5]

226001A218 ..(KA's)

ANSWER: 046 (1.00)

b.

REFERENCE:

LOT-001-215-2-07 pg 16 obj 7.0

KA 215001K401 [3.4/3.5]

215001K401 ..(KA's)

ANSWER: 047 (1.00)

b.

REFERENCE:

LOT-001-234-2-00 pg 40 obj 4.0.e

KA 234000K402 [3.3/4.1]

234000K402 ..(KA's)

ANSWER: 048 (1.00)

c.

REFERENCE:

LOT-001-233-2-00 pg 15 obj 8.0

KA 233000A209 [2.7/2.9]

233000A209 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

FSAR chpt 15

KA 295014K202 [3.7/4.2]

295014K202 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

EOP Basis section C pg 8

KA 295031K101 [4.6/4.7]

295031K101 ..(KA's)

ANSWER: 051 (1.00)

146 [+ or - 5 psig]

REFERENCE:

T.S. 3.4.6.1
Steam Tables

KA 295006G007 [3.8/4.1]

295006G007 ..(KA's)

ANSWER: 052 (1.00)

a

REFERENCE:

FSAR pg 15.5-2
N2-OLP-100 obj 100-5.2
(Rx Recirc in flux manual, < 65% Rx power)

KA 295014A203 [4.0/4.3]

295014A203 ..(KA's)

ANSWER: 053 (1.00)

c.

REFERENCE:

LOT-006-344-2-04 pg 9 obj 3.0

KA 295024G012 [3.9/4.5]

295024G012 ..(KA's)

ANSWER: 054 (1.00)

a

REFERENCE:

N2-EOP-RPV

KA 295025G012 [3.9/4.5]

295025G012 ..(KA's)

ANSWER: 055 (1.00)

~~d.~~ a. 5-8-92

REFERENCE:

LOT-001-253-2-00 pg 19, 20 obj 3.0.c

KA 295007A105 [3.7/3.8]

295007A105 ..(KA's)

ANSWER: 056 (1.00)

d.

REFERENCE:

LOT-001-247-2-00 pg 39 obj 7.0
N2-OP-22D pg 5

KA 295005G010 [3.8/3.6]

295005G010 ..(KA's)

ANSWER: 057 (1.00)

d.

REFERENCE:

LOT-001-344-2-18 pg 5 obj 3.0

KA 295010A105 [3.1/3.4]

295010A105 ..(KA's)

ANSWER: 058 (1.00)

b.

REFERENCE:

LOT-006-344-2-02 pg 13 obj 4.0

KA 295037K204 [4.4/4.5]

295037K204 ..(KA's)

ANSWER: 059 (1.00)

b.

REFERENCE:

LOT-006-344-2-01 pg 14 obj 3.0

KA 295025K208 [3.7/3.7]

295025K208 ..(KA's)

ANSWER: 060 (1.00)

d.

REFERENCE:

EOP Basis section M pg 22

KA 295037K303 [4.1/4.5]

295037K303 ..(KA's)

ANSWER: 061 (1.00)

d.

REFERENCE:

N2-EOP-RPV

KA 295037A201 [4.2/4.3]

295037A201 ..(KA's)

ANSWER: 062 (1.00)

d.

REFERENCE:

EOP Basis section E pg 43

KA 295028K303 [3.6/3.9]

295028K303 ..(KA's)

ANSWER: 063 (1.00)

d or a RJB 5-18-92

REFERENCE:

LOT-006-344-2-05 pg 16 obj 3.0
EOP Basis section E pg 29

KA 295029G007 [3.6/3.9]

295029G007 ..(KA's)

ANSWER: 064 (1.00)

d

REFERENCE:

LOT-006-344-02-12 pg 5 obj 3.0
EOP Basis section G pg 4

KA 295038G007 [3.2/3.5]

295038G007 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

LOT-001-212-2-00 obj 3.0.a

KA 295003G011 [4.1/4.3]

295003G011 ..(KA's)

ANSWER: 066 (1.00)

b.

REFERENCE:

LOT-001-255-2-00 pg 25 obj 4.0.e
N2-OP-42 pg 92
N2-OP-1 pg 34

KA 295038K210 [3.2/3.4]

295038K210 ..(KA's)

ANSWER: 067 (1.00)

a.

REFERENCE:

N2-OP-101D

KA 295001A202 [3.1/3.2]

295001A202 ..(KA's)

ANSWER: 068 (1.00)

b.

REFERENCE:

N2-OP-78 pg 6

KA 295016G007 [3.1/3.4]

295016G007 ..(KA's)

ANSWER: 069 (1.00)

c.

REFERENCE:

LOT-001-202-2-01 obj TO-12.0
T/S 4.4.1.2

KA 295001A205 [3.1/3.4]

295001A205 ..(KA's)

ANSWER: 070 (1.00)

a.

REFERENCE:

KA 295019K201 [3.8/3.9]

295019K201 ..(KA's)

ANSWER: 071 (1.00)

d.

REFERENCE:

N2-OP-9 pg 17

KA 295002K202 [3.1/3.2]

295002K202 ..(KA's)

ANSWER: 072 (1.00)

b.

REFERENCE:

LOT-001-279-2-00 pg 18 obj 9.0
N2-OP-19 pg 15

KA 295019G010 [3.7/3.4]

295019G010 ..(KA's)

ANSWER: 073 (1.00)

a.

REFERENCE:

LOT-001-222-2-00 pg 9 obj 3.0.a
LOT-001-223-2-02 pg 8

KA 295020K203 [3.1/3.3]

295020K203 ..(KA's)

ANSWER: 074 (1.00)

d.

REFERENCE:

LOT-001-274-2-00 obj 8.0
N2-OP-14 pg 10

KA 295018G010 [3.4/3.3]

295018G010 ..(KA's)

ANSWER: 075 (1.00)

~~a.~~ d. BLB 5-19-92

REFERENCE:

LOT-001-274-2-00 pg 12 obj 3
LOT-001-255-2-00 pg 23 obj 4.0.c

KA 295018K202 [3.4/3.6]

295018K202 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

N2-EOP-RPV
N2-EOP-6 attachment 14.0 pg 56
LOT-006-344-2-02 obj 3.0

KA 295015A101 [3.8/3.9]

295015A101 ..(KA's)

ANSWER: 077 (1.00)

a.

REFERENCE:

N2-OP-13 pg 19
LOT-001-222-00 pg 9 (figure 2) obj 3.0

KA 295012A102 [3.8/3.8]

295012A102 ..(KA's)

ANSWER: 078 (1.00)

~~d.~~ DELETE
ALB 5-27-92

REFERENCE:

LOT-001-262-2-02 pg 17 obj 7.0
N2-OP-72 pg 72

KA 295003K301 [3.3/3.5]

295003K301 ..(KA's)

ANSWER: 079 (1.00)

a.

REFERENCE:

LOT-001-201-2-01 obj 18.0
N2-OP-30 pg 20

KA 295022K101 [3.3/3.4]

295022K101 ..(KA's)

ANSWER: 080 (1.00)

b.

REFERENCE:

LOT-001-262-2-02 pg 17 obj 7.0
N2-OP-72 pg 80

KA 295003A101 [3.7/3.8]

295003A101 ..(KA's)

ANSWER: 081 (1.00)

c.

REFERENCE:

N2-OP-72 pg 70

KA 295004K105 [3.3/3.4]

295004K105 ..(KA's)

ANSWER: 082 (1.00)

c

REFERENCE:

REQ-007-353-2-26 pg 15 obj 1.02

KA 295023A202 [3.4/3.7]

295023A202 ..(KA's)

~~ANSWER: 083 (1.00)~~

~~b~~ DELETE ACB 5-18-92

REFERENCE:

N2-OP-31 pg 66, 67

KA 295021K302 [3.3/3.4]

295021K302 ..(KA's)

~~ANSWER: 084 (1.00)~~ DELETE RUB 5-18-92

~~d.~~

REFERENCE:

N2-FHP-3 pg 16

KA 295023K103 [3.7/4.0]

295023K103 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

LOT-001-205-2-00 pg 26 obj 5.0.c
LOT- 006-344-2-08 pg 4 obj 2.0

KA 295032G011 [4.1/4.2]
295032G011 ..(KA's)

ANSWER: 086 (1.00)

c

REFERENCE:

GAP-OPS-02 Section 3.1.5(b)

KA 294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 087 (1.00)

c

REFERENCE:

AP-3.3.2 Section 5.1.2

KA 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 088 (1.00)

d

REFERENCE:

AP 3.2.5 Section 5.3

KA 294001K109 [3.4/3.8]

294001K109 ..(KA's)

ANSWER: 089 (1.00)

a

REFERENCE:

02-LOT-002-362-2-01 EO-7a
Technical Specification 2.1.2

KA 294001A115 [3.2/3.4]

294001A115 ..(KA's)

ANSWER: 090 (1.00)

a

REFERENCE:

SGO 90-06, B.9

KA 294001A113 [3.2/3.6]

294001A113 ..(KA's)

ANSWER: 091 (1.00)

c

REFERENCE:

AP 6.1 page 10
01-LOT-006-343-1-01 EO-8.0

KA 294001A109 [3.3/4.2]

294001A109 ..(KA's)

ANSWER: 092 (1.00)

c

REFERENCE:

AP-3.3.2 Section 5.6.2

KA 294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 093 (1.00)

a

REFERENCE:

AP-4.0 Section 5.15
N2-ODI-5.08

KA 294001A112 [3.5/4.2]

294001A112 ..(KA's)

ANSWER: 094 (1.00)

d

REFERENCE:

AP-6.1 Section 1.2 and 3.8
02-LOT-006-343-2-00 EO-1.0 (g)

KA 294001A106 [3.4/3.6]

294001A106 ..(KA's)

ANSWER: 095 (1.00)

a

REFERENCE:

02-LOT-006-344-2-01 Section II.A, TO 1.0

KA 294001A102 [4.2/4.2]

294001A102 ..(KA's)

ANSWER: 096 (1.00)

a

REFERENCE:

N2-OP-20 D.3
02-LOT-001-279-2-00 EO-7.0

KA 294001K113 [3.2/3.6]

294001K113 ..(KA's)

ANSWER: 097 (1.00)

a.

REFERENCE:

N2-ODI-5.11 pg 2

KA 294001K107 [3.3/3.6]

294001K107 ..(KA's)

ANSWER: 098 (1.00)

c.

REFERENCE:

LOT-001-202-2-02   figure (RR HYDRAULICS HANDOUT)   obj 4.0.b

KA   202002K403 [3.0/3.0]

202002K403   ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

SGO 90-05

KA   294001K108 [3.1/3.4]

294001K108   ..(KA's)

ANSWER: 100 (1.00)

d

REFERENCE:

LOT-001-215-2-05   pg 13   obj 4.0

KA   215005A105 [3.3/3.2]

215005A105   ..(KA's)

(********** END OF EXAMINATION **********)

ANSWER KEY

MULTIPLE CHOICE

001	a
002	b
003	c
004	d
005	a
006	c
007	b
008	a or c AUB 5-22-92
009	b
010	d
011	b
012	b
013	d
014	c
015	d
016	b
017	c
018	a
019	d
020	c
021	a
022	b
023.	d
024	c
025	a
026	d
027	c
028	a
029	b
030	b
031	a
032	d
033	d
034	d
035	d
036	a
037	b
038	c
039	b
040	a
041	d
042	c
043	c
044	a
045	b

ANSWER KEY

046	b	069	c
047	b	070	a
048	c	071	d
049	a	072	b
050	b	073	a
051	146 ± 5	074	d
052	a	075	~~a~~ d ALB 5-19-92
053	c	076	d
054	a	077	a
055	~~d~~ a, ALB 5-8-92	~~078~~	~~d~~ DELETED ALB 5-27-92
056	d	079	a
057	d	080	b
058	b	081	c
059	b	082	c
060	d	~~083~~	~~b~~ DELETE ALB 5-18-92
061	d	~~084~~	~~d~~ DELETE ALB 5-18-92
062	d	085	c
063	d or a ALB 5-18-92	086	c
064	d	087	c
065	d	088	d
066	b	089	a
067	a	090	a
068	b	091	c

A N S W E R   K E Y

092	c
093	a
094	d
095	a
096	a
097	a
098	c
099	b
100	d

(********** END OF EXAMINATION **********)

Attachment 1 - LSRO

Nuclear Regulatory Commission
Operator Licensing
Examination

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DELETE QUESTION #4
Duplicate OF #5

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
LIMITED SENIOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: ______________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: 92/05/11

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up three (3) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%		
57.60 ~~60.00~~ 56.00 cfkd	______ FINAL GRADE	______	%	TOTALS

All work done on this examination is my own. I have neither given nor received aid.

____
Candidate's Signature

QUESTION: 001 (1.00)

A fire has occurred on the refueling floor of Unit 2 during refueling operations.
Which ONE of the following plant personnel can authorize the use of Hydrogenous Fire Fighting Water for control of this fire?

a. The Refueling Floor SRO.

b. The Station Shift Supervisor.

c. The Nuclear Fire Chief.

d. The Unit Supervisor of Fire Protection.

QUESTION: 002 (1.00)

Which ONE of the following plant personnel is responsible for ensuring the Tool and Consumable and Inventory Checklists for refueling are utilized?

a. Individual Work Supervisor (Foreman/Chief).

b. Individual technician using the tools.

c. Station Shift Supervisor.

d. Refueling Floor SRO.

QUESTION: 003 (1.00)

A precaution in the Nine Mile Point 2 Refueling Manual (N2-FHP-3) protects the nuclear instrumentation from damage when instrumentation is not fully surrounded by fuel assemblies and blade guides.
Which ONE of the following describes this precaution?

a. The SRM and IRM detectors are fully withdrawn from the effected cell.

b. Total drive flow from RHR/Recirculation Pumps is limited to 5700 gpm.

c. LPRM strings will be removed from any cell with fuel/blade guides removed prior to initiating core flow.

d. Core flow will not be initiated until the effected cell is filled with fuel or fuel dummies.

QUESTION: 004 (1.00)

While working in an area marked "Caution, Radiation Area", an operator discovers his dosimeter is off scale and leaves the area. If he had been working in the area for 45 minutes, which of the following is the maximum dose he should have received?

a. 1250 mrem

b. 100 mrem

c. 75 mrem

d. 15 mrem

Delete

QUESTION: 005 (1.00)

Which ONE of the following conditions will prevent Refueling Bridge motion towards the vessel? (Assume the Refueling Bridge is initially over the Spent Fuel Pool and moving toward the reactor vessel)

a. The Mode Switch is in STARTUP, one or more rods are withdrawn and the Refueling Bridge moves over the vessel.

b. The Mode Switch is in STARTUP, all rods are inserted and the Refueling Bridge is over the Spent Fuel Pool.

c. The Mode Switch is in REFUEL, all rods are inserted, the bridge hoists are not loaded, and the Refueling Bridge is over the vessel.

d. The Mode Switch is in REFUEL, all rods are inserted, the main hoist is loaded, and the Refueling Bridge is near or over the vessel.

QUESTION: 006 (1.00)

Which ONE of the following describes the MAXIMUM Keff that would be attained by new fuel stored in the New Fuel Storage Vault?

a. 0.98

b. 0.95

c. 0.88

d. 0.85

QUESTION: 007 (1.00)

Which of the following Reactor Building Crane Hoists would be effected by a total loss of DC power?

a. All three hoists would lose power

b. The 125 ton and 25 ton hoists would lose power

c. The 25 ton and 1/2 ton hoists would lose power

d. None of the hoists would lose power

QUESTION: 008 (1.00)

During a core reload at Nine Mile Point 2, an SRM detector count rate drops below 1.3 counts per second.
Which ONE of the following describes the procedure to be followed to verify SRM detector operability?

a. Compare the detector inserted to withdrawn readings to verify a 5.0 to 1 signal-to-noise ratio.

b. Verify that the four fuel assemblies immediately surrounding the detector are removed.

c. Verify the SRMs in the two adjacent quadrants have greater than 3 counts per second indicated readings.

d. Confirm the operability of the detector by measuring the response to an external neutron source.

QUESTION: 009 (1.00)

Which ONE of the following describes a method for verifying the proper orientation of fuel assemblies in a fuel cell?

a. The bail handles on the fuel bundles should point towrds the center of the cell

b. The orientation boss on the fuel assembly handle points to the outside of the fuel cell.

c. The channel fastener assemblies should be oriented towards the outside of the fuel cell.

d. The channel spacing button should be adjacent to the control rod passage area and face each other in the fuel cell.

QUESTION: 010 (1.00)

Which ONE of the following describes the tie rods in a fuel assembly?

a. The rods are hollow with holes at each end for water flow and threaded into the upper and lower tie plates.

b. The rods are solid zirconium alloy threaded into the bottom tie plate and secured with a nut at the upper tie plate.

c. The rods are the same as standard fuel rods except that they are threaded into the lower tie plate and secured with a nut at the upper tie plate.

d. The rods are filled with depleted uranium oxide and are secured to the lower and upper tie plates with nuts.

QUESTION: 011 (1.00)

A five (5) Curie Cobalt source is being used for gamma graphing on the refueling floor. The source drops onto the refueling floor during the process.
Which ONE of the following is the dose rate from the source at one (1) foot?

a. 5 rem

b. 30 rem

c. 45 rem

d. 90 rem

delete

QUESTION: 012 (2.00)

For the items in Column A and labeled a through d on figure 1, select the components identification from Column B. NOTE: Items in Column B may only be used once, and only one answer may occupy a space in Column A.

(4 required at 0.50 each)

COLUMN A (Figure Label)	COLUMN B (Component Name)
_____a.	1. Lower Tie Plate
_____b.	2. Fuel Channel
_____c.	3. Fuel Rod Spacer
_____d.	4. Spring Clip
	5. Finger Springs
	6. Tie Rods
	7. Water Rods
	8. Standard Fuel Rods
	9. Barrier Fuel Rods

QUESTION: 013 (1.00)

Which ONE of the following level indicators can be used for valid level indication during refueling operations with the head removed prior to cavity floodup?

a. Shutdown Range

b. Upset Range

c. Wide Range

d. Fuel Zone Range

QUESTION: 014 (1.00)

Which ONE of the following describes core orifice location and the purpose of core orificing?

a. Located in the lower tie plate to improve flow to fuel bundles near the center of the core.

b. Located in the fuel support pieces to provide flow distribution throughout the core.

c. Located in the upper tie plate to restrict the flow to the peripheral fuel bundles.

d. Located in the fuel support pieces to provide turbulent flow to promote better heat transfer throughout the core.

QUESTION: 015 (1.00)

While working in an area marked "Caution, Radiation Area," an operator discovers his dosimeter is off scale and leaves the area. If he had been working in the area for 45 minutes, which of the following is the maximum dose he should have received?

a. 1250 mrem

b. 100 mrem

c. 75 mrem

d. 15 mrem

QUESTION: 016 (1.00)

Refueling operations are in progress. During an instrument surveillance, an Instrument Technician inadvertently causes a High Drywell signal. The SBGT system is in STANDBY.
Which ONE of the following describes the response of the Reactor Building Ventilation and Standby Gas Treatment systems?

a. Reactor Building Ventilation isolates and SBGT system A only automatically starts.

b. Reactor Building Ventilation isolates and both trains of SBGT automatically start.

c. Reactor Building Ventilation continues to run and SBGT system A only automatically starts.

d. Reactor Building Ventilation continues to run and both trains of SBGT automatically start.

QUESTION: 017 (1.00)

During refueling operations on Nine Mile Point Unit 2, Shutdown Cooling is in service prior to removing the reactor head.
Which ONE (1) of the following describes conditions that will result in an automatic isolation of the Shutdown Cooling System?

a. High reactor pressure (117 psig or greater) or low reactor water level (less than or equal to 17.8 inches)

b. High reactor pressure (128 psig or greater) or low reactor water level (less than or equal to 159.3 inches)

c. High drywell pressure (1.68 psig or greater) or low reactor water level (less than or equal to 17.8 inches)

d. High drywell pressure (1.68 psig or greater) or low reactor water level (less than or equal to 173.7 inches)

QUESTION: 018 (1.00)

How are core reactivity and control rod worth affected by an increase in moderator temperature?

a. Core reactivity decreases, control rod worth decreases

b. Core reactivity decreases, control rod worth increases

c. Core reactivity increases, control rod worth decreases

d. Core reactivity increases, control rod worth increases

QUESTION: 019 (1.00)

One of the refueling requirements at Nine Mile Point 2 is to demonstrate the Reactor Mode Switch refuel position interlocks for the Reactor Manual Control System within 24 hours prior to commencement of fuel movement.
WHICH ONE (1) of the following describes the "one-rod-out" interlock with the Reactor Mode Switch in REFUEL?

a. A selected rod is withdrawn to position 48 at which time a rod block is received.

b. A selected rod is withdrawn to position 02 at which time a rod block is received.

c. A selected rod is withdrawn to position 48. A second rod is selected and generates a rod block when it is withdrawn to position 02.

d. A selected rod is withdrawn to position 02. A second rod cannot be selected.

QUESTION: 020 (1.00)

The Reactor Mode Switch is in REFUEL.
Which ONE of the following will initiate a control rod withdraw block?

a. The Refuel Refueling Bridge is moved to near or over the core and the hoists are unloaded.

b. The Refueling Bridge is over the Spent Fuel Pool and the Refuel Grapple is loaded (>500 lbs).

c. The Refueling Bridge is over the core and the Refuel Grapple is being lowered to pick up a fuel bundle.

d. The Refueling Bridge is over the Spent Fuel Pool and the Service Platform Hoist is loaded (>400 lbs).

QUESTION: 021 (1.00)

During core loading, a fuel bundle in the fuel pool has just been grappled in preparation for movement to another location in the fuel pool. Rod 30-35 is at position 48 in preparation for a CRDM change out. The reactor mode switch is in the STARTUP position.

The following is the status of the indicators on the Left Hand Controller Console.

The "GRAPPLE ENGAGED" light is on.
The "GRAPPLE NORMAL UP" light is on.
The "SLACK CABLE" light is on.
The "GRAPPLE FULL DOWN" light is off.
The "HOIST JAM" light is off.

Which ONE of the following describes the reason the main hoist will not raise?

a. All control rods are not fully inserted.

b. The load cell force switch for SLACK CABLE is activated.

c. The reactor mode switch is in the STARTUP position.

d. The limit switch for NORMAL UP is activated.

QUESTION: 022 (1.00)

During a refueling outage, a Refueling Platform Operator has worked the following hours:

Friday	1600 to 0400
Saturday	1200 to 2400
Sunday	0800 to 1600
Monday	0800 to 1600
Tuesday	0800 to 2400
Wednesday	0800 to 2000

Which ONE of the statements below identifies the violations of the Overtime Guidelines which occurred?

a. The operator worked more than 16 hours in 48 on Friday and Saturday.

b. The operator worked more than 16 hours in 24 on Saturday.

c. The operator worked more than 12 hours in 24 on Tuesday.

d. The operator worked more than 24 hours in 48 on Tuesday and Wednesday.

QUESTION: 023 (1.00)

Shutdown Margin is required to be demonstrated prior to or during the first startup after each refueling.
Which ONE of the following describes the minimum requirements of the Shutdown Margin demonstration?

a. A Shutdown Margin of 0.28% delta K/K is required when hot at power and 0.38% delta K/K when refueling.

b. A Shutdown Margin of 0.28% delta K/K is required during startup and 0.38% delta K/K for power operations.

c. A Shutdown Margin of 0.38% delta K/K is required with all rods in and 0.28% delta K/K is required with the strongest rod fully withdrawn.

d. A Shutdown Margin of 0.28% delta K/K is required if determined by operational testing and 0.38% delta K/K if determined analytically.

QUESTION: 024 (1.00)

The following conditions exist during refueling operations.

* The Reactor Mode Switch is in REFUEL
* Irradiated fuel is in the reactor
* The reactor vessel head has been removed
* The reactor cavity is flooded
* The Fuel Pool gates are installed
* Reactor water level is 18" above the reactor vessel flange

Which ONE of the following defines the operability status required for the RHR System?

a. The RHR System IS NOT required to be operable since the Tech Spec requirements to remove RHR from service have been met.

b. One RHR loop and one RHR heat exchanger IS required to be operable and in service. The second loop is not required to be operable.

c. Both loops of RHR ARE required to be operable and one loop IS required to be in service.

d. Both loops of RHR ARE required to be operable and both loops ARE required to be in service.

QUESTION: 025 (1.00)

An extended RWP is being utilized for the Refueling Floor general area. Which ONE of the following is permitted for personnel using the extended RWP?

a. Passing through a Transient High Radiation area is permitted if the personnel have had self-monitoring training.

b. Non self-monitoring qualified individuals must be escorted by a self-monitoring qualified individual.

c. Entry into an area where the dose rate exceeds 1000 mrad/hour is limited to two (2) minutes.

d. Entry into an area where the dose rate exceeds 1500 mrad/hour is prohibited.

QUESTION: 026 (1.00)

Refueling operations are in progress at Nine Mile Point Unit 2. The plant conditions are as follows:

* One (1) control rod is withdrawn.
* One CRD Pump is tagged for maintenance
* The Reactor Mode Switch is in REFUEL
* Fuel bundles are being moved in the core
* One (1) control rod scram accumulator is in operable with the control rod inserted and valved out.

Which ONE of the following actions should be taken if the operating CRD Pump trips and cannot be restarted?

a. Individually scram any withdrawn control rod.

b. No action required since the CRD system is not required for refueling operations.

c. Monitor CRD temperatures every hour until the CRD pump becomes operable.

d. Place the Reactor Mode Switch in SHUTDOWN.

QUESTION: 027 (1.00)

Removal of a control rod is being performed from the refueling bridge. The rod drive has been withdrawn. As the rod is being raised, the Control Room calls to inform the Refueling SRO that the position indication for the selected rod indicates the rod is inserting. This is a(n) ___(1)___ (NORMAL, ABNORMAL) condition and indicates that the control rod is ___(2)___ (COUPLED, UNCOUPLED)

a. (1) NORMAL (2) COUPLED

b. (1) NORMAL (2) UNCOUPLED

c. (1) ABNORMAL (2) COUPLED

d. (1) ABNORMAL (2) UNCOUPLED

QUESTION: 028 (1.00)

The plant is shutdown with refueling operations in progress. The fuel pool cooling system is in operation with two pumps running when a loss of off site power occurs.
Which ONE of the following describes the response of the Spent Fuel Cooling Pumps?

a. Both pumps trip, the lead pump starts as soon as power is restored to the bus; the second pump is locked out for sixty (60) seconds.

b. Both pumps trip, the lead pump restarts automatically sixty (60) seconds after power is restored to the bus, the second pump starts in ninety (90) seconds.

c. Both pumps trip and are locked out until the lockout relays are reset at the pump breakers, then they can be manually started.

d. Both pumps trip and are locked out for sixty (60) seconds after power is restored to the buses, then they can be manually started.

QUESTION: 029 (1.00)

Which ONE of the following would cause the greatest biological damage if the source were to be ingested?

a. 50 mrad gamma source

b. 10 mrad alpha source

c. 20 mrad beta source

d. 30 mrad thermal neutron source

QUESTION: 030 (1.00)

Refueling operations are in progress prior to filling the reactor cavity when reactor water level decreases to 17.4 inches. (The "A" loop of Shutdown Cooling is in service)
Which ONE of the following correctly describes the response of the LPCI system?

a. The "A" an "B" pumps auto start, MOV 8A/B (Heat Exchanger Bypass Valves) open, MOV 24 A/B/C (LPCI Injection Valves) open.

b. The "A" and "B" pumps auto start, MOV 8A/8B (Heat Exchanger Bypass Valves) remain closed for ten (10) minutes, MOV 24A/B/C (LPCI Injection Valves) open.

c. All three (3) pumps auto start, MOV 8A/8B (Heat Exchanger Bypass Valves) open, MOV 24A/B/C (LPCI Injection Valves) open.

d. The "A" and "B" pumps auto start, MOV 8A/8B (Heat Exchanger Bypass Valves) are sealed open for ten (10) minutes, MOV 24 A/B/C (LPCI Injection Valves) open.

QUESTION: 031 (1.00)

While refueling operations are in progress, a routine test has determined that the one-rod-out interlock is inoperable.
Which ONE of the following is the required action to be taken?

a. Immediately insert a manual scram to insert any withdrawn rod(s) to 00.

b. Lock the Reactor Mode Switch in the REFUEL position.

c. Immediately manually insert any withdrawn rod(s) the 00 position.

d. Lock the Reactor Mode Switch in the SHUTDOWN position.

QUESTION: 032 (1.00)

Per Nine Mile 2 Technical Specifications, during refueling operations, the shorting links shall be removed from the RPS circuitry before and during the time one control rod is withdrawn unless two conditions can be met.
Which ONE of the following describes these two conditions?

a. Two SRM channels operable, with continuous visual indication in the control room.

b. All operable SRM detectors are fully inserted, with count rates above 3 cps.

c. The shutdown margin has been demonstrated, and the one-rod-out interlock is operable.

d. Reactor Mode Switch locked in REFUEL and at least two SRMs operable with one in the quadrant associated with core alterations.

QUESTION: 033 (1.00)

During refueling operations, for the SRM instrumentation to provide a reactor scram, at least one (1) SRM channel:

a. in each trip system must exceed the high level trip set point with the shorting links installed.

b. in each trip system must exceed the high level trip set point with the shorting links removed.

c. must exceed the high level trip set point with the shorting links removed.

d. must exceed the high level trip set point with the shorting links installed.

QUESTION: 034 (1.00)

While in the process of dechanneling fuel, the carriage is being lowered when the "red" danger indicator appears on the fuel holder.
Which ONE of the following describes the IMMEDIATE required action to be taken?

a. The tool holder should be moved gently from side to side to free any binding between the fuel and the channel.

b. The fuel preparation carriage should be immediately raised to unload the tool holder.

c. All attempts to remove the channel should cease and the Reactor Analyst contacted.

d. Lower the carriage until the "green" normal indicator appears, signifying the channel has separated from the fuel.

QUESTION: 035 (1.00)

The reactor is shutdown, and refueling operations are in progress. The Refueling Floor SRO is informed that one train of Standby Gas Treatment has become inoperable.
Which ONE of the following is the status evaluation of the Secondary Containment system and its impact on operations?

a. Secondary Containment integrity has been lost. The handling of irradiated fuel, core alterations and operations with the potential for draining the reactor vessel must be suspended.

b. Secondary Containment has not been lost. All refueling operations may continue indefinitely.

c. Secondary Containment has been lost. Handling of irradiated fuel, core alterations and operations with potential for draining the reactor vessel may continue for seven (7) days.

d. Secondary Containment has not been lost. Handling of irradiated fuel, core alterations and operations with the potential for draining the reactor vessel may continue for seven (7) days.

QUESTION: 036 (1.00)

In accordance with S-EPP-1, which ONE of the following conditions defines a "High Radiation General Area Emergency"? (The alarms are not associated with pre-planned refueling evolutions).

a. The TIP room radiation monitor and one other area monitor are in the alarm condition.

b. Two local CAM monitors are in the alarm condition.

c. One local radiation area monitor in a High High alarm condition.

d. Two area monitors in the alarm condition.

QUESTION: 037 (1.00)

While performing refueling operations on Unit 2, an operator receives a minor laceration on his leg and is known to be contaminated. Which ONE of the following describes the action to be taken by the Refueling Floor SRO after calling the Control Room?

a. Wait for the NMP Fire Department and Radiation Protection to report to the refueling floor to administer first aid and decontaminate.

b. Direct the operator to proceed to the Unit 2 first aid room for first aid and decontamination.

c. Direct the operator to proceed to the Unit 2 Decontamination room for first aid and decontamination.

d. Direct Security to transport the operator to the Oswego Hospital Emergency Room for first aid and decontamination by a Radiation Protection Technician.

QUESTION: 038 (1.00)

Which ONE of the following statements defines a radiation area?

a. An area where an individual can be exposed to dose rates exceeding 5 mrem/hr or receive up to 40 mrem total exposure in any eight (8) hour period.

b. An area where an individual can be exposed to dose rates exceeding 100 mrem/hr or receive up to 3 REM total exposure in any five (5) consecutive days.

c. An area where an individual can be exposed to dose rates exceeding 5 mrem/hr or receive up to 100 mrem in any five (5) consecutive days.

d. An area where an individual can be exposed to dose rates exceeding 10 mrem/hr or receive up to 80 mrem in any eight (8) hour period.

QUESTION: 039 (1.00)

Nine Mile Point Unit 2 has been defueled and all fuel bundles have been stored in the Spent Fuel Storage Pool. The Spent Fuel Pool water temperature has increased and continues to increase with both Fuel Pool Cooling pumps and heat exchangers in service.
Which ONE of the following is the PRIMARY method, by procedure, that can be used to provide additional cooling for the Spent Fuel Pool under these conditions?

a. Line up RHR for Fuel Pool Cooling and secure the Spent Fuel Cooling Pumps

b. Establish feed-and-bleed cooling with makeup to the pool from Condensate Transfer and Storage and discharging to Liquid Rad Waste

c. Provide supplemental cooling from RHR in conjunction with the Spent Fuel Cooling Pumps

d. Provide makeup from service water and discharge to the main condenser

QUESTION: 040 (1.00)

Nine Mile Point Unit 2 Technical Specification 3.9.9 requires at least 22 feet three (3) inches of water over the top of irradiated fuel assemblies seated in the Spent Fuel Pool.
Which ONE of the following is the basis for this requirement?

a. Ensures adequate flow through the skimmer surge tanks to remove irradiated fuel decay heat.

b. Ensures that 99% of the iodine released from the rupture of an irradiated fuel assembly will be removed by the water.

c. Ensures that the radiation level at the surface of the pool will not exceed 10 mrem/hr.

d. Ensures that an irradiated fuel assembly raised to the upper limit on the refueling hoist will not expose the bridge operator to more than 10 mrem/hr.

QUESTION: 041 (1.00)

During refueling operations, the Refueling Floor Supervisor is notified that power has been lost on DIV 1 battery bus (2BYS*SWG002A).
Which ONE of the following describes the effect on the RPS system?

a. A half scram is initiated due to RPS bus "A" being deenergized.

b. Back up DC power to UPS 2VBB-UPS3A is lost.

c. The backup scram valves would fail to bleed the air off the scram header on a scram.

d. Power is lost to groups 1 and 2 scram pilot solenoids.

QUESTION: 042 (1.00)

The Refueling Floor SRO has just been informed by the Control Room that criticality has occurred while inserting a fuel assembly into the core.
In accordance with N2-FHP-3, Refueling Manual, which ONE of the following actions should be directed by the Refueling Floor SRO?

a. Raise the fuel bundle until it is clear of the core and contact Radiation Protection for a radiation survey of the refueling floor.

b. Immediately evacuate the Refueling Floor, notify the Shift Supervisor, Health Physics and Engineering.

c. Stop inserting the fuel bundle and contact the Shift Supervisor for direction as to the disposition of the partially inserted fuel assembly.

d. Remove the fuel bundle, suspend core alterations, and contact the Reactor Engineer for investigation.

QUESTION: 043 (1.00)

A core off load at Nine Mile Point Unit 2 is 50% completed. The Refuel Floor SRO is informed by the Control Room that the SRM count rate in the quadrant where alterations are being performed has dropped below 3 cps.
There are still two (2) fuel assemblies immediately surrounding the SRM.

Which ONE (1) of the following describes the impact of this condition?

a. Core off loading may continue in the adjacent quadrant provided that it has an operational SRM.

b. Core off loading may continue provided that the operable count rate for the low reading detector is reduced to 0.7 cps, and the signal to noise ratio is greater than 2.0.

c. All core off loading operations must be discontinued until the operability of the SRM is demonstrated by performing N2-OP-NMS-@002.

d. Core off loading may continue in the affected quadrant provided that an SRM in an adjacent quadrant of the core is operable.

QUESTION: 044 (1.00)

For a loss of Shutdown Cooling during refueling operations the first discernable reactivity addition to the core will be from the __(1)__ coefficient and it will be __(2)__.

a. (1) Moderator (2) Positive

b. (1) Doppler (2) Negative

c. (1) Moderator (2) Negative

d. (1) Doppler (2) Positive

QUESTION: 045 (1.00)

The Technical Specification for Shutdown Margin is predicted based on certain plant conditions.
Which ONE of the following describes the assumed conditions when determining Shutdown Margin?

a. All rods are fully inserted, and the reactor is in Hot Shutdown and at peak Xenon conditions.

b. All rods are fully inserted except for the most reactive rod which is assumed to be fully withdrawn, and the reactor is in Hot Standby and at peak Xenon conditions.

c. All rods are fully inserted, and the reactor is in Cold Shutdown at peak Xenon conditions.

d. All rods are fully inserted except for the most reactive rod which is assumed to be fully withdrawn, and the reactor is in Cold Shutdown and is at Xenon free conditions.

QUESTION: 046 (1.00)

During refueling a control rod is withdrawn one (1) notch resulting in a steady period with a doubling time of 80 seconds.
Which ONE of the following is the reactivity worth of the withdrawn rod notch? (Round off answer to nearest .0001.) (Assume Beta eff = .0072 and Lambda eff = .1/sec)

a. .0003 delta K/K

b. .0004 delta K/K

c. .0006 delta K/K

d. .0008 delta K/K

QUESTION: 047 (1.00)

An entire reload of the Nine Mile II core is in progress. The following source range count rates have been recorded as fuel has been loaded.

Fuel Bundles Loaded	SRM "A" Counts	SRM "B" Counts
0	15	12
50	17	12
100	21	12.5
150	26	13
200	35	14
250	50	26

Using the most conservative evaluation and figure #2; which of the following is the total number of bundles required to be loaded to achieve criticality?

a. 275

b. 300

c. 450

d. 350

QUESTION: 048 (1.00)

Which ONE of the following conditions is NOT a significant factor in the amount of decay heat present in the core after shutdown from power operation?

a. The length of time after shutdown.

b. Xenon concentration prior to shutdown.

c. Reactor power level prior to shutdown.

d. The length of time the reactor operated at power prior to shutdown.

QUESTION: 049 (1.00)

The Shutdown Margin for a reactor has been determined to be 0.0034 delta K. Which ONE of the following is the new Shutdown Margin if K eff increases to 0.9972?

a. 0.0028

b. 0.0030

c. 0.0042

d. 0.0051

QUESTION: 050 (1.00)

Concerning the Refueling Cask Handling Area, SELECT the makeup water supply and the discharge flow path for the cask handling area.

a. Water is supplied by the Condensate Transfer and Storage System and drained to Liquid Rad Waste.

b. Water is supplied by the Condensate Transfer and Storage System and is drained to the Main Condenser.

c. Water is supplied by the Fuel Pool Sparger Supply Header and drained to Liquid Rad Waste.

d. Water is supplied by the Fuel Pool Sparger Header and is drained to the Spent Fuel Pool.

QUESTION: 051 (1.00)

During refueling operations, the Chemistry Department reports the following primary coolant sample results.

*Chlorides	0.2 ppm
*Conductivity	23.2 umho/cc
*PH	6.2

Based on these results, which ONE of the following actions is required to be taken?

a. No action needs to be taken since all chemistry is within specifications.

b. Analyze reactor coolant every 8 hours and restore conductivity to below limits within 72 hours.

c. Restore the Chloride concentration to within limits within 24 hours and perform an engineering evaluation to determine the effects on the Primary Coolant System.

d. Obtain and "in line" Ph measurement within 4 hours and every 8 hours thereafter until the Ph returns to normal.

QUESTION: 052 (1.00)

Which ONE of the following conditions will result in a trip of the Spent Fuel Pool Coolant Pump(s)?

a. Surge Tank High High level (7'3" above normal)

b. Spent Fuel Pool Low level (352'8")

c. Spent Fuel Pool Cooling Pump suction pressure low (5 psig)

d. Spent Fuel Pool Cleanup Filter low flow (360 gpm)

QUESTION: 053 (1.00)

Refueling of Nine Mile Point Unit 2 has been completed and the water level in the reactor cavity is to be lowered for installation of the steam dryer.
Which ONE of the following is NOT an allowed discharge flow path for this water?

a. Main Condenser

b. Suppression Pool

c. Condensate Storage Tank

d. Liquid Rad Waste

QUESTION: 054 (1.00)

Which ONE of the following conditions will automatically initiate the Standby Gas Treatment System?

a. Refueling Floor Area High Radiation.

b. Drywell Area High Radiation.

c. Reactor Building Above/Below Refuel Floor High Radiation.

d. Stack Gas Monitor High High radiation.

QUESTION: 055 (1.00)

The value of the Moderator Temperature Coefficient is directly related to moderator temperature and density.

Moderator density __(1)__ more rapidly as moderator temperature increases and the Moderator Temperature Coefficient becomes __(2)__ negative.

a. (1) Increases (2) Less

b. (1) Increases (2) More

c. (1) Decreases (2) Less

d. (1) Decreases (2) More

QUESTION: 056 (1.00)

A piece of the vessel internals has been removed to the refueling floor for maintenance to work. The radiation level when the piece was removed was 300 mrem/hr at 12 feet. 8 hours later the radiation level at one (1) foot was 10,500 mrem/hr. Assuming it will take a maintenance man 15 minutes to perform the work, which ONE of the following is the length of time after removal from the vessel before he can work it without receiving more than 150 mrem of exposure? (Assume the radiation is a point source).

a. 12 hours

b. 15 hours

c. 21 hours

d. 24 hours

QUESTION: 057 (1.00)

Which ONE of the following ensures Secondary Containment during refueling operations?

a. All Secondary Containment doors are interlocked so only one door may be opened at a time.

b. The Reactor Building Truck Bay Door is administratively controlled; all other doors are interlocked.

c. The Reactor Building Truck Bay Door is interlocked closed; all other reactor Building doors are administratively controlled.

d. All Secondary Containment doors are administratively controlled.

QUESTION: 058 (1.00)

Standby Gas Treatment is in service with the "A" filter train selected. Which ONE of the following describes the Standby Gas Treatment System response if a SBGTS TROUBLE alarm is received due to Charcoal Absorber Temperature High High?

a. Train "A" trips and isolates. Train "B" will not automatically start, but can be started manually.

b. Train "A" continues to run. Train "B" starts if its control switch is in AUTO AFTER STOP and an auto initiation signal is present.

c. Train "A" fan stops, but the train does not isolate. Train "B" starts if its control switch is in AUTO AFTER STOP and an auto initiation signal is present.

d. Train "A" continues to run. Train "B" is locked out until the fire detection relay is reset.

QUESTION: 059 (1.00)

Maintenance personnel have determined that a radioactive component has to be worked on the Refueling Floor. The radiation level on a portion of the component one (1) foot away from where they will be working is 10 rem/hour.
Which ONE of the following is the amount of lead shielding required to reduce the radiation level to 100 mrem/hour? (Assume an Attenuation Factor of .771 and a narrow beam gamma ray)

a. 2.35 inches

b. 3.00 inches

c. 3.55 inches

d. 5.97 inches

(********** END OF EXAMINATION **********)

ANSWER: 001 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-FP-2, Nuclear Fuel Receipt and Storage Fire Watch and Fire Protection Procedure Section 7.3.3
Learning Objective EO 7
286000G005 [3.1/3.9]

ANSWER: 002 (1.00)

a.

REFERENCE:

Nine Mile Point 2 Procedure N2-FHP-1, Reactor Building Elevation 353' Tool Control Section 6.1
Learning Objective TO 9
234000G001 [3.4/3.8]

ANSWER: 003 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-FHP-3, Refueling Manual Section 5.1
Learning Objective EO 6
234000G005 [3.0/4.1]

ANSWER: 004 (1.00) delete

c.

REFERENCE:

General Electric Academic Series, Health Physics Page 1-12

294001K103 [3.3/3.8]

ANSWER: 005 (1.00)

a.

REFERENCE:

Nine Mile Point 2 Lesson Plan LOT-001-234-2-00, Fuel Handling and Reactor Servicing Equipment Section III.H.2.d.2.b,c
Learning Objective EO 4.c,d
234000K502 [3.1/3.7]

ANSWER: 006 (1.00)

a.

REFERENCE:

Nine Mile Point 2 Lesson Plan LOT-001-234-2-00, Fuel Handling and
Reactor Servicing Equipment Section B.2
Learning Objective EO 2
295023K103 [3.7/4.0]

ANSWER: 007 (1.00)

b.

REFERENCE:

Nine Mile Point 2 Lesson Plan LOT-001-234-2-00, Fuel Handling and
Reactor Servicing Equipment Section II.A.2
Learning Objective EO 3.a
234000K601 [2.7/3.2]

ANSWER: 008 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-OSP-NMS-@002, Source Range Monitor
Check During Core Offload/Reload. Section 4.1.4
234000G013 [3.1/3.3]

ANSWER: 009 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-2-02, Nuclear Fuel
Section 3.K.3
Learning Objective EO 7
234000K505 [3.0/3.7]

ANSWER: 010 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-101-2-02, Nuclear Fuel
Section II.B.3.b
Learning Objective EO 4.0.g
234000G007 [3.4/3.7]

ANSWER: 011 (1.00) Delete

d.

REFERENCE:

General Electric Academic Series Health Physics Page 1-26
394001K103 [3.3/3.8]

ANSWER: 012 (2.00)

a. 3

b. 6

c. 7

d. 4 (4 required at 0.50 each)

REFERENCE:

Nine Mile Point Unit 2 Operations Technology, Nuclear Fuel Figure 2
Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-101-02
Learning Objective EO 4
234000G009 [3.2/3.6]

ANSWER: 013 (1.00)

a.

REFERENCE:

Nine Mile Point 2 Procedure N2-FHP-3, Refueling Manual Section 6.1.6
Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-216-2-01, Reactor Vessel
Instrumentation Section II.B.4
Learning Objective EO 3.0.b
216000K122 [3.6/3.8]

ANSWER: 014 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-101-2-01, Reactor Pressure Vessel and Internals Section III.D.9
Learning Objective EO 3.r
290002K403 [3.2/3.3]

ANSWER: 015 (1.00)

c.

REFERENCE:

General Electric Academic Series, Health Physics Page 5-13

294001K103 [3.3/3.8]

ANSWER: 016 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-261-2-00, Standby Gas Treatment System Section 3.C.1
Learning Objective EO 4.0.a
261000A211 [3.2/3.3]

ANSWER: 017 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-2-00, Residual Heat Removal Section 3.C.5
Learning Objective EO 5.0.c
205000K402 [3.7/3.8]

ANSWER: 018 (1.00)

b.

REFERENCE:

General Electric Academic Series, Reactor Theory Page 5-12

292005K109 [2.5/2.6]

ANSWER: 019 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-OSP-RMC-W002
234000K402 [3.3/4.1]

ANSWER: 020 (1.00)

d

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-234-2-00 Section III.H.2.g
Learning Objective EO 4.0.e
234000K402 [3.3/4.1]

ANSWER: 021 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Operation Technology N2-OLT-2 Table 1
Learning Objective EO 4.0.a
234000K502 [3.1/3.7]

ANSWER: 022 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-ODI-5.04 Overtime
294001A110 [3.6/4.2]

ANSWER: 023 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Technical Specification 3.1.1
292002K110 [3.2/3.5]

ANSWER: 024 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Technical Specification 3.9.11.2
203000G011 [3.6/4.5]

ANSWER: 025 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Health Physics Procedure HP-3.3.2 Page 12
294001K104 [3.3/3.6]

ANSWER: 026 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Technical Specifications 3.1.3.5
201001A201 [3.2/3.3]

ANSWER: 027 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Operating Procedure "Fuel Handling and Reactor Service Equipment" N2-OP-39 p 43
02-LOT-001-234-2-00
Learning Objective EO 7
201003K402 [3.8/3.9]

ANSWER: 028 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-233-2-00 Page 15
Learning Objective EO 8
233000G001 [3.0/3.4]

ANSWER: 029 (1.00)

b.

REFERENCE:

General Electric BWR Academic Series Health Physics Page 1-9
294001K103 [3.3/3.8]

ANSWER: 030 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-205-2-00 Page 40
Learning Objective EO 8
203000K401 [4.2/4.2]

ANSWER: 031 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Technical Specifications 3.9.1
02-LOT-001-234-2-00
Learning Objective EO 9
234000G011 [2.8/3.9]

ANSWER: 032 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Technical Specifications 3.9.2
Lesson Plan 02-LOT-001-234-2-00
Learning Objective EO 9
234000G011 [2.8/3.9]

ANSWER: 033 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-215-2-04 Page 19
Learning Objective EO 6
215004K402 [3.4/3.5]

ANSWER: 034 (1.00)

b

REFERENCE:

Nine Mile Point Unit 2 Operating Procedure N2-OP-39 Page 51
02-LOT-001-234-2-00
Learning Objective EO 3.b
234000G001 [2.9/3.5]

ANSWER: 035 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Technical Specifications 3.6.5.3.a.2, 1.38
Lesson Plan 02-LOT-001-261-2-00
Learning Objective EO 9
290001K104 [3.7/3.9]

ANSWER: 036 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Emergency Plan Implementing Procedure S-EPP-1, Radiation Emergencies Page 9
Lesson Plan 02-LOT-006-335-2-03 Page 6
Learning Objective EPP1-3
272000G015 [3.7/4.2]

ANSWER: 037 (1.00)

a.

REFERENCE:

Nine Mile Point Unit 2 Emergency Plan Implementing Procedure S-EPP-4
Pages 9 through 11
294001K103 [3.3/3.8]

ANSWER: 038 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Radiation Protection Administrative Procedure
S-RAPP-RPP-0103, Posting Radiological Areas. Page 4
294001K105 [3.2/3.7]

ANSWER: 039 (1.00)

a.

REFERENCE:

Nine Mile Point Unit 2 Operating Procedure N2-OP-31 Page 57
Lesson Plan 02-LOT-001-205-2-00 Page 40
Learning Objective EO 4.0.o
233000A207 [3.0/3.2]

ANSWER: 040 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Technical Specification 3.9.9 and bases
Lesson Plan 02-LOT-001-234-2-00
Learning Objective EO 6
233000G011 [2.5/3.4]

ANSWER: 041 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-212-2-00 Page 11
learning Objective EO 3.0.c
212000A202 [3.7/3.9]

ANSWER: 042 (1.00) be/de

d.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-FHP-3, Refueling Manual, Section 7.3.3.
234000A103 [3.4/3.9]

ANSWER: 043 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-FHD-13.1
234000A401 [3.7/3.9]

ANSWER: 044 (1.00)

c.

REFERENCE:

General Electric BWR Academic Series, Reactor Theory, Page 4-8
295021K201 [3.7/3.7]

ANSWER: 045 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Technical Specification 3.1.1 basis
292002K110 [3.2/3.5]

ANSWER: 046 (1.00)

c.

REFERENCE:

General Electric BWR Academic Series, Reactor Theory, Page 3-18
292003K109 [2.5/2.6]

ANSWER: 047 (1.00)

~~a.~~ b.

REFERENCE:

General Electric BWR Academic Series, Reactor Theory, Page 3-8
292003K101 [2.9/3.0]

ANSWER: 048 (1.00)

b.

REFERENCE:

General Electric Academic Series, Reactor Theory, Page 7-24
292008K130 [3.2/3.5]

ANSWER: 049 (1.00)

a.

REFERENCE:

General Electric BWR Academic Series, Reactor Theory, Page 1-36
292002K114 [2.6/2.9]

ANSWER: 050 (1.00)

d.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-233-2-00 Section II.H.3,4
Learning Objective EO 3.0.g
233000G004 [3.2/3.3]

ANSWER: 051 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Technical Specification 3.4.4
204000K301 [3.2/3.6]

ANSWER: 052 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-233-2-00 Section 3.H.2
Learning Objective EO 5
233000G007 [3.2/3.3]

ANSWER: 053 (1.00)

c.

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-204-2-00 Section IV.E.f
Learning Objective EO 5.0.e and 5.0.f
234000G001 [3.4/3.8]

ANSWER: 054 (1.00)

~~a~~. c

REFERENCE:

Nine Mile Point Unit 2 Lesson Plan 02-LOT-001-261-2-00 Page 19
Learning Objective TO 5
261000A403 [3.0/3.0]

ANSWER: 055 (1.00)

d.

REFERENCE:

General Electric BWR Academic Series, Reactor Theory Page 4-9
292004K102 [2.5/2.6]

ANSWER: 056 (1.00)

d.

REFERENCE:

General Electric BWR Academic Series, Basis Nuclear Physics Page 4-32
294001K103 [3.3/3.8]

ANSWER: 057 (1.00)

c.

REFERENCE:

Nine Mile Point Lesson Plan 02-LOT-001-223-2-04
Learning Objective EO 5.0.a
290001K401 [3.5/3.8]

ANSWER: 058 (1.00)

b.

REFERENCE:

Nine Mile Point Unit 2 Procedure N2-OP-61B Page 25
Lesson Plan 02-LOT-001-261-2-00
261000K401 [3.7/3.8]

ANSWER: 059 (1.00)

a.

REFERENCE:

General Electric Academic Series, Health Physics Page 5-24
294001K103 [3.3/3.8]

(********** END OF EXAMINATION **********)

A N S W E R K E Y

MULTIPLE CHOICE

001 c

002 a

003 b

~~004 c~~ deleted

005 a

006 a

007 b

008 d

009 d

010 c

~~011 d~~ deleted

012 MATCHING

a 3

b 6

c 7

d 4

MULTIPLE CHOICE

013 a

014 b

015 c

016 b

017 b

018 b

019 d

020 d

021 d

022 d

023 d

024 c

025 c

026 d

027 c

028 d

029 b

030 c

031 d

032 c

033 c

034 b

035 d

036 d

037 a

038 c

039 a

040 b

ANSWER KEY

041 c

~~042 d~~ deleted

043 c

044 c

045 d

046 c

047 ~~d~~ b

048 b

049 a

050 d

051 b

052 c

053 c

054 ~~d~~ c

055 d

056 d

057 c

058 b

059 ~~a~~ delete ques

(********** END OF EXAMINATION **********)

Attachment 2

NIAGARA MOHAWK

NMP-85543

NINE MILE POINT NUCLEAR STATION / P.O. BOX 32 LYCOMING, NEW YORK 13093 / TELEPHONE (315) 343-2110

May 15, 1992

Mr. Thomas T. Martin
Regional Administrator
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Martin:

Niagara Mohawk Power Corporation (NMPC) has completed the facility review of the written initial licensing examinations that were administered by the United States Nuclear Regulatory Commission (USNRC) on May 11, 1992. Written examinations were given for four Reactor Operators (RO), seven Senior Reactor Operators (SRO), and three Senior Reactor Operators Limited to Refueling Operations (LSRO).

Comments and recommendations concerning several questions in each of the three examinations are submitted for your disposition in accordance with NUREG 1021, ES-201.

It is requested that the USNRC consider the enclosed comments/recommendations in the review and grading of the written initial licensing examinations conducted on May 11, 1992.

Direct any questions or concerns you may have to Mr. Rick Slade at (315) 349-1300 or Mr. Fred White (315) 349-2149.

Sincerely,

Joseph F. Firlit
Vice President - Nuclear Generation

FW/dew

Enclosures:

(1) Comments/recommendations for RO examination.
(2) Comments/recommendations for SRO examination.
(3) Comments/recommendations for LSRO examination.

Comments/Recommendations for RO Examination

Item #1

RO QUESTION: 008

The plant is operating at 100% power, Reactor Recirculation Flow Control System is in Flux Auto (Master Manual) control with the flux estimator bypass switch in operate. Which ONE of the following statements describes system response and the reason if the C APRM fails downscale?

a. FCV starts to open, limited by the 102.5% drive flow limiter

b. FCV remains as is, APRM input automatically switches to E APRM

c. FCV starts to open, limited by the 20% error limiter.

d. FCV reamains as is, Flux Controller shifts to manual.

ANSWER: a

REFERENCE: LOT-Q01-202-2-02, Obj. 9.0

FACILITY COMMENTS:

With the condition described above, both the 102.5% and the 20% limiter have an effect. Therefore, both answer 'a' and answer 'c' are correct. If however, the question was worded soliciting which response would stop valve motion then the 102.5% limiter (answer 'a') would be correct.

FACILITY RECOMMENDATION:

Recommend that both answers 'a' and 'c' be accepted as correct.

Item #2

RO QUESTION: 063

Procedure N2-EOP-PC "Primary Containment Control" requires that suppression pool level be maintained below 217 inches. SELECT the basis for this level limit.

a. The level at which the suppression chamber to drywell vacuum breakers are submerged.

b. The level that prevents exceeding the heat capacity level limit.

c. The level that ensures adequate vent capability to prevent exceeding the primary containment pressure limit.

d. The maximum level that is accurately measured and displayed.

ANSWER: d

REFERENCE: LOT-006-344-2-05, pg. 16, Obj. 3.0 EOP Basis Section E, pg. 29

FACILITY COMMENTS:

Answer 'a' above is also listed in the EOP Basis Section E pg. 41 as a basis for the 217 foot limit when utilizing N2-EOP-PC "Primary Containment Control".

FACILITY RECOMMENDATION:

Recommend accepting both answers 'a' and 'd' as correct on the examination.

Item #3

RO QUESTION: 075

Which ONE of the following describes the effect on the Condenser Air Removal/OffGas System if TBCLCW were lost to the system during full power operations?

a. Isolation of the inservice Offgas recombiner on recombiner outlet temperature high.

b. Isolation of the Offgas discharge isolation valve (AOV103) Offgas condenser outlet temperature high.

c. Lowering main condenser vacuum due to loss of cooling to the inter and after air ejector condensers.

d. Increased Offgas moisture content due to loss of TBCLCW cooling to the Offgas dryers.

ANSWER: a

REFERENCE: LOT-001-274-2-00, pg. 12, Obj. 3
LOT-001-255-2-00, pg. 23, Obj. 4.0.c

- -

FACILITY COMMENT:

Offgas refrigerant compressors and condensers are part of the Offgas dryers. (Op Tech ARC/OFG pg. 10 and Fig. 3). TBCLCW is the heat sink for the refrigerant cycle. A loss of TBCLCW will, therefore, result in increased Offgas moisture content. (PID 14C grid - B-3) (N2-OP-42 Section I.34.0 Annunciator 122236).

FACILITY RECOMMENDATION:

Recommend that both answers 'a' and 'd' be accepted as correct.

Item #4

RO QUESTION: 078

The plant is operating as 100% Rx power when a bus fault occurs on SWGR 101 and results in the "BKR 101-10 BKR 101-13 ELEC FAULT PRI PROT TRIP" alarm. Which of the following describe the expected response to this condition.

a. The normal and alternate feed breakers trip and/or lock out. The diesel generator is blocked from auto starting on undervoltage.

b. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker will not close in either automatically or manually.

c. The normal feeder breaker trips and locks out. The diesel generator will auto start, the diesel output or the alternate feeder breakers can be closed in manually.

d. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker can only be closed in manually.

ANSWER: d

REFERENCE: LOT-001-262-2-02, pg. 17, Obj. 7.0

FACILITY COMMENT:

The answer listed as being correct (d) seems to be oriented at finding out if a breaker can be manually closed in on a faulted bus. Station policy is <u>NEVER</u> to close in on a faulted bus. The last sentence of the question asks for expected 'response'. Operators would never respond by closing in on a faulted bus. The answer listed as correct (d) has the Operator 'respond' in a manner contrary to NMPC policy.

FACILITY RECOMMENDATION:

Recommend that the question be deleted from the examination.

Item #5

RO QUESTION: 083

The plant has just achieved cold shutdown when a loss of shutdown cooling occurs. Assume that the inboard shutdown cooling isolation valve 2RHS*MOV112 can not be reopened. SELECT the method of decay heat removal appropriate for these conditions.

a. RWCU maximizing RBCLCW to the non-regenerative heat exchangers.

b. Recirculate the suppression pool through open SRVs and establish RPV pressure at greater than 40 psid above Rx pressure.

c. Start a Reactor Recirculation pump.

d. Raise and maintain RPV level to 227' to 243' on the shutdown range to establish natural circulation.

ANSWER: b

REFERENCE: N2-OP-31, pg. 66, 67

FACILITY COMMENTS:

Answer (b) is listed as the correct answer but contains erroneous information. The answer states 'RPV pressure at greater than 40 psid above Rx pressure'. Since this condition is not possible the only possible alternative answer that would remove any heat is answer 'a'.

FACILITY RECOMMENDATION:

Recommend that this question be deleted from the examination.

Item #6

RO QUESTION: 097

Which of the following safety equipment or precautions is <u>NOT</u> required when removing control power fuses after racking out for the 4KV breaker.

a. Use a face shield

b. Use rubber gloves with leather protectors

c. Test gloves prior to use

d. Remove rings and watches

ANSWER: a

REFERENCE: N2-ODI-5.11, pg. 2

FACILITY COMMENT:

Control power fuses are removed PRIOR TO racking out 4KV breakers (N2-ODI-5.11, 3.3.6). Although not specifically called out by procedure, it is a station practice that all safety equipment including eye/face protection is always worn upon entering an energized breaker cubical. Therefore, all safety equipment would be worn to remove the fuses as stated in the question.

FACILITY RECOMMENDATION:

Recommend this question be deleted from the examination.

Item #7

RO QUESTION: 084

The Refueling Floor SRO has just been informed by the Control Room that criticality has occurred while inserting a fuel assembly into the core.

In accordance with N2-FHP, Refueling Manual, which ONE of the following actions should be directed by the Refuel Floor SRO?

a. Raise the fuel bundle until it is clear of the core and contact Radiation Protection for a radiation survey of the refuel floor.

b. Immediately evacuate the refueling floor, notify the Shift Supervisor, Health Physics and Engineering.

c. Stop inserting the fuel bundle and contact the Shift Supervisor for direction as to the disposition of the partially inserted fuel assembly.

d. Remove the fuel bundle, suspend core alterations, and contact the Reactor Engineer for investigation.

ANSWER: d

REFERENCE: N2-FHP-3, pg. 16

FACILITY COMMENT:

The question is not worded specific enough to identify that the condition can or cannot be corrected without undue risk to human or equipment safety. Paragraphs 7.3.3 and 7.3.4 of N2-FHP-3 list correct actions to take. Answers 'b' and 'd' above are both correct per 7.3.3 and 7.3.4 of N2-FHP-3. Additionally paragraph 6.9.1 N2-FHP-13.2 indicates that answer 'c' could also be appropriate.

FACILITY RECOMMENDATION:

Recommend that this question be deleted from the examination.

Comments/Recommendations for SRO Examination

Item #1

SRO QUESTION: 006

The plant is operating at 100% power, Reactor Recirculation Flow Control System is in Flux Auto (Master Manual) control with the flux estimator bypass switch in operate. Which ONE of the following statements describes system response and the reason if the C APRM fails downscale?

a. FCV starts to open, limited by the 102.5% drive flow limiter

b. FCV remains as is, APRM input automatically switches to E APRM

c. FCV starts to open, limited by the 20% error limiter.

d. FCV reamains as is, Flux Controller shifts to manual.

ANSWER: a

REFERENCE: LOT-001-202-2-02, Obj. 9.0

FACILITY COMMENTS:

With the condition described above, both the 102.5% and the 20% limiter have an effect. Therefore, both answer 'a' and answer 'c' are correct. If however, the question was worded soliciting which response would stop valve motion then the 102.5% limiter (answer 'a') would be correct.

FACILITY RECOMMENDATION:

Recommend that both answers 'a' and 'c' be accepted as correct.

Item #2

SRO QUESTION: 054

Procedure N2-EOP-PC "Primary Containment Control" requires that suppression pool level be maintained below 217 inches. SELECT the basis for this level limit.

a. The level at which the suppression chamber to drywell vacuum breakers are submerged.

b. The level that prevents exceeding the heat capacity level limit.

c. The level that ensures adequate vent capability to prevent exceeding the primary containment pressure limit.

d. The maximum level that is accurately measured and displayed.

ANSWER: d

REFERENCE: LOT-006-344-2-05, pg. 16, Obj. 3.0 EOP Basis Section E, pg. 29

FACILITY COMMENTS:

Answer 'a' above is also listed in the EOP Basis Section E pg. 41 as a basis for the 217 foot limit when utilizing N2-EOP-PC "Primary Containment Control".

FACILITY RECOMMENDATION:

Recommend accepting both answers 'a' and 'd' as correct on the examination.

Item #3

SRO QUESTION: 066

Which ONE of the following describes the effect on the Condenser Air Removal/OffGas System if TBCLCW were lost to the system during full power operations?

a. Isolation of the inservice Offgas recombiner on recombiner outlet temperature high.

b. Isolation of the Offgas discharge isolation valve (AOV103) Offgas condenser outlet temperature high.

c. Lowering main condenser vacuum due to loss of cooling to the inter and after air ejector condensers.

d. Increased Offgas moisture content due to loss of TBCLCW cooling to the Offgas dryers.

ANSWER: a

REFERENCE: LOT-001-274-2-00, pg. 12, Obj. 3
LOT-001-255-2-00, pg. 23, Obj. 4.0.c

FACILITY COMMENT:

Offgas refrigerant compressors and condensers are part of the Offgas dryers. (Op Tech ARC/OFG pg. 10 and Fig. 3). TBCLCW is the heat sink for the refrigerant cycle. A loss of TBCLCW will therefore result in increased Offgas moisture content. (PID 14C grid - B-3) (N2-OP-42 Section I.34.0 Annunciator 122236).

FACILITY RECOMMENDATION:

Recommend that both answers 'a' and 'd' be accepted as correct.

Item #4

SRO QUESTION: 069

The plant is operating as 100% Rx power when a bus fault occurs on SWGR 101 and results in the "BKR 101-10 BKR 101-13 ELEC FAULT PRI PROT TRIP" alarm. Which of the following describe the expected response to this condition.

a. The normal and alternate feed breakers trip and/or lock out. The diesel generator is blocked from auto starting on undervoltage.

b. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker will not close in either automatically or manually.

c. The normal feeder breaker trips and locks out. The diesel generator will auto start, the diesel output or the alternate feeder breakers can be closed in manually.

d. The normal and alternate feed breakers trip and/or lock out. The diesel generator will auto start but the output breaker can only be closed in manually.

ANSWER: d

REFERENCE: LOT-001-262-2-02, pg. 17, Obj. 7.0

FACILITY COMMENT:

The answer listed as being correct (d) seems to be oriented at finding out if a breaker can be manually closed in on a faulted bus. Station policy is <u>NEVER</u> to close in on a faulted bus. The last sentence of the question asks for expected 'response'. Operators would never respond by closing in on a faulted bus. The answer listed as correct (d) has the Operator 'respond' in a manner contrary to NMPC policy.

FACILITY RECOMMENDATION:

Recommend that the question be deleted from the examination.

Item #5

SRO QUESTION: 074

The plant has just achieved cold shutdown when a loss of shutdown cooling occurs. Assume that the inboard shutdown cooling isolation valve 2RHS*MOV112 can not be reopened. SELECT the method of decay heat removal appropriate for these conditions.

a. RWCU maximizing RBCLCW to the non-regenerative heat exchangers.

b. Recirculate the suppression pool through open SRVs and establish RPV pressure at greater than 40 psid above Rx pressure.

c. Start a Reactor Recirculation pump.

d. Raise and maintain RPV level to 227' to 243' on the shutdown range to establish natural circulation.

ANSWER: b

REFERENCE: N2-OP-31, pg. 66, 67

FACILITY COMMENTS:

Answer (b) is listed as the correct answer but contains erroneous information. The answer states 'RPV pressure at greater than 40 psid above Rx pressure'. Since this condition is not possible the only possible alternative answer that would remove any heat is answer 'a'.

FACILITY RECOMMENDATION:

Recommend that this question be deleted from the examination.

Item #6

SRO QUESTION: 092

Which of the following safety equipment or precautions is NOT required when removing control power fuses after racking out for the 4KV breaker.

a. Use a face shield

b. Use rubber gloves with leather protectors

c. Test gloves prior to use

d. Remove rings and watches

ANSWER: a

REFERENCE: N2-ODI-5.11, pg. 2

FACILITY COMMENT:

Control power fuses are removed PRIOR TO racking out 4KV breakers (N2-ODI-5.11, 3.3.6). Although not specifically called out by procedure, it is a station practice that all safety equipment including eye/face protection is always worn upon entering an energized breaker cubical. Therefore, all safety equipment would be worn to remove the fuses as stated in the question.

FACILITY RECOMMENDATION:

Recommend this question be deleted from the examination.

Item #7

SRO QUESTION: 075

The Refueling Floor SRO has just been informed by the Control Room that criticality has occurred while inserting a fuel assembly into the core.

In accordance with N2-FHP, Refueling Manual, which ONE of the following actions should be directed by the Refuel Floor SRO?

a. Raise the fuel bundle until it is clear of the core and contact Radiation Protection for a radiation survey of the refuel floor.

b. Immediately evacuate the refueling floor, notify the Shift Supervisor, Health Physics and Engineering.

c. Stop inserting the fuel bundle and contact the Shift Supervisor for direction as to the disposition of the partially inserted fuel assembly.

d. Remove the fuel bundle, suspend core alterations, and contact the Reactor Engineer for investigation.

ANSWER: d

REFERENCE: N2-FHP-3, pg. 16

FACILITY COMMENT:

The question is not worded specific enough to identify that the condition can or cannot be corrected without undue risk to human or equipment safety. Paragraphs 7.3.3 and 7.3.4 of N2-FHP-3 list correct actions to take. Answers 'b' and 'd' above are both correct per 7.3.3 and 7.3.4 of N2-FHP-3. Additionally paragraph 6.9.1 N2-FHP-13.2 indicates that answer 'c' could also be appropriate.

FACILITY RECOMMENDATION:

Recommend that this question be deleted from the examination.

Comments/Recommendations for LSRO Examination

Item #1

QUESTION: 011

A five (5) Curie Cobalt source is being used for gamma graphing on the refueling floor. The source drops onto the refueling floor during the process.

Which ONE of the following is the dose rate from the source at one (1) foot?

a. 5 rem

b. 30 rem

c. 45 rem

d. 90 rem

ANSWER: d

REFERENCE: General Electric Academic Series Health Physics pgs. 1 - 26.

FACILITY COMMENT:

Using the formula for calculating dose rate, from the General Electric Academic Series Health Physics Instructor Guide Rev. 1, pg. 1 - 10a, "$D = 6 \text{ Ci } E/d^2$" the resulting calculation will be:

$c = 5$ Ci

(Cobalt) $E = (1.17 \text{ MeV} + 1.33 \text{ MeV}) = 2.5 \text{ MeV}$

$d = 1$ ft.

Therefore:
$$R/hr = 6 \text{ Ci } E/d^2 = 6\ \frac{(5)(2.5)}{1^2}$$
$$R/hr = 75$$

There were no choices available which approximated the calculated resultant.

FACILITY RECOMMENDATION:

Since none of the answers supplied were correct and there was no answer within ± 15% of the correct answer, it is recommended the question be deleted.

Item #2

QUESTION: 059

Maintenance personnel have determined that a radioactive component has to be worked on the Refueling Floor. The radiation level on a portion of the component one (1) foot away from where they will be working is 10 rem/hour.

Which ONE of the following is the amount of lead shielding required to reduce the radiation level to 100 mrem/hour? (Assume an Attenuation Factor of .771 and a narrow beam gamma ray).

a. 2.35 inches

b. 3.00 inches

c. 3.55 inches

d. 5.97 inches

ANSWER: a

REFERENCE: General Electric Academic Series, Health Physics pgs. 5 - 24.

FACILITY COMMENT:

For this questions there are two potentially correct answers. Answer (a) 2.35 inches would be correct if an assumption is made that the attenuation factor of .771 has been expressed in units of cm^{-1}. Answer (b) 5.97 inches would be correct if the examinee made the assumption that the attentuation factor was being expressed in English Units. The calculations will be:

$$I = I_o e^{-\mu t}$$

$$\ln \frac{I}{I_o} = -\mu t$$

$$\ln \frac{.1R}{10R} = -.771t$$

$$\frac{-4.605}{-.771} = \frac{-.771}{-.771} t$$

$\underline{5.97 = t}$ if μ is expressed in inches

$$\frac{5.97}{2.54} = t$$

$\underline{2.35 = t}$ if μ is expressed in Cm^{-1}

Enclosure 3

QUESTION: 059 (Cont'd)

Since the attenuation factor was not assigned a unit value in the question and all anwers were expressed in English Unit it might be reasonalby assumed that the attenuation factor units were expressed in English Units. Therefore, there are two possible correct answers dependant upon frame of reference.

FACILITY RECOMMENDATION:

Change the answer key to reflect that either Answer (a) or Answer (d) are acceptable.

Item 3

QUESTION: 047

An entire reload of the Nine Mile II core is in progress. The following source range count rates have been recorded as fuel has been loaded.

Fuel Bundles	SRM "A" Counts	SRM "B" Counts
0	15	12
50	17	12
100	21	12.5
150	26	13
200	35	14
250	50	26

Using the most conservative evaluation and figure #2; which of the following is the total nubmer of bundles required to be loaded to achieve criticality?

a. 275

b. 300

c. 450

d. 350

ANSWER: d

REFERENCE: General Electric BWR Academic Series, Reactor Theory, pgs. 3 - 8.

FACILITY COMMENT:

Performance of the 1/M plot calculations for data described in Question number 047 results in the 1/M plot graphic respresentation shown on the attached graph. Following the method described in the GE BWR Academic Series Instructor Guide for Reactor Kinetics in the last paragraph on pg. 3 -14a: "As fuel is added, the last two data points are used in extreapolate to the horizontal axis for the next prediction.", will result in a plot which indicates that 300 bundles would be the <u>most</u> conservative estimate for achieving criticality.

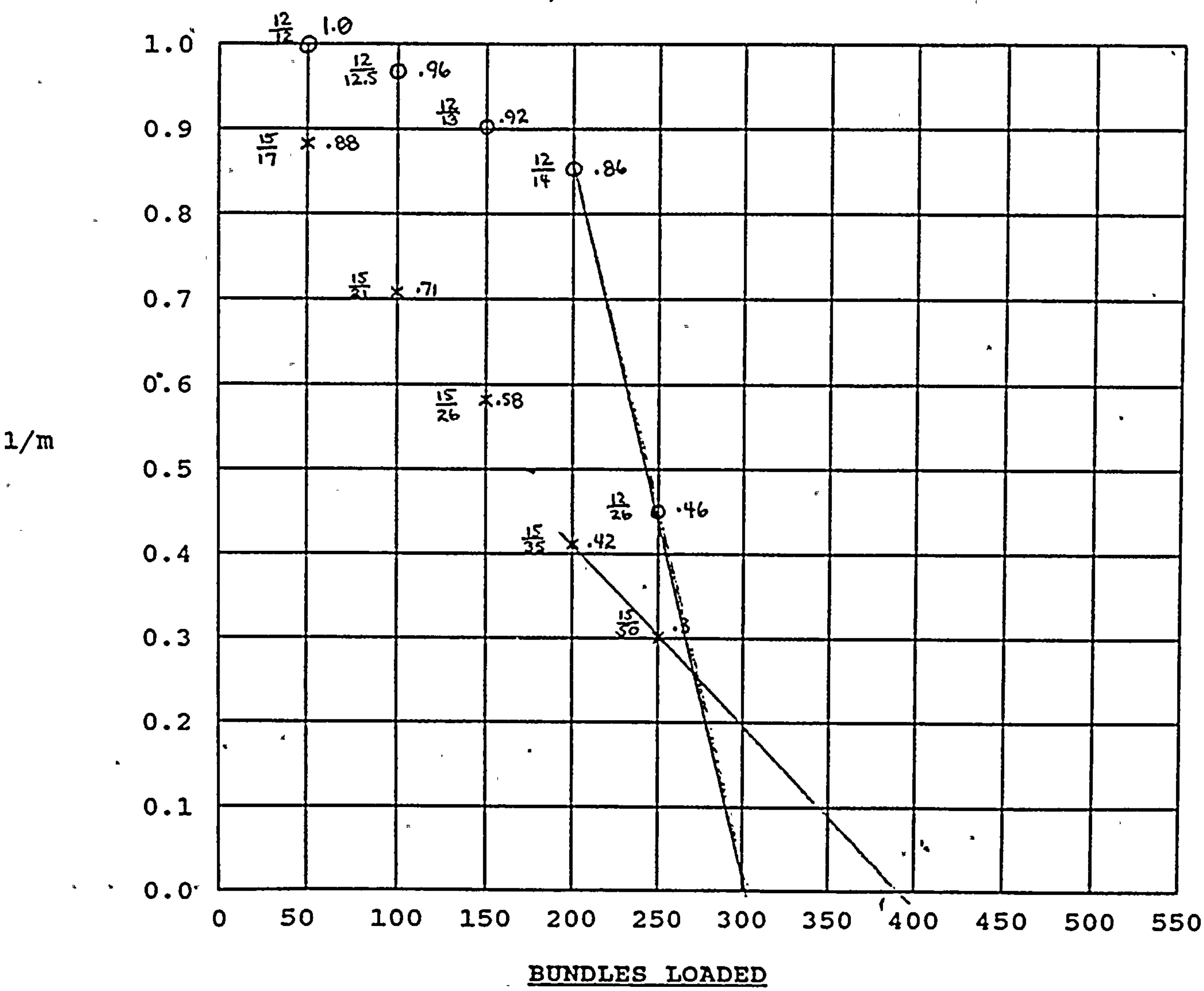
QUESTION: 047 (Cont'd)

FACILITY RECOMMENDATION:

Recommend the answer key should be changed to reflect the correct estimate for achieving criticality. Answer (b) is the most correct answer to this question.

X = SRM "A" data points
O = SRM "B" data points

1/m PLOT



Enclosure 3

Item #4

QUESTION: 054

Which ONE of the following conditions will automatically initiate the Standby Gas Treatment System?

a. Refueling Floor Area High Radiation.

b. Drywell Area High Radiation.

c. Reactor Building Above/Below Refuel Floor High Radiation.

d. Stack Gas Monitor High High Radiation.

ANSWER: d

REFERENCE: 02-LOT-001-261-2-00 pg. 19.

FACITLITY COMMENT:

Page 17 of Lesson Plant 02-LOT-001-261-2-00 "Standby Gas Treatment System" lists Reactor Building Above/Below Refuel Floor High Radiation (Answer c) as a condition which will result in an automatic initiation for the Standby Gas Treatment System.

Page 19 of Lesson Plan 02-LOT-001-261-2-00, "Standby Gas Treatment System" lists also this interlock stated as "Reactor Building Area Exhaust Ventilation Radiation High".

There are no radiation monitors located in the Main Stack which will provide an initiation signal to start the Standby Gas Treatment System.

FACILITY RECOMMENDATION:

Recommend that the answer key be revised to reflect actual plant configuration as stated in Answer c.

Item #5

QUESTION: 001

A fire has occurred on the refueling floor of Unit 2 during refueling operations.

Which ONE of the following plant personnel can authorize the use of Hydrogenous Fire Fighting Water for control of this fire?

a. The Refueling Floor SRO

b. The Station Shift Supervisor

c. The Nuclear Fire Chief

d. The Unit Supervisor of Fire Protection

ANSWER: c

REFERENCE: N2-FP-2, Section 7.3.3 EO 7

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FACILITY COMMENT:

Although Section 7.33 of Procedure N2-FP-2 states that "water type fire hose stations are provided in this area and are <u>only</u> to be used as back up fire suppression if the Chief Nuclear Fire Fighter orders their use", the words "Hydrogenous Fire Fighting Water" contained in Section 7.3.1 are misleading. Section 7.3.1 was intended to preclude the use of Hydrogenous Fire Fighting Foam in the new fuel storage vault in response to General Electric SIL number 152. The use of the work "Water" in 7.3.1 is a typographical error as evidenced by the fact that the phrase Hydrogenous Fire Fighting Water would constitute an oxymoron. Also, N2-FP-2 refers to Fire Department Procedure N2-FDP-11 (attached) which provides verification that the intent was to preclude use of Hydrogenous Fire Protection Foam on page 2 - 124 Section 10.0. There is no case in which Hydrogenous Fire Protection Foam can be authorized for use in the new fuel vault nor is it supplied to the refuel floor in any case. Precaution 4.1 and 4.3 also apply to this question and require notification of the SSS and concurrence of a Senior Reactor Operator in order to use water to fight a fire on the refuel floor.

QUESTION: 001 (Cont'd)

FACILITY RECOMMENDATION:

Since there is no single correct answer supplied and the Refuel Floor SRO, the Station Shift Supervisor and the Nuclear Fire Chief would all be involved in the decision to use water on a fire on the refuel floor, recommend this question be deleted.

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION UNIT 2

FIRE PROTECTION PREPLANS

Fire Zone 281NZ Elevation 353'- 10'
Area Reactor Building

1.0 CONSTRUCTION

All walls of this area are unrated except for the portions adjacent to the reactor building ventilation stack which is a three hour rated fire barrier and wall adjacent to the stairtowers which two hour rated fire barriers. A concrete floor is provided. The ceiling of this area consists of a steel form deck on unprotected steel. 1 1/2 hour rated fire doors are provided for the stairtowers.

2.0 SAFETY RELATED EQUIPMENT

There is no safety related equipment located in this area.

3.0 AREA FIRE HAZARDS

Primary fire hazards associated with this area consists of combustible motor insulation.

4.0 PERSONNEL HAZARDS

Radiation levels within this area can be expected to be less than 5 MRem/hr during normal plant operations.

5.0 ACCESS

Primary access to attack a fire in this area would be made through the South stairtower.

Item #6

QUESTION: 007

Which of following Reactor Building Crane Hoists would be effected by a total loss of DC power?

a. All three hoists would lose power

b. The 125 ton and 25 ton hoists would lose power

c. The 25 ton and 1/2 ton hoists would lose power

d. None of the hoists would lose power

ANSWER: b

REFERENCE: LOT-001-234-2-00, Section II.A.2 EO 3.a

FACILITY COMMENT:

Lesson Plan LOT-001-234-2-00, Fuel Handling and Reactor Servicing Equipment, Section II.A.2 notes that the trolley hoists (3) consist of:
#1 a 1/2 ton aux. hoist
#2 a 25 ton aux. hoist
#3 a 125 ton main hoist

It further notes that the "1/2 ton is AC while 25 and 125 ton hoists are DC motors". See N2-OP-84 Attachment 2. While this is a true statement further clarification is required. All three hoist motors are supplied from 2NJS-US2, which is an AC power source, via 2MHR-SWS1 (Reactor Building Polar Crane Disconnect Switch).
Hoist #1 is supplied with AC power.
Hoist #2 is supplied with AC power rectified to DC power.
Hoist #3 is supplied with AC power rectified to DC power.
If trainees assume a "total loss of DC power" means a loss of Plant DC then there would be no effect upon the Polar Crane Hoists. Answer d would be correct. If trainees assume a "total loss of DC power" means a loss of DC power to the hoists then answer b would be correct.

FACILITY RECOMMENDATION:

Since the question does not provide the information required to determine what is meant by "a total loss of DC power" answer b or answer d would be correct dependant upon interpretation. Recommend that both answer 'b' and 'd' be considered correct for this question.

NIAGARA MOHAWK

NMP-85544

NINE MILE POINT NUCLEAR STATION / P.O. BOX 32 LYCOMING, NEW YORK 13093 / TELEPHONE (315) 343-2110

May 22, 1992

Mr. Thomas T. Martin
Regional Administrator
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Dear Mr. Martin:

Facility comments and recommendations concerning recently administered licensing examinations were submitted to the United States Nuclear Regulatory Commission on May 15, 1992 by Niagara Mohawk Power Corporation letter NMP-85543. The attached enclosure is submitted, as recommended by Mr. Art Burritt, to clarify those comments and recommendations.

Direct any additional questions or concerns to Mr. Rick Slade (315) 349-1300 or Mr. Fred White (315) 349-2149.

Sincerely,

Joseph F. Firlit

Joseph F. Firlit
Vice President - Nuclear Generation

FW/dew

Enclosures:

(1) Clarification of NMPC comments and recommendations.

Clarification of items submitted as Enclosures 1, 2 and 3 to Niagara Mohawk Power Corporation letter NMP-85543 of May 15, 1992.

1. (RO Question 008, SRO Question 006)

This is a poorly worded question. The question asks the trainee to choose ONE statement that describes the system response and the reason for the response during a loss of 'C' APRM to the Reactor Recirculation Flow Control System (RRFC). Referencing Fig. 2A of the Op Tech on RRFC, it can be seen that the summer located downstream of the 110% limiter and the flux estimator would be sensing a 100% change upon the loss of 'C' APRM. The 20% ERROR LIMITER would respond by sending a 20% signal to open the FCV. Reference to GEK-83313 Sect. 2-96 (attached) confirms this data. Answer 'c', as it is written, is correct.

The signal continues down Fig. 2A. When it reaches the 102.5% LIMITER, it also limits the FCV position since flow previous to the scenario was 100%.

The 102.5% LIMITER is the device that first stops flow or valve movement in the above described scenario. If the question were worded 'which one of the statements would be the first to limit FCV movement ...' or words to that effect .. then answer 'a' would be the only correct answer. The wording of answers 'a' and 'c' make them both correct for the question as it is written.

It is still recommended that this question be deleted from the examination.

2. (RO Question 075, SRO Question 066)

Mr. Burritt suggested that answer 'a', which is listed as the correct answer, is not correct. NMPC agrees that answer 'a' is not correct. NMPC's recommendation is to accept only answer 'd' as the correct answer.

3. (RO Question 078, SRO Question 069)

Reference to Operating Procedure N2-OP-71 Step 32.2.1 (Page 66b) is added to clarify that by procedure, personnel are directed to determine the cause and correcting the cause prior to closing a breaker onto a bus that has tripped due to fault. Also, the question as well as answers are confusing. The question clearly asks for a response, implying that an Operator action is being asked but the answers are combinations of automatic .. or .. equipment functions as well as Operator actions in some cases.

3. (Cont'd)

Additionally answer 'b' could also be correct in that the diesel output breaker could not close in, manually, on a faulted bus. Were the breaker shut onto a faulted bus, the same fault would prevent the breaker from 'closing in'.

It is recommended that this question be deleted from the examination.

4. (RO Question 097, SRO Question 092)

By adhering to N2-ODI-5.11, safety glasses and or face shields will be worn when lowering breakers (Sect. 3.2.3). Section 3.3 is used to lower breakers (rack out). Control power fuses are removed as part of Section 3.3.6 of 3.3. Since removal of control power fuses (Sect. 3.3.6) is part of racking out the breaker (Sect. 3.3) and since eye protection is required when racking out the breaker, eye protection would be used when removing control power fuses. Additionally, the question is worded such that the situation described is unclear as to what is being asked in that the control power fuses are removed after racking out the breaker.

It is still recommended that this question be deleted from the examination.

5. (LSRO Question 042)

This question was recommended for deletion from the RO and SRO examination (RO Question 084 and SRO Question 075 respectively. The same question was on the LSRO examination (LSRO question 042) but was not recommended for deletion due to an oversight.

It is recommended that LSRO question 042 also be deleted from the LSRO examination as well as the RO and SRO examinations.

2-94 The hydraulic and associated electronic equipment positions the flow control valve in response to the flow control system output signal. Although this electronic equipment is located in the Flow Control System racks, it is more closely associated with the hydraulic equipment. Accordingly, detailed information for it is provided in the Recirculation Flow Control Hydraulic and Associated Electronic and Electrical Equipment O and M Instruction Manual, along with information on the hydraulic equipment.

2-95 NEUTRON FLUX CONTROL. This level of control provides for master control of both recirculation loop flows either manually or automatically in response to turbine load demand.

2-96 The flux feedback isolation amplifier performs the dual function of completely isolating the reactor flow control system from the particular average power range monitor (APRM) which supplies its input signal and at the same time filters high frequency noise (above approximately 1 Hz) in the flux signal. The flux demand limiter provides an adjustable high limit (approximately 110%) on the maximum signal which can be presented to the flux error summer. The summer compares the flux demand to the flux feedback (either estimated or APRM sensed) and presents the difference to the flux error limiter which limits the flux error signal that can be presented to the flux controller to approximately ± 20% rated flux.

2-97 The flux controller is provided with a signal tracking unit to provide bumpless transfer from the automatic to the manual mode. It also provides for tracking the manual setpoint so that the controller output signal will ramp rather than step in the event the input error is not close to zero before transferring from manual to automatic. In addition, an interlock is provided which prevents transferring to automatic unless the input error is near zero. However, the interlock can be adjusted to allow any size input error to exist and still transfer to automatic with the resulting ramp output.

2-98 The flux controller compensates for neutron flux sensitivity (to changes in core flow), in the frequency range of 0.015 to 0.31 Hz. It also provides a high gain output for low frequency input signals to respond to system feedwater or pressure disturbances. The flux controller supplies a total drive flow demand signal to the flow controller station which, in turn, supplies each flow loop with a demand signal. Under automatic control, the flux controller output is fed to the drive flow limiter which is an adjustable high/low limiter. The purpose of the high limit is to limit magnitude of the drive flow demand signal to the flow controller. The low signal limit is determined from reactor core stability aspects when in automatic flow control. There is no low flow limit in the manual mode, and flow may be reduced to the minimum flow provided by minimum valve position.

ATTACHMENT 3

NRC RESOLUTION OF FACILITY COMMENTS

The item numbers correspond to those listed in Niagara Mohawk letter dated May 15, 1992, forwarding comments (Attachment 2).

A. RO/SRO Exam

1. Item 1 (RO 8, SRO 6). Comment accepted; both answers "a" and "c" accepted as correct.

2. Item 2 (RO 63, SRO 54). Comment accepted; both answers "a" and "d" accepted as correct.

3. Item 3 (RO 75, SRO 66). Comment accepted; additional clarification provided in Niagara Mohawk letter dated May 22, 1992. Accept only answer "d" as correct.

4. Item 4 (RO 78 SRO 69). Comment accepted; question deleted from exam.

5. Item 5 (RO 83, SRO 74). Comment accepted; questioned deleted from exam.

6. Item 6 (RO 97, SRO 92). Comment not accepted; the question and answer are directly from Procedure N2-ODI-5.11. Comments on procedure deficiencies are included in the exam report.

7. Item 7 (RO 84, SRO 75). Comment accepted; question deleted from exam.

B. LSRO Exam

1. Item 1 (LSRO 11). Comment accepted; question deleted from exam.

2. Item 2 (LSRO 59). Comment not accepted; question deleted from exam. Attenuation factor was used when "attenuation coefficient" should have been used.

3. Item 3 (LSRO 47). Comment accepted; answer "b" is the correct answer.

4. Item 4 (LSRO 54). Comment accepted; answer "c" is the correct answer.

5. Item 5 (LSRO 1). Comment not accepted. The question and answer are directly from Procedure N2-FP-2. We agree that the phase "hydrogenous fire fighting water" is an oxymoron. Comments on procedure deficiencies are included in the exam report.

6. Item 6 (LSRO 7). Comment not accepted; the stem of the question specifies a "total" loss of DC power. We do not believe that further clarification that this means "all" is necessary.

7. LSRO 42 was deleted as it is the same as RO 84 and SRO 75 which were deleted.

ATTACHMENT 4

SIMULATION FACILITY REPORT

Facility Licensee: Nine Mile Point No. 2
Facility Docket No: 50-410
Operating Tests Administered on: May 12 & 18, 1992

This form is to be used only to report observations. These observation do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed (if none, so state):

ITEM	DESCRIPTION
EDG #1 Diesel Generator	The diesel generator started while in pull-to-lock
Control Rod Pull Sheet	The simulator model requires use of out-of-date pull sheet that does not match the procedure or actual plant.
SRV Tailpipe Temperature	The SRV tailpipe temperature stabilized at 450°F with a weeping SRV.
Reactor Level	The reactor coolant level increased abnormally upon loss of high pressure feed to the vessel.
Reactor Pressure	Reactor pressure increased when an SRV was opened.
Synch. Scope	The sync. scope read 10 minutes after 12:00 o'clock rather than 12:00 o'clock when paralleling the generator.

ATTACHMENT 5

EXIT MEETING ATTENDANCE

Niagara Mohawk Power Corporation

John Pavel
Fred White
Joseph MacCaull
Glenn Bridges
Marty McCormick
Jerry Helker
Richard Slade
Gregg Pitts
Mike Clerilla

U.S. Nuclear Regulatory Commission

Rich Conte
Rich Miller, Contractor
Art Burritt
Herb Williams